SPECIAL ISSUE:
Engineering & Technology
and
APWA’s 75th Anniversary
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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.
ometimes, those of us in the public works profession can take technology for granted. We always want the newest, most efficient, best operating equipment on the market—that new front-end loader that we have called out in our budget, or possibly the vectored truck that we finally convinced our boss to buy. But what about the technology that surrounds our personal and work lives every day and yet goes essentially unnoticed? Have you thought about the advances in communication equipment over just the past ten years? Are you old enough to remember when pagers were the latest and greatest thing on the market? Nowadays they have gone the way of the dinosaurs—nearly extinct.

I am continually amazed at how rapidly communication and media equipment continues to advance and develop. And I’m not sure that we are truly taking advantage of what is readily available to us. People mistakenly think that because we are involved in the operations side of public service, we must be “behind the times” and unable to master all the new options available to us. It is easy to confuse “belt and suspenders” with being technically obsolete. However, I know differently. I have had the pleasure of meeting and talking with some of the most forward-thinking people in our organization. And I know these visionaries are ready, willing and able to utilize all the new technology at their disposal. However, what seems to be happening is that technical advances are occurring faster than we can master them and incorporate them into our work lives. Things seem to be moving at light speed these days so that every time you have a plan to harness the latest technology, you find that it’s been replaced by something newer, faster and better.

We went from walkie-talkies to pagers to cell phones to Blackberries to iPhones to iPads. Remember when 3G was all the rage? And now, we’re up to 4G. A few years ago, everyone thought that “app” referred to a job application. Now there are more apps for our phones than anyone could have ever imagined—apps designed to address every possible specialty and subject around. And yes, there are apps that serve the public works community as well. If you need to convert data, calculate figures, or review information in the world of public works, there is probably an app to meet your needs. We now have cities creating their own apps for citizens to report problems like potholes, burnt-out streetlights, and downed traffic signs. When will this all end?

Hopefully it never will. Despite the challenges associated
with keeping up with today’s technological advances, I still prefer all these opportunities at my disposal. Society demands that we continue to evolve with the advances in technology and utilize them to the fullest. Our customers were once okay with getting a follow-up call on a complaint a “few” days later. Now in the age of instant communication, texting, and cell phones, people struggle to wait a few minutes for their issues to be resolved. And as our citizenry has evolved in their expectations of instant answers and immediate corrective measures, so must our use and reliance on technology. The best way we can do that is by not trying to be an expert at all the new gadgets and gizmos that come out. Find what appears to be a solution to a situation, master it, and use it. When we stop trying to use all of the latest and greatest items on the market and instead focus on what will really meet our immediate and long-term needs, it all becomes much easier.

When it comes to public works professionals, we’ve all been referred to as a “jack of all trades, master of none” at one time or another. This phrase certainly rings true as we all perform so many different functions under the public works umbrella. But as far as technology is concerned, it actually might be better to just master a few rather than trying to utilize everything at our disposal. Don’t feel pressured to use all of the newest technological advancements—it can become overwhelming. Instead, decide what you need; see what works for you; and use it. That’s when you’ll be of the greatest service to your constituents, your employees, and yourself.

“No one can make you feel inferior without your consent.”

Eleanor Roosevelt (1884-1962), First Lady of the United States (1933-1945); author; speaker; politician; activist for the New Deal coalition
APWA leadership meets in Washington for Transportation Summit

Tracy Okoroike
Government Affairs Associate
American Public Works Association
Washington, D.C.

The 2012 APWA Transportation Summit took place April 16-18, 2012 in Washington, D.C., as Congress debated a bill to set up a conference committee to negotiate a surface transportation reauthorization. The Transportation Summit brought together APWA President Diane Linderman, President-Elect Elizabeth Treadway, the APWA Transportation Committee, the Government Affairs Committee (GAC), and the SAFETEA-LU Reauthorization Task Force to meet with senior Federal Highway Administration (FHWA) officials and congressional leaders and discuss APWA’s advocacy priorities.

The Summit began on April 16 with the APWA Transportation Committee and President Linderman meeting with Federal Highway Administrator Victor Mendez, Deputy Administrator Gregory Nadeau and FHWA program leaders. During the meeting President Linderman and Administrator Mendez signed a new partnering agreement promoting continued coordination and collaboration between APWA and FHWA to provide quality, cost-effective and safe transportation systems.

The following day, members of the Transportation Committee, GAC and SAFETEA-LU Reauthorization Task Force continued the Transportation Summit with several presentations and briefings. The day began with a presentation on Project Delivery Peer to Peer Exchanges by FHWA Deputy Administrator Gregory Nadeau and Brian Roberts, Executive Director of the National Association of County Engineers (NACE). Deputy Administrator Nadeau provided an overview and update on FHWA’s Every Day Counts initiative, designed to identify and deploy innovation aimed at shortening project delivery, enhancing the safety of roadways and protecting the environment. NACE’s Brian Roberts highlighted the discussion and findings of a series of Peer to Peer Exchanges which brought together APWA and NACE members and officials representing state Departments of Transportation and FHWA to discuss challenges, effective strategies and best practices for expediting project delivery.

John German, Chair of the SAFETEA-LU Reauthorization Task Force, briefed the Summit attendees on the status of the transportation reauthorization debate in Congress, which has been extended by an additional 90 days to September 30 by the House of Representatives and is headed to conference against the Senate’s previously passed MAP-21 bill. German reiterated APWA’s Reauthorization Priorities which call for passage of a well-funded multi-year transportation reauthorization that invests in the local transportation system, strengthens local decision-making authority and expedites the project delivery process.

On the final day of the Transportation Summit, APWA members met with their Congressional Representatives and Senators to advocate APWA’s advocacy priorities addressing transportation reauthorization, water infrastructure, environment and sustainability, and emergency management and preparedness.

Tracy Okoroike can be reached at (202) 218-6702 or tokoroike@apwa.net.
THE ROAD TO PITTSBURGH

The 2012 APWA Sustainability in Public Works Conference will take place in Pittsburgh, Pennsylvania, June 25-27. In each issue of the APWA Reporter we’ll highlight one of Pittsburgh’s unique attractions. Pittsburgh is a great city and the Sustainability in Public Works Conference will be a terrific show!

Pittsburgh is a materials innovator and supplier for a greener global economy, leveraging its world-class manufacturing capabilities to create better-performing green products and building technologies. Pittsburgh is a “Top 10 Metro” for Green Jobs (Global Insight) and Pennsylvania has more than 5,000 green building product manufacturers employing 200,000 people.

Pittsburgh is proud to be home to more than 37 green-certified buildings, including the first green college residence hall and Phipps Conservatory and Botanical Gardens, which is pursuing a net-zero energy and water designation as a “Living Building” for its Center for Sustainable Landscapes, which opened in April of this year. This is a direct result of the region’s green agenda and strong commitment to environmental stewardship. (Photo courtesy of VisitPittsburgh)
The Engineering and Technology Committee reinvents itself

Jim Nichols, P.E., ICMA-CM
Assistant City Manager
City of Midland, Texas
Chair, APWA Engineering and Technology Committee

This month’s APWA Reporter is being “sponsored” by the Engineering and Technology Committee. We have provided you with articles that I hope you’ll find informative, educational and entertaining. In addition to our work in facilitating this month’s issue, the committee has also been on a self-initiated journey to better define and refine our mission and role in serving our members. The committee is comprised of Sherri McIntyre, Venu Gupta, Laura Cabiness, Andrew Lemer, Dennis Randolph and me. Our group, in concert with our At-Large Director Patty Hilderbrand and APWA staffer, Carol Estes, has been working diligently over the past two years to reinvent ourselves. We recognized that our title, “Engineering and Technology,” is rather broad and leaves lots of room for interpretation regarding our areas of responsibility. In addition, the generic nature of the terms “engineering” and “technology” creates the opportunity for potential areas of interest to cross over into other Technical Committees. For example, can the use of LEDs for streetlights and traffic signals be considered a topic covered by the Transportation Committee or should it be addressed by E&T as an emerging technology? Is trenchless pipe repair a subject best handled by our Utility and Public Right-of-Way Committee or E&T? These are the types of questions that the committee has routinely faced since our inception and so the current members decided that it was time to get a better handle on our role in APWA. Ultimately, we want to bring optimal value to our members and ensure that we are not duplicating other efforts or conflicting with other agendas.

The committee’s first efforts at reviewing our mission started last year with the update of our business plan. Each year, all of the APWA committees establish a new business plan for the upcoming year to designate new projects, goals and tasks. Typically, these plans are based on the version from the previous year, with modifications that reflect new issues, areas of interest or priorities that have come to light since the last update. When the E&T Committee looked at last year’s business plan, we decided to really break it down and ensure we were aligned with the current APWA initiatives. We established several key strategies that support APWA’s key strategic initiatives. We then populated these strategies with specific tasks that would ensure the strategies were achieved. We have since monitored this business plan so as to remain on point and on schedule for the strategies we established. The committee members also recognize that this plan is a living document and a work in progress so we continue to update and refine it on a regular basis.

Recently, the Engineering and Technology Committee met with the Region VII Delegates who represent the Arizona, New Mexico, Oklahoma and Texas Chapters. This joint meeting was intended to allow the committee to better connect with representatives of some of the chapters we serve. It’s worth noting that maintaining and enhancing contact with the chapters is one of the strategies established by the committee in our business plan update last year. In addition to serving as a forum to discuss chapter needs and expectations, the attendees also talked about the niches that the E&T Committee could fill as well as the role that delegates could potentially play in serving as a conduit between their chapters and the committee. This was a very collaborative and cooperative discussion between these groups with some great ideas coming out as a result.

The committee took the feedback received from the Region VII Delegates as well as our updated business plan and resumed our previous efforts to refine our role and mission. After considerable debate and discussion, we decided that we could best serve our members by acting as a clearing house and facilitator for new processes and technologies in the public works industry. And we want to expand our reach beyond just public works agencies. The committee wants to harness research and information available at various colleges and universities as well as through private vendors. Though the concept is still being formulated, the general idea is that we want our committee to be the ultimate resource for our members who have questions about new technologies or new practices in the public works field. In addition, agencies that have conducted studies, pilot projects, or evaluations, will know to supply this data to the E&T Committee so that the information can be made readily available for other members as needed. The committee will develop a plan to establish a network with learning institutions, research agencies, and the like to...
collect and distribute research projects, topics, and areas of interest. We will also work closely with the other established Technical Committees to maximize the available resources and not duplicate efforts. Based on this new direction for the committee, we are proposing a name change that will be proposed to APWA in the future. We are suggesting that the committee be referred to as the Engineering and Technology Research Committee. Though it’s a subtle title change, it does more accurately reflect the new role that we hope to take on in the future.

The committee also hopes to work closely with the House of Delegates regarding the possible role that delegates can play in collecting and disseminating information to the chapters about possible research topics as well as research efforts currently underway. The E&T Committee recognizes the critical role that the HOD plays in serving as a channel to the chapter membership. The committee hopes to forge a solid working relationship with the HOD that will benefit everyone in APWA.

Though these changes and concepts are still being formulated and obviously must be approved at various levels throughout APWA, the Engineering and Technology Committee hopes that our efforts are well received and will lead to even better service to our membership. Regardless of the final results of the recommendations, the exercise and self-examination by the E&T Committee will provide longstanding benefits into the future. We welcome the comments, suggestions and feedback of the members. Please let us know what you think.

Jim Nichols can be reached at (432) 685-7205 or jnichols@midlandtexas.gov. Carol Estes, staff liaison to the E&T Committee, can be reached at (816) 595-5222 or cestes@apwa.net.

Recognize Your Leaders

This sixth article in the series of Recognize Your Leaders is submitted by Hesha Gamble, the County Engineer for County of Greenville, South Carolina, and member of the APWA Leadership & Management Committee. Leadership can come at many levels and she is recognizing the leadership of a longtime staff member through different pavement management programs.

Arguably, one of the most important public assets is our roads. The roads are truly the lifelines for any community, and many would tie the growth and development of a community to the condition of its roadway network. Over the years, Greenville County has been an innovator in South Carolina with regards to pavement management approaches. Our management has evolved from in-house maintenance to an aggressive and comprehensive design-build road improvement program handled by a construction management team. As this multi-year program has come to an end, our pavement management is now staff-led using traditional contractor-bid methods for paving and inspection services. As in any agency, staff turnover occurs and sometimes the history of certain processes is lost. For Greenville County, the one constant throughout all of these changes has been Ron Bettis. Ron is the lead paving inspector for the Engineering & Maintenance Division and has been involved with the pavement management activities since 1997.

Ron Bettis showed leadership potential even from the beginning, being recognized with the “Prime Mover” award in his first year with the County for being an outstanding employee, as well as participating in the “Future Leaders” program.

Over the years, Ron has taken the lead in managing the County’s use and evaluation of innovative and greener technology in the paving and maintenance process, including the use of geo-textile fabric and recycled rubber in the paving process. He was instrumental in the testing and eventual purchase of the Rovver pipe camera unit. He has conducted research on various pavement methods and often makes suggestions to fine-tune our paving processes to get the best and most economical paved road. Ron has even taken the initiative to develop training courses on project management and asphalt roadway inspection for our Local Technical Assistance Program (LTAP) center. He is currently assisting the LTAP center at Clemson with the development of a conference on “green” paving techniques.

It is his wealth of knowledge and dedication to the 450,000 citizens of Greenville County for the past 15 years that has helped the County continue to be leaders in the pavement management field. He deserves recognition for his diligence and perseverance.

If you have a leader that you would like to recognize, submit their name and a brief summary of the project you would like to recognize them for to Becky Stein at bstein@apwa.net.
Attending the APWA Congress pays dividends
City of Newport winning sidewalk liability battle

After years of struggling with frequent and expensive bodily injury claims from individuals falling on city sidewalks, the City of Newport is reversing that trend with the help of innovations discovered at the APWA Congress. In 2009, William R. Riccio, Jr., P.E., PWLF, Director of Public Services for the City of Newport, Rhode Island, attended the APWA Congress in Columbus, Ohio, after receiving a risk management scholarship provided by the Rhode Island Interlocal Risk Management Trust, the City of Newport’s insurance provider.

After one year with the City, Riccio noticed an alarming rate of claims associated with “trips and falls” along sidewalks; it was obvious that the City was not viewing this matter comprehensively. Shortly after attending Congress, Riccio was presented a sidewalk liability analysis by the City’s insurance provider which confirmed the startling numbers which indicated that the City of Newport had averaged 9.4 claims per year which translated into monetary claims in excess of $800,000. For the City of Newport, finding a way to reduce liability exposure in the midst of tough economic times and tight municipal budgets required us to think outside the box.

As Riccio indicates, “We began by establishing an aggressive sidewalk inspection and maintenance program. With the assistance of engineering interns, we were able to catalogue the scope and magnitude of the problem at hand. As we attempted to develop a sustainable program, we quickly realized that sidewalk panel replacement could only be a part of the solution. Most of the claims were located within the most heavily traveled pedestrian ways in this internationally-acclaimed seaside tourist community. Although we had to focus on the immediate matter at hand, we also needed to develop a program that would be able to be implemented throughout the entire city.”

Riccio recalled meeting a vendor on the exhibit floor in Columbus whom Riccio thought might be able to provide another piece of the puzzle. The vendor was hopeful that they might have the answer that would help Riccio get control of the problem. The vendor arranged a demonstration of the sidewalk panel cutting service, and Riccio was immediately sold on its applicability. As he notes, “Over the past two seasons we have been able to get control of the situation, by eliminating more then 350 trip hazards from our pedestrian ways which has resulted in a 50% decrease in the frequency of our sidewalk-related claims.” The City of Newport’s risk provider is amazed at the results of this seemingly simple yet innovative solution for which they recently awarded the City of Newport the Thomas Sweeney Innovation Award for Risk Management.

“It is my hope that these initiatives have also helped to reduce our insurance premiums,” Riccio said. “Had I not attended Congress in 2009, I am not sure where we would be right now but the rewards have been realized and I have not missed a Congress since.”

You just never know where or when you will meet that person or company that can help you to develop or to implement a solution to a longstanding need. Get involved in Congress and always remember that your issue is likely not unique to your municipality. There is always an answer to a question and at Congress it is usually easy to find.

“We are seeing the birth of a new perspective of the world, where ecology and economics are two sides of the same coin.”

– Leif Johansson, former CEO, Volvo Group
For more information about these programs or to register online, visit [www.apwa.net/Education](http://www.apwa.net/Education).

Program information will be updated as it becomes available. Questions? Call the Professional Development Department at [1-800-848-APWA](tel:1-800-848-APWA).

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 12</td>
<td>Low Cost Safety Improvements (Rebroadcast)</td>
</tr>
<tr>
<td>June 14</td>
<td>The New ISI Tool (Live)</td>
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<tr>
<td>June 25-27</td>
<td>Sustainability in Public Works Conference – Pittsburgh, Pennsylvania</td>
</tr>
<tr>
<td>June 26</td>
<td>The New AASHTO Transportation Green Book (Rebroadcast)</td>
</tr>
<tr>
<td>June 28</td>
<td>FHWA Rating Systems (Live)</td>
</tr>
<tr>
<td>August 26-29</td>
<td>2012 APWA Congress—The Best Show in Public Works Anaheim, California</td>
</tr>
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</table>

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

If = Click, Listen, & Learn program

Live Workshop = Live Workshop

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**Sustainability in Public Works Conference at a Glance**

**Keynote Speaker**

Don’t miss a Keynote Speaker who “gets it” and thoughtfully speaks out to champion sustainable communities, economic prosperity, and common sense!

Patrick Henry Hays
Mayor, North Little Rock, AR
President and Chairman of the Board, ICLEI-Local Governments for Sustainability USA

**Monday, June 25**

12:00 noon – 6:30 p.m.
Registration

1:30 – 5:00 p.m.
3 Available Local Workshops/Tours

5:30 – 6:30 p.m.
General Session

6:30 – 8:00 p.m.
Welcome Reception and Exhibit Opening

**Tuesday, June 26**

7:30 a.m. – 5:00 p.m.
Continental breakfast, lunch and refreshment breaks

7+ Hours Exhibit Time (4 Non-Compete)

8:30 a.m. – 5:00 p.m.
17 Education Sessions Available

**Wednesday, June 27**

7:30 a.m. – 3:30 p.m.
Continental breakfast, lunch and refreshment breaks

Prize Drawings

6 Hours Exhibit Time (3.5 Non-Compete)

8:30 a.m. – 3:30 p.m.
14 Education Sessions Available

Register today at [www.apwa.net/sustainability](http://www.apwa.net/sustainability)
Here we come, Anaheim! The APWA 2012 International Public Works Congress & Exposition is just right around the corner and the Diversity Committee has been busy prepping for the many educational sessions we provide during the conference.

This year, the committee decided to shake it up a little. For the past seven years, we have presented outstanding women in varied fields and responsibilities within public works in a program entitled “A View from the Top – Women in Public Works.” The program has always been well received and I believe we leave people wanting to know even more about the opportunities and struggles experienced by our panel.

Two highly qualified women have been identified to participate on this year’s panel—Linda Petelka, Manager, Wastewater Program Planning for Peel, Ontario/Director, Region V and Erin Jones, Planning Director for Rowlett, Texas/Emerging Leaders Academy. Always wanting to find ways to increase our focus on diversity while broadening our need to continually improve our emphasis on inclusion, the committee decided to invite a gentleman to participate on the panel. We wanted to hear his perspective on embracing women in public works. How was he able to encourage and mentor women to succeed in what had been a predominantly male environment?

This session is scheduled for Tuesday, August 28, at 2:00 p.m. I wanted to take this opportunity to highlight a few of this year’s panelists and give you a little sample of what you will experience by attending this educational session.

First up: Linda Petelka, B.Sc., PWLF. As Manager of Wastewater Program Planning for the Regional Municipality of Peel, Ontario, Linda and her staff are responsible for programs and services such as the Inflow and Infiltration Program, Flow Monitoring Program, Standards Development, Hydraulic Modeling, Local Improvements, State of Good Repair, Master Planning and Servicing Feasibility Studies and leads the Division’s continuous improvement and business strategy initiatives. Prior to her current position, she worked for the Regional Municipality of Halton, Ontario, for 23 years, where she played an influential role in guiding the Region through a period of unprecedented industry-wide change. Linda played a critical role in transforming the Canadian National Water and Wastewater Benchmarking Initiative partnership into the Canadian standard for water and wastewater best practice development. She recently participated in the Abu Dhabi Benchmarking and Performance Improvement Initiative.

Linda served as a member of the CPWA Board of Directors from 2009-2011. She has been a member of the Ontario Chapter’s Board of Directors since 2000, serving as Chapter President in 2008. She is a past chair of the Chapter’s Membership Committee and Hospitality Committee and currently serves on the Special Functions Committee. Petelka organized the chapter’s response to the St. Bernard Parish volunteer effort for the New Orleans Congress (2008) in support of APWA’s initiative. She was named one of APWA’s Top Ten Public Works Leaders of the Year in 2009 and was the recipient of APWA’s Community Involvement Award in 2010, and now serves as Director for Region V.

As a wife, mother and business partner in her husband’s business, balancing work/life is a constant requirement and a juggling act that requires excellent multi-tasking skills, great facilitation, conflict resolution and priority-setting capabilities.

Larry Frevert, P.E., PWLF, was one of the first men that came to mind when we discussed adding a male to the panel. I have not known him long; however, I have come to know him as an individual who reaches out to help others navigate their way through their professional
Larry is a retired public works engineer. He has served that profession for over 43 years, including a combined total of 36 with state and municipal governments and nearly seven years as a consultant engineer.

Larry has lived in the Kansas City region since 1979 and in Kansas City, Mo. proper since 1987, at which time he began a 19-year career with the City of Kansas City working for the Public Works and Parks and Recreation Departments. Previously, he had worked for the Missouri Department of Transportation and just prior to retiring he was a vice president for HDR Engineering. From 1995 to 2003, Larry served as Deputy Director and later Acting Director of Public Works for Kansas City.

Larry’s wife of nearly 41 years has been the Director of Health Services for Avila University for over 30 years and like Larry is a graduate of the University of Missouri. Larry and Carol are elders and committee chairs at Raytown Christian Church which they joined, also in 1979. Larry and Carol have four grown children, including triplets, and are the proud grandparents of four granddaughters and three grandsons.

Larry is a member of APWA, the American Society of Civil Engineers, National Society of Professional Engineers, Missouri Society of Professional Engineers, and the Order of the Engineer. In 2001, he was president of APWA’s Kansas City Metro Chapter of APWA and in 2007-08 he was APWA National President. In 2010, he was named a Top Ten Public Works Leader of the Year. In 2009, he was APWA National President. In 2007-08 he led APWA’s Kansas City Metro Chapter of APWA and in 2009-10, he led a People to People delegation of public works professionals on an exchange to China and in 2011 led a similar group to Russia. In 2011, he became a charter member of APWA’s Public Works Leadership Fellows Program.

In free time Jones enjoys Saturday morning bike rides, reading, Broadway musicals, and spending time with her husband of seven years, Bryan, and their English bulldog, Harley.

All of these panelists have truly amazing stories regarding their journey into public works and the trials and tribulations along the way. What key event(s) triggered their interest? What were the high points and low points during their journey? If they could have done something different that would have helped them along the way, what would it have been? How were they able to assist women in advancing through their careers? What other advice can they lend women in the public works field? All these questions and much more will be answered at the 2012 Congress education session “A View from the Top”—two girls and a guy in public works talk about their lives and careers in Anaheim, California on August 28. We’ll see you there!

Wendy Springborn can be reached at (480) 350-8250 or wendy_springborn@tempe.gov.
Anaheim: a car-free good time!

Natalie Meeks
Director of Public Works
City of Anaheim, California

There is no better place on Earth to work and play than Anaheim, California! APWA members, guests and sponsors are in for a treat when they visit Anaheim this August for the International Public Works Congress & Exposition.

Scheduled right before the long Labor Day weekend, this four-day convention is the largest gathering of public works professionals in the world. Attendees will enjoy extensive educational programming, professional workshops, an enormous exposition floor and ample networking events. But that’s just part of what Anaheim holds for APWA.

Known as the downtown of Orange County, Anaheim offers world-class tourism attractions, including the Disneyland Resort, Angels Baseball, Honda Center, the Anaheim Ducks, concerts, museums, restaurants that range from family-friendly to four-star, and much, much more. Why not combine work with pleasure and bring the family to enjoy all that Southern California has to offer? Come early and stay late!

Southern California is known throughout the world for its beaches, its sunny weather, its celebrities and its love affair with the automobile. But part of Anaheim’s appeal is the ability for visitors to travel to and throughout the town without the need of a car. Whether on foot or taking advantage of the multiple public transit options, visitors can easily move car-free around Anaheim.

Getting there

From the airport. Anaheim is 15 miles away from both John Wayne Airport and Long Beach Airport. Anaheim is also accessible from nearby Los Angeles International airport and Ontario Airport—both about 30 miles away. Many Anaheim hotels have an airport shuttle that will pick you up and drop you off for your flight—check with your hotel directly and you will likely be able to avoid renting a car. Disneyland Resort also operates shuttles to and from John Wayne Airport and Los Angeles International airport. Shuttle and executive car services are another airport transportation option that will eliminate the need to rent a car—which you won’t need in Anaheim (http://anaheimoc.org/plan-your-trip/maps).

From the train. Visitors can travel to Anaheim by train on either Metrolink or Amtrak. The Metrolink train runs from San Clemente to Los Angeles Union Station (LAUS) in Los Angeles. The Amtrak train runs from San Diego to Santa Barbara with stops at Anaheim as well as LAUS. Both train systems have smartphone-friendly mobile sites and there is also an Amtrak app available for free through iTunes (http://www.metro.net/around/maps).

By bus. The Orange County Transportation Authority (OCTA) provides bus service for Anaheim with local and county-wide routes. To make it easy to explore Orange County by bus and train, OCTA offers the OCLINK pass. Available on the OCTA website, the pass allows for unlimited travel on all buses and Metrolink trains throughout Orange County for $7 a day or $10 for a weekend (www.octa.net).

Getting around in town

The Anaheim Resort district was created in 1994, dedicating the area...
near and around the Disneyland Resort to tourism-friendly uses such as hotels, restaurants and convention facilities. Home to one of the world’s busiest convention centers, the Anaheim Resort offers visitors an array of entertainment options.

For many visitors, walking is the fastest, easiest way to navigate their way around the Anaheim Resort area. Many hotels are situated within walking distance of the Anaheim Convention Center and other resort area destinations.

For those hotels that are not within walking distance, they are likely serviced by the not-for-profit Anaheim Resort Transportation (ART) system. The ART is a convenient way to get around Anaheim, providing local transit service from area hotels to Disneyland, the Convention Center and other resort-area and neighboring destinations such as Knott’s Berry Farm and the Discovery Science Center. ART’s fleet, which transports more than three million guests each year, includes clean air vehicles such as electric, clean-burning propane and natural gas buses. ART tickets are available for purchase at local hotels, public sales locations, kiosks around the city and online.

ART will create a special service schedule for attendees of the APWA International Public Works Congress & Exposition. That schedule will be available early summer 2012.

What to explore
Time, not choice, will be the challenge for your visit to Anaheim and Orange County. In addition to the stimulating and educational offerings of the APWA Congress, Anaheim’s many entertainment, sports, food and shopping options will be calling your name. Here are just a few of the ways you can entertain yourself and your entire family while visiting Anaheim:

- Anaheim GardenWalk
- Angel Stadium of Anaheim
- Disneyland Resort
- Downtown Disney
- Honda Center
- Knott’s Berry Farm
- The Outlets at Orange
- Muzeo
- Westfield MainPlace Mall

Anaheim looks forward to hosting the APWA Congress in August. For any questions about arriving or getting around Anaheim without a car, visitors can visit Aconnext.com or also contact the Anaheim Transportation Network at (888) 364-ARTS, artinfo@atnetwork.org or visit www.rideart.org.

Natalie Meeks can be reached at (714) 765-4530 or nmeeks@anaheim.net.

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

Find out what it takes to turn your public works job into a career by visiting www.apwa.net/dcs!
Accreditation process helps organization assess service and performance

Matthew F. Villareale
Fleet Management Division Chief
Prince William County, Virginia
Director, APWA Mid-Atlantic Chapter

The Department of Public Works in Prince William County strives to provide excellent customer service and meet the daily needs of our community. In an effort to assess our service and performance, the department took on the challenge of the accreditation process through APWA.

Public Works is one of the largest departments in the County. We complete a wide variety of tasks from historic preservation, environmental protection, trash and recycling management, neighborhood improvement to providing services such as fleet, printing and cleaning services for our County Government. This diversity in tasks, services and responsibilities led the department to have eight unique cultures in its eight different divisions.

Through the accreditation process, staff was able to create formal bridges between these groups to create a department-wide culture. Cross-divisional teams worked on the first nine chapters and created department-wide policies and procedures. The teams also tackled the subject chapters with management practices that involved multiple divisions. As a result of this work, employees from separate divisions began to see how they were connected to the other employees within the department and how our work supported other groups.

One of the most valuable achievements in the accreditation process was the creation of our department business plan. This plan created goals, strategies and objectives that pull the divisions together toward a common department-wide vision and mission. The plan was created based on feedback from employees throughout the department. The feedback was then organized and prioritized by a team of employees from all of the divisions. The business plan, which is in line with the County’s strategic plan, heralded a cultural shift in the department.

Another valuable aspect of the accreditation process was the completion of the self assessment phase. It is said that starting is the hardest part of any project. For us, starting and completing the self assessment was the hardest and most important step we took during the accreditation process.

During this self assessment, the department took a hard look at its current practices to determine if they were adequate. We discovered we were fulfilling many of the applicable management practices, but we did not have written policies and practices, so we could not document our compliance. We also found many procedures and policies were based on memos from a supervisor. Through the years, those memos have been forgotten, lost or unfamiliar to employees who started after the memo was issued.

As a direct result of the self assessment, we created a standard for uniformly documenting procedures...
and policies within the department. We made these procedures available electronically in a single location accessible to all employees. The cross-divisional teams created SOPs that affected multiple divisions and each division created operation manuals for their unique and specific tasks. Now, our practices are uniform, well documented and easily accessible by all.

