INSIDE:

• 2011 Public Works Projects of the Year
• Snow Conference Highlights
The recently released study by Purdue University scientists for the Indiana Department of Transportation proves what many in our industry always knew: magnesium chloride is actually less damaging to concrete than its calcium chloride counterpart. As a matter of fact, concrete treated with CaCl₂ deteriorated twice as fast as specimens treated with MgCl₂. The study is significant in that it used real-world conditions as opposed to high temperature (accelerated) methods of previously accepted product testing.

Learn more at www.MagChlorideisbetter.com or contact us at 800-693-3334.
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.
A few months ago, Keith Reester, President of the Colorado Chapter, asked me to participate in a leadership initiative sponsored by the chapter. The goal of the initiative was to have different APWA members write about the leadership qualities of Abraham Lincoln.

This request coincided with notes I was making on the qualities of our Top Ten winners and the reflections of my travels to chapters around the country. Reading about Lincoln, the attributes of our Top Ten winners, and thinking about the transformation that is now going on in the public works profession created the catalyst for writing this article.

Think for a moment about what has changed over the past 41 years since the first Earth Day. The world’s population has grown by 3.2 billion people, consumption of oil, natural gas and coal has grown by four billion tons, the worldwide automobile fleet has increased by 450 million vehicles, and the global temperature has risen 1.1 degrees. Forty-one years ago there were limited environmental regulations, no safety regulations, civil rights and sexual harassment regulations were nonexistent, and desktop computers and the Internet were but a dream.

In the past several years, nearly three million new jobs have been created overseas by large companies and there are three million fewer jobs in the United States. Increased energy costs, water shortages, and climate change are changing the way we live and work. The world around us has changed dramatically in the past four decades and there is no letup in sight.

A changing world requires public works leaders who are resilient, understand the environment, can define problems, work in multidiscipline teams, have courage, and understand how to weave together solutions to complex problems in an ever-changing environment.

When you step into a leadership position, the world becomes a lot more complex for you. Employees view you differently, there are competing demands for the same resources, and external politics become involved in the decision-making process. You are dealing with differing coalitions, social media, unions, contract disputes, the human resources department, and the finance department.

How many times have you witnessed someone very good at their present job be promoted into a management position and fail? Too often good people are placed in leadership positions without the proper training. Some call leadership skills soft skills. This could not be further from the truth. Effective leadership requires a different skill set to maximize opportunities. As the world becomes more complex, it will take professionally-trained leaders to deal with the crises ahead.

John Kotter, a management professor at Harvard, defines the difference between management and leadership skills. Managers make systems of people and technology work well day after day, week after week, year after year. Leaders create
the systems that managers manage and change them in fundamental ways to take advantage of opportunities.

Let’s focus on the importance of leadership in the public works profession. In a book entitled The Leadership Challenge by Kouzes and Posner, they report on their research conducted over the past twenty years on what people admire most in a leader. What do you think individuals rate as the first, second and third highest attributes of a leader? The first is honesty and integrity, the second is a visionary, and the third is competence. Some of you might think competence would be first, but it was 20 points lower than integrity in two different surveys taken a decade apart.

Think for a moment about some of the great leaders you admire most—Lincoln, Martin Luther King, Gandhi, Mother Teresa, and the great environmentalist Rachel Carson. The common thread that unites them was holding true to their principles, despite adversity and being ridiculed. They all had the courage to stand the test of time for a better world, and despite tremendous pressure to take another pathway they never gave up their integrity.

The second trait of a great leader is a visionary who can look beyond tomorrow and see the future. In Chinese the word “crisis” is written in two characters—danger and opportunity. Today’s leaders in public works can view the world in simple terms—“I have no money or no help”—or they can see the world through the lenses of a leader who sees the opportunities that the twenty-first century will bring to build the livable communities of the future.

A visionary looks beyond problems and sees opportunities. I once worked for a mayor named Bernie Sanders who is now a United States Senator. I went into his office one day and told him it would cost $52 million to upgrade the wastewater treatment plants to clean up the water pollution in the lake. I could see his reflection off the glass panes as he pondered the issue. He turned and said, “I have no idea where we are going to get the money, but we have an obligation to future generations.” He didn’t know what was involved in the project, but that wasn’t important to him. A vision for a cleaner lake was what was important, and this conviction would create the catalyst and support for the project funding. Without a vision there is no future.

(Continued on p. 4)
The third principle of a great leader is being competent at what you do. Rachel Carson had been a scientist for the federal government prior to writing *Silent Spring*. She studied and understood that spraying DDT was causing the wholesale destruction of wildlife and its habitat. When the chemical companies attacked her, and publishers fearing loss of advertising turned down publishing her work, she persisted and went on to write *Silent Spring* which became the catalyst for the environmental revolution in the United States during the late sixties and early seventies.

Great leaders work hard at what they do. Knowing your subject matter builds confidence and the ability to stand tall in the midst of adversity. I recall meeting with my staff the morning after 200 people at a public meeting challenged the development of a roundabout, citing increased vehicle and pedestrian accidents. I said to the staff, “You know it would be so easy to announce this morning that we have decided to put in a traffic signal and scrap the roundabout plan. We would be heroes. What do you want to do?” They replied, “We know that a roundabout is safer, and we need to do a better job presenting the information.” When you know your business and work hard at it, you do not shy away from the truth, because in the long run you will prevail.

The fourth attribute of a great leader is connecting with your employees and the public. Honest and sincere connections to human beings are essential to being a strong leader. Think of Martin Luther King’s great speech “I Have a Dream” on the steps of the Lincoln Memorial. In his speech he connected to places, people, the Declaration of Independence and dreams: “I say to you today, my friends, so even though we face the difficulties of today and tomorrow, I still have a dream. It is a dream deeply rooted in the American dream.”

Horace Greeley, a newspaperman often at odds with President Lincoln, came to value Lincoln’s excellence. He wrote the following: “He was not born king of men but a child of common people. He was open to all impressions and influences, and gladly profited by the teachings of events and circumstances, no matter how adverse or unwelcome.”

Lincoln, like King, listened and connected with the common man. Think of the images of Mother Teresa holding a baby or sitting by the side of a malnourished child. You can have all the smarts in the world, but if you do not have a heart and soul to care for those around you and the people you serve, you will fail to be a great leader.

The fifth attribute of a distinguished leader is courage. Courage is not being macho, but having a calm presence under adversity. The reality is that while you will never keep everyone happy, a leader must possess the ability to stand up when he or she is being tested. The great leaders do their best work when they are under the lamp. Lincoln, Gandhi and King were at their best when tested by their adversaries.

The sixth and final characteristic of a notable leader is the patience and tenacity to prevail—the ability to get up the next morning after a difficult council meeting, reassess your position and never lose the drive to do the right thing. Oftentimes you want to strike out at those who are against you or you believe have been unfair. Lincoln embraced his adversaries and used persuasion to achieve his goals and objectives. King and Gandhi used the principles of peace. Rachel Carson used science and reasoning to make her case and Mother Teresa used compassion. They all saw the wisdom of patience, and to never quit pursuing the principles in which they believed.

In closing, the world around us is changing rapidly, and the complexities that a public works leader will face in the coming decades are unparalleled in the profession. No longer can you be just a good manager to survive. The world we live in today requires leaders who have integrity, have a vision for the future, are competent in what they do, connect to those around them and the people they serve, with the courage to have presence under adversity, and the patience and tenacity to never give up their principles.

Yes, the world is changing dramatically, but the principles that make a great leader have not. As never before in our history, the twenty-first century will require great leaders in the public works profession to see a changing world not as an obstacle, but an opportunity to make a difference to mankind and society. Never let anyone tell you it isn’t possible to make the world a better place. Commit yourself to being a great leader. I salute all those public works leaders who stand tall and practice the principles of integrity, being a visionary, and being competent in the public works profession. The twenty-first century is your oyster.

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Completing a surface transportation bill is a priority, but funding issues are a major hurdle

Jim Fahey
Director of Government and Public Affairs
American Public Works Association
Washington, D.C.

A lack of congressional consensus on how to fund and finance the nation’s aging transportation network has been the primary obstacle in the way of timely completion of a new federal surface transportation authorization.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, better known as SAFETEA-LU, expired nearly two years ago. With revenues constrained and needs mounting, lawmakers are finding it difficult to develop acceptable funding solutions capable of achieving necessary majorities to pass a bill.

Despite the occasional call for increasing the federal motor fuels tax as a way to boost investment in transportation, it is no secret that the political will to raise it is virtually nonexistent in Congress, given that gasoline prices are hovering around $4.00 per gallon or more in most areas and the economy remains in recovery. Opposition, however, is not limited to lawmakers. Since taking office in January 2009, the Obama administration has steadily opposed an increase in the gas tax. As an option it is essentially off the table right now.

Alternative funding sources, such as a Vehicle Miles Traveled (VMT) tax or tolling or public-private partnerships or an infrastructure bank, are widely viewed as having an important role as revenue sources but unlikely being capable of boosting funding significantly in the short run. They also are not without their opponents.

Some lawmakers on Capitol Hill view a VMT tax, for example, as regressive, unfair to rural motorists who generally drive longer distances, and potentially problematic to privacy protections. It also is not ready for immediate application.

Others have concerns that an infrastructure bank, for instance, might benefit primarily larger projects in urban areas. Tolling and use of public-private partnerships have their critics, too. A Senate Finance Committee hearing in May examined various financing options, but no consensus emerged among Committee members.

Despite broader disagreements over funding and financing solutions, the leaders of the two lead authorizing Committees, Rep. John Mica (R-FL), chair of the House Transportation and Infrastructure (T&I) Committee, and Sen. Barbara Boxer (D-CA), chair of the Senate Environment and Public Works Committee, have dedicated this year to drafting legislation and are committed to completing work on a bill before the end of September, when the seventh temporary extension of SAFETEA-LU expires.

Most observers believe that a bill needs to be completed before then to have much chance of getting done. Otherwise, it is likely to be hung up in the politics of the presidential campaign season, widely expected to gain momentum after the end of Congress’s August recess, and stall.

As Mica was writing his bill this spring, he kept silent about its details, saying he intended to release a draft by sometime in June. But since becoming T&I Committee Chair in January, he has been clear on one condition, his unwavering opposition to increasing motor fuel taxes. He also has pointed out there are no new resources to increase spending from the Highway Trust Fund, the source of most federal funding for roads and bridges. His bill is expected to contain less funding than the $500 billion measure former House T&I Committee Chair James Oberstar (D-MN) proposed in 2009.

Instead of details, Mica has discussed four guiding principles for his legislation: (1) stabilize the Federal Highway Trust Fund—spending authorized in the bill will not exceed receipts into the Trust Fund; (2) free up unspent money—supplement Trust Fund spending with unobligated funds in the federal surface transportation program; (3) use public-private partnerships and alternative financing mechanisms—the legislation will encourage private investment in transportation and expand and improve current programs that provide loan assistance such as the Transportation Innovation and Finance Act (TIFIA), a program providing federal credit assistance, and Build America Bonds; and (4) streamline and accelerate project delivery—the bill will include ways to reduce the time it takes to deliver projects, saving time and money.

Similarly, Boxer has indicated her bill will utilize existing resources of the Highway Trust Fund and other mechanisms such as TIFIA, an infrastructure bank and programs modeled after Build America Bonds.

In late May, she was joined by Senate Environment and Public Works Committee Ranking Member James Inhofe (R-OK), Transportation and Infrastructure Subcommittee Chairman Max Baucus (D-MT), and Subcommittee Ranking Member David Vitter (R-LA) in releasing a framework for a Senate
bill they are calling, Moving Ahead for Progress in the 21st Century, MAP-21. The framework calls for funding programs at current levels plus an inflation factor, $339.2 billion over six years, averaging $56.5 billion annually. Highlights include eliminating earmarks, consolidating programs, expediting project delivery and expanding TIFIA.

Both Boxer and Mica’s approaches reflect the prevailing mood in Congress to do more with less, but pressure for a robustly funded multi-year bill remains strong nevertheless. The Obama Administration has not released an official reauthorization proposal, but as part of its fiscal year 2012 budget request outlined a set of broad recommendations, a blueprint for a six-year $556 billion bill that includes $336 billion for roads and bridges, $119 billion for transit and $53 billion for high-speed rail.

Under its plan, the Administration would expand the current Highway Trust Fund into a new Transportation Trust Fund with four accounts: (1) highway, (2) transit, (3) high-speed passenger rail, and (4) national infrastructure bank. The proposal does not identify revenue sources for the new Transportation Trust Fund. Instead the Administration says it will work with Congress to ensure its plan is fully paid for without increasing the deficit. Current revenue streams will not cover the plan’s proposed spending.

The Administration’s plan also calls for consolidating 55 highway programs into five core programs—Highway Safety Improvement Program; National Highway Program; Livable Communities Program; Federal Allocation Program (for Federal and tribal lands); and Research, Technology and Education Program—and merges five transit programs into one state of good repair program and one specialized transportation program. It establishes an infrastructure bank, funded at $30 billion over six years, which would work with credit markets and private sector investors to leverage resources and finance projects of national or regional significance.

An unofficial draft of the Administration’s proposal, written in legislative language, began circulating on Capitol Hill this spring, but the Administration would not comment on it or validate it. The draft included a $69 billion obligation ceiling for the highway program in 2012, but left funding levels for subsequent years blank.

Like the uncertainty for the future suggested by the blank funding levels, no one can say with certainty what to expect for reauthorization. Sen. Baucus, who in addition to chairing the Transportation and Infrastructure Subcommittee also chairs the Senate Finance Committee, will write the Senate bill’s finance title. He has suggested the possibility of a two-year measure, rather than the conventional six-year bill, as a way to pass authorizing legislation before the latest extension expires. Sen. Boxer says a two-year bill is part of the mix. This would allow Congress to postpone decisions about long-term financing options until after 2012 and the presidential campaign season.

Jim Fahey is the legislative staff liaison to the APWA Transportation Committee. He can be reached at (202) 218-6730 or jfahey@apwa.net.
Transportation Committee: Keeping our members updated on transportation-related topics

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

Are our pavements sustainable? Do our street designs meet the new AASHTO green book criteria? Are we using the best methods to maintain our infrastructure? If you have been asked these or similar questions, then chances are you are a member of the largest interest area within the American Public Works Association: Transportation! Sustainability, funding issues, design criteria, and much more are supported by the dedicated members of APWA's Transportation Committee.

