Santa Cruz County blazes a new trail in waste reduction

(See page 39)
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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.

SOLID WASTE MANAGEMENT

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Solid waste is an issue that everyone contributes to but no one wants to talk about. Coming from a state with significant solid waste challenges and the ensuing legislation, I appreciate the need to educate both our public and our operators in improved techniques and practices. The advances in solid waste continue to move at an accelerated pace. From advances in “green” recycling to utilizing municipal facilities for energy generation to repurposing landfills for cell towers and solar farms, the world of solid waste is changing.

One area that is a major concern is the role of municipal waste management in the case of disaster. From excessive tree debris caused by winter storms to bulk scrap and hazardous waste left over from excessive flooding, the job of cleaning up after a disaster is an extremely important yet often undervalued task. The resilience of a community is directly tied to its ability to get back to normal and solid waste professionals are on the front lines of that endeavor. Last year, Superstorm Sandy focused the nation’s attention on the long haul back from disaster with many communities on the eastern seaboard still struggling to return to normalcy. So, how do you make sure your agency is prepared for the onslaught of waste in the aftermath of a disaster?

Having a comprehensive disaster debris management operations plan is the best place to start. The Federal Emergency Management Agency (FEMA) provides training programs for state and local agencies. These courses are conducted at the Emergency Management Institute in Emmitsburg, Maryland. The FEMA Debris Management Course and Public Assistance Program training course helps an agency define a course of action. A great place to start is the “Introduction to Debris Operations.” This short course covers basic information about debris operations under FEMA’s Public Assistance Program. The goal for this course is to familiarize you with general debris removal operations and identify critical debris operations issues. For more extensive training to help your agency create a comprehensive disaster debris management operations plan, agencies should consider sending individuals to the E202 – Debris Management Planning for State, Tribal and Local Officials. This extensive four-day course provides an overview of issues and recommended actions necessary to plan for, respond to, and recover from a major debris-generating event with emphasis on state, tribal, and local responsibilities. Developed from a pre-disaster planning perspective, the course includes debris staff organizations, compliance with laws and regulations, contracting procedures, debris management site selection, volume reduction methods, recycling, special debris situations, and supplementary assistance.
Since not everyone can head to Emmitsburg, there are also tools on the APWA website. One of the best sources for information is the Solid Waste Resource Center. If you want to see what should be included in a debris management plan, there are copies of plans from agencies in Kansas, Florida and Virginia.

The APWA Members’ Library has archived sessions on Tree Debris and Debris Management in Emergency Situations and, as always, the APWA Reporter is full of items of value. Another great resource is the APWA infoNOW Community. This site provides APWA members the chance to directly ask their peers for best practices and guidance for any solid waste issue.

Education and training is key to community resilience and I am pleased to continue my focus on expanding opportunities for public works professionals.

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 June 27, 2014 and July 27, 2014:

- APWA President-Elect;
- At-Large Director in the functional areas of Engineering & Technology, Environmental Management, Leadership & Management and Transportation
- Regions III, IV, VII and IX Regional Directors (by APWA members in those respective regions)

The ballot will be available for online voting between June 27 and July 27, 2014 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 (816) 595-5220. Additional reminders of the voting process will be sent through the APWA website; 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 (816) 595-5220.

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

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EPA Office of Solid Waste priorities for 2014 includes management of coal ash residuals

Julia Anastasio
Director of Sustainability
American Public Works Association
Washington, D.C.

he Environmental Protection Agency (EPA) Assistant Administrator for Solid Waste and Emergency Response, Mathy Stanislaus, provided an outline of the agency’s priorities for the coming year. The priorities outlined by Stanislaus include a new rule deregulating certain wastes from regulation, finalizing new rules regulating coal ash and revitalizing the Resource Conservation and Recovery Act (RCRA). Finalization of new rules regulating coal ash could impact public works operations nationwide.

According to Stanislaus the agency continues work on finalizing new regulations managing coal ash wastes. Coal fly ash is generated from the combustion of coal in power plants and captured by pollution control technologies. Recycled coal ash is used in a variety of applications including the production of wallboard, concrete and roofing materials. Local governments use coal ash by-products in many applications that are essential to public works and infrastructure development. For instance, coal ash by-products are used in highway construction both as a soil treatment for subgrades and as a component in the concrete they use in many applications. Regulating these essential by-products as hazardous wastes would effectively eliminate the use of these by-products because of the increased stigma associated with a hazardous waste designation. A hazardous waste designation could also lead to increases in liability for new construction and demolition activities, and it would almost certainly result in increased materials costs for critical infrastructure projects. Moreover, a hazardous waste designation would create new and uncertain requirements for shipping, handling, use and disposal of these by-products.

For several years, the agency has been considering two regulatory alternatives to deal with the public safety and environmental hazards posed by these wastes. EPA’s proposed approach would classify coal ash as either a hazardous material or a non-hazardous material under RCRA. Under the first approach, EPA would list the coal ash as a special waste subject to regulation under Subtitle C of RCRA when they are destined for disposal in landfills or other surface impoundments. The other alternative would regulate coal ash under Subtitle D of RCRA thereby declaring that the wastes are non-hazardous. Environmental groups argue that regulation under Subtitle D of RCRA would not do enough to ensure the protection of human health and the environment.

In 2010 APWA worked with the National League of Cities, National Association of Counties and the U.S. Conference of Mayors to tell the agency that a change in the regulatory status of coal ash by-products would significantly impact the use of these materials as beneficial by-products. We urged the agency to carefully consider the unintended consequences of any new regulatory regime regulating coal ash residuals under Subtitle C of RCRA. We argued that these wastes are more appropriately regulated under Subtitle D of the Act and be determined non-hazardous. Regulating these essential by-products as hazardous waste would effectively eliminate the use of these by-products and increase materials costs, result in the increase in harvesting of virgin materials thereby increasing greenhouse gas emissions, and strain already dwindling landfill space. For all of these reasons, we asked EPA to choose a regulatory approach that balances the need to protect public safety with the continued ability to use these important and beneficial by-products.

Stanislaus said that the agency remains committed to finalizing the new rules but that it is also working to align the regulation with new effluent guidelines for power plants being promulgated by the EPA Office of Water so that regulated entities have a set of compatible requirements to follow. The agency is under a court order to file a timeline for finalizing the regulatory process by January 29, 2014. However, doubts about the agency’s ability to complete the rule in 2014 were raised when the agency moved the regulation to its long-term action list.

APWA’s Government Affairs staff will continue to monitor developments with this regulation to ensure that the needs and concerns of public works professionals are considered by the agency. Feel free to contact Julia Anastasio at janastasio@apwa.net with any questions.

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Restructuring the House of Delegates

Peter B. King
Executive Director
American Public Works Association

Over the past year, APWA has taken several steps to put in motion changes that restructure the House of Delegates, and refocus the House and its 63 delegates and alternate delegates into a more cohesive, active body supporting APWA initiatives, programs and priorities. Led by a special task force of nine delegates (including the House Executive Committee) and chaired by APWA Past President Elizabeth Treadway, the changes are expected to officially launch in August 2014 at Congress in Toronto. The enhancement of the role of the House emerged from discussions and actions of the Board of Directors to move the Board to focus on longer term, strategic issues for the organization and the realization that the House was an underutilized asset.

Transitioning the House of Delegates to become the “Council of Chapters”
The Board of Directors’ focus is on strategic leadership, ensuring that APWA is strong financially, and defining appropriate services to the members and the public works profession. Over the past two years, Board discussions led to redefining its mission to ensure that the Board is focused on strategic issues. In the spring of 2013, the Board acted to redefine its own role and assigning new, expanded responsibilities to the House of Delegates. To fully explore and plan for these important improvements, a House Refocus Task Force was created to redefine the role of the House of Delegates and create an agenda for a “new” House (to be renamed the Council of Chapters) that will serve the Board and staff and work collectively to strengthen, support and grow APWA membership and services through dynamic chapters.

Role of the Council of Chapters
The role of the Council of Chapters will be to serve the organization as advisors to the Board of Directors, the Executive Director, Technical Committees, and other committees and staff in support of APWA’s mission and strategic initiatives. The Council intends to create chapter-to-chapter links that will strengthen how chapters share information and provide support to one another. The Council and delegates will serve as consultants to chapters in support of member engagement and growth. It will provide a mechanism for coordination of information to and from chapters and provide feedback and input for APWA initiatives. The Council will be a way for chapters to identify issues and concerns and share them with the Board of Directors and the Executive Director.

Role of the Delegate
The delegate’s role will change and expectations are that delegates will be more active and involved than in past years. Delegates and alternate delegates (chapters may decide if they feel there is value in appointing an alternate) are well informed on how chapters operate and the Council will capture this expertise and bring it
together to serve APWA and its 29,000 members. The focus will be on the achievement of APWA strategic goals, supporting chapters to serve members, serving as the communication link between their home chapter and the national organization. The delegate will serve as a communication link between chapters to mentor, advise, coach and assist in working towards the achievement of chapter best practices. The task force has recommended that a delegate serve no more than three, two-year terms but this is a decision that is at the discretion of the chapter.

**Council of Chapters Leadership and Governance**
The Council will be led by a Steering Committee consisting of nine members, each selected by delegates from each of the nine APWA Regions. Initial appointments will occur at the 2014 Spring House of Delegates Meetings. The Steering Committee will guide the work of the Council and will serve as a liaison to the Board of Directors, National President and executive staff. The nine members on the Steering Committee will have staggered terms for continuity and knowledge sharing and provide a link so topics that are ongoing remain in the pipeline.

The Steering Committee will be appointing various Standing Committees, Ad Hoc Committees, Task Forces or focus groups with specific topics and outcomes. Areas of focus will reflect organizational priorities as identified by the Board of Directors, the Steering Committee, staff and chapters. Committees will be comprised of delegates, alternate delegates and other members with specific expertise. In January 2014, all delegates and alternate delegates completed a survey that will be used to determine areas of assignment this spring.

The new structure is set up to engage chapters and makes it easy for chapters to reach out to others to share information and both seek and provide support on a chapter program. The Board of Directors’ president-elect will serve as liaison to the Steering Committee, helping frame initiatives and defining missions that need to be accomplished. The president can also add additional advisors, should that be necessary, from among APWA members.

The Council of Chapters will meet twice annually. The first “official” meeting will be in 2014 at the Congress in Toronto, followed by a winter meeting in conjunction with the 2015 Winter Board of Directors meeting. Regional meetings will continue to be held in the spring of 2014; for 2015 and beyond, each individual region will determine if there is value to holding a spring regional delegates meeting given the new structure.

The House of Delegates is not mentioned in the APWA Bylaws. The Task Force and Board feel it is important that the Council of Chapters be institutionalized into the Bylaws, and an amendment to the Bylaws to be voted on this spring by all members is anticipated.

**Chapter Outreach**
An important dialogue has been occurring on these proposed changes since before the 2013 Congress in Chicago. In addition to briefing delegates on the concept and proposed details at the 2013 Congress, Task Force members have held two conference calls with delegates in their Regions to explain the framework, and gather feedback which has been taken into consideration as the Task Force finalized the structure. The Task Force will be meeting again in late February in Kansas City to continue to discuss and determine operational details, committees and key issues to address. A 16-minute, informative webinar was created that explains the efforts to-date and all chapter presidents and leaders have been sent details. It can be found on apwa.net in the Members Only section under Chapter Leader Resources, Webcasts, and titled “House of Delegate Refocus.” All members interested in more details are encouraged to view the presentation online.

**Under Review**
There are still items under review, particularly with resources to support the new Council operations in 2014 and beyond. The current chapter stipend of $600 per chapter for travel to meetings is under review given the new meeting structure. The stipend may be increased to accommodate two meetings annually. Additional staffing and other resources are also under consideration to ensure the new structure is supported. All resource needs will be reviewed as the 2015 budget is prepared.

For more information, please contact Peter King at pking@apwa.net or Brian Van Norman at bvannorman@apwa.net.

**House Refocus Task Force**
- **Chair:** Elizabeth Treadway, PWLF
- **Region I:** Carl L. Quiram, P.E., PWLF
- **Region II:** Charles M. Jones, P.E.
- **Region III:** Dawn V. Odom
- **Region IV:** Suzanne McCain, P.E.
- **Region V:** Leslie P. Bland
- **Region VI:** Michael O. Geisel, PWLF
- **Region VII:** Herbert W. Blomquist
- **Region VIII:** Shahnawaz Ahmad, PWLF
- **Region IX:** Paul A. Hindman, P.E., PWLF

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The role of solid waste professionals has expanded

Phyllis Muder
Professional Development Program Manager
American Public Works Association
Kansas City, Missouri

"...the role of solid waste professionals has expanded and consideration needs to be given not just to operational procedures but also to safety and emergency situations."

The APWA Solid Waste Management Technical Committee is APWA’s inroad to the world of waste management. The American Public Works Association exists to develop and support the people, agencies, and organizations that plan, build, maintain, and improve our communities. Working together, APWA and its membership contribute to a higher and sustainable quality of life.

The Solid Waste Management Committee’s mission is to serve as a center of expertise on solid waste issues for APWA. The committee develops and promotes environmentally sound, cost effective and efficient solid waste management policies and programs for APWA members by reviewing the latest technologies, practices, regulations and legislation in the field and providing opportunities to exchange information.

So what does this mean to you? From advocacy in Washington to compiling case studies from across North America, the Solid Waste Management Committee is committed to improving the resources available for solid waste professionals. The committee, led by Chair John Trujillo, has been instrumental in identifying the key solid waste issues of the day. As you can read in this edition of the Reporter, the role of solid waste professionals has expanded and consideration needs to be given not just to operational procedures but also to safety and emergency situations.

One of the important tasks of the committee is to ensure that APWA’s advocacy in Washington, D.C. represents the viewpoint of municipal solid waste professionals. To this end, 11 different position statements have been developed. They are:

1. Brownfields
2. Electronics Recycling

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– Maurice Strong, former Under-Secretary-General of the United Nations
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10. Superfund
11. Urban Infilling Impacts on Solid Waste Facilities

The annual review of these position statements to ensure that they are still valuable and pertinent is currently underway. To review these in detail, go to the Solid Waste Management Technical Committee’s web page and click on positions statement link. (http://www.apwa.net/technical_committees/Solid-Waste-Management/Position-Statements)

As with all of APWA’s Technical Committees, the Solid Waste Management Committee is concerned with expanding educational offerings. The advances in food waste recycling is the focus of the March Click, Listen & Learn on the 13th with specifics from a couple agencies that have implemented this next step in recycling.

