Critical points in distribution systems
(See page 56)
The APWA Reporter, the official magazine of the American Public Works Association, covers all facets of public works for APWA members including industry news, legislative actions, management issues and emerging technologies.

EMERGENCY MANAGEMENT

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Public works professionals are responsible for the daily provision of life-supporting functions. Without clean water, efficient waste disposal systems, working transportation and power systems, parks and recreational facilities, and support facilities/services our communities would not thrive and grow. When these systems and services become disrupted our communities and elected officials look to us to return the community to “normal.”

In the last year public works professionals across the U.S. have seen their daily routines interrupted by winter storms across the Northeast, devastating flooding and tornadoes in the Midwest and Mountain States, and wildfires in the West. There have also been the terror attack at the Boston Marathon; cyber-attacks directed at critical infrastructure; and the continuing recovery from Super Storm Sandy and Tropical Storm Irene.

Understanding that natural disasters don’t recognize political boundaries, our Canadian public works professionals have dealt with historic flooding in Alberta as well as major transportation accidents, including 72 tank cars loaded with crude oil that derailed in Lac-Megantic, near the Quebec-Maine border. Australia’s professionals have dealt with over 100 wildfires in New South Wales, Australia’s most populous province. Public works professionals are facing a new “normal” and are on the front lines for planning, response, and recovery of our communities’ life-sustaining infrastructure.

Emergency management continues to grow in importance for public works leaders in the areas of preparation, response, and recovery from natural and man-made disasters. APWA is your “go-to” organization to learn about the latest issues, practices, and networking on emergency management. The Emergency Management (EM) Technical Committee is your guide.

The APWA online Resource Center is where both members and nonmembers find the latest information on emergency preparedness and response. The Resource Center has a variety of information on debris management plans; a link to EPA’s Response Protocol Toolbox for Planning for and Responding to Drinking Water Contamination Threats and Incidents; and a link to Canada’s “Get Prepared” campaign. Along with the Resource Center, the EM Technical Committee is working to put together programs and articles to continue your education.

Neighbors helping neighbors is the cornerstone in responding to daily...
and unplanned events, and mutual aid agreements are the foundation. Within the online Resource Center you will find examples of mutual aid agreements and this month’s *Reporter* includes an article on the successful implementation of mutual support agreements in Texas. Having other critical plans in place is key to efficient and effective response. Also in this issue is an article dealing with the importance of setting up fuel priorities which was an important lesson learned from public works organizations in the aftermath of Super Storm Sandy. The issue also includes articles on lessons learned from flooding in Alberta as well as traffic incident planning. There is an article on how the City of Bend, Ore., Water Committee used a critical analysis process for their response planning. For the 2014 Congress the EM Committee is working on a session dealing with the challenges public works agencies encounter in rural/isolated and aboriginal communities.

Over ninety percent of U.S. Presidential Declarations are public works-related disasters. As public works leaders you will be placed in the lead role for recovery activities. This month’s issue contains an article on how to use bartering towards a community’s match for Federal Emergency Management Agency (FEMA) reimbursement.

Getting federal and state agencies, elected officials and the public to recognize the role that public works plays in protection of critical infrastructure, emergency planning, preparedness, and recovery is critical for support at all levels and continues to be a challenge for many agencies. In this issue you will find an article on how to be an educator and advocate for public works as a member of the emergency management team. APWA is working at the federal level in the U.S. to ensure that public works is considered in the development of the Nationwide Public Safety Broadband Network, recognized as full partners in developing and implementing strategies for cyber security for critical infrastructure, and in improving relationships with federal agencies and the public infrastructure recovery process through the bills for the reauthorization of FEMA.

I hope you find this edition of the *APWA Reporter* as interesting as I have and a critical resource for your education on emergency management issues.

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**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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January 2014

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The emergency management legislative and policy outlook inside the Beltway is for an active year in 2014. Congress and the Obama Administration will be forging ahead—trying to reach agreement on a number of policy objectives aimed at creating a more resilient nation and stronger critical infrastructure systems. The issues, which include FEMA Reauthorization, cybersecurity and a national infrastructure protection plan, continue from 2013, and several will likely receive vigorous discussion and debate.

FEMA Reauthorization
Reauthorization of the Federal Emergency Management Agency (FEMA) has been a recurring topic throughout the first and now second session of the 113th Congress. In October 2013, the House Committee on Transportation and Infrastructure (T&I) passed the FEMA Reauthorization of 2013 Act (HR 3300) by a voice vote. Sponsored by House T&I Committee Chairman Bill Shuster (R-PA), the bill would reauthorize Emergency Management Assistance Compact Grants and allocate $2 million to the program for each fiscal years 2014 through 2016, and reauthorize the Urban Search and Rescue Response System, allocating $35.18 million for each fiscal years 2014 through 2016.

HR 3300 also calls for modernizing the Integrated Public Alert and Warning System. The bill establishes an Integrated Public Alert and Warning System Advisory Committee to advise the FEMA Administrator and develop recommendations for common alerting protocols and operating procedures. Last November, APWA sent a letter to Chairman Shuster requesting his support in amending the Integrated Public Alert and Warning System Advisory Committee to specifically include public works as a representative on the Advisory Committee.

The FEMA Reauthorization Act of 2013 is a follow-up bill to the Disaster Relief Appropriations Act of 2013 (HR 152), which provided financial assistance for Hurricane Sandy recovery and streamlined provisions in the Stafford Act to expedite the recovery process from Sandy and future disasters.

HR 3300 has yet to be considered on the floor of the House, and it is anticipated that this issue will be taken up later this year.

To view the FEMA Reauthorization Act of 2013 (HR 3300), go to this link: http://www.gpo.gov/fdsys/pkg/BILLS-113hr3300ih/pdf/BILLS-113hr3300ih.pdf.

To view APWA’s letter to Chairman Shuster, go to this link: http://www.apwa.net/DR/index.asp?ID=1753

Cybersecurity
The National Institute of Standards and Technology (NIST), the federal technology agency that works with industry to develop and apply technology, measurements, and standards, is working to implement the Obama Administration’s Executive Order 13636: Improving Cybersecurity Infrastructure. In October 2013, NIST released its Preliminary Cybersecurity Framework in an effort to help critical infrastructure owners and operators reduce cybersecurity risks. This Framework is the next step in implementing the Executive Order.

The Framework outlines a set of cybersecurity tactics that not only can be customized and adapted by both large and small organizations, but also provides a streamlined approach to cybersecurity best practices. The Framework offers a common language and mechanisms for organizations to determine and describe their current cybersecurity posture, as well as their target state for cybersecurity. Moreover, the Framework attempts to help owners and operators of critical infrastructure systems identify and prioritize opportunities for improvement within the context of risk management, and to assess progress toward their goals. NIST intends to release the final version of the Framework by the end of February.

Breaches to cyber systems—whether they are due to terrorism, natural or technological hazards—are potentially the most destructive threat to critical infrastructure systems. Damaged or corrupted cyber systems can cripple the essential operations of everyday life such as commerce,
finance, transportation, utilities, communications, public safety and government functions.

Public works agencies, regardless of size or location, must be capable of addressing the continual and expanding threat to cyber systems. Through the development of voluntary national guidelines, information sharing, stakeholder engagement, and avoiding unfunded mandates, public works agencies will be able to take the necessary steps to protect their cyber systems—for a resilient nation is only as strong as its critical infrastructure.


For additional information on the Cybersecurity Framework, go to http://www.nist.gov/itl/cyberframework.cfm.


**Critical Infrastructure National Plan**


FEMA intends for this document to recognize the improvements that have been made in achieving security and resilience over the last 10 years, and to reflect on the different perspectives on risk management. The Plan also focuses on the importance of information sharing and strengthening the federal-state-local partnership.

In October 2013, APWA submitted comments to FEMA which focused on the role that public works plays during emergencies. APWA conveyed that as owners and operators of critical infrastructure systems, local public works agencies manage communities’ daily lifelines while also serving on the front lines when disaster strikes. Furthermore, APWA commented on the Plan’s recommendation to establish All Hazards Mitigation Plans at the local level. APWA recommended that local governments and the private sector must work closely together to develop All Hazards Mitigation Plans in order to ensure that detailed information about the whole community is readily available to local governments—which include public works agencies—as they are expected to take the lead during emergencies.

It is anticipated that the Critical Infrastructure National Plan will be released in the spring; however, a release date has not been set at this time.

To read FEMA’s working draft of Critical Infrastructure National Plan, go to http://www.apwa.net/DR/index.asp?ID=1684.


**Be an Advocate!**

APWA members can be powerful advocates for public works in 2014. Located on APWA’s website (http://www.apwa.net/be_involved/Be-an-Advocate) are resources to assist members in being informed and effective advocates for public works. At this site, you will find APWA advocacy tips, APWA’s advocacy priorities and news of interest to public works featured in the monthly APWA Washington Report newsletter.

If you would like to connect with your elected officials, APWA’s Legislative Action Center (http://cqrcengage.com/apwa/home) can help you contact your Member of Congress, track bills and check voting records.

APWA’s grassroots advocacy initiative, APWA Advocates, is a network of APWA members promoting public works priorities to Members of Congress and their staff. APWA encourages you to get involved in reaching to your elected officials through APWA legislative alerts. For additional information, go to http://www.apwa.net/be_involved/APWA-Advocates.

Laura Berkey-Ames is the Government Affairs Manager and the legislative liaison to the Emergency Management Technical Committee. She can be reached at (202) 218-6734 or lberkey@apwa.net.
The Technical Committee’s guide to no- or low-cost training and information for public works emergency management professionals

Teresa Hon  
Professional Development Program Manager  
American Public Works Association  
Kansas City, Missouri

Your national Emergency Management Committee recognizes that even though the economy appears to be rebounding, agencies are still working to provide vital services for their communities with limited resources. As is often the case, training and travel funds are the first to go and last to be reinstated. Several options are available for free online training from several well-respected sources.

Emergency Management Institute (EMI) Independent Study, http://training.fema.gov/is/. This program, funded by FEMA, offers self-paced online courses for individuals with emergency management responsibility. The extensive program offers courses in the nine mission areas identified by the National Preparedness Goal:

- Continuity Programs
- Disaster Logistics
- Emergency Communications
- Hazard Mitigation
- Incident Management
- Integrated Preparedness
- Operational Planning
- Public Disaster Communications
- Services to Disaster Victims

While many address public works practices and responsibilities, four were developed specifically for public works and can be located simply by typing in Public Works in the search box. EMI’s program also offers new courses which are NIMS compliant and follow the NIMS guidelines. EMI also offers resident courses at their facility in Emmitsburg, MD. Following approval through an application process, nearly all costs are reimbursed by the program.

Emergency Management Assistance Compact (EMAC), http://www.emacweb.org/. Those unfamiliar with EMAC, the nation’s state-to-state mutual aid system, will find a number of educational offerings under the Training and Education tab on the site. You must create a login for the eLearning Center first. Also available on this site is information on Mission Ready Packages and tips for how your agency can develop one.

APWA Members’ Library, http://www.apwa.net/Memberslibrary. Want to take a look at previous Reporter articles on emergency management issues? Hope to catch up on Click, Listen & Learn programs for EM professionals? Want to check out a 2012 Congress session you missed? If so, all you have to do is log in to the APWA website and browse through the Members’ Library.

2013 Congress presentations, http://www.apwa.net/congress/2013/attendees/Education. If you know where to look you can find the handouts and slide presentations from the Chicago Congress. The Emergency Management Committee sponsored an Emergency Management 101 session the last day of Congress which contained some great information for those new to emergency management and also those who want to brush up on what is considered basic information for public works professionals.

Texas A&M Engineering Extension Service (TEEX), http://teex.com/index.cfm. TEEX offers a few online courses in addition to affordable regional courses. Check their site for courses on Terrorism Awareness, public information in an all-Hazards Incident or ICS Forms Review, to name just a few. Some of these courses can even be tailored to a specific jurisdiction.

Get Prepared Canada, http://www.getprepared.gc.ca/ features a list of emergency management organizations (under the Resources tab) providing information and training to emergency management professionals. We encourage you to contact your provincial office for more information on services available.

FEMA Regions and State Agencies, http://www.fema.gov/organizational-structure may offer additional training opportunities or information for agencies and residents. Contact the nearest office or regional headquarters for more information.

The Emergency Management Committee has already planned a few future training opportunities. Register for the February 13 Click, Listen & Learn program planned with the Water Resources Committee, “Heavy
Rain is Forecasted – Is Your Levee Certified?” As with all CLL programs, this one is free to APWA members.

If you are planning to attend the Snow Conference this May in Cincinnati, Ohio, you won’t want to miss two sessions sponsored by the Emergency Management Committee. Emergency Management 101 will include presentations on “Using a Volunteer Response Task Force”; “The Importance of Documentation”; “Incorporating NIMS into Winter Maintenance Plan”; and “An Eye on the Weather: Be Aware and Prepare.”

Also incorporated into the Snow Conference program is the “Incident Command System (ICS) Approach to Snow and Ice Removal.”

The Emergency Management Committee has also lined up some interesting speakers and topics for the 2014 Congress in Toronto:

- “Social Media and Emergency Management”
- “The Challenge of PW in Aboriginal, Rural or Isolated Communities”
- “Climate Risk and Its Potential Impact”

Begin making plans now to attend one or both of these education and networking opportunities.

For more detailed information on the work of the Emergency Management Committee, check their web pages (http://www.apwa.net/technical_committees/Emergency-Management) for past meeting summaries, the current year’s work plan and more. Committee members are Kürt Blomquist, P.E., Committee Chair (Keene, NH); Chip Barrett, PWLF (Westford, MA); Dave Bergner, PWLF (Mesa, AZ); Phil Mann, P.E. (Gainesville, FL); Jeff May, P.E. (Des Moines, IA); Teresa Smith, P.E. (Evans, GA); Mike Sutherland (Parker, CO); Mary Wilson (Herndon, VA). The Committee’s Board liaison is Cora Jackson-Fossett, PWLF (Los Angeles, CA). Laura Berkey-Ames serves as the Manager of Government Affairs in the APWA DC office and Teresa Hon is the staff liaison out of the Kansas City office.

Teresa Hon is a Professional Development Program Manager in APWA’s Kansas City office. She can be reached by phone at (816) 595-5224 or e-mail at thon@apwa.net.
Things to do in Toronto!

From its modest beginning in 1793 as an outpost and shipping centre for Upper Canada, Toronto has grown to represent true diversity. The city is a worldwide business hub and has an energized cultural centre, which all combine to create a city that is special and unique. Toronto epitomizes the cultural mosaic that many cities aspire to. There are close to 100 cultures, represented by areas such as Greektown, Chinatown, and Little Italy, where more than 140 languages are spoken, and nearly three million citizens call home.

The city has developed one of the world’s most modern economies, with many of Canada’s banks situated in the downtown core. The most important industrial sectors of the twenty-first century, including biomedical, information technology, green technology, and financial services, are emerging from the advanced research labs and boardrooms within Toronto. The city has undergone a recent cultural revitalization that has brought spectacular expansions of major galleries and museums, a new opera house, lively new cultural events and a new permanent home for the famous Toronto International Film Festival.

The City of Toronto is the entertainment capital of Canada. It is a progressive city that rewards and inspires its visitors with architectural, cultural, dining and festive experiences. Its spectacular skyline includes the CN Tower; miles of waterfront, boardwalks and trails; and distinct neighbourhoods with artisans’ exhibits, diverse dining, cool cafés, festivals and shopping.