In Public Works, we believe a proactive department is highly organized and accountable for fulfilling its responsibilities, so we began our journey to become accredited five and a half years ago. We knew it was time to assess and improve ourselves to meet the challenges of the future. But it came at a time of change for the department when two divisions left to become new departments. The journey also began during the darkest days of the Great Recession when we lost staff and funding.

Our pursuit of accreditation also came at a pinnacle time for our entire organization. Like so many others, our local government was struggling with the current recession and difficult economic situations. Our organization knew entities outside the County Government would begin to look sharply and critically at all business practices. In response, Prince William County Government began a number of internal audits and reviews. These new internal controls and accountability assure citizens that tax dollars and funds are used wisely and correctly. These steps also ensure our organization works at its fullest potential and most effective level.

By completing the accreditation process, Prince William County Public Works has proactively reviewed our practices and made changes where necessary to reach national standards set by our peers in the public works industry. We now know we have the documents and procedures to confirm sound business practices, internal controls and accountability. We can confidently face and meet any reviews given by our elected officials, executive management for the County Government or our counterparts in other jurisdictions. Public Works is credible and trustworthy as a steward of public funds and fulfilling public needs.

Our five-and-a-half-year journey to become accredited has come to a close. During this journey, our department had to work closely and cooperatively to complete the self assessment and self improvement phases of accreditation. This project felt daunting at times as we balanced daily responsibilities, difficult and changing times, and the challenges of accreditation, but in the end it drew the department together as a unified team.

We learned more about our organization, the work our coworkers face and complete each day, and the value that all of our combined services bring to this community. This unity and camaraderie will help the department as we face our daily responsibilities, future challenges and issues, and efforts to remain accredited and continuously improving.

Matthew F. Villareale can be reached at (703) 792-5063 or mvillareale@pwcgov.org.

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

Find out how to start moving up the public works ladder by visiting www.apwa.net/dcs!
Perhaps you’ve wondered why APWA is putting considerable effort into assembling a group of 200 mentors for the APWA Donald C. Stone Center for Leadership Excellence in Public Works (DCS) program. The answer can be found in something Albert Einstein said: “Learning is experience. Everything else is just information.”

In recognition of that truth, APWA has made access to mentoring a key component of the program so that participants get one-on-one time with some of the most successful public works professionals in North America. At press time, 170 Public Works Leadership Fellows (PWLFs) had been approved and are ready to assume their roles as mentors.

One of the early tasks they’ve been assigned is to provide “stories of experience” from their careers, which have been assembled into a supplemental book for DCS program participants. The stories are arranged around leadership and management core competencies, which include: plans for the future; leads an organization; communicates; builds relationships and partnerships; and the multiple categories of managing staff, information, infrastructure, municipal services, and money and resources.

To give you a taste of the added dimensions mentors will bring to the DCS experience, I’ve chosen stories from five of the mentors.

The stories use a situation/action/result format, hence the S/A/R designations that follow.

**Michael Waldron, Director of Public Works for Moline, Illinois, chose not to wait for a leaf burn ban and found a creative plan to use a baler to bail out Moline’s curbside leaf service.**

**S:** We vacuum/rake leaves curbside for every street in the city. The city council was contemplating a leaf burn ban, which would add additional tonnage to be collected. At the same time, public works budgets were under severe cuts and reductions in personnel and related expenditures.

**A:** We watched the council struggle with the decision for 2-3 years prior to adoption. In that period we didn’t wait for the ban to just happen and then adapt. We began an intensive review throughout the Midwest of what our peers were doing and how we could become more efficient, keep our standard of service, and implement any efficiencies as soon as possible rather than waiting for the ban to be put into place.

**R:** Through peer reviews and networking, we were able to partner with an area farmer to use his baler equipment (square bails) to collect leaves. The baler was in addition to our vacuum/rake operations. The burn ban was implemented, and we have completed leaf collection each of these last three years at lower cost. We make at least six complete passes through the entire city in a six-week period each fall.

**Carl Dawson, Public Works Director for Raleigh, North Carolina, found that taking time to communicate with employees paid off when news about health care benefits threatened to be a bitter pill for them to swallow.**

**S:** Recently, it became apparent that the City’s health care plans were not sustainable without some significant changes that would affect staff’s benefits. If was also apparent that the reductions in benefits and the increased employee costs would have an effect on employee morale in the department.

**A:** I served on the City’s management team charged with recommending benefit changes that would offer employees two plans so that they could choose the plan that best met their needs. I met with all of the 400 employees in the department to explain the advantages and disadvantages of each plan and to answer questions about the need for the changes.

**R:** The changes were made with minimal disruption and drop in employee morale. This happened because staff felt that they were given all of the information necessary to understand the need for the changes and to choose the plan that provided the most benefit to their individual situations.
When it comes to understanding the value of staff attitudes on productivity, Snow White and her “7 Little People” have nothing over on Stuart Moring, Director of Public Works/Environment for Roswell, Georgia.

S: Staff assignments and promotions were often based on longevity or specific skill sets, but teamwork sometimes suffered.

A: I adopted an approach of focusing on attitudes (particularly service and learning) rather than skills in hiring and promotions, because the skills can be taught. Having good caring people begets excellence as they attract other top performers who enjoy their work.

R: The department and key staff are receiving increasing numbers of awards for “best program,” “excellent service,” etc., and we receive the appreciation of top management and elected officials.

Bret Hodne, Public Works Director for West Des Moines, Iowa, found a method for helping the politicians understand what numbers really count in infrastructure management.

S: Educating the elected officials about the need for pavement funding was always an issue. There were also requests from ward council representatives to spend inequitable funds in their respective areas.

A: We elected to implement a pavement management program. We researched several companies and moved forward with the project.

R: We now have dedicated capital funds as a direct result of the program. The system projects the necessary funding based on the elected body’s decisions on what overall condition number they wish to maintain. This process took a lot of the “politics” out of the equation.

John A. McCarty, Executive Director of the Southeast Metro Stormwater Authority in Englewood, Colorado, scratched beneath the surface of “we’ve always done it that way” and found a way to save his agency big bucks.

S: The County performed its own chip sealing of paved roads and sprayed an additional seal coat over the chips (cape seal). The cape seal was costing over $100,000 per year.

A: My experience was that chip seals were very successful without the additional cape seal. I began asking why the County applied the cape seal. Several weeks later, I heard from a long-term blade operator that 20 years ago the chips were a reddish color and that the county commissioner said, “Roads are supposed to be black. Make them black.” The County added the cape seal and continued to do it for more than 20 years.

R: By simply asking the question, the cape seal was determined to be an unnecessary process, which provided $100,000 to extend the miles of road maintained annually.

These are only a few of the scores of stories of experience the DCS mentors have helped us capture on paper—the ones the mentors happened to remember at our prompting. There are countless other stories to be told as mentors and DCS candidates interact within the mentoring relationship. Have you applied for your spot in the DCS program yet? If so, it won’t be long before you could be saying, “I heard it from my mentor!”

Connie Hartline can be reached at (816) 595-5258 or chartline@apwa.net.

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Getting to Vision

Donal F. Hartman, Jr., J.D., LLM, Program Director, School of Graduate and Continuing Studies, Norwich University, Northfield, Vermont, and member, APWA Leadership and Management Committee; and Paul Katsampes, D.P.A., Instructor, School of Graduate and Continuing Studies, Norwich University, Northfield, Vermont

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

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

In the first article on the subject of vision (May issue), the topic was vision as a key responsibility for the leader. In this article the topic is creating the vision.

“Vision is a target that beckons” – author unknown

Vision provides a focus for current efforts; it identifies to the organization a clear direction; it energizes people, and it projects to stakeholders and to the community a sense of the organization’s identity. Vision is important in seeking resources as it shows the organization is not so absorbed in responding to today’s problems it cannot evolve to meet the challenges of the future. As leaders derive their power to influence and motivate in no small way from their ability to lift people’s eyes to a distant but achievable vision, vision is critical for the leader’s success as well in guiding the organization.

We don’t ask the leader to personally create the vision. But the leader is responsible for ensuring the organization has a vision. For some leaders vision is always at the forefront of their thinking. Others see the world through operational lenses. Both need to balance their own personalities and proclivities to lead the vision process.

The Visionary – There are some who routinely think in terms of vision; they have a knack for seeing a new path, a new direction. We call these folks visionaries. They are creative, they seem to have an innate sense where an organization could go and what it can be. Being labeled a visionary can imply criticism. Visionaries are sometimes seen as out of touch with the needs of the organization, oblivious to taking the practical steps necessary to realize the vision. Not all leaders are visionaries, but those who are must accept that with the gift of vision comes a responsibility to use the gift wisely.

The visionary must accept that others need time to grasp the vision. It is important for the visionary to take time to talk, to educate, and to respond to questions. Even more importantly the visionary has to take the foot off the gas pedal; the visionary can be a wonderful asset as a parade leader, but not if the visionary is running when others are walking. Moreover, there is such a thing as vision overload. The leader with a new vision each month will not only create an organizational gap between vision and performance, but risk the loss of the organization’s confidence and trust as well.

The Operator – Most of us are not visionaries by nature. We see ourselves as practical-minded, grounded in reality, and attentive to the operational needs of the organization. Operators don’t normally think in visionary terms; it takes a conscious effort to lift our gaze to the horizon, and even more effort to see things hypothetically. If you think more in operational terms than in strategic terms, you may downplay the need for a vision. But it is the responsibility of the leader to see things in strategic terms, to think of new ways to operate, to find new partners for relationships, to identify new skills to develop, and to sense new opportunities to explore. The operator, like the new employee, may need to start a self-education program to develop the capacity to lead from a strategical perspective.

Culture Clash – Ideas for a new vision like seeds tossed into the wind can struggle to find suitable places to take root. The leader must recognize that most employees and managers are not normally focused on vision. They may feel that the
exercise to create a vision is a waste of time. Moreover, as a new vision is likely a call for change, there may be resistance just as with any new operation or program. The process for leading change may need to be employed to help the organization both create and accept a new vision. In some organizations there even may be a gap in values between management and staff. Not every organization shares the same values; cultures in organizations can vary considerably. If leadership and staff have an adversarial relationship, creating a vision will be a far different challenge than working within an organization where leadership has a high level of trust with the organization.

The Process – While there are a number of effective ways to create a vision, there is one method to avoid—the top-down process. It is normally counter-productive to take a top-down approach in most matters, and particularly so in creating a vision. Noble thoughts about creating a new vision will likely be misconstrued if the vision comes down as if from Mount Olympus. For one, it may be perceived as yet another attempt to diminish staff’s authority or discretion. Two, it may be seen as just a marketing stratagem, nothing that implies new operations and processes. A vision should energize and focus the organization; to best achieve these results the creation process must engage the organization at many levels. After all, you are seeking commitment, not compliance—this is all about the hearts and minds of the organization.

The process best configured to achieve these ends is a representative process, a team approach using key folks from the organization to actually identify the vision. The team, or working group/executive team, usually consists of the leader, the second in command, division managers and key staff. Others should include those held in high regard by the organization. But all should bring to the process a reputation for sound thinking, a sense of the organization’s history and values, and a commitment to find a vision.

The characteristics of the individuals who make up the executive team contribute to its effectiveness. The leader should work to build on individual strengths and compensate for individual weaknesses by acting in a supervisory role as a mentor to individuals in their personal and professional development process. The ability to work well together is a fundamental component of a successful team. Three keys to establishing a collaborative climate are: (1) clearly defined roles and responsibilities, (2) strong lines of communication, and (3) positive relationships. The process will be bumpy, team members will be working hard as they probably still have their primary duties to attend to, and egos may get bruised. Taking care of these preliminary issues will provide for a smoother and more productive journey.

The leader must stay engaged, but a deft touch is required to keep dialogue open and to encourage good-faith questions and constructive disagreements. While the leader must stress the importance of the vision, and perhaps provide examples, it is important for the leader to listen more than to talk. Strong control by the leader is counter-productive as it signals a lack of trust and confidence in others. If the vision is going to be effective and collective, those who are working closest to its creation must be invested in the final product and committed to its achievement. That only happens when the working group as a representative body of

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the organization develops a sense of ownership over the vision.

Getting the working group off on the right foot is important. There are a number of approaches to launch the creation process, but as soon as possible the group needs to grasp the distinctions between mission, goals and vision. Differing interpretations of these concepts will waste time and dog the process with unnecessary side discussions. Moreover, the group needs to establish key points of reference. Here are the some characteristics of a vision:

- It must be rooted in the values of the organization
- It should be sufficiently strategic to inspire and motivate
- It must identify a direction, a purpose, or a focus
- It must be uniquely applicable to the organization (not just to any similar organization)
- It should be bold yet practical and achievable

Before the process of discussions begins there should be a discussion on the timing of the process, how to deal with conflict, how to break logjams in discussions, how to select new team members, etc. The leader can personally manage the overall process, but it may be wiser to bring in a consultant or a former member of the organization known for his or her skills in running meetings. Once the process is formally launched, definitions agreed upon, and controlling characteristics identified, the difficult part begins—the actual discussions around various visions. There are a number of ways to get to the end point, but it is wise to recognize there will be obstacles, either in terms of personalities or conceptual disagreements, fatigue, and frustration. Once the vision is identified it is important to take it back to the organization for discussion. There is nothing to preclude the group from returning to the table if better ideas arise during meetings with the organization. After all, the vision belongs to the organization not to the working group.

Donal Hartman has a Juris Doctor from Gonzaga Law School and a Masters of Environmental Law from George Washington University. He has worked in the federal and public sectors for more than 35 years, most recently as the Deputy Commissioner of the Vermont Department of Corrections. His legal career includes assignments as lead counsel for the Vermont Department of Corrections and Assistant Judge Advocate for the Air Force. He has taught adult learners for nearly two decades and occasionally teaches military justice in the undergraduate program at Norwich University. He can be reached at (802) 485-2767 or hartmand@norwich.edu.

Dr. Paul Katsampes earned his Doctor and Master of Public Administration from the University of Colorado at Denver, a Master in Arts from the State University of New York at Albany, and a Bachelor in Criminology/Psychology from Metropolitan State College of Denver, where he is professor emeritus. Dr. Katsampes has taught in the areas of organizational theory, business management, crime causation, and leadership. He has authored many books and articles dealing with leadership and management. Currently he teaches for the Master of Science in Organizational Leadership and the Master of Public Administration programs at Norwich University, School of Graduate and Continuing Studies. He can be reached at plk33@mac.com.
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International niche for Global Solutions in Public Works

Alexandra Pastor
Graduate Student
School of Graduate and Continuing Studies, Master of Public Administration Program
Norwich University, Northfield, Vermont

World demographics have changed significantly since the end of World War II when the first humanitarian assistance programs were developed and aid issued to nations undergoing post-war reconstruction. Several decades later, programs such as the US Agency for International Development (USAID) came into existence providing funding for economic development projects in underdeveloped nations, encouraging self-determination and poverty relief, and raising the standard of living. The advent of information technology has enhanced our understanding of humanitarian needs throughout the world. Such information exchange has uncovered new business opportunities and furthered economic development. Despite these advances in fostering a worldwide economy, there are complex economic, social and environmental dynamics widening the gap between the haves and have-nots.

As a result, aid programs have become prevalent. Today international, national and grassroots organizations address acute humanitarian crises resulting from localized war, natural disaster and disease outbreak; and attend to humanitarian needs on an ongoing basis, such as providing adequate food supplies, housing, sanitation, potable water and health care; AIDS relief; education; and teaching sustainable agricultural and business practices, capacity building and transparent government.

As part of my graduate work at Norwich University, I had the opportunity to research whether or not there was an international opportunity for APWA. By reviewing what humanitarian services other international organizations are providing in the field, what funding options are available and their attainability, and where infrastructural and educational support is needed, I set out to determine where APWA’s Global Solutions in Public Works program could be applied and would be most successful.

I discovered abundant, up-to-date literature on this topic and identified partnership opportunities awaiting pursuit. A central coordinating non-governmental organization (NGO), like APWA, with infrastructure expertise would find significant demand for collaborative projects. As an international NGO, APWA would be in the unique position of raising awareness in the global community about the critical role public works fulfills in community-building.

By forging global partnerships for humanitarianism, Global Solutions has a tremendous opportunity to provide consultation, the exchange of ideas, and education in the area of infrastructure. APWA’s membership would have the opportunity not only to share ideas, but also to work with others in addressing the complex challenges so common in underdeveloped nations.

APWA represents excellence in infrastructure on a number of fronts, including emergency management, utility management, and transportation. Partnerships for information exchange would result in importing foreign specialization and applying it to like scenarios in the United States and exporting U.S. methodologies that could find relevancy for application abroad. Given the indiscriminate impact of climate change and the social responsibility tied to improving quality of life in general, a transjurisdictional approach to sustainable development through international collaboration and cultural exchange is timely.

Public works officials today, by definition, have a wide-lens view of public services and see sustainable community development as a concerted effort to harmonize adequate standards of living within a social, environmental, and economic context. Public works officials are masters of administration, operations, management, maintenance, logistics and engineering. Because of such specialization and the global movement toward sustainable communities in an era of finite resources, Global Solutions is a vehicle through which APWA can strategically position the public works community to facilitate humanitarian services. Outlined below are a number of recommendations APWA staff and the APWA International Affairs Committee should consider developing.

Fact-finding and further research
Because there is extensive debate
about the praises and failings of economic and social development aid to underdeveloped nations, researching funding agencies and potential field partners will provide background on past and present project outcomes. In this way an organization can determine whether there is a common mission or ideologies that promote mutually-desired outcomes.

**Acting as a centralized coordinator**

The APWA International Affairs Committee could act, at least initially, as the lead in Global Solutions for the chapters. Staff would be assigned to grant research and uncovering opportunities in contracting and consulting in the U.S., with other governments, and with intergovernmental organizations (IGOs). The committee would network with fellow partners Engineers Without Borders, International City/County Management Association and International Federation of Municipal Engineers to explore what activities the organizations are involved in to open up dialogue about where the APWA can lend infrastructural support.

**Projects—high-profile, low-profile and examples**

APWA would be well-served by pursuing both high- and low-profile projects. High-profile projects have national and international visibility and are often heavily covered in the media, such as humanitarian interventions supported by well-known organizations (e.g., International Federation of Red Cross and Red Crescent Societies, USAID, Soros Foundation). Low-profile projects are those in which APWA would play a support role, working behind-the-scenes, such as in UN programs. By engaging Global Solutions in both high- and low-profile projects, APWA stands to gain both worldwide recognition for the work that it carries out and international exposure and superior professional development for its membership. Published literature on the APWA Global Solutions web page about existing (like the California-Mexico and Georgia-Sweden partnerships) and future APWA international projects would generate interest in the exciting possibilities the program has to offer.

**Pursuing other educational opportunities, including engaging youth**

Expanding APWA’s current academic, training and certification programs toward an international market could draw in membership from parallel professional organizations, environmental organizations, trade associations, private industry, academia, the scientific community and government. Exploring international youth education programs would be another opportunity for APWA to involve its members in third-world country education. International exposure broadens perspective and imaginativeness—experiences that could take years to develop through traditional or professional education.

**Partnering**

APWA has much to offer to the existing NGO network because the Association combines administrative excellence and infrastructural expertise in one comprehensive approach. Defining guidelines such as those drafted by the Global Humanitarian Platform in the *Principles of Partnership* (joint document drafted by the UN, NGOs, IGOs, and the World Bank on how to build stronger and more fruitful partnerships) would establish collaboration goals agreed upon by all parties to achieve intended results so that partnerships on paper translate into effective partnerships in the field.

**Global strategic plan**

Establish a five-year strategic plan for the Global Solutions program so that APWA and its chapters will have a clear direction in international endeavors. The International Affairs Committee would publish a prospectus outlining the Global Solutions’ goals and objectives for the next five years, then follow up with yearly reports on progress, achievements, and current projects as a way to sustain momentum, generate interest, and stimulate participation. Flexibility, benchmarking, stakeholder input and partnerships are also built into the plan. This strategic model is straightforward, paperwork-averse and action-based.

For the interventionists involved, there is mutual benefit in working for a humanitarian cause: by helping others one helps oneself. Humanitarian partnerships will enhance public works’ visibility and advance APWA’s key role as an international player thus growing the Association’s appeal for worldwide membership. And so the time is opportune to make globally available what APWA does best and position its infrastructural prowess in community development as a niche product and service that only professional associations like APWA can offer. Readers are invited to peruse *American Public Works Association International: Is There An International Niche For Public Works?* for more information about the international environment.

Alexandra Pastor is a graduate student in the Norwich University School of Graduate and Continuing Studies Master of Public Administration program, class of 2012. With a multi-disciplinary background and international experience, she is looking forward to being part of and contributing to the excellence in the public works community.

June 2012 APWA Reporter 23
In January 2012, the APWA International Affairs Committee approved two fantastic international study opportunities being organized by our APWA partner organizations IFME, INGENIUM, and IPWEA. The opportunities for Finland included (1) an approved INGENIUM/IPWEA study tour to visit three Finnish municipalities, meet with the City Councils, and tour public works projects; and/or (2) attendance at the International Federation of Municipal Engineers (IFME) 17th World Congress on Municipal Engineering to be held in Helsinki, Finland; Tallinn, Estonia; and Stockholm, Sweden.

Recognizing the potential for our members to learn more about innovative international public works projects, the International Affairs Committee approved these programs for a Global Solutions in Public Works $1,000 travel reimbursement opportunity.

Nearly six months and loads of e-mails later, five public works professionals will be heading off to Finland in June to tackle topics such as asset management, pedestrian and bicycle traffic, flood mitigation and waste management. Several will be meeting with municipal officials and visiting public works facilities and sites on an INGENIUM/IPWEA planned study tour; while others will attend IFME’s International Congress & Exhibition to hear international speakers on topics of global interest.

“Thank you so much! This is incredible. What a great opportunity,” wrote Colorado’s Trish Aragon upon hearing of approval of her project application. Aragon is City Engineer for the City of Aspen, Colorado and plans to attend both the Study Tour and the IFME Conference. Her application listed her project interest as: “Creating sustainable solutions for everyday mobility to enable a better environment for alternate modes of transportation including cyclists, pedestrians and public transportation users.” She is anxious to see what the Finnish municipalities offer in the way of supporting these users.

Other approved Study Tour and IFME Conference attendees include:

- **Anne Noble, Greenways Coordinator, City of Loveland, Colorado** and **Quinten Pertzsch, GIS Coordinator, City of Golden, Colorado.** Each has chosen a focus for their study in Finland. As an APWA International Champion Chapter, the Colorado Chapter was active in promoting the opportunities with its members.

- **William Burns, Project Manager, City of Orlando, FL.**

APWA's Global Solutions in Public Works is intended as an international exchange forum for information promoting leading-edge and best practices in public works. The program is also intended to encourage the application of these leading-edge and best practices in the global public works community. The program includes an opportunity for limited funding for members of the global public works community to explore cutting-edge projects that might have application in their communities, provide outreach to educate/share best practices with public works officials in underdeveloped countries, and participate in approved study tours.

More information about the Global Solutions in Public Works program is available at http://www.apwa.net/global.

**Contact Gail Clark at APWA (gclark@apwa.net) to learn how your chapter can become more involved or serve as an “APWA International Champion” Chapter.**
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Ana Nixon, Public Information Officer, City of Grandview, Missouri; Dennis Randolph, P.E., Director of Public Works, City of Grandview, Missouri, and member, APWA Engineering and Technology Committee

Public works professionals are too modest. Our modesty has led us to not effectively promote the work we do and the part we play in making the world a better place to live. Since we do not promote our work, many people do not know much about what we do. Often, the picture we present to the public is “the people who cover roads with orange barrels or cones, or the ones we blame when the toilet backs up in our basement.”

While the public works profession, led by APWA, has done much in educating about the need for orange barrels and other common public works tasks that are taken for granted, there is still much to learn. While APWA has taken the lead for us, the task of educating people about public works is so big, it takes every public works professional’s time and effort to get the job done.

There are an estimated 313,326,687 people in the United States. Besides knowing little about the broad range of work that public works professionals engage in, few of these people have any idea of the size of the job we do. However, when they wake up in the morning, they expect to have water available to brush their teeth and to flush the toilet. Further, when they walk out their front door, they expect to use a street or sidewalk to head out on their business for the day.

Yet, while we are assailed regularly about potholes and other obvious failures in the facilities that we are responsible for, most people are oblivious to the span of our work. Perhaps too often, public works employees have been victims of negative stereotyping; who hasn’t wondered, when driving by a public works crew fixing a road or a water line, why most of the workers just watch while one or two do all the work? It is important to note that public works employees do make sure the work of keeping a community running smoothly is done, and done well.

The general public tends to forget or doesn’t understand that public works professionals not only protect and enhance the human environment, but also present investments for the people who create them and for future generations. For example, public works professionals are responsible for the proper spending of large amounts of public and private money. In 2008, state and local governments spent $356,000,000,000 on public works (refer to Table 1).

We manage millions of miles of roads, sewers and water mains, and build and maintain thousands of buildings, dams and airports. But except for those times when we are making a plea for money to repair a critical problem, the public rarely hears from the public works professional. Often, elected officials, politicians, or “media experts” step in to be the face of the problem or question. Thus, because we do our jobs quietly and efficiently, people rarely recognize the importance of our work to the social and economic well-being of our country and society in general.

We need to stress that publicity for publicity’s sake, or simply bragging about everything we do, is not the point of our story—far from it. But the public works industry suffers from a continuing problem of lack of notoriety that makes our jobs far more difficult than they already are.

Because people lack knowledge of what or how much we do, we find ourselves in a “negative” competitive position when it comes to gaining funds for our work. A sterling example is the difficulty the U.S. Congress has had in gaining funds for mass transit.

### Size of the Public Works Job in the U.S.
- Over 1 million miles of water main (US EPA)
- Over 4 million miles of streets and roads (ARTBA)
- Over 1.2 million miles of sanitary sewers (US EPA)
- Over 75,000 dams (National Inventory of Dams)

### Table 1 - 2008 Public Works Expenditures

<table>
<thead>
<tr>
<th>Item</th>
<th>2008: Total</th>
<th>State</th>
<th>Local</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>$356,314</td>
<td>$108,226</td>
<td>$248,087</td>
</tr>
<tr>
<td>Highways</td>
<td>$153,515</td>
<td>$90,645</td>
<td>$62,870</td>
</tr>
<tr>
<td>Air transportation</td>
<td>$21,264</td>
<td>$1,758</td>
<td>$19,507</td>
</tr>
<tr>
<td>Water transport and terminals</td>
<td>$4,940</td>
<td>$1,492</td>
<td>$3,448</td>
</tr>
<tr>
<td>Sewerage</td>
<td>$46,679</td>
<td>$1,273</td>
<td>$45,406</td>
</tr>
<tr>
<td>Solid waste management</td>
<td>$23,757</td>
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<td>$21,318</td>
</tr>
<tr>
<td>Water supply</td>
<td>$55,215</td>
<td>$354</td>
<td>$54,860</td>
</tr>
<tr>
<td>Mass transit</td>
<td>$50,944</td>
<td>$10,267</td>
<td>$40,677</td>
</tr>
</tbody>
</table>
has in renewing a transportation bill. Even with bipartisan agreement, the bill cannot only help a deteriorating transportation infrastructure, but give a boost to our economy.

So how do we go about raising our profile and telling our story? First, as public works professionals, we need to consider these words of the Declaration of Independence:

“We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights that among these are Life, Liberty and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just Powers from the consent of the governed…”

These words are important for many reasons. But for those in public works, they provide our basic “guiding light.” They emphasize the importance of what we do, and point out one of the basic reasons for government. Public works is the foundation of our society. Without well-established and well-maintained public works, civilizations struggle or stagnate. American public works has achieved the highest standard of living in the world. How well those in public works do their jobs goes directly to those basic rights of “Life, Liberty, and the pursuit of Happiness.” The sewer and water mains that we build and maintain provide the basic human needs for life at every doorstep. The dams and waterworks we build help to provide not only water to survive, but to grow food. Control of streams and rivers has lessened the danger and damage of flooding and protected the investments of people gained in their pursuit of happiness. Streets, highways and other transportation facilities we build and maintain let us travel across our country in the exercise of Liberty, and our pursuit of Happiness, in a safe and efficient manner. Without these infrastructures, life as we know it would be impossible.

These quiet yet basic components of our public health system allow us to live healthy lives without constant fear of typhoid, dysentery, or other terrible diseases that have plagued humankind. They also allow crash rates to go down even while traffic and population continue to grow.

We need to point this work out and the best way to do this is by developing and using a Comprehensive Public Works Promotion Program (CPP) (refer to Figure 1). A CPP allows us to prepare for opportunities to promote our work in a variety of ways and using different approaches. The idea is to provide a balanced approach that does not either skew to blatant self-promotion or devolve into a continuous appeal for funds.

With such a balanced approach, we can keep a constant flow of information to the public and elected officials, so that awareness of public works is kept at a high level.

The fact that we need variety and a constant flow of information going out to the world is best illustrated by the success that police and fire services have had in portraying their work as key to a good community. While statistics and crime reporting certainly help keep such life-services well recognized, the fact is that for years television and movies have provided continued awareness of the importance of such functions.

A simple CPP can consist of regular reports of activities, seasonal public service announcements, reports on construction, and educational pieces. The idea is to have a regular flow of

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**Figure 1 – Comprehensive PW Promotion Program**

**Public Works Needs a Jack Webb**

Jack Webb was the creator of a number of classic shows that promoted the work of police and fire agencies. Shows such as *Dragnet*, *Adam-12* and *Emergency* presented positive pictures of life-service agencies and were early promoters of the need for public support of such agencies.

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**Informational and Publicity Opportunities**

- Seasonal reports on activities such as snowfighting, street repair, solid waste collection and stormwater control
- Social media to give emergency work information and updates
- Web pages to provide information on ongoing programs, forms and contacts
There’s Still Time to Register!
The APWA Sustainability in Public Works Conference Starts June 25!

