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Johnston sweeper bodies provide 250-times better corrosion resistance than mild steel and our abrasion resistance is not only better than mild steel, but also better than 304 stainless steel. Our commitment to this level of excellence is what has gained us the commanding dominant position in the vacuum sweeper marketplace.

Johnston is the only company to give a "Life-Time Warranty" with our stainless steel hoppers. We are the only manufacturer to offer a "Complete Stainless Steel Water Tank" in our vacuum sweepers. It too has the only "Life-Time Warranty" in the industry.

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Johnston offers the best performing vacuum product on the market and the lowest ownership costs, and best warranties.

Visit our website for detailed information about Johnston Sweepers.
APWA Booth 1511
## Congress in Anaheim!

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My honor and privilege

Diane Linderman, P.E., PWLF
APWA President

In 1992, I became a member of the American Public Works Association but never envisioned such a long-term and deep journey with the organization. Since September in Denver at the Best Show in Public Works, I have been blessed to share the responsibility of leading the men and women of public works with a tremendous staff and leadership team.

This year’s journey has included flying from one end of North America to the other to celebrate, learn, and listen to public works professionals. I have danced in Georgia, toured a water treatment plant in Baltimore, looked for wildlife in Tennessee, shared drinks with some knowledge of my own to help others in the industry.

I visited all nine APWA regions at least once. I have been able to share best practices between chapters and have connected members to members to share ideas for networking, membership growth, advocacy, and professional development, supporting and strengthening our chapters. I joined our Jennings Randolph grant recipients at the INGENIUM conference in New Zealand advancing our strategic priority of expanding and strengthening our international role.

But being president is not about the travel. I believed that it was my responsibility to provide the leadership to move APWA forward in accordance with our eight strategic priorities and to provide a framework for our members to be the best public works professionals. So what have we done this year that will make APWA history?

Our APWA priority is to offer an integrated and comprehensive approach to professional development and education—thus the APWA Donald C. Stone Center for Leadership Excellence in Public Works was launched this year. Over 250 members are now engaged in the DCS Center either as Public Works Fellows, who will impart their knowledge and experience to our leaders of tomorrow, or as members seeking the achievement of becoming certified as Public Works Supervisors, Managers or Executives. I believe the continued education and professional development for all levels of leadership and technical expertise are critical for our future.

To grow and strengthen our membership, our members received one of the most awesome benefits in years—unlimited access to our online library of training and education, 24/7, with no additional access fees which began July 1. For a mere $15 dues increase, you get to...
watch new and recorded Click, Listen & Learns, more than once if you want, and have access to other educational products when you want it! Utilizing technology to better engage and serve members where they live and work. The opportunities are endless.

In continuing to develop the preeminent Center for Sustainability, APWA partnered with ASCE and ACEC, under the new organization called the Institute for Sustainable Infrastructure or ISI. I participated in the launching of Envision™, the rating tool for sustainable infrastructure. Public works has a responsibility to protect and sustain our communities by respecting the environment in which we live, work and play. Envision™ will help us in public works to make good decisions as we plan, design, build and operate our transportation, utility, and environmental systems. It is one powerful tool we all have access to as members of APWA.

I advocated for public works at every opportunity. So far this year, we reached out and advocated for transportation funding and the reauthorization of the transportation bill. We have met with FEMA, EPA, FHWA, and other agencies to share our concerns. We have talked with our elected officials about the needs of public works professionals. I recorded thirteen radio spots to be heard by our citizens across the United States about the importance of public works.

Most importantly, I have celebrated public works. It has been my honor to present award after award to recognize the best of the best in our business. I celebrated excellence with the Public Works Department in Prince William County, Virginia and presented the Accreditation plaque to the Chairman of their Board of Supervisors, recognizing the department’s commitment to being the best at delivering public works services. I celebrated with many of APWA’s Top Ten award winners and chapter leader recognitions. I installed chapter officers—our leaders of tomorrow. I have joined in the celebration of our profession with so many of our members.

“Capital and jobs follow people, and talent is mobile. And what that talent is looking for is quality of place—dynamic, diverse neighborhoods, whether in cities or suburbs.”

– Shaun Donovan, U.S. Secretary of Housing and Urban Development

AMERICAN PUBLIC WORKS ASSOCIATION

Mission Statement: The American Public Works Association serves its members by promoting professional excellence and public awareness through education, advocacy and the exchange of knowledge.

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August 2012
APWA Reporter
I blogged and you blogged back! Over 5,000 times, people have taken the time to read my thoughts about the world of public works. This is testament to how our professionals are learning new ways to communicate to increase awareness of public works issues.

I have so many people to thank for making my tenure as president the tremendous experience it has been. To my company, VHB, Inc., who has allowed me the time to follow my dream of being the president of this great association. To the Mid-Atlantic Chapter, my local public works family who share my passion for public works. To all the men and women across North America who have listened to me, chauffeured me, fed me, and talked with me, and supported me in my journey. To the staff of APWA in Washington, D.C. and Kansas City, who were always there to answer my questions, to make sure I was going to the right place, to “teach” me to blog, and who continue to serve our members. To my fellow board members, who have also made a commitment of time and energy by providing outstanding leadership. And finally, to my family—my husband Curt, and kids, Kenny and Amy—who oftentimes weren’t sure where I was but supported me in so many ways this past year.

I have complete confidence in the upcoming leadership who will take the APWA helm in Anaheim in August. Elizabeth Treadway, the 4th female president, is poised and ready to be the 76th president. It is my honor as the newest past president to support her. As the chair of the board, I have ensured APWA’s future sustainability and I am confident that Elizabeth will do the same.

In Denver, I quoted my fellow Virginian, Thomas Jefferson, who spent his life committed to the freedoms of the United States of America and the education of our citizens. He said, “Learning is a lifelong and shared process, and that interaction between scholars and students enlivens the pursuit of knowledge.” I hope that I have inspired interaction such that we all continue to live his vision.

Seventy-five years ago this year, the American Public Works Association was born. It has been my honor and privilege to become a part of our association’s rich history.

Follow President Linderman’s blog at http://apwapresident.wordpress.com.

“The Road to Anaheim”

The 2012 APWA International Public Works Congress & Exposition will take place in Anaheim, California, August 26-29. In each issue of the APWA Reporter we’ll highlight one of Anaheim’s unique attractions. Anaheim is a great city and our annual conference will be a terrific show!

Go to the Congress educational sessions and exhibit hall during the day, and add some magic when you enjoy Disney experiences in the evening. Special discounts are available on Twilight Tickets (admission after 4:00 p.m.) to Disneyland and Disney’s California Adventure parks. These special advance purchase tickets let you skip the lines at the theme park ticket windows and save money too! Tickets are valid Wednesday, August 22 through Monday, September 3 for admission to the parks after 4:00 p.m., and must be purchased before 9:00 p.m. on Friday, August 24. (Tickets can only be purchased through the Disney Ticket Store link, which you can access when you register online for Congress. These special ticket prices are not available at Disney theme park ticket windows.) (Image: ©Disney)

Diversity Awareness Corner

“Prejudice is the child of ignorance.”
William Hazlitt, early Eighteenth Century English essayist and literary critic

“Everyone is kneaded out of the same dough, but not baked in the same oven.”
Yiddish Proverb
For more information about these programs or to register online, visit www.apwa.net/Education. Program information will be updated as it becomes available. Questions? Call the Professional Development Department at 1-800-848-APWA.

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If you have expertise that you would like to share, please use the online Call for Presentations form to describe your expertise and perspective on the topic. www.apwa.net/callforpresentations/

= Click, Listen, & Learn program = Live Workshop

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August 9, 2012
10:00 am Central time

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Trees & Municipal Infrastructure - Creating a Sustainable Alliance

September 13, 2012
10:00 am Central time

Register online today at www.apwa.net/Education or call 800-848-APWA
n the last week of June, as the ninth temporary extension of federal transportation funding was due to run out, the House and Senate overwhelmingly approved the conference report reauthorizing surface transportation programs. The legislation replacing the expired Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), enacted in 2005, was given the name Moving Ahead for Progress in the 21st Century (MAP-21).

MAP-21 provides funding for federal highway, transit and safety programs through September 2014 at current levels with a small inflationary adjustment, totaling approximately $105 billion. It includes reforms expediting project delivery, establishes policies to improve freight movement and consolidates the number of highway programs by about two-thirds, with a focus placed on the National Highway System.

Among provisions to expedite project delivery is one designating projects with limited federal funding as a categorical exclusion under the National Environmental Policy Act. The categorical exclusion applies to any project that receives less than $5 million in federal funds and any project with a total estimated cost of not more than $30 million receiving federal funds comprising less than 15 percent of the total estimated project costs. Another provision designates any project within the existing operational right-of-way as a categorical exclusion.

MAP-21 places increased emphasis on performance measures, focusing the highway program on key outcomes, such as reducing fatalities, improving road and bridge conditions, reducing congestion, increasing system reliability, and improving freight movement and economic vitality.

For the popular Transportation Infrastructure Finance and Innovation (TIFIA) Act program, MAP-21 provides $1 billion each year and modifies the program by increasing the maximum share of project costs from 33 percent to 49 percent and setting aside funding for projects in rural areas at more favorable terms. TIFIA provides direct loans, loan guarantees and lines of credit to surface transportation projects.

MAP-21 nearly doubles safety funding and retains SAFETEA-LU’s 15 percent off-system bridge set-aside. MAP-21 originally had eliminated the set-aside for bridges not on the federal-aid system, but was amended on the Senate floor to restore it.
The legislation includes a compromise on funding for bicycle and pedestrian projects. The Senate-passed version of MAP-21 made changes to the Transportation Enhancements (TE) program, allowing more local control over TE, safe routes to schools and recreational trails. House Republican conferees instead wanted opt-out provisions for states. The final agreement directs half of the funding to the local level and the remainder to states with the ability to opt out of the funding requirement.

The House-Senate conference committee process took two months to forge an agreement, and at times it appeared that an agreement would not be reached in time to avoid the need for a tenth extension of SAFETEA-LU after June 30.

However, momentum began to build in the final week of June when conferees announced that the conference report would not include provisions approving the Keystone XL pipeline and another set of provisions prohibiting the U.S. Environmental Protection Agency from designating coal ash as a hazardous substance. In addition, conferees agreed not to retain funding for the Land and Water Conservation Fund, which had been included in the Senate-passed bill. These provisions were dropped in exchange for Senate conferees moving closer to House Republican conferees' position on expediting project delivery and state flexibility on funding.

The Senate approved its two-year reauthorization bill, MAP-21, in March. Because the House did not approve its own reauthorization bill, MAP-21 served as the basis for negotiating the final bill.

In April the House of Representatives approved a 90-day extension of the current surface transportation programs as a vehicle to establish the conference committee. This “shell” bill included several policy riders, including the Keystone XL pipeline approval, a provision to create a trust fund to contribute to Gulf Coast restoration, a provision to increase funding for port and harbor maintenance, the coal ash provision and various provisions to expedite transportation project delivery.

Thirty-three conferees, 20 Republicans and 13 Democrats, represented the House on the conference committee which negotiated the final transportation package. Fourteen represented the Senate, eight Democrats and six Republicans.

As this article went to press, the President had not yet signed the bill into law. For more information about MAP-21, please visit www.apwa.net.

Jim Fahey can be reached at (202) 218-6730 or jfahey@apwa.net.

Geoff Greenough, APWA Past President, dies at 70

Geoff Greenough, P.Eng., who served as APWA National President in 1994-95, died on July 2 of a heart attack. He was 70.

Hailing from Moncton, New Brunswick, Greenough began his career in public works in the mid-'60s when he became the City Engineer for Bathurst, New Brunswick. After 12 years in that position he moved to eventually assume the role of Commissioner of Engineering and Public Works for the City of Moncton. He graduated from the University of New Brunswick with a degree in civil engineering and was a charter member of the APWA Atlantic Provinces Chapter in 1974.

In addition to serving as APWA National President, Greenough served on the Board of Directors for the Canadian Public Works Association (CPWA), was a member of APWA's International Affairs Committee and Nominating Committee, and chaired the APWA/SPWA/CZPWA Task Force and the Coordination Council. He was affiliated with the Association of Professional Engineers of New Brunswick (Life Member) and Canadian Society of Civil Engineers (elected Fellow in 1993); actively involved in international work including Rotary Youth Exchange; and was recently involved in a Mechanical Cow project in Swaziland and an agricultural project in the Congo.

He is survived by his wife, Margo; his mother, Christine; two children, Richard Greenough and Sheila Gidney; and five grandchildren.

“We know he has touched many all over the world through his engineering work, his Rotarian projects and his many friends met in these organizations,” said Richard Greenough and Sheila Gidney.
Utilities and Public Right-of-Way

Carol S. Estes, P.E.
Professional Development Program Manager
American Public Works Association
Kansas City, Missouri

The Utilities and Public Right-of-Way (UPROW) Committee is one of APWA’s busiest Technical Committees. The committee provides education and information to help raise awareness about and promote the best use of the public rights-of-way. It provides a forum where diverse stakeholders can come together to discuss common issues, best management practices, and peaceful integration of all users of the right-of-way. It was established as the result of a task force report identifying the need for clarification of issues arising from the use of public rights-of-way.

At the APWA Congress this year, the UPROW Committee will present two educational sessions and sponsor a workshop by the North American Society for Trenchless Technology (NASTT). In the first, “Keyholing and Core Farming—the Perfect Match,” attendees will learn how to promote sustainable pavements by using pavement coupons removed from similar pavements, eliminate or reduce costs associated with pothole pavement repairs, and repair pavements quickly and permanently without the need to place cold-mix asphalt. In the session “What’s Next for Public Safety in the Public Right-of-Way?” participants will learn how to communicate the means and methods necessary to take utility damage prevention to a higher priority, convince their staff to take advantage of damage prevention opportunities, and develop damage prevention partnerships between utilities and excavators. Members taking part in the “Benefits of Trenchless Technology” workshop will discover the financial and environmental savings of trenchless technologies, how to implement trenchless technology in future projects, and discuss different trenchless technology methods, their benefits and applications.

In addition to the educational sessions at Congress, the committee has been writing articles for this edition of the APWA Reporter. Articles submitted by the committee include:

- “Case study for automating field data collection with smart phones” by Alicia Farag
- “Pipe bursting of asbestos cement pipe: making it happen” by Edward Alan Ambler
- “Trenchless Technology: The road to the future” by George Ragula
- “Utility coordination at FLL: abandoned underground lines” by Thomas M. Wilcox
- “What’s next for public safety in the right-of-way?” by Wayne Jensen
- “Incentives to expedite utility adjustments and relocations on public works projects” by C. Paul Scott

If you are interested in matters related to utilities or right-of-way, you may want to consider joining

Recognize Your Leaders is seeking contributions!

A simple definition of leadership is that leadership is the art of motivating a group of people to act towards achieving a common goal. Many times we find ourselves thinking of leaders being only at the top of an organization. Not so. Leaders are found at all levels within our public works organizations. Most often, they are anonymous, they are simply doing their job and yet, their actions impacted many.

Look around your organization and find someone to recognize for a specific project they have done. It could be your manager, first-line supervisor, assistant, or janitor.

Submit the name of the individual and a brief summary of the project you would like to recognize them for to Becky Stein at bstein@apwa.net.

All submissions will be reviewed by members of the Leadership & Management Committee. Those individuals selected will be recognized in a future issue of the APWA Reporter.

If you are interested in matters related to utilities or right-of-way, you may want to consider joining
the unique subcommittee structure of UPROW. There are currently four subcommittees with open membership. You may apply directly to a subcommittee and do not need to fill out an application or go through an appointment process. Time commitment is generally limited to six, one-hour conference calls a year.

The four current UPROW subcommittees are:

- Right-of-Way Management
- Construction Practices/Gas Industry ROW (GIROW)
- Damage Prevention
- Locating (NEW)

Each subcommittee is chaired by a committee member and is charged with oversight of a specialized technical area of concern. In addition, each subcommittee prepares or oversees the development of an educational session for Congress. Subcommittee membership is open to all who are interested in right-of-way issues. To apply for subcommittee membership, contact Staff Liaison Carol Estes at cestes@apwa.net.

The current members of the UPROW Technical Committee are:

- Michael T. Joyner (Chair), Liaison Director, Utilities Protection Center, Vidalia, Georgia
- T. Mark Andraka, Senior Engineer, PECO Energy Company, Philadelphia, Pennsylvania
- Al Field, Owner, Field and Associates LLC., Phoenix, Arizona
- Rouen Q. Liu, Project Administrator, Hawaiian Electric Company, Honolulu, HI
- Murvyn Morehead, Right-of-Way Coordinator, City of Overland Park, Kansas
- Monty Zimmerman, Right-of-Way Manager, City of Lenexa, Kansas
- Patricia Hilderbrand, P.E. (Board Liaison), Program Management & Development Manager, City of Kansas City, Missouri
- Carol Estes, P.E. (Staff Liaison), Professional Development Program Manager, American Public Works Association, Kansas City, Missouri

Carol Estes can be reached at (816) 595-5222 or cestes@apwa.net.
Mabel Tinjacá, Ph.D.
Director of Professional Development
American Public Works Association
Kansas City, Missouri

APWA founder Donald C. Stone believed in education and servant leadership. Everyone who knew him or writes about him mentions his keen focus in these two areas. Mr. Stone expressed the need to promote professionalism within the service professions, to pass experience to the next generation, and to educate and round out knowledge with practice. The next generation of public works leaders will certainly need to be prepared to apply critical and systems thinking to real and unpredictable twenty-first century challenges.

APWA honors Mr. Stone’s legacy by developing the next generation of leaders through a rigorous credentialing program that challenges public works professionals to develop a project, take assessments, attend an APWA-approved institute, and work with a mentor. The mentoring process within the Donald C. Stone (DCS) Center is a one-on-one relationship that could forever change the careers of supervisors, managers and executives within public works.

Imagine you are interested in becoming a team leader or supervisor for the first time. Imagine you are an experienced mid-level manager who was just given the opportunity to lead a cross-functional team for a new sustainability project. Imagine you are an executive who has just taken a job in a city in the tornado belt. Imagine you are a female engineer, wondering how to position yourself for advancement within an engineering consultant firm.

Mentoring programs are increasing in number and scope
Mentoring is not new, but the variety of mentoring programs has grown in number and scope to include small, medium and large corporations and nonprofit organizations. Mentors exist for a multitude of programs: doctoral students (University of Maryland, Baltimore County); to attract, retain and develop leaders (California International City/County Management Association); to pass along best practices internationally (ICMA Uganda); to encourage leaders to coach the next generation of local government professionals (ICMA’s Legacy Leaders Program); to train and support venture capitalists (Ewing Marion Kauffman Foundation Venture Fellows); to support and encourage engineers and scientists (The Young Employee Success Network); to support law students through cyber-mentoring (Rutgers-Newark Law School Alumni Association).

If you are a candidate seeking credentialing within the DCS Center, you will have an opportunity to select a mentor from the top leaders within public works to guide, support and move you as you practice new skills and competencies beyond your current capability and prepare you to be one of the next generation of competent leaders. Wouldn’t it be reassuring to try new skills and concepts, be creative and innovative and not walk through the land mines by yourself?

Raytheon is a company that prides itself in hiring, retaining and developing world-class talent. They do so through mentoring. Sandra Beckett, Raytheon University programs manager, advises new hires, “Make sure that once you come aboard, you obtain a mentor as quickly as possible. It can make a world of difference in your career.” At the DCS Center you select a mentor from a pool of nationally recognized public works leaders who have committed themselves to a service credential.

The National Association of Elementary School Principals (NAESP) uses mentoring to ensure leadership succession. They use retired and experienced principals to train, advocate and support newly-assigned principals. Principals give back to the profession by supporting newly-assigned or even experienced principals through mentoring.

The International Association of National Public Health Institute (IANPHI Advocacy) uses mentoring to develop leadership among its membership. Like DCS, mentors and mentees in the IANPHI program develop a plan of action and set goals and milestones which they use to keep priorities clear in an ongoing, evolving process.

There are increasing numbers of articles and how-to books about mentoring. It is catching on as one of the driving human resources processes in succession planning.
and in attracting, retaining and developing leadership talent.

The APWA DCS Public Works Leadership Fellow (PWLF) Mentors
The PWLFs are a group of highly experienced and successful leaders within public works. Many are past presidents and have been recognized as Top Ten Public Works Leaders; all have been in public works for over 20 years. The applications submitted for this service designation are reviewed by the DCS Program Council, a select group of public works professionals chosen by the president of the association. As of the end of June this year, 185 individuals have received the PWLF service designation.

Best practices supporting mentee development
The quality of the APWA DCS program is important in positioning it as an effective, cutting-edge program in leadership development and succession planning. As a way of benchmarking the DCS Center against best practices, we turned to the Academy for Educational Development (AED) Center for Leadership Development. AED is a nonprofit organization whose mission is to solve critical social problems and build leadership capacity in order to build communities. The Center for Leadership Development works with future leaders to elevate their professional competencies.

The AED identified through research the 12 best mentoring practices that led to mentee development. The goals of the mentoring programs are: (1) orientation; (2) to develop character; (3) to develop specific skills or competencies; (4) to discuss issues, ideas and challenges; (5) to initiate, support and implement “stretch assignments”; (6) to expand the mentee’s network; (7) to identify other learning opportunities; (8) to manage risk-taking and identify dangers; (9) to explore career options; (10) to promote reciprocity and define mutuality; (11) to identify more than one mentor; and (12) to develop a learning plan.

The DCS Center program through its 184 mentors meets most of the best practices identified by the AED. Each PWLF works with one candidate to provide guidance, instruction and support and to move them from understanding best practices to applying what they know. Together, they develop a professional development plan and execute a project.

Progress against the plan is documented in a journal. When candidates complete their professional development plan and meet all of the DCS credentialing requirements, they submit their professional portfolio to the APWA DCS Research Council. The Research Council bestows the credential to candidates when they deem the professional portfolio reflects knowledge, comprehension, and critical and systems thinking. All aspects of the program help guide and support the candidate in that direction.

The Rigor-Relevance framework in mentoring
The DCS Center uses the Rigor-Relevance framework as part of the educational model. The mentors play an important role in moving the DCS candidates from “knowing” a concept to thinking critically and solving problems in increasingly challenging and unpredictable situations. They do so by discussing the APWA core competencies and encouraging candidates to practice those competencies to help formulate, develop and implement a public works project and by suggesting
ways of expanding horizons and stretching capabilities as candidates work through their professional development plan.

The Rigor-Relevance framework was developed by the International Center for Leadership in Education and is based on the idea that there are six levels of learning:

1. Knowledge awareness
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

The second aspect of the Rigor-Relevance framework is the application model. This is a continuum of knowledge application to increasingly more complex problems. The more difficult the application of knowledge, the more relevant it is.

1. Knowledge in one discipline
2. Apply in one discipline
3. Apply across disciplines
4. Apply to real-world predictable situations
5. Apply to real-world unpredictable situations

Combining these two continua forms a quadrant matrix that is helpful when thinking about educational, training and professional development experiences within public works.

- Quadrant A: students gather information and are asked to remember it
- Quadrant B: students use that knowledge in increasingly challenging environments
- Quadrant C: students can use that knowledge more critically through analysis, synthesis, and evaluation
- Quadrant D: students solve problems in increasingly complex real-world situations

The Rigor-Relevance model can be summarized simply as practice what you learn. Practice it often and in a wide variety of situations. Critically evaluate what you learn, tie it to other things you have learned and use it creatively. Finally, practice it in unexpected and new problem-solving situations.

It is the mentor’s role to help make this happen; it is the mentee’s role to go out and practice. There are more than 100 mentor pairs currently working on this right now and more to come. Mentoring is an essential component of the DCS Center and, given the caliber of talent among the PWLFs and the mentees in the program, we predict that the next generation of leaders could be one of our very best.

Mabel Tinjacá can be reached at (816) 595-5214 or mtinjaca@apwa.net.
Chapter Membership Achievement Award winners announced

The American Public Works Association is proud to announce the winners of the 2012 Chapter Membership Achievement Award. This award encourages membership growth by honoring the chapters showing the largest net increase in membership, compared to other chapters of similar size.

Every APWA chapter in good standing is eligible for consideration. However, the chapter must have submitted its financial reports in accordance with the Rules Governing Chapters and must utilize the APWA National office for administration of membership dues collection.

Congratulations to the 2012 winners for their success in member retention and recruitment:

Each of these winning chapters listed above will be presented with a patch for their chapter banner and a $250 check which could be used to provide even more educational and networking opportunities for their local members.

Overall, the South Carolina Chapter had the highest net membership increase amongst United States chapters (14.12%), and the Newfoundland-Labrador Chapter was the Canadian chapter with highest net increase in membership (15.09%). Congratulations to these chapters for their efforts in recruiting and retention.

Contact Patty Mahan or Brad Patterson at 800-848-APWA if you have questions about the Chapter Membership Achievement Award.

<table>
<thead>
<tr>
<th>Chapter Size Division (based upon qty of mbrs as of June 30, 2011)</th>
<th>Award-Winning Chapter</th>
<th>Net Membership Increase from June 30, 2010 - June 30, 2011</th>
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<tbody>
<tr>
<td>100 members or less</td>
<td>Newfoundland-Labrador</td>
<td>15.09%</td>
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<tr>
<td>101-200 members</td>
<td>Mississippi</td>
<td>11.54%</td>
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<td>201-300 members</td>
<td>South Carolina</td>
<td>14.12%</td>
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<tr>
<td>301-500 members</td>
<td>Iowa</td>
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<td>501-850 members</td>
<td>Georgia</td>
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<tr>
<td>More than 850 members</td>
<td>Minnesota</td>
<td>3.67%</td>
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DON’T MISS THIS CHANCE

...to get in the APWA Reporter’s Fleet Services issue

By advertising in the award-winning APWA Reporter, news of your equipment, product or service will be sent to more than 29,000 APWA members, most of whom are key decision makers in their agencies.

So, don’t miss this opportunity to advertise in the September “Fleet Services” issue. Our fleet articles will feature topics such as vehicle procurement, technician training, and performance measurement programs.

The deadline to reserve your space is August 8; the materials are due by August 10.

Call Amanda or Kristen at (800) 800-0341.
“Each generation goes further than the generation preceding it because it stands on the shoulders of that generation. You will have opportunities beyond anything we’ve ever known.” – Ronald Reagan

I’ll start off with my disclaimer. I am a Baby Boomer, so I write this from the perspective of a Boomer, but also from someone who is raising three Millennial children. Generational issues have been front and center in the workplace ever since Millennials started entering the workforce. It was then we realized that we had four distinct generations working together for the first time in history. Here’s a brief refresher:

- Traditionalists, born 1925-1945, are only 5% of the workforce; they are still the wealthiest group and still have influence.
- Baby Boomers, born 1946-1964, are 45% of today’s workforce and remain the largest generational group ever born in the U.S.
- Generation X, born 1965-1984, is 40% of the workforce but is the smallest of the four generations.
- Millennials, born 1985-2005, are only 10% of the workforce, but this is growing every day. In addition, they are almost as large as the Baby Boomers in total numbers.

Not to slight the Traditionalists and Gen X’ers, but a lot is being written and studied today about the relationship between Baby Boomers and Millennials and there is strength in numbers. The Millennial generation, 76 million strong, is also known as Generation Y, Generation whY?, Generation We, Generation Sell, Generation Next, the Net Generation, the Boomerang Generation, the Peter Pan Generation and the Echo Boomers. With so many names and identities, no wonder why we sometimes have a hard time figuring them out. I actually like the term Echo Boomers as it means they are a reflection of their parents, the Baby Boomers, still the largest group at 80 million strong.

Based on my years of observation, I have developed a non-scientific list of seven things that highlight Millennials and Boomers, what we have in common, and what we still have to work on to ensure the next generation of leaders is ready to grab the torch and run.

I Have Something to Say:
Millennials have had a say in things since they were young kids. In the workplace, they aren’t afraid to offer their ideas and opinions and expect you to listen. As a Boomer, I think that is good, but the difference is that when I entered the workforce, I held my ideas and opinions until I was asked. The term “pay your dues” meant that until you have some experience under your belt, you are not in a position to offer anything that is credible. Why do we have this gap? I believe it has to do with how we learned to access information. Millennials are the first generation that can access information without having to go to a higher authority first. As a Boomer, I got information from my parents, my teachers, from the library, and then from a peer or a boss in the workplace. Millennials have always had the Internet and, on their own, they can access information anytime, anywhere, with no filter. In “the old days,” information was power. The supervisor could exercise control by holding onto information. While there is still some of that going on, Millennials are resourceful and can learn things in new ways. The solution for Boomers is simple—open your ears and listen. We might just learn something.

Lead Me: In a 2008 Price Waterhouse Coopers survey, as their most important employee benefit, 33% of recent college grads chose training and development over salary and 98% felt that working with strong mentors is also important. Millennials are like heat-seeking missiles for knowledge and, for some reason, they connect on a professional level well with Boomers. Maybe it is the parental link, but they aren’t looking for parental advice. They want to learn from people with expertise and if you want them to learn from you, be receptive and treat them with mutual respect. Hans Finzel states that “Mentoring is a non-negotiable function of successful leadership.” If they don’t learn from you, they will seek out someone else and it may be
Go, Team, Go! Millennials like working in teams; in fact they prefer it. There is some safety in a team setting, but remember this is a generation that is connected, appreciates diversity, and are skilled multi-taskers. My work life began in the hierarchy of the military structure. Someone was always in charge and accountable and the lone ranger approach to getting things done was the norm. I still remember taking a graduate course where the instructor had us do a final project and broke us into teams of three. My initial thought was I can get this done a lot faster by myself. The Millennials in the class were thinking we can get this done faster and better working as a team. Stephen Covey calls it “Synergy.” As a Boomer, look at your staff and play to their strengths. Consider how you are organized to accomplish tasks. Take advantage of Millennials’ comfort level with teams and you will reap the dividends.

I Want it All and I Want it Now! The one word that is often associated with Millennials is “entitled.” I mentioned earlier that paying your dues is not in their thought process. They want to be the boss and tomorrow isn’t too soon. As a Boomer, I was taught that if I worked hard and put in the time, my reward would come someday. The confidence of Millennials is admirable. What feeds this is the culture of instant gratification. Want a new song you just heard, go to iTunes and download it. Instant gratification is not healthy in many cases, but it does tell you the only limitation to success is your own initiative. When I see the desire in Millennials today, I see myself 30+ years ago when I didn’t know any better and nothing was impossible. Some things just took a little longer.

Make a Difference: You have heard the expression, “Boomers live to work and Millennials work to live.” I remember interviewing for a job and I told the interviewer that making a difference is important for my satisfaction at work. In fact, my big three are meaningful work, being able to make a difference, and being recognized for a job well done. That is about all I need to be a happy camper. Millennials see work as a means to do other things that provide meaning to them. If you can combine work, opportunities to give back, and participation in a cause, you will make a work-life connection with your Millennials. As an example, at Congress, APWA has participated in Habitat for Humanity projects. When I was in the Navy Seabees, we would do projects in the communities we lived in or were deployed to. Taking time to refurbish a playground or building a ball field makes your work more than just a job. You are giving back and making a difference.

Feedback...Tell Me More: This is one of the bigger gaps between our generations. When you take time to lead, mentor, and coach your Millennials, remember along with that comes the need for constant feedback. They want to know how they are doing, all the time! For Boomers, our philosophy of job feedback is, “no news is good news.” For Millennials, a once-a-year job evaluation doesn’t cut it. What you have to be careful about with Millennials is that they are only used to getting praise. When you grow up with no winners and losers and everyone gets a trophy, criticism can be fatal. Boomer parents have sheltered and protected our kids to the point of not preparing them for real-world success and failure. Millennials should understand that giving constant feedback can be difficult for Boomers. Since we haven’t gotten much feedback ourselves, giving feedback is going to be a learning process for us.

My iPhone and I are One: For me, the most important difference between Millennials and Boomers is technology. Tim Elmore writes that for Millennials, “Technology is an appendage of their bodies.” Here’s an example: I gave a talk on Millennials to an APWA group and someone brought up the subject of people texting during meetings. What we are taught about Millennials is that they are multi-taskers, so they really are paying attention, or so they say. But Baby Boomers aren’t convinced. The feedback I received from a group of Boomers and Gen X’ers was that many believe the fixation with texting is rude at best and disrespectful at worst. I still see that technology remains an unresolved sticking point between Boomers and Millennials. The irony of all this is that Millennials are the most connected generation but in many ways are isolated by technology. They text, post to Facebook, and tweet, but rarely meet face-to-face. My solution to this dilemma is to try and keep up with technology so I can be prepared to use the technological talents of Millennials to the advantage of the organization. Eventually, suspicion over texting and other things that are perceived to affect productivity at work will get sorted out.

Did I answer the question in the article title? Recognizing our differences helps me realize that we have a lot in common as well. When we can latch onto the things that drive both of our generations and learn to deal with the things that separate us, I am confident that as Boomers retire, we will leave the future of public works in good hands with a new generation of leaders who are passionate about public service.

George Haines can be reached at ghaines@bresnan.net.
Before I begin my recap of the year, I would like to personally thank our Diversity Committee members who poured their heart and soul into our committee work. The committee participants are Chas Jordan, Florida; Rebecca Bilderback, Kansas; Tracy Warner, Iowa; Judi Hines, Virginia; Clark Wantoch, Wisconsin; Gary Strack, Kansas; Shirley Stevenson, Georgia; Yvonne Douglas, Georgia; Mike Rogers, Texas; Cora Jackson-Fossett, Board Liaison, California; and Cindy Long, APWA staff, Missouri. Without these dedicated volunteers, we would not have been able to accomplish what we have.

It all started at our annual meeting at Congress in Denver. We had an opportunity to welcome the new members of the committee, review what we had accomplished over the past year and delve into what our focus would be for the next year. In addition, I needed to inquire from the group any recommendations for the APWA Board of Directors. After much thoughtful and lively discussion, we identified three recommendations to the Board: (1) continue engagement of young professionals into the organization to include potential board and committee appointments. In essence, this would facilitate a reverse mentoring opportunity for the organization; (2) reevaluate the ELA requirement to reflect not only time in public works (seven years or less) or time in a leadership role (less than 3-4 years). An individual may have spent over seven years in a public works position but is new to a supervisory/leadership role; (3) consider changing the requirement for the Young Leader national award by increasing the age limit (currently 35) due to individuals who start in public works in their later years and five years membership in APWA with no more than 2-5 month lapse (in part due to layoffs, etc.).

As part of my report to the Board of Directors, I had to outline our path for the next year. During our committee discussion, I wanted our committee’s focus to look at the next step beyond diversity which is “inclusion.” I believe there is a general understanding regarding the particulars of diversity which focus on any difference makes a difference. Inclusion goes beyond the basics—it’s focus is to look towards the diversity of thought and process. We may all look different, but if we all think alike, how do we affect change?

With that in mind, our committee brainstormed ideas in three distinct categories: articles, Congress programs, and collateral material. The articles consisted of monthly contributions to the *APWA Reporter*; bimonthly contributions to the *Bridges* newsletter; and monthly diversity liaison e-mails towards direct outreach to all chapters. The articles (to date) for the *Reporter* were as follows:

- “Diversity in action at the 2011 APWA International Public Works Congress & Exposition in Denver, Colorado” – Nov 2011

![At last year’s APWA Congress in Denver, the Colorado Convention Center’s Korbel Ballroom 4DEF was full of first-time attendees during the First-Timers Meeting on Congress Sunday.](image-url)
Our second category was to review the programs which the Diversity Committee is responsible for at Congress. Three programs that have become a staple at Congress include the First-Timers Meeting to help kick off Congress for new attendees; the Young Professionals Networking Reception which gives individuals an opportunity to establish connections with others in the public works field; and, the Diversity Brunch which brings in speakers with unique experiences to bestow upon the gathering.

The Diversity Committee is allowed to submit up to three educational sessions, in addition to the above-mentioned programs, as part of the Congress experience. This year, it was decided to continue with our “View from the Top” program which consistently receives overwhelmingly positive reviews. This year, we are going to shake things up a bit by introducing a male panelist to the group—thus embracing the inclusion theme.

The Generational Panel has been a tremendous hit for the past two years. How do all the generations work together while embracing their differences? Come and hear how public works needs to move towards the future with the changes in the workforce. The last session is new and will focus on how Boomers and Millennials communicate and work towards becoming a cohesive team.

Last but not least, this committee desired to develop tools (collateral materials) that could be take-a-ways and could be customized to fit the needs of each chapter and/or branch. The concept of “Presentations in a Can” was developed as a backbone structure to diversity topics that any chapter/branch could take and make their own. The outline of each topic included a brief description of the program; learning objectives; things you will need (resources); and a step-by-step process with a timeline.

To date, we have posted the following presentations:

- Transcending Generations
- Inclusion Training
- Retirees-Next Chapter

So, this is what the Diversity Committee 2011/2012 has been up to over the past year. We hope that the information we have presented has been thought-provoking and helpful. It has been my distinct pleasure to have served as the Committee Chair. I would like to congratulate Chas Jordan, Florida, as the incoming Chair and look forward to seeing the next chapter in Diversity.

Wendy Springborn can be reached at (480) 350-8250 or wendy_springborn@tempe.gov.
Awards 2012

PWA’s Awards Program recognizes outstanding individuals, groups and chapters representing the best in public works. In the April issue of the APWA Reporter we announced the recipients of the Excellence in Snow and Ice Control Award; in the May issue we paid tribute to the Top Ten Public Works Leaders of the Year; and in the July issue we covered the Public Works Projects of the Year. In this issue we announce the rest of this year’s award winners, recognizing their achievements in excellence demonstrated by their vision, passion and delivery of service to their communities.

Professional Manager of the Year Award – Administrative Management

The Professional Manager of the Year Award in Administrative Management seeks to recognize outstanding achievement in the area of administration within the public works department and to inspire excellence and dedication in the public sector by recognizing the outstanding career service achievements of administrative professionals.

Arden Fontaine
Special Projects Coordinator
Volusia County, Florida, Public Works

Arden Fontaine has served as the Special Projects Coordinator for Volusia County, Fla., Public Works since 2006. He was the key staff member responsible for the successful implementation of Public Works’ Computerized Maintenance Management System (CMMS) software. He coordinated with the efficiency consultant, software vendor and County IT staff for a very fast and efficient implementation. Concurrent with this project, the County had two contracted asset collection efforts underway, one for major drainage systems and the other for roadway. Fontaine managed both of those projects to a successful completion and oversaw the loading and integration of the assets collected into CMMS and ArcGIS.

Web-based applications that enable public access to data is a trend that Volusia County supports. Fontaine has embraced this concept wholeheartedly as it also is an efficiency tool from the aspect of maintaining an agency-wide data system. One of his most recent accomplishments was developing web forms and maps for public access. He viewed this as a cost savings to the County while providing the convenience for customers to access data and to submit requests for service. Last spring, Fontaine rolled out a mosquito control service request form that people could access 24/7. Within a couple of months nearly 40% of service requests were made by using this form versus the telephone.

Professional Manager of the Year Award – Engineering and Technology

The Professional Manager of the Year Award in the Engineering and Technology category recognizes the outstanding career service achievements of engineering and technology professionals.

Jason Snyder, P.E.
Senior Project Manager
RETTW Associates, Inc.
Lancaster, Pennsylvania

Jason Snyder has served the engineering industry for eighteen years. Presently he holds the position of Senior Project Manager in the Transportation service area at RETTW. In his role, he is responsible for setting and managing project scopes, budgets, and schedules, as well as ensuring exceptional project delivery and client satisfaction. He is also responsible for business development, client retention, marketing, studies of potential expansion into new service areas, and geographic diversity. Snyder’s career has spanned many positions and firms, always with a commitment to serving the public sector.