Toronto’s most iconic attraction is the CN Tower, which is the tallest freestanding structure in the western hemisphere and can be seen for miles. The CN Tower now includes EdgeWalk, which is a thrilling hands-free walk on an outside ledge of the

The CN Tower is the tallest freestanding structure in the Western Hemisphere, a signature icon of Toronto’s skyline, and a symbol of Canada, attracting more than two million international visitors annually.
tower. Visitors who want to be closer to the ground can take the scenic ferry ride to the Toronto Islands which provides a great photo opportunity of the skyline. Here you can bike, picnic and explore the Centre Island amusement park, Centreville. From exciting theme parks and incredible zoos to spectacular gardens and festivals, attractions in Toronto offer a daily adventure. Here is a list of things to do and ways to get around this beautiful city:

**Sports, Entertainment and Attractions**
- Art Gallery of Ontario
- Canada’s Wonderland Amusement Park
- Canadian National Exhibition
- Casa Loma
- Evergreen Brick Works
- Hockey Hall of Fame
- Ontario Science Centre
- Ripley’s Aquarium of Canada
- Royal Ontario Museum
- Toronto Blue Jays – Rogers Centre
- Toronto FC, Major League Soccer
- Toronto Islands
- Toronto Zoo

**Shopping**
- Bloor-Yorkville (high-end)
- Eaton Centre
- Kensington Market (vintage)
- Queen Street West
- Yorkdale Shopping Centre

**Markets**
- Chinatown
- Kensington Market
- St. Lawrence Market

**Dining and Nightlife**
- Distillery 360
- The Restaurant District
- Roof Lounge at the Park Hyatt
- The Drake Hotel
- The Gladstone
- Queen Street West

**Transportation**
- Car
- GO Transit – Rail and bus
- PATH – Underground walkway in the Downtown
- Public Transit – subways, buses, and streetcars
- Taxi

Come visit Toronto and experience this world-class city. For more information on what the beautiful, diverse City of Toronto has to offer, visit http://www.seetorontonow.com/.
APWA’s founder, Donald C. Stone, was a pioneer in public administration who contributed to the Marshall Plan and the United Nations. This professional outlook was centered on civic or community service. As an educator, he believed that public works needed education, training and development to evolve into a profession. This meant applying theory to practice and thus gaining and building on experience. Dr. Stone’s legacy encompasses all levels of APWA’s Donald C. Stone (DCS) Center for Leadership Excellence in Public Works.

Because many public works professionals are nearing retirement, the need to develop the next generation of leaders in all areas of public works is critical. The challenges arising from the condition of our infrastructure, the increasing demands of climate risk and dwindling resources require DCS Center participants to “learn and apply” rather than to merely understand. Thus, the Public Works Manager program focuses on a candidate’s ability to plan. In public works, planning is the process of researching best practices when a challenge arises within an organization; then, redefining those as opportunities, determining how to access and leverage resources; and finally, developing strategies to correct, manage, and align people, processes and resources in a creative way to meet the proposed outcome of the planning process. Many times, the planning process means tackling organizational change.

This month the DCS Center highlights one of its first PWM graduates—Douglas E. House. The PWM is the most popular program in the DCS Center and participants express a variety of reasons for enrolling. Doug chose the PWM program to become a stronger advocate for the services he provides, to project the professional image that is befitting a public works manager with his level of responsibility to the residents, and to secure his role as a creditable leader now and in the future.

Doug has been in public works for nearly 30 years and says, “Public works is a calling, not just a profession. It’s a way to make a living while serving your community and that makes it the best job anyone could have.” Since 2001, Doug has served as the Municipal Services General Manager for the City of Moline, Ill., where he is responsible for maintenance operations for streets, parks, city-owned buildings, and solid waste and recyclables collection. He is also responsible for emergency management and is the point of contact for FEMA Public Assistance Reimbursement. Doug is directly involved in emergency preparedness; he is a member of the Illinois Terrorism Task Force and the Rock Island County Incident Management Team. His leadership roles in those organizations have provided opportunities to increase the status, awareness and participation of public works as first responders. As an Incident Command Manager, Doug organized disaster operations during the floods of 1993, 1998, 2001, and 2008, and the windstorm of 2008 that included coordinating with city officials, businesses, and the Corps of Engineers.

Because of the experiences he has gained from these activities, Doug chose to use emergency management as the subject of his project. He selected Larry Lux from Plainfield, Ill., as his mentor because of Larry’s knowledge of public works interfacing with emergency management agencies. He hopes that his project, entitled “Participation in a Dirty Works Exercise: Using a Change Model to Support and Reinforce Current Best Practices in Emergency Management,” will be used by other public works departments to forge a working relationship with emergency management agencies. Doug says that turning his experience into a written project helped him develop critical thinking skills.

The PWM program is designed to develop planning and implementation skills by creating a project that has practical application to public works. Candidates also learn to use an analytical approach—systems thinking—that recognizes that
everything is interrelated. The program’s assessment tools showed Doug what areas he needed to improve. He learned a great deal about how public works interfaces with other city departments. “Demonstrating organizational value is what public works is all about,” he says. This requires strategic planning to adapt to the city’s changing and unexpected needs. Having been recently accepted as a Public Works Leadership Fellow (PWLF) in the DCS Center, Doug is looking forward to serving as mentor, tapping into his experience as a PWM candidate.

After serving on APWA’s Government Affairs Committee for the past three years, Doug is now President of the Illinois Chapter. His goals are to expand membership and to promote continuing education to ensure that public works professionals remain relevant and are qualified to do their jobs. Having a son in public works makes his commitment to continuing education a personal matter. “Public works professionals are the frontline asset in defense of the public’s trust in their government by providing essential services needed in their daily lives,” he says. “Continuing education, whether at an APWA branch level, at state chapter conferences or at the APWA Congress, is essential to meet the ever-changing public works environment.”

Doug says he is 100% committed to the success of the DCS Center because credentialing programs are the future of APWA, offering the most potential for our future growth by providing new and greater value in membership.

Mabel Tinjacá can be reached at (816) 595-5214 or mtinjaca@apwa.net; Joan Awald can be reached at (816) 595-5217 or jawald@apwa.net.
APWA Certification: Do we still do that?

Keith R. Duncan P.E.
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Chair, APWA Certification Commission

With the exposure and attention being given to the APWA Donald C. Stone Center (DCS Center) for Leadership Excellence in Public Works as THE place to go for training, instruction and education for all public works professionals, it is important to remember where APWA’s commitment to career recognition originated. I am referring to the APWA Certification Programs for Certified Public Fleet Professional (CPFP), Certified Public Infrastructure Inspector (CPII), and Certified Stormwater Manager (CSM).

In September 2006 APWA recognized the first group of individuals to receive the designation of CPFP. Subsequently, APWA also initiated programs for CPII and CSM. To date, over 450 individuals have received one of these prestigious credentials.

The DCS Center is the organizational foundation and structural framework where all APWA educational efforts will be integrated to offer personalized career paths that lead to certificates, certifications, credentials, CEUs, undergraduate and graduate credits, and degrees. The Leadership & Management Career Path includes Level 1 Public Works Supervisor (PWS); Level 2 Public Works Manager (PWM); Level 3 Public Works Executive (PWE); and the Level 4 Public Works Leadership Fellow (PWLF) designations. These four levels have been the most talked about and “visible” components, but they are only one part of the DCS Center.

Make no mistake; Certification is also an integral part of the DCS Center. The DCS Center will soon launch the Technical Career Paths with multiple levels of training that includes APWA’s certification programs as the highest achievement in each of those three technical areas. The certification program recognizes Fleet Professionals, Infrastructure Inspectors and Stormwater Managers who have already walked much of their path through training and experience, and are at the top of their profession.

Certification continues to exist, to accept applications, to offer testing on a regular basis, and to recognize professionalism and expertise. Certification programs continue to promote excellence in public works through competent, experienced, and well-trained employees; recognize professionals who have achieved a broad base of expertise within a particular technical specialty through a combination of work experience and training; and provide our communities with hiring and promotion standards that will lead to an improved workforce and delivery of services.

Certification is verification that a professional has met the standard set by APWA for proficiency. Is certification worth the effort? Is certification important to your professional development? The advantages are for the individual, the public works agency and, ultimately, to our communities.

Advantage for the individual

This isn’t our grandparents’ public works department! Changing technology and advancements in equipment, materials, methods and management are challenging both employees and employers on a daily basis. An APWA Certification recognizes proficiency across a comprehensive body of knowledge, skills and problem solving.

APWA’s Certification program affirmatively demonstrates your leadership, professionalism, expertise and personal dedication to advancing services in your community. Certification is professional credibility.

The market is extremely competitive and job candidates are looking for something to give them a competitive edge, a way to set them apart. Credentials stand out in a résumé. Professionals seeking a credential are often looking to compete more favorably in a labor market that is increasingly competitive. Certification can provide a competitive edge.

Employers are increasingly making the decision to promote and reward employees on performance-based measurements, and recognize employees by merit and experience. Certification is a tangible measurement of individual merit.

Personal recognition is related to job performance. Employees who receive recognition tend to be more motivated, and proud of their career. Certification is a strong recognition...
of personal accomplishment and contribution to an organization.

**Advantage for the agency**
It’s a jungle out there! Good help is hard to find, and employers are always trying to identify the most qualified applicants. How do you know if a job candidate is actually as good as their résumé? Certification sets an applicant apart, and can help identify the best candidates.

You wouldn’t think of hiring a City Engineer without a P.E., and a CDL designation is often a prerequisite for an equipment operator. Why can’t (or maybe a better question is, why shouldn’t) APWA Certification be a prerequisite for a Fleet Professional, Infrastructure Inspector or Stormwater Manager? Requiring certification would end the guessing, by giving you confidence that an individual will benefit your agency, and keep moving it forward in an ever-changing and challenging environment. If you have the opportunity, hire an applicant with an APWA Certification.

**Advantages to the community**
Customer service standards have never been higher, and levels of service expectations are forcing agencies to improve efficiencies and effectiveness. Agencies continually face the challenge of providing more with less. Certification is designed to ensure individual competency and establish a higher standard of professionalism.

**Certification vs. Certificate**
For the purposes of APWA professional development programs, Certification differs from Certificates of Training. In Certification, the focus is on assessing broad-based knowledge and skills over an extended period of job experience. Certification looks at the entire subject matter field.

On the other hand, a certificate is primarily focused on the completion of training on a specific topic, and then testing of the coursework. Certificates often are given for attending a set number of training hours, or testing over a narrow or limited subject matter. While there is professional value to both, Certification is a more rigorous and comprehensive credential.

**Certification choices**
If your specialty is in Public Fleet Management, Infrastructure Inspection or Stormwater Management, you may already have the theoretical, technical, regulatory, and management expertise to earn an APWA Certification.

The Certified Public Fleet Professional is intended for those fleet professionals who supervise, manage, oversee or administer fleet services within or for a public fleet entity.

The Certified Public Infrastructure Inspector is intended for individuals that inspect the construction of public infrastructure and facilities and other types of construction work and materials to ensure compliance with plans and specifications.

The Certified Stormwater Manager is intended for experts in the public and private sectors who coordinate and implement stormwater management programs for city, county, state, provincial and federal agencies. These individuals assist in administering drainage, flood control, and water quality programs.

If you are looking for a way to advance your career with a professional credential, and have already achieved the required education and work experience you should consider the possibility of APWA Certification. Don’t wait any longer—sign up today! Visit the APWA Certification page at www.apwa.net/credentialing/certification for more information.

**Getting the word out**
Getting the word out on the value of Certification is key to the continued growth and success of the program. Spreading the word will include both top-down and bottom-up efforts. Certification champions are needed to bridge the gap between individual members, APWA chapters and the national organization. Beginning this month, there will be regular articles in the Reporter to highlight an individual or agency Certification success story. These individuals and agencies will be our champions. We want to hear from you if you have a Certification success story, topic or suggestion for future articles. Contact Becky Stein at bstein@apwa.net for more information.

“For the sake of our security, our economy and our planet, we must have the courage and commitment to change.”

– Barack Obama, President of the United States
Did you know that Baby Boomer retirements will create 31 million job openings over the next decade, creating more job openings for the next generation than there were in the 1990s? Millennials make up 36 percent of the workforce today and, by 2020, will increase to 46 percent, according to a study completed by UNC Kenan-Flagler Business School. Millennials are not only highly ambitious and place an importance on their career and personal growth, but they embrace diversity and are considered to be the most racially diverse generation to date. According to the U.S. Census, the population is shifting with Millennials consisting of 40% of minorities versus 30% of minorities in the older generations of Generation X and Baby Boomers.

The involvement of a younger generation will provide the public works industry a fresh perspective on how we operate and conduct business. So what is APWA doing to gain participation from younger members and develop the future leaders in public works? Well, let me introduce two great networks that are not only educating current members on how to reach out to students and grow young professionals who are embarking on the public works industry, but are providing opportunities for the next generation to flourish in the APWA organization. These are the Young Professional and the Student Outreach Networks.

Young Professional Network
APWA developed the Young Professional (YP) Network to recruit and connect young professionals throughout the association and within the public works industry. The network is made up of liaisons representing chapter and branch YP committees and chapter leaders who are looking to reach out to newer members. Meetings are hosted monthly to discuss issues relevant to

Young professionals from APWA's Washington State Chapter tour the South Park Bridge in Seattle in September 2012.
Did you know that there is a place in the American Public Works Association just for young public works professionals?

Join APWA today to develop critical skills and relationships with your peers that will last throughout your public works career.

Get connected today at www.apwa.net/youngprofessionals
to grow active chapters. Monthly meetings will also engage students and chapter liaisons to share ideas and add value to the student experience, similar to the YP Network. Specific responsibilities of the StudONet include:

- Guide local APWA chapters/branches in creating and maintaining student chapters.

- Provide direction and mentoring opportunities for both the local chapters/branches and student chapters.

- Provide a national forum for students to network and develop their careers in the public works industry.

The StudONet maintains a toolkit, developed by the recent ELA Class (available online under the ELA VI Final Report at www.apwa.net/learn/Emerging-Leaders-Academy) that includes guidelines, BMPs, informative brochures and other materials for gaining student involvement. Building student chapters will require champions who are passionate and committed to working closely with and mentoring students through the process. However, we simply encourage you to contact your chapter/branch executive members and discuss how to start a local student outreach program and see what you can do to help APWA grow the StudONet.

Serving as the ELA Project Leader and the current StudONet chair, Lauren Behm is passionate about APWA’s future growth and the potential to recruit and mentor younger members. Lauren expressed that “the energy and enthusiasm demonstrated by college students is just what APWA needs to take the next step as an organization. I think this program will benefit students, members, and the organization alike.” Interested in developing a student chapter or learning about what other chapters/branches are doing to grow student involvement, check out the monthly StudONet conference call by contacting Lauren directly:

Lauren Behm, Airport and Ferry Analyst, Pierce County Public Works and Utilities, Washington State Chapter, 2012-13 Board Member, (253) 798-2421, LaurenjBehm@gmail.com

Caroline Barlow can be reached at (425) 252-9003 or Caroline.Barlow@msa-ep.com.
"Misery Loves Company"

Why you should get involved with SCRC

Eric Pethtel
Director of Public Works
Town of Fishers, Indiana

I recently returned to the office from attending the “Best Show in Public Works” in Chicago, Ill. As is the case each year there certainly was plenty of good educational sessions to choose from each and every day.