The committee members, all volunteers and experts in the many fields related to transportation, provide members with resources for developing and exchanging ideas, knowledge and cutting-edge technologies. Through activities such as articles in this issue of the APWA Reporter, postings on the Transportation infoNOW Community, presentation of sessions at Congress, and partnerships with other organizations, the committee provides easily accessible, up-to-date information on current transportation-related topics. They also develop and advocate environmentally sound, sustainable, cost-effective, and safe systems that enhance the livability and quality of life in our communities. This year the committee members helped to develop the Click, Listen & Learn Programs, “MUTCD Changes Every Local Agency Needs To Know” and “Lessons Learned From Extreme Winter Events.” In September the committee will sponsor four sessions during Congress in Denver, Colorado:

• Crafting a Comprehensive Winter Operations Plan and Manual
• What’s Most Important to the Public? – Developing a Strategic Plan for Kansas City’s Street and Traffic Division
• The New AASHTO Green Book – What’s New in Geometric Design?
• Winter Weather – How Do You Budget for the Unbudgetable?

Partnering with the Federal Highway Administration (FHWA), the Transportation Committee distributes information to members about “Market Ready Technologies” produced by the FHWA Research and Technology Team. Working with the Institute of Transportation Engineers (ITE) on transportation issues and projects, including the National Transportation Operations Coalition (NTOC), the committee participates in short-term projects. This March the committee met with FHWA to begin mapping out potential new areas of cooperation. The areas identified were:

• Sustainability
• Performance Management
• LPA Project Delivery
• Local and Tribal Technical Assistance
• MUTCD
• Safety

If you have considered participating in APWA on a national level, you may be interested in serving on one of the three active transportation subcommittees. The subcommittees are:

• Roadway Safety – The subcommittee focuses on ways of reducing accidents and eliminating roadway hazards through cost-effective solutions. The subcommittee is presenting “Toward Zero Deaths – A Comprehensive Roadway Safety Initiative” at Congress this year.

• Sustainable Transportation – This subcommittee looks at completing streets, context-sensitive design, minimizing impacts, and green street design. This year at Congress the subcommittee is presenting “Electric Vehicles: Charging Up Your Sustainable Transportation Network” and “Recycled Materials in Construction – Divert that Waste Stream!”

• Winter Maintenance – The oldest of the subcommittees, winter maintenance focuses on all issues related to snow and ice. Each year, the subcommittee supports the educational sessions of the North American Snow Conference and also participates with other national organizations. This year the subcommittee launched the first-ever “Winter Maintenance Supervisor Certificate Program.” The committee will also be presenting two winter maintenance educational sessions in Denver this fall.

All of the subcommittees are open to new members. Interested members may ask to join at any time and are not part of the annual nomination process. The staff liaison may be contacted for more information.

Members of APWA’s Transportation Technical Committee include:

• Debbie Hale (Chair), Executive Director, Transportation Agency for Monterey County, California
• John T. Davis, P.E., Chief Engineer, Jacksonville Transportation Authority, Jacksonville, Florida
• Bo Mills, Director of Public Works, City of Germantown, Tennessee
• Farhad Moghimi, Public Works Director, City of Sahuarita, Arizona
• Craig Olson, P.E., Public Works Director/City Engineer, City of Clyde Hill, Washington
• Jeff Ramsey, P.E., Public Works Director, City of Auburn, Georgia

Susan M. Hann, P.E., AICP, ICMA-CM, Deputy City Manager, City of Palm Bay, Florida, serves as the committee’s liaison to the APWA Board of Directors through her role as Director-at-Large for Transportation. Carol Estes, P.E., is the staff liaison.

Carol Estes serves as the liaison to three of APWA’s Technical Committees: Engineering and Technology, Transportation, and Utility & Public Right-of-Way. She also serves as the point of contact for seven subcommittees: Winter Maintenance, Road Safety, Sustainable Communities, Right-of-Way Management, Construction Practices, GIROW, and One-Call Systems. She can be reached at (816) 595-5222 or cestes@apwa.net.

Your Vote In APWA Does Count

As an APWA member, you will have the opportunity to vote for members of the APWA Board of Directors between July 29 and August 26, 2011:

• APWA President-Elect;
• One At-Large Director in the functional area of Fleet and Facilities; and
• Regions I, II, V, VI, and VIII Regional Directors (by APWA members in those respective regions).

The ballot will be available for online voting between July 29 and August 26, 2011 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 should be able to access the APWA website online at your local public library. If you cannot vote online, you can call (800) 848-APWA (2792) to request a paper ballot. Additional reminders of the voting process will be sent through the infoNOW Communities; through an 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 call the APWA headquarters office at (800) 848-APWA (2792) or visit www.apwa.net.
Full Throttle: How to supercharge your energy and performance at work

Gregg Steinberg, Ph.D.
Author and Expert on Human Performance
Keynote Speaker, 2011 APWA Congress

Editor’s Note: Gregg Steinberg will be a Keynote Speaker at APWA’s 2011 International Public Works Congress & Exposition in Denver, Colorado. His presentation is entitled “Full Throttle: How to Supercharge Your Energy and Performance at Work” and takes place at the Closing General Session on Wednesday, September 21. For more information on our upcoming Congress, please visit our website at http://sites.apwa.net/congress/2011/home.aspx.

Have you ever wondered how great athletes raise their game under pressure?

How can Koby Bryant play his best in the last three minutes of an NBA play-off game?

How does Roger Federer hit ace after ace in the final set at Wimbledon?

The answer is that they raise their game by falling back into their prime emotional state. In my 20 years working with professional athletes and successful people in the business arena, I have discovered this key principle. More importantly, I have created a methodology so that you can be at your best under stressful conditions. My methodology is so simple, yet so powerful and it will work for you.

Given the economic downturn, budgets are tighter. The infrastructure of our country is wearing out and this puts a tremendous amount of stress on your job in public works. However, you can raise your game and be at your best under intense stress when you use my methodology.

While I am going to go into much more detail about my methodology at your national conference in Denver this September, this article will illustrate the powerful simplicity of my method.

My method involves three simple principles:

1. You need to be aware of your prime emotional state. This is when you have been at your best in a stressful situation.
2. You need to prepare to make your prime emotional state your habit.
3. We go to our habits under pressure; thus, when your prime emotional state becomes a habit, you will rise to the occasion under pressure.

Let me explain my method in more detail:

First, recall a prime emotional state. This was a time when you were at your very best under a stressful situation. Perhaps it was when you had to deal with an irate city manager, yet you quelled his irritation. Or, you were not initially motivated to do a difficult and demanding job, but once you started you were in the flow and completely enjoying it.

Now, answer these questions about your prime emotional state. (These answers help bring clarity to this state).

1. Was your confidence….high, medium, or low?
2. Was your level of nervousness….high, medium or low?
3. Was your energy level….high, medium or low?
4. Was your enjoyment level….high, medium or low?
5. Were you thinking or just reacting?

Second, you need to make this prime emotional state a habit. You can do this in two easy steps. The first step is to create a buzzword or words that capture the emotions of your prime emotional state. Examples of buzzwords are “Relentless” or “Intense fire” or “Supercharged energy.” Now, post your buzzword(s) all over your house. Put your buzzwords on your nightstand, on your fridge and on your steering wheel. Also post your buzzword(s) at your office and on your computer. The key, however, is when you look at your buzzword(s), they remind you and bring up those effective emotions related to your prime emotional state.

The next step in making your prime emotional state a habit is with visualization. I want you to visualize your prime emotional state, at least once a day. Also, for a behavioral anchor, I want you to touch your chest when you visualize this “best” state.

After you have worked with your buzzwords and used your visualization (this takes at least a few weeks), your prime emotional state will become your habit. Also, when you feel a stressful situation arising, say your buzzword(s), visualize your prime emotional state, touch your chest, and watch how those key effective emotions appear. When you prepare yourself in this way, you will raise your game when the stress comes to your job.

See you in Denver!

Hailed by Golf Digest as one of the sport’s great masterminds, Dr. Gregg Steinberg is a world-renowned expert on human performance. He has authored numerous books on topics ranging from golf psychology to parenting, to his newly-released Full Throttle which deals with work performance. Visit his website at www.drgreggsteinberg.com.
KEYNOTE SPEAKERS

GREGG STEINBERG
Sports Psychologist, Professor of Human Performance
Full Throttle: How to Supercharge Your Energy and Performance at Work

STEVEN BERLIN JOHNSON
Best-Selling Author, Social Critic, and Technologist
Creativity and the Brain—Where Do Great Ideas Come From?

Ian Hill
Public Sector Champion
Becoming a Community Builder—Leadership in Changing Times

MICHAEL HAYDEN
Retired Four-Star General, Former Director of CIA
Crisis Management in Complex Organizations

STEVEN BERLIN JOHNSON
Best-Selling Author, Social Critic, and Technologist
Creativity and the Brain—Where Do Great Ideas Come From?

GREGG STEINBERG
Sports Psychologist, Professor of Human Performance
Full Throttle: How to Supercharge Your Energy and Performance at Work
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Innovative Solutions
Inspiring and Motivating Keynotes
Outstanding Education
Great Networking Opportunities

and introducing The EXPO EXPERIENCE

It's all here to help you ELEVATE your community!

Register today and join the largest gathering of public works professionals in North America September 18-21 in Denver, Colorado! www.apwa.net/congress
PART 1: FULL CONGRESS WEEK REGISTRATION  
Register for a full week of Congress & Exposition below. Otherwise, skip Part 1 and go to Part 2.

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<td>(N) Full Nonmember Registration</td>
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PART 2: WORKSHOP WEDNESDAY AND PUBLIC WORKS STORMWATER SUMMIT

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

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PART 3: DAILY EDUCATION SESSIONS AND EXPOSITION

If you would like to attend the education sessions and exposition by the day, please mark which day(s) you are registering for below.

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PART 4: DAILY EXPO ONLY

If you would like to attend the exposition only for one day, please mark which day you will attend.

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PART 5: CONGRESS EVENTS

Complete your Congress experience with these special events. (Additional fees apply to all registration categories.)

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<td>(AAEB) TUESDAY AAEE Breakfast</td>
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<td>(TDB) TUESDAY Diversity Brunch</td>
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To register for workshops and events not listed on this form please visit www.apwa.net/congress or call 816-472-6100.
THIS PRE-REGISTRATION FORM IS GOOD ONLY UNTIL SEPTEMBER 9, 2011. No pre-registration forms will be accepted after September 9, 2011. After September 9, registrations will be accepted onsite only. Onsite registration will begin Saturday, September 17, 2011. Please note: No government vouchers or purchase orders will be accepted onsite. This form must be completed and returned with full payment before your registration can be processed. Please complete a separate registration form for each Congress participant.

CANCELLATIONS: If your plans change and you cannot attend the program, a colleague can attend in your place—just send us a fax or letter. Cancellations and requests for refunds must be in writing. A full refund, less a $50 administration fee, will be made if written notice is postmarked by August 10, 2011. Sorry, no refunds on registration fees or tickets will be issued after August 10, 2011 or for an amount less than $50. Refunds will be processed within 30 days after Congress. Please send your cancellation and/or refund request to cancellations@apwa.net, or fax to 816-595-5342.

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

PHOTOGRAPHS: I agree and acknowledge that APWA plans to take photographs at the APWA Congress & Exposition and reproduce them in APWA educational, news or promotional material, whether in print, electronic or other media, including the APWA website. By participating in the APWA Congress & Exposition I grant APWA the right to use my name, photograph and biography for such purposes. I am aware this is a release of liability and rights of use related to photographs; a contract between myself and the APWA. I have read, understand and agree to these terms and am entering into this agreement on my own free will.

SATISFACTION GUARANTEED! The Educational Program at Congress is designed to meet or exceed your expectations. If it doesn’t, write to the Executive Director of APWA, 2345 Grand Blvd., Suite 700, Kansas City, MO 64108, within one week of the program, help us understand where we went wrong, and we’ll set things right with you. Guaranteed!

B DEMOGRAPHICS

Is this your first Congress?  
☐ (1) Yes  ☐ (2) No

For whom do you work?  
☐ (1) Public Agency  
☐ (2) Private Industry

Please mark all areas you have responsibility for:  
☐ (1) Construction  
☐ (2) Engineering Management  
☐ (3) Engineering & Technology  
☐ (4) Environment/Sustainability  
☐ (5) Facilities & Grounds  
☐ (6) Fleet Services  
☐ (7) Leadership & Management  
☐ (8) Solid Waste  
☐ (9) Sustainability  
☐ (10) Transportation  
☐ (11) Utility & Right of Way  
☐ (12) Water & Sewers  
☐ (13) Winter Maintenance

What is your job title?  
☐ (1) Public Works Director  
☐ (2) Engineer (Director, City/Principal)  
☐ (3) Deputy/Assistant Public Works Director  
☐ (4) Deputy/Assistant Engineer  
☐ (5) Department Head/Division Chief  
☐ (6) Administration  
☐ (7) Administrative Assistant/Manager  
☐ (8) City Manager  
☐ (9) Other

What is your role in the purchase of public works equipment and/or services?  
☐ (1) Final say  
☐ (2) Recommend  
☐ (3) Influence  
☐ (4) Specify  
☐ (5) None

How large is your budget for purchases of equipment and/or services?  
☐ (1) Under $50,000  
☐ (2) $50,001 – 100,000  
☐ (3) $100,001 – 500,000  
☐ (4) $500,001 – 1,000,000  
☐ (5) Over $1,000,000

What is the population of your jurisdiction?  
☐ (1) Less than 25,000  
☐ (2) 25,001 – 50,000  
☐ (3) 51,001 – 100,000  
☐ (4) 101,001 – 250,000  
☐ (5) Over 250,000

Please let us know your gender  
☐ (1) Male  ☐ (2) Female

Please let us know what year you were born (Example: 1967)  
☐ (1)

How did you hear about Congress?  
☐ (1) Congress Preview  
☐ (2) APWA Reporter Magazine Ad  
☐ (3) Industry Magazine Ad  
☐ (4) APWA Website  
☐ (5) E-mail  
☐ (6) Referred by someone  
☐ (7) You are a previous attendee

C attendee information

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

APWA membership ID#  
(Call 1-800-848-APWA to obtain your membership number if you don’t know it)  
Badge Nickname  
(e.g., Dave, Jen, “Doc,” “Smiley,” etc.)

D payment

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

TOTAL FROM PAGE 1: $__________________

☐ Check #________________________ enclosed (Made payable to APWA)
☐ Government Voucher or Purchase Order #__________ (PO MUST be included with registration form)
☐ Credit Card (check one):  
☐ Visa  ☐ MasterCard  ☐ American Express

Card Number  
Expiration Date

Print name as it appears on the card

MAIL completed registration form with payment to:  
American Public Works Association  
PO Box 843742  
Kansas City, MO 64184-3742

APWA's Federal ID # is 36-220-2880.

FAX (or e-mail apwa@xpressreg.net.

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MAIL credit card payments to:  
508-743-9613

American Public Works Association

508-743-8540, Monday – Friday, 9 a.m. – 5 p.m. EST, or e-mail apwa@xpressreg.net.