Gather together with committed individuals like yourself for a deep dialogue about the role of public works in creating sustainable communities!

We’ve got fascinating technical tours on Monday (sign up soon as space is limited) and a full slate of spot-on education sessions and cutting-edge exhibits on Tuesday and Wednesday. Nowhere else can you receive a more concentrated wealth of sustainability information geared specifically to public works and infrastructure issues!

Sustainability is ingrained into the everyday delivery of public works services! Below is a glimpse into what kinds of presentations and dialogue you can expect to find at the conference, but don’t forget to check out the full line-up of speakers and must-attend sessions online at www.apwa.net/sustainability.

• Communities of differing shapes and sizes (Los Angeles, CA, Lancaster, PA) are incorporating Green Infrastructure into daily public works projects and operations.
• Charlottesville, VA, is finding success with broad-based energy use reduction efforts.
• A SMARTTRAFFIC system is improving highway efficiency in Gainesville, FL.
• Sioux Falls, SD, is constructing a LEED Silver Certified solid waste collection and education center.
• Monaca Borough, PA, is converting park lighting to LED and installing windmill and residential solar panel solutions.
• Downers Grove, IL, is installing 25 hybrid street lights using off-the-grid lighting technology.
• State College, PA, is diverting both food and yard waste to a compost facility.
• Normal, IL’s, urban core redevelopment includes planting trees in silva cells to mitigate heat generation, implementing innovative traffic and stormwater management approaches, and building a multi-modal transportation center.
• Pittsburgh, PA, and the Pittsburgh Parks Conservancy are working together towards the successful rebirth of Pittsburgh’s historic parks, proving that public/private partnerships work.

Now That’s Sustainability!

Register today at www.apwa.net/sustainability
The Positive Nature of Public Works

Of the many activities of government, public works provides the most positive of services, intended to protect humans and enhance the pursuit of Life, Liberty, and Happiness. While many governmental activities—especially police, fire, corrections, and even many social service organizations—are necessary to overcome the negative aspects of human nature, public works provides facilities and features that help people to strive for and live their lives to the fullest.

Public works professionals need to overcome their natural modesty and aversion to telling about their work. The way to do this is to prepare a comprehensive communications plan and put it to action. Otherwise, the public works “assets” essential for the functioning of a society and economy will continue to be taken for granted.

Ana Nixon holds a bachelor’s degree in journalism from the Universidade Federal de Juiz de Fora and a master’s degree in communications from the University of Kansas. She worked in a newsroom for the Brazilian newspaper O Globo and for the French magazine Le Nouvel Observateur. She also worked in corporate communications at Sprint for five years and has been the Public Information Officer for the City of Grandview since June 2008. She can be reached at (816) 316-4812 or anixon@ci.grandview.mo.us.

Dennis Randolph has over 40 years of experience in the public works field, including local government experience with organizations in Michigan, Missouri and Virginia. He has BS and MS degrees in civil engineering and an MPA. He has nearly 70 published papers and is an Adjunct Instructor at University of Missouri–Kansas City. He can be reached at (816) 316-4855 or drand77201@att.net.

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Using technology for enhanced public communication

Laura S. Cabiness, P.E.
Director, Department of Public Service
City of Charleston, South Carolina
Member, APWA Engineering and Technology Committee

Technology related to communication is moving ahead with blazing speed. It wasn’t long ago that public engagement required expensive mailings, costly ads to notify the public, and press releases in which we hoped the information was interesting enough to have the local media disseminate the information. Certainly these outlets still have their place but new electronic media offers new possibilities to provide information, receive feedback, and engage a greater audience with minimal cost and significant control by creating your own message. A well-informed public can be an asset. A constituency without sufficient information will try to fill that knowledge void with information from their own resources, often with disastrous results. Social media outlets such as Facebook and Twitter have gained widespread momentum and are crossing generational age groups. This and more options such as web page publishing and e-mail distribution lists make regular communication with the public more extensive and affordable than before.

By now most everyone is familiar with the major social media outlets. Many people have used them in their personal lives to communicate with family and reconnect with classmates and friends from long ago. These same outlets can be used to promote public projects, solicit feedback, and provide current updates on project progress, impacts to the public and other information that can help the public cope with the difficulties faced by the construction of major projects.

In 2011 the City of Charleston, South Carolina, began construction on the first phase of a drainage improvement project along a six-lane urban highway that currently serves more than 60,000 vehicles per day. Due to the high traffic volume during peak hours the majority of the work was restricted to nighttime hours, but a portion of the work involved construction of a median wall in the center of the roadway which was just not practical during nighttime hours alone. The City had to claim the two center lanes for a six-month period in order to get the median constructed, reducing the lanes’ capacity by 33% while this construction was taking place. This meant that the public had to be advised that there would be delays while travelling on this road during peak hours and that alternate routes should be considered. Through multiple outlets the City provided information on the lane closures and alternate routes. When the time came for the lane closures the lane reduction resulted in only minor increases to travel time and these diminished as new traffic patterns became established. A well-informed public was able to adjust to the impact of construction.

From the onset of the project the contractor prepared a “two week look ahead.” Minor edits are made to prepare the message to be posted from the City. It is distributed to an e-mail list developed at public meetings. An added benefit of the Facebook page is that the updates are presented in a timeline format that creates a chronology of the updates and makes it available to the public.
The information is also posted on a project website and a Facebook page was created specifically for the project where the information is also posted. An added benefit of the Facebook page is that the updates are presented in a timeline format that creates a chronology of the updates and makes it available to the public.

Since the construction of this highly visible project began in Charleston and electronic media became the primary means of communication, there have been some lessons learned and tips developed that might help others that are beginning to use electronic dissemination of information in the same way:

- Not everyone has the talent for writing. Tap the best writer in the organization to be your editor, not necessarily a person with a technical background. After all, most of the audience is probably not technically oriented either.

- Create an e-mail address specifically for the project. This e-mail address can be monitored by the project manager for timely responses and it also ensures that project-related e-mails don’t overwhelm the project manager’s other responsibilities.

- Create the project updates one time for multiple outlets and make minor edits to make them relevant to the particular format. For example, Twitter posts must be less than 140 characters. A Twitter post might provide a link to a project web page where the full project update is available for those that are interested in the detail.

- A Facebook page has the option of allowing viewers to post comments on the wall. This feature can be turned off allowing the page owner to determine what gets posted preventing misinformation from becoming a problem.

- Employ multiple formats to reach the largest interested audience but keep it manageable for your organization. If too much time is being devoted to preparing and posting updates, reduce the number of posts. Instead of every week make it every other week or once a month. The important thing here is to provide information that is meaningful for the audience and that the updates are provided on a regular schedule.

- Ensure that the project web and e-mail addresses are made prominently available to the public. Strong use of these resources will minimize the effort on the agency’s part to get the message out.

Citizens have become accustomed to being able to acquire information about any subject quickly and reliably. Likewise the public wants to be able to provide input and shape projects for the desired outcome. Technology and social media are propelling opportunities for mass communication and feedback and our savvy constituents have reasonably grown to expect to be “in the know” with real-time information available at their convenience. Facebook, Twitter, e-mail and project-specific websites provide an opportunity for a public works agency to communicate with its constituency on many levels. The nature of your message and your audience will determine the best outlets for your agency.

Laura Cabiness can be reached at (843) 724-3754 or cabinessl@charleston-sc.gov.

Your Vote in APWA Does Count

As an APWA member, you will have the opportunity to vote for members of the APWA Board of Directors between July 6 and August 3, 2012:

- APWA president-elect;
- At-large director in the functional areas of Engineering & Technology, Environmental Management, Public Works Management/Leadership, and Transportation; and
- Regions III, IV, VII and IX Regional Directors (by APWA members in those respective regions)

The ballot will be available for online voting between July 6 and August 3, 2012 on the “Members Only” section of the APWA website. There will also be a voting icon on the home page of our website. If you do not have access to a computer at home or work, you may access the APWA website at your local public library or other public access points. If you are not able to vote online, you may request a paper ballot from Cindy Long at (800) 848-APWA, ext. 5220. Additional reminders of the voting process will be sent through the infoNOW Communities; via e-mail to every member for whom we have an e-mail address; and in future issues of the APWA Reporter.

If you have questions, please contact Cindy Long at clong@apwa.net or (800) 848-APWA (2792), extension 5220.
Demystifying the CIP

Jim Nichols, P.E., ICMA-CM
Assistant City Manager
City of Midland, Texas
Chair, APWA Engineering and Technology Committee

Many municipalities and public agencies have some form of capital plan that they use to manage the implementation of major public improvement projects. These plans take all different forms, shapes and sizes depending on the many factors including the dollars available in the capital budget, the need for staff expertise and available resources, to name just a few. But regardless of the type of plan that is used, there are a number of myths and misconceptions that can greatly hinder its effectiveness. The following are some of the “urban legends” associated with CIPs as well as suggested practices that can make it truly useful, user-friendly, and manageable.

1. “CIP” stands for Capital Improvement Program. Though the acronym, CIP, is often referred to as a “plan,” this may not be the best way to describe it. Instead of thinking of the CIP as a rigid planning document comprised of capital projects, it can be more beneficial to look at the CIP as a Capital Improvement PROGRAM. When the CIP is approached from a programmatic perspective, it can then encompass the many facets of capital projects that go beyond just getting something constructed. Key components of capital projects including funding sources, overall project schedules and sequencing, resource availability, and project coordination can all be woven into the program and thus ensure that projects can be effectively managed.

2. If an outside consultant is used to manage capital projects, there will be no drain on internal staff. Oftentimes, administrators and elected officials will make the assumption that the use of outside consultants to manage and oversee CIP projects will completely free up internal staff to work on other competing priorities. And it is true that hired professionals can greatly relieve the workload on government staff compared to performing those same functions completely in-house. However, what is sometimes lost in the equation is the need for someone to manage the external project manager. When a consultant is used to shepherd projects through completion, there are progress meetings to be held, invoices to review, and unforeseen issues to address. These all require internal staff time. And depending on the political sensitivity of the projects being managed, the necessary staff time may be considerable. So regardless of when and where consultant services are used to assist in the implementation of CIP projects, be sure that internal resource demands are taken into account.

3. The CIP should just focus on a year’s worth of projects. Sometimes a CIP can just look like a list of projects. And when this occurs, it can create unrealistic expectations as to when and how projects will be delivered. Elected officials and the general public may be led to believe that all of the projects on the CIP will be completed within that particular fiscal year. With the complexity of projects being undertaken at the local level, we often see them extend well beyond a single year, especially when you consider all of the phases including design, construction, close-out, etc. To only focus on projects over the course of a single year eliminates the ability to coordinate various phases and elements between different projects and also doesn’t allow long-term planning to occur. In addition, one of the less-considered factors to be reviewed in the development of a CIP is “resource leveling.” This is the evaluation of internal staff resources needed to manage projects within the CIP. The consideration of available resources allows the projects in the CIP to be shifted to match not only available funds but also the available staffing (i.e., “leveling”). This, in turn, prevents the need to have dramatic increases and decreases in staffing based on unnecessary peaks and valleys of CIP projects. A suggested way of developing and looking at the CIP is over a five-year period (though some agencies may choose to go much further into the future). Beyond the five-year horizon, a “bullpen” of out-year projects that fall outside that window can be maintained. And each year, as the CIP is updated, year two shifts into becoming the new year one with the rest of the CIP moving forward as well. Projects from the out-years are then brought forward to populate the new fifth year. In addition, as the CIP is updated each year, projects can be moved back and forth and in and out of the program based on changes in priorities, funding needs and so on. It is imperative that the CIP not be looked at as a rigid plan with no flexibility. Instead, it is a living document that ebbs and flows with the needs of the agency that is managing it.
4. All projects within a CIP must be fully funded to maintain the integrity of the program. This is one of the more popular misnomers associated with CIPs. Assuming that you have developed a CIP that extends beyond a single year, you have more than likely ensured that funds will be available for the projects over the life of the program. This will often lead to the CIP being referred to as “fully funded.” However, agency budgets are based on projections—whether from tax revenues, user fees, grant funds and the like. When the various funds to be used for the CIP are designated for the projects they will fund, beyond the actual funds “in hand,” the monies are all estimates of the funds anticipated to be available. Therefore, to refer to a five-year-plus CIP as being fully funded is incorrect. Instead, it is best to think of the CIP as being fiscally balanced. This means that according to the best estimates and projections of funds to be available, it is anticipated that there will be adequate money to cover all of the costs of the projects contained in the CIP. And as previously noted, the program should be reviewed and updated annually to ensure that as financial projections change, the CIP is adjusted to match them and thus remain fiscally balanced.

5. The CIP should only include future construction projects to have any real value. The implementation of a well-developed CIP is a commitment to a significant expenditure of capital funds. As such, there can be value in the inclusion of other capital investments beyond just construction projects. Of course, it’s possible to go too far with this notion so that relatively small-dollar projects and expenditures are included thus diluting the effectiveness of the CIP. It is advisable to establish a fiscal threshold for projects and expenditures that will be included in the CIP. There is no ideal figure to utilize for this threshold as it is very dependent on the specifics of the agency to be managing it. It’s best to come up with a project dollar limit that will at least keep the CIP manageable without inadvertently leading to important projects being left off the list. A threshold in the range of $20,000–$100,000 is a reasonable place to start. Once you establish this figure, the CIP can then include new purchases of equipment and vehicles (e.g., fire trucks, backhoes, computer systems, etc.) that also fall above this established threshold. You don’t necessarily want every new car purchase included in the CIP (if you have many such purchases made on an annual basis) which is why setting the threshold is important in dictating this. But since these expenditures will “compete” for the same funds as the construction projects, why not evaluate all of them together?
6. The CIP should include all construction projects to have any real value. There are various schools of thought regarding the types of construction projects that should be included in a CIP. However, to keep it manageable and useful, it is often ideal to differentiate maintenance-related projects from new construction. There is often separate funding set aside for O&M work vs. new projects. In addition, maintenance can often be performed with in-house staff rather than contracted out, which again impacts operating funds rather than capital funds. This same theory of keeping the CIP dedicated to new construction can be applied to capital expenditures as well. Rather than including the purchase of replacement vehicles and equipment in the CIP, it is advisable to limit it to only new purchases that expand the agency’s current fleet or assets. Oftentimes, replacement equipment is purchased through some form of replacement fund and again, these dollars do not compete with capital funds. It might be worth considering the development of a secondary CIP list comprised of maintenance projects and replacement purchases. This will allow larger O&M work to still be monitored and coordinated without being confused with true capital projects.

7. The CIP is just a “wish list” of projects that are desired without any real expectation of whether they will be completed or not. Nothing could be further from the truth. Too often, a CIP is looked upon as just a random list of projects that an agency “hopes” will be constructed. But for the CIP to maintain any real integrity, it must be viewed as more definitive than a wish list. Elected officials must be able to depend on the expected results of the CIP because it provides them with the assurances of what is and will be happening throughout the community. Citizens and business owners want to feel secure in the knowledge that the infrastructure needs within their neighborhoods are being addressed according to a well-thought-out system. They also want the predictability of a well-managed CIP that will allow them to coordinate their own personal lives and business operations around upcoming projects. How much confidence will they have in the agency or its staff if projects are left in a state of uncertainty? And our own staff must be able to plan and coordinate their efforts around a solid program that they can count on. There are so many steps that must be set in motion before a project can be built or an expenditure made and if we relegate the CIP to a wish list, we may miss opportunities or waste tremendous effort in the process. Think about RFPs, RFQs, project scopes, specifications, and so on—how can an organization initiate any of these items if, in the end, a project may not happen due to insufficient funding? The alternative is that staffs are left scrambling at the eleventh hour because a project on the CIP was given the green light but no one was prepared for this to happen. This leads to needless rushing and potential costly mistakes along the way. Instead, the CIP should be viewed as a road map to be followed each year, providing surety and predictability for all involved. The map is redrawn annually as part of the update process but never does it lose its integrity.

Following this advice will help facilitate the development and administration of a dependable, organized, and effective capital improvement program. Though there’s no “one size fits all” template for CIPs, these general practices will certainly aid in creating a solid foundation from which the CIP can be developed. This, in turn, will ensure that an agency’s capital needs are met and managed now and well into the future.

Jim Nichols can be reached at (432) 685-7205 or jnichols@midlandtexas.gov.
The City of Kansas City has a population of approximately 450,000 people, a quarter of the metropolitan area population. The City maintains approximately 6,200 miles of roadways, with an annual budget of $60 million. Much of the City’s infrastructure is 50 to 100 years old and is in dire need of rehabilitation. Historically, the City would only reconstruct streets if there was a related capacity or geometric improvement project.

In 2004, the City established design-build as an alternative construction delivery method in the City Charter. Between 2004 and 2010, this process was used primarily for buildings. In June 2010, the City of Kansas City’s City Council passed a resolution to fund $33 million for street maintenance and waterline repair/replacement. There were 12 arterial roadway segments identified in the resolution, each of which was less than one-mile in length identified in the resolution. There had not been any design completed for any of the projects. Within a period of four months, Requests for Proposals (RFPs) had to be submitted, contractors selected and Notices to Proceed issued by the end of 2010. There was a realization that the standard method for project delivery could not accomplish the objective. With this time constraint, a new and innovative process was developed to meet the City Council’s requirements for the procurement and implementation of the projects, incorporating design-build project delivery.

Program Development
Over a four-month period, the City of Kansas City Public Works Department and Wilson & Company, Inc., Engineers and Architects (Wilson & Company), worked diligently to develop and administer a program that entailed:

- Establishing RFP and contract documents with the Purchasing Department
- Defining the scope of work to be completed for each project to meet the desires of two departments:
  - Public Works Department
    - Roadway
    - Traffic/ADA
    - Sidewalks/ADA
  - Water Department
    - Waterline
    - Sanitary Sewer
    - Storm Sewer
- Developing the technical requirements for the Design-Builder and their Designer of Record to adhere to
- Creating a procurement process based on a Best Value project selection including qualifications, experience, technical approach, commitments made and cost evaluations.

Due to the complexities of the projects, and the fact that this was a new process, the City desired to release the projects in two separate RFP packages. The initial package for the first set of five arterial roadway reconstruction projects was advertised within two months of the design-build program being conceived. The Design-Builders were allowed to propose on any combination of the individual projects.

A best value selection process was used incorporating both technical evaluation and bid cost evaluation of the proposals. It was a single-step process, without short-listing, and without stipend compensations to the proposers. The technical scoring accounted for 60% of the total score and included qualifications and experience, project approach and commitments, maintenance of traffic and project schedule. The bid cost evaluation accounted for 40% of the total score and was determined by a set formula based on the bid price relative to the lowest bid price.

Through an expedited process, a mandatory pre-proposal meeting was held to explain the process; proposals were submitted (23 in total), reviewed and scored; selections were made; and recommendations were taken to City Council for an Ordinance to formally issue Notices to Proceed so that work authorization letters could be developed and sent.

Program Refinement
As with any new process or program, refinements should be made to address any issues that arise during the initial rollout. In response to this need, a Design-Builder forum was conducted to provide a forum...
for the Design-Builder community to voice their concerns and questions about the process. The forum went through the details of the requirements, scoring process and expectations. The design-build teams were given direct feedback to their questions which were well received. Additionally, the contractors asked the City to provide additional clarification regarding how scores were developed, and suggested a different process on how the weighting could be distributed. They also identified items they felt substantially increased their risk, which in turn, increased the bid amounts.

With this information, the City of Kansas City and Wilson & Company worked to refine the process to address comments in the forum and develop a plan to reduce the risk to the Design-Builder while providing the City with an excellent product. Adjustments were made to the technical scoring criteria, and additional information was provided to the Design-Builders for the second set of projects to reduce their risk and increase the value to the City.

**Results**

The refined program resulted in fewer questions for the second set of projects. The design-build teams were more aggressive and provided greater value and additional commitments above and beyond the project definitions, including:

- Additional sidewalk work
- A new pedestrian signal
- Concrete bus pads
- Open drainage improvements
- Timing of construction to coincide with other area activities (school, events, etc...)

This process resulted in an excellent Best Value selection process. The City believes the program was a total success in several areas, including:

- Maintained or Improved Project Quality
- This process reduced the typical design-bid-build time period by months
- Allowed for additional improvements to be completed within/under budget at the same time as defined work in the RFP
- Provided a coordinated approach to infrastructure corridor improvements (road, water, sewer, traffic, etc.)
- Significantly reduced:
  - Conflicts between design and construction

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**PERPETUAL**

The asphalt industry calls it Perpetual Pavement, but Perpetual Payment might be closer to the truth. That’s because traditional life-cycle cost analysis (LCCA) doesn’t consider the real costs of paving materials. Using FHWA methodology, researchers at the Massachusetts Institute of Technology found that typical LCCAs can underestimate asphalt costs by an average of 95%. Fed up with Perpetual Payment? Visit www.think-harder.org/perpetual.

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APWA Reporter June 2012
• Change orders and schedule delays (both for design and construction)
• “Scope creep” by defining project and requirements
• Reduced procurement and management staff resource needs by combining design and construction in one RFP package
• Reduced City Council review time – approval of one project versus multiple contracts
• Increased the efficiency of taxpayer funds

**Lessons Learned**

Developing this design-build program required an incredible amount of interdepartmental communication and cooperation. Within the contract documents, both the City and the Design-Builder were held to schedule requirements for both submittals and reviews. Maintaining the communication and cooperation throughout the process was essential for the program to be successful.

It was clear from the first procurement that it was critical for the process to be kept “simple,” both in terms of the Technical Requirements and the Scoring. In terms of the Technical Requirements, the definitions for the work to be performed had to be defined in a manner that allowed the Contractor to propose a more efficient or effective method to exceed the requirements. This was much more apparent in the second round of RFPs which resulted in a much more competitive, Best Value Selection.

It was evident that there is a level of baseline investigation and information that should be provided by the owner to reduce the Design-Builder risks and contingency pricing while not providing a stipend. Providing the Design-Builder with critical information such as right-of-way drawings, aerial photography, pavement core samples and waterline maps significantly decreased the amount of risk to the Contractor, and provided the Design Builder enough information to develop alternatives. This information was critical to allow the Design-Builder teams to propose alternative approaches that resulted in:

- Cost savings
- Better maintenance of traffic
- Coordinated replacements of waterline, storm sewer/sanitary sewer, roadway and sidewalk
- Upgrades for traffic management such as ADA ramps and buttons, traffic detection equipment and transit accessibility

Finally, having a solid understanding of staffing requirements was critical for the program’s success. As identified earlier, staff from several departments had to be integrated into the process for Contractor plan submittal approvals. This included materials testing, construction management, lighting staff, traffic control/timing, water valve shutoffs, etc. Communication and coordination made this project a success.

**Next Steps**

The City of Kansas City anticipates using this process for at least 80% of their future roadway reconstruction work. This process was successful as viewed by staff, management, elected officials, Design-Builders and their construction teams, and the community served by these upgraded facilities.

In early February 2012, Mayor Sly James presented a program to obtain $1 billion bonding authority for investment efforts in the Kansas City core to enhance the aging neighborhoods and promote economic development within the city. Through this street maintenance design-build program, the City has developed a proven methodology to effectively and efficiently deliver a roadway reconstruction program of any scale, and can support the Mayor’s investment program. This process has changed the way the City of Kansas City, Missouri, conducts business with its contractor and engineering community.

**APWA is beginning an archiving project to preserve many of its older publications and documents in electronic format. The first phase focuses on the APWA Reporter (1962-2002) and its predecessor, the Public Works Engineers’ News Letter (1934-1961). The publications will be scanned and made available on our website later this year. But our collection of more than 800 issues isn’t complete. Remarkably, we are missing only one issue of each publication: March 1995 of the Reporter and October 1961 of the newsletter. If you have access to a library in your chapter, agency, or company, which might contain these APWA publications, please check it for these missing issues. If you find either issue, please contact Publications Manager Connie Hartline at 816-595-5258 or chartline@apwa.net.**

Jim Townsend leads Wilson & Company’s Midwest Region Transportation Planning and Traffic Engineering practice, offering experience from both private and public sectors. Jim recently co-presented (with Greg Rokos) “Arterial Roadway Reconstruction using Design-Build Project Delivery” at the 2012 Transportation Engineers Association of Missouri’s annual conference. Jim helped to develop and administer the design-build program, process and procedures for the City of Kansas City Missouri. He can be reached at (816) 701-3108 or jim.townsend@wilsonco.com.
Project planning, engineering priorities and political decision making

Dennis Randolph, P.E., Director of Public Works, City of Grandview, Missouri, and member, APWA Engineering and Technology Committee; Joanna Johnson, Managing Director, Kalamazoo County Road Commission, Kalamazoo, Michigan

For most public works professionals a major task is to provide ranked lists of recommended projects to governing and policy boards. Because there are always far more needs than funds, the public works profession has developed sophisticated methods to help us to make these lists. Often we base these methods on the best engineering tools we have and try to inject a high degree of rational thought into them.

While we currently label many of these processes asset management, we have been using similar techniques for many years. Long before the term asset management came into being, and predating the sophisticated computer supported systems we use today, public works professionals have been weighing alternatives (refer to Figure 1).

Because of the wide range of organizations that develop and support infrastructure, the types of prioritization methods that we use vary widely. In particular we find a wide variation in the way in which we assign value to different characteristics. For example, some systems may look at the cost of building a project to bring it back to a specific condition. Here we would highlight the existing condition of a particular infrastructure component (a street for example), and cost of various “fixes” to restore that component. We can then rank projects using the cost of the fixes.

Another way to rank projects might take the preceding example and advance it a step by incorporating an analysis of maintenance and upkeep costs for the street over some time period. We can then use the resulting life-cycle cost for each project as the basis for ranking a group of projects. By including maintenance and upkeep cost, we have a different view of a set of projects, and a different order of projects in the resulting prioritization lists.

As we include more and more technical factors in our prioritization consideration, the resulting prioritization lists change. While we often disagree about the value or validity of including some of these technical factors, as long as they have some basis of rational, empirical thinking we usually come together and agree on the results.

This example of multiple versus narrow perspectives within the public works community is a frequent and accepted event. More importantly, it reflects a more general situation, one that members of the public works community do not often accept.

Because the policy bodies that must accept and approve the ranked lists we prepare must consider other factors besides technical ones, there is a further set of considerations that they insert into the final prioritization process. Many of these “considerations” do not have a firm—or sometimes no—engineering basis, but represent community, humanistic or political ideals. Often, these considerations can drastically change the order of priority lists (refer to Figure 2).

With changing priorities, conflict between the public works professionals who must live daily with the results of the prioritization process and the policy makers who must deal with the electorate often results.

Occasionally the change in priorities may involve many projects in the final priority list. But usually changes only involve one or two projects. However, whether it is the entire list that is

Figure 1 – A Rational Approach to Decision Making
changed by policy makers, or simply one change, we find that any change is often a significant point of conflict between the technical professional and the policy makers.

Since policy makers have the final say in the prioritization process as well as other agency policies including budget and employment decisions, the conflict arising from the disputes between technical specialists and policy decision makers can be costly. Sometimes these conflicts lead to technical specialists finding other employment opportunities. But most often the common result is a gulf that develops between technical staff and policy makers that harms both sides. Bad relationships between the two sides then mean lost or lessened productivity that harms programs. Poor relationships can also harm creativity. But most damaging is technical staff reluctance to continue to promote strong technical analysis of projects, and inclusion of technical considerations in the prioritization process.

That we want to minimize or avoid such situations is clear. How we go about doing this boils down to the question public works professionals must ask which is, “How much is enough?” That is, if we provide a list of priorities to a policy making body of 10, 20, 50, or even 100 projects and that body accepts the list substantially as presented, say, one or two changes, should we not consider the entire process a success, rather than a failure (refer to Figure 3)?

In baseball, a star hitter may only get a hit three or four times out of 10. Likewise, a superstar quarterback may only complete 60 or 70 percent of their passes. Yet in the project prioritization “game” of public works, we often find that 90 or 95 percent acceptance rate of our prioritization lists unacceptable. Then because we find this unacceptable, we are inclined to react very negatively to the policy-makers/elected officials we need to work closest with.

What should success mean?
That we need to have 100 percent acceptance of our priority lists to consider our work a success is a fallacy we in public works need to overcome—especially when we consider that infrastructure development and maintenance, by their nature, are endless tasks. It is only fitting that we should evaluate “success” over a long period of time.

We should also consider the form of the process we follow. That is, success should be tied to including a community’s values into our process, and acknowledgement by the community itself that the priorities and final shape of the developed infrastructure reflect the values, needs and wants of the community. Most important to this idea is that the values be broader than just engineering factors, but should reflect the social, economic and environmental concerns and needs of a community. The basic tenant of public administration theory “The Iron Triangle of Public Administration” (refer to Figure 4) reflects the interrelationships that exist in a community that shape a community’s values.

Just how these non-engineering concerns are factored into the priority process can be done in several ways. Adjustment of engineering priorities by policy makers is one longstanding way this can be done. But as mentioned earlier, most public works professionals consider such “adjustments” to be heavy-handed” and “politically motivated.” However, there is an alternative that often provides reasonable, even satisfactory results.

A broad-based community planning effort with regard to infrastructure allows not only consideration of technical considerations, but also the social, economic and environmental community values to be considered. Further, a good infrastructure planning efforts provides:

- Time for coordination that allows the community’s values to be identified and weighed before applying them in a prioritization process

![Figure 2 – Political Decision Making Process](image2.png)

![Figure 3 – Value of Projects Implemented](image3.png)

![Figure 4 – The Iron Triangle of Public Administration](image4.png)
Time for technical, non-technical, and policy-making individuals to discuss their concerns and have a complete airing of their ideas.

The idea behind such a planning effort is to recognize that with regard to infrastructure everyone has interests, and the idea is to consider not just “technical” interests, but all the other interests of the community. More important, for the public works official, integrating a complete set of community values into a prioritization process means that there is more likelihood that the final prioritization list submitted to a policy-making organization will be accepted with few, if any, changes.