I have attended Congress numerous times and each year finds me coming home energized and ready to tackle the challenges that my community faces. It may sound odd at first but my newfound energy isn’t necessarily birthed in the many educational sessions I attend; rather it is birthed in part to the many conversations I have with professionals in the public works world while I am at Congress. If you are like me, you get so involved in the day-to-day routine that it’s hard to see the forest from the trees that are in front of you, and it takes an event like APWA’s annual Congress to help me get rid of my tunnel vision and remind me that it doesn’t matter if you are from Bend, Ore.; Arvada, Colo.; Sturgis, S.D.; Joplin, Mo.; or Oakwood, Ga., or any point in between—we in the world of public works are all facing the very same challenges. We’ve heard it a hundred times before but it is so true—we all being forced to do more with less.

Each year on Tuesday morning during Congress, Ann Daniels [APWA Director of Accreditation] hosts a Town Hall Meeting of the Small Cities/Rural Communities (SCRC) Forum. It is fair to say for myself that each year my biggest takeaway from Congress generally comes from this early morning Town Hall Meeting.

As the attendees stand, introduce themselves, tell us where they are from and what challenges they face, I begin to feel energized. Yes, that’s right; I get energy out of hearing about the problems from the other people in the room. I find it comforting to be reminded that there are thousands of public works professionals who are trying to wrap their arms around the same obstacles that I am. The issues at hand are varied but we have all heard them before, haven’t we? Isn’t your mayor’s wife more capable of growing roses than the arborist you have on your staff? Isn’t your elected official an overnight expert on traffic signals and knows more about signal timings than your traffic engineer does? And we all know if our public works trucks had blue lights and sirens we could get all the funding we needed and then some, right? I mention those concerns tongue in cheek, but let’s face it—misery loves company and a good chuckle was had by all when we heard those comments.

On a serious note there were many legitimate needs mentioned. For example, as managers how can we...
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The evolution of federal disaster assistance and emergency management agencies

Lawrence L. Lux, PWLF
President, Lux Advisors, Ltd
Plainfield, Illinois
Trustee, Public Works Historical Society

Origins
It is generally agreed that funding for the very first federally assisted disaster was approved by Congress following a devastating fire in Portsmouth, New Hampshire in 1803. For over 120 years following this historic event, disaster assistance was occasionally provided by Congress on an individual basis over 100 times; however, there were no standards or criteria applying to the funding. Most decisions were political. The first Civil Defense Program, one of several precursors to today’s FEMA, was established in 1916 as the Council of National Defense.

1930-1950
Following the stock market crash in 1929 and the beginning of the Great Depression, as a part of the government’s efforts to rebuild the nation’s economy, in 1932, Congress gave the Reconstruction Finance Corporation (which was created in 1929) authority to make loans to banks and other institutions in order to stimulate the recovery. In 1934, the Bureau of Public Roads was given the authority to finance the reconstruction of highways, roads and public facilities and the U.S. Army Corps of Engineers was given authority over flooding and irrigation issues.

During the 1940s Congress established several Civil Defense Programs which funded air raid sirens, sheltering systems and the like as a part of the World War II defense efforts.

1950-1979
From the end of World War II, disaster relief continued to be handled primarily on an ad hoc basis. In addition a number of other disaster-related agencies and laws were created—the Disaster Relief Act of 1950, the Federal Civil Defense Act of 1950 and, in 1961, the Office of National Preparedness.

In 1968, the Federal Flood Insurance Act was passed into law and the National Flood Insurance Program was created to regulate construction in wetlands and flood-prone areas.

In 1969, the Disaster Relief Act was amended to create the “Federal Coordinating Officer” to represent the President in disaster matters. Ultimately, by 1978 more than 100 federal agencies had a role in disasters and emergency management. This led to duplication, confusion and regulatory conflicts which forced states and local communities to work through a literal maze of federal agencies in order to secure funding and reconstruction assistance.

By 1973, most of the responsibility for disaster relief was concentrated under the Housing and Urban Development Department (HUD).

1979-2003
Finally, in 1978, the National Governors Association pressured Congress and the President to do something to decrease the number

“In response to the attacks and the resolve to protect the citizens of the U.S. to the greatest extent possible, another controversial decision was made with the adoption of the Homeland Security Act of 2002.”
of agencies involved and simplify the application process. Partly as the result of the aftermath of the Three Mile Island disaster, the entire system was overhauled resulting in the passage of the very controversial Reorganization Plan No. 3. Subsequently, the President signed an Executive Order creating the Federal Emergency Management Agency, as an independent agency reporting directly to the Oval Office. This action consolidated and transferred the responsibility for civil defense and disaster preparedness under a single authority, thereby removing the responsibility of the 100 agencies that were previously involved in the process.

During the ensuing years, various Presidential Administrations reorganized, modified and otherwise tinkered with the mission of FEMA. These were tumultuous years for the new agency. Political corruption, patronage, an unclear mission and leadership with little or no knowledge or understanding of managing emergencies brought increased congressional pressure to the young agency.

By the end of the 1980s FEMA was fraught with problems, both real and political. Under President Clinton, the agency was elevated to Cabinet status and he appointed the first experienced emergency manager as the Director of FEMA, reducing the political influences that had burdened the agency since 1979 and brought focus to the mission of the agency.

The 1990s brought a new threat to the forefront of emergency management—terrorism. Following the World Trade Center attack in 1993 and the Oklahoma City bombing in 1995 increased concern for both domestic and international terrorism led to addressing these potential threats. Again the mission of FEMA was modified to address these potential threats. This threat became reality in the September 11, 2001 attacks in New York, Washington, D.C. and Pennsylvania by an unaffiliated terror group—al Qaeda.

2003-present

In response to the attacks and the resolve to protect the citizens of the U.S. to the greatest extent possible, another controversial decision was made with the adoption of the Homeland Security Act of 2002. In March 2003, twenty-two federal agencies were merged into a new 22,000-member agency known as the Department of Homeland Security. During the debates up to the time that DHS was created, many political types and emergency managers urged Congress to retain FEMA as an independent agency. Ultimately, however, FEMA, the largest of these merged agencies, became part of the new DHS. At that time, FEMA was renamed the “Emergency Response Directorate” of the new agency; however, this new name was short-lived and reverted to its former name in 2007.

Following the bungled response to Hurricane Katrina in 2005, many demands were again renewed to remove FEMA from DHS and make them once again an independent agency; however, this did not occur and the focus of the agency was again changed to meet a new “all-hazards” approach which continues to the present day. The agency embraced this new mission and has since recovered from this debacle. Their actions were praised by many following Hurricane Sandy. Since May 2009, the FEMA Director has been the former Florida State Emergency Manager, Craig Fugate.

Lawrence L. Lux is President of Lux Advisors, Ltd, in Plainfield, Illinois. He is the immediate Past President of the Public Works Historical Society (PWHS) and currently serves as a Trustee on the PWHS Board. A 2006 Top Ten Public Works Leader of the Year, Larry received the APWA Presidential Award of Excellence from APWA Past President George Crombie in 2011. He can be reached by phone (815) 886-6909 or by e-mail (luxadvisors@comcast.net).
rick Fosse has worked for the City of Iowa City, Iowa, since 1984, serving 14 years as City Engineer and the past 10 years as Public Works Director. Iowa City has a population of 67,822 and is home to the University of Iowa. He received his Bachelor of Science degree in civil engineering from Iowa State University and started his career working for the Iowa Natural Resources Council in Flood Plain Management.

Rick has been a member of APWA since 1984. He was President of the Iowa Chapter in 2007 and has served as a Director, Emergency Management Committee Chair and Iowa Chapter Emergency Management Liaison. He has also been active in the American Society of Civil Engineers and has served on the University of Iowa’s College of Engineering Advisory Board.

The Iowa City Public Works Department includes the following: Administration, Engineering, Streets and Traffic Engineering, Equipment, Wastewater, Water, Solid Waste and Landfill. As with most public works departments, emergency response is a major responsibility.

Most public works agencies are impacted by disasters; however, most agencies don’t experience the variety of disasters that Rick has seen during his tenure in Iowa City. In the last 15 years, the Iowa City Public Works Department has responded to ice storms, a tornado, floods, straight line winds and a landfill fire. Each disaster creates its own unique challenges and yet all share similar challenges.

On April 13, 2006, an EF2 tornado struck the downtown business district and eastern residential district destroying businesses and homes, including an area dominated by off-campus housing for University of Iowa students. Cleanup from the tornado took over three months. In June 2008, unprecedented flooding on the Iowa River impacted the City of Iowa City and the University of Iowa causing widespread property damage and forcing evacuations from entire neighborhoods and portions of the campus. The flood resulted in over $1 billion of recovery and mitigation projects for the University of Iowa and Iowa City. Construction of these projects will continue for several years. On May 26, 2012, a fire started...
in a new cell at the City landfill, and actively burned for a month, but took four months to completely extinguish. The fire destroyed approximately 7.5 acres of the cell’s liner system.

The variety of disasters Iowa City has experienced has provided Rick and his staff with valuable lessons on emergency response. While each event has created challenges, he recognizes a common element in all disaster response. Effective communications has been a key factor in the community’s ability to respond to the variety of disasters Iowa City has experienced. Communication is also important in preparation for and cleanup of disasters. Creating relationships with the police and fire departments and utilities helps the community prepare for disasters. When working with police and fire departments it is critically important that public works staff understand the National Incident Management System (NIMS) and are able to work within the Incident Command System. He believes it is not only important for public works to be included in the police and fire departments’ tabletop exercises, but also to include all the parties in the development of the Emergency Operations Plan, Evacuation Plan, Volunteers Plan and Debris Management Plan.

Rick views each disaster as an opportunity for positive change during reconstruction and as a way to be better prepared for the next disaster. One of those opportunities came from the 2006 tornado. Iowa City was inundated with volunteers offering assistance, but did not have a plan in place to handle the overwhelming response. As a result of the post-tornado debriefing, he recognized the need to have a plan to receive and organize the volunteers. Most offers of assistance were received immediately after the disaster, while the Public Works Department was busy trying to open the city for basic operations. He realized additional resources would be needed to coordinate the offers for assistance at one of the busiest times for the Public Works Department. He found a partner in the local United Way. The United Way has an established plan in place to manage volunteers that also tracks and documents the volunteers’ contributions. This partnership has proved to be great benefit when dealing with disasters.

Rick recognizes the valuable resource NIMS has become for disaster response and appreciates the help it provides in dealing with organization, communications and competing priorities. Further, he believes it is important to have depth in personnel assignments to NIMS teams to allow continuity for 24-hour operations. One of the exercises he has found particularly important is incorporated into the planning section of NIMS. In this exercise you ask what if things go worse than predicted and then prepare for that scenario. The final step, after you think you are prepared for the worst, is to ask what if things go even worse than that. This was especially helpful during the 2008 flood.

Rick’s leadership has been essential in helping Iowa City plan for, respond
to and recover from the disasters that have struck Iowa City. His ability to communicate has served Iowa City very well not only during disasters, but also during normal operations. He seeks public input during the pre-design phase of projects and takes that opportunity to better understand the issues relating to the project. He finds the input very valuable in dealing with the aesthetics of a project and helping garner support for the project. The public input Iowa City receives helps improve designs and provides better end results.

Rick is a dedicated and caring leader who sees the opportunity to learn in every challenge he faces. His ability to communicate allows him to share his knowledge with others in an entertaining and captivating manner. His leadership has steered Iowa City through a variety of disasters and has made them better prepared for future disasters that may come their way.

“When it comes to disaster Rick Fosse is our ‘Go-to Guy.’ Rick is a caring, hardworking, diligent and intelligent manager who has a sly sense of humor. It may be this last characteristic that has allowed Rick to battle three floods, one tornado, straight line winds, a major landfill fire and ice storms. His support for his fellow employees and the public who come to our aid to combat and recover from these disasters is evident throughout the crisis. His compassion for the victims of these incidents is commendable. And when the crisis is over he doesn’t just do a crisis analysis, he takes what he has learned and shares it with our public and other professionals in the state and across the country so that they too might learn from our experiences. Rick is truly a team player but it is clear that his humble leadership was essential in our dealing with the disasters that have confronted Iowa City.” – Tom Markus, City Manager, City of Iowa City, Iowa

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<tr>
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</tr>
<tr>
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= Click, Listen, & Learn program (Free to Members)

= Live Conference (Paid Registration)

= Certification Exam

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**January 30**

**Envision™: The Sustainability Rating System for All Infrastructure**
New series from the Leadership and Management Committee

Charles R. Jordan, MPA, PWE
Acting Facilities Manager
City of Largo, Florida
Member, APWA Leadership and Management Committee

Ever get stuck answering a question for a reporter? What about when communicating with an elected official? Have you ever written a technical paper and after presenting it, your audience still was not able to comprehend the message you were trying to deliver? These are all issues that many of us in public works occasionally struggle with. In the future you will be able to sharpen your skill set through the information the Leadership and Management Committee will provide in its 2014 Reporter series.

Over the past few years, the committee has been committed to the effort of developing a body of knowledge and a standard set of skills to utilize as the basis for training public works professionals. Many of these skills come as an inherent part of working in a public works department: technical training, supervisory and interpersonal skills, and an understanding of the business of the services you provide. However, the training that sometimes is forgotten, and is often overlooked when bringing a manager or a supervisor into the role of executive or leader, are the soft skills that are not specific to public works technical functions. Some of these could include the ability to speak articulately to the public, advisory boards, or elected bodies; it could include how to interact (appropriately) with the news media; or it could even be the basic skills of communicating a message effectively through written correspondence. Knowing that these skills are sometimes not easily taught, and sometimes even harder to learn, the committee has taken on this challenge for this new program year.

Over the course of this year, the committee intends to publish an article in each APWA Reporter that helps educate our members on a different skill set that is important for current public works leaders, or their eventual successors. These articles will be written and developed by members of the committee and the L&M Knowledge Team using actual experiences and examples, as well as educational materials that can assist the public works professional in properly navigating the soft skill needs of their position. Finally, at Congress in Toronto, the committee has put together a panel of learned practitioners and trainers to present on the various benefits of having experience and strong skill sets in these areas to make you a more effective public works executive.

Here are the topics that this series will review over the next year:

1. Quality Business Writing
2. Communicating Effectively Verbally to Customers
3. Communicating Effectively Verbally to Staff/Elected Officials
4. Making Effective Presentations
5. Media Relations
6. Presenting You and Your Department in Positive Ways
7. Citizen Engagement and Community Building
8. Branding Your Department
9. Listening and Understanding
10. Utilizing Your Network
11. Using Current Technology

Each of these articles will discuss, in depth, the value of building your toolbox in these areas and how these skills will benefit your success as an executive. It is the committee’s intention to build upon the great skills that many of our public works leaders already possess and make the profession a more visible and more appreciated workforce throughout North America.

So, if you have ever been “caught with your pants down” in front of your staff, elected officials or citizens, or if you have ever been caught off guard by a question, a reaction, or how to connect with someone, this is the year to read your Reporter! As a stronger leader, you can build a stronger, more effective, more appreciated public works department.