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Denver in pictures

On these pages you’ll see just a few of Denver’s attractions you can visit before, during and after your Congress experience. For more information on each of these attractions, log on to the “Visit Denver” site at www.visitdenver.com. For more information on Congress and to register online, go to http://sites.apwa.net/congress/2011/home.aspx. Why not combine business with pleasure and incorporate your Congress trip into your vacation plans?

The Denver Botanic Gardens, located in the Cheesman Park neighborhood, features North America’s largest collection of plants from cold temperate climates around the world, as well as seven diverse gardens that mostly include plants from Colorado and neighboring states. The world’s first Xeriscape Demonstration Garden was created at the Gardens in 1986, and two years later its name was changed to Dryland Mesa. It was based on the “Seven Principles” of Xeriscape, and includes drought-tolerant plants from the arid West and Mediterranean areas. The Japanese Garden is called Shofu-en, or the Garden of Wind and Pines. (Photo credit: Scott Dressler-Marlin and VISIT DENVER)

The Denver Pavilions, a one-of-a-kind retail/entertainment center, opened November 5, 1998, in the heart of downtown Denver on the 16th Street Mall, providing a “critical mass” of 40 retail tenants, restaurants and entertainment venues. The open-air Pavilions features three-story buildings on a two-block development that is linked by “The Great Wall,” an interior structure featuring the word “DENVER,” which has become the worldwide symbol of downtown Denver. (Photo credit: Steve Crecelius and VISIT DENVER)

The Molly Brown House Museum is a house located at 1340 Pennsylvania Street in Denver that was the home of American philanthropist, socialite and activist Margaret Brown. Brown was known as “The Unsinkable Molly Brown” because she survived the sinking of the RMS Titanic. The museum now located in her former home presents exhibits interpreting her life and that of Victorian Denver as well as architectural preservation. The house was built in the 1880s by architect William A. Lang, incorporating several popular styles of the period, including Queen Anne Style architecture. (Photo credit: The Molly Brown House and VISIT DENVER)
Congress attendees might want to spend an extra day or two in Colorado to visit the Rocky Mountains. Pictured is Mount Evans, a mountain in the Front Range region of the Rockies in Clear Creek County. It is one of 54 fourteeners (mountains with peaks over 14,000 feet) in Colorado, and the closest fourteener to Denver. It is often compared to Pikes Peak—another Front Range fourteener—which it exceeds in elevation by 154 feet. (Photo credit: Rich Grant and VISIT DENVER)

Convention-goers bustle past the Big Blue Bear at the Colorado Convention Center, where APWA will have our annual International Public Works Congress & Exposition in September. The Colorado Convention Center is among the landmarks of Denver and is central to many other downtown attractions including the 16th Street Mall, the Denver Pavilions, the LoDo (Lower Downtown) district, the Pepsi Center (home of the Colorado Avalanche, Denver Nuggets, Colorado Crush and the Colorado Mammoth), Coors Field (home of the Colorado Rockies), Denver’s Downtown Aquarium, Elitch Gardens amusement park, and the Denver Botanic Gardens. (Photo credit: Steve Crecelius and VISIT DENVER)

The Colorado Railroad Museum is located on 15 acres at a point where Clear Creek flows between North and South Table Mountains in Golden, Colorado (only 12 miles west of Denver). The museum building, a replica of an 1880s-style depot, houses thousands of rare old photographs, artifacts and documents illustrating the histories of the railroads which have served the state for over 125 years. The museum has a large collection of narrow gauge rolling stock, and provides narrow gauge train rides on special event days known as “Steam Up Days.” The museum also runs one of the three Geese motorcars on Saturdays. (Photo credit: Rich Grant and VISIT DENVER)
Great partnerships make great conferences!

Phyllis Muder, Continuing Education Project Manager, American Public Works Association, Kansas City, Missouri
Jay A. Wells, Maintenance & Operations Superintendent, Washington Department of Transportation, Olympia, Washington

It is amazing what can happen when two organizations come together to communicate. That seed sprouted this year’s APWA and Pacific Northwest Snowfighters Snow Conference partnership.

Both groups hold conferences that strive to educate participants on how to make winter travel safer and more efficient, while providing an avenue for the vendor community to highlight their manufacturing and marketing components. The partnership for this year’s North American Snow Conference in Spokane, Wash., allowed both organizations to build upon their past efforts. Focus was given to techniques that enhance public safety and provide year-round access to the transportation network, which is typically the economic lifeblood of most states, while working together to find common solutions to the universal problems we all face.

One of the more difficult aspects of winter maintenance is sharing what you have learned, being made aware of what you do not know and finding sources of information to help bridge the gap. Within a transportation agency, this is no small undertaking. Spread across North America the job becomes daunting.

For the past several years, the vision behind both groups’ conferences has been to bridge the knowledge gap in innovative winter maintenance practices and to exchange information to expand our collective knowledge. The formats have evolved since the beginning conferences, but the focus has always been on communication and information sharing.

The 2011 APWA North American Snow & Pacific Northwest Snowfighters Conference theme was sustainability. The combined event featured educational sessions, panel discussions, and workshops delivered by leaders in winter maintenance. The technical programs were applicable to field-level operators, first-line supervisors as well as program managers. The trade show hosted everything from innovative new equipment and technology to groundbreaking new products and services focused on snow and ice removal in winter operations.

The conference started with the pilot of APWA’s newly-launched Winter Maintenance Supervisor Certificate program on Sunday (see related article on page 22). The response was overwhelming with 218 individuals receiving the first Winter Maintenance Supervisor Certificate. The program was deemed a success and plans are being made to hold this in conjunction with the APWA Rocky Mountain Chapter’s Snow & Ice Conference and Roadeo in Estes Park, Colo., in September and again as part of the opening day activities at next year’s APWA North American Snow Conference in Milwaukee, Wis.

Not everyone who attended the conference on Sunday went to the certificate
program. The other half of Sunday’s attendees attended the six educational sessions on Sunday afternoon with topics ranging from “How to Pick a Private Weather Service” to “How to Decide the Best Training for Your Agency.”

At the Opening General Session, folks were welcomed with opening remarks from Mayor Mary Verner of the City of Spokane followed by first-time Snow Conference attendee and APWA President-Elect Diane Linderman. Jill Marilley, who is the APWA Washington Chapter President from Shoreline, Wash., Dave Mandyke, the Host Committee Chair from the City of Spokane, and PNS Representative Ron Wright from the Idaho Transportation Department in Boise, Idaho, also welcomed the group to Spokane and the conference.

The three winners of the Excellence in Snow and Ice Control Award proudly accepted their award plaques from President-Elect Linderman (see photo on p. 18). The award was established to promote excellence in the management and administration of public works snow and ice operations. This year’s winners were the Department of Public Works, City of Farmington Hills, Mich.; the Highway Department from the Town of Orangetown, N.Y.; and the Department of Public Works and Parks, City of Worcester, Mass.

Once the formalities were finished, Keynote Speaker Al Walker took the stage. His keynote was entertaining with enlightening stories and insights providing the basis of his simple message—attitude matters. “You need to be curious about life and not be complacent about what is out there,” Walker told the attendees. With smiles on their faces, the conference attendees headed for the Meet and Greet at the Exhibit Hall Opening.

The open floor plan provided an inviting draw to an exhibit floor packed with new equipment, products and technologies from 131 companies (see photo on p. 20). For the first time at a Snow Conference, exhibitor showcase sessions were offered. Throughout the day on Monday and Tuesday, experts from exhibiting companies provided information on innovative technologies and new products to attendees on the floor. The post-conference survey indicated that 97% of the attendees thought the exhibit floor had a good variety of equipment, products and services relevant to their agencies.

Monday morning started in the ballroom with the ever-popular General Session Talk Show. The theme this year was Winter Maintenance Practices and Sustainability. Host Wilf Nixon, P.E., University of Iowa, provided some early morning comedy with his cowboy hat and sunglasses and a personalized explanation of sustainability. The pan-

If you manage public roadways, you have to be prepared to manage vegetation. And chances are, the Asplundh Highway Division can do it more efficiently, effectively and safely at a lower cost. No other vegetation management company can offer our unique combination of experience, training, equipment and technology. Let Asplundh manage the vegetation – while you manage your operation.
el of experts had representation from the Pacific Northwest Snowfighters with Monty Mills who is the Maintenance Program Manager for the Washington DOT out of Olympia, Wash. Mike Coffey, who is the Statewide Maintenance and Operations Chief for the Alaska Dept of Transportation & Public Facilities in Juneau, Alaska, represented the Pacific Northwest. Dominic Guthrie, who is the Senior Coordinator of Emergency and Winter Operations with the City of Toronto’s Transportation Services Division Transportation Services, represented Canada. After each speaker provided a brief overview of their areas of responsibilities and the challenges they face with sustainable winter maintenance practices, Wilf opened the floor up for questions. With more questions than time, the session passed quickly. Luckily, the experts were available for follow-up throughout the conference.

Monday continued with coffee breaks on the exhibit floor and a full slate of educational sessions. The program selection committee decided to include fleet-focused educational sessions at this year’s conference to reach out to the fleet community and to see if there was interest. Jeffrey Tews’ (CPFP, Fleet Operations Manager, City of Milwaukee, Wis.) “Best Maintenance Practices for Snow Fleets – Before, During and After the Snow” session proved that assumption with a standing-room-only crowd and a number of participants listing it as their favorite session.

Other favorites from Monday include “The Impact of Climate Change on Highways and Airport Maintenance in Alaska” presented by Mike Coffey, Statewide Maintenance and Operations Chief, Alaska Department of Transportation & Public Facilities, Juneau, Alaska and “The Use of Liquids in Winter Operations – 35 Years of History” presented by (John) Paul Johnson, CST, CET Operations Manager, County of Wellington, Guelph, Ontario.

Monday’s roundtable sessions provided intimate networking opportunities based on nine topics of interest. These included the use of weather reporting, situational readiness and emergency operations, sidewalks, privatization and use of contractors, liquid usage, strategic plan for winter maintenance research (nchrp project 20-07-task 287), operator's best management practices and lessons learned, social media and public works, dealing with an aging workforce and fleet.

Participants were welcomed to a full slate of educational sessions on Tuesday. Some of the more popular sessions in the morning were: “5 Phases of Snow Removal – How the City of Chicago Handles Winter Storms” (Robert Richardson, Dept. of Streets & Sanitation, City of Chicago, Ill.), “Environmental Impacts of a Chemical Program” (James Morin, Roadside Vegetation Maintenance Program Manager, WSDOT, Ellensburg, Wash.), and “Deicing Liquid Selection and Application” (Jason Bagley, Business Director – Specialty Products, North American Salt/Sifto, Overland Park, Kans., and Dan Williams, Maintenance Reviewer, Montana DOT, Helena, Mont.).

After lunch on the exhibit floor, the attendees went back for more education. The popular sessions on Tuesday after-
noon included: “Lessons Learned From Severe Winter Events” (William P. Kennedy, Senior Engineer – Street Maintenance Division, Public Works, City & County of Denver, Colo., and Robert L. Marsili, Jr., Citywide Program Manager, District Department of Transportation, Washington, D.C.) and “The World of Winter Maintenance” (R. Mark DeVries, Superintendent, McHenry County Division of Transportation, Woodstock, Ill.; Mark Dutton, Managing Director, Safecote Limited, Cheshire, United Kingdom; and Bret Hodne, Public Works Director, City of West Des Moines, Iowa).

Tuesday closed out with the Closing General Sessions speaker: Grant Goodeve of TV fame who showed highlights of his show “Northwest Backroads” and the conference banquet. The banquet featured local delicacies such as northwest lentil stew, seared Pacific salmon with a huckleberry beurre blanc and grilled pork loin with a dark cherry sauce. With full bellies, the audience was then thoroughly entertained by actor Tim Behrens animating the stories of humorist and Pacific Northwest native Patrick McManus.

Wednesday provided the opportunity to go on the technical tours, which included a visit to the City of Spokane’s liquid deicer storage facility, one of the WSDOT salt brine manufacturing facilities, and the City of Spokane’s operations yard.

Next year’s conference will be hosted by the APWA Wisconsin Chapter at the Frontier Airlines Convention Center in Milwaukee, Wis., from April 29 through May 2. The call for presentations is now open and we are looking for speakers willing to share their expertise. Go to the APWA website for more details on how to submit. If you are hesitant about presenting or attending the conference, see what our speakers and attendees say:

Bret Hodne, Public Works Director, City of West Des Moines, Iowa: “This was one of the best I have attended for overall quality. The facility, education-al sessions and vendor displays were all topnotch. I heard many comments from attendees who had not had an opportunity to attend a Snow Conference before ask, ‘When can we get another one out here?’”

Mike Coffey, Statewide Maintenance and Operations Chief, Alaska Department of Transportation and Public Facilities, Juneau, Alaska: “One of the best, most productive conferences I have ever been to. The sessions were truly educational and the contacts I made at the conference are already paying dividends for my department. This was my first APWA conference but won’t be my last. I was so impressed, as soon as I returned to Alaska, I became a member of APWA.”

Diane Linderman, APWA President-Elect and Director, Urban Infrastructure & Development Services, Vanasse Hangen Brustlin, Inc., Richmond, Va.: “First—the staff, as usual, have done a great job! Second—the Winter Maintenance Subcommittee’s support in putting this conference on is beyond quantifiable. The passion of this group is so high and they are so committed to making this conference even better. Last, but not least, the public works professionals who attended are terrific folks. I got to meet a lot of new friends and enjoyed chatting with old friends.”

Don Purchase, Manager of Operations, London, Ontario: “I would like to thank you for the opportunity for letting us present at this year’s APWA Snow Conference. We had never done a presentation before, but being able to talk about our operation with peers from all over North America was a great opportunity. If you need people to moderate any of the roundtable sessions for the 2012 APWA Snow Conference, I am willing to help. The conferences are great and if I can help in any way to continue in their success please let me know.”

These comments were from random attendees: “APWA and PNS, I would like you both to know what a great job you did on the conference. It was very good and relevant to our work. I cannot imagine the amount of time it took and the worry that it would all turn out. The trade show part was very good; everything was there. I learned some things and picked up on areas we need to spend time thinking about and working on.”

“I think the facilities were exceptional. Volunteer committee did a fabulous job, well organized and always knew where to go and what time. Well done!”

“Liked it. Liked the facility. Good range of subject matter. Fantastic networking opportunities.”

“Collaboration: Outstanding!”

A final thank-you to the Pacific Northwest Snowfighters, the APWA Washington State Chapter, the City of Spokane, and all the speakers and moderators for all the work you did to make this conference a success.

See you all in Milwaukee!

Phyllis Muder can be reached at (816) 595-5211 or pmuder@apwa.net; Jay Wells can be reached at (360) 705-7863 or wellsj@wsdot.wa.gov.