In conclusion, it is important for public works professionals to understand exactly what a “good decision” by a policy-making organization is. That is, a good decision means that:

- The prioritization process used is based upon a rational process anchored in theory validated in empirical studies
- The final list makes the most (but not necessarily all) people happy
- The prioritized list of projects addresses (but not necessarily satisfies) all the minority opinion concerns

Too often, public works professionals expect that they have the final say in the development of a community’s infrastructure. Consequently, any approval that does not correspond to their recommendations completely is not deemed acceptable, and is often considered a failure.

However, the technical values that public works professionals bring to the prioritization “table” are only one view of the values that an entire community considers. If we are to be recognized as “stars” then we need to understand that we gain more recognition by incorporating as wide a range of values into the prioritization process as possible. Most important, that even if some of our recommended priorities are changed by policy makers, if we can still bat 900 or 950 over a career we have outshined any sports figure.

Dennis Randolph has over 40 years of experience in the public works field, including local government experience with organizations in Michigan, Missouri and Virginia. He has B.S. and M.S. degrees in Civil Engineering and an MPA. He has nearly 70 published papers and is an Adjunct Instructor at the University of Missouri–Kansas City. He can be reached at (816) 316-4855 or drand77201@att.net. Joanna Johnson has a Bachelor of Business Administration degree from Western Michigan University. She has worked extensively in personnel placement and for the past 11 years has worked in local government managing county road organizations, parks and public works operations. She can be reached at (269) 381-3171 or info@kcrc-roads.com.
APWA realizes it can be frustrating when your employment search is constantly being detoured by obstructions and dead ends. By focusing our job board solely on the public works community, we have created the best possible environment for both employers and job seekers to find each other. We help to alleviate the hassle and ensure that you are targeting the right audience each and every time.

Whether you’re looking for a new career opportunity, or looking for the perfect job candidate, let WorkZone help you get the job done.

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Unlike the mythical community of Lake Wobegon—where, as Garrison Keillor tells us, all the men are strong, all the women are good-looking, and all the children are above average—more than one of every ten people in our towns and cities contends with a disability, according to the U.S. Census Bureau. \[1\] Nearly half of these people, some 19 million nationwide, need a wheelchair, crutches, cane, or otherwise fall into the Bureau’s category of those with “ambulatory difficulty.” About 20 percent have uncorrectable vision difficulties. Such disabilities can make crossing the street or getting out of a parked car a daunting ordeal. The people who are responsible for finding ways to accommodate the special needs of this segment of the community—with a local government’s limited resources for planning, designing, constructing, operating and maintaining public rights-of-way, roads, and other pedestrian-serving infrastructure facilities—face quite a challenge.

Getting to where we are
Of course, understanding the laws and regulations that influence the choices is a part of the challenge, and they are changing. Public works officials can expect soon to see a new set of federal guidelines.

This latest change starts with the Americans with Disabilities Act (ADA). Signed into law in 1990, the ADA gave civil rights protections to individuals with disabilities similar to those given to individuals on the basis of race, color, sex, national origin, age, and religion, guaranteeing equal opportunity in public accommodations, employment, transportation, state and local government services, and telecommunications. Contentious from its origins, the legislation gave rise to litigation as the broad social goal of equal opportunity collided with the narrowly imposed costs of altering buildings, retrofitting equipment, and changing regulatory standards and procedures to meet the law’s requirements. Amendments to the ADA enacted in 2008 broadened the law’s protections.

The Architectural and Transportation Barriers Compliance Board (Access Board), established in 1972, is responsible under ADA, the earlier Architectural Barriers Act, and several other federal laws for developing guidelines to ensure that buildings, transportation vehicles, and telecommunications equipment covered by these laws are accessible and usable by people with disabilities. Following ADA’s passage, the Board in 1992 published in the Federal Register a notice of proposed rulemaking that was to cover accessible pedestrian facilities and other aspects of public rights-of-way, roads, and other pedestrian-serving infrastructure facilities—face quite a challenge.

The Board then created an advisory committee and began an extensive series of discussions with a wide range of stakeholders. APWA participated actively in the committee’s activities. The committee issued its report and recommendations to the Board in January 2001.

In June 2002, the Board released draft guidelines on accessible public rights-of-way, making the guidelines available for public comment. Another round of revisions ensued and the Board issued revised guidelines, still not adopted as regulatory requirements, in November 2005. Following a mandatory assessment of the impacts of the guidelines on state and local governments, the Board’s notice of proposed rulemaking appeared July 2011. The period for public comment closed in February 2012. The extraordinarily long comment period was a result of extensions requested by the National Association of Counties, the National League of Cities, the U.S. Conference of Mayors and the American Council of Engineering Companies. Diane Linderman, APWA President, presented the Association’s views at one of the two public meetings the Board held during the comment period, urging the Board to allow local governments flexibility in meeting accessibility requirements.

Enforcing equal rights laws, the U.S. Department of Justice (DOJ) established the idea of “reasonable accommodation” as a standard for
determining if an employer has made the effort required to avoid discrimination in its hiring and workplace management practices. The same standard, adapted to buildings, street, and other public facilities has been a primary source of the contention surrounding the Access Board’s work. Even avid proponents of ADA recognized, for example, that not every corner of a public building should be made reachable by anyone, regardless of physical limitations. Making reasonable accommodation means making an effort—for example, installing ramps at stairs or elevators with doors wide enough for a wheelchair—to make a workplace accessible, but how much of an effort is the reasonable minimum?

**So, where are we?**
The new guidelines, now some twenty years in the making and likely to become official later this year, are meant to give answers. They are expected to set out design criteria for public streets and sidewalks, including pedestrian access routes, street crossings, curb ramps and other transitions between sidewalks and streets, on-street parking, street furniture, signals, and other public right-of-way elements. Once finalized and implemented as standards, the guidelines will apply to newly constructed or altered portions of public rights-of-way covered by the ADA. They will also apply to public rights-of-way built or altered with funding from the federal government. Existing pedestrian networks not undergoing alteration will not be required to meet these requirements. [2]

Not all provisions of the guidelines will be new, of course. The Federal Highway Administration’s (FHWA) Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) and design manuals and standard drawings published by the American Association of State and Highway Transportation Officials (AASHTO; for example the Policy on Geometric Design of Highways and Streets, known commonly as the AASHTO “Green Book,” and the guide for pedestrian facilities) already incorporate pedestrian accessibility provisions. The DOJ published regulations in 2010. APWA has had helpful publications on accessibility and federal requirements since at least 2003. Nevertheless, court cases and consent decrees under DOJ actions have been a primary motivation for local governments to make changes.

The proposed guidelines, as they were presented for comment in July 2011 [3], include design details and standards for a range of facilities, including pedestrian access routes, curb ramps, detectable warning surfaces in sidewalks, pedestrian street crossings, pedestrian signals and signal pushbutton controls, transit stops and shelters, on-street parking spaces, and passenger loading zones. While they are extensive,
the proposed guidelines are not comprehensive. Advocacy groups asserted, for example, that pedestrian accommodations at roundabouts have not been adequately addressed. The final guidelines may include changes to address such matters.

**What’s the bottom line?**

Given the long history of ADA and other accessibility requirements, many local agencies have at least started to include accommodation for people with disabilities in the management of their public rights-of-way. In fact, under provisions of the Access Board’s 1992 regulations, agencies employing fifty or more people and contemplating structural changes to their facilities were required to prepare a formal transition plan for how they would comply with accessibility requirements. However, many smaller agencies have not yet come fully to grips with the ADA’s requirements. For these agencies especially, experience gained to date offers at least two key lessons.

First, responsible public works officials should try to work with the members of their communities who have or represent those who have disabilities to identify the most immediate needs and priorities for accommodation. Doing so helps to avoid unexpected demands on tight budgets and perhaps litigation. Second, having a good pedestrian facilities inventory is valuable. Such an inventory, if it includes the right information, will provide a sound basis for planning and programming improvements needed to comply with accessibility guidelines.

A 2008 review conducted by the Texas Transportation Center at the request of AASHTO and the National Cooperative Highway Research Program, for example, highlighted these two points by identifying a series of “best practices” for ADA compliance by transportation agencies. [4]

These best practices include (a) using dedicated websites to provide comprehensive information on an agency’s activities and plans regarding accommodation and compliance; (b) using an orderly and transparent ranking system for assigning resources to address accessibility issues of greatest importance and impact for the community; (c) establishing a data collection program to ensure that the agency has a comprehensive inventory of its pedestrian facilities, with thorough and accurate accommodation and compliance information; (d) ensuring that agency staff responsible for collecting and maintaining inventory data are well trained in accessibility and regulatory requirements; and (e) integrating attention to ADA requirements into the agency’s project development and delivery process.

**Help is on the way**

There is no question that implementing such practices will take time and money. In her November 2011 testimony to the Access Board, President Linderman asserted that unless funding is provided, many communities simply lack the means and ability to pay for the costs of implementing new standards on their own, without funding assistance from federal or other sources. Whether such funding will be forthcoming or local governments and advocates for those with disabilities will simply have to muddle through remains to be seen.

In any case, advice is not hard to find. APWA, for example, continues to present informative sessions at the annual Congress; Click, Listen & Learn programs; online presentations; and publications that can help a smaller agency to understand their ADA responsibilities, potential liabilities, and what other agencies have done to comply and accommodate the pedestrians with disabilities. In 2006 and 2007, the DOJ published a series of web-based modules comprising a compliance “best practices tool kit” for state and local governments. [5]

New technologies are making accommodation and compliance easier and faster. For example, software applications have been developed to enable use of smart phones and tablet computers, with their built-in cameras and geo-positioning capabilities, to support inventorying of pedestrian facilities and condition assessment. The City of Belleview (WA) worked with FHWA in a pilot project that successfully used specially-equipped Segway transporters to collect detailed measurements of surface condition of the city’s sidewalks.

If ADA requirements appear to be a dark cloud for some communities, the silver lining surely is the improved livability, safety and productivity that come with reduction of obstacles that pedestrians with disabilities face. Pedestrian facilities that are accessible to people with disabilities are likely to be safer and more accommodating for parents with strollers, shoppers with carts, travelers with luggage...for all pedestrians. At one time or another, that means all of us.

Andrew C. Lemer can be reached at (202) 334-3972 or ALemer@nas.edu.

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1. As reported by the Census Bureau at http://factfinder2.census.gov/
2. As reported by the DOJ at http://www.ada.gov/
5. Available at http://www.ada.gov/pcatoolkit/toolkitmain.htm
Louisiana has a particularly fragile coastline. Unlike the rugged fjords of Norway or the cliff-backed Oregon coast, Louisiana’s shore is made up of recently deposited delta soils. They are compressing and subsiding under their own weight and are subject to erosion by wave action and storms. Between 1978 and 2000, over 650 square miles of coastal wetland disappeared. While gravity and other natural processes are very much at work, there is an important public works component to this story that goes back several centuries.

Soon after the French platted the grid street pattern that became New Orleans, settlers began calling for protective levees to fend off the annual floods delivered by the Mississippi River. The town undertook to erect modest earthen barriers along its riverfront. Over time, the colonial government passed legislation mandating that individual landowners up and down the river were responsible for building their own levees. By the mid-nineteenth century, parishes (counties) and then the state took on the responsibility for building and maintaining the flood protection system and it became a major public works project along the lower river. These levees were the initial factor in coastal land loss. By preventing annual floods that would rejuvenate the delta each spring, the bulwarks guided the muddy Mississippi into the Gulf of Mexico, in effect starving the coastal region of fresh sediment borne by the river that might offset natural subsidence. In the 1870s, James Eads constructed jetties near the mouth of the Mississippi River to help sustain a deep water channel for oceangoing ships. By narrowing one of the mouths, the jetties further steered sediments carried from the farmlands of the Midwest out into the deep waters of the Gulf. During the same decade, Congress assigned the duty of building and maintaining levees along the lower river to the Mississippi River Commission. Authorized as a navigation project, they adopted a “levees only” policy that ultimately saw the erection of a more effective levee system that closed down several of the lower river’s distributaries. Better levees meant fewer failures and less chance for even occasional flooding and delivery of sediments to the delta. Even during the disastrous floods of 1927, when upstream levees failed with remarkable frequency, there were few crevasses in the area below Baton Rouge and the delta remained starved of sediment.

For flood-control purposes the federal government added a series of dams along the upper Mississippi and the Ohio Rivers, and eventually built multipurpose dams on the Tennessee and the western tributaries of the Mississippi. These structures serve to capture huge quantities of sediment that erodes from the rich agricultural lands of the Midwest and Great Plains. Estimates suggest that the river carried in excess of 600 million metric tons of sediment in the 1880s. By the 1950s that total was close to 500 million metric tons and, after the completion of numerous dams in subsequent years, the sediment load dropped to below 200 million metric tons.

This decline in sediment is critical to current efforts to restore the delta. The Corps of Engineers has built several “freshwater diversion” structures in the delta. These devices allow freshwater from the river to pass through control structures cut through the levees and to flow across the sediment-starved wetlands. As the sediment-laden water passes through the coastal marshes, it deposits a portion of its load and has built marshland in Plaquemines Parish. There are other projects under discussion that will direct sediment to susceptible areas in hopes that it will fortify the unraveling coast. Of course, with less sediment in suspension, relying on the river to restore wetlands takes longer and time is not an ally of coastal Louisiana, especially when you factor in sea level rise.

As the shoreline recedes, inland communities are at greater risk from tropical cyclones. After the particularly destructive Hurricane Betsy in 1965, Governor John McKeithen proposed a levee to armor the entire Louisiana coast from near New Orleans to the Texas border. This public works project never materialized, but massive barriers were erected around New Orleans and agricultural and industrial areas downstream from the state’s largest city. Additional barriers were erected on Grand Isle and along Bayou Lafourche, but the entire coastline never received fortifications. Since Hurricane Katrina, calls for a more complete levee system have reemerged. The state’s coastal plan issued in 2012 considers a set of hurricane levees that reflect McKeithen’s vision of 1965.

In effect, Louisiana’s cities, farmers, and factories have benefitted from flood protection. But the state today faces huge costs to protect its larger coastline that is disappearing due in part to human actions taken in the past. Public works projects have unleashed unanticipated environmental consequences and also an ongoing series of public works remedies to the problems created by previous generations.

Craig Colten can be reached at (225) 578-6180 or ccolten@lsu.edu.
Managers of municipal infrastructure assets must make difficult technical and capital decisions regarding when and how to maintain, repair or renew their assets, while working with restrained budgets. Public officials must allocate funds among competing yet deserving needs, often having to make decisions based on incomplete data.

Bridges represent the fundamental backbone of any city’s economy. At the same time, however, bridges are so common that they melt into the backdrop of everyday life and their importance in the functioning of our society is often overlooked. It is the obligation and responsibility of public officials and public works managers to preserve that has been built. A strategic capital funding plan to preserve the bridge infrastructure is only possible with accurate data and a solid knowledge of the deficiencies which must be corrected and to provide routine maintenance.

As they age, bridges require costly repair and maintenance; therefore it is critical to inspect and develop a bridge maintenance, rehabilitation and reconstruction program that optimizes over the long term the use of limited resources.

To develop an integrated (capital and maintenance) multi-year bridge program, an accurate inventory and sophisticated inspection program is a must.

The following article examines the condition assessment process used by the City of Milwaukee, Department of Public Works.

The City of Milwaukee Bridge Program is based on the concept of performing the right maintenance at the right time on the right bridge.

The following represents the City of Milwaukee’s capital improvement and conditions assessment program for bridges. The plan incorporates a six-year plan identifying long-range capital needs and establishes strategies for the rehabilitation and replacement of bridges.

Rehabilitation and Replacement Program:

A. Bridges Asset Inventory and Clarification
   • 179 City-owned and maintained bridges
   • Comparison of bridge types
     —Fixed 133
     —Pedestrian 13
     —Viaduct 12
     —Movable
       - Vertical Lift 8
       - Bascule 13
   • Asset Value: $220,000,000.00
   • Estimated useful life:
     —70 yrs for new bridges, 40 yrs for rehab, 50 yrs for movable bridges
   • Estimated Preservation effort per year (see Chart 1)

B. Bridge Structures Inspection
   • Inspections are done in accordance with FHWA (Federal Highway Administration) and WisDot (Wisconsin Department of Transportation) standards by public works inspectors who are certified FHWA bridge inspectors.
   • Bridges are inspected every 24 months, except annually for movable bridges and structurally deficient bridges. (see sample report with photographs)
   • Standardized inspection reports
     – Submitted to WisDOT and entered into their database

Preserving the past and maintaining the future of public bridge infrastructure

Venu J. Gupta, P.E., Director, Facilities Development and Management, City of Milwaukee, Wisconsin, and member, APWA Engineering and Technology Committee; Craig Liberto, Structural Design Manager, City of Milwaukee, Wisconsin

Chart 1
C. Condition Rating of Bridges/Sufficiency Rating (SR)

- Highway Structures Information (HSIS) database generates a bridge Sufficiency Rating (SR)

- FHWA Standard measures service condition

- Factors determining SR Rating
  i) Structural adequacy and safety
  ii) Deterioration
  iii) Service and functional obsolescence
  iv) Geometrics
  v) Essentiality for public use

Example: A fifty-year-old bridge may be structurally adequate but deficient due to current roadway widths, standards, or clearance.

D. Milwaukee Bridge Performance Graph (see below)

E. Bridge Funding Sources and Criteria

- Federal/State
- Local Funding
- Special Programs, e.g. ARRA, Tiger Grants
- Funding from adjoining communities for shared bridges

Venu Gupta can be reached at (414) 286-3401 or venu.gupta@milwaukee.gov; Craig Liberto can be reached at (414) 286-3294 or craig.liberto@milwaukee.gov.
Pavement surface grinding techniques provide safer, smoother and quieter roads

John Roberts  
Executive Director  
International Grooving and Grinding Association  
West Coxsackie, New York

Municipalities continue to search for the most economical and easily constructed repair techniques for their roadways. Long-lasting, durable road surfaces are necessary to provide good traction, while providing a smooth and quiet ride. Concrete surface techniques in use today have increased the lifespan and effectiveness of both new and rehabilitated pavements at a very competitive cost, effectively immune to the price fluctuations in the petroleum market.

Conventional diamond grinding  
Diamond grinding is an excellent procedure to repair Portland Cement Concrete (PCC) pavement roughness, increase friction and reduce tire/pavement noise. The method uses closely spaced, diamond saw blades that gently abrade away the top surface of the concrete. The level surface is achieved by running the blade assembly at a predetermined level across the pavement surface. The uncut layer between each saw cut breaks off, leaving a level surface (at a macroscopic level) with longitudinal texture. The result is a pavement that is smooth, safe, quiet and pleasing to ride on.

Diamond grinding of concrete pavement leaves a surface which is often as good as and oftentimes better than a new pavement. In reducing the bumps and dips from the pavement surface, the dynamic loading caused by heavy wheel loads is decreased, resulting in lower stresses and less damage to the pavement. Diamond grinding reduces road noise by providing a longitudinal texture, which is quieter than transverse textures. The longitudinal texture also enhances surface macro-texture and skid resistance in polished pavements.

Conventional diamond grinding is most often used as part of a comprehensive Concrete Pavement Preservation (CPP) program, which usually includes a combination of full-depth repair, partial-depth repair, dowel bar retrofit, joint and crack resealing, slab stabilization, cross-stitching of longitudinal cracks, grooving and diamond grinding. While conventional diamond grinding can be used to restore old and worn pavement to a like-new condition, it can also be utilized to address problems on new pavements such as tire/pavement noise, built-in construction roughness and inadequate surface texture. As a matter of fact, some states are now specifying conventional diamond grinding as a final surface texture on their new concrete pavements and bridge decks. Additionally there are a number of states that now require diamond grinding on new asphalt pavements that do not meet smoothness requirements.

Diamond grinding in Iowa  
In Ames, Iowa, two roads that cross through the heart of the town as well as the Iowa State University campus were in need of some well-deserved repair. With a profile index of 100 inches per mile and transverse joint faulting in excess of one inch, this pavement rode rough. A four-lane section totaling 2.56 miles was identified for repair. Although the
City of Ames would often consider using an asphalt overlay for this type of repair, they instead opted to use concrete pavement restoration (CPR) with diamond grinding. Having learned of the success other municipalities have had with CPR, the City wanted to evaluate the life-cycle costs of each process to determine where taxpayers’ dollars are best spent. The methods selected were full-depth repair and diamond grinding followed by joint resealing.

The project began July 20, 2009 and was completed July 31, well ahead of the Aug. 17 deadline. The result for taxpayers is a safe, smooth pavement delivered in just a few weeks that is expected to last at least 15 more years. The profile index now measures 14 inches per mile, an 86 percent improvement in ride quality. With a total project cost of only $267,697, the City has realized that CPR with diamond grinding is a sustainable, cost-effective answer for their concrete pavement maintenance.

Two pavement surface techniques—diamond grinding and NGCS—have made our nation’s roadways safer, smoother and quieter.

Next Generation Concrete Surface (NGCS)—now exists for even quieter travel, increased friction and improved ride.

NGCS is a diamond saw-cut surface designed to provide a consistent profile absent of positive or upward texture, resulting in a uniform land profile design with a predominantly negative texture which accounts for the very low noise characteristic of this surface type. It is a hybrid texture that resembles a combination of diamond grinding and longitudinal grooving. The texture uses diamond-tipped saw blades mounted on conventional diamond grinding and grooving equipment. This texture can be used for both new construction and rehabilitation of existing surfaces and should be applied in areas where the need for tire pavement noise reduction is especially acute.

The NGCS surface was developed through a partnership with the International Grooving and Grinding Association (IGGA), American Concrete Pavement Association (ACPA), Portland Cement Association (PCA) and Purdue University. Following the Purdue research, extensive field testing and evaluation were conducted for three years by Minnesota Department of Transportation (MnDOT) at the MnROAD pavement research facility.

NGCS in Minnesota
In September 2010, MnDOT, the Concrete Paving Association of Minnesota (CPAM) and IGGA hosted a live demonstration of NGCS construction on the I-35 project site in Duluth.

This high-traffic thoroughfare in Minnesota was the first large-scale use of NGCS. Two segments of the I-35 Duluth Mega Project were involved: I-35 northbound and southbound from approximately Boundary Ave (CSAH 14) to Central Avenue and I-35 northbound and southbound from 21st Avenue East to 26th Avenue East.

“At the newest portion of I-35, right where it ends, are several hotels and they were voicing concerns about the noise. MnDOT was currently doing rehab on the road, so we decided to try this noise reducing technique. NGCS was chosen because we were looking for a grinding pattern that was quieter,” said Pat Huston, MnDOT District 1 Resident Construction Engineer.

The newly quiet highway I-35 recently made the front-page news of the local newspaper, lauding the success of the new concrete surface treatment. Even local businesses were commenting on the decreased sound level. “The response to the quieter ride has been overwhelming,” said John Roberts, Executive Director of the International Grooving and Grinding Association. “Residents have called in asking how the roads became so quiet.”

Leading the way
Two pavement surface techniques—diamond grinding and NGCS—have made our nation’s roadways safer, smoother and quieter. Research continues to find new twists on existing technology to make our roads more functional for longer timespans. As municipalities continue investing in preserving roads to increase their lifespan, these techniques have
become part of the standard toolbox used by public works officials.

About IGGA
The International Grooving and Grinding Association (IGGA) is a nonprofit trade association founded in 1972 by a group of dedicated industry professionals committed to the development of the diamond grinding and grooving process for surfaces constructed with Portland cement concrete and asphalt. In 1995, the IGGA joined in affiliation with the American Concrete Pavement Association (ACPA) to represent its newly formed Concrete Pavement Restoration Division. The IGGA/ACPA CPR Division now serves as the technical resource and industry representative in the marketing of optimized pavement surfaces, concrete pavement restoration and pavement preservation around the world. The mission of IGGA is to serve as the leading promotional and technical resource for acceptance and proper use of diamond grinding and grooving as well as Concrete Pavement Preservation (CPP) and restoration. For more information, visit www.igga.net.

John Roberts can be reached at (518) 731-7450 or jroberts@pavement.com.

The close-up shows the predominantly negative texture on this Next Generation Concrete Surface.
Enterprise GIS facilitates cooperative projects and reduces costs throughout city departments

Jim Baumann
Writer
Esri
Redlands, California

The City of Loveland, Colorado, was founded in 1877, a part of America’s great westward expansion during the 1800s. As a stop on the Colorado Central Railroad, the city quickly began to increase commercial activity and soon established itself as a local agricultural center. In the later part of the twentieth century, several high-tech companies relocated their manufacturing facilities to the area. This stimulated the local economy and caused a surge of growth in the community. With this growth in population came the need to both expand and better manage city services.

LOGIC introduced into the city’s GIS
In 1988, the city’s water and power departments implemented GIS to manage utility infrastructure. Detailed information about the condition of the features specified in the infrastructure database was attached to each respective feature. This information, such as the age, size, and maintenance record, allows the city to better maintain its infrastructure and more accurately determine when it should be repaired or replaced.

Loveland progressively expanded the use of GIS technology until it ultimately developed into a citywide, enterprise-level GIS, which became known as the Loveland Geographic Information/Cartographic (LOGIC) system.

An important part of the LOGIC system is the inclusion of a Local Government Template, which was developed in close collaboration with Esri. The template provides a general framework of standards and procedures for application development and data storage. As a freely available template, other cities can use it when implementing GIS.

The LOGIC system operates in a core-group, distributed-user model; that is, the city’s GIS Division personnel create and maintain common data and GIS applications for other departments. Department users then employ the system to assist them with their work.

“I’ve been with the city for several years and we haven’t done any GIS-based projects that don’t prove a positive ROI [return on investment],” says Brent Shafranek, Senior GIS Specialist, City of Loveland. “In every one of our projects, GIS has allowed us to save time and/or money, simplify workflows, or implement cooperative projects. GIS is a huge benefit to our city in these challenging economic times.”

Establishing metadata standards
While Loveland’s GIS Division is responsible for maintaining the primary geospatial datasets for the city, there are many GIS users in other departments who also create their own data. Because of the wide use of GIS in Loveland, the division initiated a data inventory and documentation project.

The data inventory database tracks which data layers are used in specified map documents and who owns the data files. The data documentation, or metadata, allows GIS users to understand how the data was created, what the various attribute codes mean, and appropriate uses of specific datasets. The metadata has also been included in the data available for download from the Internet, giving users outside the city information needed to properly use the city’s information.

Using GIS in public works and beyond
Loveland’s Departments of Public Works and Water and Power have deployed GIS throughout their operations, including water, wastewater, stormwater, power, solid waste disposal, and streets; their latest work is a tree inventory for city parks in the Parks and Recreation Department.

The Public Works Department widely uses remote data collection in traffic sign inventories, sewer line maintenance, pavement marking painting, and sidewalk ramp surveys required for compliance with the Americans with Disabilities Act. The ArcGIS geodatabase is replicated in the field crews’ mobile GIS devices for reference and review. Field crews use simplified forms designed by the city’s GIS Division to reduce data entry time from the field. Changes are recorded and subsequently uploaded to the database from the field, where they undergo confirmation and quality control by city GIS staff members.

ArcGIS has helped the city reduce its overall costs because it is used as a shared resource, since the data can be collected once and then accessed by various departments for their own needs, benefiting the entire municipal operation. For example, the Public Works traffic sign inventory data includes location for asset management purposes and photos for easy visual verification. The city’s Police and Legal Departments can use this information for a quick confirmation of the posted speed limit in a particular area, or the Engineering Department can use it when determining the total number of a particular sign type needed for replacement purposes.

Jim Baumann can be reached at (909) 793-2853 or jbaumann@esri.com.
With municipal revenues failing to keep pace with investment needs, civic leaders across Canada face the daunting task of managing scarce dollars, balancing competing demands for services, and ensuring citizens continue to enjoy a high quality of life. While the challenges confronting Edmonton are no different, the City has long understood the importance of sound infrastructure planning and has always been at the forefront of adopting innovative and strategic ways to manage resources.

The Edmonton Experience: Leading the Way

The City realized over a decade ago that a long-term plan was required to sustain current and future infrastructure assets. In the absence of a clear roadmap, the infrastructure gap would only magnify as costs continued to escalate and aging assets were not repaired or replaced.

To manage the issue, Edmonton was among the first municipalities in Canada to create a dedicated office to focus exclusively on asset management. One of our office's first deliverables was to develop a comprehensive infrastructure strategy that would identify the scope of the problem and what was needed to reverse it.

This effort was successful. The City of Edmonton now has firm knowledge of its asset inventory, its age, and its replacement value. The City also has the ability to optimize investment, based on an asset's life-cycle, condition and risk exposure by using sophisticated infrastructure management tools that the municipality developed and continues to refine. Along the way, Edmonton garnered recognition as one of Canada’s leading municipalities in the implementation of advanced infrastructure management techniques.

Today, Edmonton is making significant strides in managing over $35 billion worth of municipal assets, identifying funding needs and priorities, and using objective and quantitative decision-support tools to address the City's growing infrastructure deficit.

City administration and elected officials are using infrastructure management to help guide their decisions on how to best invest scarce infrastructure dollars. And even more importantly, they are using it to better defend tough funding and investment decisions.

There is now a recognition that infrastructure management is evolving beyond the traditional engineering, financial and technical arena—it is playing a more pivotal role in the City’s strategic planning and policy development arena.

Entering a New Frontier

The transition to a more strategic orientation is evident in how the asset management function and infrastructure management tools have in the past few years been integrated with corporate business planning and long-term direction-setting. Some of Edmonton’s notable achievements in this area include a better capital planning process and a program to renew neighbourhood infrastructure.

Capital Planning

Edmonton’s Risk-based Infrastructure Management System, commonly known as RIMS, was used successfully to develop the City’s 10-year capital plan and three-year capital budget. With City assets aging and more maintenance and rehabilitation required, RIMS is an important capital planning tool to optimize investment in existing infrastructure to ensure assets are in a condition that meets intended performance and service levels.

To establish capital funding requirements, RIMS provides valuable information on how to balance the competing demands between renewal and growth infrastructure by determining renewal targets for each asset class in relation to risk exposure and current physical condition.