Chas Jordan can be reached at (727) 586-7418 or cjordan@largo.com.
Community outreach in Australia

Elia Twigg, P.E.
Public Works Director
City of Palm Bay, Florida
2013 Jennings Randolph Fellow

Oftentimes public works departments are not recognized by the general public like the police and fire departments. If you went to 10 random people and asked them what the police department does, they may say they keep our city safe; if you ask them what the fire department does, they may say they fight fires; but, if you ask them what the public works department does, you may get a blank stare. We, as public works professionals, need to do a better job advocating our profession and getting the word out to our community. We impact their lives on a daily basis, yet most people don’t even know who we are.

I went to Australia to find out what Australian public works professionals do to reach out to their communities, and I was very surprised to see the similarities to the United States; yet, also to see the differences, even between the local governments within the same area. My main focus of the trip morphed into more than just public works advocacy. I learned so much more about how other agencies do things, and more about myself in the midst of it all. The trip overall was life changing for me and truly one of the most rewarding things I have ever done professionally and personally.

I first traveled to Darwin, which is the capital city of the Northern Territory (NT). Darwin is a multicultural city made up of people from more than 60 nationalities and with a population of approximately 80,000 people. The
Larrakia Aboriginal people are the original inhabitants and still make up about 15% of the population.

After Darwin, I went to Sydney, the capital city of New South Wales (NSW), to do my one-week study tour. Sydney is the most populous city in Australia with approximately 4.6 million people within 4,700 mi². In Sydney, I met with public works professionals to learn about their operations and outreach in their communities. Prior to coming to Australia, I organized visits with four local government areas in the Sydney area, and one meeting with the Roads & Maritime Services (RMS).

In Darwin, I attended the Institute of Public Works Engineering Australasia (IPWEA) international conference that is held every two years. The networking opportunities I had at the conference were amazing. Asset Management (AM) proved to be one of the highest concerns to Australian public works professionals, as that was one of the main topics discussed throughout the conference.

**Australian government structure**

The government structure is a little different from the United States, and it was important for me to understand a little about the government structure as I traveled to Sydney for my study tour. The Australian federal government is split into six states and some territories that are not claimed by one of the states. Local government areas (LGAs), or local councils, are established by the state and territory governments to take responsibility for community services, such as waste collection, public recreation facilities, and town planning.

While this sounds similar to the way the United States government is split, it was actually different in the way the services were administered and in the way the local governments were divided.

LGAs make up many towns, suburbs and cities. For example, the City of Darwin has 41 suburbs and localities that make up their LGA, and Sydney has 38 LGAs and hundreds of towns, suburbs and cities that make up the Sydney area.

Most citywide government activities are controlled by the state government. These include public transport, main roads, traffic control, policing, education above preschool level, and planning of major infrastructure projects. Since the policing was one of the responsibilities of the state, I found that the public works departments within the LGAs did not have the same competing interests when it comes to funding or providing services to their communities.

Another major difference I found were the number of councilors, or elected officials, of the local governments. For example, the City of Darwin has 12 aldermen and one Lord Mayor. I found that the number of elected officials varied slightly between the local governments that I visited, but generally speaking, there were a lot more elected officials than in the United States local government.

**Public outreach**

While in Sydney, I visited Manly Council, the City of Ryde, Waverley Council, Woollahra Municipal Council and the Roads & Maritime Services (RMS) division responsible for the Sydney Harbour Bridge. Below is a table that shows the area, population and number of councilors for the locations I visited.

<table>
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<th>Local Government</th>
<th>Area (mi²)</th>
<th>Population</th>
<th>Councilors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manly Council</td>
<td>5.8</td>
<td>40,000</td>
<td>9</td>
</tr>
<tr>
<td>City of Ryde</td>
<td>15.7</td>
<td>103,000</td>
<td>12</td>
</tr>
<tr>
<td>Waverley Council</td>
<td>3.5</td>
<td>65,000</td>
<td>12</td>
</tr>
<tr>
<td>Woollahra Municipal Council</td>
<td>4.6</td>
<td>52,000</td>
<td>15</td>
</tr>
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I found that the agencies did community outreach and had a lot of public involvement for specific projects or plans within their respective agencies, but I did not find any agency that focused on public works advocacy.

The environment was extremely important to all the communities I visited. Water conservation, proper stormwater management, and solid waste and recycling programs were apparent, even for me as a tourist to Australia.

Some of the agencies I visited had large rainwater tanks at their public buildings, such as at municipal buildings, park facilities and public restroom areas (see photo on p. 33). These water tanks captured rainwater for flushing toilets and for irrigation. This system saves on drinking water used, saves money on water bills, and also reduces stormwater runoff. A lot of information was posted on the various local governments’ websites for water conservation, to include information for residents to do this at their own homes.

Manly Council consciously does not give out water at their events because they encourage the use of the water bottle filling stations located throughout their city. These water bottle filling stations were located throughout public places in all areas of Sydney (parks, ferries, trails, etc.), and many of these stations had information panels regarding water conservation. I even noticed these stations around Darwin.

Stormwater projects were very prominent, and the information given to the public was similar throughout the agencies, as well as how they are done in the United States. The projects are identified and public meetings take place to get the public participation and feedback on the projects.

Waverley Council did a Bondi Stormwater Project which was designed to harvest and reuse stormwater previously discharged into the ocean at the southern end of the world-famous Bondi Beach. This project now delivers recycled water for irrigation, toilets and public cleaning at Bondi Beach, saving over 13 million gallons of drinking water, while also improving the water quality at the beach through stormwater filtration. They have extensive information on their website for harvesting and reusing stormwater, along with an educational program for the community to implement their own water conservation measures.

Environmental education and outreach is part of Woollahra Council’s ongoing commitment to promote active community participation. They even developed an Environmental Education and Action Plan to target education in schools, with residents, businesses and the council employees.

Other outreach to the community was highlighted by Woollahra Council’s improvements to Gap Park. In 2011, they upgraded the park to keep up with the reputation as a premier destination, as well as implemented self-harm minimization measures to reduce the incidence of suicides.

This park has the most amazing views of the coastline, and it also has high cliffs that are an extreme danger to individuals contemplating suicide. They built a fence in the suicide hotspots, and installed additional lighting, 22 cameras, two emergency help phones, and signage with messages of hope. This location is monitored 24/7 and has saved many lives as a result of all the measures taken to reduce the incidence of suicides. This park showcases the world’s best practices for self-harm minimization.

One of my other interests was finding out more about the iconic Sydney Harbour Bridge and their communication methods for maintenance of the bridge. The Roads and Maritime Services (RMS) is the organization responsible for all state

Gap Park Emergency Help Phone

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roads in New South Wales, which includes the Sydney Harbour Bridge.

Back in 2012, the RMS had to shut down the bridge for 24 hours to do maintenance. It was the first time in 80 years since the road surface was stripped back to the original concrete deck. This shutdown affected 155,000 vehicles per day, so the RMS had an extensive public relations and media coverage plan to capture a potential audience of nearly 42 million people.

Press releases, media coverage, radio announcements, door knockers, mailers, postcards, variable message signs, digital and social media coverage, flyers, stakeholder meetings, presentations, etc. were included in the communications plan. It was amazing to see the planning that took place for communicating this maintenance activity, and to consider all of the people or entities that were potentially affected, such as businesses, sporting events, residents, tourists, etc.

When I came back to Florida, one of the first things that came up was the need to shut down a collector road that has around 6,500 vehicles per day. This is a roadway realignment project going on in the City of Palm Bay, and part of the construction required the contractor to shut down the collector roadway for nearly three weeks in order to connect the realigned road with the existing road. We had never experienced shutting down a collector roadway like this, so I was able to share the story I learned from the Sydney Harbour Bridge shutdown and apply what I learned to our project (at a much smaller scale, of course). We reached out to the community via reverse 911 calls, press releases, variable message signs, electronic media, social media and mailers. The public information plan we had was so effective that we did not receive any complaints.

In summary, I had an experience of a lifetime in Australia. Gaining a different perspective from across the world gave me a true appreciation for the public works services we provide to our communities. While Australian public works professionals do things a bit different, there are still so many aspects of our profession that are the same.
Australians face the same challenges we face with funding our essential service to the communities. I did find that although the communities I visited were more affluent than my community, the people that live in these communities still care about the same things which included the environment, good roads, parks and quality of life.

My main focus of my trip was to see how Australian public works professionals reach out to their communities, and I found that they do things in a similar fashion. They have an extensive public participation program that requires similar kinds of stakeholder meetings and public involvement, just as we do. I was very surprised, however, that it was difficult to get “public works” information from the various websites of the places I visited. For example, Manly Council and the City of Sydney did not have any information regarding public works on their websites. Yet, Manly Council had a department that was over 250 people and the City of Sydney had a department of over 900 people!

I want to take the time to personally thank Chris Champion, Chief Executive Officer of the IPWEA. He encouraged me to apply for the Jennings Randolph Fellowship and he was instrumental in helping me with my travel to Australia. I also want to thank all of the individuals that helped organize my trip and took time out of their busy schedules to meet with me while in the Sydney area: Henry Wong, Kathy Fuller, Beth Lawsen, Stephen Clements, Anthony Hewton, Kathryn Parker, Michael Biddulph, Natasha Schultz, Ed McPeake, and Michael Galloway at Manly Council; Mark Wood at Waverley Council; Peter Mann and Gina Kelly at the RMS; Armodee Reece, Jake Matuzic and Cathy Edwards-Davis at Woollahra Municipal Council; and Anthony Ogle and George Dedes at the City of Ryde. I also want to personally thank Ed Bourke with Complete Urban for the time we spent in Bondi Beach and for being a personal surf tour guide for my husband.

Overall, traveling outside the United States has always given me new appreciations for other cultures in the world. I highly encourage you all to get that passport and travel; you will learn to appreciate what you have and what others do in other parts of the world. This trip has left a lasting impression in my life and I will be forever grateful for the amazing opportunity it afforded me!

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Stormwater management insights from “Down Under”

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I received the Jennings Randolph Fellowship to attend the Institute of Public Works Engineering Australasia (IPWEA) national conference in August 2013 in Darwin, Northern Territory, Australia. This was followed by a one-week technical tour as part of the information exchange program provided by the fellowship. My goals for the technical tour were to identify major differences in stormwater management practices between the United States and Australia, compare Durham’s stormwater program to those of Australian cities to establish benchmarks, and identify feasible and innovative stormwater practices from Australia that could be adopted in Durham to help achieve its challenging water quality reduction goals. Site visits for the technical tour included the local City Councils of Darwin, Kingston, Greater Geelong and Sydney, as well as Melbourne Water, the agency that manages Melbourne’s water resources. Structured interviews and informal discussions with Australian stormwater practitioners were undertaken to collect information about their stormwater programs and innovative approaches for water quality and infrastructure management that have been successfully implemented. In this article, I briefly discuss Durham’s stormwater challenges followed by three stormwater programs that I visited as part of the technical tour, specifically Melbourne Water, City of Darwin, and City of Kingston.

The City of Durham, North Carolina, drains to two different water-supply reservoirs: Falls Lake and Jordan Lake. Most Durham streams originate within the city and act as a primary conveyance for stormwater runoff from the city to these reservoirs. Consequently, Durham faces stringent surface water quality regulations. For example, a 77% reduction in phosphorus and a 40% reduction in nitrogen levels from baseline loads are required in the Falls Lake watershed. Water quality projects are competing with the aging stormwater infrastructure of the city for the funding generated by the stormwater utility fee. Durham is proactively seeking to evaluate and implement innovative and cost-effective stormwater management practices from local and international communities to meet the demands of both stormwater conveyance and treatment. Many American cities like Durham and Australian cities like Darwin and Melbourne face similar stormwater management challenges, including poorly draining soils, increasing populations, and rapid urban development.

Most of the rainfall occurs in the northern and eastern coasts of the Australian continent. Figure 1 shows spatial distribution of ten-year annual rainfall average. From a regulatory standpoint, Australia does not have...
an equivalent of the Municipal Storm Sewer System (MS4) permit or the Total Maximum Daily Load program that is typically administered by the United States Environmental Protection Agency to implement the Clean Water Act. In Australia, the Environmental Protection Authority (EPA) is a state agency. Most states and territories developed guidelines for urban stormwater management in the 1990s before the first major national effort on stormwater management in 2000. Stormwater programs are implemented by the state EPA and vary by state in their size and primary functions. For example, the Victoria EPA, established in 1971, has one of the oldest and most advanced stormwater quality programs in Australia, while the Northern Territory EPA is new and still developing its stormwater quality program. The EPA in New South Wales emphasizes flood control projects and managing commercial polluters. The state-level administration of stormwater programs seems to work well in Australia, as the regulators work in close cooperation with regional water resources management agencies, like Melbourne Water and the local city councils.

Melbourne Water is a nearly 120-year-old water resource agency in the state of Victoria that provides water, wastewater, and stormwater management services to the Port Phillip Bay and Westernport Bay region. The agency collaborates with 38 city councils and nine water corporations in a region with a population of about four million (80% of state population). Melbourne Water collects a “waterway and drainage charge” as one of its funding sources and has an annual budget of approximately 234 million Australian dollars. Melbourne Water is unique in being the “caretaker” of Melbourne’s waterways that includes wetlands, lakes, and approximately 5,200 miles of rivers and creeks. In most other cities in Australia, the municipalities are responsible for stormwater management.

The City of Darwin, Northern Territory, was the host for 2013 IPWEA conference. The city overlooks Darwin Harbour and is Australia’s gateway to Asia. Darwin is one of Australia’s modern capitals, and has been rebuilt twice after suffering two major disasters: one during the World War II and then in 1974 when Cyclone Tracy struck the city. Darwin has a tropical savannah climate with distinct wet and dry seasons. The wet season occurs between November and March and is often associated with tropical cyclones and monsoonal rains. Most of the stormwater infrastructure in Darwin was constructed between 1960 and 1990. Darwin experienced a significant increase in infill development and impervious area between 1998 and 2008, resulting in increased runoff during wet months. This has placed tremendous pressure on the existing drainage infrastructure. The design criterion is typically a one- or a five-year storm, but 20-year events are not uncommon in Darwin. To increase the life-cycle of its stormwater infrastructure, the City of Darwin requires both internal and external sealing of pipe joints to prevent inflow and infiltration. In addition, underdrains are installed on both sides of the pipe to ensure adequate drainage. As discussed before, the stormwater quality program is in an evolving stage in Northern Territory.

The City of Kingston, Victoria, has one of the leading green infrastructure programs, also known as water sensitive urban design (WSUD), in Australia. Kingston received an Integrated Water Cycle Award in 2012. Since 2000, Kingston has installed over 200 rain gardens as part of street retrofits and new developments. During my visit to Kingston, I had a grand tour of both successful and ineffective rain garden projects.
around the city. A fairly new concept, rain gardens installed between 2000 and 2006 achieved mixed results primarily due to using inexperienced contractors. However, after 2006, the Kingston team modified their design to include improvements to the overall aesthetics, use of more drought-tolerant plants, added safe landing areas between curb and rain gardens, and educated the contractors on best construction practices. Between 2006 and 2012, Kingston installed many successful rain gardens around the City in dedicated areas as well as street retrofits. Some of the street retrofit rain gardens are a “bulb-out” feature that also acts as a traffic calming device (see Figure 2). Measuring the efficiency of these practices in reducing runoff volume and enhancing water quality has been a challenge. During further discussion about these practices, staff indicated that, in their experience, centralized water quality devices may be a more cost-effective option for stormwater treatment compared to small-scale retrofit practices. Kingston recently won the 2013 Stormwater Victoria award for a project that demonstrated on a cost-comparison basis that medium-sized stormwater control practices (defined as a larger rain garden treating about 50 hectares or 123 acres) are typically about 4 to 20 times more cost effective and easier to maintain. Other lessons learned from Kingston’s successful sustainable stormwater management program include maintaining a holistic (civil, environmental, and social) in-house design team, strong involvement of developers with a commitment to environmental compliance, and early engagement of frontline maintenance staff to ensure continued maintenance of green infrastructure practices.