APWA Technical Committees are the “centers of expertise” for the assigned subject areas, and their primary purpose is to provide direction and oversight to programs, services and products within the technical area of expertise in support of the strategic plan and APWA goals and objectives. The nomination process for the Technical Committees is currently open. If you would like to become involved with the Solid Waste Management Committee, go to the Nominations tab on the APWA website.

Phyllis Muder can be reached at (816) 595-5211 or pmuder@apwa.net.
Hide your goat

Steve Gilliland  
Member, Speaker Hall of Fame  
Author, Enjoy The Ride  
Keynote Speaker, 2014 North American Snow Conference

No one is immune. The infection can spread quickly and those who discharge the poisonous toxin are masquerading as family members, friends, neighbors, coworkers and people we encounter in our daily lives. They believe that misery likes company, and if they are unhappy, then why not share the feeling? They are elusive, prefer not to march alone, and affect every institution of society. The venom they eject produces by-products of bad attitudes, including resistance to change and personality conflicts. They hunt down upbeat people and without regard, challenge their outlook and question their position on everything positive. They cost plenty in terms of productivity and morale and make life tough for everyone. They delight in getting your goat!

For the most part, these “goat hunters” are self-doubting, insincere, and in a lot of cases, not even aware of whom they really are. Worse yet, they don’t realize the unconstructive impact of their behavior and how other people truly perceive them. The people who accept their behavior are, more often than not, a reflection of themselves. So how do you survive all this negativity? Hide your goat!

Just where do you hide your goat? It all depends on what you believe gets your goat, or shall I say, pushes your buttons the wrong way. You are the person who chooses every day how you will respond to people and circumstances. You are the person who either has enough self-esteem to accept what life throws at you, or the person who feels the need to retaliate. Have you ever been wronged? Have there been times when you haven’t gotten everything you deserved? Do you spend your time and energy on what should have been or are you going to focus on what can be? Even when truth and justice are on your side, you may never be able to right your wrongs. A major diversion to hiding your goat is when you allow destructive emotions to consume your energy and make you negative.

As you look backward, trying to right your wrongs, you become resentful, angry, hateful and bitter. Instead of worrying about someone ever making it right, refocus yourself so you can move forward. Every mistake, broken promise and slip-up, can develop a paralyzing grip. Stop wasting priceless hours envisioning revenge toward an uncaring person. Resentment is about another person who seldom gives thought to their offense. Remove all the resentment, jealousies, self-centeredness and just let go.

Steve Gilliland is the Keynote Speaker at the 2014 APWA North American Snow Conference in Cincinnati, Ohio. His Closing General Session presentation takes place at 3:30 p.m. on Tuesday, May 6, at the Duke Energy Convention Center. For more information on the upcoming Snow Conference, see pages 12-13 in this issue or visit www.apwa.net/snow.Toronto.
If you are holding on to past hurts and pains, let go. If someone can’t treat you right, love you back and see your worth, let go. If someone has angered you, let go. If you are holding on to some thoughts of evil and revenge, let go. If you are involved in a wrong relationship or dependence, let go. If you are holding on to a job that no longer meets your needs or abilities, let go. If you have a dire attitude, let go. If you keep judging others to make yourself feel better, let go. If the approval you are seeking from family, friends or coworkers isn’t happening, let go.

The mastery of life is the mastery of self. We all have our hot buttons that, when pushed, can cause us to emotionally detonate. However, people can only ruin our day if we give them permission. People for the most part seek to be liked and accepted. While they may say one thing, their actions do not match their “so called” beliefs. It would explain why some people spend money they don’t have, to purchase things they don’t need, to impress people they don’t even like. Growing up we were challenged with fitting in, and years later we are still seeking the approval of our families, friends, neighbors and coworkers. Pessimism, cynicism, and distrust are by-products of trying to fit in.

Surviving the negativity that surrounds you isn’t as much about the people who are negative as it is about you. Until you are able to be confident in your own thinking, you will forever fall prey to the people who find your goat and ride it. It is time to hide your goat!

Steve Gilliland is one of the most sought-after speakers in the world. He will be speaking at the North American Snow Conference on May 6 in Cincinnati, Ohio. His book Enjoy The Ride has been on the publisher’s best-selling list for seven years and he was named author of the year in 2010. Steve was inducted into the National Speakers Association’s Speaker Hall of Fame in July 2012. Steve can be heard daily alongside of Jeff Foxworthy and Bill Cosby on SiriusXM Radio. For more information about Steve visit his website at www.steavgilliland.com.

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From industry-leading snow and ice education sessions to an exhibit floor packed with vendors waiting to show you the latest technologies, equipment and processes to help keep your community safe, the Snow Conference has it all! You’ll even have a chance to participate in a special discussion with leading associations where you can help determine where their dollars are being spent for winter maintenance research!

Sunday, May 4

Exhibit Hours: 4:30 – 6:30 p.m.
8:00 a.m. – 4:30 p.m.
Winter Maintenance Supervisor Certificate Workshop
1:00 – 2:00 p.m.
Education Sessions
2:15 – 3:15 p.m.
Education Sessions
3:30 – 4:30 p.m.
Education Sessions
4:30 – 6:30 p.m.
Exhibit Opening & Welcome Reception on the Exhibit Floor

Monday, May 5

Exhibit Hours: 9:00 a.m. – 3:30 p.m.
8:00 – 9:30 a.m.
General Session Talk Show
Risk, Safety, Liability and Reliability
9:30 – 11:00 a.m.
Coffee Break & Non-compete Time on the Exhibit Floor
9:40 – 10:25 a.m.
Exhibitor Solutions Theater
10:30 – 11:15 a.m.
Exhibitor Solutions Theater
11:00 a.m. – 12:00 noon
Education Sessions
12:00 noon – 2:00 p.m.
Lunch & Non-compete Time on the Exhibit Floor
12:45 – 1:45 p.m.
Roundtables on Exhibit Floor
12:50 – 1:35 p.m.
Exhibitor Solutions Theater
2:00 – 2:50 p.m.
Education Sessions
2:30 – 3:15 p.m.
Exhibitor Solutions Theater
2:50 – 3:30 p.m.
Refreshment Break & Non-compete Time on the Exhibit Floor
3:30 – 5:00 p.m.
Education Sessions

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Tuesday, May 6

Exhibit Hours:
8:00 a.m. – 1:00 p.m.

8:00 – 8:50 a.m.
Education Sessions

8:50 – 10:10 a.m.
Coffee Break & Non-compete Time on the Exhibit Floor

9:00 – 9:45 a.m.
Exhibitor Solutions Theater

9:50 – 10:35 a.m.
Exhibitor Solutions Theater

10:10 – 11:00 a.m.
Education Sessions

10:40 – 11:25 a.m.
Exhibitor Solutions Theater

11:00 a.m. – 1:00 p.m.
Lunch & Non-compete Time on the Exhibit Floor

11:30 a.m. – 12:15 p.m.
Exhibitor Solutions Theater

12:00 noon – 2:00 p.m.
Lunch & Non-compete Time on the Exhibit Floor

12:45 – 1:45 p.m.
Roundtables on Exhibit Floor

12:50 – 1:35 p.m.
Exhibitor Solutions Theater

2:00 – 2:50 p.m.
Education Sessions

2:30 – 3:15 p.m.
Exhibitor Solutions Theater

2:50 – 3:30 p.m.
Refreshment Break & Non-compete Time on the Exhibit Floor

3:30 – 5:00 p.m.
Education Sessions

Wednesday, May 7

8:00 a.m. – 12:00 noon
Technical Tours
Miami Township Snow Fighting Facilities
CVG Airport Winter/Environmental Operations
Cincinnati Zoo Sustainability Program

10:00 a.m. – 1:00 p.m.
Education Sessions

2:15 – 3:15 p.m.
Education Sessions

3:30 – 5:00 p.m.
Closing General Session
Keynote Speaker: Steve Gilliland

6:00 p.m.
Snow Celebration Reception
A brief history of public works in the City of Toronto

Jennifer Rose  
Manager, Special Projects  
City of Vaughan, Ontario  
Historian, Ontario Public Works Association

The City of Toronto has a long and diverse history of public works. This article has been prepared to provide a brief description of significant public works developed over the past 400 years. Certainly, many of the public works identified will be on display during the APWA International Public Works Congress & Exposition in August 2014.

1700s
In 1787, the Toronto Purchase, an agreement made between the British Crown and the First People’s nation the Mississaugas of New Credit, established the first boundaries for the future City of Toronto. The Mississaugas of New Credit believed the exchange was a rental agreement with payments of money and goods to them in perpetuity for use of the land. This misunderstanding was acknowledged in 2010 with the payment of $145 million as part of a land claims settlement agreement. The surveyors did not use natural features to define the land “purchased” but used straight lines and a grid pattern which would facilitate the roads pattern in the future city. The first significant public works in Toronto were the construction of roads. Early pioneers built their own roads, using the corduroy technique (laying logs down over the mud road), and dug both their own wells and outhouses.

1800s
The Town of York, which was the original name for the City of Toronto, was established along the shore of Lake Ontario. The town was built in a grid pattern with the street along Lake Ontario appropriately called Front Street. Today, Front Street is approximately 1 km or ¾ of a mile away from the waterfront, as construction companies used the lake as a receptor for excavated fill during construction projects. The changing shore of the lake made room for railway, roads and industrial growth which helped turn the City of Toronto into the diverse and successful city it is today.

The current map of Toronto shows the new shoreline of Lake Ontario and the street now adjacent to the lake as Queen’s Quay. The CN Tower, Rogers Centre, and the Gardiner Expressway are all located south of Front Street on fill material. An unintended consequence of building the railroads and industrial areas south of Front Street was to distance the people of Toronto from the lake and it became more difficult to access.

During the 1800s, private wells were still dug for drinking water, and rivers and streams were used to transfer human waste to Lake Ontario with backyard midden heaps the receptacles for solid waste. The city was muddy and smelly during the early 1800s.

Transit – By the late 1850s, it became apparent that the city needed to be serviced with a more modern transit system than the horse-drawn bus.
service that they had been using. In
1861, the Toronto Street Railway was
established and horse-drawn streetcars
were soon moving people around
the City of Toronto. The grid pattern
established by the early surveyors was
particularly useful for this new and
modern transit system. The horse-
drawn streetcars were in service until
1894 and were replaced by an electric
streetcar system, which had been
implemented in 1892. The transit
system was extremely successful as
most people had no other way to
trace long distances. The transit
system drove the economic engine of
Toronto as it allowed people to get to
work in the industrial areas of the city.
The transit system eventually evolved
into the Toronto Transit Commission,
which runs the buses, streetcars and
subways for the City of Toronto today.

Sanitary Sewers – As a modern
city grows, so does its needs for
sanitary sewer systems. The Garrison
Creek had been used to drain sewage
from surrounding neighbourhoods
to Lake Ontario since people started
to live alongside it. In 1884, public
opinion about the creek and its
quality had finally convinced the
mayor and council that something
needed to be done:
“Mayor Arthur Radcliffe Boswell echoed the growing cry for closure of the creek when he stated in his second inaugural address that ‘This is a most necessary work, not only on account of its being required to drain a large portion of the western and northern parts of the city, but also in the cause of health, for this creek is nothing more than an open sewer, and has become an absolute nuisance to those residing near it.’” The decision was made to bury the creek by building a brick sewer to the lake for the quick and efficient removal of sanitary waste. The encasement of the creek into a sewer had the added benefit of improving property values along the former creek and in turn increased city taxes. The ravine in which the creek had lain was also buried with excavation fill and the area where the creek used to lay is now marked by a series of parks. (*Burying the Garrison Creek: A History*, Michael Cook, http://www.vanishingpoint.ca/garrison-creek-sewer-history)

1900s

After World War II, people’s expectations of life changed. People started to equate success and happiness with a home outside the downtown area, car ownership and new standards of cleanliness. People started to expect more from their municipality with respect to roads and transit, and a consistent, clean water supply. The growth of a city puts more pressure on public works officials to meet the demands of residents. Large-scale public works projects started being constructed to meet citizens’ needs.

**Water** – In 1941, the RC Harris Water Treatment Plant was constructed in Toronto. It was built to alleviate water shortages and ensure clean water. The water treatment plant is still in service, providing drinking water to Toronto and parts of York Region to the north. The treatment plant is an example of where architectural beauty and modern technology meet in the prosaic world of public works.

**Transportation** – The biggest change during this time period was the reliance on the automobile for transportation and, subsequently, the roadways which needed to be built. During the 1950s, congestion and gridlock getting into Toronto was a point of concern for City Council and it was decided that the solution to alleviate this was to build the Gardiner Expressway, an elevated highway just north of the lake shore.

The Gardiner Expressway was so important that in order to build it, City Council demolished a popular summer amusement park on Lakeshore Boulevard. Sunnyside Amusement Park, which was established in 1922 on the shore of Lake Ontario, was a spot where residents could feel relief from the hot and humid summers in the city. It was closed in 1955 in order to make room for the new expressway.

In recent years, as the Gardiner ages, it has become a controversial road and many would like to remove it to allow better access to the water. However, the Gardiner is still heavily used by commuters. The Provincial body, Metrolinx, is working on plans to bring more transit, linking downtown Toronto with neighbouring municipalities, to provide commuters with an alternative to driving into the city.

The 1950s also brought the subway to Toronto. The subway continues to expand as it services the commuter needs of people who live both inside and outside of the city.

**Waterfront** – The City of Toronto has done extensive work revitalizing the Harbourfront. In the 1970s, the federal government expropriated the industrial lands along the Harbour and these lands have become rich in cultural events and residential neighbourhoods. The Harbourfront hosts festivals and provides a welcome destination to the residents and visitors of Toronto.