Our analysis showed that to reduce the amount of poor and very poor infrastructure, an average annual reinvestment of $400 million was required over the next three years (2012-14) and an average annual reinvestment of $450 million over the remaining seven years (2015-2021). This level of reinvestment will ensure the City’s asset base is maintained in a good state of repair and the percentage of assets in poor and very poor condition is reduced.

Kwok Lui (Konrad) Siu, P.Eng., M.Eng., MBA
Director of the Office of Infrastructure and Funding Strategy
City of Edmonton, Alberta
Currently, about 16% of Edmonton's infrastructure is in poor or very poor physical condition. Our goal is to reduce the amount of assets in poor or very poor condition to 6% within 20 years.

**Neighbourhoods: Earmarking of Tax Levy**

Asset management was also the main driver in substantiating the need to inject significant dollars into Edmonton's crumbling neighbourhoods. Again, the risk methodology was used to identify critical assets and their projected physical condition based on a given level of renewal investment. Our analysis showed that neighbourhoods topped the critical list and confirmed that inaction would result in further asset deterioration, posing a potential risk and liability for the City.

Neighbourhood infrastructure at the time had a staggering $2 billion funding gap, and represented about one-third of the City's renewal shortfall. The grim scenario demanded a proactive approach that could guarantee a stable and predictable revenue stream to deal with the infrastructure backlog. Revenues also had to grow over time to generate sufficient dollars for the ongoing maintenance of neighbourhoods beyond the 30-year life of a newly created neighbourhood renewal program.

Council approved the earmarking of property taxes on the basis of the risk analysis to address the significant funding shortfall. The tax levy included 2% per year for the first and second year (2009-10), and 1.5% for 2011. The City's 10-year capital plan has the levy continuing at 1.5% per year until 2018, when the program will be self-sustaining.

Over the first three years of the program the annual tax levy raised about $45.7 million. Based on current estimates, a 10-year dedicated property tax increase will generate a required funding pool of about $170 million by 2018.

**Allocation of Grant Funding**

In the City's previous capital plan (2008-17), a less refined risk model was utilized as a tool to allocate Edmonton's $2.1 billion share of the Government of Alberta's Municipal Sustainability Initiative (MSI)—a province-wide program designed to provide Alberta municipalities with sustainable funding over a 10-year timeframe.

Given MSI's considerable dollar value, coupled with Edmonton's sizable infrastructure need, the City wanted to ensure the dollars allocated to the renewal of existing assets was based on highest need, priority and corporate strategic direction.

The grant was allocated on a city council approved split of 60 percent to renewal and 40 percent to growth; renewal funding was then allocated using the risk model. To optimally allocate dollars, the decision-tool informed the City how much it would cost to maintain its renewal infrastructure at a specified level of performance and risk, and how various funding scenarios might impact asset performance and risk.

Kwok Lui (Konrad) Siu has been an APWA/CPWA member since 2000. He can be reached at (780) 496-5579 or konrad.siu@edmonton.ca. This article was originally published in www.letstoc.ca – Let's Transform Our Communities and is reprinted here with permission.
Cleaning up with new technology

Jackie Barnette
Public Works Director
City of Kings Mountain, North Carolina

Advances in technology are all around us—smaller, faster work computers, smarter phones, the ability to connect to the Internet from almost anywhere. And so it’s always a good idea for municipalities and organizations to search for the best ways to include high-tech tools in their work processes.

That doesn’t mean you start buying every gizmo that hits the market, but when you look at an existing process or a new program and ask how it could be done better, you definitely should explore all your technology options.

That’s what my city did for our new curbside recycling program, and we ended up with a simple but effective system that has proved to be both time- and cost-efficient for us. Our public works department is using a combination of a handheld computer, a customized software program and a rugged radio frequency identification (RFID) antenna and reader.

And we have ideas for how to use the technology to do even more. Lots of ideas.

It started with a sales call from Mack McCarter of LogicConcepts, a technology company that specializes in data collection systems. He contacted us about streamlining our sanitation collection process—“get the right people to the right place, save gas,” is how he described it.

I was open to his idea, but I had something else in mind, too. We were just developing a curbside recycling program, with a grant from the state of North Carolina to get started. And the grant indicated a preference for using RFID readers to track recycling participation.

We had previously considered using handheld computers for other applications, but we hadn’t been able to justify the cost. But a handheld computer with RFID capability built in? With this grant program we had some real justification.

So we put together a package of tools that would do the job.

First we had a customized software program created. It was based on a simple programmable touchscreen interface, with buttons for different data-gathering functions. This would let our workers use a simple button-level approach to collect information.

We needed a compatible piece of hardware with specific functionality for field work, and we chose the Nautiz X7 rugged handheld from Handheld US. It has RFID...
capability and integrated GPS, plus an autofocus flash camera, voice-note capability, a non-reflecting touchscreen and long battery life. It’s light, but rugged enough for our purposes—for example, it’s impervious to dust and water.

The final piece of the puzzle was the RFID-specific functionality. We connected with an outfit that provided an RFID reader and antenna combination that maintained the handheld’s waterproofing, dustproofing and vibration resistance.

Once we had the entire system, we put it to work. The recycling program’s overall goals are straightforward: haul less garbage to the landfill, pay less in landfill charges, save money while helping the environment. But at the detail level we need to know which households are doing what.

First, our crews attached a corresponding street address to each of the roughly 4,200 recycling containers, which came with RFID chips embedded in them. Then we split the sanitation district into 10 zones—the pickup schedule is once every two weeks, so there are 10 different daily routes.

Using the dash-mounted handheld, our field workers check recycling containers as they follow their route. The software’s “button design” also lets them gather detailed information: Is there a container out at each address, does the container match the address, is it full or half-full, are there non-recyclables mixed in, does the container need repair or replacement?

The handhelds have built-in Wi-Fi, so at the end of their shift our workers upload the day’s data directly to our central public works computer with one touch of a button.

Our department uses the information in a variety of ways—but most important, we use it to measure the success of the recycling program.

The system is really user-friendly, and the workers love it. We can tell how much participation there is in each zone. We target the zones with lower participation levels, providing those folks with more education on the benefits of the program. Having the RFID data helps us allocate our resources where they’re most needed.

Mission accomplished, then. But now we have this high-tech tool…

Once we got the system working and accomplished our initial scope, we quickly recognized that we had the ability to do additional types of data-gathering. The software offers many more options—we can track low-hanging branches, roadside garbage and more.

And our local gas utility is looking at this technology too. They could locate all the valves in town, document incidents and solutions, and ensure regulatory compliance. The city could also use it for stormwater management, police and fire, asset management…it’s like a library of applications our people can share—and we can adapt it to almost any need.

In our first year with this new technology and our new recycling program, we diverted 17 percent of our city’s residential waste from the landfill—592 tons. The longer we do this, the more awareness we’re going to raise, and the more we can accomplish. And as we find new ways to use this technology, it’ll have an ever-growing impact.

Jackie Barnette can be reached at (704) 734-0735 or jackieb@cityofkm.com.
From the very beginning, the American Public Works Association has had the diversity that characterizes it today. APWA is the result of the merger of two predecessor organizations, the American Society of Municipal Engineers (ASME), which was formed in 1894, and the International Association of Public Works Officials (IAPWO), primarily comprised of non-engineers who were engaged in public works management and service delivery. The majority of the Society’s members were consultants, design engineers, construction supervisors, and water works directors.

Recognizing that other associations had established headquarters in Chicago and had obtained financial assistance in developing their programs to become self-sufficient, in 1934, ASME and IAPWO agreed to work toward a joint organization. After creating a very successful Joint Public Works Congress where the two organizations could meet together, ASME and IAPWO decided to merge. Funding was secured, and on January 1, 1937, the American Public Works Association was formed.

APWA has witnessed extensive growth, accomplishment, turmoil and transition. It has been a strong leader in many areas, including education, history and research, to name only a few. Over the years APWA has conducted scores of research projects and published many research reports that were regarding as significant contributions to the field of public works.

Special interest groups within public works were accommodated through the development of the Institutes for Professional Development (now known as Technical Committees), as well as through the introduction of specialty conferences such as the North American Snow Conference. Other special groups of note included the Council on Emergency Management, the Council on Equal Opportunity (now the Diversity Committee), the Public Works Historical Society, MicroPAVER, Management Practices and the Management Practices Accreditation Council.

Motivated by the wish to upgrade office facilities and make visible and substantial changes in the organization, APWA headquarters was relocated to Kansas City in 1993. As public works services become more complex and the skills required to deliver them become more diverse, APWA continues to position itself to respond to these changes and the needs they identify. Building on our tradition of service to the public works profession, we will meet the challenges of being the comprehensive public works resource in the twenty-first century.
Editor’s Note: Four years after his retirement as the CEO of APWA (from 1953-1989), the author of this article addressed the Annual Meeting of the Public Works Historical Society. The meeting was held in Phoenix, Ariz., in conjunction with the 1993 APWA International Public Works Congress & Exposition. His remarks on that occasion were entitled “Milestones in APWA’s History.” They appear, in full, in the Association’s book People Making Public Works History. We appreciate his consenting to prepare an article for the special 75th Anniversary section of this issue, commemorating the founding of APWA 75 years ago.

From the beginning of civilization, as we know it, people have instinctively joined together for their own self-interests. The natural resources of land and water were manipulated to grow food for families and tribes in ancient times. As humans learned from their experiences, different types of networks emerged to respond to both “kind-hearted” and “evil-minded” people. Based on my reading of history, there are more organizations, and forces for good, working to serve people than to harm them. This may be due to the fact that humans are naturally endowed with more positive than negative genes...more favorably inclined toward liberty, with peace and justice for all, than to evil, conflict and violence.

Regardless of the reasons, improvements in the education and communication of people have enhanced the quality of life of each succeeding generation. The growth and development of the global community during the past century, in particular, has accelerated the evolutionary process. Millions of public and private organizations have been created to produce products and services, and provide useful employment opportunities, for people around the world. Thousands of national, state and local governments have been formed to provide schools, transportation facilities, and water and waste control systems which sustain economic growth and prosperity.

The evolution of the free enterprise system in the United States, during the eighteenth and nineteenth centuries, brought about both progress and challenges for the new nation. The interdependence of the public and private sectors of the economy was widely recognized. One of the major concerns was the lack of professional talent to staff “key” positions in state and local governments. The success of the private sector resulted in the growth of many philanthropic institutions during this period. One, namely the Spelman Fund, created by the John D. Rockefeller family, recognized this problem. It provided grants to several groups of public officials, who were trying to form associations, to promote professionalism in their respective fields of activity.

Two such groups were the American Society of Municipal Engineers, organized in 1894, and the International Association of Public Works Officials, formed in 1919. With financial assistance from the Spelman Fund and the vision and dedicated efforts of Donald C. Stone, these groups merged in 1937 to form the American Public Works Association. Dr. Margaret Mead, the famous anthropologist, once said, “Make the most of each day, so others may grow and develop on what you have learned.” This reflects the kind of “intergenerational” thinking that led to the formation of APWA and has influenced its growth and development during the past 75 years.

It was my good fortune to join the staff in 1953, as assistant to Donald Herrick, who was then serving as Executive Director of the Association. It was headquartered on the campus of the University of Chicago. I succeeded him in this position in 1958. Members, of course, constitute the most important resource of any association. They determine its purpose and the scope of its goals and objectives. The fact that APWA has experienced steady growth from 750 members, when it was created in 1937, to nearly 30,000 today, indicates that significant progress has been made in responding to the perceived needs of the membership and its constituents. The history of APWA has been well documented in the pages of its monthly magazine, the APWA Reporter, as well as APWA’s 658-page book, People Making Public Works History. Therefore, I will not repeat it in this article. However, I should make it perfectly clear that much of the credit for the progress made is due to the excellent leadership provided by the Presidents and Boards of Directors over the years. The Board adopted a strategic plan for the growth and development of APWA in the late 1960s. It is updated, from time to
time, and has served as a blueprint for many of the programs and activities successfully undertaken in recent years.

Recognizing that a mixed audience will, naturally, interpret views from different perspectives, I will proceed to share some of my observations about the history of APWA over the last 50 years, in particular. What might be called milestones in the evolution of APWA can be grouped into five “building blocks,” each contributing much to the progress made by the Association: (1) Education (the Annual Congress & Exposition, Multiplicity of Training Programs); (2) Chapters and Branches; (3) Publications and Outreach Programs; (4) Coordination and Cooperation; and (5) Special Activities.

Education. The APWA Congress & Exposition continues to be the premiere event of the year for all segments of the multi-billion-dollar public works industry. It features a broad range of educational programs and is a unifying forum for all aspects of this multi-faceted profession. The exposition is highlighted by hundreds of exhibits of the newest products, equipment and services available to respond to the public works needs of state and local governments throughout North America.

For many years, APWA has offered a wide variety of workshops and seminars to provide opportunities for the training and development of its members and other employees of public works agencies. This past year, however, bold action was taken to create the Donald C. Stone Center for Leadership Excellence in Public Works. This can become a milestone in the advancement of the public works profession, because of the comprehensive nature of the Center. It has created three Leadership Designations: Public Works Supervisor, Manager and Executive. Individuals may progress along one or more paths based on interests, background, opportunities and experience. Building leadership skills in the next generation is the primary goal of the Center. The program also includes a unique opportunity to learn from APWA’s most experienced executives—Public Works Leadership Fellows—each of whom has at least 20 years of senior executive experience and is committed to mentor an aspiring candidate in this innovative executive development program. A certification and credentialing system has also been established for some technical specialty positions such as Public Fleet Manager, Infrastructure Inspector and Stormwater Manager.

Chapters and Branches are a vitally important part of the Association and are largely responsible for the growth of the membership. The knowledge gained and wisdom shared through educational programs is of little value until it is used. That is why chapters and branches are really the “key” to the ultimate success of the organization. When I first joined the staff, I devoted a great deal of my time to promoting the formation of chapters. This gave the people working for public works agencies, in the cities and counties throughout the U.S. and Canada, the opportunity to join together and actively participate in, and thus benefit, from their membership in APWA. This resulted in significant growth in all types of membership, including those in the private sector, such as consulting engineers, contractors and suppliers of equipment and other products needed to provide public works facilities and services. Chapters and branches make available opportunities for each individual member to use his or her talents and abilities to tap into APWA resources and utilize them in their respective organizations. The experience gained in doing this not only enhances one’s value, but also provides the next generation of leadership for the Association.

Publications and Outreach Programs serve as valuable resources for implementing APWA’s aims and objectives...“Making Life Better for Everyone.” This is, obviously, an ongoing, universal objective. We can only hope to make progress toward achieving it...but it, at least, keeps us focused on an enlightened, evolutionary process for future generations. Socrates, the great Greek philosopher, once said, “Goodness in human beings is based on wisdom, while evil is based on ignorance.” He felt that knowledge was the source of all wisdom. However, he encouraged all Athenians to carefully analyze opinions to sift out what was valid from what was not, in their search for truth and knowledge.

The first publications issued by APWA were the monthly Public Works Engineers’ Newsletter and the annual Public Works Yearbook in 1937. The former was intended to keep the membership informed of current events, of general interest in the field of public works, but would include no technical articles. The latter included the proceedings of the annual Congress, as well as information regarding membership and actions of the Board of Directors. In 1962 the APWA Reporter magazine replaced both the Newsletter and the Yearbook. Action was taken to promote advertising and the quality of the Association’s official publication has continually improved over the years. It is now recognized as the primary source of information on life-cycle management of public works and this dynamic profession. APWA has also greatly expanded its publications program, in recent years, and is now considered a leading source of literature about public works, with more than 500 publications and other resources in its inventory.

APWA’s outreach program is highlighted by its sponsorship of National Public Works Week. It features the selection and recognition
of the Top Ten Public Works Leaders of the Year; however, its most significant value is in making the general public more aware of the importance of public works in their daily lives. The media, the schools, and other means must be used to better inform citizens of how roads, water supply and other public works systems provide jobs and prosperity in our communities and make it possible for the private sector to function. This type of public education program warrants far more attention and resources than it has received in the past. Its potential benefits in helping to generate financial support for public works programs should not be overlooked. It can also help in attracting the “best and the brightest” to pursue careers in the public works profession.

**Coordination and Cooperation.**

One of the most important actions taken by the membership was its approval of a proposed amendment to the APWA Constitution in 1963. It specifically stipulated that one of the purposes of the Association shall be the promotion of cooperation of all persons, as well as public and private organizations which have interests in the field of public works. This sets APWA apart from all other organizations serving different fields of specialization in the realm of public works. It means that APWA complements the work of such organizations and should not be perceived as a competitor, but as a unifying force in this dynamic field of activity. APWA was created to help make democracy work and promote liberty and justice for all. It strives to do this by helping state and local governments respond to the needs of their respective constituents in what they consider to be the most effective and efficient manner possible. Many opportunities have arisen where APWA has been able to coordinate projects of common interest to public works agencies. For example, when I was actively involved, we had a cooperative research program which enabled local governments, in particular, to share the cost of research projects, in which they had a common interest, but were too expensive to finance on their own. Hundreds of cities and counties joined together to share the cost of many $100,000 projects. In fact, APWA was conducting over a million dollars’ worth of research projects, at one point in time, which included some financed by contracts with the U.S. EPA and the Federal Highway Administration. It had considerable merit and should be revived.

APWA has also played a leadership role in promoting cooperation in dealing with many public works-related issues. For example, it responded to a request from the National Transportation Safety Board to take action to reduce accidents and minimize damage to underground utilities resulting from excavations in public rights-of-way. It actively promoted the formation of Utility Location and Coordination Committees and One-Call Systems, by cities and counties, which helped to alleviate the problem. It also sponsors the North American Snow Conference each year to enable those responsible for snow removal and ice control operations to share their knowledge and experience. The Association has likewise been actively involved with the Federal Emergency Management Agency in promoting the formation of mutual aid agreements among local governments, and in cooperating in other ways to deal with floods, tornadoes, hurricanes, and other emergencies.

**Special Activities** have been undertaken by APWA to enhance the growth and development of the public works profession and, eventually, have a positive impact on people in the global community. Progress made by this Association, since it was formed 75 years ago, clearly demonstrates its value to public works agencies from coast to coast. They, in turn, have provided facilities and services that have helped the private sector
prosper, thus making our nation what it is today. APWA could serve as an excellent model for the evolution of similar associations in other countries around the world.

To encourage and facilitate the exchange of knowledge and experience in the life-cycle management of public works, APWA has engaged in a variety of international activities. This has included study tours to Europe and Japan and the establishment of the Jennings Randolph International Fellowship with the cooperation of the Eisenhower Institute. It provides funding to cover the travel abroad to study some aspect of public works, and then make a presentation of the findings at a session of the APWA Congress. What I consider to be the most promising, but perhaps premature, undertaking by APWA was the formation of the International Public Works Federation in the 1980s. The CEOs of a number of well-established international organizations, such as the International Union of Local Authorities, the International Road Federation and the International Federation of Municipal Engineers kindly agreed to serve on IPWF’s Board of Directors and collaborate in its development. Unfortunately, I retired before the seeds for this new organization had a chance to take root...but I still feel that it will reappear someday as part of the evolutionary process.

Another unique organization that was created in 1975, under the auspices of APWA, is the Public Works Historical Society. It was formed as a result of the interest in history, generated among the membership with the publication of History of Public Works in the United States 1776-1976, prepared by APWA to celebrate the nation’s bicentennial. The Society’s publications and awards have stimulated a significant increase in research, by professional historians, on a wide variety of public works-related topics. Its biographical program has revealed noteworthy achievements of many pioneers of this evolving profession. Most important of all, the ongoing materials produced by the Society, and by the IPWF, can enhance the quality of the profession by increasing member awareness of public works developments from both an international and an intergenerational perspective.

The term “public works” has been universally used for centuries; yet its precise meaning varies depending on the perspective of those using it. Lyon Sprague de Camp, author of The Ancient Engineers, said, “Khnumabra was Minister of Public Works under the Persian King Darius I about 490 B.C.” The New International Version of the Bible, in Romans 16:23, indicates that Erastus, an aide to the apostle Paul, was the “director of public works” of Corinth, the famous city in Greece. He was also cited as the “Corinthian aedile...who had a section of the city’s pavement laid at his own expense.” While “infrastructure” and “civil engineering” are often used interchangeably with “public works,” the terms are not synonymous. Infrastructure is a much broader “catch-all” term, while “civil engineering” refers primarily to structures of all types in both the public and private sectors of the economy. “Public Works,” however, is unique in several respects. It has been defined as “fixed assets (normally structures used in providing public services) in which government (federal, state or local) has some type of financial interest and/or legal responsibility.” Democratic self-governments, and a market-based economy, have evolved as the best means of responding to the basic needs of people and helping them achieve their potential in the complex society in which we live.

There is inherent political power embodied in public works by virtue of its influence on both public and private property values. It can also have a significant impact on present and future land use and the quality of the environment in which people live and work in pursuing their goals and objectives. The piecemeal,
fragmented development of individual projects, especially in metropolitan areas, is giving way to the use of special districts and authorities for the development of large-scale projects. In some cases the concept of “coordinated decentralization” has been successfully employed by using shared databases and telecommunication networks. This requires enlightened cooperation by public works managers and executives of the jurisdictions involved. States normally empower local governments to regulate the use of land, within their boundaries, and provide basic public services to their citizens. This is done directly, using public employees and competitive contracting procedures; or by granting a franchise to one or more private firms to provide such services.

The trend, in recent years, to deregulate private utilities and to use “innovative” financing procedures has, in many cases, blurred questions of ownership, liability and accountability between the public and private sectors. Frank Randall, the Rights-of-Way Superintendent of the Pacific Telephone and Telegraph Company in Los Angeles, once told me that he felt that facilities owned by private utilities, which are used to provide basic public services, should be considered public works, the same as those owned by local governments. The determining factor, he said, should be “whether or not the services provided are subject to authorization and control by the people’s elected representatives. The customer is primarily interested in the quality, dependability and price of the service they need, regardless of who the provider may be.” This suggests that the definition of public works, mentioned above, should be broadened by inserting the word “basic” before public services.

The public works systems that serve the people of this generation are, to a large extent, an inheritance we received from our ancestors. It is deteriorating at a faster rate than it is being replaced. Yes, we are spending and thus depleting our inheritance and will soon have worn-out, obsolete public works facilities to pass on to our children and grandchildren. The people’s elected representatives, at all levels of government, must promptly and courageously respond to this need, if future generations are to enjoy the quality of life we have today and be successfully employed in the world of tomorrow. The basic problem is the lack of funding and the basic reason is lack of courage to make politically sensitive decisions.

Therefore, the challenge facing APWA and its membership, at this critical point in time, is: What can we, appropriately, do to help motivate those responsible to take the action needed to solve the problem? Elected officials, in a democracy, are normally responsive to their constituents. However, they seldom do anything unless they are well-informed on problems and how their constituents are impacted by them. Those involved in producing public works facilities and services thus have an important public education role to play in helping to solve this increasingly serious problem. Mobilizing the facts and other resources needed to conduct effective public education programs requires funds which are not readily available. Innovative thinking and action are thus required.

It seems to me that the nature of the problem is widespread and its impact will vary from one community to another, based on many factors. It will, however, impact virtually everyone. Two groupings can be clearly identified: (1) Those involved in “producing value” in the form of public works facilities and services, many of whom are members of APWA; and (2) Individuals, corporations and other organizations “receiving value” from public works facilities and services. Since the former group includes members who currently provide financial support for APWA’s programs and activities, I believe the latter group would be a potential source of income to provide funding for the expanded type of public education program suggested above. A grant from a philanthropic organization might help finance the type of fundraising program envisioned…which could include “pilot” projects conducted in cooperation with APWA chapters.

The feasibility of developing a “Public Service Gift Annuity” program could also be explored, whereby tax-deductible gifts are given to APWA, and the donor receives monthly annuity income for life. A portion of the income might be used to pay the premium on a life insurance policy, so the donor’s estate receives something, in lieu of the gift to APWA, when he dies. Innovative concepts, such as this, can generate funds needed to support the advancement of the public works profession in the United States, Canada, and around the world.

I believe that God is the personification of the perfect human being. That each of us has the opportunity to express the will of God, as it is revealed to us, by what we do with our lives. Viewing APWA’s history from this perspective, I consider myself most fortunate to be part of a generation that helped plant the seeds for the growth and development of this progressive public service organization. It has been a rewarding experience for my wife, Pat, and I to be associated with so many men and women dedicated to making life better for everyone. One’s vision of the future may be uncertain, to say the least. However, with faith, hope and courage, the future can be filled with peace, liberty and justice, as well as prosperity and happiness for an increasing proportion of many generations to come.

Robert D. Bugher can be reached at rdbugher@cox.net.

June 2012 APWA Reporter 61
This is a special year for our industry and our association; a time for looking back at all we have accomplished and congratulate ourselves over how far we have come. We look to three APWA Past National Presidents for their thoughts on their presidential terms and how they view the public works industry then and now.

**During your term, what were the most noteworthy or outstanding projects and/or events that occurred during your tenure? Please include any years or dates known.**

George Crombie (APWA President 2010-11): During my tenure, I believe that the most important event for APWA was making major strides to addressing the challenges of a changing world and preparing our members for that tipping point. One of the many accomplishments included a new Global Solutions for Public Works program implemented to provide members and chapters the opportunity to explore the world engaging in partnerships, exploring new technologies, being introduced to new professional opportunities, and making friendships around the world. Produced in 2011, the emergency management “Think Tank Report” calls for an APWA National Emergency Management Plan that was endorsed by the APWA Board of Directors. We must now ensure the recommendations are carried out in a timely manner. You need to look back only 30 days to see the devastation of Hurricane Irene, the flooding in New Orleans and the wildfires in Texas to recognize the need for this plan.

Also in 2011, the Government Affairs Committee outlined a new strategic plan to ensure that investments in legislative initiatives are being spent effectively and wisely. In a world of instant gratification, there is a call to action to all those who impact the development of livable cities to partner with one another in making the case for a national plan that invests in sustainable infrastructure in order to bring population growth and natural resources into equilibrium. Last year, the APWA Board became a founding member with ASCE and ACEC to develop the Institute for Sustainable Infrastructure (ISI). Sustainability will form the foundation for decision making in the public works field in the future. Sustainability is not a checklist, but a thought process that allows you to adapt and build sustainable models that integrate natural systems and technology. Think of sustainability as developing a new DNA chain to bring mankind and the environment into equilibrium. I’m happy to report this morning that ISI has signed a letter of understanding with Harvard University that will provide ISI and the public works community with a world stage in cutting-edge ideas and thoughts in the world of sustainability.

Among these listed milestones, the most important achievement of APWA this past year was the creation of a comprehensive educational and credentialing program for the public works profession. The new educational center is called the APWA Donald C. Stone Center for Leadership Excellence in Public Works. Education remains the greatest resource a human being possesses.

Larry Frevert (APWA President 2007-08): I look back on my year as APWA President as one when natural disaster emergencies tested the mettle of public works personnel across North America. In the fall of 2007, wildfires in California destroyed homes and properties and threatened many others. APWA called on Governor Schwarzenegger to recognize public works personnel as “first responders” and he did so. The next spring, during the “Super Tuesday” Storm (Primary Election Day, February 5, 2008), 87 confirmed tornadoes ripped through much of the southeastern and Midwestern United States, resulting in many deaths and injuries and significant property damage. That spring, severe flooding occurred along the Mississippi River and its tributaries in the Midwest with the State of Iowa being especially hard hit. All the while, the Gulf Coast states were continuing their recovery efforts from the Katrina hurricane of 2005. Public works first responders were on the scene helping with the initial evacuations and life stabilization efforts and then remained on the scene long after others had gone, restoring their communities’ quality of life.
Project wise, the Big Dig construction in Boston was declared complete on December 31, 2007.

I’m also proud of the video APWA produced during my presidential tenure that tells the story of how the United States is suffering because of our failure to properly invest in our transportation infrastructure, and the negative consequences of Congress not passing transportation funding reauthorizing legislation. Continued underfunding of our infrastructure investments resulting in growing deferred maintenance backlogs was, and continues to be, a major concern for members of the public works profession.

Bill Verkest (APWA President 2006-07): Over the course of my tenure with APWA, I stayed busy representing the association and the membership. My year as president started quickly when in September 2006, I joined ASCE in releasing the California Infrastructure Report on the capitol steps in Sacramento, demonstrating both associations’ concern with the state of the nation’s infrastructure. In November 2006, I represented APWA when I accompanied a distinguished group of leaders on a French Water Tour visiting Paris and Leon and witnessing how the French manage modern water and wastewater issues. During my term I also had a hand in implementing the Governance Task Force recommendations. This task force was created by Bob Freudenthal during his presidential term and in many ways reinvented how the association should be managed. I also commissioned and set to work an Education and Certification Task Force charged with looking forward and identifying how member certification could add value to the membership and to a member’s career.

I also furthered the framework for the next SAFETEA-LU. The work of the SAFETEA-LU Task Force ensured Congress understood the continuing need for a long-range surface transportation bill. I am particularly proud of the significant advances in Chapter Capacity Building—my number one priority—making chapters stronger and more responsive at that level of membership. We also helped advance APWA’s legislative priorities, signed an MOU with the Society of Military Engineers (SAME), and met with the U.S. Secretary of Transportation and the Homeland Security Under Secretary. The meeting with the Secretary of Transportation was at our request for the purpose of explaining APWA’s transportation legislative priorities and to pledge the association’s support in rebuilding the nation’s transportation infrastructure. The meeting with the DHS Under Secretary, also at our request, was to advance the role of public works as a first responder and to create a partnership to meet whatever emergencies might befall the nation. In March 2007, I had the honor of testifying before the National Surface Transportation Policy and Revenue Commission, led by the U.S. Secretary of Transportation, explaining APWA’s position on funding surface transportation needs. We held the first-ever Education Summit in Denver in March 2007 and the third highly innovative leadership conference in February 2007 in Kansas City. We also launched the Certified Public Infrastructure Inspector program designed to credential public works professionals inspecting in-progress construction. And certainly not the least of things, there was a remarkable growth in our membership amidst all of this activity.

What made them noteworthy?