One of the most common measures to prevent stormwater pollution by every city I visited was the use of Gross Pollutant Traps, also referred as GPTs. The primary function of GPTs is to catch debris and trash before it reaches the stream. The configuration varied from simple nets installed at major pipe outfalls in Darwin to huge underground vaults with traps located upstream from stormwater discharging in harbor waters in Greater Geelong (see Figure 3). This is a simple yet effective practice, according to stormwater practitioners in Australia. It prevents potential chemical decomposition of synthetic products in streams as well as eliminates the visual perception of water pollution. Another feature common to most
stormwater programs in Australia was the existence of an asset management plan. IPWEA in collaboration with other agencies has developed tools to assist cities with long-term financial planning for capital improvement projects (CIP) based on the risk and likelihood of failure of stormwater infrastructure. Many cities in Australia do not have an enterprise fund or stormwater utility set up to generate revenue for funding CIP with an exception to the city councils in New South Wales. Councils under purview of regional water agencies like Melbourne Water receive financial support through a competitive process.

Finally, based on these observations, my opinion is that Durham’s stormwater program is on-par with the leading stormwater programs in Australia. According to Australian peers, use of enterprise funds (stormwater utility fees) for funding CIP projects and a robust water quality program were the highlights of Durham’s stormwater program. Asset management of stormwater infrastructure is an area where Durham continues to develop by refining the inventory and collecting new data on condition assessment.

**Acknowledgments:** This unique opportunity for knowledge exchange was made possible by the International Jennings Randolph Fellowship sponsored by the American Public Works Association, the Eisenhower Institute at Gettysburg College, and Institute of Public Works Engineering Australasia. I greatly appreciate the assistance from Chris Champion and Stephen Lees of IPWEA in coordinating with the key local stormwater program managers for the technical tour. I am also grateful for the time and hospitality of my Australian peers who not only provided information on their programs but also graciously provided coffee, lunches, and tips on getting around locally: Nadine Douglas from the City of Darwin, Alan West from the City of Kingston, Peter Morrison and Justin Lewis from Melbourne Water, Vicki Shelton from the City of Greater Geelong, and Peter Shields from the City of Sydney. I would also like to acknowledge the support from the City of Durham in making this opportunity possible.

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The mission of the APWA Donald C. Stone Center for Leadership Excellence in Public Works (DCS Center) is to position public works professionals for the twenty-first century. In keeping with this important goal, the APWA Reporter features a section dedicated to applied research in public works. This section, published quarterly, provides insight into thoughtful analysis of issues and opportunities based on applied scientific research methods as a way of further contributing to the body of knowledge.

Many of the articles appearing in this section will be capstone papers written by participants in the DCS Center Level 3 Public Works Executive (PWE) Program. Other research articles will be selected based on the applied nature of the paper and its relevance to public works.

Researchers interested in submitting articles should visit the website http://www.apwa.net/donald-c-stone/Donald-C-Stone-Center/Public-Works-Research to learn details of the requirements for publication. Articles submitted to the “Applied Public Works Research” section of the Reporter will be reviewed by the DCS Research Council, an expert group of professionals and academicians comprising the editorial board. Depending on the technical aspect of a submission, a summary to highlight how the research can be applied may be requested. These will appear as “Research Application Summaries below the abstract.” The 150-word abstracts of approved articles will be published quarterly. The full-length articles, as listed below, can be accessed via the link provided with each abstract.

Disclaimer: The views and opinions expressed in these papers are solely those of the authors and may not represent those held by APWA or the entities referred to in the articles.

Critical Issues in Transportation 2013
http://www.trb.org/Main/Blurbs/169945.aspx
TRB’s Executive Committee periodically identifies a set of critical issues in transportation to focus attention on their likely impact on the nation’s economy and quality of life. The discussion of the critical issues identified in this document is intended to facilitate debate and to encourage research leading to their resolution.

Previous editions of Critical Issues in Transportation have highlighted many of the issues that threaten the performance of the nation’s transportation system. In recent years, the Executive Committee has added the need to respond to natural disasters; highlighted how transportation has become ever more linked to broader issues in society and in the economy; and drawn attention to the role transportation plays in energy and environmental issues.

Critical Issues in Transportation: 2013 is designed to stimulate awareness and debate and to focus research on (a) improving transportation system performance and resiliency; (b) reducing transportation injuries and fatalities; and (c) mitigating unsustainable environmental impacts.

The urgency of addressing the critical issues has never been greater. The Executive Committee hopes that readers will become aware of and concerned about these issues, and will join in addressing the problems in transportation so that society and the economy can reap the many benefits it offers.
To order free copies of *Critical Issues in Transportation*, please contact Russell Houston, TRB’s Assistant Executive Director, at RHouston@nas.edu or (202) 334-3252. In your correspondence, please include the number of copies of the publication you need, your intended audience, and your postal mailing address.

**Improving Post-disaster Humanitarian Logistics: Three Key Lessons from Catastrophic Events**

A featured article in the May-June 2013 TR News presents three practical lessons gleaned from fieldwork after the Port-au-Prince, Haiti, earthquake and the Tohoku, Japan, tsunami: the strategic differences between disasters and catastrophes, the need to control the spontaneous flow of supplies, and the benefits of integrating the civic society into the response and recovery.


**Green Infrastructure Design for Pavement Systems Subject to Rainfall–Runoff Loadings**

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**Record Type:** Component  
**Record URL:** [http://dx.doi.org/10.3141/2358-09](http://dx.doi.org/10.3141/2358-09)  
**Availability:** Transportation Research Board Business Office, 500 Fifth Street, NW, Washington, DC 20001 USA

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Order URL: [http://worldcat.org/isbn/9780309286749](http://worldcat.org/isbn/9780309286749)

**Abstract:**  
Impervious surfaces alter hydrology while affecting the chemical balance of water resources. Even though historical flooding remains an issue, chemistry, loads, and aesthetics are companion concerns. Recently, total maximum daily loads have spread across the United States. Additionally, Florida has promulgated no net load increases for runoff and constituents and now has numeric criteria for nutrients. As trends move toward low-impact development and green infrastructure, urban retrofit design practice entails hydrologic restoration, reuse, and source control. Site redesign can provide a means to manage hydrologic and constituent load, with no net increase for long-term loadings. The proposed design retrofitted an existing surface parking facility with a series of design elements. A biofiltration area reactor was lined with clay for management of the water table and denitrification. A linear infiltration reactor of cementitious permeable pavement provided infiltration and evaporation, filtration, and adsorption. Street sweeping provided source control. In addition, load credits have been established in Florida for nutrients recovered from street sweeping. Continuous simulations with climate and site data indicated that redesign could result in no load increase. Estimates demonstrated that the cost of redesign was comparable to conventional construction costs while incorporating a Florida-friendly landscape. Also, design options cost less per nutrient load treated than did conventional Florida best management practices.

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For more information about this special section of the APWA Reporter dedicated to applied research in public works, please contact Mabel Tinjacá, Ph.D., APWA Director of Professional Development, at (816) 595-5214 or mtinjaca@apwa.net.
Gauging your fuel supply for a natural disaster or emergency

Mary Joyce Ivers, CPFP, PWLF, Fleet and Facilities Manager, City of Ventura, California, and Chair, APWA Fleet Services Committee; Jeffrey A. Tews, CPFP, Fleet Operations Manager, City of Milwaukee, Wisconsin, and member, APWA Fleet Services Committee

Does your fuel gauge show you are full and ready for any natural disaster or emergency event? It is imperative that you Plan, Prepare and Prioritize your fuel supply needs in the event of an unforeseen natural disaster or emergency. This emergency planning effort plays an important role in operations running smoothly, keeping the citizens and your employees safe, and mitigating potential hazards.

Plan
Fleet managers must have a plan in place to ensure that emergency response vehicles and equipment are fully operational. A backup fuel plan may include agreements with a fuel supplier, retail station or other public agencies, or with rental equipment companies. If a hurricane or snow storm is eminent, plan ahead to fill the fuel tanks with available fuel supply. A best management practice is to have a policy that on a daily basis the vehicles and equipment shall be on a keep-fill basis and not let the fuel tank go below half full. These are considered “mini-fuel” supplies. Having a mobile fuel truck with a 100-gallon fuel tank and dispenser may provide a quicker alternative for supplying fuel to the equipment.

Fleet managers take a calculated risk to balance the volatile cost of fuel with the fiscal responsibility of managing the fuel budget. In Ventura, the reorder level is when the onsite underground fuel tank level is below half to get the best truck and trailer delivery price. However, this could be risky if there is an emergency or disaster. That is why Ventura has a contingency plan with the fuel supply contractor so that the levels of fuel meet the needs of the agency on a daily basis and at a moment’s notice during emergencies.

The following contractual requirements are included in fuel purchasing contracts for fuel supplies during an emergency:

“In the event of a natural or man-made disaster, operations for the City and the Contractor may be impacted. In the event of a declared emergency or natural disaster, Fuel Supplier Contractor shall provide fuel as a high priority to meet the needs of the City’s First Responders for emergency response and public health and safety.”

The criteria considered for the selection of the fuel supplier was based on location to the city, contractor’s facility with onsite fuel supply in underground tanks, quantities for each fuel type, size of fleet truck and trailers, tank wagons equipped with wet hose, after-hours emergency phone and communication plan. The supplier offers 500-gallon skid-mounted fuel tanks and dispensers that can be delivered onsite for fuel distribution. In the event of a power outage at the fuel supplier facility, vehicles have the capability to pump fuel out of an underground tank and into a vehicle or mobile tank, and the facility has backup generator power. The supplier must have a large supply network and a contingency plan for fuel supply to be delivered into the area. In California, having suppliers from both the north and south was beneficial because depending on accessibility of roadways, there may not be a clear route if damage resulted from fire, flood or an earthquake.

Milwaukee has an aggressive program to make sure there is ample and viable fuel at all times, but especially for the winter season. The City has a provision in their fuel contracts that requires routine and emergency fuel deliveries to be made within six hours of receiving a request. Regular contact information is provided by the fuel vendors, along with emergency contacts and phone numbers. In addition, the condition of the fuel in all underground storage tanks is checked during August, with emphasis on looking for moisture and evidence of bacteria. Problems found are treated early to ensure a healthy supply of fuel for when the temperatures drop. Users of biodiesel especially need to be aware of a higher susceptibility to moisture with biofuels versus petroleum fuels. Special treatments made for use with biodiesel are available.

The fuel vendor should be made responsible to ensure that diesel fuel flows in the coldest weather.
Milwaukee requires their fuel supplier to adjust the level of additives throughout the cold months as needed to make sure diesel maintains a cold filter plug point (CFPP) of -30 degrees F, +/- 4 degrees F.

Having viable fuel in the underground tanks is important, but safeguards must also be in place to allow the fuel to be pumped in cases of emergency such as widespread power loss. If there is an auxiliary generator for the shop, it should be wired to provide priority power to the fueling pumps, in addition to the basic shop needs. An electrical hookup point can be installed that would allow a trailer-mounted power source to be spliced into the pump wiring, if needed. If the fleet operation has a fuel truck, the on-board fuel pump system may be configured to pull fuel directly from the in-ground tanks, for distribution directly to the hose or from the truck-mounted storage tank.

Prepare
Proper planning and preparation by the fleet manager helps resume operations rapidly during and after the disaster or emergency event. Fleet managers must be prepared, especially if they rely on private retail stations or fuel card systems. Preparation, well-trained staff and communication are important aspects for fleets to respond to emergencies. Fleet managers must build relationships with each other to offer assistance or resources if needed. If fleet managers meet quarterly within their region, they can discuss many fleet issues including coordination of mutual aid plans. Building a relationship with the fuel supplier builds trust to ensure the fuel supplier will deliver and arrive when the demand for fuel is critical. This builds public trust to ensure the fleet is prepared.

It is important to know the potential fuel needs of the agency to include vehicles, equipment and backup generators. Measure the amount of diesel fuel that generators burn when they are operating at an assumed full load for 24 hours a day. In an exercise with the water department, the amount of fuel consumption was calculated at 10,000 gallons per day for all the generators at critical sites. That is the same capacity of the diesel underground fuel supply for the City, not including fire apparatus and public works equipment. This would be the worst case scenario, but it was good to evaluate the needs and be prepared for providing a sufficient fuel supply for extended running of equipment or a plan for refueling.

Prioritize
During the natural disaster or emergency, the Emergency Operations Center (EOC) Action Plan should include a list of fuel suppliers and emergency generator vendors who can provide rental equipment or repair and maintenance services. There may be conflicting requirements for the fuel and it is critical that the Incident Commander or the EOC director prioritize the fuel supply needs during the event. Some operations may be shut down to focus on other restoration of other essential services. The priorities should be discussed at the beginning of each emergency shift so that the fleet is prepared to provide assistance to other departments and to anticipate any fueling, maintenance or repair needs. Fleets can provide additional operators or deliver fuel from the mobile fuel trucks to the sites. Departments must work together and not independently. During an emergency event, department lines within the organization become one, so that shared resources and expertise help the recovery efforts. Planning, preparing and prioritizing the fleet and fuel requirements during an emergency event will mitigate hazards and potential worse scenarios and assist the first responders.

APWA has a position statement, “Establishing a National Priority System for Fuel Supplies,” which may be used to support an emergency fuel supply plan in your agency. This document provides background on the issue and offers recommendations for providing fuel for essential public needs. It is available at http://www.apwa.net/be_involved/Be-an-Advocate, subtopic “Advocacy Priorities and Positions.”

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Alberta Chapter lends assistance to Southern Alberta flood relief

Patty Podoborozny, CET PWSIII
Operations Foreman, Public Works
Strathcona County, Alberta
Past President, APWA Alberta Chapter

In the days leading up to June 20, 2013, Alberta, Canada, experienced heavy rainfall that triggered catastrophic flooding described by the provincial government as the worst in Alberta’s history. Areas along the Bow, Elbow, Highwood, Red Deer, Sheep, Little Bow, and South Saskatchewan rivers and their tributaries were particularly affected. A total of 32 states of local emergency were declared and 28 emergency operations centres were activated as water levels rose and numerous communities were placed under evacuation orders. Four people were confirmed dead as a direct result of the flooding and over 100,000 people were displaced throughout the region. Initial estimates expect the total damage estimates to exceed $5 billion. Receding waters gave way to a mammoth cleanup of affected areas, aided by a spontaneous volunteer campaign in which many homeowners were assisted by complete strangers. South of Calgary, the town of High River was evacuated after flooding of the Highwood River caused water to rise over the top of vehicles in the town’s main streets and necessitated the rescue of over 150 people from the rooftops of their homes. All 13,000 residents of High River were ordered to evacuate on June 20, and the community was largely abandoned within three days as the town suffered what local officials called “unprecedented” damage.