2000s

**Innovative Public Works Infrastructure Solutions** – Today, the City of Toronto continues to serve the residents and visitors of Toronto with its public works infrastructure. Residents expect that public works departments and elected officials will find environmentally supportive infrastructure solutions and this has brought some innovative solutions to the city. For example, the City of Toronto partnered with Enwave Energy Corporation to provide an alternative to conventional air conditioning in many downtown buildings through the use of a Deep Lake Water Cooling system, which uses the cold Lake Ontario water to cool buildings in the summer months. The City has also invested in Bixi bikes, a public bike rental system, where people can rent bikes at stations, ride, and drop them off at any station, for a reasonable fee.

The Ontario Public Works Association’s History Committee invites you to take its Public Works Historical Walking Tour when you attend APWA Congress in Toronto this year to see these and many other public works historical sites!

*Jennifer Rose can be reached at (905) 832-8585 or jennifer.rose@vaughan.ca*
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the BEST SHOW in PUBLIC WORKS
The APWA Donald C. Stone (DCS) Center offers credentialing, certification and certificate programs through a system of career paths, offering something for everyone. The following information describes each of these and how they are integrated. Further, it seeks to clarify the terminology since these words are used interchangeably in the world of educational, training and professional development marketing. By understanding what APWA offers in the area of education, training, and professional development, potential participants can determine which programs will help them reach their goals.

**Professional Designations**

The APWA DCS program has two options for earning professional designations: Credentialing and Certification.

**APWA Credentialing.** The credentialing program is designed to prepare the next generation of public works leaders for the challenges ahead of the profession. The designations earned through these programs are professional titles, often three or four letters placed after the individual’s name. Currently the DCS Center offers one service designation—Public Works Leadership Fellow (PWLF)—and three professional designations: Public Works Supervisor (PWS), Public Works Manager (PWM) and Public Works Executive (PWE). Acceptance to the program, evaluation of a candidate’s project and professional portfolio are done by senior public works executives who comprise the Program Council, the Research Council and the Credentialing Council.

**APWA Certification.** The APWA DCS Center also offers three certification designations: Certified Public Infrastructure Inspection (CPII), Certified Public Fleet Professional (CPFP) and Certified Stormwater Manager (CSM). These are earned by meeting eligibility requirements which are a combination of education and work experience, plus passing a standardized or normed test. The requirements and body of knowledge standardized tests were developed by senior public works professionals using a rigorous process to determine the correct content for the questions and the standards of rigor for the profession.

Oversight of the certification programs is the responsibility of the Certification Commission. Each certification program has a council of subject matter experts appointed to oversee the eligibility and recertification requirements and review the exam content. The councils for each certification program report to the Certification Commission.

Certified professionals must continue their professional development by earning continuing education units and must be recertified every five years.

APWA certification programs currently have the following number of certified professionals:

- 102 Certified Public Fleet Professional (CPFP)
- 251 Certified Public Infrastructure Inspector (CPII)
- 90 Certified Stormwater Manager (CSM)

**APWA Certificate Programs**

As mentioned previously, the DCS Center has certificate programs as well. A certificate of training shows that an individual has successfully completed a course or class. The best examples of certificate programs are the Public Works Institutes offered by APWA chapters where participants earn certificates after completing 90 hours of instruction; currently there are 18 approved institutes. Another example is the Winter Maintenance Supervisor Certificate program; participants earn a certificate after completing eight hours of instruction and scoring 80% or higher on the exam.

**DCS Center Technical Career Paths and Certification**

The DCS Center is working on launching the first three Technical Specialty Career Paths in 2014—Construction Inspection, Fleet and Stormwater Management. The first course to be rolled out will be Construction Inspection. Public works professionals interested in learning about this topic will be able to access
the course or specific modules online. Following the initial rollout of the course, the career path option will become available.

**Study Guides.** After each course is rolled out, professionals who already meet the eligibility requirements for certification, but would like a review of the content covered in their technical specialty body of knowledge, can sign up for the new study guide program. Candidates in this program will take a pre- and post-assessment, work with a mentor for 10 hours and select six hours of online course content. As a reminder, study guide programs are independent of the certification exams. APWA certification exams are governed by the Certification Commission, a semi-independent certifying body of APWA. In adherence to certification industry standards, the Commission volunteers are not involved in the development of any preparatory programs.

**Career Paths.** Individuals who would like to work with a mentor on a longer-term basis can enter one of the three career path programs. The career paths are designed for professionals entering the field or those who would like to gain knowledge and experience in any of the paths. Candidates in the career path program will select a mentor, develop a professional development plan, and work on a project and a professional portfolio. Finally, individuals who are interested in learning about specific areas within the career paths will have access to online a-la-carte courses. These courses are certificate programs; participants will receive certificates upon completion.

**Construction Inspection Technical Path:**
Level 1: Basic Inspection
Level 2: Intermediate Inspection
Level 3: Construction & Project Management

**Fleet Technical Path:**
Level 1: Technician/Maintenance/Operator
Level 2: Supervisor
Level 3: Manager

**Stormwater Technical Path:**
Level 1: Inspector/Technician
Level 2: Planner/Specialist
Level 3: Manager

Completion of a technical specialty career path does not guarantee eligibility to take the CPHI, CPFP, or CSM examination or to pass the exam. Candidates may apply to enter the certification program at any time. The certification designation is awarded to those who meet the education and work experience requirements.

APWA is fulfilling its mission of providing quality education, training and professional development opportunities to members and the public works profession as a whole. Through its career paths leading to professional designations, the APWA DCS Center will help individuals reach their career goals. The DCS Center staff is here to answer questions and seeks comments and suggestions. For more information about credentialing, certification or certificates, please visit our website at:
http://www.apwa.net/credentialing/certification or contact us at dcscenter@apwa.net.

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Additional information on the upcoming Technical Specialty and Professional Career Path opportunities is available on the DCS website.
It can certainly be argued that the inspection portion of a project is the riskiest element in the design and construction of public infrastructure. Countless hours of design time and review by licensed professionals go into the production of documents, plans and specifications. Then the project is financed and is ultimately awarded to the lowest responsible bidder, not necessarily the best but the lowest cost bidder. The goal of the contractor is to get the project constructed per the plans and specifications quickly at the lowest cost so ultimately there is a maximized profit. The ultimate goal for the community is to have the infrastructure constructed well so it functions as planned hopefully exceeding its design life, minimizing the amount of work the maintenance staff will have to expend on it over this period. Missing something during the construction of a project can at a minimum be a costly later repair or worse could be fatal in a catastrophic failure.

Unfortunately many communities face budget constraints so typically a single construction inspector is relegated to oversight of several projects at a time. It is up to that inspector to ensure compliance with the plans and specifications so the work is completed in a timely fashion with the least amount of disruption to the residents. Obviously this is a tall task to put on an inspector, especially if that inspector is inexperienced at the position.

The best way to mitigate the risk and have the project completed correctly and on time is to have a competent inspection team with diversified talents. Based on our experiences, the best way to validate that the inspector is knowledgeable in a variety of competencies is to have each of the inspectors in the APWA certification program. A minimum of 50 hours of ongoing training is encouraged through continuing education to reinforce the knowledge base and is essential for staying current with developing technology.

Since 2012, the entire City of West Des Moines inspection team, consisting of a construction supervisor and four inspectors, has been certified. In training for the certification we found several additional benefits to the certification. The first is that the inspectors utilized each other’s talents in strengthening their own knowledge base in areas which fostered an existing team atmosphere. As each inspector passed the exam and became certified there was a definite pride factor in adding the certification logo to their business card and e-mail correspondence signature blocks. In preparation of the exam it encouraged each inspector to review things that might fall outside of their comfort zones which ultimately leads to a more well-rounded employee, which ultimately increases the odds of catching a mistake along the way and thereby mitigating the risk of future failures.

The City of West Des Moines inspection team. From left: Clint Carpenter, CPII, Senior Engineering Technician; Kelly Sand, CPII, Engineering Technician; Randy Cox, CPII, Engineering Technician; Rich Scholl, CPII, Engineering Technician; and Bob Crowdes, CPII, Engineering Technician
Another benefit is that APWA provides an up-to-date list of suggested sources of information to read to prepare for the exam that also serves as a resource to be utilized in day-to-day operations in practice. In fact, each of the inspectors has bookmarked these in their browser favorites.

Following certification each staff member is recognized at the City Council meeting which celebrates the achievement in gaining the required experience and most importantly passing the exam, but also serves to reinforce the credibility to the City Council that the inspection team is confident in their ability to carry out compliance with constructing the public infrastructure projects.

That credibility is passed on to the residents and various contractors that the inspector comes into day-to-day contact with or potential conflict with. Having the ability to share this knowledge with the contractor benefits everyone beyond the current project and beyond the corporate limits where they may be working on other projects.

As part of ongoing training the crew reported to me that they have often learned new things at the seminars as sometimes you don’t always know what you don’t know. It reminds me of the quote from John Wooden when he said, “It’s what you learn after you know it all that counts.”

At some point in eventually recruiting new members to the inspection team we will definitely include in the hiring job announcement that a certified public infrastructure inspection certification will be preferred. I’ve noticed several individuals include this certification in their profiles on LinkedIn.com so that will definitely be a resource we use in future recruiting. The fact that an individual took the time to go the extra mile for further training and certification testing certainly is a selling point on a résumé and an automatic validation of experience and ability.

Ultimately there is no way to eliminate every mistake in construction; however, having an inspection staff with more knowledge and commitment to an ongoing learning environment goes a long way toward decreasing the potential for blunders along the way, thereby decreasing replacement costs, maintenance costs, legal costs or, worst of all, loss of confidence from the public. Certification is a great mechanism to utilize in developing and maintaining this confidence as well as mitigating the risks in the construction process. If you have questions about the certification process or benefits of the program feel free to get in touch with us.

For more information about the Certified Public Infrastructure Inspector (CPII) program visit http://www.apwa.net/credentialing/certification/Certified-Public-Infrastructure-Inspector-(CPII). Joe Cory can be reached at (515) 222-3480 or joe.cory@wdm.iowa.gov.

Ten public works professionals earn APWA Public Infrastructure Inspector credential
APWA has announced that ten public works professionals have recently earned their professional credential as Certified Public Infrastructure Inspector (CPII). Since the inception of the APWA certification in public infrastructure inspection, a total of 250 U.S. and Canadian professionals have received the CPII certification. The purpose of the certification is to promote quality infrastructure by advancing the knowledge and practice of construction inspection to benefit communities and public agencies.

“The CPII is intended for public works professionals that inspect the construction of public infrastructure and facilities, as well as other types of construction work and materials to ensure compliance with plans and specifications,” said APWA Executive Director Peter B. King. “The latest group of CPIIs have demonstrated a high level of expertise, and all are to be commended on their APWA certification achievement.”

The most recent APWA Certified Public Infrastructure Inspectors include:

Philip Platt, CPII, Platt Pacific Company, Sonoma, CA
Curtis Glasscock, CPII, Parkhill, Smith and Cooper, Inc., El Paso, TX
Jonathan Nolan, CPII, City of O’Fallon, IL
Dennis Alsup, CPII, Lamb-Star Engineering, L.P., Plano, TX
Beth Stoddard, ENG, CPII, City of Aurora, CO
Vicente Bazan, CPII, Parkhill, Smith & Cooper, Inc., El Paso, TX
Jonathan Nero, CPII, Village of Bloomingdale, IL
Steve Lazar, CPII, Calleguas Municipal Water District, Thousand Oaks, CA
Gregory Sabbe, CPII, Calleguas Municipal Water District, Thousand Oaks, CA

For more information on the CPII Certification program, the Certified Public Fleet Manager (CPFP) or the Certified Stormwater Manager (CSM) programs, please contact APWA Certification Manager Becky Stein at (816) 595-5212 or bstein@apwa.net. For APWA media queries, contact APWA Media Relations/Communications Manager, Laura Bynum, at (202) 218-6736 or lbynum@apwa.net.
Remembering the past can be useful in the present

The following is an excerpt from the introduction to Recovering the Past: A Handbook of Community Recycling Programs, 1890-1945, written by historians Suellen M. Hoy and Michael C. Robinson. At the time Suellen and Mike were the executive secretary and research coordinator, respectively, for the Public Works Historical Society (PWHS), which published the book in cooperation with APWA’s Institute for Solid Waste in 1979. The excerpt briefly describes two successful early efforts at recycling and source separation in New York City of the 1890s.

The two sentences immediately preceding the excerpt—“Is it possible to recycle past experiences and make them useful to present generations? That is the challenge.”—are the essence of why PWHS has conducted research and published books on a panorama of historical subjects for the public works community since 1976. Our answer to the challenge has always been a resounding “YES!” – Connie Hartline, PWHS Staff Liaison

One of the earliest groups to recognize the need for conservation was the Salvation Army. Founded in 1865 by William Booth in London, England, it has been in the business of collecting, separating, and recycling waste for nearly a hundred years. The organization’s Household Salvage Brigades—later Industrial Homes and currently [1979] Men’s Social Service Centers—were Booth’s solution to “Waste labor on the one hand…and waste commodities on the other.” [In 2014, these efforts have morphed into collections for the Army’s thrift shops, which help support 100 Adult Rehabilitation Centers in the U.S.] They were a means of providing employment for the unskilled poor who wished to become useful members of society and of collecting wastes habitually discarded as worthless. The Salvation Army’s initial resource recovery activities in the United States centered in New York City during the 1890s.

Another pioneer recycling program began in New York. Colonel George E. Waring, Jr., a prominent nineteenth-century sanitary engineer, was appointed the city’s street cleaning commissioner in January 1895. The job was an important one, for New York symbolized on a large scale what was happening in many parts of the country as the United States was transformed from a predominantly rural-agricultural society to a primarily urban-industrial one. Streets were congested, the air fouled with smoke, the noise deafening, and sidewalks heaped high with garbage and rubbish. There was not a block in downtown Manhattan without piles of cinders, kitchen slops, horse manure, coal dust, broken cobblestones, and discarded objects. Waring promised to make life better for New Yorkers by cleaning up the city, and that he...
did. Besides imposing quasi-military discipline on the Department of Street Cleaning—not unlike that of the Salvation Army—Waring outfitted sweepers and drivers in smart-looking white uniforms, which gave them a sense of pride. He freed the department of political influence by hiring young men with technical training or military experience for top positions; and for menial jobs, he placed “a man instead of a voter” at the end of the broom. He also organized a Juvenile Street Cleaning League with the hope that its members—the majority of whom were immigrants and lived on New York’s Lower East Side—would influence the behavior of their parents.