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Winter Maintenance Supervisor Workshop at the Snow Conference

Phyllis Muder
Continuing Education Project Manager
American Public Works Association
Kansas City, Missouri

The APWA Winter Maintenance Supervisor Workshop was piloted at the APWA North American Snow & Pacific Northwest Snowfighters Conference in Spokane, Washington. The APWA Winter Maintenance Subcommittee had been discussing the need for additional training for the past five years. Discussion fluctuated between pursuing a certificate program for training new supervisors or working on a certification process to verify the supervisor’s core level of knowledge.

The committee decided to start with a certificate program to see if there was interest in the topic. The response at the conference was overwhelming. The committee had hoped that the workshop would attract 50 participants but in actuality, the attendance had to be closed at 218 due to seating capacity in the room.

The workshop was designed to provide a well-rounded overview of all aspects of snow and ice control that a winter maintenance supervisor needs to consider. We wanted the participants to be able to expand their knowledge of planning and preparation, increase their understanding of winter weather as well as learn how to better use traditional and alternative chemicals, improve the training of their teams and enhance communications with the public. This ultimately would result in more effective, efficient, equitable and environmentally friendly snow and ice control. The workshop was presented by a team of twelve experts in the field of winter maintenance from both the U.S. and Canada.

Dave Bergner, former Superintendent of Public Works, City of Overland Park, Kansas, and Paul Johnson, Operations Manager, County of Wellington, Ontario, started the program with an overview of policies and procedures with specific focus on the critical information needed to develop a written winter maintenance plan. This included:

- **Policies** – Statutes, ordinances establishing the reason, responsibility and authority (the “Why”)
- **Protocols** – Levels of Service (LOS); generally desired outcome within a period of time under typical conditions (the “What”)
- **Procedures** – Details for specific tasks or activities (the “How”)
- **Processes** – Methods, materials and machinery to be used depending upon particular circumstances (the “When and With”)
- **Positions and People** – Defines the organizational structure and identifies the number, classification, responsibilities and requirements for personnel (the “Who”)

The second segment of the certificate program, presented by Jon Tarleton, Roads Marketing Manager for Vaisala, and Warren Nicholishen, Roads Coordinator for the Regional Municipality of Durham, Ontario, provided an overview of winter weather. The goal of this section was to have the participants come out of the session with a better understanding of weather terminology so they could get the most out of the weather forecasts and observations. Attention was given to being able to predict, analyze, and identify the changes in a storm’s progress, which would require different strategies to reduce driving hazards, utilize equipment, material, and labor efficiently. The participants learned how to apply technologies in an effective and timely manner now and for future planning...
with specific attention given to the role of pavement temperature and the benefits of Clarus and RWIS (Road Weather Information Systems).

After weather, the focus was on materials. The learning objectives of this session were to explain why chemicals are used in winter highway maintenance and to describe the factors to be considered in selecting materials in winter maintenance. There was a focus on the environmental impacts of the use and non-use of materials in winter maintenance as well as how to determine the appropriate storage and handling methods for these snow and ice control materials. This was the longest section and was presented by Duane (Dewey) Amsler, President, AFM Engineering Services, Slingerlands, N.Y.; Dr. Wilfrid A. Nixon, P.E., Ph.D., Professor at the University of Iowa; and John Klosterman, Street/Sewer Maintenance Superintendent for the City of Dubuque, Iowa.

Since winter maintenance cannot be done without machines, the next section focused on equipment and fleet. This was co-presented by John Scharffbillig, Director, Public Works Fleet Services, City of Minneapolis, and William (Pat) Kennedy, Senior Engineer - Street Maintenance Division, Public Works, City & County of Denver, Colo. The intent of this session was to examine how to use the equipment available to meet the level of service requirements for their organization. This included discussion of the various types of snowplows such as one way, v-plow, underbody, ice blade, and wing as well as the other equipment used in the fleet such as trucks, light trucks, graders, loaders and snow blowers. Emphasis was placed on why and how plows and blades are selected to accommodate different applications/conditions, meet LOS, operate in the required area and achieve the desired performance. This session also stressed the importance of equipment inspection, maintenance and cleaning.

After lunch, the focus turned to specific methods for snow and ice control. Bret Hodne, Public Works Director, West Des Moines, Iowa, and Mike Kennedy, Director, Transportation Maintenance & Repair, City of Minneapolis, presented Snow Control. The purpose of this section was to have the participant understand/define/describe the LOS their agency delivers, while reviewing some basic snowfighting standards/procedures and provide a quick review of modern snowfighting technologies such as anti-icing, use of chemical blends, and smart spreading. They stressed the importance of appropriately calibrating equipment for optimal performance and touched on how changing federal regulations affect agencies.

Mark DeVries, Maintenance Superintendent, McHenry County DOT, and Wellington County’s Paul Johnson, presented the final topic—ice control. The goal here was to explain proactive measures used in snow and ice control operations, describe methods such as pre-treatment, anti-icing, deicing and treatment recommendations, discuss the benefits of proper procedures and applications in snow and ice control, and define the appropriate technique needed prior, during and following an event.

Each section was followed by a short quiz to reinforce the primary learning objectives and to test the participant’s retention. The goal of the program was to provide a base level of knowledge for individuals charged with supervising their winter maintenance operations. All of the sections focused on the environmental impacts of the policies and stressed responsible application.

The workshop will next be held in conjunction with the 31st Annual APWA Western Snow and Ice Conference and National Snow Roadeo in Estes Park, Colo., in September 2011 and again in conjunction with the 2012 APWA North American Snow Conference in Milwaukee, Wis., in April 2012.

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

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**APWAReporter 23**

**July 2011**
North America celebrates National Public Works Week

Laura Bynum, Media Affairs and Communications Manager, and Laura Berkey-Ames, Government Affairs Manager, American Public Works Association, Washington, D.C.

This year marks the 51st annual National Public Works Week (NPWW), when communities, citizens and leaders across North America recognize the important contributions of public works professionals and the vital role that public infrastructure, facilities and services play in each community’s quality of life. The 2011 National Public Works Week theme was “Public Works: Serving You and Your Community” and was celebrated from May 15-21.

Since 1960, National Public Works Week observances have included a wide variety of activities, from displays of public works equipment, to high school essay contests, open houses, media events, and civic organization programs, and legislative commemorative resolutions and proclamations. Over the years, U.S. Presidents and Canadian Prime Ministers have also recognized public works with official declarations and proclamations during the annual observance of the week. In 1962, John F. Kennedy signed a Presidential proclamation and other Presidential acknowledgements have included letters from Dwight D. Eisenhower, Lyndon B. Johnson and George W. Bush. Federal government recognition in both the U.S. and Canada has included national proclamations, and congressional resolutions have used the occasion to affirm the value of public works infrastructure, and to recognize the week and the public works professionals who serve the public.

On May 17, 2011, the U.S. Senate recognized NPWW with a resolution, introduced by Senate Environment and Public Works Committee Chairwoman Barbara Boxer (D-CA) and Ranking Member James Inhofe (R-OK). The Senate Resolution, S. Res. 177, recognizes that “the public works infrastructure, facilities, and services are of vital importance to the health, safety, and well-being of the people of the United States,” and acknowledges that “public works infrastructure, facilities and services could not be provided without the dedicated efforts of public works professionals, including engineers and administrators, who represent State and local governments,” and “the public works professionals who design, build, operate and maintain the transportation systems, water infrastructure, wastewater and refuse disposal systems, public buildings, and other structures and facilities that are vital to the people and communities of the United States.”

“On behalf of the public works officials nationwide, APWA applauds Chairwoman Boxer and Sen. Inhofe for introducing and recognizing the vital importance of public works leaders and professionals in local communities through National Public Works Week,” said APWA President George R. Crombie, MPA, BCEE, Senior Faculty Member, Public Works Administration, Norwich University. “National Public Works Week is about honoring the enormous contribution that public works professionals make in serving their communities, in providing and maintaining our transportation, water systems, utilities, emergency response operations and other essential infrastructure. We must understand the role that public infrastructure plays in protecting the environment, improving health and safety, contributing to economic vitality, as well as enhancing the quality of life in every community, now and for the twenty-first century,” Crombie said.

In North America, this year’s celebration of National Public Works Week was commemorated by many proclamations by U.S. state governors, Canadian provincial premiers, mayors and county executives. At last count, APWA received 23 state proclamations, eight Canadian provincial proclamations and nearly 100 municipal proclamations. “The passing of government proclamations and resolutions increases public awareness of the crucial contributions of public works professionals, and helps all of us realize the importance of securing and maintaining the good condition of public infrastructure for the twenty-first century,” APWA Executive Director Peter B. King said. “The week also helps citizens realize that taking care of and making investments in public infrastructure pays off in terms of quality of life, economic development, and jobs. We must address our aging infrastructure now, rather than continue to defer for years down the road.”

NPWW in the U.S.

In the U.S., National Public Works Week celebrations and events were held during the week, and many included educational events for children and other citizens to display how public works services operate “behind the scenes.” In Eugene, Ore., Public Works Day drew more than 1,000 children to explore the city services and equipment that keep the city clean and operating well, such as street sweepers, public works maintenance, parks and open spaces, wastewater, engineering, and the airport. In O’Fallon, Mo., kids had a “field day” on the heavy equip-
ment on display at the Public Works Fair, where they climbed on backhoes, operated mechanical arms on recycling trucks, and played with a real traffic signal. And, in San Francisco, Calif., kids lined up to crawl into a “faux sewer” underground, to illustrate how public works employees have to work in tight spaces, and sometimes in poor conditions.

In Baltimore, Md., the Public Works Director held “Loch Raven Day,” where participants got a look at three raw-water reservoirs, and engineers and watershed personnel told how Loch Raven dam was reconstructed. In Have-lock, N.C., the City Commissioners proclaimed May 15-21 “Public Works Week” and invited guests to lunch on the grounds after the department’s monthly safety meeting. In La Quinta, Calif., the Public Works Department offered cake and punch at their public counter, and used the opportunity to speak with citizens and hand out public information regarding storm drain maintenance, street sweeping and traffic operations and other public works services. They also issued an invitation for students to participate in an annual summer volunteer program, which teaches them about career opportunities in public works.

“Across the U.S. and Canada, the observance of National Public Works Week is received with great local participation and interest within communities,” said King. “Many times citizens don’t realize how much work the public works professionals provide for their communities until they are honored during this special week each year.”

**NPWW in Canada**

NPWW activities in Canada are held in municipalities and by regions across Canada, and public events are held throughout the week. In the Region of Durham, public works staff celebrated NPWW with a free public Open House and tours of the Material Recovery Facility, the Traffic Operations Centre, and the Nonquon River Water Pollution Control Plant. The week also included a free barbeque, a truck and equipment display, recycling tours, waste management education display, and a clown face painter and children’s activities.
In Barrie, ON, the city celebrated with a truck rodeo, which involves a written test, and weaving through barrels, backing into a corral, and putting the plow wing between two metal arms. The city staff also visits classrooms to explain how the public works department operates and talk about safety.

The Canadian Public Works Association (CPWA) promotes National Public Works Week in Canada and encourages municipalities to be involved with the CPWA NPWW Awards Program. Municipalities are encouraged to submit a description of their Public Works Week events for evaluations. The criteria for judging include public outreach, education, staff participation and promoting public works as a career choice.

In Canada, Premiers from British Columbia, Prince Edward Island, Manitoba, Alberta, Nova Scotia, Saskatchewan and Ontario signed provincial proclamations commemorating the week as “National Public Works Week.” The Right Honourable Stephen Harper, Prime Minister of Canada, also sent his formal greetings celebrating National Public Works Week in Canada.

Ontario’s proclamation marked the first time that the Government of the Province of Ontario proclaimed the third week of May as National Public Works Week. Thirty Ontario Public Works Association (OPWA) members were on hand for the official reading of the NPWW proclamation, and they also met Infrastructure Minister Bob Chiarelli and other Members of Provincial Parliament for an informal reception afterwards. OPWA Chapter President and Director of Engineering for the City of Cambridge, Ms. Kealy Dedman, P.Eng., said “This honor and audience reinforces OPWA’s value as ‘the voice of public works' in Ontario and reinforces recognition that the public works profession and crafting a long-term plan for sustainable infrastructure are essential to the future of Canada.”

Laura Bynum can be reached at (202) 218-6736 or lbynum@apwa.net; Laura Berkey-Ames can be reached at (202) 218-6734 or lberkey@apwa.net.
Getting the word out

Jeff Ramsey
Public Works Director
City of Auburn, Alabama
Member, APWA Transportation Committee

“Information is power” but only if it is passed on. The Transportation Committee has been attempting to get the word out to the chapters. We have used the Transportation Liaisons Program and the infoNOW Community to spread information about transportation issues to the APWA community. The committee believes that the real power of the committee is realized when we are able to spread the word throughout the public works (PW) community. The transportation liaisons and infoNOW Community are two of the methods by which we are able to spread important information to the PW community in a timely manner.

The infoNOW program is open to every member of APWA. There are 16 different communities that cover a variety of subject areas. The Transportation Committee uses the infoNOW program to get information out concerning upcoming webinars related to transportation issues. The Federal Highway Administration has sent us information on training opportunities they have available to post on infoNOW. We have posted information on grant opportunities and updates on current legislation that is critical to our members. Since the Transportation Bill is being discussed, now is the time to join the infoNOW Transportation Community.

The infoNOW program allows for communications between members. Often members of another agency will have already dealt with issues that you might be facing. infoNOW is a great way to find out how other PW professionals handled the same or similar situation. The questions are generally answered within the same business day.

We encourage you to use the infoNOW tool to help you manage your agency and to connect with other PW professionals who are experiencing the same challenges in their work. You can join by going to www.apwa.net and following the link for the infoNOW Communities. The transportation budget affects all of our lives, and the infoNOW Community is a great program for those whose interests in transportation issues run deep. The committee wanted a way to disseminate information to the chapters in a timely manner. We also wanted a way to get feedback from chapters about specific transportation issues. Often the committee is asked to develop APWA policies or responses to specific issues. The committee will poll the liaisons for input or examples of how a current policy is or is not working. The liaisons have been great at providing examples from throughout the country on a variety of issues.

The Transportation Committee had the opportunity to express our concerns about the amount of time it takes to complete projects that are supported by federal funding. The committee used the transportation liaisons to provide local examples of delays in projects due to federal regulations. Through our network of committed transportation professionals as part of the Transportation Liaison Program, we are able to get valuable information back from across the country. The FHWA staff has used this program to disseminate information about grants and training opportunities that are available through the Administration. Transportation liaisons are given opportunities to volunteer to assist FHWA with various programs. Recent opportunities include assisting FHWA with roadway audits, speaking at public hearings for new legislation, and providing opinions on future policies.