The initial flood response in High River was handled by emergency services and military personnel. The EOC was activated and Incident Command practices were initiated. The recovery began as soon as the town was evacuated and residents were safe. As in all emergencies, public works plays a critical role in both response and throughout the process of recovery. The revitalization of roads, sewers, water systems and other public works infrastructure are essential to recovery. This is the work of our municipal public works departments and the work in which CPWA and our over 2,000 members in Canada proudly represent. This natural disaster was a stark reminder of how important public works and infrastructure systems are to the day-to-day survival of people and pledged to support public works officials and other first responders to provide information and coordinate relief in an effective, unified manner.
The public works community in Alberta is no stranger to mutual aid during emergent times. The APWA Alberta Chapter has assisted with the coordination of the public works volunteers throughout the province in the past. The Emergency Operations Center (EOC) contacted me, as President of the Alberta Chapter, on June 28 to assist with the procurement of resources for the recovery efforts. It was going to be difficult to fill the request for resources as it was the Friday afternoon of the first long weekend of summer. I downloaded our chapter membership list and started calling. Within twelve hours of receiving the call for help from the EOC our association had assisted with recovery efforts by deploying fourteen municipalities to High River. The municipalities sent equipment and staff based on the needs of the EOC. The municipalities had committed to be there as long as they were needed to assist with the recovery efforts.

The requests for resources also included supervisory positions. The APWA Alberta Chapter placed Darwin Durnie, President, Canadian Public Works Association, in the EOC to replace departing military personnel. Darwin remained there for weeks and played a vital role in the recovery program of High River. The Alberta Chapter was founded to improve the quality of public works products and services to the citizens of Alberta. Public works professionals understand that education is a lifelong activity, and that a person’s peers are often the best source for information, practical advice, and personal support. APWA members can be found throughout the public works community in our beautiful province. They plan, build, manage and maintain billions of dollars worth of public infrastructure, and do it well. Often it is at the chapter level where members make personal connections, network and can take advantage of local educational programs. Those personal connections developed through APWA had proven to be the key to mutual aid throughout this past summer to High River. The municipalities that assisted in the flooding expressed how the experience had changed their own perspectives on mutual aid.

Our chapter had developed an Emergency Management Database of municipalities that would offer assistance and expertise in an emergency. This was an initiative that was a direct result of our assistance in the Slave Lake fire in 2011 which forced the evacuation of 7,000 residents. At the time it was considered the second most costly disaster in Canadian history behind the ice storm that hit Québec and Ontario in 1998. The database was used to e-mail municipalities throughout the province with daily updates on recovery efforts and requests for assistance. As the recovery process expanded, there were more requests for assistance to provincial and federal agencies. Municipalities were getting requests from multiple agencies for assistance and were unsure of whom to direct their inquiries to. The Alberta Chapter teamed up with the Municipal Affairs office and decided that we would look for equipment resources and they would focus on administrative resources. This partnership proved quite effective and resulted in more emergency management partnerships that facilitate mutual aid during emergent times.

Mutual aid is an agreement among emergency responders to lend assistance across jurisdictional boundaries. Alberta, with its abundance of natural resources and industry, is no stranger to risk management. It’s also no stranger to disasters, which have included floods, tornados, wildfires, pipeline breaches, train derailments and transportation incidents involving hazardous materials release. It was an emotional summer for all Albertans; I was deeply moved by the support given to each other during the displacement of over 100,000 people. Albertans will never forget the summer of 2013, our communities will come back, we will be different but we are closer than ever before. The dedication of public works professionals during this event will never be forgotten and they will be remembered as “unsung heroes” for years to come.

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It’s time for TIM: Public Works and Traffic Incident Management

Dave Bergner, PWLF, Monte Vista Associates, LLC, Mesa, Arizona, and member, APWA Emergency Management Committee; Kimberly C. Vásconez, MPA, Team Leader, Traffic Incident and Events Management, Federal Highway Administration, Washington, D.C.

“Traffic Incident Management
Traffic incidents, defined as the unplanned, unexpected disruption of the normal flow of traffic, occur everywhere, every day. According to chapter 6-I of the Manual of Uniform Traffic Control Devices (MUTCD), traffic incidents are classified as:

- Minor – duration of 30 minutes or less
- Intermediate – duration of 30 minutes to 2 hours
- Major – duration in excess of 2 hours–24 hours; beyond that the traffic incident management area (TIMA) is handled the same as a regular temporary work zone.

The MUTCD 6-I provides guidelines and requirements for establishing a TIMA. Responders should wear hi-visibility vests, safely position their vehicles to protect themselves and persons involved in accidents, direct traffic by appropriate use of vehicle emergency lighting flagging, cones, signs and other devices, and coordinate with other responder disciplines and jurisdictions to reduce secondary crashes and undue travel delays.

Public Works Involvement Expanding
Because most traffic incidents are due to vehicle accidents, police, fire, emergency medical services and tow trucks are the typical responders. However, public works/DOT agencies are often needed to assist with traffic management in major incidents or in lesser incidents with particular needs. Public works/DOTs are also needed for removal and repair of damaged pavement, structures or roadside devices, and clearing debris. In some jurisdictions the PW/DOT agency may be involved in haz-mat containment or cleanup.

Many law enforcement vehicles carry little, if any, temporary traffic control equipment. Fire trucks typically have some cones and a few signs, ambulances normally have none, and tow trucks may only have a few cones. So who has sufficient temporary traffic control devices (TTC), vehicles

As police and fire adopt TIM concepts and practices they likely will be calling more often for our assistance to handle incidents.”

Interested in serving on APWA’s Board of Directors?

Nominations for APWA Board positions are due at National Headquarters on Tuesday, April 1, 2014. Nominees’ names will be released to the National and Regional Nominating Committees to be determined for ballot by May 20, 2014. Ballots will be available for voting online for full membership from June 26-July 28. Elected Board members will be introduced at the opening session of the 2014 Congress in Toronto. For more information contact Cindy Long at National Headquarters, clong@apwa.net or 816-595-5220.
and personnel to handle a large or extended TIMA? Obviously that is the local PW/DOT agencies that have a large quantity and assortment of TTC devices and personnel experienced in temporary traffic control for work zones, special events and emergencies. Also, at some point, police and fire will realize that positioning their vehicles as “blockers” not only prevents them from being used elsewhere but places them at risk of being struck by errant traffic. A fully-rigged pumper truck can cost over $500,000 and take a year or more to replace. PW/DOT dump trucks, however, cost a quarter of that and can be replaced in a few months, and jurisdictions usually have more dump trucks than fire trucks. Even better as a “blocker” is a dump truck with crash attenuator.

**Need for Training**

Nearly all PW/DOT Maintenance and Operations personnel are certified in Temporary Work Zone Traffic Control, by the International Municipal Signal Association (IMSA), American Traffic Safety Services Association (ATSSA), the state LTAP or by the agency itself. These workers know how to properly and safely move traffic through an obstructed roadway but the other responder disciplines lack this capability. It’s not that these responders are resistant to TTC training; in fact, most want to learn but there has been little formal training available. A few agencies provided rudimentary classes for responders; an example is the course by William “Rusty” James, Incident Management Coordinator for KC Scout, the bi-state traffic management agency created by the Kansas and Missouri Departments of Transportation. James, a former police officer, has conducted many courses in the Kansas City area as well as workshops and meetings that have fostered better communication, coordination and cooperation among the various disciplines and jurisdictions. “Now they have a better understanding of the need for proper traffic control and that they all need to work together,” said James. “Police, fire, EMS and towing no longer argue over who’s in charge.”

**The TIM Responder Course**

However, there was no standard training available nationally until recently. The National Traffic Incident Management Coalition (NTIMC), formed by the Federal Highway Administration (FHWA) in 2004,
promoted the development of the Traffic Incident Management for Responders course introduced in late 2012. Kim Vásconeæ, Team Leader for Incidents and Event Management with the FHWA Office of Operations, oversees the implementation of the four-hour, no-cost course and the Train-the-Trainer course. “Our goal is to have over 2,000 instructors and upwards of 86,000 responders trained by December 2014,” said Vásconeæ.

“Public works and transportation employees are needed, both as instructors and attendees as this is an all-discipline course.”

PW/DOT maintenance workers will already be familiar with the temporary traffic control aspects of the course. Many PW employees have also had the basic Incident Command System courses (ICS-100, 200, 700), the foundation for TIM operations. Through discussions and a tabletop exercise, all participants will gain a better understanding of the role of each discipline and the importance of following standard practices. PW/DOT traffic management engineers, technicians and dispatchers should also attend. “Police and fire, prior to taking this course, did not realize just how important public works and transportation departments are in helping to manage traffic incidents,” Vásconeæ stated.

Courses are usually scheduled by each state’s coordinator but can also be hosted directly, at no cost, by local PW/DOT agencies or related professional organizations. In fact, IMSA plans to hold the TIM Responder course at its 2014 Annual Meeting and possibly at section meetings jointly with APWA chapters throughout the year. For more information about the TIM Responder or Train-the-Trainer courses please contact James Austrich, TIM Training Program Manager, FHWA, at james.austrich@dot.gov.

Aside from the FHWA course, free online training is available through the Emergency Responder Safety Institute (ERSI) at http://learning.respondersafety.com. Also, the I-95 Corridor Coalition has a free interactive virtual training program that puts the participant in different responder roles available at: http://www.i95coalition.org/i95/Training/IM1stRespondersVirtualTraining/tabid/189/Default.aspx.

Additionally, APWA’s Emergency Management Committee is revising the Highway Incident Manual at the request of the National Incident Management System Consortium (NIMSC). The updated manual will have more of a public works perspective; one chapter extensively covers TIM and includes a case study of public works involvement in a major incident. Similarly, the National Fire Protection Association’s Committee on Professional Qualifications for Traffic Incident Control Management includes a public works/transportation subject matter expert. It is developing standards and a course that will be open to all disciplines.

Vásconeæ met with the Executive Directors of APWA and IMSA this year to gain their endorsement and support for the TIM responder training. She also addressed APWA’s Transportation and Emergency Management Committees at Congress. A Public Works/Transportation Senior Leaders’ meeting with FHWA is planned for early 2014. Top-level representatives from APWA, IMSA, ITE, and others will discuss why and how our discipline can be more involved in TIM.

Traffic Incident Management is vital to keeping responders and the public safe and reducing unnecessary and costly congestion. The surface transportation system—highways, roads, streets—is the “business” of public works/DOTs. It is our core function to maintain and operate the system for safe and efficient movement of traffic. As police and fire adopt TIM concepts and practices they likely will be calling more often for our assistance to handle incidents. The TIM responder course is an excellent opportunity for all disciplines, including public works, to better recognize, relate to and respect each other.

Dave Bergner, PWLF, is a retired Public Works Superintendent and former Emergency Services Planner. He is a member of APWA’s Emergency Management Committee and the Representative for IMSA to the National Traffic Incident Management Coalition, the National Fire Protection Association’s Committee on Traffic Control Incident Management and the Transportation Research Board’s TIM Subcommittee. Contact Dave at dbbergner@gmail.com.

Kimberly C. Vásconeæ is team leader of Traffic Incident and Events Management in FHWA’s Office of Operations. Her team develops national policy, guidance, and tools for TIM, traffic planning for special events, incident management for transportation officials, and disaster transportation planning. Vásconeæ has 23 years of disaster management experience with FHWA, the U.S. Department of Homeland Security, the Federal Emergency Management Agency, and the U.S. Agency for International Development. She holds a master’s degree in public and international affairs. Contact Kimberly at kimberly.vasconeæ@dot.gov.
North Central Texas: Preparing for a regional response to disasters

Bob Kopp, Director of Public Works, City of Carrollton, Texas; Ronnie Bates, Public Works Manager, City of Grand Prairie, Texas

Background
North Central Texas, as described by the North Central Texas Council of Governments (NCTCOG), consists of a 16-county region centered around the two urban centers of Dallas and Fort Worth.

The region faces a diverse spectrum of weather threats. These include thunderstorms, flooding, winter weather, and excessive heat and fire conditions.

On average, the Dallas-Fort Worth area experiences sixty days of thunderstorms each year. From January 2006 to December 2011 there were a total of 1,517 severe weather reports. Of those, 1,003 were events with severe hail in excess of one inch in diameter reported, 378 instances of damaging winds greater than 58 miles an hour and 136 tornados were reported. Direct property damage attributed to those storms totaled over $294 million, not taking into account the additional economic impact which is estimated in the billions. The potential threats are significant, can impact multiple cities simultaneously, and available resources can be quickly consumed.

The NCTCOG Regional Emergency Preparedness Advisory Committee (REPAC), a technical subcommittee of the Emergency Preparedness Planning Council, makes recommendations for policy direction to develop and maintain a coordinated and integrated approach to emergency management planning for North Central Texas.

This group also handles grant administration procedures for the State Homeland Security Program.

In the fall of 2011, Public Works Directors in multiple forums, including the North Central Branch, Texas Public Works Association and the Public Works Council, NCTCOG, expressed growing concerns about critical resources needed for emergency responses. Although Texas municipalities were in various recovery stages of the economic downturn, those years of scarcity had aged more equipment and delayed other needed purchases. As a result, a series of Public Works Emergency Response Roundtables, hosted by the NCTCOG Emergency Preparedness Department staff and advisors from the REPAC, were held. The goal was to energize an action plan and strategy to enhance public works capabilities for an all-hazards emergency response by leveraging regional resources. This motivated group created the Public Works Emergency Response Team (PWERT) within the NCTCOG organizational structure to provide public works assistance when a disaster overwhelms a local jurisdiction.

The PWERT’s Planning Efforts
The first major task undertaken by this group was to establish a public works regional mutual aid agreement to provide planning and operating procedures where agencies could request local and timely aid and assistance. The agreement is complimentary and doesn’t replace or supersede the Texas Statewide Mutual Aid System in Texas Government Statutory Code.

Indian Creek flooding in Carrollton, Texas
There were multiple sources and references used to create the agreement. The first thanks goes to the APWA Solutions by Topic, Emergency Management website as the Illinois Public Works Mutual Aid Network and several other systems were used as the templates for this effort. Another good reference was the Dallas County Mutual Aid Agreement for fire response. REPAC members and the NCTCOG staff provided excellent feedback during the review process.

During discussion between public works officials, one director at a small city made a comment that their agency is very small and they would likely be more of a recipient of aid as opposed to a provider. Could they still be considered as a contributing member of the mutual aid agreement? The response from the group was for that city to join up, become a member; and there may come a day when their one backhoe or dump truck might be the critical equipment for another city to recover.

The feedback and support has been tremendous. The “founding fathers” from Carrollton, Grand Prairie and Colleyville initiating this process had hoped to recruit six to eight public agencies in the first year. The good news, as of October 25, 2013, was that there were 28 jurisdictions supporting the regional agreement and more in the planning pipeline.

Key provisions for mutual aid
The agreement establishes a non-reimbursement operational period of 36 hours for responding agencies. The intent is to stabilize the initial situation with quick collaborative/joint responses from neighboring organizations. The requesting and responding agencies would negotiate reimbursement terms for support beyond the operational period, not contained within the provisions of the agreement. Any and all support by the responding agencies is voluntary; there is no obligation to commit resources.

The procedures are clearly laid out and include checklists to use for both the requesting and responding agencies.