Crombie: These accomplishments provided the catalyst for APWA to begin to address the challenges the twenty-first century will bring. Broadening our international vision, sustainability, emergency management, identifying our legislative actions, and most important, developing a knowledge map for educational needs of the public works manager of the future are essential to the growth and development of APWA and its members.

Frevert: The consequences of these emergencies were life changing for many and public works helped restore and rebuild these communities restoring a sense of order. Also, by continuing to draw the elected officials and public’s attention to the condition of our deteriorating infrastructure, we keep an impending crisis in focus for attention lest we all suffer quality of life deterioration because of infrastructure failure.

Verkest: I do hope that the accomplishments made APWA stronger and more visible, at several levels, and added benefit to the chapters and to the association membership.

Was APWA involved?

Crombie: APWA staff and membership were involved in every step of the way in taking the vision that I had outlined in Boston in the summer of 2011 and bringing that vision to reality. For every accomplishment identified, you will discover a team of APWA staff members and highly qualified APWA members who took a vision and turned that vision into a plan of action. At the end of the day, these accomplishments are shared by many.

Frevert: APWA members were at the forefront, as they always are, of the disaster response and recovery efforts. APWA as an association supported them, such as corresponding with Governor Schwarzenegger to recognize the public works professionals as first responders and
meeting with the FEMA Administrator to improve cooperation between their agency and the local governments leading the recovery efforts in the Gulf Coast States.

Verkest: Staff support was superb from Peter King and Kaye Sullivan through the full staff. At the risk of offending someone, I would applaud Teri Newhouse, Brian Van Norman, Jim Fahey, and Kevin Clark. Brian, for example, championed the Chapter Capacity Building initiative and made it successful. Peter and I tackled a major crisis as soon as I took office and resolved it to the satisfaction of the Board of Directors.

What were some of the advances (perhaps technological or other) you saw during your presidency?

Crombie: As I traveled across North America during my presidency, I saw tremendous opportunities technology could bring to building sustainable communities. Some of these opportunities I envision include wastewater treatment plants that will no longer be energy guzzlers, but become energy producers. I can see the day when the effluent from a treatment plant will support hypnotic agriculture centers reducing the need for fruits and vegetables to travel thousands of miles. Also, a wastewater plant will not only keep our waters clean, but will become a renewable energy engine. Portable water in our cities will be purified and recirculated, and we will no longer try to outbuild the automobile by adding more lanes. Urban streets will be built for pedestrians and mass transportation as a first priority. Like the Interstate Highway System, there will be a national high-speed rail system connecting our cities and airports, and light rail connecting the suburbs. In the next few decades, public works equipment will be powered by renewable energy. Renewable fuels will evolve.

Further, public works facilities will become town educational centers where residents can learn and see first-hand the latest developments in solar, wind, thermal energy, and power sources we only can dream of today. The smart grid will become part of our everyday lives. I also envision more private-public operations that will take advantage of implementing the latest technologies into our communities. We will move away from just managing water and wastewater plants and take over the management of watersheds to stabilize water tables and nutrient runoff. The value of water resources will outpace the price of gold in the future. Stormwater management will be viewed in a manner not only to reduce runoff to protect our water resources, but to hold nutrients for agriculture purposes.

Massive tree plantings will not only cool our communities in the summer, but will be viewed as consumers of vast amounts of CO₂. Keeping cities cool in the summer and helping to eliminate air pollution are directly linked to improving public health.

Building materials that we can’t even imagine today will be used to build energy-efficient buildings and our infrastructure. The educational requirements of public works staff to manage these new systems will increase requiring public works agencies to become virtual classrooms.

Solid waste will become a valuable resource. The cost to recycle waste will be the best deal in town versus dumping the waste into a landfill. The goal of zero waste will no longer be a dream.

The public works profession will expand across the world and a high percentage of public works professionals will be working in international communities.

Frevert: Access to information via the Internet had become a “way of life,” as had GIS mapping and data management and GPS locating and routing of public works personnel and equipment. Further, winter storm fighting technology expanded, with anti-icing and deicing efforts incorporating alternative materials.

Verkest: This is not what you are asking, but I witnessed the Board of Directors working in a highly professional manner regardless of the issue, the APWA staff provided support without question, the financial position of APWA was exceptionally strong, and new programs were added to the benefit of the membership.

How has APWA's mission changed over the years? Or has it stayed the same?

Crombie: History is a great teacher in understanding change. Change does not come overnight, but if you study the events that led up to dynamic change, the signals are everywhere beforehand. What is interesting about change is that it builds upon the accomplishments of past generations, but doing business after change occurs is dramatically different.

What worked prior to the Depression in the 1930s, didn’t work in the ’50s, and what worked in the ’70s, ’80s and ’90s is not going to work in the twenty-first century. If this wasn’t the case, Ford Motor Company would still be producing Model-T cars. Albert Einstein said, “If you keep doing the same thing, you will get the same results.” Change is scary, but it is all around us and unavoidable. Every few decades, significant change takes place and I believe we are on the verge of a new world order that will require society to bring population and natural resources into equilibrium. Just look around at the signals.
Our traditional economic models fail to take into consideration the costs of depleting natural resources and the impact to future generations. This must change. Engineering consulting firms are consolidating all over the world to address the needs of an emerging new world market. We are beginning the transition to renewable energy. It took thousands of years to reach a worldwide population of one billion people in 1776. Today, we have a population of 6.5 billion people and growing at a rate of a half billion people every ten years. Just think for a moment the consumption needs of a merging worldwide economy.

In the mid-'80s, the planet reached equilibrium of inputs and outputs. Today the output of natural resources exceeds inputs by 30 percent. The lowering of water tables, increased levels of CO\textsubscript{2} in the atmosphere, depletion of topsoil, time running out on fossil fuels and natural elements like potassium, the loss of fishing grounds, and widespread traffic congestion are not sustainable. If you think about this, there isn’t a function provided by public works that isn’t affected by depleting natural resources. Public works now and in the future will play a profound role in creating this balance between population and natural resources. From my perspective, the twenty-first century will be an exciting time for the public works profession.

**Frevert:** APWA’s mission is constantly evolving as new technologies impact the public works profession. Yet, service to the members of our association and the public works profession continues to be its foremost objective. The “graying” of the public works profession and the departure from the workplace of personnel with many years of knowledge has opened up opportunities in the profession for younger, better educated professionals who have the potential to advance public works to a much higher level. However, what these younger professionals possess in potential, they lack in experience and there is a tremendous opportunity for senior members of the profession to mentor them to their full potential. Establishment of the APWA Donald C. Stone Center for Leadership Excellence in Public Works will be of paramount importance to this effort.

**Verkest:** The basic mission has not changed, but the execution has changed to include strategic planning, an expanded website, launching of new programs such as certification, and listening to the membership.

**How has public works evolved and where it is headed?**

**Crombie:** The public works profession is evolving at a rapid pace. In the future it is going to take public works managers that are not only good technically, but have the management skills to work in a non-linear world and look more like a CEO. This new world order will require whole brain thinking, using the right brain for linear thinking and the left brain for logical and analytical thinking. It will require managers in the public works profession to become conceptual thinkers in order to play with others in building our future cities. Our universities and colleges are already moving in this direction. The challenge in the future will not be the technology, but the ability through management theories to institute new technology and ideas. As our world becomes more crowded, the pace of decision making will become more complex, and will require public works professionals that can build sustainable models to address the challenges ahead. A new world order will require public works professionals that are creators to work with others in building smart communities that connect housing, business, schools, shopping, and social activities into a new green grid. Sound far-fetched? I do not think so. The signals are everywhere.

**Frevert:** Public works continues to make a positive contribution to the lives of the citizens it serves on a daily basis. There is no profession that directly affects the citizens’ quality of life so positively as do the members of the public works profession. Regardless of the technological improvements that the citizens of the next century receive, they will still need and depend daily on the contributions of the public works profession. May we as public works professionals understand, recognize and appreciate our role in the way of life that is dear to us all and never take for granted our importance in keeping our citizens safe, healthy and productive.

**Verkest:** Public works will always be a “boots-on-the-ground” function. Technology, equipment, tools, and budgets will always impact the profession. But, the people who make it happen won’t change. They will meet the everyday challenge of sustaining infrastructure performance through hard work, regardless of what day of the week it is or what time of the day it is.

**Conclusion**

The next 75 years will take us into new uncharted territories as technology and sustainability bring public works operations to new levels of efficiency. The impact of these former presidents has shaped the future of APWA and the many professionals working to meet the ever-changing needs of the industry. Public works will always be the heart of a municipality and will continue to impact each and every citizen, improving their quality of life.
Public Works Historical Society: the beginnings of a unique organization

Martin V. Melosi, Ph.D.
Distinguished University Professor
University of Houston
Past President, Public Works Historical Society

have been associated with the Public Works Historical Society and APWA since 1974-1975, when I met key APWA staff members and historians Suellen Hoy and Michael Robinson at a history conference in St. Louis. They were involved (along with Ellis Armstrong) in editing what became The History of Public Works in the United States, 1776-1976, published by APWA in the bicentennial year. Sue and Mike introduced me to the new organization—the PWHS—which was meant to last beyond the publication of the book and bring together practitioners and historians to work on projects of mutual value to APWA and to the history profession.

By 1983 I was named to the Board of Trustees of PWHS, and in 1988 became president. That period proved to be an extraordinary time for me, and I became PWHS as well. The Public Works Historical Society was a unique organization. We found great support from then-APWA Executive Director Bob Bugher, but were strongly urged—very strongly urged by Dynamic Bob—to produce something relevant to the association’s members while finding a place in the historical profession for the study of public works. Neither was an easy task, made more difficult—in my mind—by throwing together academics with very senior public works professionals that had had very little reason to talk to each other. In those early meetings we stared across the table at one another, politely making small talk but without really accomplishing much. Through a series of events, which stretched from PWHS’s home in Chicago, to Washington, D.C.; Portland, Maine; Ottawa, Canada; and elsewhere, the almost uncomfortable chit-chat turned substantive. A bond emerged, first in friendship and then in getting to understand different worlds and different interests that finally came down to a love of history and a seemingly unlikely love for public works and infrastructure.

Personally, I became particularly close not only to key staff member Howard Rosen (a fellow historian) but to practitioners like Jim Martin (Public Works Director, Fresno, California), Bob Goodin (Public Works Director, Potomac, Maryland), and Herb Goetsch (Public Works Director, Milwaukee, Wisconsin). I learned so much from them, prized their friendship, and worked with them to further hone and develop a bond between history and APWA. Bob Esterbrooks (County Engineer, Phoenix, Arizona) introduced me to many elements of civil engineering that I only read about but never experienced. His advice transformed my scholarship on solid waste management in a fundamental way, especially making clear to me differences between short-term engineering objectives and long-term planning. The various encounters and growing personal bonds with the practitioners made it clear to me that the seeming gap between our careers could be easily bridged by talking to one another—and listening. That lesson helped to perpetuate the Public Works Historical Society at least on the board level.

The organization has made great strides in producing many valuable publications and oral histories, bringing historical knowledge and information to myriad APWA Congresses, promoting the importance of history, and asserting the great value of the work of local chapters. What remains to be done, however, is finding a way to get more public works professionals and historians to get to know each other in the way I got to meet and know a number of extraordinary people in the service to their cities and to APWA in general. It is not enough to write about the past, but to put flesh and bones on it. This is the major lesson I have taken away from my experiences with the Public Works Historical Society and APWA.

Dr. Martin V. Melosi can be reached at (713) 743-3090 or mmelosi@uh.edu.
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## PART 1: FULL CONGRESS WEEK REGISTRATION

Register for a full week of Congress & Exposition below. Otherwise, skip Part 1 and go to Part 2.

**FULL CONGRESS WEEK** All full-week registrations include: All APWA Education Sessions, all APWA exhibits, downloadable recordings of education sessions, CEUs, Get Acquainted Party, Awards Ceremony, lunch on the exhibit floor on Sunday and Monday, and Wednesday’s Workshops.

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**CEO** Chief Elected Official (Limited to one Chief Elected Official for each registration)  
Last Name: ___________________________________________ First name: ___________________________________________

No charge

## PART 2: WORKSHOP WEDNESDAY AND PUBLIC WORKS STORMWATER SUMMIT

Attendees registered for the FULL CONGRESS WEEK may participate in any of the Wednesday Workshops or the Public Works Stormwater Summit at no additional cost. You must check the workshop you would like to participate in, but do not add the cost to your total. If you are NOT registered for the FULL CONGRESS WEEK, you may register for any of these workshops at the prices listed below.

**WEDNESDAY MORNING WORKSHOPS/TOURS** 8 – 11 a.m.  Space is limited, first come first served, so sign up now!  
(Buses leave promptly at 8 a.m.; please arrive by 7:45 a.m.)

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**WEDNESDAY HALF-DAY PUBLIC WORKS STORMWATER SUMMIT** 8:30 – 11 a.m.

**PART 3: DAILY EDUCATION SESSIONS AND EXPOSITION**

(Full-week registrants skip this section.) If you would like to attend the education sessions and exposition by the day, please mark which day(s) you are registering for below.

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| (GUS) SUNDAY SPOUSE/GUEST:  
Guest Last Name: ___________________________________________ Guest First Name: ___________________________________________ | $100 |     |     |
| (MC) MONDAY |     |     |     |
| (TC) TUESDAY | $285 | $350 |     |
| (WC) WEDNESDAY |     |     |     |

**PART 4: DAILY EXPO ONLY** (Full-week registrants skip this section.) If you would like to attend the exposition only for one day, please mark which day you will attend.

<table>
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<th>Day</th>
<th>Member</th>
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**PART 5: CONGRESS EVENTS** Complete your Congress experience with these special events. (Additional fees apply to all registration categories.)

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<th>Event</th>
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<tr>
<td>(SA) SATURDAY Pre-Congress Seminar: Self Assessment Using the Public Works Management Practices Manual 8 a.m. – 4:30 p.m. (Fee includes instruction, materials, and breaks. Lunch will be on your own.)</td>
<td>$300</td>
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<td>(EC) SATURDAY Effective Consultant Management for the Public Works Agency 9 a.m. – 5 p.m. (Fee includes instruction, materials, and breaks. Lunch will be on your own.)</td>
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<td>(CPWAL) MONDAY CPWA Luncheon</td>
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<td>(AAE EB) TUESDAY AAEE Breakfast</td>
<td># of tickets ________ X</td>
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<td>(TDB) TUESDAY Diversity Brunch</td>
<td># of tickets ________ X</td>
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**TOTAL**

To register for workshops and events not listed on this form please visit www.apwa.net/congress or call 816-472-6100.
Pre-Registration Form—Page 2 of 2

2012 APWA International Public Works Congress & Exposition
August 26–29, 2012 • Anaheim Convention Center • www.apwa.net/congress

This Pre-Registration Form is good only until August 17, 2012. No pre-registration forms will be accepted after August 17, 2012. After August 17, registrations will be accepted on-site only. On-site registration will begin Saturday, August 25, 2012. Please note: No government vouchers or purchase orders will be accepted on-site. This form must be completed and returned with full payment before your registration can be processed. Please complete a separate registration form for each Congress participant.

Cancellations: If your plans change and you cannot attend the program, a colleague can attend in your place—just send us a fax or letter. Cancellations and requests for refunds must be in writing. A full refund, less a $100 administration fee, will be made if written notice is postmarked by July 18, 2012. Sorry, no refunds on registration fees or tickets will be issued after July 18, 2012, or for an amount less than $50. Refunds will be processed within 30 days after Congress. Please send your cancellation and/or refund request to cancellations@apwa.net, or fax to 816-595-5342.

Liability Waiver and Release: In consideration of being allowed to participate in any way in the APWA International Public Works Congress & Exposition and any related events and activities (the APWA Congress & Exposition), I, the undersigned, acknowledge, appreciate, and agree that I am voluntarily undertaking participation in the APWA Congress and Exposition, by doing so I assume all risk and take full responsibility for my own well-being. I am fully aware that possible property damage, physical injury, illness or death may occur as a result of my participation in these events and activities. I forever release the APWA, its directors, officers, employees, volunteers, agents, contractors, and representatives (collectively “Releases”) from any and all actions, claims, or demands that I, my family or heirs now have or may have in the future related to my participation in these activities.

Photographs: I agree and acknowledge that APWA plans to take photographs at the APWA Congress & Exposition and reproduce them in APWA educational, news or promotional material, whether in print, electronic or other media, including the APWA website. By participating in the APWA Congress & Exposition you grant APWA the right to use your name, photograph and biography for such purposes.

I am aware this is a release of liability and rights of use related to photographs; a contract between myself and the APWA. I have read, understand and agree to these terms and am entering into this agreement on my own free will.

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C. Attendee Information

(Please be sure to add eventconfirmation@xpressreg.net to your address book to insure you receive your confirmation.)

APWA Membership ID# (Call 1-800-848-APWA to obtain your membership number if you don’t know it)

Prefix Last Name       First Name

Title       Organization/Company

Billing Address

Street Address/P.O. Box

City      State/Province Zip/Postal Code Country

Daytime Phone Cell Number Fax Number E-mail address

Emergency Contact Name  Emergency Contact Phone Number(s) Emergency E-mail Address

D. Payment

(please complete Section A, parts 1–6 on page 1 before completing this step.)

Total from Page 1: $__________________ (Fees are in US Funds)

Is this your first Congress?

☐ Yes  ☐ No

For whom do you work?

☐ Public Agency
☐ Private Industry

Please mark all areas you have responsibility for:

☐ Construction
☐ Emergency Management
☐ Engineering & Technology
☐ Environment/Sustainability
☐ Facilities & Grounds
☐ Fleet Services
☐ Leadership & Management
☐ Solid Waste
☐ Sustainability
☐ Transportation
☐ Utility & Right of Way
☐ Water & Sewers
☐ Winter Maintenance

What is your job title?

☐ Public Works Director
☐ Engineer (Director, City/Principal)
☐ Deputy/Assistant Public Works Director
☐ Deputy/Assistant Engineer
☐ Department Head/Division Chief
☐ Administration
☐ Administrative Assistant/Manager
☐ City Manager
☐ Other

What is your role in the purchase of public works equipment and/or services?

☐ Final say
☐ Recommend
☐ Influence
☐ Specify
☐ None

How large is your budget for purchases of equipment and/or services?

☐ Under $50,000
☐ $50,001 – 100,000
☐ $100,001 – 500,000
☐ $500,001 – 1,000,000
☐ Over $1,000,000

What is the population of your jurisdiction?

☐ Less than 25,000
☐ 25,001 – 50,000
☐ 51,001 – 100,000
☐ 101,001 – 250,000
☐ Over 250,000

Please let us know your gender

☐ Male  ☐ Female

Please let us know what year you were born

(Example: 1967)

☐ 1
☐ 2
☐ 3
☐ 4
☐ 5

How did you hear about Congress?

☐ Congress Preview
☐ APWA Reporter Magazine Ad
☐ Industry Magazine Ad
☐ APWA Website
☐ E-mail
☐ Recommended by someone
☐ You are a previous attendee
☐ Invited by an exhibitor
☐ Other

Which social media platforms do you use for business?

☐ Twitter
☐ Facebook
☐ LinkedIn
☐ Other

Nonmembers only:

Do you want $149 of your nonmember full registration fee applied toward your new individual APWA membership? (Not valid for membership renewals. Renew online at www.apwa.net/membership/memberrenewal.)

☐ Yes  ☐ No

Questions? Call APWA’s registration company at 508-743-8540, Monday – Friday, 9 a.m. – 5 p.m. EST, or e-mail apwa@xpressreg.net.
Because I am a former president of the Public Works Historical Society and a historian who has devoted much of his career to the study of the history of public works and urban technology issues, the reader of this brief reflection would be entitled to expect that I am concerned with preserving great public works structures and commemorating great public works achievements of the past. This assumption would not be entirely incorrect.

The history of public works, however, is about far more than the preserving of dusty artifacts and the placing of markers on old buildings and bridges. Thinking about public works developments over long periods of time and about circumstances faced by public works developers in the past can also be a source of insight into present-day opportunities for change and improvement. After all, that graceful old bridge that still carries traffic today, those ancient water mains that (mostly) do not rupture, and those subway escalators that somehow never work when one is on one’s way to work—all of them were new once upon a time.

A few individual thoughts that come to mind include the following:

1. If nothing else, the study of the past teaches that thinking about the future matters. Although conditions and tastes change over time in ways which can be difficult to predict, public works known to be well made and beautiful at the time they are built do, in fact, usually serve future needs more successfully than public works built with little thought and on the cheap.

2. Infrastructure and public works systems can be very powerful means of shaping the futures of the places in which we live. The very fixed character of roads, rail transit systems, and other such permanent installations is important in this regard. Because such infrastructure cannot be easily moved, owners of property along their routes can more safely make long-term plans for the development of their parcels.

3. Just as the present is different than the past, the future will be different than the present. This has implications for the design of facilities, e.g., making allowances in designs for additions of capacity or for possible changes in use can be of great service to people down the road. It can also be wise to think about designing facilities in ways which make allowances for inevitable breakdowns. In the case of the Washington, D.C. Metro system, for example, system builders during the middle and later decades of the twentieth century chose to locate some stations very deep underground and to rely on escalators to transport passengers to and from street level. So long as the escalators function, the system works reasonably well. Unfortunately, the escalators often don’t...

4. Thought also needs to be given to implications of change for the workings of ownership and regulatory arrangements. In the case of fixed and long-lived systems such as roads, bridges, rail transit systems, and water works, for example, historical experience demonstrates that even the most carefully specified long-term lease or private ownership arrangement can be rendered obsolete and dysfunctional by changing conditions and unexpected developments.

In sum, the history of public works can be an unmatched source of perspective and insight into the dynamic character of public works issues and the importance of planning for the future in making public works decisions. Historical study can also be a useful source of humility on the inevitability of unpredictable change and unexpected outcomes and the folly of easy assumptions that the future will be just like the present.

Think fifty or a hundred years back in time and it can help you think fifty or a hundred years forward as well. Your great grandchildren, if they are not too busy playing the computer (or whatever) games of the future, will thank you.

Charles David Jacobson, Ph.D., is a former president of the Public Works Historical Society; a Senior Associate with Morgan Angel & Associates, LLC; and the author of Ties That Bind: Economic and Political Dilemmas of Urban Utility Networks, 1800-1990. He can be reached at (202) 265-1833 or charles@morganangel.com.
Reflections on fifty years in the profession

Larry Lux
President, Lux Advisors, Ltd
Plainfield, Illinois
President-Elect, Public Works Historical Society

As APWA celebrates its 75th Anniversary, it gives me pause to reflect back on my nearly fifty years in the profession and as a member of the Association and the many ways in which the public works profession has evolved over the years. This brief article will take a look at how (at least from my perspective) I have seen the profession advance in three specific areas: field inspections and surveying; public works vehicles and equipment; and the application of new technologies.

I sincerely believe that I have been involved in public works during the period during which the greatest advancements have been made in these areas. Each has had a profound impact on how we do our jobs and how the citizens of our communities have been the direct beneficiaries.

When I first entered the profession (in 1963), I was a seasonal employee on a field surveying/inspection crew. I was in college and studying to be an industrial education teacher. The thought of being outside on construction sites was interesting to me and provided me the funds to continue my education. It was very rare to see women in the business, but we would usually be able to attract some attention while working in the field...a nice side benefit.

Field Inspections and Surveys
Field surveys were a fairly complex and time-consuming project. On my first day on the job, I learned how to do two basic skills: “pace” fifty feet, and throw and fold a chain (what’s that?). The next day I learned how to use a dip needle to locate property corners. I was relegated to hold the “dumb end” of the chain, place chaining pins or hold the rod, while the crew leader gave me direction, took the field book notes and operated the instrument. I learned what a survey monument was and what the term “benchmark” meant. I also learned how to set up the instrument over an established point and use a plumb bob to make sure we were in the correct spot to turn angles with the instrument. Try doing that on a windy day!

Once the field measurements were completed, it was off to the office to do the math (by hand, with the occasional use of a mechanical adding machine).

I haven’t worked in this capacity since the mid-1970s. However, by the time I advanced to other challenges in the profession, we had progressed to using self-leveling theodolites and advanced measuring devices. The results were greater accuracy and a significantly reduced time spent to complete our field work.

Today, we have the use of electronic measuring devices, GPS and total stations which provide great flexibility and pinpoint accuracy, plus they reduce much of the preliminary layout work and reducing of the notes involved in the surveys. This sophisticated equipment is useful for land surveying, construction layout, mapping, geographical information systems, utilities, accident reconstruction, law enforcement, and environmental studies.

Another advantage is that they can be downloaded directly to your iPad, computer or other electronic device thereby reducing the time required while at the same time eliminating errors.

Vehicles and Equipment
As a late teen, I worked occasionally for the small town that we lived in to assist in plowing snow. This gave me my first introduction to the vehicles and equipment that public works uses. Most of the work I did was shoveling, but I did work out of the garage and became familiar with the various types and kinds of equipment commonly in use at the time.

My very first exposure to a “real” snowplow was when I graduated to riding shotgun in a dump truck equipped with a plow and spreader. I thought it was very cool to be invited to ride shotgun. Little did I know what I was in for...after the driver walked me around the truck and explained how the plow and spreader worked, he directed me to jump into the passenger side. I was immediately confronted by what I believed was a transmission stick, but then I noticed another one next to the driver (yes, all of the trucks at that time were stick shift). This strange shaft was sticking out of the floor directly between my legs. I quickly learned that my assignment was to “pump up” the plow whenever we crossed...
railroad track or other obstructions. It probably took 35 or 40 pumps to raise the plow just a few inches off the ground. Once the obstruction was cleared, there was a small valve near the floor that let the plow back down. After only a couple of hours, my arms and legs never hurt so bad. Brother, was I glad when my shift was over. I later learned that while some of the vehicles had hydraulic systems to operate the plows, most in the fleet still depended on hand hydraulic power and, being the new guy, I got the “privilege” of operating the plow.

The only communications we had were unreliable CB radios that didn’t work very well unless you were within about fifty feet of the other person. I learned the value of this one time when, during a blizzard, I drove off the road and into a ditch. It took several hours for my superiors to realize that I was missing and sent out a search party. I was never so happy to see flashing lights behind me.

This type of simplified operation was very typical of the technology of the day. I will say this: After doing this part time and working the back step of a garbage truck at other times, I have never been in as good physical condition.

Today, we have highly complex and efficient plows and spreaders, full hydraulic systems, excellent communications capabilities, plus the availability of GPS and other modern technology that not only make our service more efficient, but also saves countless dollars by closely regulating the amount of salt or other deicers, efficient routing of the vehicles and dramatically increased safety. The shop facilities and technology available today contribute substantially to reducing downtime for maintenance and repairs. Finally, during and following storm periods (rain or snow), through websites and social media, we can now incorporate real-time GPS monitoring of our vehicles and equipment. This provides the citizens with the ability to monitor the location of rescue vehicles and further improves the safety and efficiency of our personnel.

Technology
For much of my career, the principal computer technology available was the pencil and your brain. The backspace key was an eraser. Early in my career, after the field work was done and the notes reduced, it was off to the drafting room where we would sit down at a drafting table and break out
our tools: slide rule (what's that?), triangles, pins, pens, pencils, assorted circle and oval templates, and other gear. I really thought I was cool as I carried my stuff around in a tackle box, until I saw that nearly everyone did the same thing. (By the way, I still have mine, just in case). Soon after, we got an electric adding machine to help with simple calculations; however, for anything more complex, we had to resort to our trusty slide rule or an antique mechanical calculator, a hand-operated early machine that could multiply and divide in addition to addition and subtraction, depending on which way you manipulated the various cranks and handles.

Nearly everything was drawn on linen with pen and ink. One frustratingly essential part of the job was learning to get the ink flowing in my Koh-I-Noor “rapidograph” pens. Anyone who has had this experience knows what a pain it can be. I think you spent more time cleaning the pens than actually using them.

Another acquired skill was to load and use a ruling pen which was used primarily for straight lines. Since the ink would take a few minutes to dry, I soon learned to use a lighted cigarette to accelerate the drying time and minimize smearing. (I smoked at the time, as did nearly everyone else).

Once the plans and cross sections were plotted, we broke out the trusty polar planimeter which you would drag (buggy) around the perimeter of a cross section and when read, would provide you with the end area of the section. This was used to calculate the amount of excavation or fill that was required on a project. To this day, I still have no idea how it worked, but the results were well within acceptable standards of the time.

I will never forget the day I was able to afford my first electronic calculator, an HP-35. This amazing device enabled me to do complex mathematical calculations with ease. I could also do geometric and trigonometric calculations. I thought I had died and gone to heaven even though it was practically useless in the sun as it only had a small LED screen that washed out in bright light.

Today, with the advent of computers, GPS, GIS and other corresponding software, you can download data directly from your field devices, plot it and complete a design without ever touching a pen or pencil. I remember the very first “portable” computer we ever purchased. It was a Compaq II portable. The darn thing weighed a ton and took a man and a boy (or at least a dolly) to lug around. It even came with two (count ‘em, two) floppy diskette drives each of which had a capacity of 3.35 kilobytes. Compare that to today’s devices.

**Conclusion**

As I stated before, I believe that I have been in the profession during its most progressive period in history. I have witnessed the introduction and use of thousands of new devices that enable today’s engineers and practitioners to perform at levels unheard of in the past and with exceptional increases in accuracy, productivity and safety. I wonder what further advances we will see over the next fifty years?

In some ways, I am still nostalgic for the “old way” of doing things and occasionally break out my old tackle box and draw something, as I believe that hands-on practical experience and understanding of how things happen made me better at my chosen profession.

Although I see better skilled and educated people coming into the field, I sometimes wish that they could undergo some of the experiences I had—I think they would be even better. This is from an old guy who still is passionate about public works. Keep up the good work, all you young guys and gals.

Larry Lux can be reached at (815) 886-6909 or LuxAdvisors@comcast.net.
The most pronounced feature in APWA’s organizational growth is its multipurpose role. Many organizations choose to be exclusive. APWA has chosen to be inclusive.