The transportation liaisons play a critical role in getting information from the committee out to the chapters. Information is only powerful when it is shared. The committee sends monthly messages to the liaisons about happenings in the transportation community that are important to our members. APWA is striving to be the go-to organization for information related to public works. If we can provide the information to our members, we make them the go-to persons in their agencies for current transportation issues. We feel this service helps our members to do a better job serving their communities. All nine regions are represented and 37 of the 63 chapters are represented. Our goal is to have transportation liaisons in every chapter.

We want every member of APWA who has an interest in transportation issues to be involved. You can get involved in infoNOW by going to our website. This is a valuable tool you can use to get help on specific issues related to your public works activities. We need additional transportation liaisons to help us keep the chapters informed. If you are interested in the latest transportation issues, you will want to take advantage of this opportunity. You can contact Jeff Ramsey at jramsey@auburnalabama.org for more information.
Providing sewer service without a treatment plant: success through partnerships

Stan Brown, P.E.
City Manager
Oakwood, Georgia

Introduction
How would you like the challenge of providing sewer service for an emerging small city with no wastewater treatment plant, no utility staff, and no sewer budget? That is exactly the situation the City of Oakwood, Ga., faced when I accepted the position of City Manager in 2004. Although this challenge might seem like an insurmountable task to many, I soon found that facing adversity with innovation was simply business as usual for Oakwood.

About Oakwood
Located 45 miles northeast of Atlanta along I-985, a mainline of the Norfolk Southern Railroad and the shoreline of Lake Lanier, Oakwood is an economic engine for South Hall County, Georgia. With a 74% commercial/industrial property tax base and more jobs than population, Oakwood maintains an extremely low tax rate while serving as a solid revenue generator for the county government and school district. With a 2010 census population of 3,970 and a land area of approximately four miles, Oakwood has experienced 62% growth over the last decade. Upon build-out, Oakwood expects a population of 15,000 over a 12-square-mile area.

A few examples of Oakwood’s successful growth are the expanding campuses of Gainesville State College and Lanier Technical College (combined student population of over 10,000); new retail centers along a major state highway; recent build-out of a 245-acre industrial park; construction of a major commercial parkway fronting I-985; and the acquisition of 65+ acres of property for future industrial development and a new downtown center. While these achievements are easy to see, they would not be possible without a less exciting one that deserves the real credit—Oakwood’s sewer service. Even more significant is how the City provides this service without the benefit of its own treatment plant.

Providing and funding sewer without a plant
Oakwood’s innovative approach to sewer funding would not be possible without its partnerships. Straddling two river basins (Chattahoochee River Basin—flows to the Gulf of Mexico; Oconee River Basin—flows to the Atlantic), Oakwood partners with three neighboring cities to meet its wastewater treatment needs for sewer service. In the Chattahoochee Basin, Oakwood partners with Gainesville for 653,000 gpd of capacity and with Flowery Branch for 250,000 gpd of capacity. Oakwood’s newest sewer partnership with the Town of Braselton enables Oakwood to serve its customers in the Oconee Basin.

With solid partnerships in place, funding is the next key to success. From the beginning, the City’s goal was to avoid using taxpayer money to develop its sewer infrastructure. Through careful planning and disciplined fiscal policy, the City ensures that sewer “pays its own way” by the users of the utility. The innovative method used to fund Oakwood sewer development is the Wastewater Capacity Allocation Program.

Wastewater Capacity Allocation Program
The Wastewater Capacity Allocation Program is structured to generate advance revenue in two different scenarios—when capacity is available and when it is not. In either case, the applicant submits a wastewater capacity request, including an engineer’s estimate of average daily sewer demand, to the City Manager for review against the following criteria:

- Length of time that the applicant has been on the waiting list (first come first serve principle).
- Applicant’s willingness to purchase wastewater treatment capacity.
- Date the applicant expects to use the requested capacity.
- Applicant’s ability to accept portions of requested capacity over a period of time (project phasing).
- Effluent characteristics, volume and impact on wastewater treatment.
- Applicant’s history of compliance with water quality rules and regulations.
- Applicant’s credit worthiness and financial ability to meet its obligations.
- Amount of unutilized allocation currently held by the applicant.
If capacity is available and the request is approved, the applicant is offered a wastewater treatment capacity allocation for the property. To accept, the applicant is required to enter into a binding wastewater capacity agreement and pay the capacity fee (the City’s cost for acquiring and developing the sewer infrastructure) within 60 days from receipt of the offer. In some cases, applicants are allowed to acquire a purchase option for the capacity in an amount equal to 10% of the fee. *(Note: If the applicant’s property is not in the city limits, applicant must annex into the City of Oakwood or, if not eligible for annexation, execute an agreement and provide a power of attorney allowing the City to annex the property when it is eligible).*

In the event sewer demand exceeds the City’s availability of capacity, the City maintains a wastewater capacity waiting list. Applicants are added to the waiting list if the following requirements are met:

- Property is within the city limits.
- Property is zoned for the anticipated use.
- Applicant has an ownership interest in the property.
- The property is or will be a public water customer.
- Applicant agrees to pay the capacity fee upon offer of allocation.

As soon as wastewater treatment capacity becomes available, the City offers it to those on the waiting list. Applicants unable to accept the offer forfeit their position on the list.

To effectively track the Wastewater Capacity Allocation Program status, balance residential, commercial and industrial development, and to fairly and equitably allocate its limited wastewater capacity, the City maintains a wastewater capacity allocation summary which includes project name, developer, wastewater capacity requested, record of the allocation and payments, and number of units/ lots approved and built. As permits are issued, wastewater allocations and available capacity are adjusted accordingly.

**Results**

Through its ongoing partnerships and innovative funding approach, Oakwood has accomplished the following over the last few years:

- Developed the City’s first Sewer Master Plan.
- Updated partnership agreements to increase Oakwood’s capacity from 453,000 gpd to 953,000 gpd, along with the ability to acquire future capacity.
- Constructed a 1.5 MGD pump station and over 12 miles of wastewater gravity lines and force mains along major commercial and industrial corridors.
- Built up a $3 million capital reserve from selling capacity allocations and purchase options.

Benefits to Oakwood and its partners:

- A community primed and ready for quality growth.
- A more thoughtful and realistic infrastructure planning.
- Stronger relationships between local governments and development community.
- More efficient service delivery which, in the end, provides savings to our citizens.

Can sewer service be provided and funded without a treatment plant? Absolutely! In the case of Oakwood, Ga., partnership and innovative funding bring about the best for our community and citizens. Working together, we are better.

For additional information or copies of the city ordinance, sample capacity agreement, purchase option agreement, annexation agreement/ power of attorney, and wastewater capacity allocation summary, contact Stan Brown at sbrown@cityofoakwood.net.
A View from the Top: Women in Public Works

Wendy Springborn, MBA
Engineering Services Manager
City of Tempe, Arizona
Member, APWA Diversity Committee
Emerging Leaders Academy, Class I

The APWA 2011 International Public Works Congress & Expo-
sition is just right around the
corner. The Diversity Commit-
tee is busily preparing for the many
educational sessions we provide during
the conference.

One of the highlights for me is the
presentation entitled “A View from
the Top – Women in Public Works
Talk about Their Lives and Careers.”
This session is scheduled for Tuesday,
September 20 at 2:00 p.m. This educa-
tional session is entering its sixth year
of existence and continually receives
rave reviews. I wanted to take this op-
portunity to highlight a couple of the
women who will be on the panel this
year and give you a little sample of
what you will experience by attending
this educational session.

First up is Cora
Jackson-Fos-
sett. She is the
Public Infor-
mation Direc-
tor II for the
Los Angeles
Department of
Public Works
where she di-
rects fourteen
staff in the de-
velopment and implementation of the
strategic corporate communications
program in the areas of public and me-
dia relations, marketing, community
outreach, and construction mitigation
programs that serve nearly four million
residents and businesses of the city.

In August 2010, Jackson-Fossett was
elected to APWA’s National Board of
Directors as Director-at-Large, Public
Works Management and Leadership.
Locally, she participates in the APWA
Southern California Chapter as co-
chair of the Diversity Committee and
instructor for the Public Works Insti-
tute. In addition, she was appointed
Religion Editor for the Los Angeles Sen-
tinel newspaper in October 2010. The
Sentinel is the largest African-American
weekly paper on the west coast.

Jackson-Fossett also serves as president
of Los Angeles Association of Black Per-
sonnel, the official representative for
City employees of African-American
heritage and is the only female on the
Board of Directors for Los Angeles Pro-
fessional Managers Association, the
bargaining unit representing the City’s
500 top-level employees. For the past
three years, Jackson-Fossett has been
featured in the publication, Who’s Who
in Black Los Angeles. In 2008, she was
recognized by the Los Angeles Business
Journal as one of Los Angeles’s most
successful women, and in 2009 she was
inducted into the National Association
of University Women’s Hall of Fame.

Jackson-Fossett has been an active
member of Brookins Community
A.M.E. Church since 1987. She serves
as a Sunday school teacher, chairs the
Public Relations Commission, and is a
member of the Steward Board.

A graduate of Indiana University,
Jackson-Fossett completed graduate
courses at Columbia College in Chi-
ago. Also, she holds certificates in mar-
keting management and standardized
emergency management.

She previously served as Principal Pub-
lic Relations Representative for Los An-
geles International Airport, and news-
letter editor and public affairs specialist
at the Gary, Ind., Chicago and Long
Beach postal facilities.

A native of Gary, Ind., Jackson-Fossett
is married to Kelvin Fossett and the
mother of one son, David. Cora’s mot-
to: “Have faith in God, treat others with
respect, approach life with enthusiasm,
and never stop learning!”

Some of Cora’s “likes” are no surprise
to those of us who know her—being
pleasant and encouraging and laugh-
ing. What may surprise some is that she
enjoys the NBA, bike-riding, and read-
ing mysteries. Her dislikes include rude
and pessimistic people, algebra (hasn’t
used it since 10th grade), and wearing
four-inch or higher heels. I will have to
agree with her on the four-inch heels.

Another won-
derful addition
to the Women’s
Panel is Mary
Pat Baldauf
from the City of
Columbia, S.C.
Mary Pat was
asked to be part
of this panel not
only due to her
outstanding ac-
complishments
but also as a soon-to-be graduate of the
Emerging Leaders Academy, Class IV.

When friends offered bewildered looks
at hearing her new title—Sustainability
Facilitator—Mary Pat Baldauf dubbed
herself “Columbia’s Green Queen.”
Mary Pat works to engage residents,
businesses and city employees in envi-
ronmental and climate protection ini-
tiatives.

Her multi-faceted position includes ev-
erything from managing the City’s Cli-
mate Protection Action Campaign to helping businesses and congregations go green, with plenty of activities in between.

A graduate of the University of South Carolina with a BA in Journalism, Mary Pat has over twenty years of professional experience in public relations, marketing and project management, primarily for nonprofit organizations and associations.

Mary Pat serves on APWA’s Center for Sustainability Leadership Group and as Sustainability Chair for the South Carolina Chapter. She serves as an appointee on the South Carolina Department of Health and Environmental Control’s Waste Tire Committee, which manages the state’s multimillion-dollar Waste Tire Fund. She also serves as co-chairperson for the City of Forest Acres Appearance Commission and a board member for the Midlands Branch of the USGBC-SC Chapter.

Mary Pat is a graduate of Francis Marion’s Non-Profit Leadership Institute, Leadership Lexington County and Leadership Columbia. In 2006, The State named Mary Pat as one of the Midlands “20 Under 40” business leaders.

In 2005, Mary Pat received Keep America Beautiful’s Professional Leadership Award, the highest professional honor given by the organization. This award is presented annually to one or more Keep America Beautiful affiliate directors who have built and sustained a local or state program with exceptional success.

Mary Pat is also a wild, wonderful recycling artist who makes things from items people normally throw away. She is “Chief Environmental Officer” for Trashformations.com, a website featuring her unique designs and work from other recycling artists.

Mary Pat loves old movies, especially those from the ’50s and ’60s, and her 120-lb. Labrador Retriever/Alaskan Malamute rescue dog, Winston. She is also an ordained deacon in the Presbyterian Church-USA.

Both of these women have truly amazing stories regarding their journey into public works and the trials and tribulations along the way. What key event(s) triggered their interest? What were the high points and low points during their journey? If they could have done something different that would have helped them along the way, what would it have been? What advice can they lend other women in the public works field? All these questions and much more will be answered at the 2011 Congress education session, “A View from the Top – Women in Public Works Talk about Their Lives and Careers” in Denver, Colo., on September 20. We’ll see you there!

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

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Membership in the American Public Works Association is now $145 per year (membership year begins when you join and ends 12 months later). In these tough economic times is it worth it? The answer is a resounding YES!!!

Let’s see how APWA membership adds up for APWA’s primary membership benefits. (See table at right.)

As you can see, just the APWA Reporter and infoNOW subscriptions ($229 annual value) are worth more than the $145 annual membership fee, even before you add in discounts for chapter and branch activities plus the national and local networking opportunities and other intangible benefits. Membership in several other professional and technical associations cost $210–$260 per year; and while those memberships are worthwhile, you can see what a value APWA membership is in comparison. Even if our employer is not able or willing to pay our APWA membership, it’s valuable enough to each of us to pay it ourselves.

Think about it—where else could you get such a value for just over $12 per month? An annual subscription to most daily newspapers costs more.

I am a member of several professional and technical associations and benefit from all of them. However, none of those other associations cover the breadth of public works that APWA does—APWA offers membership benefits to all individuals engaged in public works, ranging from crew supervisors to City/County Managers and even to senior state and federal agency officials, as well as private sector and industry employees. I have enjoyed membership in APWA for more than 37 years, and have benefitted immensely from the educational resources APWA provides, opportunities to serve my chosen profession at the local branch, state chapter and national levels, and, most importantly, opportunities to network and discuss common problems and solutions with fellow public works associates from around our great nation and the world. (There are no “new” problems, only “old” ones that others have solved. My job is to find those people, benefit from their experience and improve on their solutions.) I highly recommend APWA membership to anyone employed in the field of public works. It will be the best investment you will ever make in your profession.

If someone you know would benefit from APWA membership, I encourage you to recommend it to them now. Individuals engaged in the field of public works, who have never been a member of APWA, are eligible for the “First Time Member Special Offer” of $70 (less than half-price!) for their first year. To start a new Individual membership go to www.apwa.net/Membership/memberapp.asp or use the printable application at www2.apwa.net/Documents/Membership/MemApp.pdf. Look for the “Never been a member/Half-Price for 1st Time Members” option on the application. The special offer can also be used to add members to existing group rosters or start new groups, contact the APWA national office at 800-848-APWA or membership@apwa.net for more information about how that works.