One of Snyder’s most significant accomplishments involved his serving as project manager and design engineer for the first modern roundabout in PennDOT District 8-0. This project required significant community interaction and education prior to the redesign and realignment of a major intersection involving three state highways. Snyder’s design successfully used...
the full extent of the existing right-of-way and minimally impacted adjacent properties, while addressing both pedestrian and vehicle safety concerns at the intersection. Other aspects of the project included the extension of an existing structure, landscaping design, pavement design, signing and pavement markings, traffic control, and lighting.

**Professional Manager of the Year Award – Facilities and Grounds**

The Facilities and Grounds Professional Manager of the Year Award seeks to inspire excellence and dedication in the public sector by recognizing the outstanding career service achievements of facilities and/or grounds management professionals. The focus of this award is the recognition of exceptional leadership and management in the field of facilities and/or grounds.

**Jeffrey A. Jenkins, PWLF**
Facilities Division Manager
City of Tacoma, Washington

Jenkins successfully staffed and completed one of the City’s largest real property transactions by transferring the Tacoma Narrows Airport and the County City Building to Pierce County and transferring Pierce County’s property interests in a minor league ballpark to the City. In addition, he completed a public/private partnership agreement that renovated a 257,000-square-foot mid-rise office building for Washington State’s first LEED Platinum Core and Shell project; the project won the Washington Chapter of the National Association of Industrial and Office Properties Sustainable Development for a Building Renovation for 2010.

**Professional Manager of the Year Award – Public Fleet**

The Professional Manager of the Year Award in the Public Fleet category recognizes the outstanding career service achievements of public fleet management professionals with the award’s primary focus on exceptional leadership and management of public sector fleets.

**J.D. Schulte, CPFP**
Fleet Division Manager
City of Moline, Illinois

Identifying savings opportunities for the City of Moline’s Fleet Division is a key consideration for J.D. Schulte, Fleet Division Manager. Working with parts suppliers, Schulte was able to reduce the cost of idle inventory by encouraging consignment agreements with vendors. This mantra was carried one step further when his staff began to negotiate similar agreements with the manufacturers of Moline’s fleet of vehicles. Schulte is routinely used as a presenter at the APWA national and state fleet conferences and his classes are always well attended. He has written articles on diverse fleet subjects that have been published in the APWA Reporter and other national magazines.

**Turn your public works job into a public works career!**

Challenge yourself and let the DCS experience help you sharpen your leadership and management skills, gain real-world technical knowledge and set yourself apart from your colleagues. You won’t be alone – each participant gets to choose their own personal mentor with more than 20 years of public works experience to offer advice and perspective.

The APWA Donald C. Stone Center for Leadership Excellence in Public Works

Find out what it takes to turn your public works job into a career by visiting [www.apwa.net/dcs](http://www.apwa.net/dcs)!
Schulte has made environmental accountability a major factor in the Fleet Division’s day-to-day operations. Not only was he able to help secure a grant from the Department of Energy to purchase hybrid vehicles for the Division’s fleet, as well as install LED lighting in the fuel island, but under his guidance the City of Moline has been recognized by the Government Fleet 100 Best Fleets as the #11 Green Fleet in the nation. Schulte has become a recognized leader on fleet environmental issues and has established countless new processes and procedures to ensure the most sustainable fleet operations.

**Professional Manager of the Year Award – Public Right-of-Way**

The Professional Manager of the Year Award in the Public Right-of-Way category seeks to inspire excellence and dedication in the public sector by recognizing the outstanding career service achievements of public right-of-way management professionals. The primary focus of this award is recognition of public right-of-way management which demonstrates that all stakeholders share the public right-of-way in harmony and preserve them in the best interest and benefit of the public.

**Roger Venables**  
Assistant Director Community Development and Planning  
City of Arlington, Texas

Roger Venables has twenty-six years of experience in the real estate industry, with twenty-four of those years working for the City of Arlington in the Real Estate Division. He has a proven field record in the areas of property, right-of-way and easement acquisition, management and appraisal; mineral asset management; lease administration; and natural gas pipeline licensing. Over the years, Venables has become a trusted agent for the City of Arlington in acquisition of rights-of-way and easements needed for public projects in addition to property purchases for City facilities and parks.

Many citizens, staff and City Council members were not educated on the activities related to the natural gas industry including the seismic activities required to maximize the gas production. Venables led a group in conducting a study to determine the impact of seismic activity on underground infrastructure. He was able to convey the study results in laymen’s terms so that others could understand the technology; he used the example that the vibration from a train is much greater than the vibrations from the typical urban seismic activity.

**Bruce Slagoski**  
Public Works Supervisor  
City of Beloit, Wisconsin

In February 2006, the Beloit City Council passed a resolution to adopt a Local Mutual Aid Agreement for the City of Moline to help monitor seismic activity. Venables supported the resolution and advised members on seismic activity in one of their neighborhoods and on the Beloit College campus.

Throughout his public works career, Bruce Slagoski has been committed to, and taken, an active role in emergency management.

In the past three years, Slagoski has been a part of the City’s communications multi-disciplinary team for the past nine years. This team is responsible for testing and purchasing cellular phones and two-way radios for the entire city. Slagoski works specifically on the City’s longstanding festival every summer called Riverfest as part of a multi-disciplinary planning team for this event. He produces an Incident Action Plan in the case of a natural or man-made incident for that event. Also, as part of community service, he plays an active role in city emergency planning for special events such as parades, farmers market, and school events.

**Professional Manager of the Year Award – Solid Waste**

The Professional Manager of the Year Award in the Solid Waste category recognizes the outstanding career service achievements of solid waste management professionals. The primary focus of this award is recognition of exceptional management, operation and maintenance of public sector solid waste operations.

**Carl Michaud**  
Director, Department of Environmental Services  
Hennepin County, Minnesota

Throughout his solid waste career, Michaud has been committed to, and taken, an active role in emergency management.

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In twenty-four years at Hennepin County, Carl Michaud has worked in all aspects of municipal solid waste management and developed programs in waste reduction, recycling, composting, household hazardous waste management, curbside recycling programs, transfer station operations, and a waste-to-energy facility. During his career at Hennepin County, Michaud was promoted to Supervisor, Division Manager, Assistant Director, and eventually to Director of the Department of Environmental Services in 2007. As Director, he heads a department of 65 full-time and 25-35 part-time employees with an operating budget of over $55 million.

Michaud organized and led a cross-department team within the county to create and implement the Cool County Initiative. Hennepin County is committed to reducing greenhouse gas emissions by 80% by the year 2050 as part of the Cool County Initiative. The Initiative will rely on reduced and cleaner energy consumption through energy efficiency and the generation of renewable energy. The effort will include green building design, more efficient vehicle fleet management, increased recycling and composting of waste, and other targeted greenhouse gas emission reduction programs.

**Nancy J.T. Kraushaar, P.E.**
City Engineer/Public Works Director
City of Oregon City, Oregon

Nancy J.T. Kraushaar’s career began following her graduation from the University of Colorado with a degree in civil engineering. She worked as an engineer in the private sector in both Colorado and Oregon for fifteen years before joining the City of Oregon City in 1996. In 2000, Kraushaar was promoted to the highest position in the Public Works Department, the City Engineer and Public Works Director. She oversees a staff of 43 with an annual operating budget of $29 million including an overall responsibility for the Capital Construction Funds, which regularly exceeds $10 million.

Kraushaar developed relationships with surrounding cities, counties and agencies to understand the best practices for public works in Oregon City. An example of one such relationship is the City’s relationship with Clackamas County. Instead of hiring specialized staff or consultants/contractors to do several roadway maintenance operations, the City hires the County whose crews complete the traffic signal repair and upgrades, strip the roadways, and perform annual chip seal maintenance. This has increased efficiency and productivity, while reducing costs for both agencies. Kraushaar continues to cultivate these relationships through her realistic and honest objectives with other public works professionals and her willingness to help with the few resources she does have.

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**Professional Manager of the Year Award – Transportation**

The Professional Manager of the Year Award in the Transportation category recognizes the outstanding career service achievements of public transportation professionals. The primary focus of this award is recognition of exceptional leadership and management by an individual through a significant transportation related project or program.
Professional Manager of the Year Award – Water Resources

The Professional Manager of the Year Award in the Water Resources category recognizes outstanding career service achievements of water resources professionals.

Richard T. Hoey, P.E.
Director of Water Resources
City of Olympia, Washington

As Director of Water Resources for the City of Olympia, Wash., Richard T. Hoey oversees the Drinking Water, Storm and Surface Water, and Wastewater Utilities. This includes emergency management, planning, operations and financial management (annual $30 million operating capital budget, with 72 staff). As Director of Water Resources, Hoey negotiated a historic water supply agreement. The agreement involved the Nisqually Indian Tribe, Squaxin Island Tribe and the Cities of Lacey and Yelm. The agreement secured a 50-year drinking water supply, a water rights mitigation plan and the creation of the Deschutes Stewardship Coalition. He instituted new program efforts on septic system conversions, low impact development, reclaimed water and National Pollutant Discharge Elimination System (NPDES) Phase II permit compliance.

Hoey worked on a local and regional level to understand the long-term public health and environmental liabilities posed by septic systems in the region. As part of the 2007 Wastewater Management Plan, he was instrumental in the creation of a new septic-to-sewer program providing financial incentives to septic systems owners who wanted to convert to public sewer. These efforts, coupled with regional sewer extensions into unsewered areas, will facilitate septic conversions over time.

Diversity Exemplary Practices Award – Program/Organization

The Diversity Exemplary Practices Award recognizes individuals and organizations that have made outstanding contributions to diversity.

Careers in Public Works
City of Tacoma, Washington

The City of Tacoma’s Equal Employment Opportunity and Recruitment Plan declares their commitment to diversity and to the goal of creating and maintaining a work environment free of all forms of discrimination and bias. In 2011, the City proactively created and produced two companion videos entitled, “Careers in Public Works – Skilled Trades” and “Careers in Public Works – Degree Professions.” These recruitment videos were created to communicate with and relate to young women and young men of all socioeconomic, ethnic, and educational background the incredible and fulfilling opportunities available in public works. The diversity of personality and lifestyles represented in the City’s workforce is emphasized throughout the videos as well as the inclusiveness of their organization.

Copies of these videos have been distributed and made available to guidance counselors in all areas of the state—from inner-city schools that predominantly serve students from low-income families to small population, rural communities where youth may have minimal exposure to others who share their personalities. Viewers of almost every background are able to identify with the people highlighted throughout these videos.

Sustainability Practices Award

To recognize individuals, teams or organizations that have made outstanding contributions to promote sustainability in public works. Sustainability is accomplished by the efficient delivery of infrastructure in an environmentally and socially responsible way that ensures the best choice in the long term.

City of Woodbury, Minnesota

The City of Woodbury has demonstrated a long-term, ongoing commitment to effective sustainability practices in the area of public works. The vision of sustainability sets the course for the ongoing operations of the Woodbury Public Works Department, and commitments to this vision have been made in the areas of staffing, stormwater management, potable water, strategic initiatives, green infrastructure, roadway design, snow and ice control, as well as fleet and building management. In short, daily public works operations are undertaken with an eye toward sustainability.

The City of Woodbury is a proponent for water reuse as a stormwater objective. Significant water reuse design has been incorporated into a number of projects, including stormwater generated from an 80-acre new high school site which supplies the school’s extensive irrigation system that serves ball fields and green space. Four other projects are currently underway that retrofit existing golf courses and city parkland with irrigation systems to utilize water collected from city streets that are...
being rehabilitated or expanded. The City is currently creating development standards and design criteria to allow new development to use water reuse as a viable stormwater treatment option.

**Charles Walter Nichols Award for Environmental Excellence**

The Charles Walter Nichols Award for Environmental Excellence was established to recognize outstanding and meritorious achievement in the environmental fields in its broadest sense. This may include, but is not limited to, street sanitation; refuse collection, disposal and recycling; sewers and sewage treatment; and water supply and water treatment.

**Thomas E. Kunetz**  
Assistant Director of Engineering  
Metropolitan Water Reclamation District of Greater Chicago

Thomas E. Kunetz serves as the Assistant Director of Engineering for the Metropolitan Water Reclamation District of Greater Chicago. In this role, he has been in charge of the District’s Process Facilities Design Division since 2005. Prior to this, he served in various engineering positions of increasing responsibility at the District beginning in 1992. Before joining the District, Kunetz worked as a project engineer designing water and wastewater treatment facilities for two consulting engineering firms, and as a wastewater treatment plant operator. His entire professional career has been in the service of public health and the protection of the environment.

Kunetz promotes the application of sustainable design concepts in his projects. He led a team of multi-discipline engineers to create the Sustainable Facilities Guidelines, an internal design document for all new buildings built on District property. The Sustainable Facilities Guidelines ensure that sustainable design practices are incorporated into all new building components such as building materials, roofing systems, HVAC systems, water use, and rain collection.

**Harry S. Swearingen Award for Outstanding Chapter Achievement and Excellence in Chapter Service – Corporate**

The Harry S. Swearingen Award was established to recognize outstanding service to APWA as an individual member or corporate company member at the chapter level.

**Woolpert, Inc.**  
Columbia, South Carolina

Vendor support of chapter organizations is an essential element to the success of chapters. Woolpert, Inc. has displayed a commitment to the South Carolina Chapter throughout the chapter's history and continues to display such commitment today. Woolpert has provided funding for conference meals and drinks, without hesitation and without the expectations of recognition, and currently hosts the Chapter Directors meetings. In doing so, the contributions they have made have enabled the chapter to become financially secure while providing members with activities that enhance their membership value.

Woolpert began exhibiting at the South Carolina Chapter's Summer Show in 1994 and has been an exhibitor every year since then. From that time, Woolpert became active in

The APWA Donald C. Stone Center for Leadership Excellence in Public Works

Find what you need to make your next move by visiting www.apwa.net/dcs!
the chapter’s educational programs by organizing and hosting the three APWA NPDES Phase 1 presentations across the state in the early 1990s and through making presentations at the annual meetings. In addition to supporting South Carolina Chapter activities, Woolpert also participated in the three previous Region III Leadership Workshops in Charleston, S.C.; Shaker Village, Ky.; and most recently in Lexington, Ky. The firm has actively supported chapters hosting Congress both financially and through providing volunteer resources.

Harry S. Swearingen Award for Outstanding Chapter Achievement and Excellence in Chapter Service – Individual

The Harry S. Swearingen Award was established to recognize outstanding service to APWA as an individual member or corporate company member at the chapter level.

Mio Johnson
Manager Engineering Division
Anchorage Municipal Light & Power
Anchorage, Alaska

Mio Johnson’s efforts to promote the APWA Alaska Chapter go back almost thirty years. She served as Chapter President for two years, which is noteworthy due to the fact that the Alaska Chapter covers such a large area. Johnson was tasked with coordinating the monthly luncheon schedule and delegating assignments to members of the chapter’s Board of Directors. This was in a time before the proliferation of nearly instant communication such as e-mail and texting. Johnson and the Board of Directors spent many hours ensuring that chapter members throughout Alaska were aware of chapter news and upcoming events.

Johnson’s service as Chapter Delegate spanned fourteen years. During that time she participated in a number of meetings and attended the APWA Congress & Exposition more than ten times. This may not be the record for a Chapter Delegate of APWA, but it shows sincere dedication to the chapter. This is true because flying anywhere else in the United States or Canada from Alaska is both time consuming and costly. Johnson has literally gone the extra mile(s) to make sure the Alaska Chapter stayed up-to-date about what was going on in the national organization. Johnson has also taken an active role for many years regarding the chapter’s role in awarding scholarships.

Community Involvement Award

The Community Involvement Award seeks to recognize public works leaders who are also leaders in their community, and to inure public trust in public works professionals through recognition of outstanding community leadership.

Donald D. Jacobovitz, P.E.
Director of Public Works
Putnam County, Florida

Donald D. Jacobovitz participates in numerous committees that touch the daily lives of the residents of Putnam County. He serves on the Working Trails Group, a committee comprised of local leaders and interested residents who want to develop an integrated system of biking, hiking, and waterway trails throughout the county. Jacobovitz also represents the county on the Better Place Plan Committee, a committee of citizens that oversees the expenditures of a sales tax passed by local referendum to implement improvements that will provide a better place for the residents of Putnam County.

Jacobovitz serves on several other community committees bringing his cooperative leadership style and innovative ideas to the forefront for his county’s residents. Some of these committees include the Local Mitigation Strategy Committee, the Technical Coordinating Committee of the North Florida Transportation Planning Organization, the County’s Transportation Committee, Municipal Service Benefit Units’ Committees, and a regional group of public works officials. All of these groups meet on a regular basis.

Young Leader Award

The Young Leader Award recognizes APWA members who have demonstrated an initial commitment to the profession and the Association and display potential for future growth within the Association. The award promotes the concept that length of career does not necessarily indicate leadership abilities or potential for service.

Christopher J. Petree
Public Works Director
City of Lakeville, Minnesota

Christopher J. Petree has demonstrated his commitment to public works in many different ways. He is actively involved in APWA Minnesota Chapter activities, particularly in the area of education and training. He serves as the Vice Chair of the Education and Training Committee,
which has taken on endeavors such as the Underground Utilities Inspector School, the Public Works Writing Course, and the Leadership Academy. All of these training opportunities advance the skills of public works professionals who work in various capacities throughout the State of Minnesota.

In 2001, Petree became the first-ever Director of Public Works for the City of Hugo, Minnesota. In 2008, he showed his ability to lead under severe adversity when the City of Hugo was hit by an EF3 tornado. Not only was Petree’s own home and family greatly impacted by this tornado, but he took control of the chaotic situation and successfully directed the City’s recovery efforts. In 2009, APWA honored Petree and the City of Hugo Public Works Department with the APWA Exceptional Performance Award in the category of Adversity for their response to the May 25, 2008 EF3 tornado.

Exceptional Performance Award–Adversity

The Exceptional Performance Award recognizes individuals, teams or organizations in the areas of adversity, journalism and safety whose outstanding contributions in the course of performance raise the level of public awareness for the profession.

The Exceptional Performance Award–Adversity recognizes exceptional performance in the face of adversity in service to the public.

Public Works Department
City of Minneapolis, Minnesota

On Sunday, May 22, 2011 beginning at 2:14 p.m., an EF2 tornado swept across the heavily populated residential neighborhoods of North Minneapolis, Minnesota. First responders included Fire, EMS, Police, Public Works and the Minneapolis Park & Recreation Board (MPRB). The Public Works Department and MPRB Forestry crews formed strike teams and in partnership with Xcel Energy began by clearing fallen trees, construction debris, and downed power lines to make primary streets passable for emergency vehicles. They later moved on to remaining streets and alleys. Other state, county and local public works resources lent resources as well for the initial recovery efforts.

Within days, nearly all streets and many alleys had been cleared enough to accommodate traffic. Public Works inventoried damaged traffic signals and signs. Public Works and other City staff responded to countless resident, business owners and media questions, gathering information to assess damage, making initial preparations for disaster relief requests, and working with local partners to provide recovery assistance to victims.

Exceptional Performance Award–Journalism

The Exceptional Performance Award–Journalism recognizes exceptional performance in presenting the story of a public works issue or event that projects a positive image of individuals or agencies in the course of their performance in both broadcast and print mediums.

Inflow and Infiltration Communications Plan
City of Golden Valley, Minnesota

The City of Golden Valley has developed and implemented an effective communications plan

Share your public works knowledge and experience with others!

If you’ve got more than 20 years of public works experience, the DCS Center offers you a chance to give back to the public works community by lending your real-world knowledge to fellow DCS participants as they move through the program. You’ll also have the opportunity to learn just how important your knowledge has become and how you can leverage that experience to become a better leader to your staff.

The APWA Donald C. Stone Center for Leadership Excellence in Public Works

Find out how you can share your public works knowledge with others by visiting www.apwa.net/dcs!
to educate property owners, real estate professionals and contractors about the environmental problems associated with reducing the amount of clear water entering the city’s sanitary sewer system. The plan also supports the City’s strategic three-pronged approach to inflow and infiltration reduction.

The City used multiple media sources including newsletters, educational videos, flyers, community meetings, press releases, and its website to effectively communicate with stakeholders. City staff believes the comprehensive Communications Plan has been instrumental in the acceptance of the Point of Sale ordinance and the decrease of City-wide inflow and infiltration. Residents and business owners know what the problem is, the financial and environmental implication of doing nothing, and the steps they need to take towards their own inflow and infiltration compliance.

**Exceptional Performance Award–Chapter Journalism**

The Exceptional Performance Award–Chapter Journalism recognizes chapters for their newsletters, magazines and/or other publications based on quality, content, creativity and design.

**Insight Chapter News Magazine**  
APWA Southern California Chapter

In 2009, the APWA Southern California Chapter established a committee to revamp its newsletter. The committee’s first issue was 4th Quarter 2009 which came in at 16 pages. Subsequent issues in 2010 were 24 pages and 32 pages. In 2011, the page counts for each of the four quarters were 32, 16, 16 and 32. The magazine is printed on high-quality, matte-finished recycled content paper, and produced in full color with a run of 1,500 copies. Chapter members receive their issues by mail, as well as an extended list of national and regional APWA officials.

Standard features include News in Brief, Member Spotlight, Agency Spotlight, Chapter News, Committee Spotlight, National News and Events, Congress 2012 News, President’s Message, activities calendar, Annual Chapter Officer and Committee Directory, ads for Chapter and Branch events, ads or announcements for sister organizations, and many other features. Technical articles have included transportation, project management, environmental issues, and current legislative issues. Feature articles on projects underway in various public agencies are also regularly included.

**Exceptional Performance Award–Safety**

The Exceptional Performance Award–Safety recognizes exceptional performance in the area of safety.

**Water System Improvement Program**  
San Francisco Public Utilities Commission

The San Francisco Public Utilities Commission (SFPUC) has reached the midway point in the completion of its $4.6 billion Water System Improvement Program (WSIP) to repair and seismically upgrade the regional water delivery system. WSIP comprises 81 separate construction projects, including dams, tunnels, pipelines, treatment plants, and special facilities.

The SFPUC has developed an innovative Safety Approach for the program which clearly defines roles, responsibilities, policies, and procedures for the program stakeholders. Thus far, it has proven to be successful in its implementation and subsequent results. This Safety Approach requires the General Contractors to take full and total responsibility for the construction means, methods, and techniques, as well as all construction site safety on the project, and it provides structure for the SFPUC oversight of the contractors’ safety programs.

**International Service Award**

Established by the APWA International Affairs Committee, the APWA International Service Award recognizes an APWA member who has furthered the cause of international understanding and cooperation by becoming actively involved in exchanges, establishing a relationship with a public works entity from another country or providing outstanding public works service on an international basis.

**Dan Hartman**  
Director of Public Works  
City of Golden, Colorado

Dan Hartman has a long history of involvement with APWA and a significant record on committed international work to improve conditions of people around the world through public works. In 2005, he was recruited for a USAID project in Cluj, Romania, to help with traffic and parking in the city center. This three-week project provided planning for new parking, but perhaps more important were the regulations that were developed to manage existing
parking. Remote lots with employee shuttles were developed, along with restrictions, parking time limits, and time of day and delivery restrictions, that improved both parking and congestion in the historic center of the city.

Hartman attended the Institute of Public Works Engineering Australia (IPWEA) conference in Canberra in August 2011 as a Jennings Randolph Fellow. While in Australia he met with public works officials from Melbourne, Sydney, Hamilton Island, Brisbane and Canberra to discuss and exchange knowledge on new technology for communication with citizens, for asset management and asset financial planning. This relationship continued when he hosted a training day for the IPWEA delegation that attended the 2011 APWA Congress in Denver.

Technical Innovation Award

The Technical Innovation Award recognizes an individual, team or organization for the development and implementation of a creative idea, device, process or system that enhances the goals of public works in serving the public and protecting the environment.

Ash Lagoon Modifications and Upgrades at the G.E. Booth Wastewater Treatment Plant
Region of Peel/Region of York, Ontario

The Ash Lagoon Modifications and Upgrades project was part of Phase 2 expansion of the G.E. Booth (Lakeview) Wastewater Treatment Plant, and was financed by the Region of Peel in partnership with the Region of York. The Ash Lagoon Modifications and Upgrades project addressed the ash handling, settling, long-term storage problems and operational constraints with the capacity increase of the incineration process. The innovative approach to building the lagoons and the berm with settled ash was a very cost-effective solution, and resulted in extending the long-term storage capacity with considerable haulage and disposal cost savings for the Region.

In addition, the ash collection and pumping system is simple and easy to operate and maintain, and has provided the operations with the flexibility of supernatant discharge, thus reducing operational problems.
The system’s hydraulics also ensures a continuous operation of the incineration facility, providing at the same time a safe operation of the ash lagoons by protecting the plant site against flooding and spills.

Management Innovation Award

The Management Innovation Award recognizes an individual, team or organization for the development and implementation of a creative idea, device, process or system that enhances the goals of public works in serving the public and protecting the environment.

OTIA III State Bridge Delivery Program

Oregon Department of Transportation

In 2003, with the passage of the third Oregon Transportation Investment Act (OTIA), the Oregon Department of Transportation (ODOT) was tasked with delivering a 10-year, $1.3 billion program to repair or replace hundreds of highway bridges statewide. As one of the first DOTs in the country to undertake a major infrastructure program by outsourcing program management, ODOT prepared to deliver the OTIA III State Bridge Delivery Program using innovative methods and processes.

ODOT collaborated with eleven state and federal regulatory agencies to combine more than fourteen separate environmental statutes and permits into a single set of standards that met all of the contributing agencies’ goals. The resulting programmatic permitting process made it easier for contractors to comply with permitting standards and increased their ability to create the most sustainable result, all while saving money. It also allowed ODOT to follow through on their commitment to make the best use of their regulatory partners’ time.

Donald C. Stone Award for Excellence in Education – Chapter

The Donald C. Stone Award for Excellence in Education was established in honor of Donald C. Stone, founder of APWA. The award recognizes outstanding and meritorious achievement of individuals assisting in the areas of continuing and graduate professional education for public works professionals, as well as chapters in their work in delivering educational opportunities for all levels of persons engaged in the delivery of public works services.

Kansas City Metro Chapter

On October 30, 2011, the Kansas City Metro Chapter initiated its own Public Works Institute aimed at improving the managerial and supervision skills of its members. The Public Works Supervision Essentials Module was the first of four three-day training classes focused on the education and training of field and maintenance personnel to improve their skills as managers. The chapter’s Public Works Institute was developed in conjunction with the goals and objectives of APWA National requirements. The Public Works Institute curriculum was submitted to National for approval and recognition as an approved institute.

KC Metro’s first-ever Public Works Institute served 15 participants, providing more than 250 professional development hours. The chapter utilized the services of John Ostrowski as the lead facilitator for its initial institute class. In August 2011 Ostrowski held an instructor training class for individuals interested in volunteering to teach one of 90 classes offered as part of the institute’s diverse class list. The chapter had seven highly qualified instructors volunteer to teach the initial classes. The chapter is looking to develop additional classes in 2012 to capitalize on the momentum established from the first event.

Donald C. Stone Award for Excellence in Education – Individual

Established in honor of Donald C. Stone, founder of APWA. The award recognizes outstanding and meritorious achievement of individuals assisting in the areas of continuing and graduate professional education for public works professionals, as well as chapters in their work in delivering educational opportunities for all levels of persons engaged in the delivery of public works services.

Ann Johnson, P.E.
Director, Construction Management Program
University of Minnesota
Minneapolis, Minnesota

Ann Johnson’s educational efforts began with the Minnesota Local Road Research Board, whose mission is to advance new initiatives, knowledge and technologies to local transportation practitioners. Over her 27-year career, she has furthered the education of countless individuals
in Minnesota and elsewhere, including city and county engineers, maintenance workers, airport staff, and students. She is a professor at the University of Minnesota in both the Civil Engineering and Construction Management programs, owns her own professional engineering consulting firm, and works with the Minnesota Airport Technical Assistance Program.

Johnson has developed many resources for the MN Local Technical Assistance Program (LTAP), including courses on roadside vegetation management, bituminous and concrete pavement, low-volume road pavement design, and erosion control. She recently completed facilitating the development of an online gravel roads maintenance course that will serve maintenance staff at any location. Johnson worked with the online learning staff at the university and the in-classroom instructor to structure the online course materials and assessments in a way that effectively communicates the information.

Emerging Leaders Academy

APWA’s Emerging Leaders Academy provides ongoing leadership and management training within the context of public works, encourages professional growth through a strong network of peers, and offers an in-depth introduction to APWA at the national, chapter and branch levels. Thirteen candidates were accepted into the third class of the Academy based upon their short tenure in the field of public works, their interest in advancing their careers within the profession, and a firm commitment of their time and effort to the program.

Members of the Class of 2012 Emerging Leaders Academy:

D. Jeffery Baxter, Washington, DC; Brian A. Coopman, Davenport, IA; Ryan Gallagher, Ventura, CA; Nathan Hladky, P.E., Kansas City, MO; Todd Marti, P.E., West Jordan, UT; Michael G. Campbell, Decatur, GA; Tony Fietzer, Green Bay, WI; Greer Alison Hill, Washington, DC; Erin L. Jones, Rowlett, TX; Homa Mojtabai, Santa Monica, CA; Mary Powers, Tacoma, WA; Tyler A. Smith, P.E., Madison, WI; Morgan Wazlaw, Ventura, CA; William Simon, Columbia, SC; Matthew F. Spencer, Kansas City, MO; Ryan Welsing, Hubertus, WI

Presidential Award for Chapter Excellence (PACE)

The PACE Award recognizes chapters for contributions made and dedicated efforts in developing programs and services that result in a positive impact for their members, public works profession and community. The following chapters are receiving the 2012 PACE Award:


Accreditation

The purpose of the accreditation program is to provide a means of formally verifying and recognizing public works agencies for compliance with the recommended practices set forth in the Public Works Management Practices Manual. It is a voluntary, self-motivated approach to objectively evaluate, verify and recognize compliance with the recommended management practices. Accreditation offers a voluntary evaluation rather than government regulated activity, and increases professionalism while instilling pride among agency staff, elected officials and the community.

Accredited Agencies to be recognized at 2012 Congress:

Thurston County, WA, Department of Public Works and Stormwater Utility of the Resource Stewardship Department: Accredited on September 28, 2011; Georgetown County, SC, Public Services Department: Accredited on October 26, 2011; City of Saint Paul, MN, Department of Public Works: Accredited on November 5, 2011; City of South Jordan, UT, Department of Public Works and TransJordan Landfill: Accredited on November 5, 2011; City of College Station, TX, Department of Public Works and Department of Water Services: Accredited on February 21, 2012; Prince William County, VA, Department of Public Works: Accredited on March 20, 2012; Alameda County, CA, Public Works Agency: Accredited on April 18, 2012; City of Fresno, CA, Department of Public Utilities: Accredited on May 11, 2012; Orange County, CA, Department of Public Works and Engineering Department: Accredited on May 14, 2012

Reaccredited Agencies to be recognized at 2012 Congress:

City of Winnipev, MB, Municipal Accommodations Division, Fleet, Planning, Property and Development Departments: Reaccredited on October 12, 2011; Mohave County, AZ, Department of Public Works, Flood Control District
and Division of Emergency Management, Development Services Department: Reaccredited on November 5, 2011; City of Bellevue, WA, Department of Utilities and Transportation Department: Reaccredited on November 14, 2011; City of Davenport, IA, Department of Public Works: Reaccredited January 3, 2012; City of Gainesville, FL, Department of Public Works: Reaccredited January 9, 2012; Allegheny County, PA, Department of Public Works: Reaccredited May 4, 2012; City of Columbia, MO, Department of Public Works: Reaccredited May 14, 2012; City of Chandler, AZ, Municipal Utilities and Transportation and Development Departments: Reaccredited May 14, 2012; City of Highland Park, IL, Department of Public Works: Reaccredited May 31, 2012; City of Largo, FL, Department of Public Works: Reaccredited May 31, 2012; City of Eugene, OR, Department of Public Works: Reaccredited June 22, 2012; City of Lee’s Summit, MO, Department of Public Works: Reaccredited June 26, 2012; City of Golden, CO, Department of Public Works: Reaccredited July 31, 2012; City of Buffalo Grove, IL, Department of Public Works: Reaccredited August 21, 2012

Citation for Exemplary Service to Public Works

The Citation for Exemplary Service to Public Works recognizes a nonmember of APWA who is an eminent government or other public service leader for their far-reaching, positive impact on local, state or national public works programs, services, or policies.

Honorable James McGovern
U.S. Congressman
Massachusetts’s Third Congressional District

Since Congressman James McGovern was first elected to Congress in 1996, he has been a leader in supporting federal water quality and infrastructure funding and projects. In his first two terms, he served as a member of the House Transportation and Infrastructure Committee, where he championed protecting and increasing federal funding for the Clean Water and Drinking Water State Revolving Fund (SRF) programs to help communities meet EPA mandates and upgrade their water infrastructure. More recently, he strongly urged the Obama Administration to make the SRFs a major part of the American Recovery and Reinvestment Act (aka the stimulus), and many communities in Massachusetts benefitted from interest-free loans from the SRFs as a result.

Congressman McGovern currently serves as a Minority Whip and the second ranking member on the House Rules Committee, in addition to being a member of the House Agricultural Committee. He has been a leader in advancing a national Transportation Bill to address the nation’s failing transportation infrastructure. Congressman McGovern has been a leading advocate for public works initiatives on a national scale. He has dedicated his career to serving the public and has a keen awareness of the vital role that public works professionals perform in improving the quality of life for all Americans.
The BEST SHOW in PUBLIC WORKS

2012 * Anaheim, CA

2012 APWA INTERNATIONAL
PUBLIC WORKS CONGRESS & EXPOSITION

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Congress Section
Four options to attend Congress

APWA is excited to bring the 2012 International Public Works Congress & Exposition to Anaheim, California, August 26-29, at the Anaheim Convention Center. With more than 125 educational sessions and nearly 90,000 square feet of exhibit space, you have the opportunity to learn, network and see the largest display of public works equipment in North America.

By the time this issue of the APWA Reporter hits your mailbox, there will only be a short time left before Congress begins. Needless to say, time is running out; however, there’s still time to register! Just go to www.apwa.net/Congress for more information.

To ensure you are able to arrange your schedule to be here and have the options you need, APWA gives you four options to attend the Congress & Exposition:

1. **Full Congress Registration – $700 members (best value).** Includes access to the Exposition, entry to all educational sessions including General Sessions, Workshop Wednesday and Stormwater Summit, lunch on Sunday and Monday, Get Acquainted Party, Awards Ceremony and much more.

2. **One-Day Congress Registration – $350 per day members.** Choose the day(s) you can attend and get access to the Exposition, entry to all educational sessions including General Session, and lunch (Sunday and Monday only).

3. **One-Day Expo Only Pass – $35.** Access to more than 400 exhibitors with all the latest in public works equipment, services and technology.

4. **Pre-Congress Seminars Registration – $350 members.** This year’s Pre-Congress Seminars are “Self-Assessment Using the Public Works Management Practices Manual—A Tool for Improving Operations and Management” and “Effective Consultant Management for the Public Works Agency.” These workshops have a separate fee and you do not have to be registered for Congress to take advantage of these great opportunities for additional education.

Don’t miss this opportunity to take advantage of this full library of resources and to experience the excitement of Anaheim. Remember the magic URL: www.apwa.net/Congress.

Anaheim here we come!
Don’t miss these at Congress!

• If you’re looking for a place to meet with your colleagues, gather with old and new acquaintances or just relax awhile, visit the Southern California Host Chapter Hospitality area at the Anaheim Convention Center in Lobby A, just outside the exhibit entrance.

• Join us in honoring the best in the business! Come see your peers recognized during APWA’s Annual Awards and Recognition Ceremony on Monday from 5:00-6:00 p.m. in the Anaheim Convention Center Ballroom on Level 3. Be sure to stay for the reception that follows from 6:00-7:00 p.m.

• Building on the success of the 2011 EXPO EXPERIENCE in Denver, the 2012 EXPO EXPERIENCE is located in Booth 1571 on the exhibit floor and promises to bring more opportunities for attendees to learn, discover, and have fun. There will be live interviews with session speakers, POWER learning sessions (15 minutes), prize drawings, connecting areas, cyber stations, happy hour, and more at the EXPO EXPERIENCE. Put this on your calendar to visit daily or make the EXPO EXPERIENCE your central hub for the week.

• Don’t forget about the free lunch in the exhibit hall if you are a fully-registered attendee. You’ll receive a special coupon with your badge for your free lunch on Sunday and Monday in the exhibit hall. Coupons are good for $13 worth of food at the concession stands and the special food service areas on the exhibit floor. Who says there’s no such thing as a free lunch??

• Do you have 45 minutes to spare to save the life of another person? Did you know that every three seconds someone needs blood? One single donation can save as many as three lives—and there is no substitute for human blood. Please join us for the Proud to Care Blood Drive on Monday and Tuesday, 8:30 a.m.-2:30 p.m., in Lobby B at the Anaheim Convention Center, where you can roll up your sleeve and save a life. This year’s blood drive benefits the American Red Cross.
One-day passes available for Congress

Can’t take off a whole week for APWA’s International Public Works Congress & Exposition? Don’t worry. We have the ticket that is just your ticket—our one-day registration! Geared for those who cannot take the entire time for Congress, the one-day pass entitles the registrant to all educational sessions on that day and, also, entry to the Exposition where the latest in public works equipment and services will be on display.

On Sunday, the excitement and energy of this year’s Get Acquainted Party will begin at 5:00 p.m. at the Anaheim Convention Center Arena Plaza, where APWA’s Southern California Chapter welcomes you to Anaheim! Those registering for Monday only may also take advantage of the annual Awards and Recognition Ceremony and Reception from 5:00-7:00 p.m.

The one-day registrations may be purchased onsite at $350 for APWA members. A special pass to tour the exhibit hall only is also available for just $35.

Speaking of the $35 special exhibit hall pass, the APWA Congress in Anaheim is the perfect opportunity for supervisors to let staff attend the exposition for one day. Congress is great for those attendees who are able to go for four days, but it is also a wonderful experience for non-supervisors who can tour the exhibit floor for only $35 per day. It’s a chance to have your entire staff take advantage of this once-a-year gathering of the biggest and best in public works. As APWA Past President Judy Mueller once said, “What an incredible way to reward your employees by allowing them to be a part of The Best Show in Public Works!”

We’re looking forward to seeing you in Anaheim!
Let’s face it, not many of us are too thrilled when the media wants to set up a time for an interview or just unexpectedly drops in to get your thoughts on any subject, particularly when it has some type of controversy looming over it. Why are we not so thrilled? More times than not when public works is the media outlet’s interest there are typically items that are either controversial or something that has cost the taxpayers a lot of dough. We are the ones who will be asked to explain, justify and make sense of. That sometimes gets a little uncomfortable. Can that thought process be turned around so that when the media calls we actually look forward to the challenge? I believe it can.

It all starts with being confident with your ability to go on camera or in front of that audio microphone and speak with authority but in a way that sheds a positive light on you and the city in which you serve. Think of it this way. The vast amount of knowledge that we have in our beloved field makes us a commodity for the news media. We can give them the best story because we are the experts. We should be confident each time we are asked for our expertise in public works.