Waring was as innovative in the technical aspects of city sanitation as he was in the areas of personnel administration and public relations. In 1896 he initiated a system of primary separation, which required householders to store organic wastes, paper and other light rubbish, ashes, and street sweepings in separate containers for collection. He then persuaded Mayor William L. Strong to assign a division of forty policemen to the street cleaning department to explain the new requirements and enforce compliance.

Waring wanted New York City to profit from source separation by selling materials recovered from the waste. For years he had watched private scavengers collect resalable materials from residences and scow-trimmers work through refuse-laden garbage scows picking out items of probable value such as old shoes, carpets, papers, and rugs. Waring knew money could be made in scavenging and trimming, and he encouraged the city to perform these services and reap the profits. Many other municipalities subsequently adopted separation and recovery programs but not on the scale practiced in New York City during the 1890s.

The Public Works Historical Society is an affiliate of APWA, with membership open to public works practitioners, authors, academia, and anyone interested in public works history. Membership in APWA is not required. Annual dues are $35, and can be added to APWA members’ regular annual dues statements. Please visit the PWHS website at www.apwa.net/PWHS/ for more details on the Society’s mission and activities.
Imagine a city where the heart of downtown sits along a river that faces heightening water quality standards, an impaired water body designation, and total maximum daily loads due to unhealthy levels of nitrogen, all in the midst of a major recession...what is a city to do? The City of Fort Myers had the answer. In 2009, they launched a riverfront planning effort, the main feature being a transformation of pervious parking lots to a stormwater improvement project that benefits the environment, stimulates economic growth, spurs redevelopment, honors community history, and enhances quality of the public realm.

Southwest Florida is a haven for tourists from around the world. It is the choice vacation destination known for its beautiful weather, outdoor activities and world-renowned pristine beaches. The City of Fort Myers is located within Lee County on the south bank of the Caloosahatchee River a short distance from the Gulf of Mexico. Historically a working city of shipping and industry, Fort Myers is today the business and governmental hub of Lee County in the region known as Southwest Florida. The population of Fort Myers is approximately 63,500 (U.S. Census Bureau, July 2011). For years the City struggled with how to treat its stormwater runoff from its crown jewel, a 14-acre area of the historic downtown located directly along the riverfront.

The Fort Myers City Council approved the Fort Myers Riverfront Development Plan to facilitate a public vision for redevelopment and new activity in the heart of Fort Myers along the Caloosahatchee River. After adopting the Riverfront Development Plan, the City methodically pursued the design, permitting, and funding for a 1.4-acre Downtown Detention Basin project central to the Plan. The economic downturn put most of the local governments into a tailspin across the country, and especially in Southwest Florida. However, City of Fort Myers leaders saw that these extreme circumstances called for bold action. They could have limited the project to a smaller, more conventional water management facility that would serve to attenuate and treat stormwater. Instead, through the collaborative leadership of Public Works staff and Redevelopment Agency staff, the City devised a plan for a detention basin to serve as a catalyst that would breathe new life into the city.

After rigorous review and armed with the justification for the project’s economic benefits, environmental benefits, and funding mechanisms, the City leaders approved the funding to construct the $5.7 million basin. With strict adherence to budget, schedule and quality control, the Downtown Detention Basin construction project has become the catalyst it was designed to be, and is the model for infrastructure investment that brings about healthier environment, a richer economy, and an enlivened heart of the city.

Through the processes of planning, urban design, engineering and construction management, the project redefines thinking within general engineering and land planning circles that intensely developed urban areas are too encumbered and land values too high to accommodate stormwater treatment retrofit projects. This project provides proof that water quality improvement projects can be achieved in a downtown location and can be urban design features that promote redevelopment, stimulate the economy and generate public enthusiasm. It serves as an urban example to other communities and is truly a benefit to the quality of life aspect of our community.

A model stormwater urban retrofit: Fort Myers Downtown Riverfront Basin

Winner of the 2013 APWA Small Cities/Rural Communities Award – Environment Category

Saeed Kazemi, P.E.
Public Works Director
City of Fort Myers, Florida
This is a true PUBLIC works project. Not only does it serve its engineering purposes with skill and innovation, it creates value and public enthusiasm where negative impressions seemed ready to overtake the municipal vision.

Following are some notable challenges and goals of the project.

1. The city’s challenge for improving water quality and treating stormwater in an established downtown urban area.
2. Meeting primary sustainability goals set forth during construction and promoting ancillary sustainable outcomes of positive social and economic benefits.
3. Challenges due to the site location being adjacent to a tidal riverfront and within a recently redeveloped historic downtown.
4. Finding creative funding for the project in the midst of a severe economic recession.
5. Utilizing the city’s existing municipal resources.
6. Maintaining “business as usual” through innovative construction and use of a proactive community awareness program.
7. Use of specialized dewatering methods for project bordering a tidal river.
8. Applying Value Engineering while maintaining the integrity and quality of the project.

This project has been heralded as a success in many ways. The project team utilized partnering practices throughout the project where the consultants, government (owner) and the construction manager mutually agree to work closely with one another to anticipate and resolve issues before they occur. In furthering this relationship, the City budgeted a pool of contingency money within the project cost for unforeseen items that are inherent in most construction projects. This project was completed on time and under budget at $5.7 million.

This project, *A Model Stormwater Urban Retrofit: Fort Myers Downtown Riverfront Basin*, won the inaugural award for APWA’s Small Cities/Rural Communities in the Environment category for 2013. The project was led by the City of Fort Myers Public Works Department, designed by Johnson Engineering, Inc. and constructed by Wright Construction Group. Hardscape design provided by SmithGroupJJR, Inc. and Parker/Mudgett/Smith Architects. Public Relations provided by Cella Molnar & Associates, Inc.

*Saeed Kazemi can be reached at (239) 321-7216 or skazemi@cityftmyers.com.*
Here today and gone tomorrow

Terri Troup
Contract Specialist
City of Nashville, Tennessee
Member, APWA Diversity Committee

Remember those days when you were growing up listening to stories from your grandfather or great-grandfather? Maybe you remember a day when you were given some words of wisdom from an influential individual in your life. Could it be that you have worked with a person that was a wealth of knowledge? All of these events have happened to me in my life at one point in time or another. This is just the beginning of many forms of diversity in a young person’s life. According to APWA’s Diversity Resource Guide (2013), diversity is a commitment to recognizing and appreciating the variety of characteristics that make individuals unique in an atmosphere that promotes and celebrates individual and collective achievement. By listening and absorbing the wealth of knowledge that surrounds us, it is a sign of celebration and appreciation to the individuals that provide us with that information.

The diversity that surrounds us is like a kaleidoscope. The picture shown in the kaleidoscope is made up of numerous individuals full of a variety of characteristics. The picture continues to change as individuals gather knowledge and grow. The picture can also change as individuals come and go throughout the years. An individual’s knowledge is a representation of the colors in the kaleidoscope. The shapes or designs formed in a kaleidoscope are a representation of the outcome of such a diverse group. If something breaks in the kaleidoscope there is no change in the picture or the kaleidoscope stops working. This means that without diversity the groups will not continue to grow or change to benefit the group. The group could become stagnant and eventually just become a memory; thus another important reason to make diversity a priority.

Diversity is not just a priority; it is an asset for any group or organization. This asset is a huge value that shows respect for individuality. Each individual might have a story or experience that another individual can learn from. This is a way for new members to learn from experienced members, thus expanding the knowledge of new members and experienced members. Expanding this knowledge helps make a group or organization stronger which allows for more growth.

It is important to not just be part of the group or organization but to get involved so that you can learn from the knowledge and experiences of others. You may not realize it but you hold an experience that could be helpful for someone else. There could be someone in a group that could provide some advice that could be beneficial to you. Fill your mind with as much knowledge from as many individuals as possible so that you are a front-runner in your profession.

Being a diverse individual can open more doors than one can imagine. This is why it is important to be accepting of diversity. Diverse individuals can pull so much knowledge together from so many different directions. There are several individuals that I have worked with over the past 20 years that are going to be retiring soon. It is important as young members to work hard to gather as much of the knowledge these individuals have as soon as possible. Individuals can be here today and gone tomorrow; their knowledge and experiences are what make up the kaleidoscope of APWA.


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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**.

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- = Click, Listen, & Learn program (Free to Members)
- = Live Conference (Paid Registration)
- = Certification Exam
- = Web-based training

APWA members may access past Click, Listen, & Learn programs from the Members’ Library at no cost. Programs can be streamed to your computer via the link found in the library.

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/)
Communicating effectively verbally to customers

Don Bessler
Director of Public Works
City of Tempe, Arizona

Telling our story gives us the opportunity to be generational thinkers and demonstrate our ability to be visionary and practical in the same conversation.

n thinking about this article I considered a variety of approaches and then decided that the best way to share ideas with colleagues is to ground the message in the here and now, the things we do every day and the things that provide relevance by provoking thought. Over the past several years our Tempe leadership team has heard me talk about going the final 10% in the way we approach our jobs. What I meant wasn’t that as department leaders we were not giving 100%; my challenge was more of a way to form structure around the idea that there is something better than simply being good and frankly, we need to be better than good, more than we’re not. We, the royal we, “us,” as a discipline of “gувment” workers owe it to our communities, to our ourselves and to each other to break stereotypes that reinforce that uniformed mindset. Every time we interact with our customers we have the opportunity to go that last 10% where good is not good enough; “we’re better than that”!

An expression I often use is, “tell our story”—let me explain what that’s all about. Fairytales start out “Once upon a time”; cowboy tales start out “Really, this is no B.S.”! After facts, data and the studies have all been recited, stories are far more captivating for our customers and no, I’m not talking about the fiction that I described above. I believe that our ability to tell our story is the difference between being perceived as bureaucrats, technocrats or just plain budget crybabies, or not. Telling our story gives us the opportunity to be generational thinkers and demonstrate our ability to be visionary and practical in the same conversation. As our customers continue to become more engaged through both technology and governance, I suggest that the expectation for our message is becoming increasingly rigorous. Stories are the tool that makes these conversations more interesting than scrubbed data and naked facts, because stories are multidimensional and real!

Reality or truth, like equality, fairness and integrity, are conditions too complex to be expressed in a statistic or a fact. Data needs the context of our critical pronouns (who, what) and adverbs (when, where, how, why) to be fully appreciated. Stories are our opportunity to infuse these lifelike and interesting details through our storyline and by our narrative. A well-told story Dreams Big and sees small, across days, weeks, years and generations. This must be coupled with a diorama of events, actions, characters (people) and character
(integrity), as well as consequences of both action and a failure to act.

Our public works story occurs in places like parks, streets, alleys, catch basins, digesters, recycle bins and neighborhoods. Most of these sound mundane or worse; our job is to make them interesting and anthropomorphic so that our story expresses strategy and reflects community values.

In articles I have written I often make references to my father, Felix Bessler, “The Colonel.” As an Army Aviator of helicopters a common phrase for pilots to ensure safety before takeoff was, “Clear to the rear, right, left and overhead.” My mom, Luesa Elma Mancha y Martinez y Bessler y Chavez, used to often say to me either before picking a place for dinner or playing a card in bridge, “Bessler, show me your good stuff!” All these years later these phrases stick with me because they were colorful, funny and a storyteller’s way to describe the onset of action and movement.

We as administrators are often reporting the facts. The facts are absolutely important but unfortunately they alone often don’t go far enough to help us achieve engagement with our customer. Thinking logically and rationally are a good foundation; storytelling goes further into the neighborhood of great because it invites the audience into a cognitive relationship with us.

So, how to make this all come back to the practical? Think about what it would look and feel like if all of your managers and teammates were up to the task of creating a masterpiece, either on the phone or through their email—telling your story, rich in facts, genuine empathy, critical thinking, strategy, action and timelines.

A good storyteller realizes from the onset that the audience is not just the individual customer as the recipient of the communication; rather it is the elected officials, executives and other customers that hear or read about it. Our City Manager, Andrew Ching, encourages staff to provide context and insight to demonstrate a thoughtful response but also an advanced effort at customer service. In Tempe, we call that last 10% a “masterpiece,” the difference between good enough and great. The masterpiece is a rite of passage that all of our team is encouraged and supported to achieve; it’s not mandatory but it is required, at least once so that they know they can and then ought to do it again and then again. Pretty soon, it becomes a way of thinking instead of a way of not.

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Nominations for APWA Board positions are due at National Headquarters on Tuesday, April 1, 2014. Nominees’ names will be released to the National and Regional Nominating Committees to be determined for ballot by May 20, 2014. Ballots will be available for voting online for full membership from June 26-July 28. Elected Board members will be introduced at the opening session of the 2014 Congress in Toronto. For more information contact Cindy Long at National Headquarters, clong@apwa.net or 816-595-5220.

The American Public Works Association (APWA) International Affairs Committee and The Eisenhower Institute at Gettysburg College (EI) are pleased to announce the Jennings Randolph International Fellows for 2014. Chosen from a qualified field of 17 applicants, the two APWA members will conduct topical public works study tours and make presentations at APWA partner associations’ annual membership meetings in Mexico and New Zealand. With great pleasure, APWA and EI announce the following Jennings Randolph International Fellows for 2014:

Travis Greiman, P.E., Engineering Manager for the City of Centennial, Colorado, will use the award to attend the ICLEI National Congress in September 2014 in Acapulco, Mexico. He will also conduct a study tour to focus on project implementation strategies used in Mexico. Specifically, the study will highlight four techniques: right-of-way acquisition, public outreach, interagency coordination and winning political favor to examine how they are employed in Mexico. The goal of his study is to look at techniques used in Mexico compared with those in the U.S., identify similarities and differences, and select those techniques that can be applied cross-culturally to make project implementation more effective in both countries.

Greiman indicates that the primary reason he applied for the Jennings Randolph International Fellowship Program was “the opportunity to learn across cultures. I love exploring new places and discovering new cultures and finding new and valuable perspective on life.” His past international experiences include Engineers Without Borders and Engineering Ministries International, both of which were done independently as “extracurricular activity.”

Greiman began his professional career working in the private sector with Merrick & Company as a member of a district engineer’s team, as well as a member of the team that conducted what was understood to be the largest public-to-private conversion of public

Mary Anderson, Public Works Director, City of Port Orange, Florida, and member, APWA International Affairs Committee; and Laura Bynum, Communications/Media Manager, American Public Works Association, Washington, D.C.