When you receive your membership renewal notice, be sure to renew promptly so you don’t lose any of the valuable benefits from APWA. And if your membership is covered on a group roster, be sure the group key contact person and the decision-maker(s) understand the APWA membership value so they will process the group renewal as promptly as possible.

John T. Davis can be reached at (904) 630-3169 or jtdavis@jafla.com.

John T. Davis, P.E., PSM
Chief Engineer
Jacksonville Transportation Authority
Orange Park, Florida
Member, APWA Transportation Committee

APWA Membership: It’s worth it!!!

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<td>Opportunity to network with Public Works Colleagues from other areas to exchange ideas on solving problems</td>
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April 29-May 2, 2012
Frontier Airlines Convention Center, Milwaukee, Wisconsin
Hosted by the APWA Wisconsin Chapter
www.apwa.net/snow

The Show For Snow!
2012 APWA North American Snow Conference
The Premier Event for Snow and Ice Management!
April 29-May 2, 2012
Frontier Airlines Convention Center, Milwaukee, Wisconsin
Hosted by the APWA Wisconsin Chapter
www.apwa.net/snow

Call For Presentations!
Proposal submission deadline: August 31, 2011

What topics are we looking for?
The North American Snow Conference offers education primarily to Public Works snowfighters. We are looking for speakers with new perspectives, best practices and innovative twists to the usual winter maintenance topics:

- Clever solutions to age-old problems
- Best practices for winter maintenance planning and operations
- Anti-icing techniques and tips
- Chemical usage and selection
- Environmental impacts of winter maintenance practices
- GPS/AVL usage
- Snowfighting equipment
- Strategies for plowing and disposal
- Effective operator training programs
- Community outreach/citizen interaction
- Managing and preparing snow fleets

To submit your presentation:
Go to www.apwa.net and click on the Learn & Grow tab, then select Call for Presentations and click on the snow plow.

Session Length: Presentations at this conference are typically 50 minutes in length.

Learning Objectives: All proposals must include three (3) learning objectives that indicate exactly how the attendee will benefit from the presentation. Instructions for developing appropriate learning objectives are included on the online form.

How Are Presentations Selected?
All submissions are reviewed and evaluated by a committee of public works/winter maintenance professionals. The evaluation process is competitive based on these criteria: (1) Relevance and Clarity (learning objectives are clearly stated using active verbs indicating exactly what the benefit would be to the learners); (2) Practical Application (presentation provides take-away knowledge material that can used by the learners in their day-to-day work settings); (3) Leading-edge (presentation addresses critical issues, emerging trends, innovative methods and technologies.)

Registration and travel expenses: Speakers at APWA’s North American Snow Conference are also considered attendees of the event and are expected to pay their own travel expenses and the appropriate member or non-member registration fee. If you plan to only attend on the day of your presentation, you may qualify for a complimentary single-day registration.

No Sales-pitches Please: Direct promotions of products, services, or monetary self-interest are not appropriate education sessions. APWA members are traditionally vocal in their displeasure with sessions that appear to be sales presentations or promotions. APWA audiences prefer sessions that present case studies from the user perspective.

The North American Snow Conference Is Renowned For Its Top Notch Education Program And Now Is Your Chance To Be A Part Of It!

If you have questions, concerns or assistance needs, please contact Phyllis Muder, Continuing Education Project Manager at 816-595-5211 or pmuder@apwa.net
Who was Donald C. Stone?

Donald C. Stone was an educator, federal planner, and a pioneer of modern urban public administration. He was the founder of the American Public Works Association (APWA) having organized the merger of its two predecessor organizations in 1937. Mr. Stone headed the Public Administration Service and directed scores of surveys and reorganizations of city, state, county and federal agencies. He was instrumental in the development of standards for urban financial administration, program budgeting, municipal engineering, and police and crime reporting.

Mr. Stone also was a major figure in the public works programs of the New Deal administration of Franklin Delano Roosevelt. For nine years he served as Assistant Director of the Federal Bureau of the Budget. After World War II, he played a major role in the development of the Marshall Plan and the Charter of the United Nations. In the Eisenhower administration, Stone helped establish the Executive Office of the President.

After leaving government, Mr. Stone served as President of Springfield College and then as Dean (and founder) of the School of Public and International Affairs (GSPIA) at the University of Pittsburgh. It was there in 1957 that Stone developed the extensive public works administration graduate program in an effort to promote the study of national and international public administration, and to recognize the growing significance of public policy in the global context. Mr. Stone’s philosophy included promoting the concept of “citizenship” and encouraged his colleagues, students and friends to make government better, to make administration more effective, and to provide responsible leadership and stewardship for future generations.

The Donald C. Stone Center for Leadership Excellence in Public Works will honor his legacy and will further contribute to his body of work. With the challenges and complexities facing the public works profession in the twenty-first century, this historical tie provides context for the role that public works professionals must play in the future.

The road leading the Association to this point has been filled with challenges and opportunities. The weak economy and the reality of the “new normal” coupled with the foreseeable problems of the twenty-first century require us to fully capitalize on our strengths: educating and developing the individuals who plan, build, and maintain our communities. APWA President George Crombie, through his commitment to the “revolution,” challenged us to look at the future and the past for opportunities. The Education and Certification Task Force met several times in 2010 and early 2011 and discussed multiple career paths in public works. We are happy to report today that APWA has developed a program designed specifically for the public works profession.

What are the Career Paths?

The Center has identified three main career paths that will provide training and credentialing for anyone interested in pursuing a career in public works. Individuals may progress along one or more paths based on interests, background, opportunities, and experience.

- Leadership and Management
  - Level 4: Public Works Leadership Fellow (PWLF)
  - Level 3: Public Works Executive (PWE)
  - Level 2: Public Works Manager (PWM)
  - Level 1: Public Works Supervisor (PWS)

- Public Works Professional
  - Planner/Scientist/Engineer/Consultant

What is the Donald C. Stone Center for Leadership Excellence in Public Works?

The DCS Center is a progressive system of career paths for professional development and credentialing. The Center represents the first time in the history of APWA that a comprehensive education and credentialing system is in place that defines requirements for all skill levels within public works.

APWA will bring together chapter institutions and academies, colleges, universities, government agencies and associations to provide comprehensive and integrated educational, training and professional development opportunities. A professional working within public works or considering entering this profession will be able to progress systematically along one or more career paths.

The credentialing requirements are rigorous because the challenges in public works are serious. APWA has created a developmental model that will require candidates to document growth and, in some instances, defend their work through oral exams. A mentoring program is part of the developmental process to provide focused support, feedback and guidance to candidates.
• Technical Specialty
  - Operator & Technical Specialist I, II and III
  - Specialist III has a management option

Each career path has entry requirements, progressive levels, a professional development program and plan, a professional portfolio or journaling requirement, pre- and post-assessments, and access to mentoring. The Leadership and Management career path also has credentialing designations; participants who complete the requirements for credentialing will have demonstrated their expertise and commitment.

How Will the DCS Be Implemented?

Three levels from the Leadership and Management career paths will be launched at Congress this September:

• Level 4: Public Works Leadership Fellow (PWLF)
• Level 3: Public Works Executive (PWE)
• Level 1: Public Works Supervisor (PWS)

This means that APWA will begin accepting applications for Levels 1, 3 and 4 on September 26 immediately following this year’s Congress. Ideally, candidates will be accepted into their respective programs in cohort groups of approximately 10 or more individuals. Applications for each level will be available on the APWA website along with detailed descriptions of each program.

We anticipate that the Level 2 Public Works Manager career path will attract the greatest number of candidates and, therefore, requires a longer development period before launching. Chapter institutes have been part of APWA’s professional development process for many years and we will be working closely with existing and new institutes to produce a program that will embody best management practices.

The Public Works Professional and the Technical Specialty career paths will be ready to accept candidates in 2012.

With the launch of the Donald C. Stone Center for Excellence in Leadership, APWA will make good on its promise to provide members with accessible, comprehensive professional development opportunities that will ensure the future of public works.

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In March 2010, the APWA Board of Directors authorized appointment of the Education and Certification Task Force (E&CTF) to address several issues concerning APWA’s professional level education and certification programs. Chaired by APWA Past President Larry Frevert, the E&CTF met again in June 2010 and presented eight recommendations to the Board.

The E&CTF recommended development of a strategic plan to create a more integrated education and certification program that is better aligned with the needs of the public works profession. Specifically, the task force recommended development of career paths, initially focusing on the Public Works Leader program, but understanding there is a role for the managerial and technical offerings. They also recognized the Body of Knowledge (BOK) as a critical educational resource along with the restoration of scholarly research efforts.

Following approval of the E&CTF recommendations, the Board established the Comprehensive Professional Development Group (CPDG) and charged them with implementing the above recommendations. Based on the background, charge, and timeframe available, the CPDG addressed the requirements by assigning actions to three subcommittees. This allowed for improved collaboration among smaller groups and allowed the groups to focus their attention for a more thorough review and draft proposal. The subcommittees held several conference calls to research, review and propose recommendations to the CPDG in a face-to-face meeting in January 2011.

CPDG co-chairs Sherri Zimmerman and Elizabeth Treadway submitted the final strategic plan to the Board at their winter meeting in February 2011. The Board then directed the APWA staff to develop an implementation and operational plan. Guided by their recommendations, the professional development department began working on partnerships with universities, chapter institutes, and other organizations to create a system of career paths that meet the needs identified by the task force and the CPDG.

Contributed by Sherri Zimmerman and Elizabeth Treadway, Co-Chairs, Comprehensive Professional Development Group (CPDG)
THE ROAD TO EXCELLENCE

Continuous Improvement: engaging in the self assessment process

Stephanie Hom, MPA
Agency Administrative Services Manager
City of Oakland, California
Member, APWA Northern California Chapter

The APWA Leadership and Management Committee introduced a series of articles entitled “The Road to Excellence” which focus on ten attributes and five keys to success based on the joint effort of professional organizations and the EPA to create a program that promotes effective utility management. Adjusting the list for public works professionals, each article will look at one attribute and key and why they are critical to an excellent organization. If you’d like to review the basis of the series, the introductory article was published in the December 2010 issue. Following is the seventh article in the series which addresses self assessment.

The Public Works Agency of the City of Oakland was very proud to be the 35th APWA Accredited Agency throughout the United States and Canada, and the 3rd in the State of California. We’re now doubly proud having been reaccredited in October last year. The first and most important step toward accreditation is completing the self assessment process.

Self assessment what? Well, let’s apply the definition, “self-assessment, noun, an evaluation of one’s own abilities and failings” (online source: The Free Dictionary) to your public works agency. It’s really not as scary as it sounds. APWA has painstakingly developed the Public Works Management Practices Manual, now in its sixth edition, that literally walks you through 529 practice statements that describe the critical elements necessary for a full-service public works agency to accomplish its mission.

Self assessment is a process for improvement. It’s a tool for determining how your agency’s policies, procedures and practices compare to the recommended practices identified by nationally recognized experts in the public works field. The manual provides general guidance in what you should be doing but not how you should be doing it. So, it’s a non-prescriptive approach that enables you to tailor your policies, procedures and practices to meet your needs.

I like to think of the manual as a checklist that enables your public works agency to systematically and comprehensively evaluate the way you operate. Oakland Public Works benefited from the process simply because we took the time and effort the review how we do our business.

Ask any of the 75 agencies that are accredited today and I’d bet that they’ll validate that there are many benefits of self assessment. I’d like to elaborate on a few:

Improved Leadership

Unlike the operations of a private corporation, the mission of a public works agency is not about the bottom line—or at least, not about one bottom line. Your agency likely spans across a diverse set of employees, from environmentalists to engineers to maintenance workers to custodial workers. It’s true in Oakland, Calif., where the public works workforce includes 725 full-time equivalents across 130 job classifications. This simply means that it’s a challenge to get everyone facing in the same direction at the same time.

The self assessment process helps to bring everyone together. The dialogue and collaboration it takes to complete the self assessment process and the results of this process produce immediate

The ten attributes:

- Self Assessment
- Customer Satisfaction
- Product/Service Quality
- Operational Resiliency
- Employee and Leadership Development
- Operational Optimization
- Financial Viability
- Infrastructure Stability
- Community Sustainability
- Stakeholder Understanding and Support

The five keys to success:

- Leadership
- Strategic Business Planning
- Measurement
- Organizational Approach
- Continual Improvement Management Framework
benefits in aligning the agency under a unified front. The most obvious example is establishing and prominently posting your agency’s Mission, Vision, Values (Practice 1.1). Other examples include engaging all levels of staff in the development of your policies, procedures and practices, which results in increased ownership and accountability.

**Increased Productivity**

We’re all more productive if we know what to do and how to get it done. Prior to completing the self assessment process it’s likely that you have many or most of the 529 practices documented in policies, procedures and/or practices scattered throughout your agency. The self assessment process brings significant added value in helping you organize these scattered policies, procedures and practices.

When you have disorganization, it can congest your life (or your agency), leaving you feeling scattered and frustrated. The result is being unproductive. The self assessment process does two things: (1) it helps you identify the weaknesses in your practices and correct them; and (2) it provides a structure for you to organize your practices so that everyone in your organization can readily find them. In other words, you increase productivity because everyone will know what to do and how to get it done.

**Cost Savings**

This decade has been pronounced with diminishing resources and higher demands of public works agencies. There just isn’t enough so any opportunity to save a buck through cost avoidance or increased efficiency is a worthwhile investment.

Going through the self assessment process will save your agency money in the long run. Accredited agencies have reported reductions in public infrastructure liability claims. Revisiting and making improvements to your safety and worker compensation practices will likely garner reduced injuries and worker compensation costs. By virtue of engaging in the self assessment process, you’ll be able to refocus on your core public works services and identify duplication and wasted effort. And increasing staff’s productivity through the use of clear, concise and well-written policies, procedures and practices is a money-saver as well.

**Better Managed Operations**

There is no doubt that when you have clear and concise policies, procedures and practices, you operate more efficiently and effectively than if you were working on informal, undocumented and inconsistent practices. I’ve also witnessed situations where our credibility increased with the public when written policies that explained our business practices were shared. In these cases, the private citizen made requests that deviated from our practices but rather than become irate with the agency, the private citizen understood our position once we shared the written policy.

For all intents and purposes, you’re engaging in an internal audit process when you complete a self assessment. Though it can be time-consuming, there is a big psychological advantage in taking on an internal audit than having an audit done to you by external forces. External audits can decrease employee morale and productivity. A self assessment process has the exact opposite effect.

# THE ROAD TO DENVER

The 2011 APWA International Public Works Congress & Exposition will take place in Denver, Colorado, September 18-21. In each issue of the APWA Reporter we’ll highlight one of Denver’s unique attractions. Denver is a great city and our annual conference will be a terrific show!