At this year’s APWA Congress, I along with my partner, Jildardo Arias, hope to share some things with you that I have learned over the years, not only as Director of Public Works but as the Public Information Officer of our city, that have allowed me to have a great relationship with the media. If you want to improve your relationship with the media and see how you can use the media to your benefit then this session is for you. We will discuss several things including what to do when the media calls, tips for interviews, how to keep it short and simple, how to handle a tough situation, rules for crises communication, writing press releases that are effective, media rules, deadlines and so much more.

I have learned over the years that the media can be your best friend if you choose to engage that relationship with the proper attitude and a willingness to spend the time it takes to grow that relationship. I look at it kind of like a marriage. If you take the time to listen, to be understanding of his/her role, know what he/she needs to be complete, and compliment his/her deadlines with a sincere and positive approach you will have a strong, long-lasting and meaningful relationship. Yes, you may have some bumps along the way but for the most part the relationship will remain stable and harbor a great deal of understanding. I am quite sure that my wife Gail could add a list of a few other things that I need to do a little better around our house to help with this type of environment. Maybe she won’t have a chance to read this article! The point is we have a job to do and so does the media. Learning to use the media to our advantage by being an active support source and an outlet for answers can only help us project a positive and reassuring image of public works, both locally and abroad.

Being a proactive, accommodating, and media-savvy public works director can help your city by shaping public opinion, which is directly linked to political support. I am looking forward to seeing all of you in Anaheim!

Donny Hooper and Jildardo Arias will give a presentation on this topic at the 2012 APWA International Public Works Congress & Exposition in Anaheim, California. Their session is entitled “Media Relations for Public Works” and takes place on Wednesday, August 29, at 9:30 a.m. Donny Hooper can be reached at (806) 669-5750 or dhooper@cityofpampa.org.

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Have you ever been challenged by this decision: Do I keep that mature tree and not repair the sidewalk, or do I repair the sidewalk and lose the shade tree?

This is an example of a no-win situation that public works managers face every day across the country.

Public infrastructure and hardscape construction projects are vital to the growth, safety, and livability of our communities. However, public trees are equally vital, green infrastructure assets that help reduce stormwater flows, improve air and water quality, decrease energy consumption, and give our communities character like nothing else can.

Unfortunately, when communities build, expand, or renovate buildings and hardscapes, it’s the trees that are often compromised in the process. Usually tree removal is considered the first and only option, and attempts to save trees during the construction process are often doomed. Most construction activities have considerable negative effects on trees, and even if trees are not removed at the outset, the damaged trees will likely decline or die, be unattractive, and potentially become safety risks within a few years after the project is complete.

So, what’s a manager to do when there are trees within the project limits of a construction project? How do you comply with construction industry, safety, and ADA standards, follow plan specifications, stay within the budget, complete the project on time, and save valuable trees?

APWA recognizes the value of both grey and green infrastructure and believes there can be a balance between the built environment and the natural one. The Facilities and Grounds Technical Committee has created a new publication that will soon be available to members in a variety of formats to help you protect and preserve valuable trees during construction projects.

The Tree Protection & Preservation Best Management Practices for Public Works will be available at and after Congress and is a technical guide to conserving, protecting, maintaining, removing, and replacing trees within construction sites on the public right-of-way and on public property.

This pocket guide is aimed at helping managers and staff use accepted tree care standards that will give public trees the maximum chance for survival during development, redevelopment, and other construction projects.

The Best Management Practices are technically correct and widely accepted practices and standards used by public works and construction professionals as recommended by professional arborists, urban and community foresters, landscape architects and other tree care and landscape professionals. The goal of the guide is to provide you with basic and practical information on how to best accomplish the most important tree management activities and that will give trees within construction project limits the best chance for surviving and thriving during and after the construction process.

If you are a public works manager, engineer, inspector, equipment operator, utility employee, landscape professional, and need to protect and preserve trees during construction projects, this guide is for you.

Livable, sustainable communities need both hardscapes and trees. With informed and proper planning, green and gray infrastructure can coexist for the public’s benefit and growth of the community.
Creating and implementing a tree protection plan will assure that trees are not damaged and can remain safe and valuable public assets after a construction project is complete.

architect, landscape maintenance worker, planner, tree care professional, or government official or staff member, then this guide is for you! Your implementation of the appropriate BMPs during construction projects is an important component of your overall community tree management program and responsibilities.

The tree protection guide is primarily intended to support public works professionals, but it can be used to inform and assist the local building, development, and construction industry, can be used as a project planning and implementation tool, could be a community education tool, and is a statement of standards for community tree care.

Tree protection is any activity designed to preserve tree health by avoiding damage to tree roots, trunk, or crown. All trees should be protected during construction projects, and throughout their lives, from damage to maximize their health, useful life, function, and benefits. Small, newly planted trees need as much protection as large, mature trees.

Some of the benefits of protecting trees during public works construction and public improvement projects are:

- Decreased liability from damaged trees and tree parts
- Reduced long-term tree maintenance and replacement costs
- Preserving larger trees and greater canopy cover that provide the most benefits
- Positive feedback from citizens, businesses, media, and overall good public relations
- Protection of native plants (many native trees are unavailable in nurseries and are difficult to reestablish)
- Healthier trees, forest ecosystem, and environment

Almost all construction activities can be detrimental to trees. However, construction is a fact of life and absolutely necessary to fulfill a public works department’s primary business function, to improve safety of public structures and properties, and to increase service delivery to the public.

The Tree Protection & Preservation Best Management Practices for Public Works can guide you and give you ways to avoid damaging trees. Considering trees in the project planning stage and developing a tree protection plan is a proactive measure that will help any project be less problematic and more successful. Forethought should be given to determine if the construction project plans can be modified to save trees and still accomplish the construction task. Creative engineering design and techniques can be employed to save significant trees. For example, a road can be moved slightly, a building foundation can be built on piers, and underground utilities can be placed using boring devices rather than trenching.

It is strongly recommended that public works managers use the Tree Protection & Preservation Best Management Practices for Public Works pocket guide and consult regularly with Certified Arborists who are skilled in risk tree evaluation and tree protection before, during and after construction projects.

APWA is committed to improving our community forests through the actions of our members. Towards this end, the Facilities and Grounds Technical Committee will release a new publication at Congress in less than a month. Look for a Pocket Guide called Tree Protection & Preservation Best Management Practices for Public Works at Congress and on the APWA website.

There will be a session on practical tree protection measures for public works managers and field staff at Congress on Monday, August 27, at 4:00 p.m.

And a free-to-members Click, Listen & Learn on “Tree Protection During Construction Projects” will be offered on September 13.

APWA encourages you to contact any Facility and Grounds Committee member for more information on these educational opportunities, or about any community forest management issue you may have. Let’s keep our cities and counties green and growing!

Jenny Gulick will give a presentation on this topic at the 2012 APWA International Public Works Congress & Exposition in Anaheim, California. Her presentation is entitled “Protecting Trees during Public Construction Projects” and takes place on Monday, August 27, at 4:00 p.m. She can be reached at (859) 384-8258 or jenny.gulick@davey.com.

As one of our country’s greatest leaders said, “To exist as a nation, to prosper as a state, and to live as a people, we must have trees.” – Theodore Roosevelt
Engage the public and get work done: a shared responsibility strategy

Steve Wamback, MPA
Solid Waste Administrator
Pierce County Public Works & Utilities, University Place, Washington
Presenter, 2012 APWA Congress

Public works officials, managers, and professionals are regularly called upon to interact with customers on project planning and implementation efforts. While we understand the importance of these contacts, there is often a certain amount of dread.

Have you heard any of these complaints?

- “If I spend so much time working with customers, I won’t get anything done.”
- “The stakeholders want all of the voice and none of the responsibility.”
- “The ‘electeds’ will just ignore them.”

The Pierce County Public Works and Utilities Department has implemented three Shared Responsibility Strategies to bridge the gap between Engaging the Public and Getting Work Done. One such approach, Appreciative Inquiry, helps customers, stakeholders, contractors, and employees recognize themselves in work effort. Pierce County has recognized that when someone sees themselves as “co-creator” of a vision/plan/strategy/project, they are more likely to want to be a “co-implementer” as well. Through shared responsibility, engagement and work happen simultaneously.

About Pierce County
The Pierce County Public Works and Utilities Department provides road, solid waste, sewer, airport, ferry, and surface water management services to over 600,000 residents in the southern third of the Seattle metropolitan area. In addition to being a direct service provider for urban, suburban, and rural unincorporated areas, through contracts and interlocal agreements, the Department serves customers residing in twenty-one cities and towns.

Appreciative Inquiry
Appreciative Inquiry (“AI”) is a “post-problem solving” organization development tool-set which breaks from traditional organizational problem solving by dispensing with a normal first question: “what’s wrong”; and instead asking: “what’s right.”

Quoting David Cooperrider from Case Western Reserve University, AI allows users to embark on a “cooperative search for the best in people, their organizations, and the world around them. It involves systematic discovery of what gives a system ‘life’ when it is most effective and capable... AI involves the art and practice of asking questions that strengthen a system’s capacity to heighten positive potential.”

Appreciative Inquiry in Program Planning
Used successfully in community building and corporate change exercises in school districts, corporate America, and even by the Dalai Lama and the United Nations, Pierce County first used AI in a year-long community effort to develop environmental education programming for a 900-acre County-owned property. As a provider of youth environmental education,
the Department coordinated teams of youths from throughout the community interviewing elders from within their families and among public and private sector community leaders.

Instead of looking at developing environmental education as a problem to be solved, or a plan to be written, the youth asked questions such as “tell me a story about a time when you felt connected to family and nature.” The path forward was then rooted in capturing and building on what was right, rather than what was lacking or wrong.

This approach also gave interviewers (the youth) and interviewees (the adults) a shared stake in creating a vision; and then a shared stake in helping to implement that vision. More important, the inquiry process derailed the more conventional plan which emerged from a traditional planning exercise. Instead of building a “12,000- to 16,000-square-foot environmental education center,” the County has embarked on providing youth and their families with hands-on experiences on the property ranging from beach cleanups, to invasive weed removal, and overnight eco-camps. Projects on the near-horizon include artist- and scientist-in-residence programs. And the vision has expanded beyond the initial property with environmental education across the county now including youth-led development of rain gardens, vegetable gardens, and school food waste composting systems.

**Appreciative Inquiry in Contract Negotiations**

The County used AI tools again in a more traditional public works project: the scoping and renegotiation of a solid waste management system contract with a private vendor. Prior to the expiration of a contract, County staff, elected officials, and the contractor explored the successes of the thirty-year contractual relationship between the County and its contractor. These successes included: the first countywide curbside recycling program in Washington; the siting and construction of a County-owned yard waste composting facility and the first wide-scale yard waste collection programs in the state; being first in the state to achieve a 50% recycling rate; and building the first new municipal solid waste landfill in the urban Puget Sound region in decades.
The initial focus of the inquiry was to explore why and how the above were successes. What elements—people, tools, organizations, funding, political will, corporate will, confidence, etc.—contributed to making a positive difference?

After identifying the roots of all that was right with the current contractual relationship, the parties turned to envisioning “what might be.” Conversations focused on creating an ideal operating environment for the County and its contractor. This resulted in surprising changes, most notably agreements to provide significant support for waste reduction and recycling programs which would result in a 75 percent reduction of how much waste would require disposal such that the in-county landfill life (and the contractor’s return on its capital investment) would be spread 25 years longer than originally anticipated. In exchange, the County agreed to take a full-generation approach to a new contract and committed to a 25-year term.

When is this a good tool?
AI is effective when working with stakeholders, staff, contractors, or customers. Having some “shared...more NEW products from Henderson!

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www.hendersonproducts.com
history” helps, but is not crucial. Principally, there needs to exist a foundation of trust, credibility, and mutual understanding that allows the participants the freedom to abandon the traditional problem-solving paradigm.

For its initial use of AI, Pierce County and a nonprofit community foundation partner hired two consultants to provide approximately 60 hours of training to County staff and youth partners. Subsequent staff-led efforts grew out of this initial training and the use of resources such as the Appreciative Inquiry Commons found online at http://appreciativeinquiry.case.edu/.

Related Strategies
In conjunction with Appreciative Inquiry, Pierce County has built “outside-in” project management teams which include customer and stakeholder voices jointly producing initial scoping documents, selecting consultants, reviewing the consultant’s work, identifying additional stakeholder voices to bring to the table, presenting work product to larger audiences, and making implementation recommendations. The customers and stakeholders involved on these teams “see themselves” at each stage and in the end result.

Helping to further cement customer and stakeholder advocacy in project results has been the use of a policy assessment and implementation matrix to transform visionary recommendations into implementable action items. The Department and stakeholders have learned that using transparent tools to prioritize recommendations makes for broader acceptance by those who had not been able to participate in a process, especially elected officials. A crucial function of this tool is to link “vision” and “data” in mutually supporting ways.

Steve Wamback will give a presentation on this topic at the 2012 APWA International Public Works Congress & Exposition in Anaheim, California. His session is entitled “Engage the Public AND Get Work Done: Shared Responsibility Strategies” and takes place on Monday, August 27, at 3:00 p.m. Wamback was the recipient of the 2011 APWA Professional Manager of the Year Award – Solid Waste. He can be reached at (253) 798-4656 or swambac@co.pierce.wa.us.
Succeeding at succession: a portfolio approach

Jay T. Spurgin, P.E.
Deputy Public Works Director
City of Thousand Oaks, California
Presenter, 2012 APWA Congress

Transiting from a graying workforce to the next generation of leaders is much like running a relay race—the runner about to receive the baton must begin running before the handoff. If your next generation of leaders is standing still when it’s their turn to run, the organization is likely to fall behind. The City of Thousand Oaks has taken a portfolio approach to get the next runner sprinting before handing off the baton.

Although succession planning may take time, the need for it can be seen from a long ways away. The average age of our public works staff is 48 years old. Furthermore, over 54 percent of these employees are eligible for retirement within the next five years. While this news may be cause for alarm in some cities, Thousand Oaks has established programs to ease the transition.

Internship Program
Over the past four years, the Public Works Department has had 22 interns and an even larger number of volunteers, some of whom have become full-time permanent employees. Too often, internship programs are viewed as an obligatory handout to imminent college graduates or a community service project at the expense of the City. In reality, both parties are better served when the City’s interests are put first. The end goal to any internship program should be to identify the best talent available and retain them as employees. Being able to test-drive potential job candidates as interns before diving in headfirst with a new permanent hire will ensure your city gets the best that the applicant pool has to offer.

The work given to interns is equally as important as selecting the right intern. To truly assess whether an intern is capable of handling complex assignments, they must be given those assignments. Using interns to repetitively perform routine tasks does not give the intern an opportunity to demonstrate their skills set. In the past year alone, our department has used interns to help establish the City’s Green Business Program, develop an Energy and Greenhouse Gas Reduction Plan, and expand the department’s GIS database.

Thousand Oaks Leadership Academy
The Thousand Oaks Leadership Academy (TOLA) is a six-month program designed to give employees exposure to various functions of the City, develop working relationships among the participants from different departments, and learn how to make a formal presentation to City Council. For one day a month, the participants learn about the City’s various functions, which includes visits to various public works sites, police and fire training...
facilities, local universities, and other local public agencies. The Academy culminates in a project presentation at a mock City Council meeting, which is assigned to the participant at the outset of the program. Commencing its seventh year, TOLA has graduated over 100 City employees and continues to be the City’s cornerstone program for leadership development.

**APWA Accreditation**

On November 30, 2010, Thousand Oaks became the 63rd city to become an APWA Accredited Agency. While the recognition and accolades at the end are nice, the journey to get there clearly identified our department’s strengths and shortfalls. The accreditation process required the department to demonstrate proficiency in over 500 public works practices. What was evident at the start was that we fulfilled many of the practices outlined in the Accreditation Manual, but a number of those practices were not written down anywhere. Many of the department’s routine practices only existed inside the heads of its employees. Going through the accreditation process forced us to record all of our standard operating procedures, correct outdated policies and design standards, and revise our safety checklists and guidelines. Having gathered a written record of departmental knowledge before it retired and walked out the door was worth the nearly two-year effort to become accredited, and has certainly made passing the baton much easier.

**Tuition Reimbursement**

Thousand Oaks is fortunate to be situated near many reputable universities such as California Lutheran University, Pepperdine University, and California State University, Northridge. The City Council and management see tremendous value in having an educated workforce, and has a program to encourage employees to make use of the local higher learning institutions. The Tuition Reimbursement Program has reimbursed over 130 employees for tuition expenses up to $5,000 per year towards a Bachelor’s or Master’s degree. Over the past several years, the City has budgeted approximately $125,000 annually for the program, which has allowed these employees to obtain degrees that otherwise they may not have been able to achieve.

**Conclusion**

While I have highlighted these few programs, there are others offered in the way of succession planning; this includes a Mentoring Program, Management Certificate Program, and Read to Lead. Collectively, these programs are all designed to appeal to a wide array of employees who may prefer a more individualized program versus a group program, or that can be done at their own pace versus a formal academic schedule. The City’s portfolio approach has already begun to pay dividends as many senior level staff have retired and their successors have stepped in seamlessly—including myself, moving from Deputy Director to Director last year. Continuing to keep succession planning a high priority for the City and the Public Works Department will ensure that the next generation of leaders is in a full sprint before handing off the baton.

Jay T. Spurgin will give a presentation on this topic at the 2012 APWA International Public Works Congress & Exposition in Anaheim, California. His session is entitled “Succeeding at Succession Planning” and takes place on Sunday, August 26, at 3:00 p.m. He can be reached at (805) 449-2444 or jspurgin@toaks.org.
Driven by demographic changes and advances in technology, equipment operator training is in the midst of a revolution. These trends will have a far-reaching impact on how newcomers to the utility and underground construction sectors will be trained to become safe, proficient equipment operators.

As the Baby Boomer generation retires, it is leaving behind a gaping void that many fleet owners are finding hard to fill. In past years, contractors and municipalities could count on a steady stream of new hires who had some heavy equipment experience. Many young people grew up on farms, where they logged many hours behind the controls of a tractor or combine.

Today, that’s the exception rather than the rule. The majority of young people have grown up in urban areas; the closest they have come to operating heavy equipment is in video games. As a result, there are fewer candidates available who have a natural aptitude for equipment operation. As the economy begins to improve and the number of construction projects grows, this will soon become a significant problem for municipalities and underground contractors alike.

At the same time, technology is in the process of revolutionizing how operator training is developed and delivered. Let’s take a look at how the intersection of these two trends will impact your operations in the years ahead.

Web-based training programs: During the past decade, a growing percentage of training has moved from the classroom to computer-based training (CBT), delivered via CD or DVD. Now, thanks to the proliferation of high-speed Internet service, operator training content is starting to move to web delivery. The first wave of web-enabled training was primarily existing CBT content, converted into a web-deliverable video format. This was adequate, but limited in its instructional value. The latest generation of web-based training uses multimedia technology to deliver more interactive learning, including animations of machine tasks, “check your knowledge” questions to verify that students have understood the training topics, and automatically scored final exams. Perhaps the biggest advantage of these self-paced learning programs is that they can be delivered on demand to any computer with a high-speed Internet connection. In other words, you can conduct training when and where it’s most convenient.

A learning management system (LMS) stores student, course and exam data, enabling trainers to manage students and courses and to track learning. The data contained in an LMS can serve as proof that your operators have been properly trained in safe work techniques. In the past, most learning management systems were expensive and proprietary. But thanks to the development of open-source applications like Moodle—which is widely used by community colleges—a basic LMS is now more affordable than ever.

PC-based simulation: In the past, equipment simulation was limited to large, expensive motion platform units that cost $1 million or more—far out of reach for municipalities and underground contractors. Thanks to recent developments in 3D modeling and affordable, high-speed computers, a new generation of simulators has emerged. Excavators, wheel loaders and other common types of equipment can be controlled in simulated environments, using PC gaming joysticks, steering wheels and pedals.

Simulation helps trainees become familiar with the controls of the machine, and the actions needed to perform common tasks. Through hours of practice, they build “muscle memory” that will become useful when they transition to field training on an actual machine.

Simulation sessions cover common machine tasks, such as digging and dumping. Data on cycle times and other key machine functions is recorded in a database. This gives trainers an objective, quantifiable assessment of each operator’s performance, so they can identify coaching needs for each trainee.

One municipality, Québec City, Québéc, even uses a simulator as an assessment tool. Applicants are trained to run a PC-based excavator simulator. After a number of hours of practice, they take an aptitude test to measure what they’ve learned. The City has found that approximately 25 percent of applicants have little or no potential. This test enables the
City to focus its limited resources on candidates who have more natural ability for equipment operation.

Incorporating simulation into your training curriculum reduces the amount of “seat time” required on an actual machine. That results in reduced fuel consumption and less equipment wear and tear. Most importantly, simulators teach good operating habits.

Finally, because PC-based simulators are portable, savvy fleet owners can set them up at local job fairs, where they tend to attract a lot of attention and serve as powerful recruiting tools. They send a compelling message that you’re committed to providing trainees with the best training tools.

**Blended learning curricula** combine multiple modes of training—such as CBTs, simulation sessions and on-the-job training activities—to deliver high-performance training to adult learners. Adults learn differently than children—they tend to be more hands-on, and want to know how the knowledge they’re learning will be used on the job.

For best results, knowledge needs to be “chunked” into logical units based on machine tasks, so that one module reinforces another. For example, a CBT session focused on loading a truck is followed by a simulator session where the trainee gets to practice this skill. That, in turn, is followed by a hands-on activity where they practice it with an actual piece of equipment. This type of repetition helps the trainee to retain what he or she has learned.

**Mobile training content:** Tablet-sized mobile devices are opening up new opportunities for in-the-field, just-in-time delivery of training. Consider this scenario: A wheel loader trainee is about to load a truck for the first time. He has learned the proper technique to do so in a CBT, as well as in a simulator. But this is the first time he’s going to do so on an actual loader. He pulls opens his tablet device and reviews the CBT module on the Y-type loading pattern—a last-minute refresher that puts that knowledge “top of mind.” That “mini-lesson” increases the odds that he’ll be able to perform this technique proficiently. Tablet devices can also be used for pre-operation walk-around inspections and other training applications.

**Ride-along video:** GoPros are small, inexpensive and ruggedized video cameras that are popular for filming extreme sports. Mounted inside the corners of a machine’s cab, these cameras can be used to collect video footage of an experienced operator performing a machine task from multiple angles. You can see his hands move the controls and hear his commentary about what he’s doing—invaluable from a training standpoint!

Taking this concept one step further, you can videotape trainees as they perform the same tasks, and then use the video as an assessment tool, to coach trainees and help them improve their techniques.

No matter what technology you use to deliver training to your equipment operators, one thing remains the same: You must develop clearly-defined learning objectives, such as:

- What do you want your trainees to know?
- What should they be able to do?
- At what level of proficiency?

Then let your learning objectives drive the scope of the training content and platform used to deliver it to your trainees.

Chuck Frey will give a presentation on this topic at the 2012 APWA International Public Works Congress & Exposition in Anaheim, California. His session is entitled “Trends in Operator Training Technology” and takes place on Monday, August 27, at 2:00 p.m. He can be reached at (262) 514-2886 or cfrey@vista-training.com.
Is yours a learning organization?

Donal Hartman, Jr., J.D., LL.M
Program Director, College of Graduate & Continuing Studies
Norwich University, Northfield, Vermont
Member, APWA Leadership and Management Committee

The APWA Leadership and Management Committee has introduced a new series of articles entitled “The Great 8” which focus on leadership traits and qualities. This is the eighth series of articles contributed by the committee over the past several years. The Leadership and Management Committee, working with a subcommittee composed of public works leaders with decades of experience, has identified a number of qualities required for success as a leader of a public works organization. The series will explore the following traits over the next eight months:

1. Vision
2. Charisma
3. Symbolism
4. Empowerment
5. Intellectual Stimulation
6. Integrity
7. Knowledge Management
8. Power of Relationships

One of the most important questions for the public works leader is whether the organization is a learning organization. The answer to this question says a lot about the organization, and even more about the leader. It is a critically important inquiry as it reflects on a number of issues—innovation, willingness to learn new ways of doing business, commitment to lifelong learning, sharing knowledge, the vision for the organization, and whether the leader is moving the organization forward.

What is a learning organization? The Harvard Business Review offers this definition: “A learning organization is an organization skilled at creating, acquiring, and transferring knowledge, and modifying its behavior to reflect new knowledge and insights.”* Best practices today tell us we must be a learning organization.

Studies have shown a learning organization is more informed, adaptable, flexible, more inclined to see things in different ways, and willing to change and innovate. It will be more resilient, more confident of its capacity to meet challenges. Just as importantly, the organization which views education as an important value will be more democratic with a higher commitment from everyone to advance the interests of the organization.

From an external perspective the learning organization maneuvers itself into position to create opportunities by challenging the status quo. Look at the experience of Nokia; it was a pioneer in the development and use of cell phones, but got stuck on its vision for the cell phone. It didn’t see its greater potential for photos, e-mails, and so forth. It took Apple and others to exploit the cell phone’s potential as a mini-computer. A learning organization recognizes stability is not the same as being static. Stability means viability, growth, and constant learning. Stability is best achieved from sharing knowledge and welcoming ideas.

Just as important as meeting the demands of external challenges is creating positive dynamics within the organization. Recently I asked a group of graduates if they: (1) were in an organization where information was hoarded, not shared; and (2) were regularly solicited for their views and advice. The answers were not favorable: Information was collected and hoarded by leadership; and information was not shared. Why? Leadership perceived knowledge and information as a source of power. Leadership saw input from the ranks and junior management as threatening. The natural result was lower-level managers felt marginalized and unimportant.

What does a learning organization look like?

Learning organizations are skilled at five main activities: (1) systematic problem solving; (2) experimentation with new approaches; (3) learning from the organization’s experiences and past history; (4) learning from the experiences and best practices of others; and (5) communications, particularly the transfer of knowledge quickly and efficiently throughout the organization. Each is accompanied by a distinctive mind-set—the keys of our thinking patterns.**

Systematic problem solving asks us to engage in the scientific approach in finding solutions. In other words, we rely on observation, creating a hypothesis, testing the hypothesis, and continued evaluation over time. The unscientific approach relies on historical anecdotes, chance, guesswork or trial and error followed after considerable time and expense.
with little studied evaluation. The intellectual difference is the scientific method requires the thinking to guide the process versus the process guiding the thinking. In a sense, the scientific approach leads to discovery; the unscientific approach leads to doing things the old way.

Experimentation is an outgrowth of a desire to improve, to find a new way to accomplish a current task or process, or way to improve the process itself. It comes from a spirit of inquiry, a sense of intellectual curiosity.

Learning from personal experience can be useful, but it also can be restrictive. History tells us the stirrup was not invented for thousands of years after man learned to ride a horse. I can just imagine the father telling the son two thousand years ago you stay on the horse’s back by gripping the horse’s mane and pressing with your legs—don’t even think of doing it any other way! Fortunately for mankind, someone tried something different.

If you wonder why European settlers to the New World brought a complex system of laws, trade and commerce when those who welcomed them still lived in the Stone Age, recall the trade routes between Europe and the Far East, and the Crusades. Knowledge which was transferred by communication was made possible by contact. In the absence of communication little knowledge passes from culture to culture or from generation to generation. We also know that as we improve communications we change the way we think and how we interpret our communications we change the way.

A culture of learning and teaching is a prerequisite to the learning organization. External trainers can impart some knowledge and skills, but their efforts need to be assimilated by the organization in ways that shape day-to-day learning.

It boils down to organizational values. Organizational learning is for everyone, not just for the trainers. Too many organizations look at learning as another job function rather than viewing learning as a value and part of the culture of the organization. Knowledge and learning must be integrated into processes to provide the kind of cultural change necessary to move the organization forward. If learning, innovation and a commitment to improvement and information sharing are valued, over time the culture will evolve. The value of learning also provides a useful framework for integrating new processes. One good example is the American auto industry’s first attempts at continuous quality improvement.

These programs initially met with little success. Why? Leadership did not value continuous quality improvement. Japanese auto manufacturers valued quality and made it integral to design and production, unlike American automobile companies which diverted cars with defects to a separate area where repairs would be made before the product was shipped. Only when quality control was integrated did Detroit improve the quality of its vehicles.

Leaders must be willing to face reality and heed signals. This requires openness and courage—another set of values that must be integral to an organization. Leaders often see change in the “old” ways of doing business as a comfort, a static state not subject to change. That is why change is threatening. But progress is inevitable; if the organization doesn’t evolve, it will lose its best employees and change will be forced on it by external factors. Learning is self-challenging as it calls for an admission that we don’t know everything. But that admission is actually the first step to having an open mind.

Organizations should also celebrate generation and championing of ideas. Ideas provide the excitement and energy needed for learning and teaching. Celebrating new ideas underscores the value of learning, and drives the concept of learning into the culture of the organization. Too often our leaders crow about their accomplishments; the key is to celebrate what others add to the knowledge base of the organization.

What is the role of leadership?

A learning organization starts with the leaders. The leader shapes culture, the foundation of any organization. The leader models learning and sets the tone for the importance of learning. Here are some steps leaders should consider:

- Set aside time for reflection and encourage others to as well (constant action is not always constant growth)
- Be willing to experiment with new concepts and ideas (stay young)
- Always engage in intelligence gathering (collect ideas)
- Adapt a disciplined approach to analysis and interpretation (take learning seriously)
- Systematically share ideas and learning (don’t “pothole” information)
- Schedule sessions for discussion with stakeholders, customers, or
leaders of other organizations (prime the pump)

• Change processes and programs based on what you learn (live what you learn).

Strong leadership is critical for the learning organization. But ironically, strong leadership can be an obstacle. Those who aspire to lead occasionally create a culture of dependence. The best leaders recognize they must also be teachers in their organizations, taking time to listen, to encourage, and to instill in others the spirit of finding their own way. History is filled with examples of both kinds of leaders—those who leave a vacuum when they step down from power, and those who leave a strong, self-sufficient organization as their legacy. If you want to create a learning organization you must be willing to share, to accept and to foster. Self-growth is important, but recognizing and encouraging growth in others is more important. Don’t work to make yourself indispensable; work to make yourself replaceable.

I recently attended a leadership and management meeting in Kansas City. One of the members brought out his new cell phone and showed us a new “app” which made it easy for citizens to bring issues to the attention of their public works department. This would not be surprising except this particular member the year before proudly announced he was “cell phone free.” We all got a good laugh. This incident represents to me how leaders find excitement and new opportunities when they are willing to learn new things.

Donal Hartman can be reached at (802) 485-2767 or hartmand@norwich.edu.

References

See also http://www.youtube.com/watch?v=lUP4WcfNyAA (excellent video by Garvin and Edmondson on how to become a learning organization).


See also http://www.youtube.com/watch?v=Rhu3xXf3lw&feature=topics (teaching learning from the employee level upwards; skills sets/confidence/ownership)
Custom Turn by Turn Navigation

Asset Management
- Intelligent ROW Imaging
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- Click Road to View Video
- Measure Dimension on Photos
- Geo-referenced Voice Notes
- WEB Distribution Ready

Pavement Management
- Automatic Crack Detection
- Full Lane Downward Imaging
- Complete Repair Decision Support
- Optimal Repair Strategy Analysis
- Road Condition Forecasting
- ArcGIS Integrated

Field Data Collection
- Pot Hole
- Pavement
- Sign
- Signal
- Repair
- Branch
- Remove

Mobile Data Terminal
- GPS: SiRF Star IV, 48 channels
- Field data collection
- Ruggedized with touch screen
- 3G & 4G CDMA-EVDO
- Carriers: Verizon, Sprint, AT&T
- Smart phone support
- Two way voice communication
- Two way SMS messaging
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Our geo-political borders become less and less obstacles to travel and learning. Technology and new international relationships allow us to see the shared concerns and opportunities in public works management throughout the world. The American Public Works Association and the International Affairs Committee see this as an opportunity for APWA members to learn from our international colleagues as well as to use the unique knowledge that our members have to teach and assist where needed.

APWA President Diane Linderman; Doug Drever, Executive Board liaison to the International Affairs Committee; David Dancy, APWA Director of Marketing; and IAC chair Mary Monahan developed goals for 2011-2012 that further established Global Solutions in Public Works as an international opportunity for APWA members, reinforced the value of the Jennings Randolph Fellowship Program, and expanded international opportunities for members through new strategic relationships with Engineers Without Borders and the International Federation of Municipal Engineering. With support from the IAC, APWA renewed its relationship with the International City/County Management Association.

Global Solutions in Public Works

Year two of this program saw dramatic increases in the awareness and participation of chapters and members. The goals of Global Solutions in Public Works are to provide chapters and members:

1. Access to global solutions for members’ local public works challenges
2. Opportunities for members to use their unique knowledge of public works operations to mentor others in our global community
3. Support in developing long-term relationships with other public works operations throughout the world

Gail Clark, Manager of International Programs for APWA, worked with the IAC to identify and reach out to members and chapters who would serve as champions in promoting the international opportunities that Global Solutions, Jennings Randolph, and other IAC initiatives provide to members. Early champions include the Colorado, New England, Florida, and Ventura County Chapters.

The IAC received and approved applications from Susan Pan and Rachel Pan from APWA’s Ventura County Chapter. Susan and Rachel will travel to China to study high speed rail. Dwayne Kalynchuk from APWA’s British Columbia Chapter was approved for study in the Czech Republic. Dwayne will investigate district energy systems and local government composting operations. These applicants will receive up to $1,000 in reimbursement from Global Solutions. They and all applicants are encouraged to seek additional support from their chapters as these study tours likely address regional public works challenges that are shared by their fellow chapter members. All Global Solutions participants are required to share the knowledge they learned from their study tours with other APWA members through APWA Reporter articles, chapter presentations and, when possible, a presentation at Congress. All participants must also be available as a resource to fellow members.

International Federation of Municipal Engineering

APWA has a strategic relationship with the International Federation of Municipal Engineering (IFME) to advance and promote education and professional support for members of both organizations. IFME held their 2012 World Congress in June in Helsinki, Finland. The program’s focus was sustainable solutions and presentation topics included urban planning, traffic solutions, energy solutions, municipal design and engineering, construction and renovation, and asset management. Prior to the Congress the Institute of Public Works Engineers Australia (IPWEA) and New Zealand’s INGENIUM offered study tours that focused on public works challenges in the Helsinki region. APWA also has strategic partnerships with IPWEA and INGENIUM.

The IAC approved funding of $1,000 from Global Solutions for approved applicants to participate in the Helsinki Congress and tours. Applications came from members from the Central Pennsylvania, Florida, New England, and Colorado Chapters. Applicants were required to describe their learning objectives,
local and regional relevancy, and commitments to share the knowledge. As a result of schedule availability final participants included Jim Close, Harrisburg, PA; William Burns, Orlando, FL; Trish Aragon, Aspen, CO; and Anne Noble, Boulder, CO.

Jennings Randolph Fellowship
The Jennings Randolph Fellowship Subcommittee is chaired by Noel Thompson. At the 2011 Congress in Denver the subcommittee discussed opportunities to promote the Jennings Randolph program and solicit more interest and applications from members. The JR International Fellowship program is an opportunity for APWA members to broaden their knowledge on trends and advances in public works through contact with our international partners and to promote friendship and understanding among public works staff on an international basis. Study destinations include Australia, New Zealand, Mexico, Czech Republic, and Slovakia. Educational opportunities are associated with annual or biennial conferences of APWA’s valued partner organizations IPWEA (Australia), INGENIUM (New Zealand), ICLEI Mexico, and the Czech/Slovak public works associations. APWA has dedicated task forces that work closely with INGENIUM and IPWEA, ICLEI Mexico, and the Czech and Slovak public works associations. These task forces are represented on the IAC and on the Jennings Randolph Fellowship Subcommittee.

Congress 2012 will include presentations from the members of the subcommittee and former participants of JR study tours. Discussions will include the application process, securing support from municipal management, and the value of learning from international colleagues.

The Jennings Randolph Fellowship Subcommittee proposed that the IAC recommend that the Eisenhower Institute approve JR funding for Kevin Chang from the Washington State Chapter and Carla Dillon from the Southern California Chapter to participate in the Annual INGENIUM Conference in Rotorua, New Zealand, held in June. In addition to $2,000 from the JR Program, the IAC approved $1,000 from Global Solutions to offset study tour costs.

Engineers Without Borders-USA
APWA has a strategic relationship with Engineers Without Borders-USA. Northern California Chapter member Randell Harrison was approved for funding assistance from Global Solutions to offset costs of mentoring a student group from the University of Portland Chapter of Engineers Without Borders (EWB-UP). The EWB project included the installation of a culvert to protect a roadway in Guadalupe Carney, Honduras. Randell and his team continued the work another EWB-UP team had begun a year ago in the village. The village worked with that team to identify additional needs, including this culvert. Future EWB-UP teams will follow up on the success of this project and execute other prioritized work. A more detailed account of this project is located in this issue of the Reporter.

International City/County Management Association
Last July, the International City/County Management Association (ICMA) asked APWA to partner with them in applying for a grant from the United States Agency for International Development’s (USAID) City-to-City Partnership Program. ICMA was approved for grant assistance from the CityLinks
program. CityLinks pairs U.S. cities with municipalities in developing countries to create more resilient communities by addressing climate change, food security, and water and sanitation challenges. ICMA is now developing projects for host communities to review and accept. APWA will provide, through its membership, technical resources for water and wastewater components of an approved project.

International Affairs Committee Task Forces
Bob Kass, chair of the IAC’s Latin American Task Force, represented APWA at the ICLEI-Mexico National Public Works Congress in April in Tijuana, Mexico. Bob led a six-person delegation from the U.S. which made presentations at the Congress. ICLEI-Mexico Executive Director Edgar Villaseñor regularly attends APWA International Congresses. APWA San Diego and Arizona Chapters contributed to this opportunity.

Helena Allison, chair of the Czech Republic Public Works Association/Slovakia Public Works Association (CZPWA/SPWA) Task Force, has been working with delegates from these associations in planning for the Anaheim Congress. Fifteen members from both associations are committed to attending and participating. Czech and Slovak delegates will be joining various chapters at their chapter dinners as a way of enhancing and expanding long-term relationships among the associations.

Strategic Planning for APWA International
APWA’s Board of Directors has approved funding to support the development of a comprehensive plan that would lay out a strategic approach to APWA’s international efforts. This planning effort, with the help of an experienced consultant, would include consideration for expanding APWA’s membership base beyond the traditional North American borders. As in all efforts and programs that APWA and the IAC develop, value to members is critical.

Moving Forward
APWA and the IAC will continue to develop and expand opportunities for APWA members to participate in international public works as life-long learners and mentors. Our challenge is to make sure that our members are aware of these opportunities and that the application processes are expedient and fair. APWA staff and IAC members are ramping up outreach to chapters through additional communications to chapter leaders, identifying chapter champions, and improved website information at www.apwa.net.

At Congress in Anaheim, Chair Mary Monahan will again participate in the Expo Experience on the exhibit floor and discuss Global Solutions. Members of the IAC will serve as roaming reporters in Anaheim and interview attendees about their local challenges and the opportunities Global Solutions may provide. APWA staff members, especially Gail Clark, are always eager to talk about all of APWA's international opportunities for members. So, feel free to approach all of us with your questions, suggestions, and interest in APWA's expanding international programs.

Mary L. Monahan can be reached at (413) 313-6901 or marylmonahan@gmail.com.