The PWERT has established an Emergency Standby Roster to administratively assist agencies requesting support as needed. An informative PWERT website has been established and can be found at: http://www.nctcog.org/ep/Special_Projects/PWERT/Index.asp.

The Road Ahead
The quick success of the agreement process dictates considerable administrative processing. Credentials for the standby support roster are being validated and ID cards will be distributed. The resource typing inventory for equipment is in the collection stage for a comprehensive web-based repository. Discussions for regional training exercises are underway. Additionally, the PWERT is a forum to consider State Homeland Security grant needs. While considerable progress has been made, many tasks remain.

The Bottom Line
This agreement has been a catalyst leading to many operational and disaster preparedness benefits. Interaction and collaboration between emergency management and public works personnel has gotten stronger. There is better recognition that public works crews are initial responders. More emphasis has been placed on emergency management training and education. The networking has expanded to look at leveraging other public works operational opportunities. Most important, there is a greater sense of regional resiliency that neighboring public works teams are ready to help—quickly and efficiently—during a time of crisis.

Bob Kopp is a member of the NCTCOG Public Works Council and can be reached at robert.kopp@cityofcarrollton.com or (972) 466-3181.

Ronnie Bates is Chairman of the NCTCOG PWERT and can be reached at Rbates@GPTX.org or (972) 237-8525.
For this article I am focusing on procurement and bartering for debris management and FEMA reimbursement, but bartering can be used for many activities.

Bartering is when there is an exchange of goods or services without exchanging money. It is based on the fair market value of goods and services received in exchange for goods or services you provide or may provide under the bartering arrangement. Bartering is the trading of one product or service for another. Barter may take place on an informal one-on-one basis between individuals and businesses, or it can take place on a third-party basis through a modern barter exchange company. The term does not include arrangements that provide solely for the informal exchange of similar services on a noncommercial basis.

There is always a chance that a declaration is declared but does not include debris removal. You have to get rid of the debris no matter either way. You cannot count on FEMA for reimbursement. Also, FEMA will only pay what was paid. Overtime labor and all equipment hours are allowable and reimbursable. You still need to document everything, taking pictures of the piles, how many hours it took for the removal, how many loads that were disposed of, and the labor and equipment. You must be able to have supporting documents that match the driver with the truck. Regular labor is not allowable but the equipment is.

Do you have a dirt removal project that is unresolved as well? A pile of dirt happens because of displacement. You need to dig up something to plant or remove. The result is dirt. But dirt can’t easily be thrown out. There are weight limits as to how much you can throw out in the weekly garbage pickup. Of course, if you’re filling up your garbage can, then there is no place for your trash to go. This doesn’t mean you shouldn’t take on a project in your yard that will require dirt displacement. It only means you need to partner up with a proper dirt removal company that would be willing to enter into an agreement. Right now the Town of Herndon pays to have our dirt disposed of around $50 a load and we haul it to their site. The company we supply the dirt to uses it for fill dirt. There are times we even screen the dirt. That does not make sense to me. We have a commodity that they can use but we clean it up then pay them to take it. The same with yard waste and brush, the company will make compost or mulch to sell. We pay to dispose of yard waste and brush.

As reported on the FEMA website: In summary on August 25, 2005, high velocity winds generated from Hurricane Katrina produced large amounts of vegetative debris throughout the Village of Key Biscayne. The Applicant entered into a time-and-materials (T&M) contract with All Florida Tree and Landscape, Inc. from August 26 through September 27, 2005, to remove hazardous trees, tree limbs, and stumps within its jurisdiction. PW 385 in the amount of $208,522 to document the contract costs. During project closeout, FEMA determined that the work performed under the T&M contract extended beyond the initial 70-hour period that FEMA allows for emergency debris clearance and that the contract equipment rates were unreasonably high when compared to established FEMA equipment rates for applicant-owned equipment. FEMA allowed the contractor equipment rates for the first 70 hours of emergency debris clearance and adjusted the rates to match FEMA equipment rates for the remainder of the contract. This resulted in a reduction of $37,817 with adjusted total funding of $170,705.

They did not follow the contract laws. For a time and materials contract your actual worked hours must be kept under 70 hours. Also, FEMA determined that the contractor was charging too much. If they had a bartering agreement this may have had a better outcome. Writing standard contracts, Time and Materials or Firm Fixed Price contract cost increases are experienced as contract cost overruns. Other times the failure is not taking into account “hidden costs” such as the administrative costs of seeking proposals, evaluating bids and monitoring the work. Hidden costs for the community can include reductions in wages and health benefits under private contractors,
Seattle recently experienced a dirt slide that occurred and blocked a road. Seattle residents who live near hillsides are all too familiar with this type of problem. The dirt tumbled down 55th SW blocking the access to Alki Beach. The Seattle Department of Transportation was alerted and a crew was dispatched the following day to handle the cleanup effort. Until then residents had to find a way to drive around the mess. Then there was the issue of who was going to pay for the cleanup. Is it the responsibility of the slope’s owner? Or does the City of Seattle pick up the tab because the dirt fell onto a public roadway that they’re supposed to maintain? According to officials at SDOT the question of who is going to foot the bill has not been resolved. That was not a FEMA Declaration but the dirt still needs to go somewhere. If they had a bartering agreement in place at least they would not have to incur the cost of the disposal of the dirt.

Another application is that the Town of Herndon provides leaf collection. We have been able to find places that will take our leaves at no cost. We just make sure that it is a legal disposal site. There are times that residents would like the leaves for mulch in which we have them sign an agreement.

On the garbage side, ferrous and non-ferrous metals are recovered for recycling. These materials are sold to outside vendors and are a source of recycling credit for the county. The remaining garbage is shredded to produce refuse-derived fuel, which is used to generate electricity. On the trash side, the material is sorted and shredded. Magnets separate recyclable ferrous materials and high-grade soil is removed through a series of trommels. I am for a barter system, but I want to see it developed before the fact.

I have been in many phases of public works for 27 years. Being in public works we are constantly required to provide more services with fewer resources. Give them a reason to confiscate, and they surely will move in that direction in favor of revenue enhancing programs. Not having to pay for the disposal of debris would help financially. At the Town of Herndon we also pay to dispose construction items like busted-up concrete that can be ground up and reused in new mixes.

In major disasters cash may be of little value if you cannot find what you need being offered by a seller wanting cash. A better option may be to create survival barter clubs in each community. Members of the club would list survival items they plan to keep in surplus, and offer in trade during a major emergency that disrupts normal supply chains. These clubs would be most easily organized in communities living under the threat of disaster, while being aware of any harm that might come to them. In a community with no known disaster threat, such barter clubs would probably be difficult to organize. However, having a survival barter club at the right time and place, in the event of emergency, can help save many lives.

When Hurricane Katrina swept through New Orleans in 2005, she not only devastated the city, she took away the supplies that the residents needed to survive. She took out the electrical systems as well—meaning that the residents that remained had to make do with the cash they had on hand to survive.

What do you do if you have no cash, but need supplies in the event of a disaster? You barter. The idea behind bartering is simple. You trade an item you have for one that you need. In everyday bartering you can offer any number of products or services to bartering partners. If you are creative, you can make artwork, crafts, or other items to trade for the items you need. You could even offer services, such as house cleaning, copywriting, or consulting, to provide value for the people with whom you barter. Emergency bartering works the same way—but you will be offering items you have stashed away in exchange for the goods and services you may need to survive.

Bartering can be used for many other applications. There are bartering groups online for household items.

In the meantime, by bartering we develop relationships within the group, and also learn who can and cannot be trusted/relied upon. The degree of severity of the event of disorder at your location has a lot to do with the need for barter items. Bartering is still new to the Town of Herndon, so they are very reluctant to try bartering for disposal of household debris.

I found what looks like a good contract online, between the State of New Jersey and AshBritt, Inc.

In conclusion, I feel we can do so much with bartering. It is all in how you would write your agreement or contract. I also feel that it could save money.

You may contact me if you have any questions, concerns or ideas – mary. wilson@herndon-va.gov.
When a disaster strikes, first responders play a crucial role in saving lives. Who are the first responders—police, firefighters, or medical services? If there are trees or debris on the road which prevent these first responders from accessing the site, who would you call? The role of public works professionals during an emergency may sound obvious, but they are rarely referred to as first responders. Valérie Céré gave a presentation to the delegates of the 2013 Canadian Risk & Hazards Network (CRHNet) Symposium in Regina, Saskatchewan, in November. The CRHNet is an interdisciplinary and cross-sectorial network of researchers, academics and practitioners working to enhance the understanding of emergency management in all dimensions and to help build Canadian capacity to deal effectively with threats and consequences from all hazards. The purpose of her presentation was to explore how we can involve public works professionals more in emergency management planning and recognize their vital role as first responders.

Public works is not just about picking up garbage, cleaning up the roads, and maintaining the waterworks. It is also about public safety and prevention. The role of public works is to maintain and ensure the security of waterworks systems, water treatment plants, sewage treatment plants, the removal of debris and waste, the maintenance of roads and bridges, deicing and snow removal in order to avoid pile-ups and accidents. They need to keep tabs on and know weather patterns in order to do a timely job, but most importantly it is to ensure a safe route for emergency vehicles. If they fail in these activities, the community’s physical infrastructure and public safety are negatively impacted. Public works professionals’ strength in emergency management is that they know their community by heart.

One comment imagined by the audience was that, “The people doing the overall planning for the community, perhaps should not be with the first responders. Quite often the community’s land use planning rests with the planning and public works departments. Because of their planning, it is possible that a lot of disasters will have disappeared because they were avoided ahead of time. First responders, on the other hand, focus their planning on response activities, and have very little to do with land use planning. I am not saying that first response does not belong, but right now first response is prime when you look around at most emergency managers, so maybe it would make more sense to bring some of your emergency management people right from the public works side or the planning side as opposed to just first response side.”

Valérie’s response to this was that she felt that first responders have to be at the table before or while the community is doing the planning. She pointed out that she was not advocating a shift of emergency management responsibility from one department to another but to be inclusive in emergency management preparations and have many departments involved in the community’s preparation, with each addressing what they are best at: to be more collaborative, to try to break down the silos and have a general team of disciplines that think about emergencies or disasters, establish networks, and have the conversations ahead of time. “You have to know who your partners are before a disaster; you have to train together; and you have to exercise together. What I’m talking about is multidisciplinary meetings trying to figure it out together, not just public works, not just firefighters, policemen or emergency medical technicians, but everybody together. It’s more of a partnership and trying to have a team of people where one of the persons on the team is from public works.”

Some of the issues that came to light from the presentation and the discussion that followed include:

- Networks have to be formed between agencies before a disaster strikes.
- Training needs to be available for everyone involved in emergencies. Most of the problems lie in small rural and remote communities where training opportunities are not readily available to those who need it. Another aspect of the training is that we must move...
away from a response-based focus on emergency management to one of resilience based.

- The APWA Québec Chapter is trying to get the knowledge to rural communities and to do emergency management training specifically for public works, but not all Canadian provincial chapters of APWA are approaching this issue in a uniform manner. Some chapters have emergency management subcommittees, others don’t.

- Provincial engineering societies and associations would be good partners for public works departments.

- Associations like the American Public Works Association where there is an Emergency Management Committee are a great resource, but the issues in Canada are different than those in the United States. APWA is in the process of developing a Canadian Emergency Management Subcommittee to address Canadian issues.

- Also, different groups with different strengths need different training to build on those strengths. Public works professionals practice the four pillars of emergency management on a day-to-day basis but typically only has response-based training to draw on (ICS, etc.). What they don’t have is training on setting up programs for resilience for their areas of responsibility.

- Public works directors are concerned about emergency management and are trying figure out what their role is and how they can get more involved in their community’s emergency management planning and preparedness.

Valérie Céré, RN, has a Master of Arts in Disaster Anthropology. She is a board member of the CRHNet and acts as a liaison with the APWA Québec Chapter (ATPA) where she leads their Public Works Emergency Management Committee. You can reach her by e-mail at vcere@me.com and have access to her publications through her LinkedIn profile at http://ca.linkedin.com/in/valeriecere.

Bruce Kerr has a Master of Arts in Disaster and Emergency Management and is now an emergency management consultant after working for 35 years in public works. He can be reached at bruce.kerr@shaw.ca.

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Do you know the critical points in your distribution system?

Tom Hickmann, Director of Engineering and Infrastructure Planning, City of Bend, Oregon, and member, APWA Water Resources Management Committee; Elsinore Mann, Project Engineer, Optimatics, Chicago, Illinois; and Heidi Lansdowne, Project Manager, City of Bend, Oregon

The City of Bend serves about 75,000 residents in Central Oregon, located at the base of the Cascade Mountains. The City of Bend has two high-quality water sources—surface water collected from the Cascade Mountains and groundwater from the Deschutes Aquifer. The surface water is collected 13 miles from the city limits and delivered by gravity to the distribution system. Groundwater is extracted from nine well sites with 25 wells located throughout the city. Other facilities include 15 finished water storage reservoirs, six booster pump stations, and about 420 miles of transmission and distribution mains. The Bend system is operationally complex, with 80 control valve stations serving seven primary pressure zones and numerous subzones.

With this complexity in the City’s distribution system, the City wanted to know: how critical is any given pipe in its system? If a pipe breaks, how many customers are impacted? What types of customers are impacted? How many valves does it take to isolate the break? These questions became evident when the City had a contractor dig into one of the distribution lines in the system. The crews responded rapidly and shut down one valve. When they shut down the valve the water stopped flowing to numerous customers which was both unexpected and alarming considering this was a looped system. But even more critical was a nearby brewery, with equipment reliant on continual supply at sufficient pressure, whose system shut down. This brewery is one of the major employers in the City of Bend. It was at this point it became clear that knowing the answers to these questions is as important as the pipes that deliver the water. As a result, the City completed a comprehensive pipe criticality analysis on its system using its hydraulic model.

The effects of a distribution system pipe break can be significant and costly in time, resources, and public health, including:

- loss of supply to critical customers (hospitals, key industrial customers, etc.)
- reduced system pressure
- potential contamination of potable water
- reduced firefighting capacity
- property damage
- traffic disruption
- decreased public and city personnel safety
- loss of public confidence

A pipe criticality analysis provides insight into a system’s vulnerability to pipe breaks and can help answer the key questions mentioned above: Which pipes, if broken or isolated, cause the most disruption? Can my critical customers be supplied? Where should the city focus replacement or rehabilitation efforts?

To prepare for this analysis City crews began a massive effort to collect information on valve locations, verifying size and operability, control
valve settings, and in the process discovered numerous valves had been closed reducing looped areas of the system. The valves had been closed without consent of the City by private contractors that were constructing new developments. This effort alone was found to be as informative as the subsequent criticality analysis. The discovery of so many closed valves caused the City to modify its oversight of new development and any other construction activity that had need to access the City distribution system. Once the City had collected all of the system information it was only then that the criticality analysis could begin.

The analysis simulated breaks for every main in the system and generated results on system pressures, flow velocities, customer supplies, and system vulnerabilities. The information was used to prioritize capital improvement expenditures to strengthen the system. Understanding which parts of the system were most vulnerable also prepared the City to plan for, avoid, or respond to breaks.

The minimum data required for a consequence-of-failure analysis is a calibrated steady-state model and details of shutoff valves (location and operability). In this study, a pipe criticality analysis program evaluated 9,980 pipe segments and generated results for break and isolation conditions. The analysis revealed that more than 95 percent of the City’s system pipes could be isolated by closing four or fewer valves—a good outcome. Two areas required seven or eight valves to be closed to achieve isolation, and in both cases all valves were in close proximity. When valves are maintained and operable, system operators should be able to isolate breaks for repair in a timely manner.