In the early years the organization focused heavily on the municipal sector. Then it was broadened. Institutes such as Solid Waste, Fleet Management, and later, Transportation were added. These provided a forum for the various disciplines in public works. Efforts were made to bring in county and state members. Private sector public works employees were welcomed into the organization, although with a limited leadership role.

In the 1970s action was taken to broaden the role of private utility members through the formation of the Utility Location & Coordination Council. This ultimately led to participation in development of One-Call centers, Blue Stake organizations and uniform color markings. In this same decade there was an emphasis on Emergency Management training.

Also in the 1970s, APWA recognized its relationship with history and established a team to write History of Public Works in the United States. This book is still one of the premier books available on public works history and the undertaking was the catalyst for the Public Works Historical Society.

Knowing that many of the rules, regulations and financial aid came from the federal government, APWA established an office in Washington, D.C., to keep tabs on happenings that affected public works programs and shared that information with its members.

In the 1980s the inclusiveness of the organization continued when the top leadership positions were opened to members, both public and private. Inclusiveness in public works is a virtue and much of the “inclusiveness” approach was driven by the organization’s strong national leadership and the personal commitment of Executive Director Bob Bugher.

Jim Attebery can be reached at atteberyjam@msn.com.
While APWA was officially founded in 1937, it was the culmination of a long series of developments going back to at least the 1890s. In 1894, the American Society of Municipal Improvements was formed. It would eventually become the American Society of Municipal Engineering (ASME). In 1935, this organization asked Donald C. Stone to become their Executive Director. At the same time, the International Association of Public Works Officials (IAPWO) made a similar request to Stone. Both organizations had come to know of Stone, who was a leading figure in the development of modern public administration. As the Director of Research for the International City Management Association (ICMA) Stone began a project in 1931 to develop “an objective method of measuring, reporting and evaluating sanitation services.” This effort was sponsored by the National Committee of Municipal Standards. This committee included representatives of APWA’s two predecessor organizations, along with others. The studies conducted as part of this process led to a series of demonstrations in various communities. Their success led to the creation of the Public Administration Service (PAS), which provided public works consulting services. The PAS produced *The Management of Municipal Public Works* with Donald Stone as the author of this key book. He was also the Executive Director of the PAS. For all these reasons, Stone was the most logical choice to head an association of public works officials.

Stone understood that these two organizations lacked the resources to support a full-time paid staff. At this time, these organizations together only had 750 members, many of whom were delinquent in paying their dues. Working part-time as the Interim Executive Director, Stone introduced initiatives to increase membership, develop programs and generate resources. He organized a joint meeting in 1935 of the two organizations, which was the first Congress of Public Works Engineers. He then started the *Public Works Engineers Newsletter*, as well as new services for members. Thanks to these efforts, by the time of its creation in 1937, APWA had the resources to hire an Executive Director and take its place among the many public services associations that would come together in the new building dedicated to public administration. The 1313 building opened on the campus of the University of Chicago in 1938. Known officially as the Public Administration Building (until 1979 when it was named the Merriam Center in honor of Charles E. Merriam), 1313 was home to the headquarters of APWA, along with organizations focused on city management, planning, government finance, housing, public welfare, municipal leagues, state governments and many others. 1313 was the physical embodiment of the vision of Merriam, a political science professor at the University of Chicago, along with Beardsley Ruml and Louis Brownlow. These individuals believed it was possible to use research and education to introduce methods and practices of public administration to improve the efficiency of government services and that could be best accomplished through voluntary professional associations rather than by a political process. This is a key reason why they explicitly wanted the building that would serve as the headquarters of so many state and local government technical professionals not be in Washington, D.C.
Stone Reflections 1962

Twenty-five years after the creation of APWA, Stone gave a presentation at the 1962 annual Public Works Congress. In addition to expressing the high hopes he had for APWA in the beginning, and his confidence that it would play an important role in the future, Stone used the occasion to express two main disappointments. Specifically, Stone had hoped there would be greater cooperation with universities to prepare public works professionals and he had expected the Federal Government to pay more attention to what we today would call “urban infrastructure.”

This is some of what Stone said fifty years ago:

Back there in the mid-30s, I envisioned that this Association would work closely with universities to advance the art and science of the public works profession. ….I had seen how the growth of each major profession…had come about because it was solidly grounded on an adequate educational and research foundation….there is (now) an inadequate supply of properly trained public works engineers flowing from the universities into public works agencies.

Stone’s words regarding the underfunding of urban public works were even more pointed:

Congress has always favored farmers in its appropriations, including those for roads and other public works…. The fact that we are in an urban society makes urban development and redevelopment a national problem just as much as agriculture. It is high time that the Federal Government stopped treating city people as second-class citizens…. Most state governments are ruraly oriented and have created a vast maze of obstacles in the way of rationalizing urban government and services.

Stone viewed the lack of an academic underpinning along with the lack of adequate government and foundation financial support as key reasons holding back the professionalization of public works. A few years later, he would attempt to overcome these challenges. With the extensive support of APWA’s Board of Directors and its Executive Director, Robert D. Bugher, the first graduate program dedicated to public works engineering and administration was established in 1967 at the University of Pittsburgh.

Pitt Program

In 1967, the University of Pittsburgh established the Graduate Center for Public Works Engineering and Administration. This so-called Pitt Program represented the most ambitious effort ever undertaken to provide graduate education in public works. Stone considered a working understanding of the physical systems that were to be managed to be a prerequisite for effective public works administration.

The mission of the Center was “to help train the critically needed professional engineering administrator to plan, organize, construct and operate the network of public works facilities and services required today.”

The curriculum developed by the Pitt Program was interdisciplinary. Students took a series of required courses:

- Public Management: Theory & Practice
- Public Works Management I
- Public Works Management II
- Research Methodology (Statistics)
- Systems Analysis in Public Works Engineering

In addition, students would select courses from seven different technical areas. The catalog indicated that the program would stress “the development of competence in the new managerial tools of systems analysis, operations research, decision theory, and planning, programming and budgeting systems.” APWA, through the Education Foundation, offered fellowships up to $5,000. With APWA support, the Pitt Program flourished for several years. But as an interdisciplinary program, dependent largely on outside funding, it did not long survive after the retirement of Donald Stone, who was the Dean of the Graduate School for International and Public Affairs, the home for the Graduate Center for Public Works.

Donald C. Stone Center

In his honor, APWA has dedicated the APWA Donald C. Stone Center for Leadership Excellence in Public Works (DCS Center). The DCS Center will honor Stone’s legacy and will further contribute to his body of work. The DCS Center provides a progressive system of career paths for professional development and credentialing.

The Center is a partnership of APWA chapter institutes and academies, colleges, universities, government agencies and associations, working together to provide comprehensive and integrated educational, training and professional development opportunities. A professional working within public works or considering entering this profession will be able to progress systematically along one or several paths.

APWA has created a developmental model that will require candidates to document growth and, in some
instances, defend their work through oral exams. A mentoring program is part of the developmental process to provide focused support, feedback and guidance to candidates.

Conclusion
We can think of no better way to end this brief tribute to APWA on the occasion of its 75th Anniversary than to use the words of Donald C. Stone, who concluded his presentation to the 1962 APWA Congress, 25 years after the official formation of APWA thusly:

We who are engaged in the field of public works are covering one of the largest, most significant and vital areas of the public service field. The role to be played will increase steadily in importance as the United States and other countries, too, become increasingly industrialized and urbanized.

Whether we play that role well and fulfill the challenges will depend in large measure on whether we develop the educational and research underpinning essential to establish public works engineering and administration on a solid and enduring foundation. …We must be no less persevering in this task than those public works leaders of the 1930s who established this Association and built solid foundations for the public works profession.

Author Bios
Dr. Howard Rosen was an APWA staff member for 15 years, serving as Managing Director of Professional Services and Director of the Public Works Historical Society (PWHS). In addition, he served as PWHS President in 2004-06. Howard has taught History of Engineering at the Illinois Institute of Technology and in the Values, Technology & Society Program at Stanford University. He can be reached at (608) 262-4341 or rosen@engr.wisc.edu.

Stephen Pudloski is a former Deputy Executive Director of APWA, Top Ten award winner, and served as Donald C. Stone’s Graduate Assistant at the University of Pittsburgh. He and Howard Rosen co-authored the Oral History Interview with Donald C. Stone that was published by the Public Works Historical Society. He can be reached at (608) 262-8707 or pudloski@engr.wisc.edu.

Probably the most in-depth document that currently exists regarding the career of Donald C. Stone (including the formation of APWA) is found in the oral history produced by the Public Works Historical Society: An Interview with Donald C. Stone. Public Works Historical Society. Interview Number 9, October 1992, interviewed by Howard Rosen and Stephen Pudloski (this oral history was reviewed in The Public Historian, Vol. 17, No.3 [Summer 1995], Andrew J. Dunar. “Public Works and Oral History: Three Perspectives”, pp.77-82.)


Stone was the author of many publications, including the first publication to cover public works administration (hard to find): The Management of Municipal Public Works. Donald C. Stone, Chicago, Public Administration Service, 1939.


Here is a link to a short comment reflecting on the Stone's article on chairs: http://www.guardian.co.uk/education/2008/feb/12/highereducation.research


Stone, Donald C. “The Impact of US Assistance Programs on the Political and Economic Integration of Western Europe,” American Political Science Review, 46 (December 1952): 1100–1116.

Stone's papers are archived at Syracuse University. Here is a link to the inventory of the Donald C. Stone Papers at Syracuse University: http://library.syr.edu/digital/guides/s/stone_dc.htm.

Finally, for more information on Donald C. Stone, visit the APWA website at http://www.apwa.net/donald-c-stone/who-is.

Suggested readings on (and by) Donald C. Stone
Every year National Public Works Week gets bigger and better. The number of participating municipalities continues to grow, which means the number of citizens who are exposed to the value of public works grows.

At APWA one of our main goals is to educate the general public about the value and necessities of public works projects throughout North America, and public works professionals like you are our best ambassadors.

You’ve made 2012 National Public Works Week the biggest and best ever!
The American West is generally arid, and water was a major concern of settlers who watched the gush of spring and early summer runoff flow away from their towns and crops. Settlers developed simple and inexpensive water projects, but, as population increased, demands for federal water storage projects grew. Westerners soon understood they generally lacked access to sufficient money and engineering skill for more complex water projects, and they hoped to find those resources in the national government. Those clamoring for “reclamation projects” believed that irrigation would “reclaim” or “subjugate” western arid lands for human use and make homes for American families. Before 1900, the United States Congress had already invested heavily in America’s infrastructure by subsidizing roads, river navigation, harbors, canals, and railroads. Western boosters clamored for extension of that tradition of government subsidies to irrigation to support expansion of western settlement. In 1901, “reclamation” gained an important supporter when Theodore Roosevelt became President. He supported the “reclamation” movement because of his personal experience in the West. President Roosevelt signed the Reclamation Act on June 17, 1902. The original concept was that water users would repay the costs of construction of a project over a 10-year period and would pay all annual maintenance costs.

In July 1902, the Secretary of the Interior established the United States Reclamation Service (USRS) within the U.S. Geological Survey’s (USGS) Division of Hydrography. The Reclamation Act required that Reclamation comply with numerous and often widely varying state and territorial legal codes. Subsequent development and ratification over the years of numerous interstate compacts governing the sharing of stream flows between states, as well as several international treaties governing the sharing of streams by the United States with Mexico or Canada, made Reclamation’s responsibilities to comply with U.S., state, and territorial water law very complex.

In its early years, the Reclamation Service relied heavily on the USGS Division of Hydrography’s previous studies of potential projects in the West so that between 1903 and 1906, about 25 projects were authorized throughout the West. Reclamation funding originally came from sales of public lands and Texas had no federal lands. As a result, Texas was not one of the original “reclamation” states, but it convinced the Congress to make it a reclamation state in 1906.

In 1907 the Secretary of the Interior separated the USRS from the USGS and made it an independent bureau within the Department of the Interior. The Congress and Executive Branch were then just learning that Congress’s initial 10-year repayment period was inadequate, and Congress eventually increased the repayment period to 20 years, then to 40 years, and ultimately to an indefinite period based on “ability to pay.” Other issues also appeared: soil science problems related both to construction...
and to the ability of soils to grow crops; economic viability of projects (repayment potential) including climatic limitations on the value of crops; waterlogging of irrigated lands on projects, resulting in the need for expensive drainage projects; and the need for practical farming experience for people successfully to take up project farms. Many projects fell far behind on their repayment schedules, and settlers vocally expressed their discontent to the Congress.

Learning from the problems, Congress and the Department of the Interior made substantial changes beginning as the Secretary changed the name of the USRS to Bureau of Reclamation in 1923. Then, in 1924, the Fact Finder’s Act began major adjustments to the basic Reclamation program. Elwood Mead was appointed Commissioner of Reclamation in 1924 as the reshaping of Reclamation continued.

A signal of the changes came in 1928, for instance, when the Congress passed the Boulder Canyon Project Act ratifying the Colorado River Compact and authorizing the Boulder Canyon Project (Hoover Dam and the All-American Canal). For the first time, large appropriations began to flow to Reclamation directly from the general funds of the United States instead of from public land sales. Congress specified that hydropower revenues would repay the project, and historians now recognize the Congress tacitly admitted that construction costs on many projects could not be repaid without hydropower revenues. Subsequently, during the Great Depression, Congress authorized almost 40 projects for the dual purposes of promoting infrastructure development and providing public works jobs. Among these projects were the beginnings of the Central Valley Project in California, the Colorado-Big Thompson Project in Colorado, and the Columbia Basin Project in Washington. Those three projects, combined with the older Minidoka and Boulder Canyon projects, irrigate about fifty percent of Reclamation acreage. Ultimately, of Reclamation’s more than 180 projects, about 70 received authorization before World War II. Authorization for the remainder, during and after World War II, occurred in many authorizations, including the Pick-Sloan Missouri Basin Program (1944), the Colorado River Storage Project (1956), and the third power plant at Grand Coulee Dam (1966). Reclamation’s last really big construction authorization occurred in 1968 when Congress approved the Colorado River Basin Project Act which included, among others, the Central Arizona Project, the Dolores Project, the Animas-La Plata Project, and parts of the Central Utah Project.

During the 1960s, Reclamation’s work began to change substantially as public awareness changed. Reclamation began building projects primarily for urban water supply, and Americans became increasingly concerned and proprietary about the use and protection of natural resources. This change resulted, in part, from improved communication and, in part, from improved science.
resulting in clearer understanding of the complex interactions of the communities of nature with western water development issues. Americans were beginning better to understand issues about the West and to consider the public lands and public works of the West as “mine” or “ours”—even though they lived elsewhere. These new public concerns shifted Reclamation priorities, and over 10 percent of Reclamation’s FY2013 budget, for instance, is programmed for various environmental restoration and improvement projects in the West.

Reclamation’s number one priority is always to deliver water, but that priority is often affected by the available water supply and the constraints imposed by various laws, regulations, and court rulings. During an average water year, more than 180 Reclamation projects deliver agricultural water that irrigates about 10,000,000 acres of land in the arid West—about one-third of the irrigated acreage in the West. Farmers on Reclamation projects produce a significant percentage of the value of all crops in the United States, including about 60 percent of vegetables and 25 percent of the fruit and nut crops. Reclamation also delivers water used by about one-third of the people in the West.

Reclamation’s second major product delivered to the American public is hydroelectricity. Although the earliest hydroelectric plants on Reclamation projects went into operation in 1908 and 1909, it was only during the 1930s that generation of hydroelectric power became a principal benefit of Reclamation projects. Reclamation built the large hydroelectric power plants at Hoover, Grand Coulee and Shasta dams. Hydroelectric revenues have subsequently proven an important source for funding repayment of Reclamation project costs. The water available in a system determines how much power it is possible to generate; in 1993, for example, Reclamation had 56 power plants online and generated 34.7 billion kilowatt hours of electricity. In 1999, revenues from Grand Coulee hydroelectric generation alone equaled about two-thirds of Reclamation’s entire appropriated budget.

While Reclamation’s mission “...is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public,” many benefits of Reclamation projects do not come directly from Reclamation’s primary responsibilities—providing water and hydropower. Water bodies in the West naturally attracted recreationists from the earliest days of projects, and today extensive and varied recreation activities occur on projects. Operation of Reclamation impoundments provides flood control and drought relief benefits. The U.S. State Department regularly uses Reclamation’s technical expertise in international activities and in training foreign engineers. In addition, agencies from around the U.S. regularly find Reclamation’s experience useful in developing water conservation, supplemental supply, and water augmentation programs.

Because of continuing initiatives begun in the late 1980s and early 1990s, Reclamation’s staffing level has trended downward and the staffing mix has changed in recent years. In 2010, for instance, Reclamation staff was about 29 percent smaller than in 1993 and includes a much higher percentage of computer and non-engineering specialists. Many projects are actually operated and maintained by the water users. As Reclamation enters into additional partnerships with beneficiaries of the water and electricity produced on its projects and shifts increasingly away from construction development projects toward water management activities, Reclamation’s staffing levels are expected to shrink even further in the twenty-first century.

Britt Allan Storey can be reached at BStorey@usbr.gov.
Building the Aviation Infrastructure: 
A brief history of the Aviation Trust Fund

Janet Bednarek, Ph.D.
Professor of History, University of Dayton
Dayton, Ohio
President, PWHS Board of Trustees

he Aviation and Airway Trust Fund (or simply Aviation Trust Fund) was created in 1970 to provide a secure form of federal aid for the expansion and upgrading of the nation’s airports and airways. As first conceived about half the monies would go to airport construction and the other half to upgrading and maintaining the airways (the “electronic highway system” that guides airplanes through the skies). Although both airports and the airways are crucial to the nation’s air transportation system, the airport part of the program proved the most controversial over time. The airways system for airplanes was seen as analogous to the nation’s highway system for cars and trucks. Politicians had little trouble seeing its development and upgrading as a national responsibility. Airports, on the other hand, are locally owned and operated. Large airports can also generate a tremendous amount of revenue. And they are used primarily by private companies—the airlines. Repeatedly, politicians and pundits have questioned the need and appropriateness of any form of national funding for the largest commercial airports. They argued that such facilities should be locally and privately funded (and perhaps even privately owned). Therefore, while it seldom makes the headlines, controversy has been a constant feature of the Aviation Trust Fund’s airport funding program.

Congress had created a federal airport aid program shortly after World War II. It was funded out of general tax receipts and also generated controversy from its inception. As proponents fought to expand the program, critics, including President Dwight Eisenhower, sought to eliminate it. Throughout the 1950s and 1960s, Congress repeatedly appropriated far less than was authorized. By the late 1960s, though, the introduction of jet aircraft and the rapid expansion of commercial and business air travel had combined to greatly strain the capacity at the nation’s busiest airports. Local governments, the airline industry, and other aviation boosters pushed for the creation of a larger and more stable source of funding. After lengthy debate, Congress passed the Aviation and Airways Development and Revenue Acts in 1970.

Though created to provide a steady and stable form of aid, the Aviation Trust Fund has been neither steady nor stable. It was initially authorized to exist for 10 years. At the end of that first decade, Congress could not agree on a formula for extending it and the program essentially ceased for two years. After its reauthorization in 1982, the trust fund was caught up in the fights over the federal budget deficit. To keep down federal spending (and the apparent size of the deficit) Congress repeatedly appropriated less than was authorized—and far less than the funds available in the trust fund. A surplus built up in the trust fund. And there have been repeated arguments over how much, if any, of the monies should be used to help fund the Federal Aviation Administration.

In addition to FAA funding, there have been arguments over exactly what type of projects would be eligible for federal aid. Projects funded with federal aid must address safety and capacity. Therefore, they primarily involve so-called “air side” projects—runways, taxiways, and clear zones, for example. Despite complaints from cities and airlines, improvements or expansions to air terminals—the “land side” of airports and the part most visible to air travelers—have been excluded. Trust funds monies have also helped address the most serious environmental problem facing airport managers—noise. Beginning in 1976, federal grants from the trust fund have been available to purchase properties adversely affected by jet aircraft noise.

Despite repeated calls for its elimination, the Aviation Trust Fund has proved an important source of funding for the nation’s airports. Though the majority of the funding for airport improvements has come from local and airline sources, federal monies have served as a key element in the financing packages.

Janet Bednarek can be reached at (937) 229-2848 or janet.bednarek@notes.udayton.edu.
Best practices in public works are not static

Bob Moorhead, P.E.
Compliance Manager, Washington State County Road Administration Board
Olympia, Washington
Trustee, Public Works Historical Society

History is not static. The history of public works is concerned with both the origins and development of public works systems left to us by past generations, and with changes over time in beliefs concerning such systems and roles played by them in society.

Over the past 50 to 70 years, prevailing beliefs concerning technological or "best practices" answers to various public works challenges and issues have evolved, and in some cases have almost reversed. Factors driving these changes include greater public involvement; different values for natural resources; and changes in available technologies. Here are some anecdotal examples:

Solid Waste
1955: In New York City the typical single family dwelling generated three to six 32-gallon cans of mixed waste every week. The Sanitation Department used a three-person crew (one driver and two loaders) on each five-cubic-yard capacity truck to pick up the waste three times a week. About half the work day was spent picking up the trash, and the other half of the day was spent driving to the drop-off site in the course of picking up three loads per truck per day.

2012: In Olympia, Washington, residential solid waste is picked up every other week. Single-family dwellings typically use a single 64-gallon wheeled cart, which is emptied into the 20-cubic-yard truck with a mechanical arm operated by the driver, requiring only one end-of-shift trip to the drop-off site. This is a reduction of up to 83% in each home’s solid waste. The same truck and driver are used to pick up a 64-gallon cart of mixed recyclable materials (paper, plastics, glass) in the alternate week. And, on Mondays, the same truck and driver pick up 96-gallon yard waste carts.

Wastewater Treatment
1956: When the author’s home was built, the rain gutters were connected to the combined sanitary-storm sewer, which drained into the waters of Puget Sound. “The Solution to Pollution was Dilution.”

2012: Not only have the rain gutters been disconnected from the sanitary sewer (which is now connected to a tertiary treatment plant), a separate stormwater collection system has been created, and even those flows receive retention and detention treatment before being discharged into the bay. The sanitary flows now go through a treatment plant that has been upgraded several times since it was built in the early 1960s, and now provides ultraviolet final disinfection before entering Puget Sound.

Urban Freeways
1930 to 1960: Downtown waterfronts of coastal cities were prime locations for elevated highways, freeways and expressways. The goal was to ease downtown traffic congestion and reduce conflicts between freight moving on and off oceangoing ships docked in the harbor and the growing number of private cars. Examples include the West Side Highway in Manhattan, the Central Artery in Boston, the Embarcadero in San Francisco, and the Alaskan Way Viaduct in Seattle.

2012: Today, all four examples are either gone or are in the process of being replaced. The conflicts have dissipated as the ocean shipping has evolved to containers, and the old industrial waterfronts have become more pedestrian oriented. In New York and San Francisco, the elevated structures have been replaced by surface boulevards. In Boston, the “Big Dig” allowed the waterfront to be reconnected to the historic downtown. And, in Seattle, construction has commenced to replace the earthquake-prone two-level elevated highway with a deep-bore, two-level, four-lane tunnel that will snake its way on a more inland alignment beneath the heart of downtown, offering opportunities to once again extend the bustling downtown to the shore.

River Systems
1870-1970: Major river systems were once routinely harnessed for water-borne transportation, flood control, irrigation and energy generation facilities.

2012: Currently, serious proposals are on the table to remove four dams on the Snake River between Pasco, Washington, and Lewiston, Idaho, and return the river to free flowing to enhance habitat for endangered fish species. In northwest Washington
State, two dams on the Elwah River that provided electricity for industries in Port Angeles are being removed as you read this. Removal of the Condit Dam is also underway on the White Salmon River in southwest Washington, and dam removal may soon become a reality on the Klamath River in southern Oregon.

Urban Mass Transit

1930s through early 1960s:
Most of the electric trolley systems in North American cities were dismantled and replaced with “modern” rubber-tired bus systems.

2012: In cities across the United States and Canada, “light rail” is making a comeback. No doubt there are some “new routes” that lie within a stone’s throw of those constructed about a century ago.

What does all this mean?
Public works is not a static profession. As new technologies develop, as public attitudes evolve, and as the Earth’s finite resources come into focus, public works is in the forefront of making the changes necessary to meet the needs of our local communities and our world at large.

Bob Moorhead is a Past President of the Washington State Chapter, and serves on the Board of Trustees of the Public Works Historical Society. He can be reached at (360) 350-6083 or BobM@crab.wa.gov.
The bookends of APWA’s 75th anniversary—the Great Depression and the Great Recession—prompt some reflections on both the “public” dimensions of public works and the importance of history to that discussion. America has succeeded in part because Americans learned how to work collectively and collaboratively, through governmental bodies, to advance, sustain, and protect the country. National defense, transportation networks, water and waste-disposal systems, flood control, recreational facilities, and environmental protection are among the many activities rooted in public works. That is to say, they are functions serving the common good and achieved through collective action.

And yet, today, popular opinions about the appropriate role of government—of the very concept of “public”—could hardly be more different than when APWA was founded. In 1937, public works was used with enthusiasm to rejuvenate and expand the physical infrastructure so necessary to society’s short- and long-term functioning and prosperity. In the context of those dire economic times, public works assumed a highly positive social position, earning it a prominent place within the broader New Deal initiative. And APWA contributed to that effort as a catalyst for professionalism.

Now the Association celebrates its anniversary in the midst of a widespread debate over support for public enterprises and is confronted by changing perceptions of the meaning and value attributed to the word “public.” As historian Richard White has argued: “What is and should be public, and what is and should be private—that is, what is public business and what is none of the public’s business—is one of the great elemental contests of the Republic.” It is a fundamental tension in society. Disparagement of the very concept of “public” threatens to make it difficult for the profession to contribute to society’s betterment in the ways and to the extent that might otherwise happen.

For that reason, it is useful to recall how the Association confronted a similar erosion of support forty years ago. Because historians were all too frequently overlooking the critical role played by public works in the development of the United States, and because the impending bicentennial celebrations were encouraging such self-reflection by all professions, APWA decided to confront the image problem directly by commissioning a comprehensive history of the nation’s public works. That book—History of Public Works in the United States, 1776-1976, edited by Ellis L. Armstrong, Michael C. Robinson and Suellen M. Hoy—proved highly influential and its success helped propel APWA’s newly established entity, the Public Works Historical Society (PWHS).

The wide range of PWHS activities has included sponsoring historical sessions at APWA’s annual Congresses, producing a newsletter and Essays in Public Works History series, providing

An early twentieth-century brass pavement marker on display in the Smithsonian’s popular “America on the Move” exhibition
biographical sketches for the APWA Reporter’s column “People in Public Works,” encouraging APWA chapters to document, preserve, and interpret their histories, and awarding competitive article and book prizes.

Through the years, the PWHS has also worked directly with the Smithsonian Institution’s National Museum of American History to disseminate knowledge of the vital role played by public works in the nation’s history. Led by the PWHS’s professional staff (which included in the 1980s and 1990s Suellen Hoy, Michael Robinson and Howard Rosen) and its volunteer board of prominent public works practitioners and historians, the society assisted in the conception and development of several exhibitions, among them: “Make the Dirt Fly! Building the Panama Canal”; “Extending the Legacy: Planning America’s Capital for the 21st Century”; “Covered Bridges: Spanning the American Landscape”; “Oil from the Arctic: Building the Trans-Alaska Pipeline”; and “Tunnels!”

The PWHS proved instrumental as a co-sponsor of several day-long conferences at the museum, including: “Capital Cities: Adaptable Infrastructure for the Next Century” (which was broadcast on C-SPAN); “Tunnel Vision: Films about Tunnels and Tunnelers”; and “Down Under: Tunnels Past, Present, and Future.” The latter program proved so compelling that APWA published the revised and expanded papers in 1998 as Going Underground: Tunneling Past, Present, and Future.

The PWHS staff and board members have also assisted the Smithsonian with acquiring public works-related artifacts for its permanent collections. For example, James L. Martin donated an important set of manuscripts and photographs documenting the development of sanitary landfills, as well as an early twentieth-century brass pavement marker (produced in Fresno, California, for Warrenite Bitulithic Pavement), which is on display in the museum’s popular “America on the Move” exhibition (see photo at left).

Together, these collaborative ventures exemplify APWA’s efforts to use history to advance understanding and appreciation of public works. With the current questioning of the basic value and proper role of public endeavors, the need for this type of educational effort is greater today than at any time in the Association’s past.

Jeffrey K. Stine can be reached at (202) 633-3920 or stine@si.edu.
Challenge the Future

Thomas J. Sullivan, P.E., BCCE, Former Managing Partner, Greeley and Hansen, and APWA Life Member; Kenneth Eyre, P.E., Senior Associate, Greeley and Hansen, APWA Life Member, and Past President, Public Works Historical Society

As we celebrate the 75th anniversary of the forming of APWA, we should recognize the contributions that public works leaders have made to the development of the United States. Their contributions have made life and civilization in North America sustainable. Since our earliest days, the main mission of public works organizations has been to improve the health, sanitation and transportation of our citizens.

While services offered by public works organizations meet an ever-expanding array of the needs of populated areas in the U.S., their earliest objectives were to provide for the most basic human needs, that is, supplying potable water and safely disposing of sewage. In the first century of the U.S., safe, reliable supplies of water for drinking and other uses were rare. Until water sources were protected and treatment was provided, disease was common and often fatal. Due to this, life span was short and social progress was greatly impeded. Providing safe water and collecting sewage for treatment and disposal made living healthier and sustainable for large populations in urban centers.

Leaders of public works programs have successfully overcome a great many challenges in developing these programs from their earliest beginnings. Although these challenges have varied throughout our history, the dedication and ingenuity of public works leaders has been steadfast. Through looking back at the accomplishments of earlier leaders, we can gain insight into overcoming current and future challenges.

Current challenges as reported by APWA

In recent APWA surveys, public works leaders have cited the following as their most pressing challenges as they attempt to fulfill their missions.

Business factors have been rated the top challenge. This is likely due to the state of the U.S. economy and the impediments that this creates to moving forward with programs. Convincing ratepayers of the benefits of programs continues to be a huge factor.