Members of the APWA International Affairs Committee include:
Mary Monahan (Chair), Holyoke, MA; Helena Allison, Davis, CA; Curtis Edwards, San Diego, CA; Vydas Juskelis, Villa Park, IL; Robert Kass, San Jose, CA; John Lisenko, Richmond, CA; Ted Rhinehart, Decatur, GA; Ram Tewari, Pembroke Pines, FL; Noel Thompson, Louisville, KY; Doug Drever, APWA Board Liaison, Saskatoon, SK; Chris Champion, IPWEA (ex-officio), Sydney, Australia; Ross Vincent, INGENIUM (ex-officio), Thames, New Zealand
In addition to being a longstanding APWA member, I took the initiative to join Engineers Without Borders (EWB) in 2011. My wife and I joined EWB with the idea of travelling to places off the tourist track, getting to know people and their cultures, and to help impoverished people that do not have the ability or skills to help themselves.

EWB also offers opportunities to provide mentorship and guidance to students that have never been exposed to real-life projects, communities and issues. Each student chapter is required to have one or more professional mentors and there are 180 student chapters throughout the country. A person does not need to be an engineer to join EWB, much like APWA, because there is a recognition that it takes diverse sets of skills to function as an organization and put projects together. Mentorship opportunities are not limited to the student chapters. The membership of the EWB professional chapters is dominated by people under the age of 35 who could benefit from the experience of more seasoned engineers and other professionals.

I was asked to be the volunteer professional mentor to the University of Portland (Oregon) Chapter of EWB (EWB-UP) in March 2011. Since then, I have mentored two different student groups through the design and construction of two different stream/roadway crossings in the village of Guadalupe Carney, Honduras, my most recent trip occurring in May 2012. My goals as a mentor are:

- Provide guidance and assistance to the students
- Ensure that some “standard of care” is implemented on the project
- Work with the community to design a project that meets their goals and expectations
- Empower the students and community to take ownership of the project
- Observe the performance of past projects

Location History
Guadalupe Carney is located in northeast Honduras near the City of Trujillo on the Caribbean Sea. Trujillo is the oldest city in the Americas, celebrating its 487th anniversary while we were there. The village of Guadalupe Carney was formally established only 12 years ago, as part of land reforms being implemented by the government, in which land in the government’s possession was turned over to peasants. Prior to the establishment of the current community, the village has the dubious history of having served as a CIA training camp for Contra rebels to fight in Nicaragua...remember Oliver North? Honduras has an interesting history of colonization and occupation, first by Spain and in the most recent century, by big business.

Project Team
The team for this project consisted of six students from EWB-UP, four of which are graduating seniors and two starting their senior year.

Student team from University of Portland: (left to right) Jennifer Doyle, Andrew Takahashi, Jennifer Miner, Brendan Busi, Dustin Sauer, and Colton Collins
is that these two students will return next year to provide some sense of continuity with the village. The other team members consisted of me, our translator (my wife) and our daughter, who acted as the photographer for the project.

Project Planning Phase
Planning for this project began last August, when the previous project team that constructed a four-barrel culvert crossing met with the village committee. A planning meeting was held that identified several projects as candidates, and later selected a specific crossing as the most important. The crossing they proposed to improve was a ford crossing or “la plancha,” as they called it, which literally translates to griddle (a flat metal plate used to cook on). U.S. design standards for ford crossings are pretty much nonexistent, but we were able to find through EWB-USA’s online reference library a British publication on ford crossing intended for implementation in Africa. For our project we elected to install a small culvert to pass nuisance water and prevent ponding behind the roadway.

The students set to work preparing cross sections and creating details based on our discussions and survey data collected from a previous trip. EWB has strict guidelines on the technical implementation of projects, which requires that all projects be approved by a Technical Advisory Committee. Our project received approval for implementation in March.

Implementation
Our 2011 project provided us insights to the effort required to obtain materials in order to keep the project on schedule, which of course is not very flexible since we are in the country for only a fixed 10-day period. Last year we had an unplanned work stoppage for three days, waiting for delivery of two out of the four culverts required to complete our stream crossing project. We did not want to be in the same position for this year’s project, so we ordered materials six weeks in advance and stored them at a secure location in the village. Common materials like cement and reinforcing steel were readily available, but gravel and rock were collected by hand at the river, so a couple of days lead time was needed for those materials. We hired an equipment operator to perform the difficult excavations for the project, which again helped keep the entire project on schedule.
The village scheduled volunteers to come to the project every day to assist with the work. We usually had 4-8 villagers plus the student team available to work on the project. The first day of work on the crossing we were able to excavate the site and install the culvert, rock slope protection, and reinforced concrete cap. The next day, the rock in the roadway was filled partially with gravel and then concreted to improve vehicular access. The final day of construction involved installing delineator posts, and a warning sign that said, “No Pase Cuando Inundado.”

Once we were completed with our planned project, our team and the village had identified two stream/roadway locations that had critical issues that required immediate attention to avoid the catastrophic loss of critical infrastructure, possibly with the next big series of storms. The village mobilized to fix these problems by collecting a truckload of additional rock for slope protection to combine with the materials that remained from our planned project. I sketched out the design and explained the reasoning and rationale for the improvements, and everyone set to work to implement the countermeasures that I had outlined. The two locations where we did the additional work were at the primary and secondary entrances to the village from the highway, at the Main Street Bridge and at a six-foot diameter culvert on Calle Boulevard.

One of the goals set by EWB-USA was for our team to engage the community financially, to ensure the long-term sustainability of the project through a budgeted maintenance program and a contribution toward the capital costs of the project. Our NGO (Non-Governmental Organization) sponsor, however, kept telling us that the community had no means of raising funds to contribute toward projects, making achievement of this goal seemingly impossible. However, the economic situation in the village has been improving over the last couple of years with the introduction of farming African Palms for palm oil production. We held a community meeting with our agenda to explain the goals and limitations of EWB and our own chapter’s limitation on funding. The community recognized the importance of sustainability and immediately began brainstorming ideas to raise funds. The community formed a storm drainage committee made up of one representative from each neighborhood within the village. We plan to check back with the community in September to see how their fundraising efforts have progressed.

Even though we were very busy for most days on the trip, we still managed to fit in some leisure activities which included three half-day trips to the beach, a visit to a palm oil pressing facility, and even managed to squeeze in a short white water rafting excursion. While not all EWB projects offer these types of amenities, we’ll just consider ourselves lucky to be working in this area of Honduras.

Closing
Volunteerism is a great way to feel good and give back, not only to your community but to the world. Also, as professionals, we should consider it our duty to mentor and train our “up and coming” public works staff even before they know that’s what they are going to be doing. Inspiring students will encourage their interest in a public works career and help ensure those staffing needs of the future.

I would like to thank APWA’s International Affairs Committee which approved this project as a Global Solutions in Public Works project, which made me eligible to receive up to $1,000 in reimbursement for project-related travel expenses.

Randell Harrison can be reached at (925) 691-0450 or Randell@Harrison-Engineering.com. Harrison Engineering Inc. is specialized in providing civil engineering design services for roadway, pedestrian and drainage infrastructure to municipal clients in the San Francisco Bay area.
When members of the EWB-USA University of Maryland College Park Student Chapter pressed their handprints into the freshly poured concrete of a bridge in Addis Alem, Ethiopia, they were not doing it alone. Standing next to the students were over two dozen Ethiopians who helped them construct the new bridge to build a better community for the 15,000 people living in Addis Alem.

For Addis Alem, building the bridge was valuable because it provided safe access to the local market that attracts thousands of people each week.

For the University of Maryland College Park students, building the bridge was equally valuable because it gave them the unique opportunity to apply their knowledge and work closely with people from a different culture.

“The community and our chapter worked as an equal team, maintaining constant communication,” said project leader Kathi Hendrick. “That helped prevent any major problems from occurring.”

In addition to working with the community, the students used six different professional mentors’ expertise over the course of the project.

Seed of change
This is the type of project that EWB-USA founder Dr. Bernard Amadei had in mind when he started the organization 10 years ago.

In 2000, Dr. Amadei, a professor of civil engineering at the University of Colorado at Boulder, hired a small company to landscape his backyard. Unknown to him, a seed of lasting change would be planted. The landscapers came from a small village in Belize where people lacked access to a steady supply of clean water.

After learning their story, Dr. Amadei was invited to the landscapers’ small village in Belize. As he learned, the responsibility for carrying drinking and irrigation water from a nearby river to the village fell to the village children. Dr. Amadei returned to Boulder and recruited eight University of Colorado students in civil and environmental engineering, as well as Denis Walsh, a civil engineering expert. The team set to work, designing and installing a ram pump and a water distribution system. With the help of the local community, the entire project was completed in May 2001.

Engineers Without Borders USA was founded one year later based off of Dr. Amadei’s success in Belize of connecting a developing community with engineering students able to design a solution to the community’s need.

Since that day in Dr. Amadei’s backyard, the idea of engineering students and professionals assisting developing communities has resonated throughout the engineering and university communities.

Global challenges, local solutions
Despite much progress in the field of international development in recent years, humanity continues to face tremendous global challenges. Water problems such as access to safe drinking water and reliable sanitation affect about half of the world’s population. Nearly 1.1 billion people do not have access to clean drinking water and 2.6 billion people do not have access to proper sanitation.

As the world’s population continues to grow, bringing clean water to the developing world continues to be one of the leading goals of EWB-USA’s projects. However, many projects are designed to achieve multiple goals, such as improving health, agriculture and education in a developing community. EWB-USA works to
achieve a vision of a world in which all communities have the capacity to meet their basic human needs. This vision is actively pursued by engaging in community-driven development programs.

EWB-USA's development approach requires that all program proposals come directly from the communities themselves, which increases the likelihood of a project's success by ensuring that the needs addressed by the chapters are both identified and supported by the community. With the community's input, EWB-USA chapters design and implement low-cost, small-scale, replicable and sustainable engineering solutions to the problems identified by the community. EWB-USA programs encompass water purification and delivery, sanitation, transportation and infrastructure projects, and sustainable and renewable energy systems.

**Network of problem solvers**

Since 2002, EWB-USA has grown from approximately eight engineering students and one civil engineering professor to an organization of over 12,000 students, faculty and professionals. Working through over 250 university and professional chapters throughout the United States, EWB-USA's membership continues to grow, limited only by the organization's infrastructure and ability to ensure the quality and sustainability of the community programs.

Over 400 projects similar to the ones in Ethiopia and Belize can be found in 45 countries all over the world.

Although the bridge in Ethiopia and clean water in Belize are the most visible outcomes of EWB-USA's projects, the impact on EWB-USA members is equally as transformative. “I wish EWB-USA had been around when I was a young engineer just out of school,” said Richard Ferchaud, a member of EWB-USA Central Houston Professional Chapter. “Had I been engaged for the past 32 years instead of just the past three, I believe it would have made a huge positive impact in my personal and professional development.”

Although engineers play an important role in community development, a variety of disciplines outside the field of engineering are needed to bring lasting change to a community. EWB-USA seeks public health professionals, educators, business leaders and others who are passionate about building a better world. Through this collaboration, EWB-USA addresses some of the most prevalent challenges facing the world today.

EWB-USA's vast network of problem solvers can be found both all over the world and right next door.

To get involved with Engineers Without Borders USA, locate a professional or student chapter online at www.ewb-usa.org.

Kelsey Gross can be reached at (720) 204-3208 or kelsey.gross@ewb-usa.org.

**EWB-USA University of Maryland College Park Student Chapter members worked alongside Ethiopians and used local construction methods, such as masonry rock abutments, to build the bridge.**

After a hard day’s work, EWB-USA University of Maryland College Park Student Chapter members and Addis Alem community members pose for a picture during the construction process.
n 2011 the Gas Technology Institute (GTI) and Operations Technology Development (OTD) launched a new research initiative, called the Intelligent Utility program, to investigate the use of consumer grade technology, such as smart phones and tablets, as field data collection devices for utility companies. New consumer-grade technology has the potential to expand mobile, electronic, geospatial data collection to a utility’s entire workforce. Low cost and easy to use, smart phones and tablets have the potential to provide leap-frog capabilities to the utility industry to transition away from paper-based data collection towards GIS-based data collection.

In addition to developing software for smart phones and tablets, GTI is also developing technologies to complement the capabilities of consumer-grade devices. Examples include the integration of real-time high-accuracy GPS and barcode scanning to further automate the data collection process.

Case Study
As part of GTI’s Intelligent Utility initiative, Avista Utilities in Spokane, Wash., is exploring the use of smart phones and mobile GIS to automate field data collection for exposed pipe surveys. The new technology replaces paper maps and forms with software that allows field crews to view the GIS and collect inspection results on an iPhone. Manual data transfer and entry in the office is replaced by an automated process that uses cloud computing to make electronic survey data available in the office immediately without the need for manual entry.

In March 2012 Avista commenced a pilot project to evaluate the new technology being developed by GTI and their partner 3-GIS. Four iPhones with a GIS-based data collection application were implemented with field crews responsible for performing exposed pipe surveys.

The results of the pilot project demonstrated that the mobile data collection system provides value in the following ways:

• Field crews are able to see facility data on a handheld device. Previously, field crews were only equipped with paper maps and were required to call back to the office to request additional information when it was needed. This manual information request to the back office was eliminated with the Intelligent Utility application because the field crews can view GIS data in the field. Further, the ability to see facility data encouraged field crews to use the application because they saw immediate value to their work flow.

• Data is validated in the field. The mobile data collection application is structured in a way that allows data entry to be validated in real time. This feature reduces the occurrence of inaccurate data being recorded in the field. Although it is difficult to quantify the cost savings for field data collection validation, Avista recognizes the value of improved data quality in terms of risk reduction.
• **Data entry in the office is eliminated.** Field crews collecting data electronically eliminate paper records and the need for manual data entry in the office. The estimated annual cost savings associated with eliminating back office data entry is expected to result in a payback period of less than one year. Manual data entry in the office is also a potential source of error that is eliminated with the Intelligent Utility system.

• **Exposed pipe survey data is available for analysis.** Avista already has a process in place to associate exposed pipe inspection results with GIS assets because they recognize the value of attaching field survey data to specific asset for trending and tracking for integrity management. However, the structure of the mobile data collection system allows collected data to be directly associated with an asset in the field without the need for a manual mapping process back in the office.

• **Adoption is easy.** Field crews were able to learn to use the software and handheld devices with minimal training and had good experiences during the pilot project. The back-office data integration process was also easily adopted into Avista’s existing processes.

One lesson learned from the pilot project is the need for a system that does not rely on continuous cell coverage. Some areas of Avista’s service territory do not have adequate cell coverage. There is a need for a disconnected mode and GTI is actively working on developing this capability.

Another lesson learned relates to appropriately matching screen size to the specific type of data collection activity. Avista initially hoped to use iPhones as the data collectors but throughout the pilot project realized that a tablet device may provide an improved user experience based on the size of the inspection form. The next phase of the pilot project will include the deployment of iPads to evaluate the impact on productivity as well as the feasibility of using larger devices.

Erika Jacobs, GIS Analyst at Avista and the leader of the pilot project, says, “One of the big benefits for our field workers is the ability to see facility data in the field. We also expect to save a lot of data entry time on the back end by having the field crews collect data electronically in the field.”

The results of the pilot project have helped provide Avista with the experiences required to justify exploring the use of mobile data collection on handheld devices for other operations.

**Moving Forward**

While smart phones and tablets now provide functionality that would have been hard to imagine a few years ago, there are still improvements that need to be made to adopt the technology for full-scale utility operations. Ruggedness and visibility in sunlight are a few examples. However, it is clear that there is a compelling business case behind the use of consumer-grade devices for GIS-based data collection.

Alicia Farag can be reached at (847) 544-3492 or alicia.farag@gastechnology.org.

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High-accuracy GPS receiver providing sub-foot accurate data in real time integrated with a tablet computer running the Android operating system.
Pipe bursting of asbestos cement pipe: making it happen

Edward Alan Ambler, P.E., LEED AP
Water Resources Manager
City of Casselberry, Florida

Many efforts have recently been made by the Environmental Protection Agency (EPA), the American Water Works Association (AWWA) and other entities to accurately portray the capital required to rehabilitate the United States’ water and wastewater infrastructure. These agencies have come to a similar conclusion: A significant investment is required now to not burden the next generation of Americans with skyrocketing costs of infrastructure rehabilitation. The recent AWWA document “Buried No Longer: Confronting America’s Water Infrastructure Challenge” states the necessary capital required to replace existing water systems and keep up with new demand will be $1 trillion over the next 25 years.

Large portions of many utility distribution systems in the southern and western United States are made up of asbestos cement (AC) pipe, which was a popular pipe material from the 1930s to the early 1970s. While it is difficult to accurately measure how much remains in the ground and what condition it is in, there is an estimated 630,000 miles of AC pipe in the United States and Canada, and much of the existing AC pipe is nearing the end of its typical service life of 40-60 years.

Pipe bursting is an industry-proven technology for trenchless replacement of existing underground conduit systems, such as water, sewer, and gas. The existing pipe is replaced in situ with a new pipe of the same size or larger. Pipe bursting is typically performed using pneumatic or static pull methods where the existing pipe is fractured and displaced outward while the new pipe is pulled into place along the existing pipe alignment. The burst segments of the existing pipe are left in place in the vicinity of the new pipe. Because the replacement pipe is inserted into the exact location of the existing utility, no additional right-of-way is necessary and there is no impact to other existing utilities, as could occur through new utility installations.

Job site conditions most cost effective for pipe bursting are urban settings that contain roadways, drainage systems, and other existing utilities that would prevent or inhibit conventional open-cut installation of a new pipe system. Pipe bursting requires substantially less excavation than conventional open-cut which minimizes impacts to developed neighborhoods and commercial areas with established landscaping. Pipe bursting generates significantly less dust, nitrous oxide emissions, and erosion and sediment runoff. With proper planning, the pipe bursting contractor can often reduce out-of-service time of the utility to a six-hour time frame. Pipe bursting projects typically also progress faster than traditional open-cut projects thus providing fewer nuisances to residents and customers.

While record drawings or geographical information system (GIS) database drawings are the best information for designing and planning a pipe bursting project, other maps such as aerials or field drawings can also be used.

The National Emissions Standards for Hazardous Air Pollutants (NESHAP) is a document promulgated by the EPA in the early 1970s that was intended to regulate handling of...
hazardous chemicals, including asbestos. While NESHAP was a huge step forward in the protection of clean air, there have been significant advancements in technology since its adoption 40 years ago. The EPA issued statements in 1990 regarding AC pipe demolition to further clarify that if the AC pipe was left alone in place it would not be subject to NESHAP. If the AC pipe was removed, crushed or pipe burst, it would be subject to NESHAP standards. Many utility owners have elected to ignore or defer rehabilitation of its AC pipe rather than deal with complicated NESHAP regulations.

NESHAP concerns itself primarily with the release of asbestos fibers into the air that could be inhaled by workers because asbestos is not dangerous unless inhaled. During pipe bursting, the majority of the rehabilitation work occurs underground and the existing pipe is only exposed at service line pits of the inlet or outlet of the pipe bursting equipment and new pipe to be installed in place. The contractor responsible for pipe bursting of the AC pipe should follow the existing AWWA Guidelines "Work Practices for Asbestos Cement Pipes" that were adopted in 1995, which includes sufficiently wetting the AC pipe where exposed to ensure no asbestos fragments enter the air.

Future exposure of the general public, such as homeowners, to the segments of fragmented AC pipe are not likely as those remain within a few inches of the soil material surrounding the new pipe and homeowners are not likely to be digging as deep as the typical three feet of cover. The only agency that will have to deal with potential future exposure would be the agency that performed the pipe bursting rehabilitation and they would have ample records indicating the locations and would be prepared for such an encounter.

The use of pipe bursting to replace aging AC potable water distribution pipe was recently approved by the Drinking Water State Revolving Fund Program (DWSRF) as a qualified Green Project Reserve project at the City of Casselberry in Florida. The project was provided grant funding through the American Recovery and Reinvestment Act (ARRA) and has successfully rehabilitated over 20 miles of AC pipe using pipe bursting. Industry representatives worked very closely with the Florida Department of Environmental Protection (FDEP) and EPA representatives to determine how NESHAP applies to pipe bursting of AC pipe and how to comply with these requirements. This project meets all NESHAP criteria and has reinvigorated the process of trying to reshape NESHAP to meet current technology.

Through this project, industry members brought pipe bursting technology and the limitations imposed on it by NESHAP directly to EPA’s attention. In November 2010, industry representatives met with Washington, D.C. EPA staff to discuss the applicability of NESHAP to pipe bursting AC. Industry members presented detailed pipe bursting steps with videos of real-world application. The presentation alleviated certain misconceptions of the pipe bursting process.

EPA suggested that the industry members develop an Administrator Approved Alternate document. The Administrator Approved Alternate document will outline a procedure to be followed for pipe bursting of AC pipe and is intended to allow the EPA Administrator and staff to approve alternate technology or practices without having to modify NESHAP, which is federally codified.

Industry members have assembled the AC Pipe Bursting Task Force to develop the Administrator Approved Alternate document and submit to EPA for review by fall of 2012. This task force consists of members from national associations, utility providers, engineers, contractors, technology representatives and pipe manufacturers. This task force is committed to utilizing available technology to develop a useful procedure for pipe bursting of AC pipe that is environmentally friendly, economical and mitigates the risks of handling AC pipe. The exemptions and clarifications will be inclusive so one comprehensive document, specific to buried AC pipelines, will be available for use nationwide and that any type of work on buried AC pipelines will be uniformly practiced and regulated, regardless of which state the work may be located in.

With over 630,000 miles of buried AC pipelines in the United States and Canada having reached, or quickly approaching, the end of its useful life, the Administrator Approved Alternate is the first step in making pipe bursting happen. Replacement or rehabilitation is imminent, and pipe bursting is a proven technology that is environmentally, socially and economically beneficial.

Edward Alan Ambler can be reached at (407) 262-7725 or eambler@casselberry.org.
Trenchless Technology: The road to the future

George Ragula
Distribution Technology Manager
Public Service Electric & Gas Company, Newark, New Jersey
Chairman, North American Society for Trenchless Technology

Public works professionals are the guardians of a municipality’s public infrastructure. You are taxed with ensuring your roads, bridges and underground utilities are maintained and operate at the highest quality using the most cost-effective means available while being the least disruptive to residents and the environment.

With regards to your water and sewer systems, finding solutions to repair, rehabilitate and/or replace pipelines on a tight budget can be daunting. Much of North America’s underground infrastructure is well past its intended lifespan, with a majority over 100 years old. Trenchless technology can provide an excellent option for your infrastructure needs.

A super way to learn more about trenchless technology is through the complimentary expert training and education that NASTT will present at APWA’s International Public Works Congress & Exposition, Aug. 26-29 in Anaheim, Calif. NASTT will be teaching its “Introduction to Trenchless Technology Short Course” on Aug. 29. The course will be led by two of NASTT’s experienced instructors: Jennifer Glynn, P.E., Senior Project Manager with RMC Water and Environment, and Derek Potvin, P.Eng., President of Robinson Consultants Inc.

“This training offers a comprehensive overview of rehabilitation trenchless technologies available in the marketplace today,” says Glynn, a six-year Good Practices instructing veteran. “This is a great way to learn more about your options for repairing your ailing system.”

Since 1991, the North American Society for Trenchless Technology (NASTT) has been the voice in the promotion of the trenchless technology industry. One conduit in which NASTT shares its message is through education of the rehabilitation and new installation trenchless applications. NASTT has been at the forefront of providing its members and nonmembers with high-quality, non-commercial education and training courses through its Good Practices program.

Instructed by volunteer NASTT members, the “Introduction to Trenchless Technology Short Course” is modeled for both newcomers to the industry and for anyone interested in a refresher course on trenchless technology methodologies. The Short Course has been a regular feature at the NASTT No-Dig Show for more than 15 years. The training is both accurately and objectively presented without commercial content.

The Short Course presented on Aug. 29 will address the rehabilitation methods available to public works and utility owners for existing pressurized and non-pressurized infrastructure with no or minimal excavation. “Trenchless technologies are allowing municipalities/utilities to address more infrastructure needs with less impact to the public and in many cases at a lower cost,” says Potvin, a 10-year course instructor.

Trenchless methods

Below are the trenchless methods covered in the “Introduction to Trenchless Technology Short Course”:

CURED-IN-PLACE PIPE (CIPP) is a trenchless or low-dig rehabilitation technique whereby a flexible, resin-impregnated sleeve is installed into an existing pipe then cured to a hard finish assuming the shape of the host pipe. Robotic systems are utilized to reopen any connections. Structural CIPP products are available for both pressurized and non-pressurized infrastructure.
LATERAL LINING is accomplished by using an inverted fabric bladder. Epoxy resins are impregnated into the tubing, which is then inflated before the resin is cured. Curing can be via ambient temperatures or with steam. Lining can ensure a sound structural repair with no root intrusion or no leakage. This is an inexpensive, fast and non-intrusive technology that can resolve major infrastructure problems in mature urban areas.

SPRAY-ON SYSTEMS are non-structural applications. Benefits include improved hydraulics and water quality plus, prevention of future corrosion. No excavation is required at service connections and long installations lengths are possible. Piping usually needs to be clean and dry before lining.

TIGHT FIT SYSTEMS have been used since the early 1980s and thousands of miles have been successfully installed worldwide. This technology generally uses a high-density polyethylene liner from 2 to 48 inches in diameter, with section lengths averaging 2 to 5,000 feet. Using pits, the liner is winched into the cleaned host pipe through a mechanic reduction system. Once tension is released, the inserted liner expands to the host pipe.

PIPE BURSTING is an effective in-line replacement technique whereby an expansion tool is pulled or pushed through an existing pipeline and breaks apart the existing pipe and expands the subsurface surrounding the existing pipe to allow the simultaneous introduction of a new pipe. This replacement technique allows for size-on-size replacement, as well as substantial upsizing.

SLIPLINING is a popular and common replacement method used since the 1950s wherein a new pipeline of a smaller diameter is inserted into an existing pipeline, leaving an annular space that is then filled with grout. This method is a simple and cost-effective replacement technique. Where capacity is an issue, modified sliplining is a similar replacement method, but the new pipeline is installed close-fit with the existing pipe leaving no annular space.

SPIRAL LINERS are a versatile liner system that consists of inserting a continuous, one-piece strip of plastic liner into the sewer. The edges of the liner are locked together as it is wound into the sewer to form a continuous, loose-fitting liner.

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Annular space between the liner and the sewer is filled with grout. The liner can protect the system from sewer corrosion and provide structural support.

**SPOT REPAIRS** are a practical and economical method of repairing specific areas of a damaged pipeline rather than the full length of the sewer. Repair methods can include a short length of CIPP, grout injection or mechanical sleeves that are installed in the damaged area. Repair lengths typically range in length from 3 to 10 feet. This targeted approach to sewer repair can restore the structural integrity of the pipe and address infiltration and exfiltration.

**GROUT-IN-PLACE LINING SYSTEMS** is a method to rehabilitate large diameter sewers. Glass reinforced panels are custom made to fit inside sewers of various shapes including egg, round, horseshoe, rectangular and others. Panels are assembled inside the sewer and the annular space between the sewer and panels is grouted.

**MANHOLE REHABILITATION** is an effective method of addressing infiltration and structural deficiencies in the manhole. Manhole repair methods are an important component of a comprehensive sewer rehabilitation strategy. Sewer rehabilitation techniques include spray on lining systems, pre-manufactured inserts and CIP liner systems, as well as other mechanical repair systems.

George Ragula can be reached at (973) 430-8561 or George.Ragula@pseg.com.

**Meet the Instructors**

**Derek Potvin, P.Eng.** Derek Potvin, P.Eng., is President of the multi-disciplinary engineering firm, Robinson Consultants Inc. Derek has been providing trenchless rehabilitation solutions to his clients for over 20 years, including a trenchless technology project that won a Canadian Consulting Engineering Award. He is actively involved with NASTT’s No-Dig Show and has been an instructor of NASTT’s “Introduction to Trenchless Technology Short Course.” Derek has also been involved as an organizer/instructor of NASTT’s Good Practices Courses and regional trenchless conferences. Derek is the Vice Chair of NASTT and will become Chair in January 2013.

**Jennifer Glynn, P.E.** Jennifer Glynn, P.E., is a Senior Project Manager for RMC Water and Environment in its Walnut Creek, Calif., office. Jennifer has 16 years of experience in municipal infrastructure planning, permitting, design and construction management with an emphasis on pipeline design and the use of trenchless technology. She has published/presented papers on trenchless design and construction projects at conferences all over the country and is an NASTT Pipe Bursting Good Practices Course instructor. Jennifer is a member of the NASTT Board of Directors and serves on the No-Dig Show Program Committee. She is a founding member of NASTT’s Western Chapter, currently serving as its Past Chair.

**CORRECTION**

In the July issue, the e-mail address for the author of the article “Signal Strength” was listed incorrectly. The correct e-mail address for Tuan Nguyen is tnguyen@gbasi.com.
HINO TRUCKS RECEIVED THE HIGHEST NUMERICAL SCORE AMONG CONVENTIONAL MEDIUM DUTY TRUCKS IN THE PROPRIETARY J.D. POWER AND ASSOCIATES 2010-2011 MEDIUM DUTY TRUCK CUSTOMER SATISFACTION STUDIES. 2011 STUDY BASED ON 1,037 RESPONSES MEASURING 6 MANUFACTURERS. SURVEY WAS OF PRIMARY MAINTAINERS AND OWNER OPERATORS AND MEASURES OPINIONS OF PRIMARY MAINTAINERS OF THEIR NEW MEDIUM DUTY (CLASS 5, 6, AND 7) TRUCKS (2010 MODEL YEAR). PROPRIETARY STUDY RESULTS ARE BASED ON EXPERIENCES AND PERCEPTIONS OF CONSUMERS SURVEYED IN JUNE-JULY 2011. YOUR EXPERIENCES MAY VARY. VISIT JDPOWER.COM

HINO TRUCKS RECEIVED THE HIGHEST NUMERICAL SCORE AMONG CONVENTIONAL MEDIUM DUTY TRUCKS IN THE PROPRIETARY J.D. POWER AND ASSOCIATES 2008-2011 MEDIUM DUTY TRUCK ENGINE AND TRANSMISSION CUSTOMER SATISFACTION STUDIES. 2011 STUDY BASED ON 1,037 RESPONSES MEASURING 4 MANUFACTURERS. SURVEY WAS OF PRIMARY MAINTAINERS OR ONE-YEAR-OLD CONVENTIONAL CAB MEDIUM-DUTY TRUCKS. PROPRIETARY STUDY RESULTS ARE BASED ON EXPERIENCES AND PERCEPTIONS OF CONSUMERS SURVEYED IN JUNE-AUGUST 2011. YOUR EXPERIENCES MAY VARY. VISIT JDPOWER.COM

VISIT BOOTH #1500 TO LEARN MORE ABOUT THE TRUCKS THAT RANKED “HIGHEST IN CUSTOMER SATISFACTION AMONG CONVENTIONAL MEDIUM DUTY TRUCKS, TWO YEARS IN A ROW” AND “HIGHEST IN CUSTOMER SATISFACTION WITH CONVENTIONAL MEDIUM DUTY ENGINES, FOUR YEARS IN A ROW.”

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Utility coordination at FLL: abandoned underground lines

Thomas M. Wilcox, P.E., Senior Project Manager (retired), HDR Engineering, Inc., Sarasota, Florida, and member of the combined Construction Practices & GIROW Subcommittee of the APWA UPROW Committee

We are currently in the midst of designing an apron expansion for the new Terminal 4/Concourse G project at the Ft. Lauderdale – Hollywood International Airport (FLL), Florida. Some interesting utility coordination work has been required and it highlighted a common problem—what do you do with abandoned underground utility lines and the resulting congestion of utilities?

Included in the project scope is the modification of the existing airport terminal (Figure 1) and its underground utility infrastructure including apron and airside infrastructure and impacted landside utilities.

The existing Terminal 4 Pier Gate layout and aircraft parking positions include 10 gates assigned to Concourse “H.”

The new Terminal 4 Project along with the Expansion of Runway 9R-27L Project will require modification of the terminal building and apron area as shown in Figure 2 with 14 gates in a linear layout.

Our project elements include the following:

On the Airside – New apron and modifications to the existing apron as required for the build-out of the new concourse and demolition of the existing Concourse H; also needed are some new utilities and relocation of affected utilities under the T-4 apron area.

On the Landside – Construct a new Florida Power and Light duct bank and manhole system, construct multiple duct bank branches with at least one new manhole from the main AT&T duct bank ring network (under Terminal Drive) tie the Communications Centers for Terminal 4 and Terminal 3 together.

Existing underground utilities in the landside and airside areas affected include:

- 4-inch natural gas line supplying Terminals-2, 3 and 4;
- 8-inch sanitary sewer system providing collection for Concourse “H”;
- Lift Station and 8-inch sanitary force main discharging effluent from Terminals 3 and 4;
- Stormwater sewer collection system – varies in size from 18” to 96” diameter;
- 8-inch water main supplying potable water and fire protection water to the T-4 area;
- 16-inch water main supplying the terminal core;
• 12-inch and 14-inch jet fuel hydrant system;
• FPL power cable duct banks running along Perimeter Road, South Service Road and Terminal Drive; and
• Communications cable duct banks running along Perimeter Road, South Service Road and Terminal Drive.

As you can see, much of the work involved working with utilities. The goals for the proposed T-4 Civil Work included the following tasks:

**Airside**
- Complete minor modifications to the existing T-4 apron in support of phased gate openings prior to the replacement of the entire apron;
- Replace the existing apron to accommodate the reconfigured aircraft parking, taxiways, taxilanes and Remain Overnight (RON) aircraft parking areas in coordination with the construction of the new Concourse;
- Revise the stormwater drainage to meet the requirements of the proposed apron work;
- Complete the hydrant fueling system modifications (installation of the eastern expansion primary loop, secondary supply loops and fueling hydrant pits);
- Reroute and modify sanitary sewer and potable water systems as required to support the T-4 Gate Relocation Project;
- Install an underground emergency fuel storage tank and piping adjacent to the emergency Diesel Generator Room;
- Reroute the TECO 4 inch Gas Line to Terminal 4; and
- Reroute and resize the airside potable water pipe segment around Terminal 4.

**Landside**
- Construct a new FPL power duct bank branch between the Terminal Drive Power duct bank ring and the new FPL vault in Terminal 4;
- Construct new Communications duct bank branches between the main Terminal Drive AT&T duct bank ring and the existing communications closet in Terminal 4, the new Communications closet in Terminal 4 expansion and the existing Communications center in Terminal 3;
- Construct a parking lot south of Terminal Drive and north of the apron fence line, just east of Terminal 4; and
- Install temporary and permanent AOA fences along the edge of the new apron.

As in nearly every retrofit project there are choke-points, locations where you need to put ten pounds of utilities in a five pound bag, so to speak. Along with the larger Terminal building comes the need for additional infrastructure to serve more passengers, planes, luggage, food, water, restrooms, fuel, etc.
Utility needs often pose conflicts with competing users such as roads, toll plazas, parking garages, and each other. Most utilities don’t want their lines to be placed under a 15½”-thick Portland Cement Concrete slab or a busy terminal drive as it makes getting to them rather difficult, especially in an emergency repair situation. Therefore an open grassy area tends to be a magnet for attracting every utility in the area. One can be seen in Figure 3.

In Figure 4 you can count over 10 utility lines in the very narrow grassy space between a multi-story parking garage on the right and busy Terminal Drive on the left.

This situation is not found only at airports as shown in this photo of an intersection (Figure 5). Public rights-of-way are viewed as the “open areas” by the utilities in zero-lot line conditions. Think about how you would run a new utility line through this area. Wonder how many of these lines have been abandoned over the years but are still taking up valuable space because they weren’t removed? What happens when a utility line is abandoned? Generally it just becomes part of the underground puzzle.

Underground utility congestion isn’t a new problem, as shown in this photo from 1917 (Figure 6). It’s a good bet that many of these lines have outlived their useful lives and have been replaced over the years. There is an equally good chance that any abandoned line(s) were abandoned-in-place. How would you be able to remove a failed line? Even today the common treatment for abandoned lines is emptying them of any product they might contain and filling the line with flowable fill (abandonment grout) or perhaps just cutting and capping of the mains and services. This does not free up space for future utilities. In some cases the abandoned lines are mistakenly identified by the locators as a live line, which an excavator exposes then protects and afterward starts digging with abandon (pun intended) and hits the real line nearby. Who pays for the costs associated with this?

What does an excavator do when he finds an unknown or unexpected utility line? He stops. Why? Every
The problem of abandoned utilities is an issue that, at this point in time, doesn’t have a clear-cut answer. Different owners/agencies/utilities approach the problem in different ways: mandate that all abandoned facilities in ROW must be removed; mandate that all abandoned facilities must be mapped; remove when encountered during construction; etc.

Should the utility owner be responsible for all costs associated with the maintenance or removal of its abandoned or idled lines within the ROW or public easement? Should the utility have to post a bond that would serve as financial protection against damages from spills and for removal of the line if it is abandoned someday? Should the utility company pay rent for every line they have within the ROW or public easement until it is removed or reused by another utility?

Singapore is now considering underground space as a strategic resource. In some areas today we have aerial easements for scenic views and sunshine (solar energy); someday we may have underground easements, and who knows what depth of soil under your property comes with your warranty deed?

Please let me know what your thoughts are on how to handle underground utility congestion and abandoned utility lines. Isn’t it time a regulation was developed for this? As with many unsolved issues it probably boils down to money. How do we fund the necessary work?

Thomas M. Wilcox can be reached at Tom4883@gmail.com.
Pipeline Safety, Regulatory Certainty, and Jobs Creation Act of 2011

Michael T. Joyner, Sr.
Liaison Director
Utilities Protection Center, Vidalia, Georgia
Chair, APWA Utility and Public Right-of-Way Committee

On December 15, 2011, Congress passed the Pipeline Safety, Regulatory Certainty, and Jobs Creation Act (hereafter the PSRCJC). On January 3, 2012, President Obama signed it into law. Citing such pipeline accidents as those that occurred in San Bruno, Calif., and Allentown, Penn., DOT’s Pipeline Hazardous Material Safety Administration (PHMSA) had requested such action by Congress.

There are today over 2.5 million miles of pipeline in the United States operated by over 3,000 companies according to PHMSA. Deaths due to pipeline accidents rose in the years 2008-2010. There are three main causes of pipeline accidents: excavation damage, corrosion, and material failure.

Most of the PSRCJC is devoted to steps to be taken by pipeline operators to address corrosion and material failure. But one section of the bill has far wider implications for everyone involved with America’s rights-of-way. Title 49, Subtitle 111, Chapter 61, section 6103 establishes “minimum standards for state one-call notification.” One-call notification systems are the first line of defense in preventing excavation damage.

Today in the United States the states are anything but united when it comes to one-call prevention laws. Most states, in fact, have some exemptions to the process built into their law. These exemptions often include state and local governments, railroads, and in some cases specific types of buried utility facilities. That may soon change.

Section 6103 includes the following language:

(a) Minimum Standards –
(1) In General – In order to qualify for a grant under section 6106, a state one-call notification shall, at a minimum, provide for –
(A) appropriate participation by all underground facility operators, including government operators
(B) appropriate participation by all excavators, including government and contract excavators and
(C) flexible and effective enforcement under state law with respect to, in, and use of, one-call notification systems.

(2) Exemptions Prohibited – In order to qualify for a grant under 6106, a state one-call notification program may not exempt municipalities, state agencies, or their contractors from its one-call system requirements.