The analysis also revealed that 120 pipes (1.2% of total pipes), if broken, adversely affect pressure at more than 1,000 nodes in the system. Pipes that cause low pressure at more than 1,000 nodes indicate locations where the City should focus on limiting the effects of breaks through system improvement or measures to reduce potential failure. In addition, the analysis tracked which pipes were most critical to the supply for critical customers, highlighting where additional piping connections may assist with improved supply reliability.

Using the criticality analysis provided the City with a guide for future replacement investments along with a tool that operations can utilize to guide maintenance efforts. It also allows the City to know how many customers are impacted, and more importantly, which customers are most impacted as a result of breaks. The City can also be confident that the majority of pipe breaks can be quickly and easily isolated.

While the outcome was very helpful in guiding system investments and priority of maintenance and repair, none of this is possible without the incredibly dedicated staff. This project not only pointed out the critical physical aspects of the City’s distribution system, it highlighted the critical importance of operations and engineering staff working closely together for the benefit of the citizens of the City of Bend.

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Interoperable communications for first responders: SAFECOM

Philip R. Mann, P.E.
Assistant Public Works Director
City of Gainesville, Florida
APWA Representative to SAFECOM and PSAC

On September 11, 2001, all across the United States, first responders from many agencies were called into service to address the terrorist attacks on our country, to provide mutual aid to one of the many impacted areas, or to make preparations in their own communities for possible additional attacks. One of the issues that faced most first responders was the lack of interoperable communications systems and the inability to share data between agencies.

As a result of that lack of interoperability and additional lives that may have been lost during the terrorist attacks, many first responder groups, including APWA, banded together to push for reforms and standards to prevent this from happening again. It is critical that we not only learn from our mistakes but work to avoid repeating those mistakes.

SAFECOM was established in 2001 as a Presidential E-Government Initiative as a public safety communications program of the Department of Homeland Security (DHS) and is supported by DHS’ Office of Emergency Communications (OEC). SAFECOM is made up of 34 tribal and professional associations. APWA was one of four transportation, public works and utility associations appointed to SAFECOM. The American Association of State Highway and Transportation Officials (AASHTO), Forestry Conservation Communications Association (FCCA) and International Municipal Signal Association (IMSA) are the other three.

Since 2001, SAFECOM has been the champion to promote the use of technology, resources and processes related to emergency communications and interoperability. SAFECOM has also served as the forum to educate the various associations’ members as well as provide feedback to DHS-OEC from their respective memberships. SAFECOM membership agencies also support the implementation of the National Emergency Communications Plan (NECP), the Statewide Communication Interoperability Plans (SCIP) and the Nationwide Public Safety Broadband Network (NPSBN).

Now that you have some history of SAFECOM, what does it do and mean to you as an APWA member? Via our membership in SAFECOM, we lobbied for legislation to not only develop the NPSBN but also to reserve the communications spectrum to implement that network. In 2012, the Middle Class Tax Relief and Job...
Creation Act of 2012 reserved the “D” Block spectrum for the NPSBN and also established FirstNet.

FirstNet is the federal agency that is tasked with developing and building out the NPSBN. The Act also requires that FirstNet establish an advisory committee to assist in the development of the NPSBN. The Public Safety Advisory Committee (PSAC) is the advisory committee that was developed to advise FirstNet and APWA has representation on the PSAC.

Over the years, SAFECOM membership has contributed to reviewing the existing land mobile radio systems (LMRs) utilized by first responders and analyzing issues that led to the lack of interoperable communications. The research also has included reviewing new and emerging technology to ensure that any new items will adhere to the standards promulgated by the FCC and not interfere with existing or future systems.

SAFECOM participated in the discussions on the narrow banding and the need to better control the radio spectrum as well as to expand the existing limited spectrum.

From the PSAC perspective, the current pressing issue is the “opt in/opt out” clause provided in the legislation. Each state must decide whether to participate in the FirstNet developed network or opt out of the network and deploy a state-specific Radio Access Network (RAN) that can connect to the FirstNet solution.

As we move forward in time, it will be important that APWA member agencies keep abreast of their states’ opt in/opt out decision. As the network is constructed, public works services and infrastructure records/mapping are going to become the baseline data for this network.

It will be important that, when public works agencies respond for mutual aid, the first responders have access to public infrastructure. This will be particularly important during a tornado or hurricane or other large-scale natural or man-made disaster.

If you have any questions on SAFECOM or PSAC, please feel free to contact me at (352) 334-5072 or mannpr@cityofgainesville.org.

APWA’s Awards Program recognizes individuals, groups and chapters for their outstanding contributions to the profession of public works. Some of the awards presented include Professional Manager of the Year Awards, Young Leader, Public Works Project of the Year, and Top Ten Public Works Leader of the Year, to name just a few.

Each award is listed on the APWA website. Criteria and nomination forms for the 2014 Awards Program are now available online.

Nominations are due March 3, 2014!
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“Regarding your second Q&A last month, how would you answer when considering the high cost of water used to wash recycled items in the arid or semi-arid southwest? My wife asked the apt question, ‘Hmmm... Do I shower, or do I wash out the recycling?’ Looking forward to your thoughts.” – Rocky

My gut reaction is to ask, “Which process improves things around your house?” I’m only guessing, but I’d almost bet it would be taking a shower over rinsing out the recycling. Perfume only lasts so long! However, for a more pertinent response, the sources I conferred with say they all encourage recycling to be rinsed and the purpose is to make it easier for the separation of products to be made at the collection center. All impurities, including food scraps, must be separated from the glass, plastic, tin, or aluminum to ensure a high-quality material that will be used in a new product. However, the world won’t come to an end if items are not rinsed thoroughly as each product requires a specific cleaning and filtering process and, hopefully, the plant will catch it before it sends the products out. For instance, when aluminum cans are recycled, their decorations and coatings are burned off, so any residual food wastes would be burned off, too. In plastic recycling, after the material is granulated into flakes and before they are turned into plastic pellets, the plastic flakes go through a cleaning process. The tin recycling process is made up of a series of chemical and electrical steps which separate, purify, and recover the steel and tin. Hope you make the right choice!

“We are in the middle of our self-assessment working towards Accreditation and have realized we are required to have some kind of employee recognition program. Currently, we have nothing more than a thank-you and probably can’t afford much more. So, how do we meet this requirement?”

This question comes up every so often. Recognizing your employees for things they have done above and beyond their normal duties, or for providing great customer service to a resident, or for a great suggestion that led to improving your operations or cutting accidents, should never be considered “too expensive.” Fostering communication and good ideas, as well as being able to satisfy your residents, is a crucial part of what every public works employee should be doing. If you are saying your public works budget doesn’t have funds to develop a program, then discuss a combined program with all city departments which would require a minimal contribution from each one. Better yet, encourage your human resources department to set up the program! While reviewing the Management Practices in Edmond, Okla., recently, they shared the program they have developed which they call, “Caught in the Act.” Employees who are commended by a citizen for an outstanding job of resolving an issue, another employee who observes a worker correcting a dangerous situation, or whatever the issue may be, can receive a gift card to a local business. The monetary value is determined by the level of action taken by the employee and runs from $5 to $50. The simple reward program has led to a more cognizant and committed staff as they work together to carry out the city and the department’s mission. For more information on Edmond’s program, contact Jan Wells at jan.wells@edmondok.gov.

“We have recently added more bike and pedestrian lanes on our streets and we have been receiving some requests for more streetlighting along these areas. We really hadn’t planned to install extra streetlights. Is there any alternative?”

According to a recent article in Better Roads magazine, an England-based company...
has created an artistic and energy-efficient way to illuminate bike and pedestrian paths with a glow-in-the-dark pavement solution. The coating, Starpath, sprays onto most solid surfaces, including cement, wood and tarmac. The particles in the veneer absorb sunlight during the day, then use the harvested sunlight to illuminate itself after dark. Starpath can light up in one of four colors: blue, red, gold or green. The article notes that along with its ability to provide light at night, its non-reflective, anti-slip and waterproof qualities also work to improve safety for pedestrians and cyclists, even during the day. The company that created Starpath did so with a goal of ensuring the safety of pedestrians and cyclists while reducing the costs associated with streetlights. While it isn’t like the new glow-in-the-dark paths will ever completely replace streetlights, it could certainly be an interesting addition to parks and roadsides with dim lighting. To read the article, visit http://betterroads.com/glow-in-the-dark-pavement-coating-improves-safety-for-cyclist-pedestrians/.

Ask Ann...

Please address all inquiries to:

Ann Daniels
Director of Accreditation
APWA, 2345 Grand Blvd., Suite 700
Kansas City, MO 64108-2625

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is the lowest price ever offered anywhere in the world and will not last long. Visit www.trafficplanconnect.com or call (972) 547-6629 and mention that you are interested in the government pricing.

**Riverside Mfg., LLC helps Allen County Highway Department get better control of vehicle electrical systems**

*Riverside Mfg., LLC*, an industry leader specializing in the design and manufacture of electrical systems and products for harsh environment vehicles and equipment, announces the implementation of its **SmartTek 8-Button Switch Panel and Mini I/O Control Module** on Allen County Highway Department vehicles. The technology is replacing previous aging and difficult-to-use rocker switches to help drivers control more items within the vehicle. The combined SmartTek product is a solid-state controller area network (“CAN”) based module for electrical systems which distribute electrical energy to power external headlamps, turn fans on and off, control internal dome lights and more. By having an easy-to-use interface with a high number of power switch inputs, the product allows a user to more efficiently operate vehicle electrical systems. To learn more about Riverside Mfg., LLC, visit http://www.riversidemfg.com.

**V080 & V130 Directional Control Valves**

*Muncie Power Products*, an innovative leader in the Fluid Power market, has announced a new family of **mobile hydraulic directional control valves**. The first two series, the V080 and V130 series, are high-pressure sectional valves that can be configured with a full array of spool, control, and positioner options. Designed for flow capabilities of up to 60 GPM, these valves offer superior performance in a compact package, and can be configured with custom options. Call us at (800) 367-7867 to put yourself in control of your hydraulic systems with Muncie’s V080 and V130 directional control valves, or visit www.munciepower.com/valves.

*Five Holcim plants received EPA’s ENERGY STAR® for superior energy efficiency*

Holcim (US) Inc. has announced that five of its plants earned the U.S. Environmental Protection Agency’s (“EPA”) **prestigious ENERGY STAR®**. The Holly Hill plant in Holly Hill, SC, the Ste. Genevieve plant in Bloomsdale, MO and the Theodore plant in Theodore, AL are all receiving this award for the fourth time. The Devil’s Slide plant in Morgan, UT has earned its sixth consecutive award from the EPA and the Portland plant in Florence, CO has been honored for three consecutive years. The ENERGY STAR® is the national symbol for protecting the environment through superior energy performance. For more information about Holcim, please visit www.holcim.com.

**Hydro International’s Maintenance Certification Program**

Not all stormwater treatment BMPs are the same, and therefore should not necessarily be maintained with the same equipment and cleanout methods. **Hydro International’s Maintenance Certification Program** aims to ensure the **long-term protection of our environment against stormwater pollution** by making the maintenance of our stormwater BMPs as safe, easy and cost effective as possible. Hydro’s new program is unlike anything currently available and is offered at no charge to public maintenance personnel and private maintenance service providers. Maintenance contractors and municipal departments can find information on the Maintenance Certification Program on Hydro International’s website, www.hydro-int.com/us/products/service-parts.

**TYMCO announces full availability of Interim Tier 4 Model 500x**

TYMCO® has announced full availability of **Interim Tier 4 (iT4) auxiliary engines** for the Model 500x High Side Dump Regenerative Air Street Sweeper. For the past several
years, the Model 500x has been powered by a John Deere Tier 3 auxiliary engine. John Deere IT4 engines in the horsepower class required by the Model 500x have recently become available and TYMCO is now offering full availability of the 115 hp Interim Tier 4 engine. “Interim Tier 4 engine standards required us to review how we were designing and organizing components to make sure we would meet IT4 engine requirements,” said Bobby Johnson, TYMCO Vice President, Marketing. “This evaluation process presented us the opportunity to make significant enhancements to the Model 500x that positively affect both operators and service technicians.” For more information, please visit www.tymco.com.

New City Pressure Booster Systems from Flint & Walling

Flint & Walling, Inc. is pleased to announce a new line of City Pressure Booster Systems, Models VP05 and VP10. Both units feature an all-in-one design consisting of motor, pressure tank, and electronic controller. The compact design and quiet operation make these units ideal for many applications. Model VP10 was developed to boost water pressure in homes and businesses, while Model VP05 is ideal for household lawn sprinkler/irrigation applications. These pumps have built-in, dry-run shutoff, with automatic reset functions in addition to a thermal pump sensor to guard against run dry, dead head, and rapid cycling. Both units have one inch suction and discharge. For more information, please call (800) 345-9422 or visit www.flintandwalling.com.

Mobile Awareness announces MobileTRAQ Vue integrated with TireStat TPMS

Mobile Awareness, LLC, a provider of leading-edge transportation safety products, has announced the release of MobileTRAQ Vue, integrated with TireStat TPMS sensors, creating the most advanced tire pressure management system ever available for commercial trucks. MobileTRAQ Vue is the first highly integrated and field upgradeable, commercial-grade monitoring and maintenance system, designed to grow with fleets and changing industry demands. It is a rugged, flexible asset-based monitoring system for both connected and stand-alone truck and trailer monitoring. Featuring an intuitive, programmable color touch-screen display that allows the driver to see and hear warnings, the MobileTRAQ platform was developed to readily connect with Mobile Awareness wired and wireless sensors, the first of which is TireStat TPMS. For more information, call (866) 653-5036 or visit www.MobileAwareness.com.

When jobsite accidents occur, WoundSeal instantly stops the bleeding to safely keep workers on the job

Hook knives, box cutters, and saw blades... all tools of the trade and three of the biggest reasons construction workers suffer wounds on the job. When accidents happen, injured workers can stop bleeding cuts instantly through WoundSeal, a breakthrough powder doctors have used for years in the hospital. Now available through occupational first aid distributors and over the counter at national pharmacies, WoundSeal is a topical powder that stops external bleeding through the creation of an instant, protective and waterproof scab. Ideal for the jobsite, the easy-to-use powder enables injured workers to effectively treat their own wound in order to get back to work quickly. Visit www.woundseal.com for exact store locations and list of distributors.
Members of the Oregon Chapter’s executive committee met on November 13-14 at Silvers Fall State Park to plan for the chapter’s upcoming 50th Anniversary in 2014. The executive committee held a strategic planning session with APWA National staff to focus on key initiatives for the coming year which focus on providing education and training for members and outreach targeted to students, young professionals and nonmembers.
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The deadline to reserve your space is January 6; the materials are due by January 8.

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2015  Aug. 30-Sept. 2  Phoenix, AZ
For more information, contact Dana Priddy at (800) 848-APWA or send e-mail to dpriddy@apwa.net.

National Public Works Week: May 18-24, 2014
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.

North American Snow Conference
2014  May 4-7  Cincinnati, OH
For more information, contact Brenda Shaver at (800) 848-APWA or send e-mail to bshaver@apwa.net.

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