- **Cachet**
  
  Last but not least, a benefit worth mentioning is that people (within the larger government structure and the public works industry) are more likely to listen to you when you are an Accredited Agency. And being heard is always a good thing.

  Stephanie Hom can be reached at (510) 238-2908 or shom@oaklandnet.com.

- **On May 24, APWA President George Crombie attended an event at Waterbury, Conn., City Hall. The event was a reception to honor Waterbury Public Works Director John Lawlor, one of APWA’s 2011 Top Ten Public Works Leaders of the Year. Pictured from left to right: Michael Jarjura, Mayor, City of Waterbury, Conn.; John Lawlor, Waterbury Public Works Director, with his Top Ten award plaque; Michael Mancini, President, APWA New England Chapter; and APWA President George Crombie.**
Floods along the Mississippi, a tsunami in Japan, Hurricane Katrina, an earthquake in Haiti, tornadoes all across the United States—it seems like every week natural disasters are causing mass destruction and loss of lives, leaving many areas to rebuild and look to others for help. Maybe it's just my perception, but the worldwide need seems to be greater and greater as more areas find themselves having to start all over to rebuild their communities.

In the January issue of the APWA Reporter I wrote about my experiences in helping to do a very small part in rebuilding Haiti, a small, third-world country south of Florida devastated by an earthquake in January 2010. As a follow-up to my January article, I had the opportunity recently to travel to Winchester, Mass., to meet with APWA President George Crombie, International Affairs Committee Chair Mary Monahan-Burgess, and Waterfield Design Group President Craig Miller, to further explore how APWA might be able to leverage the knowledge and strength of its membership to help the ravaged country of Haiti.

For the last 15 years, Craig Miller has led hundreds of American volunteers to Haiti on various short-term construction assignments related to orphanages, schools, and medical clinics. Craig has served as President of Hope for the Children of Haiti (based in Mass.) and the ROME Foundation (based in Fla.)—both are nonprofit U.S. organizations working in Haiti focused exclusively on improving the lives of some of the poorest people in the world. Craig has also worked with the U.S. Department of Transportation and one of Haiti's former Prime Ministers (along with their Cabinet Minister of Public Works, Finance, and Tourism) to promote economic development initiatives (based upon strategic investments in infrastructure) for the Republic of Haiti's central government.

Helping a country like Haiti is not an easy task by any stretch of the imagination. The many problems that persisted before the earthquake make an impossibly difficult situation (earthquake recovery) even more untenable and sometimes unimaginable. Close to 300,000 people died in the earthquake and more than one million additional persons were displaced from their homes when the Mw 7.2 earthquake struck the greater Port-au-Prince metropolitan area. It has been said that more people died in 30 seconds in Haiti than had perished worldwide since 1900 in all structural-related incidents. This is a truly staggering statistic. Port-au-Prince and nearly all of Haiti were grossly ill-equipped to host a natural disaster with this type of destructive force. For a variety of reasons, the adoption of building code and standards enforcement had been relegated to be non-critical in a society that struggles daily to feed, clothe, and educate a large majority of its citizens. The hindsight of how Haiti got to this tenuous position where a single natural disaster could deliver large parts of the country to near total ruin is a valuable lesson for all developing countries where poverty and systems-oriented issues nearly completely prevent the nation from working its way toward safety, stability and economic capability.

Infrastructure, infrastructure Master Planning, and Community Development bring so many valuable systems and processes to the table while simultaneously delivering all of the necessary elements that allow entire societies to function, grow and develop. All of these issues are on display in full view in Haiti. Witnessing firsthand a world absent these key features expresses the mission and function of APWA. This experience also underscores the need for APWA in the developing world to help bring the experience and expertise of our nearly 75-year history to bear on these life-altering problems.

Tens of thousands of homes were rendered uninhabitable by the earthquake. The majority of displaced people now live in makeshift tents, cardboard shelters, their cars, or anything else that can be converted into a shelter. The urban areas of Port-au-Prince were some of the most densely populated areas in the world and space is a premium. The small tents or shelters are all that some people have today. So how do you rebuild a city with so many people, so much destruction, very little equipment, and systems that were underdeveloped even before the earthquake?

This is the question that Craig has been trying to solve for more than a year now. Craig and his Waterfield Design team have developed a plan that would not only serve to rebuild Port-au-Prince, but would also lessen the densely populated areas of Port-au-Prince, taking much of the strain off...
of the city’s infrastructure. It is a plan that uniquely dovetails earthquake recovery with long-term economic development. The plan centers around building and enhancing certain, very strategic, existing roadway corridors to bring outlying underdeveloped “suburban” areas closer to central Port-au-Prince. This plan allows new safe and sustainable communities to be built (complete with clean water and sanitation) in classic “Starter-Home” fashion while also solving the decades-old and nearly debilitating traffic, transportation and access problem that currently plagues all of Port-au-Prince. These Starter Home communities would be available to all income demographics and would initially have enough capacity to house more than 900,000 people in the project’s first phase. This “relief and recovery” approach takes substantial law enforcement and mobility pressure off the main city while building “safe and vibrant communities that could stand on their own two feet economically and socially,” to steal a quote from Craig.

This plan will work if it can make it through the complex network of local (Haiti) and international leadership involved in trying to chart the right course. Rebuilding Haiti hasn’t always been a question of money—nearly $10 billion has been “pledged” from many different countries and charitable organizations—the problem has been figuring out how best to corral all the major players who are calling the shots. There is not a compelling, unified vision for a Haiti rebuild at this time. Haiti recently completed a long but important presidential election process filled with mild doses (by Haiti’s standards) of corruption, rioting and unrest. Contributing countries are involved in debates about how the money they contributed should be used. The bottom line is that few galvanizing conclusions have been reached and the type of large-scale recovery initiatives needed for destruction of this scale are nearly nonexistent.

The lack of conclusions, however, has not dampened the spirit and resolve of Craig and his team in trying to make a difference. He has pounded on the doors of the country’s leaders, the United Nations, the World Bank, the Inter-American Development Bank, the Interim-Haitian Reconstruction Commission (IHRC), the Clinton/Bush Fund, the Soros Foundation, and many large NGOs to push the plan. His rebuild plan has been received with enthusiasm by those who have seen it, but none have been willing to be its requisite “champion.” While that remains unclear, it has not stopped him from pushing forward with great passion because he knows that his plan will work if it makes it through all of the channels and roadblocks.

From an APWA perspective, it is easy to support a plan that builds sustainable communities that provide a better quality of life for its citizens—it’s what public works professionals strive for and do every day. In the future, if Craig is successful in driving his plan through all of the channels and roadblocks that currently stand, experience, equipment and expertise will all be needed to help implement the plan. Might this be an opportunity to expand our knowledge to a third-world country in desperate need?

I think so.

While the nearly 29,000 members of APWA continue to share best practices with their North American colleagues that build stronger communities and serve citizens, APWA also realizes the power of sharing information, best practices, innovations and technologies worldwide. Not only can we learn from our international counterparts, we can share, teach and exchange ideas and innovations with others across borders and strengthen our own communities by doing so.

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Call for applicants for 2012 Jennings Randolph International Fellowship Program (Mexico and New Zealand)

The APWA International Affairs Committee (IAC) is pleased to announce the call for applicants for the 2012 Jennings Randolph International Fellowship Program. In 2011, four APWA members were funded for study tours in Australia, Mexico, and the Slovak and Czech Republics.

It is the intent of the IAC to award fellowships each year for APWA members to travel to countries with which APWA has formal international partnerships with other public works associations.

Applications are now being accepted for 2012 for the following locations:

• ICLEI-Mexico – generally one national conference and two-three regional conferences during the year

• Association of Local Government Engineering New Zealand Incorporated (INGENIUM – New Zealand) – June 2012

To be eligible for 2012 fellowships, applications must be received at APWA headquarters by midnight on November 15, 2011. The successful applicant(s) will be notified by the end of January 2012.

To access the Jennings Randolph Fund Guidelines and the application form, click on this link (http://www.apwa.net/About/International/) or contact Gail Clark at (202) 218-6732 or gclark@apwa.net.
Talk about teamwork!

_Funded by city, county, state and federal money_

James R. Rosenmerkel, P.E., NSPE
Consultant
Rosenmerkel Engineering
Waukesha, Wisconsin

**History**

Several years ago, Gordon Food Service (GFS), the nation’s largest supplier of foodstuffs to the hotel and restaurant industry, found a parcel of land on CTH “N” in Kenosha for its new distribution facility. It is adjacent to the Kenosha airport, has very convenient access to Interstate Highway (IH) 94 and to the local STH system. When GFS contacted Kenosha County to secure utilities (sewer, water, etc.) and some necessary roadway upgrades, they were told the County does not provide those amenities and could not meet the time requirements. But they agreed to contact the City of Kenosha to see if they could help. The City agreed to a jurisdictional transfer and to provide the facility upgrades GFS needed to be successful.

This section of CTH “N” in the Town of Somers is about 1.5 miles long and consists of an old asphalt pavement, 22 feet in width, with lots of adjacent trees and very narrow shoulders. It crosses the Kilbourn Road Ditch which had a history of flooding most springs. It also borders the Kenosha airport and connects CTH “S” (formerly STH 142) on the east with the IH 94 frontage road system on the west. After several meetings, the City of Kenosha agreed to the transfer and began the predesign analysis of the new street requirements. The first order of business was to name it 38th Street. And while this seemed like a good idea, many of the residents along the new street were not happy with the prospect of a wider street which would be lighted and carry more traffic. They were also concerned about the possibility of tax increases since they were officially residents of the Town of Somers, not the City of Kenosha.

*The existing roadway had distressed pavement, narrow shoulders, deep ditches and was very closely lined with trees.*

**Design**

The City engineering staff, headed by Mike Lemens, P.E., his project manager Cathy Honeyager and the Kenosha Water Utility staff, engaged a local engineering firm, Clark-Dietz, to provide design services for the new street. Soil borings were taken, preliminary utility designs were laid out, a field survey of the facility was completed and the work began. It became clear that typical utility construction would not work and the new sanitary sewer would need to be designed as a 40-foot-deep tunnel project rather than the more typical open trench method. It also became evident that storm sewer and water main construction would result in variable soil types after the work was completed and trenches were backfilled. The native soils were of non-uniform-bearing capacity at best, but the big issue was that there was no site to dispose of unsuitable soils when they were encountered and time to construct this street was crucial. The options were listed, evaluated and the concept of stabilizing the new roadway with fly ash was selected.

A number of advantages were available with this option. First, a class “C” fly ash source was nearby at the Pleasant Prairie Power Plant just five miles away and the City staff had completed other successful projects using this method. Second, the cost advantages were compelling. Third, after the demolition of trees and pavement was complete and *Improved street features include bike lanes, turn lanes, streetlights and clear right-of-way for users.*
the underground work was complete, stabilizing the newly-widened subgrade with fly ash before constructing the base course would provide a very stable, uniform platform on which to build the new concrete pavement. Fourth, since the project needed to be constructed in several sections and in virtually every weather condition spring to fall, performance of the new subgrade would be predictable. The segmented construction was necessitated to keep the street open for traffic from both east and west for the duration and to accommodate construction of a new bridge over the Kilbourn Road Ditch. It also needed to be coordinated with new construction along IH 94 during the same time.

**Construction Details**

The first section of the new street was the east end, connecting CTH “S” with the Gordon site about one-half mile west. As construction proceeded, Cathy Honeyager and many of the Kenosha engineering staff were onsite since it was the first project using fly ash stabilizing (FAS) most had seen. GESTRA, the geotech firm that performed field testing, was also onsite. At the end of one early spring day, Honeyager observed, “I can’t believe how firm the subgrade materials became in such a short time.” The day after the first FAS was completed, new base course was completed and the process continued. Shortly after that, the first section of new concrete pavement was placed. The new 36-foot face-face concrete pavement section consists of two twelve-foot driving lanes, adjacent bike lanes, and standard curb and gutter. In areas of intersecting roadways, dedicated turn lanes were provided for the large volume of trucks.

The application rates for the fly ash as determined by Midwest Engineering Services lab testing was 120# /SY and the material was blended to a depth of 12”. Production rates for mixing were in the 50- to 55-feet-per-minute range, typical of this method. Onsite quality assurance (Q/A) testing revealed densities over 95% of Proctor in most in-
stances. On at least one occasion after the stabilizing had been completed for the day, rain fell on the new surface overnight, yet the next day, the grade remained firm, much to the surprise of first-time observers. Rain on a properly stabilized, compacted, graded and smooth-rolled base is actually an asset since the additional moisture prolongs the hydration process. Some jurisdictions actually require the contractor to spray water on newly stabilized subgrades for several days prior to paving.

**Teamwork**

After new 38th Street became a City asset, plans to pay for the work needed to be finalized. The City would be responsible for the new R/W and construction. The County agreed to assist with some construction costs. And since this improvement would benefit GFS, projecting that as many as 350 new jobs would be produced, WisDOT provided a Transportation Economic Assistance (TEA) grant for the primary construction. TEA grants are intended to support road improvement projects that result in new jobs.

After the bridge design was completed and plans were approved by the state (DOT and DNR), ARRA funds became available, even though some additional design modifications would be required to qualify. Modifications were made and the new bridge constructed last fall now serves the immediate region well. It is unlikely that spring floods will have any impact on the truck traffic. According to Lemens, coordinating all the agencies involved in the financing of the work was nearly as much work for Honeyager as the engineering.

**Last Phase and Evaluation**

There remains one short section of 38th Street to complete. It is along the north side of the Kenosha airport. The plan is to mill two inches of the existing asphalt, widen the road by adding pulverized material from previous phases, and place a new PC concrete pavement section across both the remaining asphalt and the pulverized material to match the adjacent section.

In a recent interview with Honeyager, she said she was “pleased with the uniform soil condition, the good performance even after rain events, the sustainability aspects of FAS and she would use it again.” For more information on this project call Mike Lemens, P.E, at (262) 653-4150 or Cathy Honeyager at (262) 653-4057.

**Value of Materials Reuse**

Stabilizing existing road materials with fly ash conserves resources and makes beneficial use of a product that might otherwise be discarded. In addition to stabilizing subgrade materials with predominantly clay soils, fly ash is also used for stabilizing reclaimed asphalt pavement. In this application, soft subgrades exhibit CBR increases from 4-6 to as much as 50-70 when treated with 10-12% Class “C” fly ash.

The American Coal Ash Association, along with FHWA and others, is developing a Green Highway Initiative that promotes sustainable construction techniques in improving the national transportation system. A large part of each of these initiatives is a concern for rapidly diminishing space for disposal sites in this country. They are a positive focus on reducing the “throwaway” mentality in America.

James R. Rosenmerkel is a consultant to Lafarge North America. He can be reached at (262) 547-2585 or at jbro@sbcglobal.net.