To use the State of Georgia as an example of the possible implications to this new law, let us look at the current law in Georgia (O.C.G.A. 26-9-1, as of February 2012). Included elsewhere in the Official Code of Georgia is the provision that any law passed by the State Legislature is not applicable to state agencies unless it specially includes them. Thus the first change that would be required would be the inclusion of all state agencies that would qualify. Currently some of these already participate in the state’s one-call notification system voluntarily, but many do not.

The other major change that would seemingly be required would be the inclusion of traffic control and information systems which are currently not considered “utility facilities.” This exemption was added to the Georgia Law in 2005, it is generally supposed, at the request of the railroads in the state. The larger local jurisdictions in Georgia would not be impacted since they already protect the traffic control systems within their city or county limits. This would primarily impact the railroads and the Georgia DOT. DOT is not only responsible for traffic signals on state highways, but has a complex traffic monitoring system in Metro Atlanta has well as electronic message boards on all Interstate highways. Two major railroads, CSX and Norfolk Southern, crisscross Georgia with significant buried electrical wiring involved.

PSRCJC requires that not later than two years after the enactment of the legislation that the Secretary of DOT conducts a study of the impact of excavation damage on pipeline safety. This study is to include a review of the frequency and severity of excavation damage, an analysis of types of exemptions present in the various state laws, a comparison of the exemptions in state laws to the types of excavation damage, and an analysis of the potential benefits of and adverse consequences of the complete removal of exemptions to state one-call notification laws. The results of this study are to be reported to the appropriate Committees of both the House and Senate.

Michael T. Joyner can be reached at (912) 538-8957 or mjoyner@gaupc.com.
As APWA's third female president, Diane Linderman connected with people throughout North America to foster pride in our work and to advocate for continued investment. Each of us at VHB admire her unwavering dedication, her passion for public works careers and her industry leadership.

It’s the people that make public works work

President APWA, September 2011 – August 2012

Diane Linderman, PE, PWLF
Director of Urban Infrastructure and Development Services
Vanasse Hangen Brustlin, Inc.

We salute her accomplishments and are proud to have her as part of our VHB family.
Utility repairs, which take place far too often in our public streets, are a fact of life. We can, however, minimize the detrimental effect they have on pavement. This can be accomplished by using the Keyhole, Coring and Reinstatement (KCR) process. KCR consists of core drilling through asphaltic or concrete pavement (core diameters of 6 inches to 24 inches are normally used); removing the pavement core/coupon and then using vacuum excavation to remove subgrade material until the utility in question is found. Following utility repair or other activity, the subgrade is replaced, usually with a ½-sack slurry, and the previously removed core/coupon is replaced into the core hole and secured with a bonding agent (the reinstatement step). While the KCR process has already yielded numerous benefits for various utilities and service providers, it provides other benefits to the municipality in which the process is used as well. The two most notable and noticed advantages, from the perspective of a municipal ROW Inspector/Coordinator, are:

- Reduction in impacts to the motoring public
- Reduction in excavation impacts

Benefit #1 – a reduction in impacts to the motoring public

Prior to the advent of KCR, a typical excavation performed to locate and/or repair a buried utility meant a minimum of three days of impact to traffic due to time required for setting up traffic control to saw-cut or jackhammer out the existing pavement, which is removed and hauled to a disposal or reclamation site; the activity within the exposed area takes place; backfill is placed; cold-mix is installed or a street plate is placed over the excavation; and traffic returns to normal, with a temporary pavement patch to drive over for who knows how long. When the cold-mix temporary patch is replaced is anybody’s guess unless specified in the permit, but usually not until the number of permanent patches justifies ordering of a truckload of hot-mix, rental of a compactor and roller, another mobilization of traffic control and final restriping. The impacts manifest themselves in the form of cold-mix/temporary pavement degradation, or lane closures during the day and the noise generated by vehicles driving over a street plate through the night. While KCR still requires a traveled lane closure, it rarely lasts more than one day with no further closures needed. If core holes need to be left open for an extended period of time (i.e., used to observe directional drill
installation and verify no damage occurred to existing located facility), they can easily be covered with a small (18” x 18”) plate that has a pilot tube welded on the bottom that drops into the core hole to prevent it from sliding or otherwise moving. These small “top-hats” can easily be placed or removed by one person—no machine needed. Traffic can then be restored following curing of the bonding agent which achieves full strength in less than an hour. The original paving material and even the striping are replaced as they were.

**Benefit #2 – a reduction in excavation impacts**

Through the KCR process, benefit #2 mentioned above is realized. The major excavation impact reduction is in the form of a much smaller opening in the street. Most of the cores drilled are diameters of six inches to 18 inches which, when compared to a typical traditional saw-cut/jackhammer excavation that would be two-feet by two-feet or larger, have already reduced the pavement area affected by as much as 90 percent. Additionally, the “loss of confining stresses” (loss of lateral support that allows trench walls to sag into new opening) that is typically encountered with any open trench cut is significantly reduced or eliminated. And the circular nature of the pavement cut reduces stress points to zero. Problems encountered with traditional excavation and repair methods including cracking of surrounding pavement due to the percussive effects of jackhammers and open saw-cuts at corners of the excavation are eliminated as well.

As an example, in Overland Park’s Standard Street Repair Detail, the “traditional” excavation must be over-cut by 12 inches through pavement depth on all four sides. High-early strength concrete is placed and topped with a two-inch asphalt overlay. Each of these joints between new and old pavement are vulnerable to water infiltration. Over time, the asphalt overlay likely will deteriorate, becoming a maintenance issue. This is important since the City’s ROW Management Ordinance requires the utility/contractor to be responsible for their repair work for two years.
following the completion of repairs. Beyond two years the repair becomes the responsibility of the street maintenance department, meaning taxpayer dollars are being used. All of these problems are eliminated with KCR. The properly completed core reinstatement is virtually invisible, impervious to water infiltration and will be maintenance free. The replaced core exactly matches the composition of the original road and also reinstates the road to its original weight-bearing capacity. Pavement markings are replaced as they were.

Finally, the core reinstatement represents the permanent repair. Winter in the Midwest can pose significant problems when trying to complete street repairs. Snow, ice and subfreezing temperatures for extended periods may prevent any permanent placement of asphalt (depending on mix design specifications, asphalt will require an air temperature of 50 degrees Fahrenheit or higher to allow placement) and may also be severe enough that concrete can’t be placed without danger of freezing. These conditions can easily push a typical street repair into the following spring, leaving the city to deal with a street plate and the problems it creates for snow removal operations throughout the winter. Core bonding agents meanwhile can safely be used down to 32 degrees Fahrenheit and, as mentioned previously, should achieve adequate strength in less than one hour.

It is a given that all buried utility infrastructure will at some time need repairs, and these repairs can range across a wide spectrum of involvement from a simple leak clamp or valve repair to major line replacement. The vast majority of repair activities fall into the “point repair” category and the KCR method is perfectly suited for this type of repair work. While this method is ideal for point repairs, it is rapidly being accepted as the preferred method of exposing buried utilities under pavement.

It is possible that a core/coupon may be found, upon removal, to be unusable. The most common cause of this condition is a delamination of the asphalt layers, likely due to aging asphalt. Another problem that can arise during the KCR process is that the removed cores may be damaged, discarded or lost. Whatever the case, the contractor is left with a hole in a street and no core with which to repair it.

Enter core/coupon farming. Core/coupon farming is a very simple but effective concept and is, as the name implies, “farming” or growing cores/coupons. An asphalt “field” (i.e., small area of asphalt placed in an unused portion of the keyhole contractor’s utility/storage yard) is needed. As replacement cores are required, the contractor simply takes the core machine to the yard and “harvests” a core/coupon of the required diameter and thickness which is taken to the job site and reinstated into the core hole. When the field has yielded all the cores it can, the remaining asphalt is then recycled and the farming starts over again.

Additionally, when a core is taken from a location where it will not be needed for replacement, it may be taken to the farm and saved for future use.

The combination of KCR and core farming offers a complete method of under-pavement excavation and street restoration that will leave the pavement in a far better condition than traditional excavation methods could have ever achieved.

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What’s next for public safety in the right-of-way?

Wayne Jensen
Director of Safety
Stahl & Associates Insurance, Inc.
St. Petersburg, Florida

There is no question that there is a need to develop new strategies to protect the integrity of buried facilities in the public rights-of-way. The number of instances is increasing where damages result in major losses of life. With each catastrophic event we hear the public outcry to protect buried facilities to protect the safety of the public. The challenge of damage protection professionals everywhere is to uncover new strategies to protect the public and all parties working in and around the public ROW.

Current status of damage prevention
The current status of damage prevention in many regions is good enough to keep the rate of damages to buried facilities to about one damage per 1,000 excavations as represented by a one-call system locate ticket. For instance, Florida had 872 damages to a reported 981,000 tickets for the 2010 year which is roughly one damage per 1,000 locates. Some data suggest that overall averages for damage may range between three and five damages per 1,000 locates. It is interesting that locating organizations, which all strive for zero damages, will often accept a quality metric for acceptable damage ratios of their locators to be about the same ratio of one “at fault damage” per 1,000 locates performed.

The “norms” for damage prevention
This opening comment about the current status of damage prevention is used to tell the reader that we may be fighting the “norms” for acceptable risk in driving damages to even lower levels. The damage prevention industry is focused on failures to prevent damage much more than on industry successes. Utility Risk Managers, however, may be looking at the success of most utilities in preventing damage described here and believe little more can be done to lower damage rates without incurring extraordinary costs.

Cost vs. benefit for improving damage prevention
The cost versus benefit barrier surfaces when it comes to investment in damage prevention that may be required to improve the quality aspects of utility locating. The quality of utility locating is a direct function of: (1) the quality of information provided to locators; (2) the quality of the technology being used to locate facilities; and (3) the skill of the locator in using the technology. Out of those three areas almost nothing is being done to improve the quality of data provided to locators for use in locating because the cost is perceived to outweigh the benefit. We continue to uncover many instances where the utility believed their facility was on the other side of the street from where the damage occurred. The facility was marked where the utility’s records stated it was in some cases 100 feet from where it actually was found and damaged. The truth is that improving the quality of buried facility location data—the area of damage prevention which has the most direct bearing on public safety—is the area of greatest opportunity for public safety.

Critical drivers for the adoption of best practices
What may cause a shift in the adoption of best practices on the part of all stakeholders to damage prevention is the fact that the density of buried facilities has reached a critical mass of vulnerability. There is an ever-increasing public outcry to do more to protect the public with regard to damage prevention. The human cost of damage in the “court of public opinion” will likely drive the next generation of damage prevention.

Responsibility for protecting buried facilities
Today the current condition is that the responsibility of protecting buried facilities has been totally shifted to the realm of the locator and the excavator. And, the ability of both of these stakeholders to prevent damage is largely dependent on the quality of facility location data which falls into the realm of responsibility of the utility and public owners of the ROW.

It is well established that the utility will not provide Subsurface Utility Engineering (SUE) services for locates. That is easy to understand when the utility is trying to keep the cost of locate tickets in the field down to $10 when they would have to spend $2,000 to $3,000 on a surveyed SUE vacuum excavate to verify the location of buried facilities at a single point or $200 to $400 per point documenting facilities in a ROW.
The author and a number of other damage prevention professionals have put it on the table that public owners should still consider funding SUE data recovery even in the face of seemingly high cost. It is well documented by DOTs around the country that the Return on Investment (ROI) for SUE efforts range from $4 to $22 for every dollar spent. However, the resistance remains. The ROI is usually attributed to using high-quality utility location data to design around conflicts to avoid the high cost of dealing with conflicts during construction and it has the additional benefit of establishing high-quality utility location data for the use of locators and contractors during construction.

What we are finding is that many public owners are more than willing to accept low-quality data for design and see no value in SUE for just damage prevention when they can rely on the law as their damage prevention shield. Additionally, most public owners don’t feel they should pay to protect utilities they don’t own. We are simply not winning the battle for damage prevention that requires non-existent funds to pay for what most in the public owner community believe is the responsibility of “others.”

Excavators and damage prevention

Excavators are extremely capable of avoiding damage without any locate markings at all. The author has personally worked many years before locates were commonly available and suffered/caused minimal damages. Avoiding damage was a function of digging much slower and with much more care to avoid damage. The advent of locates increased production of excavating dramatically. In the early days of excavating with locates all contractors knew that locating was fuzzy science and most would verify location of facilities prior to going into full production mode. If there was a phone cable, power or gas indicated in a given area the contractor would not stop looking until they found the facility no matter what the locate marks indicated and nobody got real testy about it. We worked with utilities and locators to prevent damage when the locator was our friend.

Excavators today

Now, only a few excavators follow the best practice to “verify the location of facilities indicated in a given area no matter how far off locate marks are.” However, even the few that do verify the location of facilities without respect to the inaccuracy of locate marks will not look for a facility in the area of their excavation that the utility states is on the other side of...
the street and has provided a clear positive response. And, by the same token, the locator will not check to see if a utility is actually in the area of the excavation when the utility has provided them this same information. This exact circumstance comes up often across the nation. Readers need to understand that in many respects we were better off when backhoe operators knew that a utility was in their work space by noting changes in the color of the disturbed soil they saw as they excavated that resulted from the installation of facilities in the past. Today, backhoe operators pay attention to locate marks, not changes in soil color for damage prevention.

Public safety and damage prevention

Public safety that results from damage prevention will not change until all stakeholders find a way to work together and share the burden and responsibility. The author has worked with utility owners in the past when they were in very difficult conflict circumstances and as a contractor got paid to protect their facilities. Fees for protecting facilities were many times less than the cost of the utility having to relocate. Some project owners and utility owners work together to pay the contractor to be responsible for locating and protecting facilities in cases where there are known problems and conflicts. Design-build projects are beginning to show us that shared responsibility for damage prevention can work. Design-build functionally works on the “no excuses for damage” premise.

The author has proven that the “no excuses for damage” approach can work for contractors as well, but today most contractors believe as public owners believe with respect to bearing the cost for someone else’s responsibility. The law does not require public owners to fund the damage prevention efforts. The law does not require utilities to improve their data for enhanced locating. The law does not require the contractor to conduct SUE work on behalf of other stakeholders. Again, we are up against the great impasse.

If change comes it will be for the sake of public safety

For the “sake of public safety,” however, it is the author’s belief that much more can and will be done. The contractor is the critical stakeholder because they control the backhoe. We all know that current laws are inadequate for taking us to the next level of damage prevention.

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What is needed is the establishment of a “Damage Prevention Partnering Process” involving all stakeholders on a project-by-project basis. This Damage Prevention Partnering Process would closely mimic the partnering processes developed and used by the Associated General Contractors (AGC). All damage prevention initiatives based on improving facility location data quality for design are years away if initiated today but if we begin implementing Damage Prevention Partnering Processes we can make great strides in damage prevention on our “next projects.” What is being suggested is that the “Partnering Process” be used to establish the roles and responsibilities of all stakeholders to damage prevention. Provisions for the Damage Prevention Partnering Process could be specified in contract documents for highway and other projects involving work around existing buried facilities or simply initiated by any stakeholder. There may be some circumstances that would require a contract where a utility would “want” to pay the project contractor to either relocate facilities or to use additional care to prevent damage either because of a conflict or the fact that the utility is unsure of their data. It would be likely that the services of a SUE organization would be employed to investigate troublesome locates as a part of the Damage Prevention Partnering Process if the participants deem that activity to provide value. The participants in the Partnering Process would determine who should bear the cost of professional services that would be necessary to achieve overall lower project cost. In all cases the Partnering Process would outline responsibilities of all parties in the damage prevention effort. The author knows that the law requires much more of the contractor than most understand until they are in the court system. The Damage Prevention Partnering Processes would outline the depth of responsibility of all parties that would improve damage prevention and dramatically reduce the burden of the contractor and keep them out of the court system.

Education is critical

One of the best outreach mechanisms around the country is “Excavator Safety Awareness Events” that are sponsored by the one-call systems and utilities. Universally, these safety awareness events provide excavators with information about the one-call laws of the state and sometimes associated topics. The Damage Prevention Partnering Process described in this article would make attendance to such events a part of the partnering process documents to include all personnel on the project, especially backhoe operators.

Having personally attended many of these industry Excavator Safety Awareness Events, notably absent are people from the field. It is always hoped that the people that do attend will take the information back to the people in the field, but it is always feared the information provided doesn’t reach the backhoe operator and others.

It is envisioned that a Damage Prevention Partnering Process would establish meetings for both workers and managers that have audience-specific topics to address the unique roles of each in damage prevention. Excavator Safety Awareness Events around the country are well attended by representatives of one-call systems and utilities providing attendees the opportunity to create personal relationships that benefit damage prevention. The Damage Prevention Partnering Process would also include specific locators assigned to the project to provide the opportunity for creating relationships that will have a very positive impact on specific project damage prevention efforts. We believe that this would be the mechanism for all stakeholders to “act their way into a new way of thinking” with new and better approaches to damage prevention on a single project basis that will be applied on future projects.

APWA could be the logical forum for exploring this concept of a public/private “Damage Prevention Partnering Process” initiated on the basis of public safety. It is a concept worth exploring because it does not require legislative action and in the scheme of things the cost to any one party will be minimal and the ROI will be astronomical, especially if we can also protect the lives of the public in our rights-of-way.

Wayne Jensen can be reached at (727) 489-0593 or wayne.jensen@stahlinsurance.com.
Incentives to expedite utility adjustments and relocations on public works projects

C. Paul Scott, P.E.
National Utilities Liaison
Cardno TBE
Dumfries, Virginia

Introduction
State departments of transportation have used incentives for many years to expedite construction of highways. More recently, efforts have been considered to provide incentives to utilities to expedite their work necessitated by highway construction. These incentives have consisted primarily of 100% reimbursement for utility work regardless of who is responsible for paying for it and/or of providing cash bonuses for early or on-time completion of the utility work. However, most of these cash incentives have also contained penalty clauses for utility work that is not completed on time. These incentives have generally been successful but some utilities have suggested that they do not like the penalty clauses and even without them they believe there are other incentives that would help them more than cash payments. Consequently, many low-cost incentives have been suggested by utilities and transportation agencies. Some of these incentives may be applicable to utilities work necessitated by public works highway and street projects. This article will briefly discuss some of those incentives.

An overriding incentive when working with utilities on all public works projects is coordination, cooperation, and communication (CCC). Other low-cost incentives that may be applicable to public works highway and street projects include the following:

- Avoiding Utility Adjustments/Relocations
- Subsurface Utility Engineering (SUE)
- Right-of-Way Acquisition for Utilities
- Utility Corridors
- Lump Sum Agreements
- Lane Rental
- Simplified Utility Permitting and Documentation Requirements
- Utility Work by Highway Contractors
- Identification of Abandoned or Out-of-Service Utilities

A more detailed discussion of these incentives will be provided in the following sections of this article.

Coordination, Cooperation, and Communication (CCC)
CCC is the umbrella under which all other utility incentives exist. Not only incentives, but all utility-related activities will work more efficiently if CCC is employed. It is a well-recognized fact that an agency’s commitment to coordinate, cooperate, and communicate with utilities will result in more timely and efficient utility adjustment/relocation activities and improved safety, quality, and timeliness in the utility process. This may involve providing long-range construction schedules; encouraging and facilitating cooperative working relationships; holding regular meetings with utilities in the planning and design phases; becoming knowledgeable of utility processes and challenges; holding regular meetings with utilities and contractors during construction; encouraging utilities to make and keep commitments on work plans; and sharing best practices.

Low-Cost/No-Cost Incentives

Avoiding Utility Adjustments/Relocations – This incentive will eliminate the need for utilities to adjust or relocate many facilities. Even when utilities perform this work on or before a scheduled time the work is often very costly and time consuming. It is therefore in the best interests of both public works agencies and utilities if there is no need to adjust or relocate utilities. Designers of highway and street projects can significantly impact project delivery by seriously considering utilities during the work they are doing on highway projects. This, of course, can only be done if they are provided with reliable utility information prior to beginning their work.

Subsurface Utility Engineering (SUE) – This incentive would involve the use of SUE early in the development of projects, particularly the collection and depiction of existing utilities data (overhead
and subsurface). The best practice for the collection and depiction of existing utility data is in accordance with the American Society of Civil Engineers’ CI/ASCE Standard 38-02, *Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data*. This aspect of the SUE practice provides many cost-saving and time-saving benefits, such as avoiding unnecessary utility adjustments/relocations, eliminating delays to projects, and reducing claims from contractors. Having accurate and comprehensive SUE information will enable public works agencies to mitigate conflicts, adjust project letting dates, and circumvent having utility issues during highway construction. This is particularly true for projects that involve complex and time-consuming utility systems.

**Right-of-Way Acquisition for Utilities** – This initiative will allow public works agencies to acquire right-of-way for utilities at the same time it is being acquired for highway and street purposes. This will greatly benefit agencies, utilities, and most of all, affected property owners.

**Utility Corridors** – This initiative will allow public works agencies to establish corridors on highway right-of-way exclusively for the location of utility facilities. When right-of-way is acquired for utilities, as discussed above, specific locations near the right-of-way line may be assigned for each utility. Requirements for all utilities occupying public right-of-way may further require that buried facilities share a joint trench or utilize pipe or box culvert structures constructed solely for utility purposes. The use of utility corridors will simplify and expedite the utility adjustment and relocation process. If utilities know that there is an area prepared for their use, designs are simpler to create and implement. Utility corridors can be especially useful where utility congestion or severe limitations exist on available right-of-way.

**Lump Sum Agreements** – This incentive will eliminate much of the paperwork and strict accounting commonly required of utilities on reimbursable projects. Lump sum agreements should only be used where the utility work can be clearly and concisely defined. The cost estimate in support of it must be accurate, comprehensive, verifiable, and in sufficient detail to give a clear picture of the work involved and the cost of the individual items.

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Lane Rental – The lane rental technique may be viewed as more of a disincentive than an incentive because rental fees for lane closures are typically assessed for the time a roadway lane is occupied or obstructed. Looking at lane rental as a utility incentive, utilities might agree with public works agencies on the number of days a lane will need to be closed during utility adjustment and relocation work, and if the utilities then use fewer lane rental days than proposed they might be given an incentive bonus.

Simplified Utility Permitting and Documentation Requirements – This incentive would facilitate the development of a simplified utility permitting process, preferably electronic, that would expedite the utility adjustment or relocation process. Most jurisdictions require some kind of approval prior to utilities doing major work on facilities near roadways. In theory, simplified permitting and documentation requirements would require all stakeholders to work together and agree on a system that would utilize state-of-the-art tools for preparing and submitting the required documentation. This would greatly improve relationships between utilities and public works agencies by virtue of clarity of expectations.

Utility Work by Highway Contractor – This incentive involves a contractual agreement that allows utility facilities to be relocated as part of a roadway construction project. It takes the burden away from the utility and allows the highway contractor to assume responsibility for coordinating and performing the utility adjustment and relocation work. It also affords the roadway contractor an opportunity to work directly with the utility or its contractor to find creative solutions that will expedite the work and improve coordination between all parties involved. The utility work by highway contractor process often results in significant reductions in the number of construction conflicts, thereby reducing claims, time delays, supplemental agreements, service interruptions, and inconvenience to the public.

Identification of Abandoned or Out-of-Service Utilities – An initiative to identify abandoned or out-of-service utilities benefits utility adjustment/relocation efforts by eliminating utility-related misinformation on highway plans; reducing utility coordination issues and time; increasing space for highway project features or utilities; reducing adversarial relationships between utilities and contractors; and reducing project construction
completion times and costs. The process for implementing this suggestion involves the collection and depiction of existing subsurface utility data. During this collection of information, any utilities that are found to be abandoned and scheduled for removal would be identified as such and included in the roadway contract documents and on the plans for removal by the contractor. Out-of-service utilities to be left in place should also be identified as such in the highway contract documents.

Conclusions
When utility adjustments/relocations are necessitated by roadway construction there are many things that public works agencies might do to be able to do to help the utilities. Everything they can do to help should decrease the time and expense and accelerate project delivery.

Many low-cost incentives have been discussed in this article. Unfortunately, many of them have not been tried on highway and street projects but rather were suggested by utility representatives. Further, the low-cost incentives that have been tried (e.g., avoiding utility adjustments/relocations, acquisition of right-of-way for utilities, etc.) have not been formally evaluated but are generally thought to have accelerated utility work.

It is therefore suggested that public works project managers consider the initiatives suggested in this article and try some of them on their public works roadway projects. They may not be applicable in all jurisdictions; however, they may lead those considering them to come up with some initiatives of their own that will be beneficial.

C. Paul Scott can be reached at (571) 233-4023 or Paul.Scott@cardno.com.

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This new version of MicroPAVER includes the newest changes to ASTM D6433-09 and D5340-10. Weathering and raveling were separated into two distresses for both airfields and roadways.

Some of the tools and options with MicroPAVER Version 6.5.2 include:

- Windows 95 and newer; Windows NT, XP, Vista and Windows 7 compatible
- User-friendly GIS linkage
- “Deferred” PCI calculation option
- Estimates budget needed to maintain pavements at a given condition level
- Simultaneously analyzes both maintenance and major rehabilitation needs
- A built-in ability to check for data input errors
- Extensive user “How-To” wizards

This package includes:

- One CD-ROM containing the MicroPAVER software*
- Technical Software Support and access to APWA’s MicroPAVER user group (renewable after one year)
- Software and manual fixes issued for one year (renewable)
- Opportunity to obtain web-based Version 7 at a deeply discounted rate (when released)
- User manual (contained on CD-ROM) which includes a number of practice workshops
- Training CD-ROM for new users
- Pavement Management for Airports, Roads and Parking Lots
- Field Manuals for asphalt, concrete and unpaved areas

*NOTE: Previous versions of MicroPAVER were distributed as site licenses. Version 6.5.2 is limited to three activations (seats) per license. Additional sets of three may be purchased separately.

MP.NEW (Roads and Highways) • Member $995 /Non $1095
MP.NEWA (Airports) • Member $995 /Non $1095
MP.NEWA3 (Additional 3 Activations) • Member $100 /Non $100
MP.NEW6 (Additional 6 Activations) • Member $200 /Non $200

**Save $50 by adding FieldInspector™ to your PAVER™ order!**

PAVER FieldInspector is new PAVER companion software that takes advantage of GIS/GPS state-of-the-art technology as well as innovative graphics to facilitate pavement inspection using handheld computer tablets. The program allows the user to identify his/her location on a pavement network map displayed on his/her tablet computer for immediate entry of pavement distress data.

Each FieldInspector license entitles the user to one activation. Additional activations may be purchased separately.

MP.NEWFI (MicroPAVER FieldInspector) • Member $249 /Non $299
MP.NEWAF (Airports and PAVER FieldInspector) • Member $1194 /Non $1344
MP.NEWAF (Roads and PAVER FieldInspector) • Member $1194 /Non $1344

**PAVER: Asphalt Distress Manual**

47 pp • 2009 • APWA • US Army Corps of Engineers EROC-CERL

This helpful manual includes descriptions, sample photos, and instructions for measuring and rating asphalt pavements.

PB.APAV • Member $30 /Non $40

**PAVER Concrete Distress Manual**

46 pp • 2009 • APWA

This manual contains descriptions and sample photos plus measuring and rating instructions for 19 distress types found in jointed concrete pavement. The distress definitions and methods for measuring and rating are keyed to the use of the PAVER Pavement Condition Index (PCI) system.

PB.APAC • Member $30 /Non $40

**The Hole Story: Facts and Fallacies of Potholes**

36 pp • 2011 • APWA • David Bergner and Michael Hale

We know what causes a pothole—water, temperature extremes, and excessive vehicle loads. And we know how to prevent them—design roads to meet or exceed their known conditions and projected traffic rates. So why do we still have potholes? This booklet explores the issues, current technology, and every public works department’s perpetual quest for smooth pavements AND a balanced budget. Use it to inform yourself, your employees, or your constituents and elected officials.

Bulk discounts available.

PB.AHOL • Member $6 /Non $8
PB.AHOLS (Package of 5) • Member $25 /Non $30

**Pavement Management for Airports, Roads and Parking Lots**

590 pp • 2005 • Springer • M.Y. Shahin

Emphasizing sound, cost-effective management rather than emergency repairs, this comprehensive volume offers practical guidelines on evaluating and managing pavement for federal, state, and local government agencies, airports, and commercial industries such as department stores and hotel chains. It is also a valuable reference for educational institutions and consultants.

Extensive appendices serve as field manuals for identifying all types of pavement distress and their causes, and hundreds of photographs facilitate accurate pavement evaluation. Civil and pavement engineers will find complete information on pavement inspection, evaluation, and management in this indispensable reference.

PB.APMP • Member $159 /Non $169

APWA is YOUR one-stop public works resource! Visit us 24/7 at www2.apwa.net/bookstore
Public Infrastructure Inspector Study Guide
2009 • APWA • DVD/Download
This program was designed to help you prepare to sit for the Certified Public Infrastructure Inspector certification. The content focuses on the areas of domain, available resources and analysis of specialty topics found within the construction inspection world.
PB.E910 (Guide and DVD) • Member $525 /Non $625
PB.E910-EC (Download) • Member $525 /Non $625
PB.E910G (Guide) • Member $15 /Non $25

* This program cannot assist individuals to overcome lack of experience, and this review will not guarantee a pass rate. But, this guide includes tips on how to study prior to taking the exam and leaves individuals with additional self-directed study questions and information.

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Construction Inspection: A Review
2008 • APWA • Course CD-ROM INCLUDED
Attention public works agencies and APWA chapters – use this curriculum to provide your own instructor-led construction inspection training. All facets of public project inspection are covered, including the roles and responsibilities of an inspector, legal/risk management and regulatory issues, documentation and communication, and project close-out. Training package includes one facilitator guide, one student manual, and PowerPoint slides.
Redeuced rates are available for additional Participant Guides when purchased with each training package. Call 1-800-848-2792, ext. 5254.
PB.E09A (Training Package) • Member $400 /Non $500
PB.E09B (Participant Guide) • Member $70 /Non $95

Construction Inspection Certificate Workshop (DVD)
2010 • APWA • DVD
The Construction Inspection Certificate Workshop is for new and potential recruits to the profession and serves to enhance the skills of those already in the role of a construction inspector. This workshop offers the latest information in the construction inspection industry, packed full of useful, practical techniques and real-world examples.
This workshop includes the following:
• Training manual (PDF)
• Slides for each chapter
• Audio introduction for each chapter
• Certificate assessment material for one individual*
• CEU credit for one individual*
A $40 fee will be assessed for each additional CEU credit and assessment requested per individual. Please contact the Professional Development Department at 1-800-848-2792 for further information.
PB.E102 • Member $550 /Non $650

Updated! 2012 “Greenbook”: Standard Specifications for Public Works Construction
530 pp • 2011 • BNI Publishing
The “Greenbook” is designed to aid in furthering uniformity of plans and specifications accepted and used by those involved in public works construction and to take such other steps as are designed to promote more competitive bidding by private contractors.
PB.XGRN • Member $84.50 /Non $94.50

Updated! Work Area Traffic Control Handbook
52 pp • 2012 • BNI Publishing
Now in its 12th Edition, the “Watch Book” features:
• Completely revised and updated full-color graphics covering all types of temporary closures and flagger stations.
• Fully illustrated details on the use of channelizers, barricades, and warning signs/devices, plus new barricade and striping graphics.
• Up-to-date safety guidelines for working in high speed areas, in the vicinity of railroads, handling pedestrian and bicycle traffic, and within a temporary traffic control zone.
In a convenient, 4-1/2 x 7-1/2 format, this is a must-have book for every on-site supervisor.
P.B.XWAT • Member $11 /Non $16

APWA Red Book on Qualifications-Based Selection: Guidelines for Public Agencies
44 pp • 2006 • APWA • APWA Engineering and Technology Committee
This discussion of qualifications-based selection shows readers how to conduct the interview, evaluate candidates, and how to formulate and manage the contract.
Bulk discounts available.
PB.ASEL • Member $15 /Non $20

Introduction to Engineering Construction Inspection
408 pp • 2004 • John Wiley & Sons • Edward R. Fisk and Randy R. Rapp
A practical, applied introduction to inspecting building structures, site work, and civil engineering projects.
P.B.X401 • Member $115 /Non $125

Management of Public Works Construction Projects
158 pp • 1999 • APWA • James L. Martin
This book focuses on concepts and processes for managing public works construction projects. It highlights effective practices for good project management.
P.B.AMPW • Member $15 /Non $55
P.B.AMPW-E • Member FREE /Non $35
Available in the APWA Members’ Library.
Public Fleet Professional Study Guide
2009 • APWA • DVD/Download
This program will help you successfully prepare to complete the process of sitting for the Public Fleet Professional certification. This information focuses on areas of content domain, available resources and analysis of specialty topics found within the fleet world.*
PB.E913 (Guide and DVD) • Member $525 / Non $625
PB.E913-EC (Download) • Member $525 / Non $625
PB.E913G (Guide) • Member $15 / Non $25
* This program cannot assist individuals to overcome lack of experience, and this review will not guarantee a pass rate. But, this guide includes tips on how to study prior to taking the exam and leaves individuals with additional self-directed study questions and information.

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Top Ten Performance Measures for Fleet Managers
44 pp • 2002 • APWA
Developing a program and tracking performance measures help fleet managers demonstrate the value of their departments to the communities they serve. Dozens of performance measures exist and vary from agency to agency. This book outlines the top ten most common performance measures critical to a fleet manager's success. Check out how your agency measures up!
PB.A10F • Member $12 / Non $15

Managing Public Equipment (3rd Ed)
153 pp • 2009 • APWA
This public way will help fleet managers find innovative ways to keep equipment operating while running a leaner and meaner fleet operation that is less monopolistic, more user-friendly, and has a greater awareness of its core services and their cost.
PB.AMPE • Member $59 / Non $69

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271 pp • 2006 • APWA
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This modular text-based program provides an overview of the skills and components involved in successful public fleet management. It is designed to enhance the skills of current fleet professionals and provide a comprehensive overview of state-of-the-art principles and practices for managing today's government fleet operations.
Training package includes:
One Instructor's Manual, CD-ROM containing PowerPoint™ slides for all training modules, and one Student Manual. This Student Manual is designed to be used as a self-study guide or handy desk reference.
*Reduced rates are available for additional Student Manuals when purchased with each training package.
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PB.E623 • Member $350 / Non $450
PB.E624 (Student Manual) • Member $95 / Non $125

APWA Equipment Guide
48 pp • 2000 • APWA
This publication is designed to address the need for a common classification system, which will allow public and private agencies to identify the significant characteristics of their motor vehicles and equipment fleets.
PB.AEQU • Member $15 / Non $20

Demonstrating the Value of Your Fleet Management Program
30 pp • 2004 • APWA
Use this book to learn about the attitudes and strategies common to all successful businesses, and use the sample business plan and service level agreements to demonstrate the value of your fleet management program.
PB.A422 • Member $15 / Non $18

APWA Certified Public Fleet Professional (CPF) Suggested Resources
2006 • APWA • Eight Publications and One CD-ROM
APWA recommends this set of fleet resources to help with preparation for the CPF examination. Study from these specific references does not guarantee a passing score on the examination.
PB.A644 • Member $261 / Non $326

The Concise Manual for Calculating Public Fleet Rates
30 pp • 2008 • APWA
The ability to “cost-out” a product line can be the difference between a thriving operation and one that is on the brink of failure. This manual guides the public sector fleet manager—in easy to read, understandable language—through the process of calculating chargeback rates for billing customers. Topics include calculating service rates for vehicle repairs, determining shop staff levels, and establishing rental rates to fund vehicle replacements.
PB.A827 • Member $15 / Non $20

Managing Public Equipment
2006 • APWA • Eight Publications and One CD-ROM
APWA recommends this set of fleet resources to help with preparation for the CPF examination. Study from these specific references does not guarantee a passing score on the examination.
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For bulk pricing, please contact the APWA Bookstore at bookstore@apwa.net or 800-848-2792.
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PB.E624 (Student Manual) • Member $95 / Non $125
Snow and Ice Control: Field Handbook for Snowplow Operators
40 pp • 2011 • APWA
This field handbook is to help promote the understanding of the tools, best practices and limitations of snow and ice control. It will help you understand when to use and when not to use these tools and practices. In addition, it encourages progressive changes in snow and ice control practices that will help you reduce sand/salt use and lessen environmental impacts while meeting the safety and mobility needs of roadway users.
PB.A1109 • Member $10 /Non $15

Snow Removal Techniques: Plowing Tips from the Pros
1997 • VISTA • DVD
Examine snowplowing practices on city streets, country roads and interstate highways. This DVD covers pre-trip inspection to post-trip reporting and includes helpful hints and discussions of the dangers involved in snowplowing.
PB.XSRT • Member $149 /Non $159

Urban Snow & Ice Control
86 pp • 2005 • APWA
Bruce Florquist
This book focuses on successful operations and techniques in urban snowfighting so that your citizens reach their destinations with less risk and inconvenience. Topics include planning, public relations, relative merits of snow melting and traction techniques, and comparison of selection procedures for chemicals.
PB.A507 • Member $30 /Non $35

Guide for Snow and Ice Control
266 pp • 1999 • AASHTO
This guide presents a comprehensive overview of the components required for a successful snow and ice control program.
PB.XICE • Member $30 /Non $40

Snow Removal, in Safety!
2005 • APSAM • DVD
This DVD covers topics such as planning before departure, road safety, first aid, breakdown of vehicles, clearing out roads and parking lots, and collection and loading of snow on public roads, and sidewalk maintenance.
PB.XREM • Member $49 /Non $59

New! Where the Blade Meets the Road T-shirt
2012 • APWA
100% cotton “gravel” colored T-shirt. The slogan “Snowfighter: Where the Blade Meets the Road” is imprinted on the front.
PB.A1200 • Member $15 /Non $20 (Small)
PB.A1201 • Member $15 /Non $20 (Medium)
PB.A1202 • Member $15 /Non $20 (Large)
PB.A1203 • Member $15 /Non $20 (X-Large)
PB.A1204 • Member $17 /Non $22 (XX-Large)
PB.A1205 • Member $18 /Non $23 (XXX-Large)

Clear Roads CBT Training Series
2010 • AASHTO, NACE, APWA • CD-ROMs
This is a seven-part computer-based training on winter maintenance. Topics include:
• Equipment Maintenance (2 hours)
• Proper Plowing Techniques (2 hours)
• Deicing (4 hours)
• Blowing Snow Mitigation (3 hours)
• Winter Maintenance Management (2 hours)
• Performance Measures for Snow and Ice Control Operations (4 hours)
• Selecting Snow & Ice Control Materials to Mitigate Environmental Impacts (2 hours)
PB.XREM • Member $49 /Non $59
PB.XREM • Member $49 /Non $59
PB.XREM • Member $49 /Non $59
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PB.XREM • Member $49 /Non $59
PB.XREM • Member $49 /Non $59

Anti-icing / RWIS Training
2007 • AASHTO, NACE, APWA • CD-ROMs
The AI/RWIS Computer Based Training (CBT) is a self-paced, interactive multimedia winter maintenance CBT that follows sound adult learning principles. The program requires interaction by the student beyond simply moving from one page to the next. Practice and review exercises, fun facts, and links to key word definitions, a glossary, a Knowledge Base and Internet sites add to the experience.
PB.X407 • Member $400 /Non $500

Guide for Snow and Ice Control
266 pp • 1999 • AASHTO
This guide presents a comprehensive overview of the components required for a successful snow and ice control program.
PB.XICE • Member $30 /Non $40

Snow Removal, in Safety!
2005 • APSAM • DVD
This DVD covers topics such as planning before departure, road safety, first aid, breakdown of vehicles, clearing out roads and parking lots, and collection and loading of snow on public roads, and sidewalk maintenance.
PB.XREM • Member $49 /Non $59

To order call: 1-800-848-2792, ext. 5254 or buy online at www2.apwa.net/bookstore
What Is Public Works?
16 pp • 2008 • APWA
As a public works professional, you accept that your job is multi-faceted, but when you’re asked to define “public works,” do you find yourself at a loss for words? Because of its diverse nature, there just doesn’t seem to be one definition complete enough for everyone to accept. That's why APWA has developed this new outreach booklet. Hand it out to your city council, citizens’ groups or to new employees to help them understand the scope and importance of public works.
P8.A853 • Member $6 /Non $8

Public Works Management - Things They Never Taught in School
62 pp • 2005 • APWA • James Nichols
Public works management has its benefits and its challenges, and it requires a very difficult skill set—technical expertise and leadership proficiency. This book offers suggestions and makes observations based on the author's experience—things he learned on the job, not in school.
P8.A511 • Member $15 /Non $20

A Policy on Geometric Design of Highways and Streets
912 pp • 2011 • AASHTO
This 6th edition of AASHTO’s “Green Book” provides guidance to highway engineers and designers who strive to make unique design solutions that meet the needs of highway users while maintaining the integrity of the environment.
P8.XPGD • Member $240 /Non $250

Manual on Uniform Traffic Control Devices for Streets and Highways (2009 Ed.)
864 pp • 2009 • FHWA, ATSSA, AASHTO, ITE
The MUTCD 2009 edition includes: interim approval process for new traffic control devices, traffic incident management, section on countdown pedestrian signals, considerations for pedestrians and workers in temporary traffic control zones, use of yield markings at unsignalized mid-block pedestrian crosswalks, and much more!
P8.XMUT • Members $120 /Non $130

People Making Public Works History
658 pp • 1999 • APWA • Robert D. Bugher, Editor
This book covers a century of public works progress from 1894-1994 and features nearly 200 biographical articles that appeared in the Association’s monthly magazine over a span of 20 years. This unusual book references nearly 600 public works movers and shakers.
P8.APEO • Member $20 /Non $30

Solid Waste Rate Setting and Financing Guide: Analyzing Cost of Services and Designing Rates for Solid Waste Agencie
72 pp • 2007 APWA • Marc J. Rogoff, Ph.D.; David M. Davis; Roger W. Flint; and Bob Wallace
This book will help managers better understand the issues involved in planning for and conducting analysis and rate-making studies, budgeting, capital improvements planning, and financing approaches.
P8.A750 • Member $20 /Non $30

Temporary Traffic Control Pocket Reference Guide: Applicable to Operations in Federal MUTCD States
80 pp • 2010 • Dicke Safety Products
Based on the minimum standards of the MUTCD 2003 Edition, this guide functions as a quick and easy worker reference, helping you create safe and efficient TTC zones. It provides condensed federal minimum utility work zone traffic control and safety information to users throughout the USA. It's a handy pocket-size guide—3½ “ x 7”—with field-durable laminated pages and spiral binding.
P8.X506 • Member $25 /Non $35

Public Works Inspectors’ Manual (7th Ed)
574 pp • 2008 • BNI • Erik Updyke
The “bible” of public works inspection for over 50 years, the Public Works Inspectors’ Manual has become the standard reference for professionals across the nation responsible for inspecting all types of public works construction.
P8.XINS • Member $75 /Non $85

Standard Plans for Public Works Construction (2009 Ed)
375 pp • 2009 • BNI
This edition features hundreds of standardized drawings and dimensional details covering every aspect of public works construction.
P8.XSTN • Member $88 /Non $98

Municipal Stormwater Management (2nd Ed.)
1,171 pp • 2003 • Lewis Publishers
Thomas N. Debo and Andrew J. Reese
Known by many stormwater managers, designers, and planners as the “stormwater bible,” this book covers all aspects of municipal stormwater management, from planning and institutional concerns to technical design considerations. It details the design applications and the institutional aspects of stormwater management that planners and administrators face on a daily basis.
P8.XMUT • Member $170 /Non $180

City of Stormwater, Management
200 pp • 2004 • Lewis Publishers
William Lockhart, P.E.; Tom Bums, P.E.; Chris Lumbert, P.E.
This book covers the “nuts and bolts” of municipal stormwater management and design, from planning and institutional concerns to technical design considerations. It details the design applications and the institutional aspects of stormwater management that planners and administrators face on a daily basis.
P8.XMUT • Member $170 /Non $190

Municipal Stormwater Management (2nd Ed.)
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Public works management has its benefits and its challenges, and it requires a very difficult skill set—technical expertise and leadership proficiency. This book offers suggestions and makes observations based on the author's experience—things he learned on the job, not in school.
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P8.A750 • Member $20 /Non $30

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80 pp • 2010 • Dicke Safety Products
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P8.XINS • Member $75 /Non $85

Standard Plans for Public Works Construction (2009 Ed)
375 pp • 2009 • BNI
This edition features hundreds of standardized drawings and dimensional details covering every aspect of public works construction.
P8.XSTN • Member $88 /Non $98
**Staff Recommended Resources**

**Getting It Right! A Guide to Planning & Constructing Public Works Yards**
124 pp • 2003 • APWA • Christine Taylor-Butler

Public works yards serve as assembly locations for work crews, safe storage areas for city vehicles and equipment, and as dispatch and administration nodes within the city’s organization. With all of those functions at stake, you want to “get it right” when you plan and construct your agency’s new facilities. This book will help through case studies and discussions of the issues you need to consider.