Interested in serving on APWA’s Board of Directors?

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works services in the United States. After his initial career work, he left private industry to take a volunteer engineer position in Uganda where he spent nearly a year designing small-scale water projects and assisting in the creation and implementation of water development programs in the East Africa region. In his current role as Centennial’s Engineering Manager, Greiman manages capital programs and projects. He holds a Bachelor of Science in Civil Engineering from the University of Colorado – Boulder. His other professional memberships include Engineers Without Borders – Denver Professional Chapter and the American Society of Civil Engineers – CO Chapter. This study tour in Mexico represents the first time that Greiman will combine his role in public works with an international experience.

Amanda Millirons, MPA, Assistant Public Works Director for the City of Palm Bay, Florida, will attend and present at the Institute of Public Works Engineering Australasia (IPWEA) International Public Works Conference in Auckland, New Zealand. In her presentation, she will discuss the role of the American public works professionals as first responders. In addition, she will have the opportunity to study with other agencies in New Zealand to compare the roles of public works professionals as first responders with those of the United States. She is seeking to learn firsthand the response efforts and public outreach programs regarding emergency management best practices, and specifically the emergency response and recovery after the 2011 Christchurch earthquakes.

When asked what motivated her to apply for the Jennings Randolph International Fellowship Program, Millirons stated, “I work for a great organization that encourages professional development. I wanted to learn firsthand how others are developing strategies and programs to continuously improve their communities. I am thankful for the opportunity to learn, grow, explore and share best practices.”

Millirons graduated from the University of Central Florida with a Bachelor’s degree in Criminal Justice in 2008 and a Master of Public Administration (MPA) degree in 2010. She began her career with Palm Bay working as a Management Analyst in the Office of the City Manager in 2009. During this time, she worked on budget development and on special projects as assigned. In 2010, she joined the Palm Bay Public Works team, where she worked as an administrative assistant responsible for financial project management, procurement, organized community events and other special projects. She was promoted to Division Manager in 2011, where she managed a team of administrative positions and field personnel, and was promoted to Assistant Director in 2013. In this position, she oversees multiple divisions and areas including Administrative Services, Customer Service and Engineering Inspection, Fleet Services, Solid Waste contract

Amanda Millirons
APWA is now soliciting nominations for appointments to national level committees/task forces/external relationships for the August 2014–August 2015 year. Step forward and offer your expertise to your profession. Contact your local chapter to let them know you have an interest in serving at the national level. Beginning February 14, 2014, information on appointments may be obtained on the APWA website at www.apwa.net/membersonly/nominations. A brief biographical statement must be completed online or submitted as hard copy in order to be considered. Nominations for committees/task forces/external relationships must be completed online or by mail between February 14, 2014 and close of business April 1, 2014. For more information contact Cindy Long at clong@apwa.net or (816) 595-5220.
Greening your waste collection fleet through natural gas

Marc J. Rogoff, Ph.D., Project Director, and Robert B. Gardner, P.E., BCEE, Senior Vice President, SCS Engineers, Tampa, Florida

Two current significant trends in solid waste management are the transition by waste haulers and municipalities of their collection fleets from diesel to compressed natural gas (CNG) or liquefied natural gas (LNG) fuels and expanding investment in natural gas fueling stations. Waste collection manufacturers report that within the last three years, more than half of their new vehicle sales include those designed to burn natural gas.

The reasons for the conversion from conventional fossil fuels to natural gas include a variety of economic, environmental, and political considerations. Foremost among these is that natural gas produced in the United States appears to be the lowest cost alternative fuel source. Traditionally, the price of a barrel of oil has been about six times that of a thousand cubic feet of natural gas. With the widespread use of fracking technology to recover significant quantities of natural gas, this ratio has jumped to as high as 12:1.

Depending on geographic location and proximity to gas lines, the average price of natural gas today can cost $1.50 to $2.00 less per diesel gallon equivalent (DGE). Projections from government, corporate, and nonprofit prognosticators suggest that natural gas will continue to be plentiful and relatively cheap compared to diesel fuel.

Typical refuse truck fuel use averages between 8,500 to 10,000 gallons per year at an average fuel efficiency of 2.5 to 3 gallons per mile. Thus, the growing differential between natural gas and diesel fuel, municipal or hauler operated trucks can shave as much as 30 to 50 percent on fuel costs. What was once prompted by environmentalism due to the promulgation by United States Environmental Protection Agency (USEPA) of new restrictive federal heavy-vehicle emission regulations has now been largely driven by the promise of significant long-term fuel savings.

With an estimated industry-wide fleet of more than 175,000 vehicles, including traditional packer trucks, front-end loaders, automated side loaders, recycling trucks, and roll-off trucks, the long-term replacement of the waste collection fleet is now underway. Several of the major waste hauling firms in the United States such as Waste Management, Inc., Republic Services, Inc., and Progressive Waste Solutions have already made capital replacement plans to replace their existing diesel-fuel refuse collection vehicles with natural gas vehicles as they are scheduled for replacement. A few municipalities as well are entering the arena as “early adopters” on this wave to natural gas.

This article will highlight some of the top seven issues public works directors need to know about this emerging trend in solid waste collection.

1. What is Compressed Natural Gas (CNG)?

Natural gas is primarily methane. Briefly, it is a rather simple molecule consisting of one carbon atom and four hydrogen atoms, making it an energy-dense fuel and clean burning. CNG is natural gas under pressure which remains clear, odorless, and non-corrosive. Although vehicles can use LNG or CNG, most collection vehicles use the gaseous form compressed to pressures above 3,100 pounds per square inch (psi). LNG is used more frequently with long-haul transfer fleets. The gas used to produce CNG or LNG is the same natural gas that is delivered to most homes to use for cooking, heating water, and forced air heat.

2. How is it dispensed?

CNG is dispensed either through a time-fill, quick-fill station, or combination time-fill and quick-fill. A time-fill station slowly fills the vehicle fleet over an extended period (8 to 12 hours). A quick-fill station performs similar to a normal diesel or gasoline pump. The number of vehicles, the filling frequency, and the total quantity of fuel to be dispensed during the filling period is used to size the facility compression and storage components.

Time-fill (also known as slow-fill) fueling is usually recommended for solid waste fleets that utilize onsite fueling with vehicles that return to a central location for a period of six to eight hours, during which they can be
Many solid waste operators use time-fill fueling because the fueling station equipment required is often the least expensive.

The major components of a typical time-fill natural gas fueling station include:

- Compressor
- Time-Fill Dispensers

Using time-fill, vehicles refuel more slowly and therefore receive gas directly from the compressor through special time-fill dispensers. This eliminates the need for a high-pressure storage system. Time-fill fueling stations are available in a variety of sizes to meet all kinds of customer needs, including the vehicle refueling appliance that can fuel vehicles at home or at a business.

Quick-fill (also known as fast-fill) is usually used when vehicles must be refueled in a time period similar to that of other conventional fuels, approximately 3 to 7 minutes for automobiles and light-duty trucks. All public natural gas fueling stations are quick-fill.

The major components of a typical quick-fill natural gas fueling station include:

- Compressor
- High-Pressure Storage
- Gas Reservoirs
- Gas Dryer
- Expansion Tank
- Quick-Fill Dispenser(s)
- Credit Card Reader (optional)

At a quick-fill fueling station, natural gas is compressed by the compressor and stored in the high-pressure storage system. The compressor of a fuel station receives natural gas from a connection pipe. After drying (removing any condensate and impurities), gas is pressurized in several compression stages to 30 Mpa (4,350 psi). Compressed natural gas is stored in high-pressure reservoirs.

To facilitate the transfer of gas to vehicles, reservoirs are usually divided into three parts: a high-, mid-, and low-pressure section. Natural gas is filled through a gas pump. The filling connector of the pump hose is attached with a fastener to the filling valve on the vehicle, and compressed natural gas is transferred to the vehicle’s pressurized gas tanks. Modern gas pumps are equipped with devices that measure the weight, temperature, and pressure and an electronic system that ensures that gas tanks are filled up to the set operating pressure of 20–22 Mpa (2,900–3,200 psi).

When vehicles are being fueled and the pressure of the fuel supply in the storage system begins to drop, the compressor is automatically activated, causing it to replenish the supply of natural gas in the storage system. If desired by the fueling station operator, a credit card allows access to the dispenser, which meters and dispenses natural gas into the fuel storage cylinder(s) onboard the vehicle.

Another natural gas fueling configuration for onsite fleet applications is the combination station, which includes both time-fill and quick-fill capabilities. This type

Card reader system, Tampa International Airport CNG Facility, Tampa, Florida
of fueling may be used when some vehicles return to a central location for refueling, usually at night, and when other vehicles need to be refueled in a fairly short period of time and cannot wait for time-fill.

The major components of a typical combination natural gas fueling system include:

- Compressor
- High-Pressure Storage
- Gas Reservoirs
- Gas Dryer
- Expansion Tank
- Quick-Fill Dispenser(s)
- Time-Fill Dispensers
- Credit Card Reader (optional)

When fueling through the quick-fill dispensers, natural gas is provided from the high-pressure storage system to the vehicles’ onboard fuel storage cylinders. When fueling through the time-fill dispensers, natural gas is provided to vehicles directly from the compressor. Combination stations are ideal for onsite fueling that need both quick-fill and time-fill options.

3. What impacts fuel station costs?
A CNG fueling station is more expensive to build than the average diesel pumping station. A CNG time-fill station that can fill at many as 15 vehicles can cost upwards of a half-million dollars. Depending on many factors, a fast-fill CNG station can range in cost from $1 to $2.5 million.

The cost of a CNG fuel depends on the following factors:

- The number of vehicles to be fueled, total daily fuel requirements and maximum hourly flow rate.
- Whether time-fill, fast-fill or both capabilities are needed.
- The level of remote station monitoring and diagnostics capability desired.
- The type and sophistication of data collection/payment processing system at the dispenser.
- The land area required.
- The availability, quality and pressure of gas service.
- The amount of backup fueling or required system redundancy.
- Site-specific factors such as permitting, site improvements and/or other requirements.

The basic cost components of the CNG fueling station are:

- Natural gas—either purchased on the open market through a broker or via the local distribution company (LDC) bundled rate.
- The LDC’s delivery charge and related meter and account fees.
- Compression.
- Station equipment (or the cost of capital to buy it).
- Service and maintenance.
- Local, state and federal taxes (if applicable).

4. What do CNG vehicles cost?
Typical natural gas refuse collection trucks typically range in costs between $210,000 to $250,000, some 15 to 25% more expensive than comparable diesel-fuel vehicles. The American Trucking Association reports that natural gas trucks sell at a large premium ($45,000–$75,000) compared to diesel-powered heavy-duty Class 8 trucks. The primary reason for the increased cost is their more expensive engine and complex fuel system.

5. What are CNG vehicle maintenance experiences?
Many operators report that maintenance costs for CNG vehicles are about the same as that for diesel vehicles. However, maintenance costs for natural gas refuse trucks can also be higher when a fleet is largely composed of diesel trucks, because of additional training requirements for technicians and duplication of maintenance equipment.

If a fleet has both diesel and CNG vehicles and equipment, separate maintenance facilities or areas are required for CNG and diesel vehicles because of different maintenance protocols and building code requirements for the two fuel types. When an entire fleet is replaced with CNG, more efficiency of equipment
Advantages and Disadvantages

Advantages

- Lower fuel costs compared to diesel on an equivalent energy basis
- Reduced reliance on imported fossil fuels.
- Emissions compared to diesel fuel vehicles.
- Reduced environmental controls and monitoring requirements
- Lower engine noise
- Ease of installation
- Fully automated operation
- Safety
- Independence
- Engine durability

Disadvantages

- Increased capital costs for fueling station and maintenance facilities and CNG fleet vehicles.
- Potential decreased fleet availability (Time Fill).
- Increased O&M costs for fill station operation.
- Reduced thermal efficiency
- Reduced fuel economy
- Increased vehicle weight
- Uncertain secondary resale market

and vehicle costs, operational and maintenance costs, fuel efficiency, and fuel costs. The payback and life-cycle savings will vary based on local fuel costs, tax incentives, credits, and available federal, state, and regional grants.

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Robert Gardner can be reached at (757) 466-3361 or rgardner@scsengineers.com.

References

- SCS Engineers, City of Virginia Beach Compressed Natural Gas Vehicle Conversion Feasibility Study, August 2011.

6. Are grants or tax incentives available?

Over the last several years there have been several grant and tax incentive programs available to private and municipal entities considering converting or purchasing alternative fuel vehicles such as CNG. Tax incentives or grant funds can significantly reduce the purchase price premium for natural gas trucks so the remaining premium is quickly paid back in operating savings, generating savings over the rest of the life of the vehicle. These are offered by the federal government, state agencies, and local planning and air quality control districts. Like any grant or tax incentive program, it is important to utilize grant specialists who are knowledgeable about the regulations, have the ability to fill out the required packages or forms correctly, and understand time constraints in light of rapidly changing regulations. Many of the federal grant and incentive programs established under the Energy Policy Act (income tax credit for alternative fuel infrastructure and vehicles) and the Safe, Accountable, Flexible, Efficient Transportation Equity Act (excise tax credit to seller of CNG or LNG) were extended through December 31, 2013. However, further extension of these programs will need to be considered by the 113th Congress.

7. How do you assess the feasibility for your municipality?

There are both qualitative and quantitative factors in assessing whether or not CNG makes sense for a municipality’s solid waste collection fleet. Exhibit 1 lists some of the major qualitative advantages and disadvantages of CNG. To better quantify the CNG alternative, a pro forma life-cycle cost model should be used to compare the cost-effectiveness of deploying a CNG vehicle fleet to a conventional diesel fleet. The pro forma model should include the life-cycle costs associated with using CNG versus diesel, including capital costs for fueling infrastructure (time-fill or quick-fill or combination thereof) and personnel can be realized. Several features that must be incorporated into a CNG maintenance area are summarized below:

- Installation of a high-powered ventilation system that quickly removes gas from the area in case of gas line leaks or ruptures.
- The ventilation system must work in concert with an advanced combustible gas detection system that engages when fumes reach a certain level.
- All emergency HVAC, electrical, and mechanical systems must be designed to be “explosion proof.”
- The design of the building must also incorporate the conversion of existing maintenance bays to support CNG vehicles, erecting a firewall to separate that area from the diesel bays.