The physical condition of infrastructure such as water and sewage systems ranks a close second. Many of these systems constructed during the last 100 years have far exceeded their useful lives. The need for their replacement is reaching crisis levels in many older cities. Repair and replacement have been deferred for too long and associated costs are staggering at a time when available funding is depressed and severely stretched.

As population density and urbanization have increased, source water supply and protection has risen to become a major issue. The competition for water is intense and is a major driver in this area. Locating sources of high-quality water for drinking, potable uses and commercial uses has become increasingly difficult as population has shifted and our economy has become more diversified. Potential solutions to the scarcity of water include reclaiming water from wastewater and using this to offset potable water uses. This practice requires an infusion of high-level technical skills, funding and education of the public.

Public works leaders have cited workforce as a major concern. By this, they mean losing experienced staff and the leadership this staff has to offer.

As might be expected, funding has been and continues to be the biggest issue to overcome. This is not new, but it seems that the competition between public works services and other national priorities for funding has never been greater and it appears that public works is losing ground in this battle.
With such an array of challenges, we might ask whether this is unprecedented.

**Challenges as the United States developed**

In 1933, Samuel A. Greeley, a founder of the firm of Greeley and Hansen, documented challenges that public works leaders experienced during the period 1833 to 1933. As President of the American Society of Municipal Engineers (ASME), he was instrumental in the merger of ASME with the International Association of Public Works Officials that resulted in APWA.

According to Greeley, this 100-year period saw public works leaders meet the needs of a growing and mobile U.S. population that increased from 5 million to 125 million. Public works improvement programs created 10,000 municipal water systems in the U.S. Providing safe, potable water to densely populated urban centers was a major factor in overcoming waterborne disease and facilitating economic and social progress. Financing construction of these systems was just as serious a challenge as the development of technology, but the priority of safe, disease-free water could not be ignored.

Major eastern cities had secure water works by 1833, but cities in the great middle of the country such as Chicago experienced cholera and other bacterial disease outbreaks well into the late 1880s. Greeley reported that Rudolph Hering, considered by many as the father of modern municipal sewerage systems, came to Chicago in 1884 to make plans for relieving the city of typhoid fever and its polluted water supply. He brought his experiences with the New York City and Philadelphia systems with him.

Greeley further reported that, in 1833, there were no systems to collect sewage in any U.S. city. Brooklyn, N.Y. and Chicago, Illinois were the first to construct collection systems and they did this just prior to 1860. The aim of these systems was to eliminate the practice of discharging sewage to the public streets, a practice that we cannot contemplate today. The sewage instead was collected and directed to natural water courses that would transport the sewage away from the population centers.

By 1930, urban population had grown to about 60 million and every community with a water works had also constructed a sewerage system. Of course, most of these systems collected stormwater and sewage in the same conduits. Although economical at the time, this practice has resulted in a current challenge.

While these improvement programs for water supply and sewage disposal greatly improved the general health in urban areas, they were inadequate to overcome disease challenges in some locations. Cholera, typhoid and other bacterial diseases remained a significant cause of death in some urban centers.

In 1899, the U.S. Congress prohibited the discharge of sewage solids to navigable waters without a permit issued by U.S. Corps of Engineers. This was the first federal regulation regarding disposal of sewage. These regulations, in turn, created new technological and financial challenges for the public works industry.

Public works leaders had to develop new approaches. By 1900, Chicago had completed a huge source water protection project that diverted the polluted Chicago River southward to the Illinois River, away from the city’s water supply of Lake Michigan.

Cities such as Lawrence, Mass., and Chicago began experimentation with biological technologies for treating sewage. As a result, the practice of biological treatment of collected sewage expanded significantly between 1900 and 1920.

To help meet the needs of municipalities for implementation of this technology, Samuel Greeley with Langdon Pearse founded a private consulting firm in 1914. In the ensuing years, Greeley and Hansen designed and constructed many successful secondary-type treatment works for municipal clients. Greeley felt strongly that progress could be expedited through private firms serving many municipalities and sharing expertise developed.

Samuel A. Greeley, engineer and historian
The first biological plant for wastewater treatment of municipal wastewater in the U.S., a small trickling filter plant, was constructed in Madison, Wis., in 1901. Imhoff tanks, developed in Germany by Karl Imhoff (a personal Greeley friend), were widely employed starting in 1909 as a highly economical solution to treatment. New York City had three chemical precipitation plants operating around 1890-1900 to protect its beaches.

The first activated sludge plant in the U.S. was placed in operation in 1916 at San Marco, Texas. Later, other cities constructed very large activated sludge facilities. In the early 1930s, Greeley worked with New York City to design and convert the Wards Island Plant to the first major activated sludge plant in the U.S. He also worked with other cities, Chicago, Milwaukee and Peoria, in pioneering activated sludge treatment during the 1920s.

From 1920 to 1939, the Chicago Sanitary District (currently known as the Metropolitan Water Reclamation District of Greater Chicago) constructed three other large biological plants at several locations around Chicago including Stickney, Illinois. These provided secondary level treatment for a billion gallons per day of effluent to be discharged to the Illinois River system.

Between 1935 and 1945, New York City added three additional activated sludge plants in Brooklyn and Queens. The City then developed a variation of activated sludge technology that it called step aeration and constructed five more plants between 1945 and 1965. Finally, in 1967, the City constructed its largest WWTP in the Greenpoint area of Brooklyn. Recently this plant, across the East River from Manhattan, was expanded to serve a population equivalent of one million using step aeration and other innovative technologies.

For most of these treatment plants, disinfection of wastewater effluent was accomplished through the application of chlorine solution to the final effluent. Recently, another challenge arose, namely concern about the impact of chlorinated-organic compounds on aquatic life. Use of two other technologies, ultraviolet light and ozonation, avoid the formation of these compounds and are becoming widely used.

Parallel challenges in drinking water
During this same time frame, development of technologies to treat drinking water was necessitated by the discoveries by John Snow (1855) and Louis Pasteur (1880s). Their work confirmed the importance of eliminating bacteria from drinking water. Slow sand filtration to remove turbidity was employed by the City of Philadelphia in the early 1900s. Use of chlorine to disinfect drinking water began in 1908 in Jersey City, New Jersey.

Chicago began to disinfect drinking water at its Lake Michigan water intakes in 1916, but did not construct filtration plants until much later. In 1947, the South Water Purification Plant was put online. The construction of its second plant, the Central Water Filtration Plant, serving a majority of its citizens was completed in 1964.

The first federal regulations related to drinking water were issued by the U.S. Public Health Service (USPHS) in 1914. Standards related to the bacteriological quality of drinking water aboard ships were issued first. These regulations were expanded in subsequent years to cover all drinking water.

Samuel S. Baxter, APWA President in 1947 and the first Commissioner of Water for the City of Philadelphia, was an outspoken proponent of...
securing funding for maintenance and repair of infrastructure throughout his tenure in public works. Baxter, another close friend of Sam Greeley, was also a pioneer in the use of strategic planning to overcome tough challenges in both water and wastewater. He served as president of AWWA (1965) and ASCE (1970).

As late as 1969, a U.S. Public Health Service survey reported that only 60% of systems delivering water to the public met all of the issued standards for disinfection, clarification and the maintaining of adequate pressures in their distribution systems.

To this day, we continue to upgrade standards and improve our systems and practices to meet new needs of the public. The City of Moline, Ill., located along the Mississippi River, is typical of municipalities setting stringent goals for finished water turbidity as low as 0.1 NTU at their WTP.

The future
Professional leadership in public works will continue to meet challenges with energy and enthusiasm as did pioneers like Samuel Greeley and his contemporaries. Current and future leaders will create new technologies and devise innovative solutions for these future challenges. As daunting as past challenges appeared, they were overcome with inspiration, ingenuity and a great deal of perseverance.

The challenge of replacing current infrastructure for water purification and wastewater treatment will require innovation to be accomplished within the constraints of our society and economics. This accomplishment undoubtedly will take many years and the dedication of the myriad professionals in the industry to develop approaches that relieve financial pressures.

New technologies will be pursued and applied. It may be that the approach of dealing with potable water, wastewater and stormwater holistically on a watershed basis will be a successful strategy to alleviating competition for water.

As seen from the past, today’s solutions can become tomorrow’s challenges. Today we struggle with pollution from combined sewers constructed a century ago. There is no reason to believe that this phenomenon will not be repeated in the future as we attempt to progress.

Taking on the challenge of excessive use of governmental regulation is surely a good place to start. It is estimated that about 10,000 pages of new regulations are created each day. Investment in protecting the health of the nation must be thoughtfully done so as to promote the well-being of the U.S. economy. In formulating regulations, we would do well to point out strategic direction for improvement and leave the methods for municipal experimentation.

As in the past, the capability of the country to finance improvements is the key challenge. If, in the future, we rely on national funding for public works, we will be dependent on the prioritization of national social concerns rather than individual local need. If private financing is to be used, an appropriate return on investment will need to be achieved through ratepayers realizing the value of the service.

Difficult as these challenges seem, they will be overcome by our next generation of leadership.

Thomas J. Sullivan can be reached at (312) 558-9000 or tsullivan@greeley-hansen.com; Kenneth Eyre can be reached at (703) 922-4516 or keyre@greeley-hansen.com.
“I recently saw a posting on a city’s Facebook site encouraging people to participate in a ‘cash mob’ at a specific location. What in the world is this and why would a city want to encourage something like it?”

You, as I, are probably not what people would call a savvy Facebooker! I have heard of “flash mobs” and “dance mobs” and now a “cash mob.” I did some investigating though and found that it really is used by cities and, unlike some of the other kinds of mobs we endure, this is to encourage residents to go spend cash in a specific area. Why, you ask, would a city want to encourage such a thing? Wouldn’t it be giving preferential treatment to one business over another? I would have thought the same thing until I discovered that it is suggested to keep businesses in a construction area, usually where the city is making major changes or improvements to the intersection or entrance nearby, viable during a time when most customers might see the mess and move on to another location. Usually, the area receives more extensive signage and detours are well marked. However, the new technology is often being used now to call attention to the fact that the area is, indeed, open to customers and to encourage folks to “mob” the place and spend “cash” to help the owners during the construction period. You learn something every day!

“Can anyone provide me with a good plan for public education for our stormwater program? We keep trying to get the public interested but don’t have much luck.”

I recently visited the Department of Public Utilities in Fresno, Calif., and the Public Works Department in Columbia, Mo., and both have outstanding and very successful programs to educate the public about stormwater and water conservation, as well. Another great program is in Bettendorf, Iowa, and involves a great program presented at the schools, as well as Clean Stream teams and a healthy volunteer program. Let me know if you would like the contact information. All three agencies are Accredited by APWA and doing a great job of sharing public information.

“Our city has been selling vehicles and surplus equipment through the online auction process for quite a while. Now our Fleet Manager is suggesting that we utilize the ‘reverse auction’ process as a method of reducing our fuel costs. Do you know how this works?”

As you know, the usual auction process involves the seller posting an item up for bid and the buyers bid within certain time constraints and parameters and at the close date, the successful buyer is the one who offer to pay the most for the item. A reverse auction is different in that a single buyer offers a contract out for bidding. Multiple sellers are then able to offer bids. As the auction progresses, the price decreases as sellers compete to offer lower bids than their competitors while still meeting all the requirements of the bid specs. Many procurement officers believe that bidding by real time on the Internet results in a dynamic, competitive process and helps to provide downward price pressure that is not available through traditional static paper-based bidding techniques. Jeffrey Hart, Fleet Supervisor, City of Oceanside, Calif., has used this process and is finding it very beneficial with a 5-7 percent potential savings. Contact Jeffrey for more details.

“With all the cuts made to our various programs, we are looking for a way to continue to recognize our outstanding employees without spending a lot of money to do so. We know how valuable they are to us and to our citizens but we don’t have money to recognize it now. Any ideas?”

Many surveys have shown that employees, while appreciating a monetary gift for outstanding service, feel that public recognition of their efforts is often just as effective. The City of Chandler, Ariz., has developed an outstanding recognition program that they have titled “Kudos Corner.” Housed on the intranet,
employees are encouraged to send a note to acknowledge outstanding customer service or an innovative idea or simply a job well done. The kudos are shared with everyone in the city and special recognition is given by department directors at all staff meetings. For more information, contact Lexie Rosenfield at lexie.rosenfield@chandleraz.gov. Sometimes the simplest method can be the most rewarding!

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**Ask Ann**

Please address all inquiries to:

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

Fax questions to: (816) 472-1610
E-mail: adaniels@apwa.net

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**DON’T MISS THIS CHANCE**

...to advertise in the APWA Reporter’s Transportation and Projects of the Year issue!

Don’t miss this opportunity to advertise in the July “Transportation” and “Projects of the Year” issue. Our transportation articles will feature topics such as road maintenance, construction, traffic controls and paving materials. And the Projects of the Year award is a great honor and our members will be looking eagerly to the issue to see which public works projects have been chosen. The deadline to reserve your space is June 7; the materials are due by June 11.

Call Amanda or Kristen at (800) 800-0341.

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

The RPA wants to provide you with all the tools you need to make your program a success. For additional information, please contact Mark Belshe, Rubber Pavements Association, at MBelshe@rpamail.org or (480) 517-9944. Visit our website www.rubberpavements.org.
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**Tippmann Post Driving Equipment introduces side mount adapter for driving u-channel posts**

The **Tippmann Side Mount Adapter** fastens quickly to all **u-channel posts** ranging in size from 2 lb. per foot all the way up to a 4 lb. per foot post. Whether you are driving an 8 ft. post or a 14 ft. post, this adapter will allow you to drive from a height you are comfortable with and your feet on the ground. This adapter is equipped with 11 sturdy attachment pins, which fit all major manufacturer u-channel hole patterns. The side mount adapter is then held in place by a long retaining pin and clevis. Learn more about this adapter as well as view online video demonstrations by visiting propanehammer.com. Or call toll free for a free brochure: (866) 286-8046.

**Design and Control of Concrete Mixtures, 2011 Edition**

For more than 85 years, PCA’s **Design and Control of Concrete Mixtures** has been the authoritative reference on cement and concrete materials. The new, fully revised 15th edition contains the most recent standards, specifications and test methods for ASTM, AASHTO and ACI, and includes the best practice on materials and methods for sustainable concrete construction. For more information or to order, visit www.cement.org/apwa or call (800) 868-6733.

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**ARMOUR-SEAL frame and chassis component encapsulant**

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Precision Concrete Cutting: the leader in uneven sidewalk repair

Precision Concrete Cutting (PCC) is the leader in uneven sidewalk repair. Clients enjoy bringing their sidewalks into ADA compliance, removing the trip and fall liability, and stretching their budget. Typical savings verses sidewalk replacement is 70-90%. The service is quick and clean, ensuring very little disruption to pedestrians on busy sidewalks. The process reduces landfill waste and fossil fuels. Visit www.SafeSidewalks.com and schedule free work as part of a demonstration.

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Proseal Inc. has introduced innovative pavement preservation services to state, county and city municipalities by using asphalt rejuvenators and restorative scrub seals to prolong the life of asphalt as opposed to other traditional methods such as chip or slurry seals. Proseal Inc. applies a full line of rejuvenators including products used in high- and low-volume traffic areas as well, including city streets, highways, airports, and cart, bike and walking paths. With branches in Kansas, Oklahoma and Nebraska—combined with specialty products like Reclamite, Cyclogen, CRF Restorative Scrub Seal, PACAF Seal, and Cohex to name a few—Proseal Inc. is sure to have the right product for your road with today’s budgeting crisis. Call today for a pavement evaluation or more information. Call (877) 650-9805 or visit us at www.proseal.us.

PubWorks Does Water

Well known for efficient and effective management of public works operations for roads, bridges, streets, signs and parks, PubWorks also excels in stormwater, wastewater and water distribution. From asset inventory to inspection and maintenance histories through to comprehensive reporting for analysis and planning, PubWorks’ approach is unmatched for ease of use and value. GIS integration, PM scheduling and in-the-field data collection round out the benefits that PubWorks customers experience when managing this critical infrastructure. For more information contact info@PubWorks.com.

Rubber Pavements Association at APWA’s big show

RPA is dedicated to encouraging greater usage of high-quality, cost-effective asphalt pavements containing recycled tire rubber. Going to the APWA Congress in Anaheim this August? So are we. Look for the Rubber Pavements Association Booth #1369 but must importantly, register to participate in the Wednesday Workshop “AR: Building High Performing Roads Using Scrap Tire Rubber” on August 29 from 8:30 to 10:45. Visit our website at www.rubberpavements.org.

Gee Asphalt Systems, Inc.: Your Asphalt Preservation Specialists! GSB-88 Receives the Nation’s First Environmental Product Declaration!

GSB-88 Sealer Binder was submitted to a complete rigorous Life-Cycle-Assessment (LCA) conducted with the International Organization for Standardization (ISO) guidelines and qualifications. With high scores in every category, GSB-88 received the ultimate reward, an Environmental Product Declaration (EPD). No other asphalt product or seal coat has undergone this extreme testing! The environmental impact of GSB-88’s Product-Life-Cycle was measured by eight evaluation criteria applied to: (1) each product component, (2) product use, and (3) product recycling. If utilized globally, GSB-88 could save 1.2 million metric tons of CO2 emissions annually and billions of dollars in savings. Let us help develop your cost-effective, environmentally-sound Asphalt Preservation Strategy. Contact us at 800-747-8567 or log on to www.geeasphalt.net.
Take CHARGE with Henderson

Take CHARGE with Henderson’s bumper-to-bumper electric control system for medium-duty trucks operating snow and ice control equipment. The CHARGE system was designed for use with class 3-7 work trucks, replaces complex central hydraulic systems and is CAN bus driven for optimum system programming flexibility. A compact in-cab joystick controller operates the entire system: snowplow, dump body, lighting, sand/salt spreader, spinner and pre-wet system. Henderson – GREEN products for work trucks. For more information, call Henderson Products, Inc. at 1-800-359-4970 or visit www.hendersonproducts.com.

Design-Build Storage Solutions with ClearSpan™ Fabric Structures

ClearSpan Fabric Structures is the industry-leading manufacturer of tension fabric buildings, offering American-made structures with in-house engineering, manufacturing, financing and installation. These structures provide energy-efficient, economical solutions for a variety of applications, including waste management, bulk storage, municipal use, wastewater treatment, manufacturing, distribution, athletics, military and more. ClearSpan Hercules Truss Arch Buildings feature abundant natural light and spacious interiors without support posts to interfere with forklifts, dump trucks, skid loaders, conveyers and other heavy machinery. Every Hercules Truss Arch Building is custom engineered to fit the requirements of the specific location, such as snow load or foundation type. With minimal foundation requirements, the structures can be permanent or temporary, and are easy to relocate. For more information, visit www.ClearSpan.com/ADAPWA or call 1.866.643.1010 to speak with a ClearSpan specialist.

Parallel Lift Plow from Henke Manufacturing

The latest snowfighting product from Henke Manufacturing is their Parallel Lift Plow. Designed to remain parallel to the ground in transport or in angling positions, this unique plow can be completely removed from the truck hydraulically, leaving only a flat plate. The truck hitch and power reversing and lifting mechanisms remain with the plow. The Parallel Lift Plow has an inverted “J” shape 43” high moldboard with 10 vertical ribs. The moldboard is available in steel or polymer in 10’, 11’ and 12’ lengths. For more information contact: Mike Blake, Henke Manufacturing Co., 3070 Wilson Avenue, Leavenworth, Kansas 66048, 888-682-9010, 913-682-0300 fax, mblake@henkemfg.com.

School zone flashing beacon systems from JSF Technologies

JSF Technologies builds the world’s most advanced solar-powered school zone flashing beacon systems. Costly electrical permitting, cable runs, traffic delays and roadwork are avoided, with a typical installation taking less than one hour. The schedule is entirely managed online. Authorized users simply select dates and times from an intuitive calendar and the system is programmed for the school year. Changes to the schedule can be implemented immediately, for example to account for school closures due to inclement weather. A child has a 90% fatality rate if struck at 25-30 mph and drivers travel 5-7 mph slower when school zone flashing beacons are present. Call us at 1-800-990-2454 or visit our website at www.jsftech.com. JSF Technologies – Simply Brilliant!
Public Works Director
Peoria, IL

Bachelor’s degree from an accredited four-year college or university in Business Administration, Public Administration, Civil Engineering, construction management or a related field; a related advanced degree and Professional Engineer (P.E.) certification are desirable. Ten or more years of broad and extensive experience in all major phases of public works, civic capital improvement administration, and government budgeting and finance principles. Strong executive leadership, project management, and communications skills important. Any combination of education, training and experience which provides the required knowledge, skills, and abilities to perform the essential functions of the job may be considered.

The ideal candidate will be both an excellent leader and manager who will be able to manage all aspects of the Public Works Department. Will have exceptional knowledge of current principles, practices and operations of public works operations, as well as knowledge of pertinent federal, state, and local laws, codes and ordinances. Will also have a high competency in developing and administering operating and capital budgets. The department is represented by seven unions, requiring strong labor.management and contract administration skills. Will be a strategic partner with other Departments, sharing resources to achieve the broader goals of the City. Director is a member of the management team of the City and must demonstrate strong leadership, mentoring and communication skills. Will have a history of developing an atmosphere of trust and support where employees are encouraged to invent new solutions. Will delegate appropriately with clear expectations and will expect excellent interdepartmental collaboration as well as a strong focus on customer service.

INITIAL SCREENING: MAY 31, 2012 – OPEN UNTIL FILLED

Interested candidates may contact Mary Ann Stalcup, Human Resources Director, at 309-494-8584, for additional information. Applications with résumés attached from the general public will be accepted as follows:

- Website – www.ci.peoria.il.us
- In Person or by Mail – City Hall, Human Resources Department, 419 Fulton Street, Room 403, Peoria, IL 61602
- Fax – 309-494-8587
- E-Mail – humanresources@ci.peoria.il.us

City residency is required within one year of hire. Selected candidate must pass a medical examination, including a drug screen and background investigation prior to hire. EO/AA

Public Works Director Redmond, Washington

The City of Redmond, Washington seeks an experienced, innovative leader for the position of Public Works Director ($108,648 to $152,892 annual salary and an excellent benefits package).

Near Washington’s Cascade mountain range and surrounded by evergreen forests, Redmond is known for its natural beauty. The City of Redmond is a vibrant, suburban community with approximately 54,000 residents. Located less than 20 miles east of downtown Seattle, Redmond offers a high quality of life with good schools, a healthy economic base, safe neighborhoods, and a parks system that provides a variety of recreational opportunities.

The City is seeking an experienced and proven leader for the next Public Works Director. This position reports to the Mayor and is a key member of the management team. The Public Works Director will: provide expert guidance to the Mayor, Council, and other City departments; develop strategy and policy; and ensure that City initiatives and core values are incorporated into operational activities and services.

The Public Works Department is a diverse department known for its progressive organization and commitment to quality. The Department enjoys strong support from the Redmond community, and is committed to: protecting Redmond’s natural environment; preserving and improving transportation, water, wastewater and stormwater systems; and maintaining the infrastructure and buildings which serve the community.

The City of Redmond will be accepting applications for Public Works Director beginning June 1, 2012 through June 29, 2012. Additional information regarding the position, requirements, and benefits is available on the City’s website at www.redmond.gov.

The City of Redmond provides reasonable accommodation to those with disabilities. Equal Opportunity Employer

Workzone Continued on Page 103
With current economic restraints, the financial and environmental savings of trenchless technologies cannot be understated. That's why NASTT is offering a free webinar series to assist public works and the underground utility community in expanding their trenchless technology knowledge. This four-part training series will feature both Trenchless Rehabilitation and New Installation techniques and will be presented by trenchless industry experts. The focus will be the financial and environmental savings of trenchless technologies and how to implement trenchless technologies in future projects. After viewing these webinars you will have the knowledge of different trenchless technology methods, their applications and, above all, their benefits.

Benefits of the NEW NASTT Webinar Series:
- Accurate and objective
- Non-commercial content
- Actively participate by using our Q&A platform
- Free to both members and non-members of NASTT

Tuesday, June 26, 2012
Trenchless Rehabilitation Part 1
- Cured in Place Pipe (CIPP) Lining
- Lateral Lining
- Spray-on Systems
- Tight Fit Lining Systems

Wednesday, August 8, 2012
Trenchless Rehabilitation Part 2
- Pipe Bursting
- Sliplining
- Spiral Liners
- Spot Repairs
- Grout in Place Lining Systems
- Manhole Rehabilitation

October 2012
Trenchless New Installations Part 1

December 2012
Trenchless New Installations Part 2

Register today for these upcoming NASTT webinars! www.nastt.org/webinars
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...to get in the APWA Reporter’s Congress Show issue!

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

So, don’t miss this opportunity to advertise in the August issue which covers the 2012 APWA International Public Works Congress & Exposition in Anaheim, California (Aug. 26-29), and will feature articles from speakers at the conference.

The deadline to reserve your space is July 6; the materials are due by July 10. Bonus: Advertise and we’ll provide you with a free listing in our “Products in the News” column!

“Just returned to the office to find your note and the very nice coverage of our new sculpture division in your March issue.” – Tom Miller, President, Metal Forms Corporation

“My company has long received APWA Reporter and has found it a wonderful source for news in our industry as well as a venue for advertising our innovative products.” – Jess Frantz, Marketing Assistant, Professional Pavement Products, Inc.

“I received the magazine and just today about 49 calls from different people…it is amazing what you can do!”
– Maria Fernandez-Porrata, Public Relations Manager, Marlin Engineering, Inc., Miami, Florida

“I know staff will take pride in the article appearing in the APWA Reporter, which we have long viewed as the leading periodical on public works management and operations.” – Steven P. Latoski, P.E., PTOE, Director, Mohave County Public Works, Kingman, Arizona

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Director of Public Works
Greenville, NC
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Position requires exceptional leadership, management, oral/ written communication and interpersonal skills; a demonstrated successful history of administering comprehensive public works programs with a minimum of 10 years of increasingly responsible management experience; a proven record of building strong relationships with City officials, staff, state and federal agencies and private sector partners, and the community; registration as a Professional Engineer (PE) in North Carolina or the ability to obtain by reciprocity; and a bachelor’s degree in engineering (master’s degree preferred).

Starting annual salary range: $109,595- $136,988 DOQ; excellent benefits. For additional information and to apply, please visit our website at www.greenvillenc.gov. Application deadline: 5:00 p.m., Monday, July 30, 2012.

Fleet Manager
Dayton, Ohio
This position is responsible for the management, maintenance and make-up of the City’s fleet consisting of automobiles, trucks, service equipment, construction equipment and miscellaneous maintenance equipment. It oversees the planning, organization coordination, staffing and specification preparation for a successful, comprehensive fleet management and maintenance program. B.S. in Business Management, Public Administration or closely-related field and five years of experience that includes heavy equipment. Must have a valid driver’s license. Submit résumé, copy of college transcripts, copy of valid driver’s license, and cover letter to terri.hinders@cityofdayton.gov. Please review complete job posting at www.cityofdayton.org.
UPCOMING APWA EVENTS

International Public Works Congress & Exposition
2012 Aug. 26-29 Anaheim, CA
2013 Aug. 25-28 Chicago, IL
2014 Aug. 17-20 Toronto, ON
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.

North American Snow Conference
2013 Apr. 7-10 Charlotte, NC

For more information, contact Brenda Shaver at (800) 848-APWA or send e-mail to bshaver@apwa.net.

National Public Works Week: May 19-25, 2013
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.

INDEX OF ADVERTISERS

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Legend: IFC = Inside Front Cover; IBC = Inside Back Cover; BC = Back Cover

Burns & McDonnell, p. 103
www.burnsmcd.com

Camosy Construction, p. 102
www.camosy.com

ClearSpan Fabric Structures, p. 33
www.ClearSpan.com/
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Consort Display Group, p. 101
www.consort.com

Construction Accessories, Inc., p. 101
www.jackjaw.com

Custom Concrete Creations, p. 101
www.customconcretecreationshop.com

Eski, p. IBC
www.eski.com/apwa

Everblades, p. 103
www.everblades.com

Fleet Soft, p. 102
www.fleetsoft.com

Flink Co., p. 75, 102
www.flinkco.com

Gee Asphalt Systems, Inc., p. 34
www.geeasphalt.net/apwa

Gilbarco Veeder-Root, p. IFC
www.gilbarco.com

GVM Snow Equipment, p. 101
www.gvmsnow.com

H&M Gopher Control, p. 101
www.handmgophercontrol.com

Henderson Manufacturing, p. 29
www.henderson-mfg.com

Henke Manufacturing Corp., p. 102
www.henkmfg.com

JSF Technologies, p. 81
www.jsftech.com

Kleinfelder, p. 102
www.kleinfelder.com

MJ Harden, p. 102
www.mjharden.com

Muncie Power Products
www.munciepower.com/
advantageplus

NASTT, p. 99
www.nastt.org

Pine Valley Eco Products, p. 102
www.chemproducts.net

Portland Cement Association, p. 36
www.think-harder.org

Precision Concrete Cutting, p. 102
www.SafeSidewalks.com

Proseal Inc., p. 101
www.proseal.com

PubWorks, p. 101
www.PubWorks.com

RHOMAR Industries, Inc., p. 73
www.rhomar.com

RS&H, p. 40
www.rsandh.com

SnapTite, p. 101
www.culvert-rehab.com

Stan Design Inc., p. 102
www.stanjacks.com

SWA Group, p. 103
www.swagroup.com

Tensar International Corporation, p. 43
www.tensarcorp.com

Tippmann Industrial Products, p. BC
www.propanehammer.com

Tnemec Company, p. 103
www.tnemec.com

Trackless Vehicles LTD, pp. 50, 85
www.tracklessvehicles.com

Transpo Industries, Inc., p. 103
www.adastepsafe.com

Twining, Inc., p. 5
www.twininginc.com

TYMCO International, LTD, p. 87
www.tymco.com

Volvo Construction Equipment, p. 101
www.volvoce.com/na

Western Star Trucks, p. 25
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