PB.A338 • Member $65 /Non $75

**The Green Utility: A Practical Guide to Sustainability**
248 pp • 2011 • American Water Works Association • Cheryl Welch

This publication provides ideas, plans, and tools to make it easy for your water utility to reduce negative effects on the environment, maximize positive impact in the community, and keep delivering water at a cost that reflects its value, but allows everyone to receive all they need.

PB.X1100 • Member $105 /Non $115

**Stormwater Manager Certification Study Guide**
2011 • APWA • DVD/Download

This program will help you successfully prepare to complete the process of sitting for the Stormwater Manager certification. This program focuses areas of content domain, available resources and analysis of specialty topics found within the stormwater world.*

PB.E117 (Guide and DVD)  
Member $525 /Non $625

PB.E117-EC (Download)  
Member $525 /Non $625

PB.E117G (Guide) • Member $15/Non $20

* This program cannot assist individuals to overcome lack of experience, and this review will not guarantee a pass rate. But, this guide includes tips on how to study prior to taking the exam and leaves individuals with additional self-directed study questions and information.

**New! Sustainable Transportation Planning: Tools for Creating Vibrant, Healthy, and Resilient Communities**
320 pp • 2012 • Jeffrey Tumlin

Transportation-related disciplines of urban planning, architecture, landscape architecture, urban economics, and social policy have undergone major internal reform efforts in recent decades. Written in clear, easy-to-follow language, this book provides planning practitioners with the tools they need to achieve their cities’ economic development, social equity and ecological sustainability goals. Starting with detailed advice for improving each mode of transportation, the book offers guidance on balancing the needs of each mode against each other, whether on a downtown street, a small town neighborhood, or a regional network.

PB.X1203 • Member $95 /Non $105

**New! Horizontal Directional Drilling Good Practices Guidelines (3rd Ed)**
279 pp • 2008 • HDD Consortium • David Bennett, Ph.D., P.E.; Samuel T. Ariaratnam, Ph.D., P.E.

This manual serves as the industry standard for contractors, engineers and owners in completing efficient, effective and safe HDD installations and in training operators and supervisory personnel. The latest version includes a new chapter on design, and other sections have been updated to include new developments in technologies.

PB.X1202 • Member $100 /Non $150

**Incident Command System (ICS) Pocket Guide**
24 pp • 2006 • APWA • Emergency Management Committee

Regardless of the size of the incident or the number of agencies responding, all incidents require a coordinated effort to ensure an effective response and efficient, safe use of resources. ICS was invented to achieve this coordination, and this pocket guide will help you understand and implement the vital components of ICS.

PB.A629 • Member $6 /Non $11

**Recovery Operations Field Manual**
80 pp • 2010 • APWA • Emergency Management Committee • CD-ROM

The recovery process is the longest, hardest and costliest part of any emergency response, and the failure to properly prepare and plan for it will be what the public remembers of the event. No one course or book can provide the magic bullet to avoid the perils following every serious event, but this publication is a quick guide and reference document to assist the public works professional in preparing, planning and developing efficient response activities and written plans—while maintaining continuity of government, as well as of operations, and focusing on elements of internal and external communication. The companion CD-ROM contains 18 sample interactive FEMA Public Assistance forms.

PB.A135 • Member $30 /Non $40

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All prices are subject to change without notice."
Bicycle sharing programs: enhancing community livability

Robert Tintle
Public Works Administration Director
City of Eugene, Oregon

Aging infrastructure, reduction in funding, increased traffic congestion and population levels have all contributed to the need for alternative transportation planning that places an emphasis on biking as a viable mode of transportation. The benefits of bicycling and the need to create sustainable transportation options have spurred the growth of bicycle use. Bicycle sharing programs are increasingly starting up across the country to increase sustainable mobility choices at a reduced cost and to encourage multi-modal travel. Developing a connected on-road and off-road system for bicyclists, and implementing a bike share program, are important components of the transportation system. To enhance community livability and to achieve the benefits of biking, communities should implement a bicycle sharing program.

Bicycling enhances community livability

Bicycle sharing programs contribute to livable communities of the twenty-first century by providing more transportation choices, reducing transportation costs, reducing dependence on foreign oil, reducing greenhouse gas emissions while improving air quality, and promoting public health. Bicycle use and bike share programs contribute to community livability while providing social, environmental, and economic benefits.

Social benefits of bicycling

America is battling an epidemic of obesity and physical inactivity. Instead of commuting by bicycle or other alternate modes, fifty percent of people use their car to drive less than five miles to work. If commuting by bicycle replaced the automobile, individuals would lose an average of 13 pounds in one year and reduce the risk factors associated with heart disease, diabetes and other diseases while increasing personal health.

Bicycle sharing programs improve public health. A study exploring the risks and benefits to health by traveling by bicycle compared with traveling by car in an urban environment revealed that the health benefits of physical activity from cycling while participating in the bike share program were large compared with the risks from inhalation of air pollutants and road traffic incidents. Other studies found that biking provides important health gains, reduces carbon dioxide (CO₂) emissions, and outweighs the risks of biking.

Environmental benefits of bicycling

Shifting short trips taken with the automobile to the bicycle, helps to mitigate the impacts of climate change, reduces fuel consumption, and reduces greenhouse gas emissions. Switching from the automobile to a bicycle for a five-mile commute to work, four days a week, a commuter reduces vehicle miles traveled by 2,000 miles, saves the equivalent of 100 gallons of fuel, avoids 2,000 pounds of CO₂ emissions, and reduces the carbon footprint by about five percent. Bicycle sharing programs provide the opportunity to shift short trips from the automobile to the bike and to achieve these environmental benefits.

Economic benefits of bicycling

Annually, a bicycle commuter can save up to $1,500 on fuel and other driving expenses. Other savings are found in building infrastructure to accommodate bicycles which is significantly less than that required to build or expand roadways. A single mile of urban, four-lane highway costs between $20 million and $80 million compared to a single mile of bicycle and pedestrian facilities which costs between a few thousand dollars to rarely more than $1 million. A national study of employment impacts found that bicycling infrastructure creates the most jobs through the design, construction, and material procurement processes compared to road projects. Cycling-only projects create a total of 11.4 jobs per $1 million while road-only projects create only 7.8 jobs per $1 million. Bicycle sharing programs contribute to the economic benefit received from cycling.

Bicycle sharing programs

A bike share program consists of a fleet of bicycles located throughout a network with electronically locking docking stations, telecommunication systems, and smartcards that can measure distance traveled, calories burned, and carbon emissions prevented. Global positioning system (GPS) and radio frequency identification (RFID) technologies are utilized for the efficient use and availability of bicycles. Operators
know in real time how many bikes are in use or available at any one time. Bike share programs are promoted as user-friendly, convenient, affordable, healthy, and environmentally-friendly forms of transportation.

Membership and rental costs, operating hours, and operating seasons of a bike share program can vary by community. Generally, bike share programs offer an annual membership that allows an unlimited use of the system. Since the ultimate goal of the program is to accommodate short trips and encourage bicycle use, the first 30 minutes of travel is included in the membership, but usage after the first 30 minutes incurs an additional charge. Although an annual membership is the most cost effective, users are still able to rent a bike on a one-, seven- or thirty-day basis. Agencies can tailor a bike share program specific to the needs of their community.

**Bicycle sharing programs in practice**

To enhance community livability, increase bicycle use, and increase multi-modal transportation options, communities are implementing bicycle sharing programs. There are more than 200 bike share programs worldwide today. One of the most notable systems is the Vélib’ system in Paris which started in 2007 and has over 20,000 bicycles and 1,800 stations. America’s first bicycle sharing program began in Washington, D.C. under the name “SmartBike” in 2008 and operated by Public Bike System with only 120 bicycles and ten stations. After an unsuccessful beginning, the program was relaunched by Alta Bicycle Share in 2010 with 1,100 bicycles and 114 stations. Boston’s “New Balance Hubway” system was launched in July 2011 with 600 bicycles and 60 stations. New York City is scheduled to launch NYC Bike Share, a Bixi system operated by Alta Bicycle Share and will have 10,000 bikes and 500 stations.

B-Cycle, a partnership of Humana, Trek Bicycle Corporation, and Crispin Porter + Bogusky, is one of the largest bike share vendors in the United States. The B-cycle system includes the cities of Boulder, Broward, Chicago, Denver, Des Moines, Madison, Omaha, San Antonio and Spartanburg. In Madison, Trek invested $2 million to provide 350 bikes and 35 stations throughout the city, Trek’s hometown.

Sandvault is a provider that designs and implements state-of-the-art public bike share systems. They partner
Bicycle sharing program success
Before implementing a bicycle share program and enjoying the benefits of cycling, communities considering implementation can follow the best practices of programs already established. Five of the critical factors for success for a bike share program include: (1) Customer Demand – The potential for ridership has to be there; (2) Bike Facilities and Safety – Safety issues and building a mix of bike facilities that promote multi-modal transportation should be addressed; (3) Profitability – The program will likely need some combination of sponsorships, advertising revenues, grants, subsidies and membership fees; (4) Theft and Vandalism – Much attention must be given to reduce or eliminate vandalism; and (5) Multi-modal Connectivity – Placing stations near transit and high-use areas is critical for success.

There are several aspects of preparation that a community must undertake to be successful. The bike share program needs to keep within the overall transportation strategy of the community and needs to consider the following aspects in the evaluation: size of city, topography and climate; commitment and resources to provide favorable biking conditions; an analysis of target groups and cycling habits; sufficiency of resources and space; business model; and community alliances to support the program. Careful consideration and evaluation must be given prior to beginning a bike share program. The success of many programs can be transferred to cities with the appropriate framework that are favorable toward cycling.

Conclusion
A transportation system that encourages biking is a key component to creating a livable community. Bicycle sharing programs contribute to reducing oil dependence, reducing carbon emissions, reducing obesity, and reducing health costs while increasing mobility and quality of life. Careful consideration and evaluation must be given prior to beginning a bike share program. Leaders should take the necessary steps to evaluate and implement a bike share program to increase the quality of life and to enhance livable communities of the twenty-first century.

To obtain a copy of the complete capstone paper and research, Robert Tintle can be reached at (541) 682-8476 or robert.d.tintle@ci.eugene.or.us.
The Advantage+ central hydraulic system contains groundbreaking technology to revolutionize how snow and ice removal fleets are operated and maintained.
Pay it forward: volunteers make the difference

Local municipalities learn “secrets” to earning FEMA matching dollars

Connie Lewis
Assistant External Affairs Officer
Federal Emergency Management Agency
Lacey, Washington

In the January 2009 flood, the small town of South Prairie in east Pierce County was inundated by mud. A local high school initiated an MLK Day service project for its students. Coordinating efforts with the mayor, nearly 75 kids showed up to be a “mud brigade,” shoveling mud out of critically needed roadways, buildings, and the town’s only fire station driveway.

Volunteers are the lifeblood in any community—but more so in those communities struck by swirling floodwaters, damaging mudslides or landslides slamming over roadways, compounded by ice, heavy snow, and rain. Citizens can do double duty. Not only are they working amidst disaster, they are also “paying it forward” by offsetting some of the unanticipated and unbudgeted emergency costs today swamping affected cities and counties.

The time citizens and volunteer groups spend sandbagging, clearing debris from clogged drains, taking and logging calls, staffing warming centers, and many other duties may be an “allowable reimbursement under FEMA Public Assistance programs,” according to the state’s Emergency Management Division (EMD) Public Assistance Program Manager Gary Urbas. “But volunteer efforts need to be organized and documented correctly. The sad thing is that many states throughout the country do not even apply for donated resources.”

At least two Washington counties, Pierce and Snohomish, found a bright spot in a declared disaster recovery process: the tracking and documenting of volunteer worker efforts, generally called “Donated Resources.” This process has nearly reimbursed the applicant for its share of matching funds required by FEMA Public Assistance Programs for declared disasters.

For South Prairie, according to Barbara Nelson, Pierce County’s neighborhood emergency team (PC-NET) liaison, “we sent the town forms for documenting the sign-in and sign-out of each of these kids. They collected permission slips from parents, and the County was able to count those substantial volunteer hours toward reimbursement.”

This one volunteer effort brought nearly $11,000 in funding to the town of South Prairie. Pierce County’s organized volunteer efforts resulted in a $29,000 donated resources reimbursement request.

Once a presidential disaster declaration is issued and damages are documented, FEMA can provide up to a 75 percent cost reimbursement for eligible projects. State and local entities then must come up with a 25 percent shared cost match.

“We are submitting a Donated Resources claim for $12,000 to FEMA for this current declared disaster (January 14-23, 2012),” says Richard Schroedel, Pierce County’s Department of Emergency Management (DEM) program coordinator. “If approved, this may again provide for full reimbursement of DEM’s Emergency Operation Center (EOC) operational costs—and may provide for additional coverage to offset other emergency work provided.”

During a 2009 disaster declaration, Pierce County utilized roughly $29,000 in volunteer time that provided an additional $21,000 in federal funding. This assisted the DEM in receiving full reimbursement of its EOC operational costs (roughly $122,000) during that disaster. They also received donated resources reimbursement funding (approximately $6,000) for documented volunteer hours which was applied to offset another department’s unbudgeted and unanticipated emergency disaster work.

“Our contribution of donated resources generally allows us to meet our local match requirement and be eligible to receive additional funding to cover our emergency work costs,” said Veronica Hill, Pierce County’s DEM administrative program manager.

The current Washington disaster, January 14-23, 2012’s severe winter storm, left in its wake 11 counties with damaged roads, trees, power lines, debris, equipment, and more—
Mother Nature’s “gift” to already struggling local governments. Those counties included in the March 5, 2012 presidential disaster declaration were eligible for the FEMA Public Assistance program to help them offset the unexpected emergency expenses needed to protect life, health, safety and personal property.

Snohomish County, hard hit by the winter storms in 2006, had already developed a County Disaster Assistance Program complete with disaster assistance employee job descriptions. By using sign-in/sign-out sheets and capturing detailed information, they were able to document these volunteer hours, assign a pay rate for each volunteer job, and submit a detailed claim. In doing so, Snohomish County was able to meet the County’s 12.5% match and received 75 percent of its claim for $42,700 in donated resources—adding about $32,000 into its general fund.

“We’ve approached the donated resources issue in a more institutionalized method,” said John E. Pennington, Snohomish County’s Department of Emergency Management (DEM) director. Staff developed this method of how to best track volunteer hours within its Disaster Assistance program by creating position descriptions and pay rates.

Since then, Snohomish County has emerged as a leader for programmatically implementing a Disaster Assistance Program according to Urbas, by codifying task responsibility and job descriptions. According to Diana Rose, DEM’s admin finance program manager, the county is also able to actually “hire” temporary Disaster Assistance Employees to cover critical jobs during emergency situations, if needed, because County Council already approved the job description and pay rate scale.

“This approach works so well for us,” Pennington said, “that technically, when activated, there is zero ambiguity about what emergency workers will do and how much their volunteer hours are valued.”

Pennington also realized the need for other municipalities to understand how to document the many hours volunteers put into helping the home front. He now teaches Emergency Management and Public Policy/Government, including Donations Management and Federal Disaster Declarations at FEMA’s Emergency Management Institute (EMI) to communities across the United States.

Pennington explains that what is critical for FEMA Public Assistance applicants is that volunteer hours are tracked and captured as an existing part of Snohomish County policy. He added that “FEMA really appreciates and often reimburses based upon a local entity’s existing policy, knowing that we are not just making it up as we go.”

Yet still, in the heat of disaster, counties and cities often miss out on documenting many hours of disaster volunteer help because many jurisdictions haven’t approached volunteer management systemically and citizens don’t realize their efforts really do count.

For example, while Pierce County was able to track a lot of volunteer response and recovery activities through its Emergency Operations Center, other efforts slipped through the cracks because at the time there wasn’t a system in place to track hours donated.

“We had a whole cadre of citizens just show up one day with chain saws to clear a blocked road of trees and debris,” said Nelson. “By the time we found out they were there, they were gone. The County missed out on many, many hours of volunteer time that could have been added to our application for funds.”

Connie Lewis can be reached at Connie.Lewis@fema.dhs.gov or (360) 413-4566.

For a complete listing of volunteer groups or to get additional information, contact Barbara Nelson, Pierce County Neighborhood Emergency Teams Liaison, Pierce County Citizen Corps, bnelso1@co.pierce.wa.us or (253) 798-2168.

For additional information about Snohomish County’s donated resources program, contact Diana Rose at Diana.Rose@co.snohomish.wa.us or (425) 388-5062.

For additional information about Pierce County’s donated resources program, contact Richard Schroedel, at rschroe@co.pierce.wa.us or (253) 798-6596.

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Understanding the options in construction management

Ohio opens door for Construction Manager at Risk

Kristen Braden, P.E., Esq.
Construction Project Manager
H.R. Gray
Hilliard, Ohio

The Ohio legislature is expanding the choices allowed in construction contracting methods and catching up Ohio with the other 49 states by providing other selections to owners when choosing a construction delivery method of a public project. An owner must be fully educated on the differences between the various construction delivery methods and accept the responsibility that each method may lay upon the owner. In addition to the existing method of multiple prime contractors, the other construction delivery options now available include general contractor (GC), design-build (D-B) and Construction Manager at Risk (CMAR).

Contracting methods at-a-glance
In the general contracting method, similarly to the traditional multi-prime method, the contractor is not involved in the project until after the design is completed. The owner hires a general contractor to be responsible for the day-to-day oversight of the construction site, and management of vendors and trades. A general contractor is responsible for providing all of the material, labor, equipment and services necessary for construction of the project. The general contractor hires more specialized subcontractors to perform portions or all of the construction work, allowing for the lowest cost to be obtained through the bidding process. The general contractor doesn’t become involved until after the design is complete, which is when he will generate an estimate that includes the entire cost of constructing the project. The most obvious advantage of the GC over the multi-prime is, since the owner has only one contract, any disputes about the scope of the work or issues with defective work are only directed toward one entity—the general contractor.

The Construction Manager at Risk (CMAR) method is set up to give the authority and cost control to the CMAR. The CMAR does not perform the design service or any of the actual construction services—such as construction, repair, or demolition. The CMAR becomes involved during the design phase, sets a GMP for completion of the project after design, and hires all the contracting firms. The CMAR is responsible for cost control and any overages are at his expense. He acts as a consultant to the owner in the development and design phases, but is basically the equivalent of a general contractor during the construction phase. The CMAR makes more money when the job is brought in at a lower cost than bid.

In design-build (D-B), the owner hires a design-build team which handles the entire process—from the initial design through the construction of the project. The D-B team is responsible for the design, construction, demolition, repair, or reconstruction of the project. The architect, general contractor, and all the specialty contractors are all part of this integrated delivery system. The D-B procurement route changes the traditional sequence of work. It is a single-point of responsibility for the owner in an attempt to reduce risks and overall costs. Further, D-B projects can be completed faster because the potential for construction problems are uncovered early in the design phase. A single price is quoted for the entire project. In this process, the same parties are involved from beginning to end so there is intimate knowledge of all phases of the project, allowing for smooth coordination of the process.

Pros/Cons of Construction Manager at Risk
Typically, a CMAR arrangement eliminates a low bid construction project. It is considered a cost-saving form of construction management, since the contractor is responsible for monitoring all the costs and must assume the cost of any overages; he is motivated to keep the project on schedule and under cost. The CMAR operates as a business manager, ensuring that costs are adequately controlled and that expenses are kept in check. The owner typically can select the CMAR based on qualifications, not just on lowest cost. Any claims that arise between subcontractors are handled within the CMAR’s contract, not by the owner.

Having the CMAR involved from the design stage provides him with a better understanding of the project and what may be involved. He provides the owner with a GMP
on the construction cost during the design phase and then enters into a contract with the owner based on that fixed price.

The GMP is based on the architect’s design. In a traditional method, the owner does not sign a contract until there are completed plans and specifications, which become part of the contract. With the CMAR, the contract is done early in the design phase and elements of the design may change. There is risk for the owner, because he may lose some control over the final design, in the contractor’s effort to contain costs. To manage the budget before design is done, construction crews are mobilized, major items purchased, which is a more efficient use of everyone’s time, effort, and costs, contributing to delivering the project within budget.

Essentially, the advantages of using the CMAR delivery method is that the owner gains greater control in selecting a construction manager through qualifications and the early start in construction and ability for reviews avoids delays. There is a single point of responsibility during construction, which helps the owner, and the contractor assume the risk for overages. Lastly, there are better opportunities for fast tracking.

The disadvantage for the owner is that, during construction, the CMAR’s first priority must be to protect himself from liability as well as protecting the profit margin. The owner must provide his own protection during construction. CMAR inherently includes the potential adversarial relationship between the architect and construction manager, since the contractor may make design changes at any point to control costs. The owner loses control over the design and must find a method of protecting his own interests and ensure that no shortcuts are taken during construction that would affect the quality or safety of the project. CMAR guarantees the owner won’t pay more money, but does not guarantee that the owner is paying the lowest cost.

It is important for the owner to consider the pros and cons of using the various project delivery methods now available. A properly chosen method along with a thorough contract will help the owner avoid any undesirable situations.

Kristen E. Braden provides construction management on public construction projects as well as construction claims management and resolution services for H.R. Gray, Inc. in Columbus, Ohio. Kristen has a Bachelor of Engineering degree in Civil Engineering from Vanderbilt University, a Master of Science degree in Engineering from the University of Texas and a Juris Doctor degree from the University of Cincinnati.

Kristen has been a guest speaker at the 2010 Ohio Parks and Recreation Association Annual Conference, 2008, 2010, and 2011 Kentucky/Tennessee Water Professional Conference as well as the 2008, 2011 and 2012 Ohio Parks and Recreation Association Annual Conference. Kristen also spoke in 2009 to the Lower Colorado River Authority as well as the Primavera: 2007 Annual Conference with the topic, “Claims: If I Can’t Avoid Them, How Do I Get Through Them Unscathed?” She can be reached at kbraden@hrgray.com.
New Mexico is a beautiful, large state with a low population density and 85% of the communities classified as rural. Capturing and processing those bottles, cans and fibers can be tricky due to the usual challenges characteristic of most rural recycling projects: transportation, limited material volumes and operational costs.

In our quest to be of service to our communities and help overcome these stumbling blocks, the New Mexico Recycling Coalition, an independent, statewide nonprofit, took a multi-year strategic planning approach to develop the “hub and spoke” model of regionalized processing. We first identified where recycling processing existed and identified the “holes” where infrastructure investments were most needed to support recycling for all New Mexicans (see the current status of processing in the NM Hub and Spoke Map).

Another key component to this program was to work with local communities to create regional partnerships. A hub location may serve more than one county, numerous towns, villages and tribes and it was important to bring together all stakeholders to discuss the value of the hub, its purpose as the regional consolidator of materials and the important roles that spokes play.

Since the potential hubs were first identified in 2009, six new processing facilities were built in 2011 and two are in the process of expanding through two different federal funding sources. In conjunction with the strategic development of processing infrastructure, NMRC has launched a marketing cooperative in order to assist smaller hubs to gain fair market pricing and allow “milk runs” between processors in order to attain full truck loads and thus reduce storage space and time to accumulate a full load of a particular material.

We have also launched a Pay-As-You-Throw (PAYT) campaign to educate communities about this solid waste rate structuring model with the goal of bringing several communities on line in NM to adopt PAYT over the next year. Currently, the state only has one PAYT community.

All of this work described above is funded by a Department of Energy American Recovery and Reinvestment Act (ARRA) Energy...
Efficiency and Conservation Block Grant (EECBG) in the amount of $2.8 million received by NMRC. More than two-thirds of that money has been directly sub-awarded to rural and underserved communities to invest in recycling infrastructure.

Hub and spoke recycling
The hub and spoke design aims for simplicity and efficiency. The template recycling processing hub is a simple 3,000-square-foot, three-sided structure meant to house loose and baled source-separated materials and a horizontal baler with a pit conveyor. It’s nothing fancy, no offices, heating or facilities and uses only natural sky lights. It is designed so that the source-separated materials are handled the least amount of times. Roll-offs and trailers are brought into the hub and tip directly into a right-sized storage bunker, where once full, a skid steer can push the material for a complete bale directly to the pit conveyor.

The hub, as the operator of the processing equipment, retains the revenues from material sales, in order to offset the costs of operating and maintaining the equipment. In most cases, the spokes do not share in that revenue, but instead are able to realize avoided tip fee costs, reduced transportation in many cases where the recycling hub is closer than the landfill, and the avoided cost to capitalize and own the processing equipment. We have recommended that every drop-off have two distinct pieces of collection equipment: one for cardboard and another for the sorted materials. Conventional divided gable-topped roll-off containers are scaled to assure that compartments fill at similar rates and to avoid hauling unused capacity. Each hub is also encouraged to have a switch-out set of equipment on hand to leave an empty container in the place of the full one to reduce transport trips. New spoke collection sites are recommended to be located at existing solid waste drop-off locations that have attendants or if set in an urban environment to be placed near the local fire or police department which discourages improper use and illegal dumping. In some locations staff locks the collection doors at night to avoid contamination.

Other efficiencies include limiting capital investments to only the most regionally appropriate locations, locations that will not compete for the scattered supply of recyclables. The infrastructure is designed to be scalable, allowing for growth under the existing footprint and limiting costs at startup. The New Mexico communities building these new hubs are taking their baby steps in the recycling world and we wish for them to be successful in those first steps, before taking off into a run.

Investment costs
There are several different grant programs at work here and the costs to grow the hubs vary. The turnkey recycling processing centers come complete with forklift, horizontal baler and pit conveyor, the structure, electrical work and a loading dock along with startup collection equipment. The three NMRC-funded communities, City of Deming, Otero County and Torrance County, were awarded $309,820 to cover these expenses. A second ARRA grant to the State of New Mexico was able to provide funding for a “balers and trailers” program in the cities of Raton, Truth or Consequences and Gallup. Under this program communities provided existing light industrial space to house a grant-supported baler, conveyor and collection equipment. These hubs were funded $150,000 each.
to start their programs. Two other grant releases have been made to improve several existing hub facilities and increase spoke drop-off locations. The project has been able to fund 40 new recycling collection points throughout the state. This effort will provide some of our very smallest communities with access to recycling, as well as our larger rural towns and cities, many of which did not previously have options for traditional household recycling.

Each of the new hubs is receiving assistance to develop strong, regionally-consistent education and outreach programs, complete with standardized signage, brochures, flyers, posters, magnets, household collection containers and newspaper articles. Each community has a citizens group in place that will aid the region in the ongoing public education and outreach requirements to grow and sustain the program.

**Jobs, energy and markets**

We have predicted that with the combined efforts of infrastructure development, the marketing cooperative and the Pay-As-You-Throw program, New Mexico as a state will be able to realize an increase in its overall recycling rate by 25% within three years and a 50% increase in six years. New Mexico’s current recycling rate is 16.2% (2010). That would take us up to 20.25% and then 24.3% respectively over the next several years. Using the Institute for Local Self Reliance’s calculation that for every 10,000 new tons of material equating to 10 new jobs, we would see 62 new jobs in three years created somewhere down the pike of the recycling handling, processing, brokering, transport and remanufacture of these materials. That new tonnage will also equate to 14,945,455 Million BTUs of total energy saved or the equivalent of 139,340 households’ annual energy consumption.

The hub and spoke model is designed to be replicable and all resources from our project are available online at www.recyclenewmexico.com.

*English Bird can be reached at (505) 983-4470 or english@recyclenewmexico.com.*

This material is also based upon work supported by the Department of Energy [National Nuclear Security Administration] under Award Number DE-EE0003799.

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The new hub processing facility in Raton utilized an existing vacant city-owned building that now serves as the community drop-off location and for processing.
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Submission deadline: September 30, 2012

Conference information and online submissions: www.apwa.net/conferences/cfp
Owners Grove, Ill., is located in the center of DuPage County, 25 miles west of the city of Chicago, and immediately southeast of the Interstate 88 and Interstate 355 Interchange.

The Downers Grove Sanitary District (DGSD) is responsible for providing sanitary sewer service for much of the Village of Downers Grove, the portion of the Village of Westmont west of Cass Avenue, and portions of Woodridge, Lisle, Oak Brook, and Darien, Illinois. The District is a separate unit of local government, independent of the municipalities where they provide service. Further, they are not part of the Village of Downers Grove.

DGSD collects sanitary wastewater through over 245 miles of sanitary sewers that they operate and maintain. They also operate and maintain nine wastewater pumping stations located throughout the service area. Sanitary wastewater is collected and treated at the Wastewater Treatment Center (WTC). The effluent is discharged to the East Branch of the DuPage River or St. Joseph’s Creek, as permitted by the State of Illinois with authority from the United States Environmental Protection Agency.

DGSD provides service to 20,000 customers, including wastewater generated by more than 60,000 people and a number of commercial, industrial and institutional customers. The WTC has the capacity to treat an average of 11 million gallons per day of sanitary wastewater.

**Fostering a Tight Collection System**

The DGSD maintains the separate sanitary sewer system.

The District receives significant amounts of rain and groundwater into the system. During major rain events, flow at the plant can reach as high as several times the dry-weather sanitary flow. Excess flow facilities are in place to treat these flows during major events. High flows during these periods can cause operating problems in the sewer system by taking up the capacity available to transport sanitary flow, contributing to backups and flooding in low-lying areas, and aggravating minor blockages.

Ordinances are in place that strictly prohibit inflow water from entering the sewer system. Significant resources are dedicated to finding and eliminating sources of these excess flows.

It is well understood that a large portion of excess flows come from private property. Buildings in the service area can have flaws in the way the plumbing is configured. Sources like roof drain downspouts and footing drain sump pumps can contribute very large amounts of excess flow into the sanitary sewer if improperly connected to the building sanitary service.

**Green Roofs to Mitigate Inflow and Infiltration**

Direct stormwater runoff from building roofs accounts for a significant percentage of the inflow from the private sector into the District’s collection system. The building roofs act as a hard surface where 100% of the stormwater navigates to the building downspouts. This water can make its way to the building sanitary service through numerous pathways, either directly via illegal connection, or indirectly via foundation drains or leaking service pipe joints. A Green Roof absorbs much of this water before it reaches the ground, seriously controlling this major source of Inflow and Infiltration.

**Planning the Green Roof**

Planning the Green Roof was an interesting and enjoyable process, mostly because it was a new project for everyone. The first step was to establish the project priorities to ensure a successful project. The priorities were as follows:

1. The Digester Building was chosen. The roof of the Digester Building is approximately 1,500 square feet. Not too big to become a major undertaking and not too small to be inconsequential.

2. The existing roof system of the Digester Building is watertight.

3. Structurally the roof of the Digester Building was over-designed. The existing roof structure had the capacity for the additional loading.

4. DGSD retained the services of the Engineering Solutions Team to assist with the design, cost-effective purchasing of materials,
and guidance during the in-house construction process.

**The Project Schedule**
The planning and design of the project was initiated on August 5, 2011. It was required that the construction of the Green Roof was to be completed for the annual Treatment Plant Open House scheduled on October 1, 2011. The Open House is the best opportunity to promote Green Roofs to the District’s customers.

**Design of the Green Roof**
The design for our system generally consisted of a series of well-thought-out decisions.

**The Plan:** We decided on a total roof system vs. a modular system. We felt that we would not better understand the Green Roof concept by just placing modular Green Roof sections. Additionally, we believed that the total roof system would more thoroughly utilize the roof stormwater. We did need to incorporate a couple walks for maintenance of the new Green Roof and the clarifiers which are attached to the Digester Building.

**The Typical Section:** The Typical Sections to choose from are generally called the extensive or the intensive sections. We chose the extensive section. Our logic for choosing the extensive section was the following:

- The extensive section is simpler and more lightweight.
- The extensive section requires less maintenance.
- Additionally, we chose to use the sedum tiles because of their cost-effectiveness and their durability.

**The Mood:** The attitude of the staff around the plant was quite upbeat. The team was genuinely interested in tackling a new challenge. Everyone was volunteering to be placed on the Green Roof construction unit.

**The Purchase of Supplies:** The plan was complete and consensus was reached on the typical section. The required items were formulated and the summary of quantities was calculated.

Research was conducted to identify several firms who met our criteria for materials. Based on the information provided by several firms we were in a position to develop our initial budget.

DGSD intended to perform the installation of the Green Roof with its in-house labor. The District wanted to pick up the materials at local warehouses but this was possible for only limited items. Our initial cost-projection was $10/square foot, or $15,000. Senior management approved the concept and the budget; therefore, we were moving forward and our completion deadline was the end of September.

**The Supplier:** American Hydrotech, Inc. was selected to be the roofing supplier for the Green Roof. The supplier was selected for the following reasons:

- The company has successfully been in the business for over 30 years.
- The company is a local firm with the ability to provide good service.
- The company has developed a national and international presence.
- The company has been building Green Roofs for over 10 years.
- The company promised to provide onsite guidance during the construction process.
- The company could provide the materials at a competitive price.

**Construction of the Green Roof**
Prior to installation of the Green Roof, the existing roof needs to be swept well.

Once you commit to beginning the construction of the Green Roof, you should build diligently through
the installation of all topsoil. The partially completed roof is very sensitive to windy conditions.

Installation was initiated on Tuesday, September 12.

Installation sequence is as follows:

1. Lay the heavy plastic root barrier. Generally provide a 12" overlap at all seams and at all edges. Tape all the seams.

2. Install edgings for walkways. Install the drainage covers for all existing inlets.

3. Install the special Green Roof plastic garden support drain system. This system is to be placed edge to edge.

4. Lay the root system filter fabric over the plastic garden support drain system. A 12" overlap is recommended, taping is not necessary.

5. Place 4" of the special “LITE TOPSOIL” over all the plastic garden support drain system.

6. Place the sedum tiles on the topsoil. Placing the sedum tiles is very similar to placing sod.

7. The sedum tiles should be watered probably three times a week for the first month after installation. Watering depends on the weather. The watering is to promote healthy germination of the sedum plants.

Installation was completed on Thursday, September 22.

The Open House was held on Saturday, October 1. The Green Roof was one of the focal points of the tour.

Final Construction Costs

The final construction costs for all the roofing supplies came in at approximately $17,500.00 for the 1,500-square-foot roof.