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Robert Gardner can be reached at (757) 466-3361 or rgardner@scsengineers.com.
Kicking the trash can habit: a community’s quest for Zero Waste

Mark Whitfield
Public Works Director
State College Borough, State College, Pennsylvania
Member, APWA Solid Waste Management Committee

"Out of sight, out of mind" is an old cliché that sums up the way most people think of trash. Let’s face it, once a discarded item goes into the trash can, we no longer think about it. We simply remove the trash can liner on collection day and take a bag full of “items” (or trash) to the curb. We never again think about the “items” in the bag...after all, out of sight, out of mind.

The same is true with the office trash can. We simply toss items randomly into a can, and usually, sometime at night or early the next morning, custodians go door-to-door emptying the cans. “Items” that will never be thought of again.

One university community is attempting to change how individuals think about trash and their “trash can habit.” Recently Penn State’s Office of Sustainability and State College Borough implemented new programs entitled “No Can Do” as a means to reduce waste and increase waste diversion in their efforts to become a Zero Waste Institution. Nearly all offices on campus, and the local city hall, have eliminated the five-gallon individual office waste cans. Instead, three-gallon recycling bins, with a 0.75-gallon residual waste container attached, have replaced the waste can. Also eliminated—custodians emptying containers at night (or early mornings). Instead, the emptying and sorting of the items in the bin, are now the responsibility of the person at the desk.

Each office area has a designated area where employees take the recycling bins for sorting. Items sorted include plastics, organics, paper, aluminum cans, and residual waste. The bins are emptied once a week by custodians. The new sorting method now makes people “think” about the items...
in their waste stream. And more importantly, they think about the waste by-product prior to purchasing an item.

The new method also brought to light changes to purchasing at city hall. Water is no longer bought in plastic bottles for meetings. Instead, water pitchers with compostable cups are provided. For lunch meetings, compostable eating utensils, plates, napkins, and cups are provided. At the end of the meeting, the participant simply takes his/her plate, with the utensils, napkins, cups and uneaten food, and places everything into the organic bin. If pizza was purchased, the pizza boxes also go into the organic bin.

Prior to implementing the program, Penn State did a pilot program in the Davey Lab building on campus—a 147,000-square-foot office building. The one-time cost of implementing the program (new bins, signage, education, and auditing) was about $26,000. The annual savings as a result of the program—$4,200. Davey Lab’s pilot program proved a positive payback on the program of a little over six years.

At city hall, a pre-program audit revealed that nearly 50% of the residual waste coming from the building could be diverted. To date, a 31% reduction has been realized.

If you would like to “Kick the Trash Can Habit” in your building, here are some helpful tips:

• Educate, educate, educate. Make sure your employees know why you are implementing the project and let them know the results.

• Set an example. As public works professionals, we should set the example in terms of waste management. This will be particularly important when employees believe it is beneath them to deal with their own waste!!

• Make it easy. Make sure area containers are placed in a central location and they are easily accessible.

• Celebrate success. Make sure your community and your employees know that they are making a difference.

• Prepare for pests. Organic waste can lead to undesirable pests, most notably fruit flies. Make sure containers are kept clean, use biodegradable liners, and empty organics more often in summer months.

• Educate, educate, educate. Once implemented, people will become more knowledgeable on purchasing items and discarding them. Never stop educating.

For more information on Penn State’s program, visit www.psu.edu/psuDoing/recycling/nocando.asp and www.sustainability.psu.edu/sites/default/files/images/No_Can_Do_Business_Plan_FINAL_2.pdf

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Santa Cruz County, California, blazes a new trail in waste reduction

Tim Goncharoff
Commercial Waste Reduction Coordinator
Santa Cruz County Public Works
Santa Cruz, California

Travel an hour south from San Francisco along California’s ruggedly beautiful coast, and you will arrive at one of the greenest places in the country—in every sense of the word. Nestled between the Pacific Ocean and redwood-shrouded mountains, the people of Santa Cruz County take protecting their unique environment very seriously.

When Emerson said, “Do not go where the path may lead; go instead where there is no path and leave a trail,” he might have been thinking of Santa Cruz County. More than forty years ago they got the funny idea of asking people to sort the recyclables from their trash. “You really think people are going to go through their trash and sort it into different piles?” skeptics asked, but like visionaries everywhere, they just smiled and kept going. And the results are astonishing. Last year the County’s Zero Waste Program was awarded the Governor’s Environmental and Economic Leadership Award for their efforts, the most prestigious environmental award in this greenest of states. Ask for the secret of their success and they’ll lay out an almost bewildering array of programs. Says Public Works Director John Presleigh, “We have a dedicated and creative staff who are always looking to push the envelope.”

Environmental awareness begins early in Santa Cruz County. Visit almost any county classroom, and you’ll see a variety of creative programs designed to educate County school kids about environmental issues. Many routinely sort their lunch leftovers into compostable and recyclable components, with a modest residue deposited in the container marked “landfill.” According to County Sustainability Coordinator and Green Schools Program founder Ana Maria Rebelo, “There is a great need for environmental education. The Green Schools program focuses on classroom and field education and at the same time it provides schools with technical expertise to help them transition into more sustainable practices.”

Local schoolchildren learn about ocean ecology through O’Neill Sea Odyssey and the Green Schools Program.
And education doesn’t stop in the classroom. The County works with a variety of nonprofit partners to offer diverse and creative opportunities for kids to get a hands-on education on environmental issues. Santa Cruz County is the home of wetsuit pioneer Jack O’Neill, and the “O’Neill Sea Odyssey” program he founded takes thousands of kids out on the ocean every year to see whales and otters up close, to dredge up plankton and examine it through a microscope, and to broaden their understanding of the role of the ocean in the Earth’s ecosystem and the part they can play in protecting it.

A popular tourist destination, the beautiful beaches of Santa Cruz County can take a beating from the trash inevitably left behind by visitors. Several times each year, thousands of county schoolchildren head out to local creeks, rivers and beaches to collect the trash before it can flow into the Monterey Bay and become a hazard to marine life. Often accompanied by their families and other citizens, the kids learn on a personal level the connection between our everyday behavior and environmental issues like marine debris. On just one recent day, more than 3,000 volunteers collected over 17,000 pounds of trash and recycling from the coast.

Of course, waste reduction doesn’t begin only after unwanted material has been disposed of. Source reduction is a major focus of local efforts. After working for years to help establish the Monterey Bay National Marine Sanctuary, local officials were deeply affected by reports of birds and whales dying from ingesting plastic, seabirds and otters entangled in plastic bags, and marine life mistaking bits of polystyrene foam for food. Santa Cruz County was among the first jurisdictions to ban single-use plastic bags, and the very first to extend the ban to restaurants. “Plastic trash hurts our oceans and beaches in a significant and permanent way. It also wastes taxpayer money, burdens local governments and is a preventable cause of pollution,” says Mark Stone, formerly a Santa Cruz County Supervisor who now represents the area in the California State Assembly. Local citizens were quick to embrace the ban, and surveys now find more than 90% of shoppers consistently bringing their own bags to the store. Officials then turned their attention to polystyrene foam, first prohibiting its use in food service. When foam debris continued to appear on local beaches the county took a first-in-the-nation step of banning retail sales of polystyrene cups, plates, coolers and other picnic items to be sure that the harmful material wasn’t making its way from local stores to the shores of the Monterey Bay.

California has been aggressive in prohibiting disposal in landfills of hazardous products such as paint, batteries and fluorescent light bulbs. But persuading residents to haul these items to distant Household Hazardous Waste disposal sites has always been challenging. Santa Cruz County responded by setting up retail takeback programs for many of the most problematic wastes. Products as diverse as fluorescent light bulbs, motor oil, paint, sharps and leftover pharmaceuticals can simply be
returned to the stores they came from for free, and County officials expect to expand the roster of such programs in the future.

California’s statewide waste reduction program recently required all businesses and multi-family complexes to begin recycling, and many communities have been looking to places like Santa Cruz County, which have had such mandates in place for years. The state also set an ambitious 75% waste diversion goal by 2020. Santa Cruz County reached this mark a full ten years early, in 2010, among the reasons the County was recently recognized by Governor Jerry Brown.

But they haven’t been resting on their laurels.

As in most communities, the streets of Santa Cruz rumble in the early mornings with trash and recycling trucks. But three times a week, another truck prowls the streets, stopping at schools, restaurants, hospitals and seaside resorts, where extra bins full of food scraps await. The organic waste is hauled off for composting, an area for which the County has big expansion plans. What’s left after you reach more than 75% diversion? Mostly organics, and Santa Cruz County’s zero waste plans rely on growing this element of their green program. “We expect to eventually offer food waste collection to every home and business in the County,” says Kasey Kolassa, Recycling and Solid Waste Services Manager.

Michelangelo said, “The greater danger for most of us lies not in setting our aim too high and falling short; but in setting our aim too low, and achieving our mark.” There seems little risk of this on the green and sunny shores of Monterey Bay.

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National Public Works Week, May 18-24, 2014

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Lane duPont has been a professional illustrator for over 30 years. He attended Paier School of Art in New Haven, CT and The School of Visual Arts in New York City. He has created images for a multitude of national and global corporations. Lane lives in Newport, RI.

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Subtile D landfill closure and post-closure care

Insufficient funding could result in future problems for landfill owners

Michael Fraser
Director of Public Works
City of Salina, Kansas
Member, APWA Solid Waste Management Committee

There are a number of landfill types that can be found across the United States. These include Municipal Solid Waste Landfills (MSWLFs), Construction and Demolition Waste Landfills (CDLFs), Industrial Waste Landfills (IDLs), and Waste Tire Monofills. In addition, under the Resource Conservation and Recovery Act (RCRA) established in 1976, there are two major landfill classifications: Subtitle C Hazardous Waste Landfills and Subtitle D Landfills for Municipal Solid Waste.

Landfills can be very expensive to construct and operate. For example, Subtitle D landfills for the disposal of municipal solid waste (MSW) are the most common type of landfill across the country. They received their name when the United States Environmental Protection Agency (EPA) promulaged regulations in 1991 under RCRA and were defined under Subtitle D of the Act (Subtitle C regulations were adopted separately in 1980). They are sophisticated and expensive to operate. Generally, they...
consist of the following interrelated systems: bottom composite liner, leachate collection and removal, landfill gas collection and control, disposal cells, intermediate cover, final cover, and stormwater management. Industrial and hazardous waste landfills can also be very expensive to operate. All these systems work in unison to provide containment of any contamination and protection of the environment surrounding the facility.

A 2011 Solid Waste Association of North America (SWANA) report on long-term landfill environmental risks referred to EPA data on the number of MSW landfills found in the United States. According to the EPA data, the number of landfills across the county decreased from 7,924 to 1,654, a reduction of almost 80% from 1988-2004. Although the number of landfills decreased, the disposal capacity remained somewhat constant indicating a trend toward larger regional landfills. This information coincides with the 1991 release of the EPA’s more stringent RCRA landfill regulations, which resulted in the closing of many facilities. Twenty years later, many of these remaining facilities are filling up and approaching closure.

As a landfill permit requirement, the operator is required by the EPA to make plans and provide funding for the closure and the post-closure long-term care of their facility for up to a 30-year period, unless this time limit is changed by that state’s government. These closure and post-closure plans require monitoring, any remediation, and maintenance of the facility until the landfill waste is stabilized or considered dormant and no longer poses a potential environmental contamination problem to surrounding areas. Although state and local governmental entities are usually allowed to address financial assurance requirements by the use of their taxing authority, many do set aside dedicated funds to provide financial assurance to cover long-term monitoring and maintenance expenses.

At the time the RCRA was enacted, no one really knew how long municipal waste in a dry tomb would be a threat to groundwater when moisture infiltrates into the landfill cells. It was reasoned that the dry entombment with a composite liner and a composite cap would need post-closure care for a minimum of 30 years, while long-term impacts and solutions were being explored. This resulted in the promulgation of the EPA Research Development & Demonstration (RD&D) rule in 2004, and efforts by states to define pathways to terminate post-closure care within finite time periods.

With some landfills established in the 1990s closed and others now within their post-closure care period, there is increasing concern that some facilities could still pose an environmental risk to the public due to the continuation of landfill gas and leachate generation even after 30 years. Solid waste officials have learned that landfill post-closure care can vary greatly from one landfill facility to another due to a number of factors and environmental conditions, moisture levels within the waste being only one contributing factor.

Ongoing funding of monitoring, remediation, and maintenance expenses is another problem. There is also a concern that the 30-year post-closure formulas used to calculate the annual expenses related to monitoring and site maintenance expenses may not cover all the costs to the level required. Furthermore, extending post-closure care past 30 years, and requiring funding from landfill owners who are still around after the facility has been closed for 30 years, may not be possible. Even obtaining additional funding for public facilities would be challenging. It is clear that some landfill sites may take much longer than 30 years to stabilize and be considered dormant. In fact, there are some groups that feel landfill post-closure care should never end and continue into perpetuity.

Currently, the EPA has not yet provided additional guidance to state governments on evaluating closure and post-closure care decisions beyond the 30-year period of responsibility. Some states are practicing what has been referred to as a “rolling-30 approach,” where the countdown clock on the 30-year post-closure care period does not start at closure. The 30 years of post-closure funding is required throughout the post-closure years until the owner can show a reduction in environmental issues that no longer require post-closure monitoring or maintenance. Therefore, it can be difficult for some landfill owners to project future expenses because they cannot calculate an end date for financial obligation on their closed site.

This growing concern has sparked action on the part of Kansas Department of Health and Environment (KDHE) to address this issue regarding post-closure care termination in Kansas. Additionally, KDHE initiated steps to assess defensible cost estimates to address closure and post-closure at permitted landfills. The previous KDHE formula for calculating financial assurance for landfill closure and post-closures was outdated by about 15 years and yielded inaccurate estimates below construction and professional service rates. In addition, there were no provisions for inflation over time. Furthermore, the worksheets did not define or account for all possible activities in the closure of the landfill. Therefore, the money being set aside
in many cases might not be enough to cover the expenses for monitoring and maintenance after the landfill has closed.