Also included in that final cost were several hundred square feet of extra sedum plantings. These extra sedums were planted on the grounds around the WTC and are being utilized as an ad-hoc nursery in the event that areas of the roof may require being replanted.

The cost of the in-house labor was not figured into the cost of the project.

The Advantages of the DGSD Green Roof

Economic Benefits:
- Energy efficiency – reducing heating and cooling costs for building.
- Prolonged roof membrane durability and longevity – protecting the membrane.
- Fire prevention.
- The installation became a solid team building exercise.

Environmental Benefits:
- Creation of preservation of habitat and increasing biodiversity.
- Temperature regulation.
- Improve air quality.
- Stormwater management.
- Water filtration.
- Improved aesthetics.
- Noise reduction.

Conclusion

The Green Roof is currently growing well and looking good. The flows through the downspouts have been reduced. The District intends to construct another Green Roof in the same fashion in the near future.

Edward J. Kalina can be reached at (630) 698-6696 or edkalina@hotmail.com; Nicholas Menninga can be reached at (630) 969-0664 or nmenninga@dgsd.org.
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While construction projects rarely progress in an ideal fashion, those in the construction industry can easily define a perfect project. However, projects aren’t always ideal. Weather conditions, changes in plans and specifications, and unforeseen site conditions are just a few of the challenges that can throw a project off course—and lead to claims.

**What is a claim?**
A claim is a request for additional compensation of either cost or time due to a change under the terms of the contract. The party asserting a claim must show entitlement and damages. For entitlement, the party must show it is entitled to the additional time or money under the terms of the contract documents. To prove damages, the party must show the amount in dollars or days that it was injured as a result of the underlying claim. Fortunately, claims do not always result in a lawsuit.

Claims can arise from a variety of situations. If site conditions are different from those represented in the contract documents, or what could have been reasonably expected from the information available, this change may affect a project’s schedule. What’s more, any additions, deletions or revisions to the work that are still within the original scope of the contract also may cause a time impact. Time impacts may be represented by delays, disruptions, acceleration, lost productivity, or a stoppage or suspension of work.

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**Planning on Building High Performing Roads Using Scrap Tire Rubber?**

While Asphalt Rubber is a well-established technology, there can be challenges with implementing it when compared to conventional asphalt. This is particularly of concern for overlays late in the construction season. APWA has invited the RPA and its team of experts to present a workshop training session to help ensure implementation of your Asphalt Rubber program is successful.

Come and learn more at Workshop Wednesday about Asphalt-Rubber during the “Asphalt Rubber: Building High Performing Roads Using Scrap Tire Rubber”, on Wed., Aug. 29th from 8:30am to 10:45am Room 205AB, during the 2012 APWA International Public Works Congress & Expo.

The RPA wants to provide you with all the tools you need to make your program a success. For additional information, please contact Mark Belshe, Rubber Pavements Association, at MBelshe@rpamail.org or (480) 517-9944. Visit our website www.rubberpavements.org.
Claims avoidance

Claims avoidance begins with knowing your contract requirements. Know your responsibilities, other parties’ responsibilities and the ramifications of any party’s failure to fulfill its responsibilities. Understanding the contract can allow you to prepare a strategy to deal with problems before they actually arise. Identify the vague areas, and develop a plan to deal with potential problems not addressed by the contract. It is critical to follow the contract.

If problems or issues occur, document these as they arise. Ongoing documentation has numerous benefits. First, it allows you to remain aware of continuing problems in order to follow up on a regular basis. You will be able to identify problems in the early stages before they have a significant impact on the schedule and budget. Finally, you will be able to obtain (or provide) authorization before performing any work outside the scope of the contract.

Proactively deal with claims

When dealing with claims, it is important to take proactive measures. By doing so, an organization will save both time and money. To save time in the claims process, an organization must have continuous review of the schedule. Knowledge of the day-to-day changes and events will help a firm identify potential claims and identify the activities or events that have caused a delay or acceleration. Identifying claims early will help an organization collect and create the proper documentation to prevail.

To ensure money is saved in the claims process, an organization must identify and document a claim in order to effectively recover from, or defend against, the claim. Researching the claim and recreating the documentation after the fact is costly. In addition, numerous factors related to time can wreak havoc on a project’s bottom line. These issues may include overhead costs, equipment rental, price escalation, labor costs, lost profit, lost productivity, impacts incurred by subcontractors and other third parties, lost profits to businesses, and fines from governmental agencies. To mitigate or minimize impacts on a project, identify ways the project can make...
up for lost time and money. Often, rescheduling or resequencing of work will help recover lost time.

**Claims mitigation**

Complete contract documents, accurate project documentation and a construction schedule are essential components to mitigating a claim. For mitigation of the issue or issues at hand to occur, the first step is identifying there is an impact. The next step is identifying the underlying cause of the impact. Finally, it is important to identify methods to minimize, eliminate or correct the effect to the project.

Contract documents make note of general conditions, such as responsibilities for notices, requirements for changes to the work, scheduling requirements, and payment requirements. Other contract records might include plans and specifications and ground or soils reports.

Proper documentation is necessary to show both entitlement and damages. Evidence of entitlement may come in many forms. For instance, correspondence may document that there was notice and when notice was provided. Daily reports may document what work was performed on any given date. Meeting minutes document that the parties knew of potential claim issues. Finally, testing results document whether the work performed met the specifications.

Evidence of damages includes daily reports that quantify who worked on what activities on any given day, while payroll records may verify the number of hours any person was working on a given day. In addition, an analysis of project documentation also can show causation, avoidability, mitigation and responsibility.

If issues arise, it is necessary to keep certain guidelines in mind. Document problems and their resolutions contemporaneously. Such documentation may include daily logs, payroll records, job logs, geological data, correspondence, time-stamped photographs and video. Keep records of problems encountered and methods used to resolve the issues. Identify problems and request that the contractor or supplier rectify the issue. Follow up on problems or issues. Next, set action dates and deadlines. Finally, use correspondence effectively, intelligently and respectfully.
Beyond documentation, the construction schedule is another crucial aspect of the claims mitigation process. In fact, the construction schedule is perhaps the most important tool for claims avoidance and mitigation. The schedule allows you to identify time impacts before they occur. Regular updates and reviews allow you to identify delays and impacts more quickly.

Updating and maintenance of the project documents may be the most important component for the mitigation of any claim. An organization must commit to reviewing and updating its files on a daily or weekly basis. Keep in mind that it may be difficult to identify potential claims or issues if you do not maintain and update all project records regularly.

Kristen E. Braden provides construction management on public construction projects as well as construction claims management and resolution services for H.R. Gray, Inc. in Columbus, Ohio. Kristen has a Bachelor of Engineering degree in Civil Engineering from Vanderbilt University, a Master of Science degree in Engineering from the University of Texas and a Juris Doctor degree from the University of Cincinnati.

Kristen has been a guest speaker at the 2010 Ohio Parks and Recreation Association Annual Conference, 2008, 2010, and 2011 Kentucky/Tennessee Water Professional Conference as well as the 2008, 2011 and 2012 Ohio Parks and Recreation Association Annual Conference. Kristen also spoke in 2009 to the Lower Colorado River Authority as well as the Primavera: 2007 Annual Conference with the topic, “Claims: If I Can’t Avoid Them, How Do I Get Through Them Unscathed?” She can be reached at kbraden@hrgray.com.

Founded in 1979, H.R. Gray is a unique management and consulting firm that provides public agencies with responsive, cost-effective, quality construction consulting, management and claim resolution services for complex projects. By utilizing its unique skill set and proactive approach, H.R. Gray’s mission is to help each client successfully manage its construction project from conception to completion. H.R. Gray has offices in Columbus and Akron, Ohio; Lexington, Kentucky; and Austin, Texas.
Converting a degraded quarry into a community asset

Ted Gray, P.E., CFM, CPESC
Engineer/Eco-Hydrologist
Living Waters Consultants, Inc.
Burr Ridge, Illinois

The Jelke Creek Bird Sanctuary is a 239-acre area located in the Village of Sleepy Hollow, Kane County, Illinois. The site was purchased by Dundee Township in 2000. The acquired open space is bordered by 2,000 feet of Jelke Creek to the west, and residential subdivisions in other areas. Jelke Creek contains several desirable fish species as well as a variety of freshwater mussels. However, the value of Jelke Creek and the newly acquired Bird Sanctuary were compromised by historic aggregate mining activities. Approximately 120 acres or 50% of the project site had been disturbed and degraded by quarry activities. Moderately eroding slopes occurred along approximately 4,300 linear feet of the project perimeter. Typical conditions included 2:1 (H:V) or steeper unvegetated areas with heights extending to 20 feet. Sheet, rill, and/or gully erosion was common throughout the area. Soil-stabilizing vegetative cover was lacking due to a lack of organic matrix in the topsoil.

Three degraded onsite ponds contained over 2,000 linear feet of eroding banks. Despite permeable soils, due to disturbance and compaction, silt-laden runoff would discharge through the gated south entrance toward Jelke Creek during flood events. Water quality impacts included siltation, sedimentation, nutrient enrichment, and habitat degradation extended downstream to Jelke Creek.

Project Goals
Primary goals of Dundee Township for the Jelke Reclamation Project included improving water quality and reducing flooding from the degraded site. Project engineers determined this could be accomplished by retaining as much rainwater onsite as practicable through storage, infiltration and retention. Reducing offsite runoff would reduce the discharge of pollution into Jelke Creek, increase infiltration, and increase groundwater recharge. Groundwater recharge could help to protect regional groundwater aquifers as well as stream hydrology and ecology. Converting the eroding site into stabilized areas with deep-rooted native vegetation was considered essential to accomplish project goals. In addition, Dundee Township sought to improve recreational opportunities for the community.

Final Engineering and Construction
Final engineering included the application of environmentally sound restoration engineering techniques within the context of a comprehensive site evaluation. Living Waters Consultants was hired to provide stormwater design, final engineering plans, ecological design, permitting, bidding assistance, construction observation, grant acquisition assistance, and ongoing maintenance and monitoring inspections. The lowest qualified bidding contractor, G.A. Blocker, Inc., was well-suited to large-scale, earth-moving projects.

Project Summary
Best Management Practices (BMPs) installed over 120 acres of degraded Project Area included the following:

- Conversion of 40 acres of eroding berms and stockpiles into stable slopes supporting native plantings;
- Seven wetland filtration basins totaling 18.2 acres in area;
- Conversion of one existing pond into a naturalized detention basin 0.5 acres in area;
- Eight biofiltration swales totaling 3,670 linear feet;
- Eight terraced swales over 4,000 linear feet in combined flow path length;
- Forty-nine rock checks;
- Five sediment forebays;
- Over 875 linear feet of natural log toe and/or log habitat structures;
- 111 acres of native plant seeding;
- 3.6 miles of walking trails.
Approximately 260,000 cubic yards of earthwork was applied over approximately 84 acres of area. Exposed and eroded substrate soils were regraded to stable slopes, recreational areas, or converted into best management practices. Topsoil stockpiles around the perimeter were respread over graded areas. Native plant species were selected which were relatively tolerant of the site’s droughty conditions and poor soil structure. Erosion blanket was installed around proposed basin shoreline areas. Straw mulch was hydroseeded in sloped areas to provide temporary site stabilization. In areas where concentrated flow could occur, rock checks were installed. Previously unvegetated berms, stockpile areas, and spoil piles were converted into stable slopes vegetated with deep-rooted native plantings.

Seven wetland filtration basins were constructed with a total area of 18.2 acres. The wetland filtration basins ranged from 0.5 acres to 6.9 acres in area. Eight biofiltration swales totaling 3,670 linear feet were constructed along impervious surfaces such as the 30-stall parking lot or the entrance road, or along adjacent hillside areas. Over 111.4 acres of native plant seeding was installed. Native plant seed mixes included shoreline, mesic prairie, dry prairie, emergent wetland, biofiltration swale, and mowed trail lists. Over 54,000 native plant plugs or tubers were installed in 2010.

Over 86 acres of the project site now retain and infiltrate runoff from the sub-watershed through the 100-year, 24-hour rainfall recurrence interval. Flood control, water quality and ecological benefits include retention and filtration of runoff by wetlands, native plants, bioswales, and onsite aggregate soils, long-term site stabilization, habitat diversity, species recovery, improved site aesthetics, and protection of downstream Jelke Creek and the Fox River basin. Native habitats range from deep emergent wetland, to emergent areas, mesic shorelines, hillside seeps, upland dry prairie habitat, and woodland areas.

Project implementation provided a demonstration of environmentally sound stormwater management, conversion of a degraded facility into a restored area suitable for community recreation, enhanced ecological diversity, improved water quality, community education, and improved property values. Dundee Township acquired $897,735 in grant funding from the Illinois EPA (Section 319 Grant Program). In addition, over $400,000 in grant funding was received through the Illinois DNR Open Space Land Acquisition Fund. Construction costs were approximately $1.76M. The Jelke Creek Restoration Project was recently awarded the Stormwater Project of the Year by the Illinois Association for Floodplain and Stormwater Management.

Acknowledgements

We want to acknowledge the Illinois EPA (Section 319 Grant) and the Illinois DNR (OSLAD) for funding assistance. Chicago Metropolitan Agency for Planning provided grant administration. Living Waters Consultants provided engineering services, G.A. Blocker Grading, Inc. provided construction, and Applied Ecological Services provided native plant installation and maintenance. Project owner, Dundee Township, continues to manage and maintain the project site.

Ted Gray can be reached at (630) 261-1133 or TGray@LivingWatersConsultants.com.

Diverse water depths were provided to facilitate establishing various native plant species. Recreational opportunities are enhanced with a pavilion, walking trails with educational signage explaining project BMPs, fishing piers and wildlife viewing. Dundee Township provided over 3.6 miles of walking trails.
Underground at the 2012 London Olympics

How upgrading utility services helped London rapidly reclaim a blighted district and create a world-class Olympic venue

Jim Haines
Utilities Design Manager, Olympic Park
Atkins
London, England

When the London Organizing Committee of the Olympic and Paralympic Games (LOCOG) bid to stage the 2012 Games on a site to be developed in the Lower Lee Valley of London’s Stratford District, they were not taking the easy way out. The blighted one-square-mile site northeast of the city center was home to numerous industrial facilities—some contaminated and abandoned, others still in use—as well as a landfill, a slough of discarded appliances and blocks of disheartening apartments. The River Lee and several other debris-filled waterways crisscrossed the site, and area plant life was mostly invasive weeds.

In 2007, after LOCOG was awarded the contract to stage the games, its public counterpart, the Olympic Delivery Authority (ODA), selected Atkins to provide engineering design services for the 2012 Games, and assist in the complete transformation of the site from urban blight to the outstanding Olympic Park. This marked the first time in the history of the Games that a firm has been designated the “official engineering provider.”

Initially, the firm provided the “enabling works” for the park, essentially cleaning up the site through a large soil and water remediation effort before the development could begin. The soil remediation portion of the project ultimately treated two million tons of soil, making most of it suitable for reuse on the site. It became the UK’s largest soil washing to date.

As the enabling work progressed, Atkins was given additional responsibilities including the engineering design and technical management of utilities for the park. This included the diversion and removal of existing utilities, as well as providing scheme designs for new utilities infrastructure, some of which is permanent and some of which is temporary.

The engineering design scope of the new utilities infrastructure includes:

- An electrical substation (132 kV) and distribution network (11 kV, with 140 electrical substations).
- Water networks (potable and non-potable).
- Gas networks (intermediate and low pressure).
- Telecommunication network.
- An energy center (providing both heat and cooling as well as electricity generation) and associated heating and cooling networks.

The company was also enlisted to provide engineering design services for bridges, structures and highways in the northern section of the park. This increased breadth of responsibility facilitated coordination among Atkins’
utilities and transportation practices that would have been much more difficult and time-consuming had they not been part of the same corporate family.

Planning for new systems

The fragile web of utilities serving the area had evolved over many decades, without a master plan. All of the area utilities required a complete overhaul to satisfy the needs of the more than nine million visitors and athletes expected to attend the 2012 Games. For precisely that reason, staging the games in the Stratford District will provide myriad long-term benefits and influence the infrastructure investment for many years to come, though in the short run it was not an easy site to develop.

Aside from implementing a comprehensive system of utility services that would work for this compact but demanding site, engineers faced three specific challenges. First, the entire project had to be completed relatively quickly, as infrastructure development projects go. Many activities that would ordinarily have been done in sequence had to be undertaken simultaneously. With that as a given, the second challenge became managing a large number of simultaneous construction activities—remediation, demolition, earthmoving, utility work—within a compact area. These activities were further complicated by the existing waterways that divide the overall area into even smaller parcels. Lastly, the utilities had to be adaptable, able to provide peak capacity through the end of the 2012 Games, and then deal with the reduced demand in the short-term post-Games period, as well as projected levels in 2025.

Another factor came into play with regard to scheduling and coordination when the ODA decided to seek private sector investment for the development of Olympic Park. On the utilities front, that meant soliciting design/build/own/operate bids for separate systems instead of pursuing the simpler route of an integrated multi-utility bid package.

This approach also added to the complexity of the project because each host utility company had its own standards and requirements. Atkins decided on entering into a dialogue with each of these companies to ensure adoption of the assets, in most cases prior to games.

The legacy installation

To minimize investment on excess long-term capacity—and to keep the post-Games site from being cluttered by underutilized utility infrastructure—engineers designed the new systems for easy downsizing. For example, because electrical demand during the Games will be three to four times greater than subsequent demand, electrical networks have been designed to permit easy removal of numerous step-down transformers. Additionally, many fixed utility assets have been installed coupled with temporary facilities, such as standby generators, switchboards and cabling, to provide extra capacity in peak demand.

Appearance counts

For the sake of both efficiency and appearance, Atkins’ utilities group worked closely with its highways group and the utility companies on where the utilities crossed roads, waterways and other obstructions in the park.

Atkins developed plans for more than two dozen attractive new bridges on the site for both people and utilities. While Olympic visitors may appreciate the clean lines and curves of the bridges, what they will not see are the diverse utility pipes, cables and ducts tucked inside the tub girder design used for many of the new structures. This design efficiently accommodates numerous utilities—more than are ordinarily associated with any one bridge—while also shielding them from view. The result is an aesthetically pleasing yet structurally efficient solution.

To meet the challenge of separating so many utilities inside the box girder, an internal support structure was devised that, in cross-section, looks like a great honeycomb. Beyond supporting sleeves for the utilities, these supports also torsionally stiffen the bridge.
Coordinating the variety of utilities within the box girders was no small task. Atkins worked with numerous utility operators to reach agreement on where their equipment would be placed on the bridge. Part of the complication came from the lack of an equivalent standard protocol for utilities sharing space on a bridge similar to standard protocols used for vertical separation underground.

Collaboration was greatly aided by a live integration of all Computer Aided Design (CAD) models in one system that was accessible to all, facilitating coordination of the many utility services.

Utilities were threaded through sleeves in the box girders after each bridge was built, so the sleeves for the utilities had to be accurately aligned before the pipes were pushed or the cables pulled. The utility services also had to be threaded between transverse stiffeners (steel plates) welded at regular intervals within the box girders.

**About the future park**

At just over 111 acres (45 ha), London’s Olympic Park is the largest new urban park to be created in Europe in 150 years. After the 2012 Olympic and Paralympic Games have ended in mid-September, the Olympic Park will close for transformation. Temporary facilities will be removed and other restoration and conversion activities will be undertaken. The area will reopen to the public in 2013 as the Queen Elizabeth Olympic Park.

Jim Haines is Atkins’ utilities design manager on the Olympic Park. An engineer for more than 35 years, Haines has worked in a variety of industries on large projects including Terminal 5 at London’s Heathrow Airport and North Sea oil production platforms. He can be reached at Jim.Haines@atkinsglobal.com.

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The new Energy Center provides heat and cooling, as well as electricity. Photo credit: © Atkins

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Understanding contract documents

Kristen Braden, P.E., Esq.
Construction Project Manager
H.R. Gray
Hilliard, Ohio

Today’s contracts are loaded with legal-speak that can be difficult to wade through. Poorly written contract documents usually lead to differing interpretations that cause disputes. Many of these disputes lead to claims and costly litigation. However, by clearly outlining project goals and providing the most specific documents possible, you will greatly reduce the number and amount of change orders on your project and eliminate disputes and claims. The key to success is taking the time to ensure that the right language is included in the contract from project onset and the contract specifications agree with the contract drawings.

Common pitfalls
“Send me a proposal” or “get the contract over to us” are key phrases we aspire to hear. However, a poorly written contract or one with missing details can set the tone for a bad business relationship and an inadequately executed project. One of the key items that often is excluded from a contract document is requiring a daily report from the contractor. These daily reports are a critical tool for ensuring adherence to the schedule and keeping you abreast of any important developments. These reports should indicate what work is being performed and by how many crew members, as well as which subcontractors and what equipment are at the site.

Another common pitfall with contract documents is the tendency for owners and architects to use the same contract repeatedly without checking to see if it applies to the particular project. This is especially true for public entities that just use the document from their last project without seeing if additional provisions need to be included. Case in point is a recent project in which the brick and mortar in the specifications did not match the drawings—something that is easily caught during a constructability review but would have been alleviated altogether with careful attention to the contract. Since each project is different and brings its own unique challenges, a specific contract needs to be crafted for each job to ensure all aspects of the project are considered.

Contract documents must also clearly state the responsibilities of each party. For example, it is important to state who will be responsible for obtaining building permits. On a recent project, the contract provided that the contractor was responsible to submit the necessary documentation to obtain the building permit. However, the contract was silent as to who was responsible for the permitting fees. As a result of the confusion, the permit fees were paid late and the permit was slow to be issued. If the contract had included specific language about the permit and fees, the building permits would not have been delayed. When a contractor knows precisely what he or she is responsible for and when, they can put together an accurate, more complete bid.

The all-important schedule
A properly developed Critical Path Method (CPM) schedule is an essential part of any successful project. Specific standards and requirements for CPM scheduling need to be included in the contract documents. These requirements include limiting the duration of activities, what work the activities will cover and other critical factors. Too often, these details are absent from the contractor’s schedule because the contractor lacks scheduling expertise or does not take the time to properly develop the schedule. The result is a schedule that does not “operate” properly and misleads the contractor and the owner. In fact, it is common to hear contractors and owners say that CPM schedules are not worth the effort. However, a schedule is a tool—no different than a power drill. If it’s poorly made, it’s of little use and may even be dangerous. Schedules are no different. A proper schedule should include setting specific intermediate goals for the completion of project elements. Internal milestones provide checkpoints to see if target goals are being reached to ensure that the project stays on track. Too often, contract documents specify a start and finish date with no other checkpoints. With this method, if you miss the finish date the project is late and there is no recovery.

The value of a constructability review
A constructability review should be performed as part of the design process to ensure that the drawings and specifications are geared to the current project. Simply put, a constructability review is a methodical and logical review, and optimization, of the project by persons experienced and knowledgeable in construction.
Constructability reviews significantly reduce change orders and can help alleviate the possibility for claims. Too often, a claim situation occurs when the contractor was unaware of an item and did not include it in the bid. For example, a contractor had to cancel a concrete pour because he was not made aware of load limits on the main access road to the site. The ready-mixed trucks were repeatedly stopped by the police and ticketed, which necessitated canceling the pour. This greatly impacted the schedule and required the concrete contractor to develop a creative solution to alleviate the problem. A constructability review would have identified this scenario early in the construction process.

**Common goals**
Making the contractor aware of the goals of the projects also is key to contract success and increases the contractor’s ability to participate as a member of the team. Documentation of project goals ensures that everyone is working toward the same end. This is especially important for contractors as they are usually the most pressed in terms of the schedule. While owners and architects may have months to weigh the various factors of a project, contractors likely have only a few weeks to provide a lump sum price that they are then required to abide by for the duration of the project. The more information contractors have, the more accurately they can quote a job and plan for challenges; thus, minimizing the chance for change order claims.

Ensuring that the contract documents are as thorough as possible ensures the greatest chance for project success.

Kristen E. Braden provides construction management on public construction projects as well as construction claims management and resolution services for H.R. Gray, Inc. in Columbus, Ohio. Kristen has a Bachelor of Engineering degree in Civil Engineering from Vanderbilt University, a Master of Science degree in Engineering from the University of Texas and a Juris Doctor degree from the University of Cincinnati.

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Students and public works collaborate to keep one small city (and the rest of the world) clean

Michael Soares
English Teacher and Newspaper Advisor
Pontiac Township High School
City of Pontiac, Illinois

A teenager begins to spray paint on a Pontiac, Ill., city street. Vandalism? An act of illicit graffiti art? Quite the opposite. In fact, hundreds of teenagers over the years have been excused from the classroom to spread across the community and spray paint with the blessing of Chris Brock, Pontiac Street Superintendent. One of a series of innovative programs emanating from Pontiac Township High School (PTHS), the Storm Sewer Stenciling Project has found students and staff coordinating with the City of Pontiac Public Works, junior high schools, local businesses, and various departments inside the high school including science and art to raise water pollution awareness and other environmental concerns. Pontiac, home to a working landfill which according to the National Solid Wastes Management Association (NSWMA) is the “largest with a remaining capacity of almost 233 million tons,” has produced students inspired to create and implement multiple eco-minded programs besides the stenciling project, including battery and light bulb recycling and perhaps most successful of all, the National Prescription Pill and Drug Disposal Program (P2D2) which developed legislation signed into law by Illinois Gov. Pat Quinn in August 2011 and also placed third in the international Volvo Adventure Award contest co-sponsored by the United Nations Environment Programme (UNEP).

The sewer never sleeps
Throughout the community, grates in Pontiac lead into a sewer system which never sleeps—an infrastructure which dwells beneath the city and runs its course oblivious to the world above. Students at PTHS have recognized that what makes its way into this system fundamentally impacts the environment and they have taken extraordinary steps to counteract these changes. According to Paul Ritter, science teacher at PTHS and president of the Illinois Science Teachers Association, “the stenciling project is specifically focused on Central Illinois’ attempts to reduce or eliminate Non-Point Source (NPS) pollution by having students stencil warnings on storm sewer drains. Each year, students stencil approximately 3,600 storm sewer drains with the warning ‘Do Not Dump/Drains Into Our Vermillion River.’ By spreading this message on every storm sewer drain in our area, they hope to illustrate the connections among humans, their actions, and the pollution we see every day in and along the river. They also hope to promote environmental stewardship as each community sees visible improvements in their drinking and recreational water quality, taking responsibility for the future of both their community and their health.”

Continues Ritter, “The student-led project focuses attention on this issue, which combines the energy and enthusiasm of our Pontiac Junior High School eighth grade and my Ecology students, with the resources and capabilities of our local community and agencies to increase public awareness and action on NPS pollution.”

Collaboration with City Government
Inspired by the success of the community-wide efforts of the storm project, Ritter took other causes to his students, including the Dry Cell Battery/Light Bulb Recycling which was initiated with help of Brock, who testified along with students to Pontiac’s city council about the successful drop-off recycling boxes located on the city’s Public Works Department’s property, cell phone recycling opportunities, and the promotion of recycling in Livingston County. Brock, whose role as Street Superintendent has long included being a liaison between student groups and the mayor, “advises students on various city policies and works with them on preparing different presentation to the city council.” Brock was quick to recognize the potential of social action for education in Pontiac, citing not merely the environmental benefits, but also the impact of student interaction with community and government. Says Brock, “In this day and age when people generally think government is against them, we have taught these students that by working with their elected officials and public servants, things can happen and change.”
The rise of P2D2
Groundwork for P2D2 began with the speculation of what one should do with expired and unused pharmaceuticals. Not wanting to simply dump the drugs down the drain, and suspecting that they would eventually make their way to the water supply, Ritter took the problem to his classroom and invited his Ecology students to brainstorm solutions. Ritter and his students began to uncover what he describes as "startling information pertaining to the effect of pharmaceuticals on the quality of drinking water around the world." According to the P2D2 website, students "found that scientists with the United States Geological Society have detected drugs such as antibiotics, anti-depressants, birth control pills, seizure medication, cancer treatments, pain killers, tranquilizers, and cholesterol-lowering compounds in varied groundwater sources." They were even more troubled when research revealed that wastewater treatment methods in local facilities were never intended to remove such chemicals and in fact were incapable of doing so, concerning scientists that "in humans, the chemicals in our water supply could increase rates of breast, testicular, and prostate cancer, as well as lower sperm counts and disrupt hormones." Based in the evidence, it was clear that the safe disposal of prescription drugs was not currently a viable option. Ritter and his students became determined to change that and set about creating a program that would provide this service, setting into motion a phenomenon which would ultimately spread across the United States and even draw interest from abroad.

P2D2 becomes state law
Billing itself as "a collaborative effort between communities, local pharmacies, police departments, hospitals, city officials, students, and more," the P2D2 program turned the students’ dream into reality. With the help of city administrators like Brock, local pharmacies were convinced to allow customers to bring in unused prescription drugs. Likewise, police stations opened up their doors, using retired and repurposed mailboxes to safely and securely serve as drop-off receptacles. Effectively, those dropping off unused prescriptions could be confident that instead of going into the water supply, their drugs would be sent to an eco-friendly facility...
where they would be responsibly incinerated which in turn would create clean energy to be harnessed and used elsewhere.

In reaction to their success, Ritter and his students developed relationships with media outlets to increase exposure for P2D2, propelling the program beyond Livingston County and even statewide. Other PTHS faculty members were enlisted for their expertise, including Megan Bozarth, a social studies teacher who guided her honors students in written appeals to representatives and senators in support of bills concerning the funding P2D2 efforts. This legislation placed an additional $20 fine on illegal drug possession convictions in Illinois, funding the shipment of unused prescription drugs collected to the

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incineration facilities at no cost to the taxpayers. The bills passed unanimously through the Illinois House in the spring of 2011 and eventually made their way to the governor’s desk. On August 24, 2011, Gov. Quinn signed Bill 2056 next to the Chicago River and in the presence of Ritter, Bozarth, and the students who made a small-town program a statewide phenomenon.

Legacy
As Pontiac’s homegrown programs continue, P2D2 in particular has continued to attract high profile media coverage. Ritter and five PTHS students traveled to Sweden in early June to compete in the Volvo Adventure Awards. The competition, in conjunction with UNEP, invited twelve groups from among many nations to present their innovative and groundbreaking eco-conscious programs for a “greener future.” The P2D2 team, already named first in the U.S., returned home as third-place world champions. Here at home, the program has expanded across the country, having been adopted in twenty-two states including Alaska and Hawaii. In Pontiac, the impact of these programs has a strong local resonance, prompting Brock to reflect, “I also find it amazing with the different efforts that have been brought forth from the students is that these projects that have been presented to our community and have been embraced, rely on very little in the way of public funds... the effort they have made and accomplished is remarkable.”

For more information about P2D2 see www.p2d2program.org or contact Paul Ritter at (815) 844-6113. Pontiac Street Superintendent Chris Brock can be reached at (815) 844-5025 or Chris.brock@pontiac.org.

Landfill Information Source:

Michael Soares lives in Bloomington, Ill., and has taught at Pontiac.

Township High School since 1997. He is the editor for P2D2 and has published several articles about successful programs created at PTHS. He can be reached at (815) 844-6113 or soaresm@pontiac.k12.il.us.
Public works agencies in U.S. look to Japan for best practices in delivering more projects within budget

Brian MacClaren
Chief Operating Officer
NOVACES, LLC
New Orleans, Louisiana

For a country that only takes up 0.25% of the world’s land surface, it is amazing that Japan suffers about 25% of the total impact from the world’s natural disasters. It can be understood why Japan’s Ministry of Land, Infrastructure, Transport and Tourism (MLIT) is responsible for 80% of all the construction projects in the country. That’s between 20,000 and 30,000 newly commissioned projects each year.

With the same budget crisis that has affected the U.S. public agencies since the economic downturn in 2008, it is a wonder that they were able to cut construction timelines by over 20% and costs by 30%, yet deliver more projects.

As a result of the high demand for projects to quickly develop, maintain, or repair public infrastructure, workers there were operating at very high stress levels. After long periods of excessive amounts of overtime, productivity was poor and costs were quickly adding up. Leaders like Yoshichika Takai, director of Meishi National Highway Office for MLIT, decided, “As our office had been wanting to make drastic business improvements, we implemented Critical Chain Project Management.”

Critical chain, a project management strategy and philosophy invented in the late 1990s, represents the next major step in how projects are managed by organizations. This strategy includes many aspects of the traditional project management approach as well as various new capabilities. Most organizations that
What is required to ensure a project is successful?

- A reliable schedule to deliver on time and on budget.
- The optimal utilization of workers and resources.
- Clarity on priorities to decide where to focus management attention.

Implement critical chain project management see improvements in their businesses including:

- Project time reduction of 20-50%
- Project due date performance greater than 95%
- Cost reductions 10-30%
- Improved employee satisfaction, teamwork, and morale

Instead of managing projects so that each task is completed on schedule, critical chain principles help to determine where to focus so that the entire project is done on time. As a result, critical chain can be of enormous utility in ensuring that projects are completed on time, within budget, and while delivering all promised objectives.

Unlike conventional project management methods, critical chain prevents several behavioral tendencies in people that cause project delays, such as multitasking. Multitasking is the unplanned switching between unrelated activities. In today’s fast-paced business culture, most multitasking is regarded positively and even encouraged. However, suspending work on one task in order to work on another unrelated task will delay completion of the suspended task and add setup time. In such instances, multitasking becomes a major source of inefficiency and poor quality.

After implementing this project management strategy at MLIT, projects have gone from finishing on schedule just 30% of the time to 86% on time in the Fukuoka Prefecture. They have nearly eliminated the need for costly overtime labor and cut costs by nearly 30%.

In the Kagawa Prefecture the organization is churning out 131% more project throughput. According to Kiyoshi Okudaira, then Director-General of Hokkaido Bureau MLIT, the results have garnered praise by all stakeholders involved. “Good for the residents, good for the contractors, good for the government—a win-win-win relationship,” said Mr. Okudaira during a 2009 presentation at the TOCICO International Conference.

The win-win-win approach has recently caused the use of this project management strategy to skyrocket in Japan’s public works projects. In 2006, just 15 projects used the approach, and in 2008 there were 4,000 projects managed using critical chain. Today the government recommends that government managers and their contractors use critical chain project management for all 20,000 yearly MLIT projects.

Hilbert Robinson, an expert on critical chain project management at NOVACES and one of the early adopters who pioneered its use in U.S. companies, was interviewed about his experience. “I believe it is imperative that U.S. construction companies take a serious look at how critical chain can help make their companies stronger, and do so sooner rather than later. The first ones to do so will have a strong competitive advantage over their rivals.”

Brian MacClaren can be reached at (732) 383-6013 or bmacclaren@novaces.com.
How to hire a construction management firm

James Joyce, P.E.
President and CEO
H.R. Gray
Columbus, Ohio

What is their role?
Undertaking a construction project is a complex and challenging endeavor. Construction management firms can help level the playing field between the owner, design professionals and the contractor, as well as ensure that everyone is informed and understands their role, expectations, and schedule for completing the project on time.

The role of a construction management firm is especially important in the public sector, as many project managers in public agencies, especially smaller communities, may undertake substantial construction projects only once during the course of their career. However, the design and construction firms that they will work with will be involved in many similar projects over the course of a year. This leads to a gap in knowledge and experience. By integrating a knowledgeable construction management firm into the project, one can balance the experience level between the public owner and the construction firm.

There is an increase in public sector owners using alternative project delivery methods such as Design-Build and Construction Manager-At-Risk. All construction delivery methods have characteristics that may make them more appealing, depending on the project’s needs and the owner’s desires for cost control, schedule and risk. Owners should be aware of the differences with each project delivery method and understand how their project may benefit from each approach. It is important to note that, no matter what construction delivery method is selected for the project, the owner still maintains responsibility for costs and risk. A professional construction manager acting on the owner’s behalf as an independent Owner’s Representative can provide project oversight and assist with the management of those risks. A properly chosen project delivery method, along with a thorough, owner-friendly contract document, will help minimize potential risks and costs, no matter what construction delivery method is chosen.

When to hire
Contrary to popular belief, the first firm hired for a project should be a construction management firm. Hiring construction management firms at project inception allows construction managers the opportunity to work with owners to develop contract documents that are owner-friendly and focused on cost-saving and value-added preconstruction services such as value engineering, scheduling, and cost estimating. A construction management firm’s effectiveness in controlling costs occurs long before the contractor is clearing the site for construction.

An area where the construction manager can offer considerable expertise is with the contract documents. Often, the contract form design professionals use is a standard document available from industry associations; therefore, it ultimately serves the best interest of the design professionals. While these standard agreements provide a good starting point, it is in the public owner’s best interest to review and

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<td>• Final billings and contract close-outs</td>
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alter the document to ensure they are positioned to control the process and assign responsibility.

In an effort to more effectively communicate the final construction expectations to the contractor, early involvement in the project permits the construction manager time to work with the design professional to conduct a constructability review of the plans and specification to ensure the documents are clear and concise. Review by a construction manager ensures that items are properly spelled out, which helps to avoid change orders and schedule delays that add cost to a project. This allows the contractor to provide the best possible bid cost and schedule.

A construction manager’s expertise also extends to coordination with the contractor. Often on public works projects, the firm with the lowest bid secures the work. This philosophy provides contractors with the need to maximize their profit on change orders since they have already been asked to skinny-down their profit in the low bid. An “owner-friendly” contract can provide more specific language for the owner to control their project and limit their risk. A construction management firm can incorporate schedule milestones into the documents to provide accountability for the contractor. When goals and requirements are clearly explained in the documents, the risk of claims and change orders is dramatically reduced.

**Claims avoidance**

A construction manager is critical in the area of claims avoidance and mitigation. By knowing and understanding the contract and responsibilities, the construction manager can prepare a strategy to communicate effectively and deal with challenges before they become problems. Such knowledge and
understanding of the contract will help address the everyday challenges that occur during construction.

If challenges or issues occur, the construction management team can document these as they arise. Ongoing documentation has numerous benefits, including keeping all parties apprised of continuing problems in order to follow up on a regular basis. Also, it allows all parties to identify problems in the early stages before they have a significant impact on the schedule and budget.

**Selecting the right firm**
One of the most important elements to consider when hiring a construction management firm is experience. Examine the firm’s experience in projects similar to one’s own and be sure that they served as the construction manager for those projects, not merely as the contractor or another member of the team. Also, be sure to check references. Ask for a list of owners that they have worked with and contact them to evaluate the firm’s performance. Finally, make sure that the firm provides comprehensive management with preconstruction, construction, and post-construction services. The proper firm will help level the playing field between the owner and contractor to ensure project success.

James Joyce, P.E., is President and CEO of H.R. Gray. With more than 25 years of experience in engineering and construction, he uses his managerial and operational expertise to lead more than 50 full-time associates. The former Director of the Department of Public Utilities for the City of Columbus, Ohio, Jim’s broad-based experience enables him to lead the company through strategic change and ensure quality construction management services are provided to customers.

Jim assumed the presidency in 2004 and through his leadership, H.R. Gray has successfully grown their offices in Columbus and Akron, Ohio; Lexington, Kentucky; as well as Austin, Texas. Contact him at jjoyce@hrgray.com or (614) 487-1335. Visit www.hrgray.com.