The overriding concern was that state governments could possibly find themselves assuming the responsibilities of a landfill owner during closure and/or the 30-year period and possibly beyond, due to the owner filing for bankruptcy, or not possessing sufficient funds to manage their closed site. This could lead to a huge burden for state government if left unaddressed. This scenario seemed very real, so KDHE officials decided to take action.

In 2013, KDHE revised their landfill closure and post-closure worksheets by improving the instructions for calculating future expenses and added additional cost categories with more details. In addition, every five years KDHE will require that representative estimates be prepared by a professional engineer with the expertise to prepare landfill closure and post-closure care cost estimates. In intervening years, an inflation factor would be applied to unit costs developed during the prior renewal year, unless significant changes occurred or will occur in the next renewal year. These new changes could result in a \textbf{20-45\% increase} in landfill closure and post-closure costs. This may possibly mean higher customer disposal costs, but in the long run, the public will be better served to have landfill owners equipped with adequate funding to address environmental problems that could develop over time.

In the last two years, KDHE has conducted several stakeholder meetings with landfill owners and solid waste officials. Carl Burkhead, Environmental Engineer with KDHE, led the discussions and provided research on this issue. These meetings were helpful in informing landfill owners of the situation and in formalizing changes for Kansas.

According to Bill Bider, Director of the Bureau of Waste Management with KDHE, state regulatory agencies have discussed closure and post-closure financial assurance challenges for many years, including with the EPA, but little progress has been made in developing a procedure for adjusting the post-closure period and associated responsibilities. In response to this situation, the Association of State and Territorial Solid Waste Management Officials (ASTSWMO) has developed a policy paper with recommendations to the EPA to provide technical assistance. While retaining state flexibility in this area, ASTSWMO sees benefit in having general guidelines that states could consider when developing state policies and regulations.

Bill Bider, with KDHE, had this to say: “The states have worked together over the past year to develop a policy paper that asks EPA to provide technical guidance regarding criteria that should be used to end or extend post-closure care at MSW landfills, but we in Kansas do not expect any practical tools from EPA to help states address site-specific conditions. Neither has KDHE been able to identify other state programs that base post-closure care responsibilities and associated financial assurance on real landfill data. Consequently, we have decided to move forward with our own state policies, technical guidance documents, and regulations that will allow MSW landfill owners to gather data and demonstrate why certain responsibilities could be reduced.”

We suggest landfill owners be alert to this situation and work with their state solid waste agencies to share information, develop technical guidance documents, as well as consider policies and regulations to address the problem. The need to provide additional landfill closure and post-closure funding for monitoring, remediation, and maintenance is very probable. The sooner landfill owners analyze their specific situation, the more time they will have to address a possible financial shortfall.

For more information, please contact Michael Fraser, Director of Public Works, at (785) 309-5725.

Designed stormwater let-down structure used to reduce erosion along steep banks at the closed Forest View Landfill in Kansas City, Kansas
A historical and beautiful city, Phoenix was incorporated in 1881, and ranks as the sixth largest city in the nation, with more than 1.4 million residents and growing. The city takes up more than 500 square miles, which geographically exceeds Los Angeles.

The City of Phoenix Public Works Department manages the collection and proper recycling of solid waste materials for the residents and businesses of Phoenix. In addition to the collection and proper recycling of solid waste materials, the Public Works Department also collects millions of operational data annually to measure efficiencies, determine program costs, improve services, and make informed business decisions. Although the Public Works Department has the ability to collect crucial operational data, transforming the data into trustworthy, meaningful management information was difficult and laborious. The information was siloed by operational function, contained multiple sources of the truth, and offered limited visibility to make proactive decisions.

As part of the City’s Innovation and Efficiency savings goal of $100 million by 2015, the Public Works Department would contribute to this goal by turning city data into actionable information. The project centered on the goal of the Public Works Department to have a business intelligence system that would allow faster, more accurate, more meaningful information made available to not only management, but to the operations divisions within the Public Works Department.

The Public Works Department chose to use an Oracle Exadata Engineered System and Oracle Analytics Suite as the backbone of this business intelligence system. Public Works partnered with LCS Technologies, a Sacramento, California-based firm, which specializes in implementing Oracle Solutions to assist with the project. The Business Analytics Projects got underway in April 2012.

The objectives of the project were to create an information and analytics data warehouse for sharing data in near real time. The data warehouse was developed with data standards which would not only allow consistent use of information for Public Works, but which could also scale to support the addition of other City Data Sources and Departments. The first phase of the project migrated data from four source systems into a data warehouse. These individual systems captured Operational Data, Tonnage, Vehicle Maintenance, and Vehicle Activity. Once loaded into the data warehouse, detailed events,
calculations and the combining of data across the four systems provided a meta data foundation for creating the Field Management Operational and Executive Dashboards. In just five months, the Public Works Department successfully completed this first phase and went live with the Business Analytics!

In summary, the value to the residents of Phoenix is a minimization of fee increases, improved service equity to all customers, and improved service offerings. The value to the Public Works Department can be found in fleet performance, collection efficiencies, transfer station tonnage visibility, and landfill staff efficiencies.

The return on investment after just five months has been:
- Discovery of 5% billing error rate
- Increased route management efficiency by 10%
- Vehicle Availability “Decision Point”
- Optimization of resource utilization
- Five process improvement opportunities
- Fifty-plus enhancement requests
- Ten major data collection point inconsistencies
- Enabling self-sufficient staff

In September of 2013, Public Works began its expansion on the Phase I foundation to include the consumption of its Customer Billing Data into the Data Warehouse. Business Analytics Phase II is scheduled to go live in March 2014.

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Municipal waste management
disaster recovery

Trent Tompkins
Director of Collection Services
City of Edmonton, Alberta
Member, APWA Solid Waste Management Committee

On June 19, 2013, over 300 mm of rain fell on the Elbow River watershed and the Bow and Elbow rivers swelled to 1 in 500 year flow rates. The surging water flooded the City of Calgary and nearly wiped out the entire community of High River and other southern Alberta communities. Some residents had their basements flooded while others had their entire home swept away. The resulting damage and cleanup cost has been estimated at nearly $5 billion, making it the most expensive natural disaster in Canadian history.

Significant portions of the City of Calgary downtown core were flooded and over 75,000 people were evacuated as the rivers flooded into residential neighbourhoods. In response to the residential flooding and massive cleanup that would be required the City extended landfill hours, cancelled recycling collection for two weeks to focus on waste collection, tipping fees were waived for flood debris and special collections were set up to collect and dispose of household hazardous waste and Freon-containing appliances. In the end over 98,000 tonnes of debris were removed from homes and basements by City waste collection staff, private haulers and residents easily surpassing the 70,000 tonnes of construction and demolition normally received in a year.

Photo taken July 9, 2013, at High River, Alberta; residents and volunteers (in yellow) cleaning up flood debris (photo credit: Jim Lapp, City of Edmonton)
In Calgary and other automated collection communities the collection crews had to contend with collections carts that were damaged or taken away by floodwaters and essentially move to a semi-automated system or a manual collection system. Christy Lyon, Manager of Collection Services for the City of Calgary, states, “The volume was definitely an issue but luckily we had the equipment to keep up. The sideloaders were used in unaffected areas but the rearloaders were the only vehicle we could use in the flooded areas.” The City of Calgary lost over 5,000 household carts to the floodwaters.

Things were different in High River—nearly every building in the town of 12,000 was damaged. The Town was evacuated on June 20 with some homes completely submerged underwater (only accessible by divers), and others were gone, washed away in the flood. Residents were allowed to return in stages 10 days later. John Deagle, Landfill Manager with the Foothills Regional Services Commission (FRSC), used these 10 days to get the landfill prepared for the surge of debris. “The 10 days gave us time to prepare for what we expected would come. We prepared our employees and landfill site and came up with some solutions that actually worked.”

In order to manage the traffic from private haulers and residents the Foothills Regional Services Commission (FRSC) had to establish new processes to cut scale transaction time to 14 seconds per vehicle but the lineup was still a mile long. Flood debris was accepted at no charge and volunteers and equipment were requested from other local governments to help with operations at the landfill. Within the first 30 days after the flood the landfill received 7,400 fridges and 50,000 tonnes of flood debris.

Though Calgary and High River were impacted differently by the floodwaters, the role for each local government was the same. They needed to maintain services and get things cleaned up so their residents could get back to their homes and start trying to get their lives back to normal. Municipal waste management services are a key starting point by removing the disaster debris so residents can access their home.
and start rebuilding their lives. As municipal waste managers a few key considerations should be kept in mind:

**Develop a response plan** specific to your services and resources and keep it updated. The plan should outline how things will operate in the event of several different types of disasters for your community such as fire, flood or hurricane. The plan should set the priorities for debris management based on clearing access for critical facilities, removing safety issues and then starting the collection of residential cleanup debris. Opportunities for recycling, waste diversion and proper material segregation need to be addressed to preserve landfill capacity and reduce potential future liability from decisions made in haste. The plan should also provide contingencies if your facilities or equipment are directly impacted. What if your fleet was ruined, the landfill flooded or transfer station destroyed?

**Communications is key.** In the aftermath of a disaster event residents need to know what services they can expect to receive and what they should do with their waste. Social media plays a significant role in managing information and should be used to help communicate your plan and let people know what to expect. Clear communication regarding the continuity of basic services will help impacted residents clean up and establish their normal routines.

Waste management staff must also have a clear communication with the Emergency Operations Center providing feedback and updates. In the first days of the cleanup in High River and Calgary residents and volunteers filled the streets with parked vehicles and debris. Municipal collections crews and private haulers hired to collect the material could not get their trucks or bins into the neighbourhoods and little material was removed. High River emergency staff started allowing commercial haulers 12 hours advanced access to residential neighbourhoods to stage roll-off and front-end containers prior to residents returning.

**Call your friends:** In the early days of the flood cleanup the Alberta Chapter of the Canadian Public Works Association (CPWA) put out a request for labour and equipment to help with cleanup operations. The City of Edmonton sent 160 firefighters, police officers, 10 street sweepers, bridge inspection staff and equipment as part of a mutual aid agreement. Alberta CPWA set up a conference call with local members and APWA members who had worked through the 1 in 1,000 year flood in Nashville to share and learn from their experience.

If you have reached the limit of your resources you may need to hire private contractors to supplement your services or provide equipment and expertise you don’t have. A draft contract prepared beforehand when you have time and a clear head that lays out service and compensation will save you money and/or litigation in the future.

**Remember your staff:** Your staff members are giving their best efforts and likely working long hours in poor conditions. They are also likely to have been impacted and need time and assistance getting their own homes and families back to normal. Find time and opportunities to let them take care of their own families. Some staff from other areas in your municipality may be able to be redeployed to help your crews but waste collection, processing and disposal operations are complicated operations and it can be difficult to productively and safely use temporary staff.

When disasters or severe weather hit your municipality your residents will be depending on you to be there as soon as they are back in their homes. With a good plan and some support along the way you can help your municipality recover quickly.

*Trent Tompkins can be reached at (780) 496-6681 or trent.tompkins@edmonton.ca.*
Drive down Marriottsville Road past the Alpha Ridge Landfill in Howard County, Md., and you might see a unique collection of mechanical equipment juxtaposed with huge piles of earthy materials. Concrete barrier blocks stacked into walls, large pipes and ducts, and a large blower comprise the scene.

This contrasting mixture is actually a pilot composting facility recently brought online by Howard County. Located on a ¾-acre site, this $800,000 state-of-the-art computer-controlled project composts yard wastes and food scraps, providing a host of benefits.

It represents a trend seen around the country, as many municipalities have developed composting facilities. They're becoming popular because composting diverts food waste from the waste stream, saving valuable landfill space. They enable microorganisms to turn organic waste into soil amendments, which are sold as viable market products that provide a source of income. And not only is composting gaining in popularity, it is also becoming more high tech.

In detailing how the Howard County project came to life, Jeff Dannis, Director of the Bureau of Environmental Services for the Howard County Department of Public Works, says it started in 2008 when they evaluated processing for all of the county’s yard waste. “We looked at reducing costs by taking curbside programs going to offsite contractors and processing our own material to become self-sufficient with wood trim.” Then, he adds, “As we began to negotiate our costs for waste disposal, it became clear that incorporating food scraps into the curbside program and taking it out of the waste disposal program would be advantageous.”

They began a series of pilots in 2010, offering curbside residential food scrap collection with yard wastes. Materials include leaves, grass clippings and brush as well as fruits, vegetables, and baked goods. Residents receive a separate bin for food scraps, and it is set out weekly, the same day as yard waste pickup and regular recycling.

The Alpha Ridge Composting Facility has allowed the county to double the size of its curbside collection program. Food scrap collection has been expanded to 10,000 homes in Ellicott City, Elkridge, and Columbia to participate in the program. At 1/7 scale, the pilot project handles 7,500 cubic yards a year and is designed for this many homes.

According to a Howard County study, some 23 percent of what they were sending to the landfill could be composted. They now estimate that 10,000 pounds of food scraps a week are being diverted from the waste stream.

One of the many goals of this project is to compost the organic waste locally, saving on processing and transportation costs. Benefits also include creating HoCoGro Compost, a soil amendment that reduces the need for chemical fertilizers, reduces erosion, returns nutrients to gardens, and increases water retention in soils.
In addition, collecting food scraps reduces greenhouse gases because they create methane, a powerful greenhouse gas, as they decompose in a landfill. It reduces the need for garbage disposals; using these to get rid of unwanted food sends excess nutrients to treatment plants. They are costly to process and remove, about 10 times more expensive than curbside collection and processing. It saves money, as removing food scraps from trash reduces tonnages and disposal costs.

Design of the composting facility began in 2011. “We’re taking it in baby steps,” Dannis says in explaining why they chose to start with a pilot project. “It was a question of training our employees, getting the surrounding area comfortable with a facility, and giving elected officials an opportunity to see and gage the interest. It wasn’t to prove the technology. It also gave the regulatory community an opportunity to get comfortable with composting.”