Founded in 1979, H.R. Gray is a unique management and consulting firm that provides public agencies with responsive, cost-effective, quality construction consulting, management, and claim resolution services for complex projects. H.R. Gray uses its unique skill set and proactive approach to help each client successfully manage its construction project from conception to completion. H.R. Gray has offices in Columbus and Akron, Ohio; Lexington, Kentucky; and Austin, Texas.
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Green infrastructure the answer for Frog Hollow residents

*After years of flooding, constructed wetlands offer relief for neighborhood, savings for city*

Jennifer Whitson
Marketing/Proposal Specialist
Bernardin, Lochmueller & Associates, Inc.
Indianapolis, Indiana

For decades, the City of Indianapolis struggled with how to help the residents of Frog Hollow, a small neighborhood on the near southside. The neighborhood is made up of a cluster of about 150 modest homes surrounded by industrial and commercial buildings.

Every time the city received as little as one inch of rain, Frog Hollow's streets would flood and become unpassable. When the storms were heavier, people moved everything of value up to the higher shelves in their homes. When storms were downright relentless, there was no stopping the flooding.

Frog Hollow Neighborhood Association President Gary Gaskin said many in the neighborhood started giving up. “With flood damage all the time, people stopped trying to fix up their homes,” he said. “Why bother, when it would just get damaged again.”

When Mayor Greg Ballard took office in 2008, he heard from Frog Hollow residents and sent a clear message to the Department of Public Works (DPW): Find a solution.

But there wasn’t a simple answer. Frog Hollow sits on lowland that drains into the White River, which is west of the houses. Highland Creek, which has a peak rate of 400,000 gallons per minute, winds through the neighborhood and it routinely floods. Germania Creek, which has a peak rate of 300,000 gallons per minute, is north of the neighborhood and bypasses the residences. When heavy rains hit, the White River rises and both creeks experience backward flow.

DPW and engineering consultants reviewed several solutions, which included everything from cost estimates for buying all the houses to installing additional storm sewers. DPW settled on a project that would cost roughly $5 million and would reroute flow from Highland Creek into Germania Creek via new storm sewers.

It wasn’t the ideal solution—Germania Creek is a smaller creek and it was already at capacity. Also, the path chosen would require the City to dig trenches for pipes along Bluff Road, through the busy intersection with Troy Avenue, potentially causing traffic to snarl and requiring very costly relocation of utility poles or natural gas lines.

In October 2008, Mayor Ballard founded the Office of Sustainability and called on all City departments...
to incorporate sustainable solutions into projects. As a result, DPW asked Bernardin, Lochmueller & Associates, Inc. (BLA) to review the Frog Hollow project.

BLA drainage designer Don Wilson, P.E., LEED AP, started by broadly scanning the terrain surrounding Highland Creek, searching for two things—a way to buffer the load of stormwater going into Germania Creek and a different path that wouldn’t require utility relocations. What he found offered even more.

Wilson noticed that one plot of land near both Highland and Germania Creeks had a pond bordered by nearly 40 acres of vacant land. What if, he thought, we could have no utility relocations, buffer the load on Germania Creek, and treat the stormwater runoff to make it cleaner?

To do that, Wilson wanted to divert medium flow from Highland Creek into a newly built and planted wetland next to the pond. The water would be directed through the plants and swales of the wetland before reaching the pond, which would have its level slightly lowered. Thus both the wetland and pond could hold and slow down the runoff during a storm.

This solution would also avoid construction along Bluff Road, meaning construction costs would be $200,000 less than the former proposal. During a 10-year, one-hour storm event, 85 percent of the water that used to flood Frog Hollow would be diverted and cleaned through the system.

Wilson pitched the idea to DPW and city leaders jumped at the idea. “This was a very unique solution,” said Craig Cordi, CPM, DPW’s Project Manager for Construction for the Frog Hollow project. “Most of us on the construction or maintenance side would have thought of conventional storm sewers first.”

The bonus of using a wetland and routing the water through the pond, Cordi said, was that it not only slows the water during a rain event, it improves water quality. “You just let nature take its course,” he said.

Plus DPW could count the project towards meeting state wetland mitigation requirements.

“This drastically improved the drainage for Frog Hollow,” he said. “This is what you’re looking for in green infrastructure—addressing the core drainage problem but adding benefits.”

Since the project, there have been several low- to medium-volume rains and the streets of Frog Hollow have been drier. And Gaskin, with the neighborhood association, said that’s kindled new hope in the area. “People have been cleaning up in the neighborhood and around their houses,” he said. “There’s more of a sense of pride.”

“One person is remodeling too,” he said. “We’re just really pleased.”

Jennifer Whitson can be reached at (317) 222-3878 or JWhitson@blainc.com.

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Roadway safety data and public works: it’s fundamental

Stephen W. Read, P.Eng., Highway Safety Improvement Programs Manager, Virginia Department of Transportation, Richmond, Virginia; Michael B. Sawyer, P.E., Senior Highway Safety Engineer, Vanasse Hangen Brustlin, Inc., Richmond, Virginia

According to a recent American Automobile Association (AAA) study, the cost of motor vehicle crashes in urbanized areas was close to $300 billion in 2009. For the same year, a Texas Transportation Institute (TTI) congestion study for those same urban areas pegged the cost of congestion at nearly $100 billion. Practicing professional engineers go to work every day to assist planners, city managers and other public works professionals in their local communities to stay focused on safety and to deliver crucial countermeasures to address severe crashes.

Innovative solutions and unique approaches are used to save lives and prevent serious injuries from motor vehicle crashes. Public works agencies and professionals are also tasked with any variety of roles related to roadways safety—from planning to operation and maintenance. Using roadway safety data can help inform local decision-making processes and make policy and program decisions for roadway safety improvements.

In the past, an engineer would start with a traffic crash database to find concentrations of severe crashes. Now, with the use of roadway inventory data, engineers are pushing to expand how they determine where their low cost, systemic safety countermeasures would be most effective within the jurisdiction for which they are responsible. This more robust approach reflects a renewed emphasis on improving and combining roadway inventory data with crash data. These combinations include looking at dangerous horizontal curves, as well as critical intersection or facility types. Recent research demonstrates that a small subset of the roadway inventory can be extremely effective when combined with related crash data.

Having an extensive understanding of the existing conditions is preferred, but starting with some basic roadway inventory data can provide a better focus to save lives. Increasingly, the Fundamental Data Elements (FDE) shown below are being used to save lives in communities across the country, yet some engineers and public works professionals may not have heard about how powerful a “small” amount of information can be.

So how can transportation agencies use these FDE with the Highway Safety Manual (HSM) or SafetyAnalyst to save lives?

The Virginia Experience
Like other transportation agencies, the Commonwealth of Virginia is on a journey towards zero deaths. Over the past five years, Virginia has

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<th>Intersection</th>
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<td>Major Road AADT Year</td>
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<tr>
<td>Start Location*</td>
<td>Minor Road AADT</td>
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<tr>
<td>End Location*</td>
<td>Minor Road AADT Year</td>
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<td><strong>Ramp/Interchange</strong></td>
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<td>RampID*</td>
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<td>Two-Way vs. One-Way Operation*</td>
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<tr>
<td>Number of Through Lanes*</td>
<td>Start Location</td>
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<td>Interchange Influence Area on Mainline Freeway</td>
<td>Ramp Type</td>
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<tr>
<td>AADT*</td>
<td><strong>Ramp/Interchange Configuration</strong></td>
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<td>AADT Year*</td>
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*Highway Performance Monitoring System full extent elements are required on all Federal-aid highways and ramps located within the grade-separated interchanges, i.e., National Highway System (NHS) and all functional systems excluding rural minor collectors and locals.
made significant strides in becoming a leader in safety performance by reducing annual deaths and injuries. Just seven years ago, Virginia was safety data rich, but information poor. In 2005, the National Highway Traffic Safety Administration (NHTSA) provided a less than favorable assessment of Virginia’s data systems, highlighting the need to update the current crash system and related processes. Many of the safety data streams existed; however, they were not connected and only a few talented data analysts could shape safety data into a picture that could drive and engage the involved safety partners in Virginia.

The Virginia Department of Transportation (VDOT) initially became involved in SafetyAnalyst software development in 2003, and is now one of its biggest supporters. SafetyAnalyst, an AASHTOWare product, incorporates the HSM safety management process into a computerized analytical tool for better decision-making for identifying safety challenges and developing a set of improvement projects. The transportation agency created a Strategic Highway Safety Plan (SHSP) in 2005 to upgrade the roadway inventory through its asset management practice to match its noteworthy traffic volume count program.

In 2009, VDOT made the decision to take a step forward in crash data analysis by becoming one of the lead states to adopt SafetyAnalyst. However, Virginia’s data system was not set up to use this tool to its fullest. Notably, Virginia was in the middle of transforming its roadway inventory system to improve the interoperability of crash data with roadway inventory data in a geographic information system (GIS) platform.

While the new GIS-based system was under development to address the SHSP emphasis areas, VDOT safety engineers used the known elements for segments and intersections to develop ranked listings for each jurisdiction of roadway departure and intersection-related crashes and people-injured locations. The listing and generated maps have helped focus on safety improvements. Additionally, VDOT collected additional roadside highway and traffic control data to improve asset management and budgeting. Using the same geospatial data, VDOT recently obtained the highway horizontal and vertical alignment on the major state-maintained roads. Alignment data will be helpful for planning safety improvements and scoping design projects.

Virginia has now substantially upgraded its roadway inventory and is launching the implementation of the HSM into its safety programs and project designs. The initial outcomes of linking the FDE to crash data have been very positive.

The HSM introduces a science-based technical approach that takes the guesswork out of safety analysis. More than 140 VDOT planners, engineers and technicians received training with a comprehensive HSM overview. The HSM provides the methods to conduct quantitative safety analyses, allowing safety to be quantitatively evaluated alongside other transportation performance measures such as traffic operations, environmental impacts and construction costs.
Project engineers are starting to use the methods during the design phase. For project planning, several science-based safety performance functions for SafetyAnalyst were calibrated for Virginia’s roadways during the systems development period. With the ongoing translation of the improved data elements into SafetyAnalyst, Virginia will have another tool to leverage with existing safety programs to assist its engineers to find the best sites to deploy countermeasures.

Although Virginia is now one of the states at the forefront of safety analysis with the deployment of SafetyAnalyst, there are still improvements needed on collecting and maintaining data for Virginia to leverage advanced capabilities. In Virginia, SafetyAnalyst will become fully functional and integrated into the Highway Safety Improvement Program (HSIP) process. However, this is not a capstone for Virginia or any other state working to improve its safety data capability. Using new methods and tools are milestones on a journey for people who are using FDE and improving relationships between the highway network and crashes to save lives.

This is just one example of how a state is using roadway safety data to inform their safety decisions, and how that investment is saving lives. Do you know what roadway safety data are being collected in your community? Remember, “small” can indeed be powerful. For more information on Virginia’s experience, please contact Stephen Read at Stephen.Read@vdot.virginia.gov. Additional SafetyAnalyst information is available at www.safetyanalyst.org.

For clarifications or verifications, Mike Sawyer can be reached at (804) 343-7100. Stephen Read can be contacted at (804) 786-9094.
NEW! Cree XSP Series LED Streetlight:
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Visit CreeLEDLighting.com to learn more about how we can light your community and save you money.
“I am looking for sample succession plans for positions in public works. Even with all the reductions in force and the retirements of the past few years, we are going to be faced with another group reaching retirement age within the next three to five years and we need to come up with some way of preparing to replace these valuable folks with all their history and knowledge before they are gone. Can you offer us any suggestions?”

Your question is not surprising. While large numbers, in many cases, of employees have taken advantage of early retirements in the past few years, many others are rapidly approaching the golden age and are beginning to look forward to their retirement. Developing a succession plan cannot be done soon enough, in some cases! A great example of succession planning has been in place in South Jordan, Utah, for several years and just recently resulted in the new public works director coming from within the organization after having received specific training from the previous director in preparation for taking that next step. South Jordan has developed a succession plan for all their positions, not just management. If you want to know what you need to do to advance, you can do so easily. For more information, contact Jason Rasmussen, PW Director, at jrasmussen@sjc.utah.gov and they will be happy to share the information.

“Was recently in San Francisco and saw something I’d never seen before, and I’m old and thought I’d seen it all! In the middle of a business area there was a little park, about the size of a parking space, but it looked like a park. What’s up with this?”

Made you look twice, didn’t they? What you saw was a “parklet.” The City began working with local businesses to convert parking spaces in front of their business into what they call a parklet. The idea is to bring a sense of community into the heart of the business area and to make the downtown more livable. San Francisco opened its first parklet in 2010 and today has 27 completed parklets with another 40 in the pipeline. How does it work? In most cases the business owners pay for the construction and maintenance of the parklet, which can vary from $15,000 to $20,000. The city may offer design help or a little extra cash and, of course, they are giving up the metered parking revenues, but most of the investment is private. Businesses say it’s a way for them to beautify their block and help attract more foot traffic. Cities see it as a next-to-nothing investment in innovation new public spaces. The best aspect of parklets is that, because they’re so simple and inexpensive, cities can easily experiment with what works and what doesn’t. Oakland and Long Beach, Calif., have launched parklet programs; others, including Chicago, Los Angeles, and Roanoke, Va., are exploring the idea. For more information, contact David Alumbaugh, Director of the City Design Group in San Francisco Planning Department, San Francisco, Calif. Send me a picture to share with everyone when you cut the ribbon for your first parklet!

“I know there are a number of automakers that have added cameras to these vehicles to help drivers park, or back up, and have even begun offering technology that will let the car actually park itself so you don’t have to struggle to parallel park. Is that the latest in technology?”

It may be the current “latest” but the federal government is studying a new technology that would allow automobiles to communicate with each other wirelessly as they travel along roadways and provide drivers with warnings that could help prevent collisions. The idea under consideration is to equip cars with radios that can transmit up to 10 messages per second to vehicles around them using a signal similar to Wi-Fi. Cars would also be equipped with devices that can receive and interpret those signals in order to convey warnings to the driver. Hypothetically, if you’re driving and there’s someone cruising in your blind spot, that vehicle would send a signal to your own car that conveys its position. Inside your car, a radio would receive that signal and then prompt a flashing light or sound to warn you not to change lanes. Experts say the technology could also help
drivers prevent rear-end collisions, T-bone crashes, and several other types of accidents.

The U.S. Department of Transportation officials are hoping the technology could be the next big thing for auto safety. Even though the number of fatal auto collisions has fallen by 20 percent, auto crashes are still the leading cause of death among people ages 5 to 34. Federal officials contracted with the University of Michigan Transportation Research Institute to conduct a pilot, which will last for a year.

Local governments would likely find the technology to have significant implications. Traffic signals could change their timing based on the volume of vehicles on the roadway. But they would likely need to upgrade their infrastructure to facilitate the new technology. The feds are working with manufacturers of traffic signal controllers to see if they can arrange to have transmitters built into their products in order to ease that transition. And we thought George Jetson’s form of travel would never take place! Stay tuned for the results from the pilot project next year.

Ann Daniels
Director of Credentialing
APWA, 2345 Grand Blvd., Suite 700
Kansas City, MO 64108-2625
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Call Amanda or Kristen at (800) 800-0341.
Mobile technology will reduce costs and improve driver safety

With increasing demand for mobile road weather data collection systems and an emphasis on reducing road maintenance costs to help with local, state and federal budgets, Condition Patrol is helping meet these needs. Vaisala, a leader in environmental and industrial measurement, launched the new mobile sensor technology and data collection system to help reduce road maintenance costs and improve driver safety. For the first time, this system offers the capability for maintenance vehicles to collect weather information when patrolling their agency’s entire network of roads.

Data collected by Condition Patrol allows roadway decision makers to be more accurate with road treatments, and thus reduce the costs of keeping roads clear and improving driver safety. The mobile system reports pavement temperature, air temperature, and relative humidity of the air near the road surface using laser and infrared sensors. Based on these observations, the system determines the road condition, such as whether or not the road has water, snow, ice, slush, or is dry. The system also calculates and provides a numerical value for the level of friction on the road. This information is downloaded real time from a smart phone—included with the product—to a software program that provides recommendations to the maintenance decision maker about recommended road treatment options, helping them make more informed decisions.

“Vaisala is excited to offer this first-of-its-kind mobile data collection system for road maintenance decision makers around the country. We hope our technology will make their operations run more smoothly and effectively,” said Antero Jarvinen, Director of Vaisala’s Road and Rail Market Segment.

In conjunction with the product launch in February 2012, Vaisala showcased Condition Patrol in a unique way through their cross-country tour, Vaisala Across America, which featured a Vaisala branded vehicle outfitted with the technology. The 40-city tour was conducted over 16 weeks and started at the company’s U.S. headquarters in Louisville, Colo., and ended in National Harbor, Md., at the Intelligent Transportation System (ITS) America annual meeting and exposition. The tour was promoted to the general public and road maintenance agencies and followed by millions across the country via the tour website at www.vaisala.com/mobiletour, which featured up-to-the-minute road weather data and weekly blog posts and photos. During the tour, the company met with over 40 agencies, including various cities, counties and departments of transportation offering them a preview and hands-on demonstration of the technology, which was a first for Vaisala.

“We were excited to see the unit first-hand. It is compact, easy to install and will provide us with the benefits of mobile weather data gathering,” said Mark DeVries, Maintenance Superintendent, McHenry County, Illinois, Division of Transportation. Mark and his team saw the tour vehicle on its way to the APWA North American Snow Conference earlier this year.

The economy and failing infrastructures have forced the industry to think of new ways to adapt to these challenges. Updating stationary road weather data collection systems to mobile systems is a cost-effective and reliable way to keep road networks properly operating and safe for all drivers.

Vaisala, Inc.’s global headquarters is located in Helsinki, Finland. Their U.S. headquarters is located in Louisville, Colo. Phone: 1-877-824-7252; Website: http://www.vaisala.com/mobiletour.
When the Stephenson County Highway Department lost their old salt storage building in July 2011, County Engineer Chris Isbell had to make a quick decision to be ready for the upcoming winter. The highway department, located in northwestern Illinois, had previously been using a wooden bin inside of a hundred-year-old dairy barn. This building, which was part of the old county farm, held only about 750 tons of salt, which is approximately 25% of the county’s average annual usage. Explains Isbell, “The building also didn’t provide any storage space for our salt/aggregate mix, requiring a full-time loader operator to mix material as it was used.”

After a windstorm destroyed the building in July, Isbell knew the county needed a solution that could “be delivered and constructed very quickly, yet meet our needs for storing salt and salt/aggregate mix.” Isbell started researching traditional wooden structures, as well as fabric buildings, while the insurance company was finishing their review. He notes, “During this research, I determined that fabric buildings cost less and could be constructed quicker than wood-framed structures. The speed of getting something erected was very crucial in our instance, as a building needed to be up and ready to receive salt before November 1, to give us time to get ready for the winter season.”

Isbell discovered ClearSpan Fabric Structures through the search engines and trade magazines, and after the bidding process, the highway department purchased two Hercules Truss Arch Buildings because of their quick turnaround time, durability and corrosion resistance. Isbell is very pleased with the department’s new buildings. “We now have one building large enough to hold a full year’s supply of salt and a second building that can hold half a year’s supply of our salt/aggregate mix. We no longer have to have a loader operator present to mix material as it is being used. This has freed up manpower and eliminated the need to hire a temporary, part-time employee.” He continues, “The buildings are also very low maintenance. They are freeing up budget dollars for road maintenance that would have had to been used for building maintenance. They are working out great!”

From purchase to installation, ClearSpan wowed Stephenson County. Isbell says, “The office staff was able to get the buildings ordered and delivered in a timely manner, and they even shipped a week early. The installation crews were also quick and professional. This is a very professional company with very professional crews. I would highly recommend them.”

ClearSpan Fabric Structures is the industry-leading manufacturer of tension fabric buildings, offering American-made structures with in-house engineering, manufacturing, installation and financing. ClearSpan buildings feature exceptional height and wide-open spaces with ample clearance for access and ease of movement. Constructed in the USA from the highest quality steel and fabric, these buildings can be built to any length and up to 300’ wide. For more information, visit www.ClearSpan.com/ADAPWA or call 1.866.643.1010 to speak with one of our ClearSpan specialists.
Products in the News

**Tippmann Post Driving Equipment introduces side mount adapter for driving u-channel posts**

The **Tippmann Side Mount Adapter** fastens quickly to all **u-channel posts** ranging in size from 2 lb. per foot all the way up to a 4 lb. per foot post. Whether you are driving an 8 ft. post or a 14 ft. post, this adapter will allow you to drive from a height you are comfortable with and your feet on the ground.

This adapter is equipped with 11 sturdy attachment pins, which fit all major manufacturer u-channel hole patterns. The side mount adapter is then held in place by a long retaining pin and clevis. Learn more about this adapter as well as view online video demonstrations by visiting propanehammer.com. Or call toll free for a free brochure: (866) 286-8046.

**Innovative solutions from RS&H**

RS&H, whose tradition began in 1941, offers **comprehensive planning, design, environmental and program management services** for all modes of transportation and public infrastructure projects. We offer a unique mix of architects, engineers, planners, and environmental scientists with nearly 800 associates in 32 offices nationwide. Our teams provide innovative and sustainable solutions encompassing a wide range of practice areas, including roadways, water/wastewater, utilities, community planning and design, public facilities, parks and trails, and transit systems. For more information about RS&H’s services, visit www.rsandh.com.

**ARMOUR-SEAL frame and chassis component encapsulant**

New undercoating allows public works departments to easily and safely protect their trucks and equipment, all in their own shop, with minimal downtime! **ARMOUR-SEAL** extends operational life-cycles by protecting the truck frame and chassis components, such as diesel tanks, oil pans, brake cables and wiring harnesses from rust and corrosion damage caused by salt and chlorides used to deice roadways. Apply with the air-operated **PISTOL-GRIP Spray Gun**. No mixing! Call 1-800-688-6221.

**Design and Control of Concrete Mixtures, 2011 Edition**

**For more than 85 years, PCA’s Design and Control of Concrete Mixtures** has been the authoritative reference on cement and concrete materials. The new, fully revised 15th edition contains the most recent standards, specifications and test methods for ASTM, AASHTO and ACI, and includes the best practice on materials and methods for sustainable concrete construction. For more information or to order, visit www.cement.org/apwa or call (800) 868-6733.
Precision Concrete Cutting: the leader in uneven sidewalk repair

Precision Concrete Cutting (PCC) is the leader in uneven sidewalk repair. Clients enjoy bringing their sidewalks into ADA compliance, removing the trip and fall liability, and stretching their budget. Typical savings versus sidewalk replacement is 70-90%. The service is quick and clean, ensuring very little disruption to pedestrians on busy sidewalks. The process reduces landfill waste and fossil fuels. Visit www.SafeSidewalks.com and schedule free work as part of a demonstration.

Pavement preservation services from Proseal Inc.

Proseal Inc has introduced innovative pavement preservation services to state, county and city municipalities by using asphalt rejuvenators and restorative scrub seals to prolong the life of asphalt as opposed to other traditional methods such as chip or slurry seals. Proseal Inc. applies a full line of rejuvenators including products used in high- and low-volume traffic areas as well, including city streets, highways, airports, and cart, bike and walking paths. With branches in Kansas, Oklahoma and Nebraska—combined with specialty products like Reclamate, Cyclogen, CRF Restorative Scrub Seal, PACAF Seal, and Coherex to name a few—Proseal Inc. is sure to have the right product for your road with today's budgeting crisis. Call today for a pavement evaluation or more information. Call (877) 650-9805 or visit us at www.proseal.us.

PubWorks Does Water

Well known for efficient and effective management of public works operations for roads, bridges, streets, signs and parks, PubWorks also excels in stormwater, wastewater and water distribution. From asset inventory to inspection and maintenance histories through to comprehensive reporting for analysis and planning, PubWorks’ approach is unmatched for ease of use and value. GIS integration, PM scheduling and in-the-field data collection round out the benefits that PubWorks customers experience when managing this critical infrastructure. For more information contact info@PubWorks.com.

Design-Build Storage Solutions with ClearSpan™ Fabric Structures

ClearSpan Fabric Structures is the industry-leading manufacturer of tension fabric buildings, offering American-made structures with in-house engineering, manufacturing, financing and installation. These structures provide energy-efficient, economical solutions for a variety of applications, including waste management, bulk storage, municipal use, wastewater treatment, manufacturing, distribution, athletics, military and more. ClearSpan Hercules Truss Arch Buildings feature abundant natural light and spacious interiors without support posts to interfere with forklifts, dump trucks, skid loaders, conveyers and other heavy machinery. Every Hercules Truss Arch Building is custom engineered to fit the requirements of the specific location, such as snow load or foundation type. With minimal foundation requirements, the structures can be permanent or temporary, and are easy to relocate. For more information, visit www.ClearSpan.com/ADAPWA or call 1.866.643.1010 to speak with a ClearSpan specialist.

Snowplow hitch with electric/hydraulic power command post from Flink Company

Flink Company is proud to release the “NEW” snowplow hitch with electric/hydraulic power command post. Hitch allows for hook-up at front of chassis, and demounting of hitch with snowplow for a flush front end. A set of electronic switches allows for plow connect, using a hydraulic leg and arm post for self-
supporting of equipment. Driver side switches power up/down the leg and lift arm for repositioning during connection. For more information please visit www.flinkco.com.

**The Cree XSP Series LED Streetlight**

The revolutionary **Cree® XSP Series LED streetlight** is unlike any other. Using its **NanoOptic® Precision Delivery Grid™ optic**, it cuts energy consumption in half and is designed to last 100,000 hours. With double the lumens per dollar you get faster payback, better performance and better price. The XSP Series pays for itself, then pays you. For more information, visit http://www.cree.com/lighting/products/outdoor/streetlights/xsp-series-streetlight.asp?WT.mc_id=CR5197.

**Plastic Pipes: Greener, sustainable infrastructure**

**Plastic pipe systems** are environmentally smart and unmatched at conserving natural resources. Strong, durable, flexible and proven, they require less energy to manufacture, transport and install than alternatives. Exceptional service life, superior corrosion and abrasion resistance, incomparable joint performance, and leak-free or watertight systems make them the best choice for truly sustainable underground infrastructure. The **Plastics Pipe Institute (PPI)** is the major trade association representing all segments of the plastics piping industry. Learn more by visiting our website: www.plasticpipe.org.

**No-Dig Snap-Tite® relines damaged culverts in a “snap”**

Snap-Tite®’s patented **joint and installation system** eliminates the need to remove failing culverts. Small segments are “snapped” together, all with watertight seals. With Snap-Tite’s ease of installation and variable lengths, 95 percent of culvert repairs are done off-road. This means increased safety for workers and motorists. Snap-Tite is made from HDPE pipe, has a life expectancy of 100 years and meets AASHTO Standard M326 for relining culverts. For more information, visit www.culvert-rehab.com or call 1-800-CULVERT (285-8378).

**PowerPlatform™: The next-generation municipal vehicle**

The **GVM Snow Equipment PowerPlatform** is a multi-purpose machine offering high speeds, maneuverability, a large cargo capacity and excellent operator visibility while still maintaining a road-legal 102” tire width. The four-wheel drive machine offers four-wheel steering with three steering modes: front steering, coordinated steering, and crab steering. Its unique frame design allows the PowerPlatform to turn around in a nine-foot shorter radius than a pickup truck; ideal for turning around on a two-lane road intersection and maneuvering through cul-de-sacs. For more information, visit www.snowequipmentsales.com.

**The green choice in dog pollution now gives you even more choice**

DOGIPOT introduces the **Aluminum DOGIPOT Header Pak Junior Bag Dispenser** to hold DOGIPOT’s new line of **OXO-Biodegradable DOGIPOT Header Pak Litter Pick Up Bags** (i.e., hanging litter pick up bags). These new items give customers more choice and the Header Pak bags will fit all major brands of hanging bag dispensers. DOGIPOT has
the highest quality environmentally-conscious products to help keep your dog-friendly areas free from unsightly, smelly and harmful dog waste. There are DOGIPOT imitators in the market, but nobody is able to match DOGIPOT’s experience, high-quality product line, world-class customer service or value. Experience the DOGIPOT Advantage! Call (800) 364-7681 or visit www.DOGIPOT.com.

Henderson’s Smart Link

Henderson’s Smart Link is a rotational floating wing mast with a low-profile design for optimum visibility and clear engine compartment access. The Smart Link floats up to 13” allowing instant adjustment in the wing’s toe to address roadway variances. Its rotation functions as a natural trip mechanism. These features work in unison, reducing impact forces by as much as 70% over traditional front wing masts. Safety for driver and vehicle climb exponentially. For more information, please visit www.hendersonproducts.com.

GSB-88 – A Gilsonite-based high-performance sealer binder!

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The new F-Series product line represents the next evolution in our industry-leading line-up of premier, wide-span buildings. Its traditional building style and massive, clear-span design is ideal for use in the recreational and industrial markets. The F-Series is currently available in clear-span widths from 90’ to 130’. The 18’-high straight side wall design allows for full clearance and the straight leg allows for a wide variety of finishing options. The I-beam design allows for easier customization. For more information on the F-Series, please visit http://www.norsemanstructures.com/products/fseries.aspx.

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Strap-n-Go® Ladder Handle defines the proper way to carry ladders

Strap-n-Go® Ladder Handle is specifically designed to facilitate a safe and ergonomic solution for lifting and transporting ladders. The simple and unique design of the Strap-n-Go Ladder Handle evenly distributes the weight of any ladder while maintaining balance, comfort and control. This inexpensive solution can prevent injuries and decrease the stress, strain and fatigue caused by carrying a ladder. Headquartered in Los Gatos, Calif., Strap-n-Go is the developer of the Strap-n-Go® line of ladder handle products and accessories that defines the proper way to carry a ladder. For more information, please visit www.LadderHandle.com.

GeoDigital’s Vegetation Management Solution

GeoDigital Solutions has announced that New England gas and electric service provider Unitil will implement its enhanced Vegetation Management Solution for planning, executing, reporting, and analyzing vegetation maintenance. The package includes VegWorks, one of the mobile applications in the WorkStudio® suite of utility mobile tools, for assessors and crews. GeoDigital’s Vegetation Management Solution automates typical utility work functions in right-of-way management of trees and ground cover. The VegWorks application is an easy-to-use mobile tool for assessors, vegetation crews, and auditors. Crews receive assigned work and record their completions using a simple pen-based interface. Auditors can generate and perform random audits to ensure work was completed as specified. For more information please visit www.geodigital.com.

Rogowski coils and modules from Standex Electronics

Standex Electronics manufactures Rogowski coils and modules in custom configurations to meet high current metering applications. They are ideal for use within hybrid circuit breakers and other components used in smart metering. Rogowski coils are wire wound “air” core toroids used to measure AC current. The AC current that is measured creates a magnetic field which induces a voltage in the Rogowski coil that is proportional to the change in current. They are ideal for high current metering applications because of their very high accuracy. In addition to assisting customers with wire selection and number of turns, Standex engineers provide value-added features like integration of internal components, PCB with ground plane to reduce noise, shield layers to isolate Rogowski coils, custom packaging and more. For more information, please visit www.standexelectronics.com.

Oakland County’s H₂Opportunities program

The Oakland County (Michigan) Water Resources Commissioner’s Office has launched an innovative program, called H₂Opportunities, which could be a “game-changer” in how new emerging water technologies are used to provide solutions to water-related challenges such as aging infrastructure, waterways that fail to meet water quality standards, legacy pollutants, and insufficient water supply. H₂Opportunities (H₂Opps) was established to support firms that are addressing these remarkable challenges with innovations and improvements that minimize capital costs and the cost of operation and maintenance. H₂Opps will create jobs and stimulate new economic investment in Michigan. For further information go to www.h2opps.com.
New product advances the use of pressure switches

**Good Day Tools** has started production of its **Draft Simulator**, a new device invented by co-owners Rich McFarland and Gene Warren. They predict the hand-held, battery-operated instrument will have major implications in furnace and boiler operations. The Draft Simulator can calibrate and test adjustable and factory-set pressure switches, procedures that until now involved crude tests such as sucking and blowing on a tube. The instrument produces a sustainable vacuum pressure, allowing HVAC technicians to simulate the pressures draft inducers produce on furnaces while determining when pressure switches open and close, all without a furnace running or the pressure switch even attached to the furnace. Perhaps most importantly, the Draft Simulator addresses safety issues, allowing you to catch a furnace problem before it becomes a tragedy. For more information, please visit www.GoodDayTools.com.

Critical Chain Project Management

**Budget pressure, changing priorities and project delays are just a few of the major issues facing public workers today. New technology cannot solve these problems if you are still operating with the same old rules. Critical Chain Project Management**, an approach that has improved how projects are managed in various different industries including public works, can help you deliver projects at least 20% faster, reduce costs by up to 30%, and guarantee excellent due date performance. The cultural benefits to an organization are just as rewarding—stress reduction for staff, increased job satisfaction, better motivation and morale, and improved communication and teamwork. Look into what Critical Chain Project Management can do for your organization by reading case studies from **NOVACES** at www.novaces.com/ccpm or by contacting Kevin Farley at 1-877-577-6888.

Ox Bodies introduces next generation of Ox™ SuperDumps

**TBEI** unveiled their next generation of **Ox™ SuperDump** at the 2012 World of Asphalt Show in Charlotte, N.C. The new Ox™ SuperDump features four-, six- or seven-axle configuration increasing payloads up to 25 tons and 80,000 GVWR (in most states). With the multiple-axle configurations, the Ox™ SuperDump distributes the weight over a much longer area meeting payload restrictions throughout the United States, Canada and Mexico. The benefit of the Ox™ Super Dump design is an increased load resulting in lower operation costs. The Silent Drive Maxle™ air-suspension trailing axle is designed to carry the extra weight of the payload and ensure a smooth ride with superb stability and handling, resulting in larger loads with fewer trucks, fewer operators, greater fuel savings and maximized profit potential. For more information, please visit www.oxbodies.com/superdump.

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SumoStance™ extension ladder

The **SumoStance™ extension ladder** by **Little Giant**, the world’s only wide-stance extension ladder, compensates for difficult, unlevel terrain around nearly every worksite. The SumoStance, which was specifically designed by Little Giant Ladder Systems to prevent falls and injuries, delivers safety by doubling the base width of ordinary extension ladders and increasing side-tip stability by over 600%. The SumoStance outriggers adjust nine inches up and down to provide a stable, level setup on nearly any surface. A proper tilt angle and level indicators help you set the SumoStance safely every time. Now available at contractor and industrial supply houses nationwide. For more information, please visit www.LittleGiantLadders.com.
New technology integrated with Rehrig Pacific’s Container Asset Recovery Tracking System (C.A.R.T.S.)

Rehrig Pacific Company is pleased to introduce new technology upgrades to Rehrig Pacific’s Container Asset Recovery Tracking System (C.A.R.T.S.) software program for municipalities and private waste haulers. C.A.R.T.S. is a proprietary Internet-based software solution for asset management, real-time collection service tracking, and everyday account audits. By utilizing Rehrig Pacific’s RFID technology in conjunction with C.A.R.T.S. to track container collection data, cities and haulers are able to prevent thousands of dollars in container capital loss and recoup service revenue by proactively identifying non-paying accounts. Over 2.8 million of Rehrig Pacific’s RFID-enabled containers currently exist in over 70 different locations in North America. For more information about Rehrig Pacific Company, please visit www.rehrigpacific.com.

Grouser Products launches pivoting V3 FlexPlane

Grouser Products introduces the new V3 FlexPlane, the manufacturer’s latest in a series of heavy-duty, contractor-grade attachments. Grouser’s patent-pending V3 FlexPlane is designed to attach to any make and model of skid steer, making it the universal tool for any landscaping job. The attachment’s user-friendly and high-productivity design enhances versatility and appeals to a variety of end-users including construction and landscape contractors, golf course superintendents, municipalities and rural homeowners. Featuring a unique pivoting action, the heavy-duty V3 FlexPlane features a versatile self-adjusting blade that rotates to contour to the ground, continually adjusting for uneven ground and providing maximum efficiency in any terrain. For more information, please visit www.grouser.com.

Public Works Director/City Engineer
Sanibel, FL

Sanibel, Fla., has a unique job opportunity for a highly motivated, proactive and experienced leader to administer all public works functions for the City and serve as the City Engineer. The mission of the Public Works Department is to economically provide safe, well-maintained and clean roads, shared use paths, parks, public buildings and vehicles, while improving surface water quality and protecting the natural environment, to provide reliable, high-quality wastewater collection, treatment, and reclaimed water services in a cost-effective manner to residential and commercial customers at the most prudent and most efficient cost and to manage contractual refuse collection, recycling and vegetative waste collection. The Director is responsible for the day-to-day public works operations but also the long-term infrastructure maintenance and capital works planning. Responsibilities include departmental operations; customer service and communications; budget management and preparation; oversight of contractual operations; capital improvement planning and project completion. Requires a Bachelor’s Degree in Civil Engineering or a closely-related discipline from an accredited college or university and a registered Professional Engineer (P.E.) in the State of Florida or in another state with the ability to acquire such certification within six months of employment. Applicant is required to demonstrate high proficiency in AutoCAD. A minimum of six years of progressively responsible related experience and three years of supervisory or management experience is required, primarily in a leadership capacity in a municipal public works environment. The City of Sanibel offers a salary range of $84,866 to $140,000 for a new hire and pay will be established commensurate with the qualifications and experience of the successful candidate. The successful candidate will be required to participate in the City’s Defined Contribution 401(a) Plan and the Retirement Health Savings Plan. Closing date upon fill. Mail or fax cover letter, a City of Sanibel Application and résumé with salary history to City of Sanibel, Administrative Services Director, 800 Dunlop Road, Sanibel, FL 33957, Fax (239) 472-3065. For more information concerning the duties and requirements for this position, please visit the City website, www.mysanibel.com/jobs. EOE
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Legend: IFC = Inside Front Cover; IBC = Inside Back Cover; BC = Back Cover

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UPCOMING APWA EVENTS

INTERNATIONAL PUBLIC WORKS CONGRESS & EXPOSITION

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<td>2013</td>
<td>Aug. 25-28</td>
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For more information, contact Dana Priddy at (800) 848-APWA or send e-mail to dpriddy@apwa.net.

NORTH AMERICAN SNOW CONFERENCE

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<tbody>
<tr>
<td>2013</td>
<td>Apr. 7-10</td>
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For more information, contact Brenda Shaver at (800) 848-APWA or send e-mail to bshaver@apwa.net.

NATIONAL PUBLIC WORKS WEEK:

Always the third full week in May. For more information, contact Jon Dilley at (800) 848-APWA or send e-mail to jdilley@apwa.net.

AUGUST


9-10 Valve and Pump Industries’ Annual Market Insight Event, Chicago, IL, www.pumps.org/12MarketOutlook


SEPTEMBER


11-14 American Road & Transportation Builders Association National Convention, Memphis, TN, www.artba.org/news-events/artba-events/


13 APWA Click, Listen & Learn, “Trees & Municipal Infrastructure – Creating a Sustainable Alliance,” (800) 848-APWA, www.apwa.net


On her way back from a whirlwind trip to New Zealand for the INGENIUM conference, APWA President Diane Linderman stopped in Hawaii to visit the APWA Hawaii Chapter. While there she met with the Mayor of the City and County of Honolulu. Below are a couple of photos from her visit.

ABOVE: From left to right: Douglas Chin, Managing Director, City and County of Honolulu; Joanne Hiramatsu, Hawaii Chapter President; Mayor Peter Carlisle, City and County of Honolulu; President Linderman; and Rouen Liu, Hawaii Chapter Delegate

RIGHT: Top row (l-r): Tyler Sugihara (Secretary); Ken Kawahara (Treasurer); President Linderman; Joanne Hiramatsu (President); and Jeoffrey Cudiamat (Vice President). Kneeling: Rouen Liu (Chapter Delegate) and Lester Fukuda (Historian and Legislative Representative)
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