For years, conventional wisdom has held that compost must be turned over regularly to maintain a homogenous mix with air, heat, and moisture evenly distributed throughout the pile. In commercial operations, compost has typically been arranged in long windrows, and huge windrow-turning machines lumber along, churning the pile as they go. But a new form of composting known as aerated static pile (ASP) composting has come on the scene in recent years. ASP composting using negative aeration and simple timer motor controls was developed by the USDA’s Beltsville Agriculture Research Center in the 1970s to explore the uses of sewage sludges. The Beltsville method was refined in the 1980s by Dr. Mel Finstein at Rutgers University, who developed ASps with positive aeration and a temperature feedback loop to maintain pile temperatures at a constant level. ASP composting has long been used for heavy, wet feedstocks like sludges and manures, but it is now seeing use for other materials.

With Alpha Ridge Landfill surrounded on two sides by residential areas, Dannis explains that “odor was the number one controlling factor as to location, size, feedstock, and technology selected.” He adds, “Several other municipalities in Maryland have composting facilities that use a simple windrow process, but we needed a smaller footprint. With aerated static piles, not only can you build bigger piles and need less square footage for the volume, they process the material to a stabilized condition much faster, so the number of piles needed is less because you have a faster turnover rate.”

The county is using the AC Composter Aerated Static Pile system manufactured and designed by Engineered Compost Systems in Seattle, WA. Food scraps and yard waste are debagged and put through a grinder, and the ground material is placed on a concrete pad in six piles.
measuring about 26 feet wide, 68 feet long, and 9 feet high each. Piles are turned every 15 days, and in 75 days, a fully cured product results.

As a negative aeration or induced draft system, it has one 30-horsepower blower that draws air through all the piles via perforated high-density polyethylene (HDPE) pipes at the bottom of each pile. Using a system of ducts, the air then flows to a biofilter, a pile consisting of mulch and finished compost. Working off temperature and oxygen measurements, a computer controls several dampers and a variable-frequency drive connected to the blower to modulate airflow. Air permeates through the piles, supplying oxygen for aerobic decomposition and removing excess moisture and heat. The biofilter treats the air to reduce odors. Most induced draft systems have a blower for each pile, and their outlets are manifolded to one duct. In contrast to this, a positive aeration, or forced draft system, has air flow into the ASP and no biofilter; these are actually more common.

“We have had no complaints so far,” Dannis says in assessing the results of the pilot facility. “The biggest complaint we have is, ‘How come it’s not in my neighborhood yet?’ Our observation is that throughout the Mid-Atlantic area, there’s a pent-up need for facilities.” With such success, Howard County is designing a full-scale composting facility capable of handling 50,000 cubic yards a year as the next step.

Based in Milton, PA, Tom Gibson, P.E., is a consulting mechanical engineer specializing in green building and a freelance writer specializing in engineering, technology, and sustainability. He collaborates with Coker Composting and Consulting in Roanoke, VA (www.cokercompost.com) in designing compost aeration systems, and he publishes Progressive Engineer, an online magazine and information source (www.ProgressiveEngineer.com).
Sheraton San Diego to divert 90% of waste

Mark Whitfield
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State College Borough, State College, Pennsylvania
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In May 2013, the APWA Sustainability Conference was held at the Sheraton San Diego Hotel and Marina, a hotel that prides itself on their green initiatives. Conference attendees not only learned from speakers, vendors and each other, but also learned from the hotel itself. In short, the hotel was a fitting venue for a sustainability conference given the direction they are going, and the things they have accomplished.

The hotel has a goal of diverting 90% of its waste, which on the outside seems insurmountable. However, since beginning their green initiatives, the Sheraton has taken their landfilled diversion from 15% to 80% in August 2011. That equates to over 1,000,000 pounds each year of “former trash” to reusable materials.

Hotel Manager John Ford spearheads the sustainability efforts, with energy consumption, water usage, and solid waste management being the key components. One of the primary focuses on the waste diversion was food waste. Nearly 100% of food waste from the hotel is now being composted. Of the 1,000,000 pounds of materials being recycled, food waste makes up 400,000 of those pounds. Under an agreement with Waste Management, food waste is taken to the City of San Diego’s Greener at one-half of traditional landfill tipping fees. But more importantly, the compost has an added benefit in returning rich nutrients back to the earth as a soil amendment.

In using plastic containers for collecting food waste and recycling materials, the Sheraton San Diego was able to cut in half the number of trash can liners needed in the hotel. Additionally, a new solar-powered food waste compactor was installed, reducing trips to the compost center.

The hotel also sponsors Zero Waste conferences through the use of media and other means. Conference materials are distributed electronically.

Then there are those small semi-used bars of soap and other toiletries left behind. In the past, these items found their way into the waste stream. Today, they are collected and sent all around the world for use by families and children in need.

Executive Chef Steve Black explains that by filtering frying oils, the life of the oil is extended. Once the oil is no longer usable, a disposal company collects it and refines it into biodiesel to be used as fuel in diesel trucks.

Finally, single stream recycling has not only increased the amount of materials collected, but has reduced staff time in sorting materials. Now, all clean traditional recycling materials (glass, aluminum, plastic, and paper) are collected in a single container, collected and sent to a MRF for processing.

Probably the biggest change for the Sheraton San Diego was not so much their accomplishments, but for their change in culture. Many of the ideas on how to reduce, reuse and recycle came from their front-line employees. And that is a lesson for all of us. Empowering employees to make a difference is really the “green thing to do,” and will result not only in a better “bottom line” but a better earth as well.

For more information on Sheraton San Diego’s “Green Initiatives,” please visit the following website: https://www.youtube.com/watch?v=2lhjNtrTBNU.

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Suggestion: Jack R. Kollmer, Lake Elmo, MN, recently sent a “tip” for readers on the subject of whether it was more wasteful to the environment to rinse cans and bottles prior to recycling than not. Previous discussions in this column indicated that the water table is replenished with the water used to rinse the items so it still may be the best method of preventing contamination of some recyclable items due to debris. Jack’s suggestion reads as follows and I hope you’ll find it helpful: “When cooking we always keep a sink with hot soapy water available to wash hands and cooking implements and for cleanup of pots, pans, and bowls after the food preparation has been completed. This dirty wash water is now lukewarm and perfect for washing all our recyclables or bottles and plastic containers used to hold canned items from the garden and used in cooking. The hot soapy wash water for hands keeps you from running the faucet and wasting hot water. We are on a well and septic, living in the country, but the well uses electricity and the hot water heater uses natural gas to heat the water, so conservation of these items is mandatory. We also have a double stainless steel sink in the kitchen, similar to most homes, and we have spray foam insulated on the underside of the sink to keep the water warm/hot during dish washing and rinsing operations.” Such a simple suggestion with so many environmental savings! Thanks, Jack, for the great tip.

Q: “Are electric vehicles gaining in popularity for city/county fleet purposes? We tried some for a year but found they didn’t fit the needs of our staff members.”

A: As you might expect, electric vehicles are gaining support in some areas of city/county fleets. And in others, not so much. While it is not likely that all-electric cars will replace the gasoline-powered counterparts for law enforcement patrol duty, smaller electric vehicles have made inroads into police fleets. Rechargeable single officer transports have been a mainstay among law enforcement vehicles for more than a decade. Today officers on Segways, T3 Motion three-wheelers, Trikkes, and other solo transports are common signs in airports, parks, and at public gathering spots. The net phase of electric vehicle adoption among police agencies is likely to be motorcycles. Several makes of electric patrol motorcycles are available and they are becoming more popular with campus and municipal officers. They are not suitable for patrolling highways or long stretches of rural road because of their range and speed limitations. But the City of Los Angeles is undertaking a critical test to see if electric bikes can replace the gas-burning models used by the Los Angeles Police Department on city streets. Stay tuned for the results.

Q: “When the snowplows were coming up Holmes Road a couple of weeks ago I wondered why I’d never seen any advertising on them. I’ve also thought about that whenever I see the street sweepers and refuse trucks here on Grand Boulevard. Have any agencies ever generated extra revenue by accepting advertising on their vehicles?” Kevin Clark, Editor, APWA Reporter

A: Kevin is always good for a great question! Having been in city government for twenty-five years before coming to APWA many years ago, I can tell you the thought has occurred to public entities many times through the years. Most have not gone the route of accepting paid advertising for a number of reasons. Public funds have paid for the vehicles that operate on public streets. To accept advertising would open up a big can of worms in many instances. In the first place, a private entity would have the benefit of having their name in front of everyone and, even though they may have paid a fee for the advertising, it would appear that the city/county was endorsing this firm or business. Not good for getting reelected if your business couldn’t come up with enough money to meet the advertising rates. Secondly, who determines what advertising is “appropriate” for city/county vehicles? If you open
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Assistant Director of Public Works & Engineering, Winnetka, IL

The Village of Winnetka is seeking an Assistant Director of Public Works & Engineering to assist the Director in planning, organizing, and implementing all Department programs. The selected individual will have responsibilities such as staffing of the Department’s 30.5 FTEs, budgeting, purchasing, public and private construction oversight, project management, geographic information systems, communications, program analysis and will provide professional engineering support to the Director. The Assistant Director directly supervises the Superintendent of Public Works Operations, Forestry, Engineering and office staff and has administrative and operational oversight of the core public works services, including: refuse collection and disposal, roadway and right-of-way maintenance, snow removal, stormwater drainage and sanitary sewers, public facility maintenance, internal fleet services, engineering, and forestry.

The Village of Winnetka is an established North Shore suburban community, located approximately 20 miles north of Chicago and is undertaking a $41.4 million Stormwater Management Program that will be implemented over the next several years, including the construction of a large-diameter stormwater tunnel. The Public Works Department has a fiscal year 2014 departmental budget of $18.4 million and is also largely responsible for implementation of the Capital Improvements Program. In all, the Public Works Department manages and maintains over 58 miles of roadway, 109 miles of sewer lines, provides refuse collection to approximately 4,000 households, reviews over 200 development plans annually, and cares for thousands of parkway trees. This department works closely with a separate Water & Electric Department that provides other public services.

Desired Minimum Qualifications: Bachelor’s degree in business or public administration, civil engineering, or other closely-related field, from an accredited college or university. Five years of experience in the administration and management of municipal public works department, or other closely-related field, including at least three years of supervisory experience (or equivalent combination of training/experience). State of Illinois certification as a Professional Engineer; or reciprocity within six months from date of hire.

Other Requirements: Excellent written and oral communication skills. Strong leadership skills and the ability to work effectively with elected officials, citizens, and employees. Good knowledge of business mathematics and purchasing methods, as well as experience with computer spreadsheets, databases and related software. Possess analytical, planning and management skills that can be applied to maintain/enhance a high level of services. Valid Illinois driver’s license and safe driving skills.

The weekly work schedule is normally 37.5 hours in duration, Monday through Friday, 8:30 a.m. to 5:00 p.m., but may be extended in the event of emergency, disaster, workload, administrative obligations, or work in progress. The position requires occasional work on some Saturdays, Sundays, and holidays and attendance at evening meetings. Work activities are typically conducted in a climate-controlled open office environment and noise levels are usually quiet. Project planning, field review, inspection of public improvements, field engineering and project management are frequently conducted outdoors and may occasionally occur under adverse or unusual conditions such as in cold, hot, wet, or dark surroundings, in all weather conditions, and at all hours of the day.

This is an exempt position. Salary range: $90,099–$135,150 (DOQ) plus excellent benefits. Candidates should apply with application, résumé and cover letter. Position open until filled. Applications may be obtained in person or downloaded from the Job Opportunities page at www.villageofwinnetka.org. Submit materials and direct inquiries to:

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**HexArmor® announces acquisition of YULEYS® Clean Step System**

Leading safety glove manufacturer HexArmor® has announced that they have acquired the YULEYS® Clean Step System. After 10 years of

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Trafficware innovates with partners to improve driver experience

Car manufacturers believe they have found the next cutting-edge feature that will make consumers want to buy their vehicles. For example, several of the leading auto manufacturers were lined up at one of the booths at the 2014 Consumer Electronics Show (CES) in Las Vegas, promoting the next innovation in driver safety, fuel efficiency, and reduced emissions. This innovation combines two things that most people interact with on a daily basis: their smartphone and traffic. Green Driver, a high-tech startup, released a smartphone app called EnLighten, which communicates with the central traffic management system to provide drivers with predictions on how long they will be stopped at traffic lights. Trafficware was the logical technology partner, as the company currently has the City of Las Vegas as one of its central traffic management system customers. Trafficware provides the real-time traffic signal data for intersections to Green Driver, creating opportunities for drivers to have a more relaxing and informed driving experience. For more information, please visit www.trafficware.com.

ISCO Industries constructs emergency pipeline for Wichita Falls

Droughts are affecting municipalities around the U.S. The City of Wichita Falls has lost 70 percent of its water supply in the past two years—the current lake levels for their water supply are at 26 percent and shrinking every day. With no rain in sight, Wichita Falls officials took immediate action. They hired ISCO Industries to construct an HDPE emergency water reuse pipeline from the city’s wastewater treatment plant to the water treatment facility. The direct potable reuse project will divert 7 to 8 million gallons of treated wastewater a day—normally released into the Wichita River—to the public water supply. ISCO completed the 32-inch diameter, 12-mile-long emergency pipeline in less than four months, putting machines and manpower to work so the water supply could be replenished. And if drought conditions in the western U.S. remain, reuse projects like the Wichita Falls pipeline will likely become more common around the country. For more information on ISCO Industries, please visit www.isco-pipe.com.

Landmark Engineering Group celebrates 20th anniversary

Landmark Engineering Group, Inc. is celebrating the 20th anniversary of the opening of its first office on March 7, 1994 in East Moline, Illinois. This civil engineering and land surveying firm has grown to include an office in Naperville, Illinois and offices in Clinton, Des Moines and Burlington, Iowa. Landmark specializes in civil and environmental engineering, and land surveying for all phases of new construction and land acquisition projects. Conceptual planning, feasibility analysis, site design, drainage studies and construction layout are some of the services Landmark provides to both public and private customers. Landmark’s background includes a wide variety of projects, from golf courses to chemical processing facilities; residential streets to divided highways; parking lots to parking ramps; grade schools to universities; specialty shops to big box retailers; drainage analysis for one acre to twenty thousand acres. Our land surveyors have surveyed the bottom of rivers from a boat and cell towers attached to the top of grain elevators. For more information, please visit www.landmark-engineering-group.com.
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North American Snow Conference

2014  May 4-7  Cincinnati, OH

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

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