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Red light electronic enforcement

Striking the proper balance

Vance C. Smith, Jr.
Commissioner
Georgia Department of Transportation
Atlanta, Georgia

Each year, more than 800 people in the United States lose their lives as a result of someone running a red light; as many as two dozen of those fatalities occur in my state—Georgia.

Countless more individuals are injured in these crashes, many seriously. Quite often, the dead and hurt are innocent victims of a careless moment or a thoughtless driver. Attempting to curtail these avoidable, senseless tragedies, Georgia cities and counties for about a decade have been using traffic signal monitoring cameras for intersection detection and enforcement.

With no direct traffic law enforcement responsibilities, the Georgia Department of Transportation wasn’t involved in this effort except as an occasional grant manager for federal funds or if a camera was being placed at an intersection of a state or federal highway (and then the Department’s role was limited to simply allowing encroachment on its right-of-way). But as is the case with all state transportation departments, Georgia DOT’s foremost mission is providing for the safety of motorists. And studies have clearly demonstrated that these so-called red light running (RLR) cameras—when properly deployed and utilized—indeed do reduce red light violations and the often-catastrophic, high-speed, angle or side crashes that follow.

Use of these camera systems grew steadily in urban areas of the state, most noticeably Metropolitan Atlanta. By 2008, more than 260,000 citations for running red lights were being issued annually; generating more than $14 million a year in fines.

Critics began questioning if the programs weren’t becoming more aimed at revenue generation than crash prevention. Some charged the cameras actually were increasing the number of crashes at intersections. Georgia’s General Assembly began a review and asked DOT for its opinion and assistance. As I mentioned previously, these cameras have been proven to prevent crashes; thus, the Department response was that it supports their use—to save lives, not to raise revenues. (Parenthetically on crash frequency, some research indicates that while totals may occasionally increase at intersections after camera surveillance is installed, these are mostly minor, low-speed, “fender-benders,” as opposed to deadly side- and angle-impact crashes that often occur when a light is run.)

The General Assembly decided Georgia DOT should be the arbiter of red light programs. Legislators and Department traffic engineers developed operating standards and performance criteria for red light camera systems. Beginning in 2009, Georgia DOT became responsible for permitting camera applications. Those permits are valid for three years. Cameras already in service were reexamined and all but two eventually re-permitted. Chief among the new criteria is a standard for the timing cycle of traffic signal yellow caution lights—that period of time the signal shows yellow before turning red. The precise length of time a yellow light is displayed is determined by national standards that take into account a variety of factors including the speed limit and the grade of the road or street in question; in urban areas, a general rule of thumb is that yellow lights shine between three and six seconds. If a Georgia city or county installs a red light camera at an intersection, it now has to guarantee that the yellow signal is displayed for that specific intersection’s recommended, minimum-calculated period of time, plus one additional second to provide drivers a reasonable grace margin. If the signal fails to do so, Georgia DOT will not permit the camera. The Department will inspect this signal timing upon complaints and revoke a camera’s permit if drivers are not afforded the specified yellow light time.

Other new regulations prohibit law enforcement or court officials and the camera manufacturers from being paid fees or incentives based on the number of tickets issued. And every three years the Department will evaluate requests from local governments to renew their permits. The requests must include performance, ticketing and revenue reports as well as crash data from camera-enforced intersections. If the Department determines the number of angle and side impact incidents is not declining, or the local government hasn’t taken adequate other measures in the area to reduce red light running, such as posting appropriate signage and maintaining reasonable speed limits, it can choose not to renew a permit.

It is too soon to make any definitive judgments on the long-term effect of the new standards. RLR camera use in Georgia is down from 62 intersections in 2008 to 43; citations down to 84,000 last year; and fines to $4.6 million. But more important to the Department, re-permitting reviews show a decrease in side and angle crashes. That means lives are being saved.

To me, that means we’ve found the proper balance.

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July 2011 APWA Reporter 43
Opportunities for investing in Georgia’s transportation future

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As a state, Georgia is fortunate to have a vast system of roads and interstates in place to provide options and economic development opportunities for its nearly 10 million citizens. For many years, Georgia has ranked at the top of surveys rating the quality of the roadways, but in recent years, Georgia has experienced a drop in these rating surveys because funding dollars for transportation have decreased. Georgia now faces dealing with a declining transportation infrastructure and constantly increasing demands for new capacity.

After struggling with numerous proposed legislative bills to help address some of the state’s mounting transportation needs, the Georgia Legislature passed two bills in two consecutive sessions. The first, originally known as SB200, addressed a number of issues, but the primary point connecting it to the subsequent bill known as HB277, was the creation of a Director of Planning to oversee all transportation efforts falling under the Department of Transportation. Ultimately, I was chosen to serve in that new role, and continue that work today.

During the 2010 legislative session, members of the General Assembly passed the second bill (HB277) now called the Transportation Investment Act (TIA), which included the creation of 12 regional districts with the authority to approve a one-cent tax for transportation projects within their boundaries. The thread that binds these two bills together is the Director of Planning position.

In the Transportation Investment Act, the Director of Planning is tasked with working with each of the 12 regions to develop criteria and guidelines for projects that may be funded through the one-cent tax revenue generated. Each region is autonomous from the next, and is headed by a Regional Roundtable composed of a county commissioner from each county and one mayor representing all of the cities in each county. So, in effect, each county has two representatives at the table. Once the Regional Roundtable membership was determined, that group in turn elects members to serve on an Executive Committee of the Roundtable.

The first order of business for each Regional Roundtable was to adopt project criteria which will be used to evaluate potential projects. All projects must be transportation related and must be able to be completed within the life of the tax collection period—10 years. In addition to the tax being used for designated projects selected by the entire Regional Roundtable, each city and county within the region is eligible to receive 25 percent (15% in the ARC) of collected funds back for their discretionary use on any type of transportation project including trails,
streetscapes and more. There is a designated formula using lane miles and population to determine the amount received by each entity.

Overall, Georgia’s official state economist estimates that if passed statewide, more than $1.5 billion could be generated annually by the transportation tax. Each Region’s voters must pass the tax within the region for a specific project list associated with the tax. It is possible to have the transportation tax in some areas of Georgia, but not in other sections of the state. The TIA specifically establishes penalties for any region that fails to have a project list approved by the Roundtable, and, even for any region in which the voters veto the tax at the polls. Much is at stake for transportation efforts across Georgia.

My staff and I issued a call for projects earlier this year. These projects were submitted to the appropriate Regional Commission for packaging, and officially delivered to the Department on April 15. More than 4,000 project submittals were received statewide. Currently, the Planning Division staff is reviewing each project to ensure that it meets the criteria established and approved by each individual Regional Roundtable. Once the initial evaluation is completed, the list of all eligible projects, with no fiscal constraints, will be presented back to the Executive Committee of the respective Roundtables. The members of the Executive Committee are charged with the difficult duty of recommending projects to the full Roundtable that do not exceed the anticipated amount of tax collections in the region. Prior to any projects being presented to voters, the entire list must be approved by the full Roundtable.

Just getting to this point in Georgia is already a success story. The state’s legislators have managed to accomplish what many others have yet to achieve—an option to fund transportation that citizens may vote to see as a reality in 2012. Many eyes are watching the progress in Georgia, and utilizing the examples being set as they search for means to secure transportation funding in their respective arenas. Georgia’s citizens are challenged with taking action; challenged with being proactive in determining their future; and challenged with making the right choice for their individual transportation wishes.

Despite the fact that much of the process in taking a legislative law to full implementation of the final product is over a year away, Georgia’s transportation community and leaders work diligently each day towards presenting the best possible projects for voters across the state, region by region. I, along with my entire planning team, look forward to the long-term positive impact our hard work will have in Georgia.

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Toward Zero Deaths: a National Strategy on Highway Safety

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T
hough 2010 saw another decrease in highway fatalities on our nation’s roads, roadway safety remains one of the most challenging issues facing America. Although many highway safety stakeholder organizations have stepped forward to address these needs, there is no singular strategy that unites these common efforts. Agencies with responsibilities for roads, associations representing highway agencies or highway safety interests, advocates, and others are joining together to create a national strategy on highway safety.

The need for a national strategy on highway safety was initially discussed at a workshop in 2009, and since there was strong agreement among the participants that even one death is unacceptable and therefore, we must aspire to move toward zero deaths. Based on input from over 70 participants at that workshop, the name of this effort became Toward Zero Deaths: a National Strategy on Highway Safety.

What is the purpose of this strategy?
Many successful programs for reducing highway fatalities are already in use, and there are other promising strategies under development. Toward Zero Deaths: a National Strategy on Highway Safety will be a data-driven effort focusing on identifying and creating opportunities for improving our current highway safety efforts over the next 25 years and on changing American culture as it relates to highway safety. The effort will also focus on developing strong leadership and champions in the organizations that can directly impact highway safety through engineering, enforcement, education, emergency medical service (EMS), policy, public health, communications, and other efforts. The national strategy will be utilized as a guide and framework by safety stakeholder organizations to enhance current national, state and local safety planning and implementation efforts. The intent is to develop a mechanism for bringing together a wider range of highway safety stakeholders to work toward institutional and cultural changes.

One of the most significant needs is to change Americans’ attitudes toward highway safety. There are already programs and technologies that can result in substantial reductions in fatalities; however, those benefits will not be realized as long as the public and elected officials are not willing to pass laws or take the actions needed to implement them. This is why the national strategy will have two tiers: Cultural Change and Building the Foundation of Safety. We need to bring about cultural changes and strengthen leadership while improving the effectiveness of current activities.

What has been accomplished so far?
Based on input received from highway safety stakeholders during webinars, workshops, and presentations at conferences and other forums, a draft outline for the national strategy has been developed. In addition, the Federal Highway Administration sponsored the development of a series of white papers that present ideas related to addressing several highway safety issues, and these have been incorporated into the outline for the national strategy as well. The main focus areas of the national strategy will be:

- Safer Drivers
- Safer Vehicles
- Safer Vulnerable Users
- Safer Infrastructure
- Emergency Medical Services
- Data Systems and Analysis Tools
- Safety Culture

For each of the focus areas, challenges and potential strategies will be presented. Stakeholders have provided many ideas for potential strategies and programs, as well as challenges to implementation, to include in each of these areas.

What are the next steps?
Funding has been provided through the National Cooperative Highway Research Program for two projects to develop the national strategy and to develop a communications and marketing plan for the national strategy. To ensure the national strategy is applicable to all safety stakeholders and that all stakeholders are aware of the strategy and ongoing activities, input from stakeholders is needed as these projects progress. The two projects are getting underway, and additional information will be distributed to stakeholders.

The goal is to have safety stakeholder organizations around the country adopt the national strategy, and ideally use it as input to their own safety programs. To reach those goals, the next immediate step is to identify and understand challenges and opportunities in reducing highway fatalities. Much work has been done to identify safety strategies and quantify their effectiveness, but additional research is needed to determine the impact of these strate-
gies when fully implemented. The impact must include projections of lives saved as well as the health care costs of highway injuries and deaths, best practices, effective means of creating a cultural change, and other issues.

**How can you be involved?**

Even more important than the national strategy itself is the process through which it will be developed. It must be both comprehensive and cross-cutting; it will need to have input and involvement from a broad base of stakeholders. Members of over 100 organizations have already expressed an interest in participating in the Stakeholder Group being facilitated by FHWA and AASHTO to provide additional input and feedback throughout the process. If you are interested in joining, please contact Kelly Hardy at khardy@ashto.org or (202) 624-5868. You can review materials developed to date: a temporary website has been established to house materials developed in the early stages of this effort: http://safety.transportation.org/activities.aspx. A more complete website will be developed as part of the NCHRP projects mentioned above.

Deaths on U.S. roadways have decreased to historic lows, but still remain a significant public health threat.

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Every Day Counts!

Greg Nadeau
Deputy Administrator
Federal Highway Administration
Washington, D.C.

Federal Highway Administration (FHWA) Administrator Victor Mendez launched the Every Day Counts (EDC) initiative in November 2009 to bring a better, faster and smarter approach to highway and bridge construction. A strong infrastructure is vital to winning the future. Infrastructure projects create jobs today and will allow people and goods to move efficiently in the twenty-first century. In order to address that challenge in today’s economic climate, Every Day Counts relies on innovation to shorten project delivery and make greater use of promising technologies.

To help stakeholders implement Every Day Counts initiatives, FHWA has adopted a new mindset that is called “leaning forward.” Administrator Mendez describes this as being a waiter who not only presents the menu but makes recommendations and solicits feedback.

FHWA presented its menu of initiatives during 10 regional innovation summits last fall, engaging stakeholders in the transportation community such as federal, state and local agencies, as well as industry partners. Following the summits, all fifty states, the District of Columbia, Puerto Rico, the U.S. Virgin Islands, and all three Federal Lands Highways Divisions have identified EDC initiatives to move forward.

The menu consists of eight initiatives in the Shortening Project Delivery Toolkit*:
- Expanding the Use of Programmatic Approaches
- Use of In-Lieu-Fee and Mitigation Banking Programs
- Enhanced Technical Assistance for Ongoing EISs
- Legal Sufficiency Enhancements
- Planning and Environmental Linkages
- Clarifying the Scope of Preliminary Design
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- Flexibilities in Utility Accommodation and Relocation

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- Adaptive Signal Control Technologies

In keeping with the Administrator’s “leaning forward” approach, the FHWA offices in each state are responsible for supporting the State Departments of Transportation by offering recommendations and becoming advocates for EDC initiatives.

Every Day Counts is enhancing the culture of innovation that is a key part of FHWA. We’re not just leaning forward, we are also looking forward and soliciting feedback—not just to measure our successes, but to make Every Day Count.

* The Shortening Project Delivery Toolkit is a complimentary library of resources to assist FHWA partners and stakeholders. You can find the Toolkit at: http://www.fhwa.dot.gov/everydaycounts/projects/toolkit/.

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federal Highway Administrator Victor Mendez launched an agency-wide program named “Every Day Counts” (EDC) approximately 18 months ago. With this program, FHWA seeks to streamline and expedite the federal highway project delivery process and utilize new technology in the construction of highway projects. Administrator Mendez’s goal is to shorten the federal project delivery time, which can take up to 13 years for the standard design-bid-build process, by 50 percent. (You can learn more about FHWA’s EDC Program at http://www.fhwa.dot.gov/everyday-counts/index.cfm). APWA and the National Association of County Engineers (NACE) have been partners with the Federal Highway Administration (FHWA) in this worthwhile initiative since before its fielding in November 2010. (Of course, the partnership has benefited from the fact that NACE’s Executive Director, Tony Giancola, is very familiar with APWA, being an APWA Life Member himself.)

APWA and NACE have vested interests in helping FHWA succeed in this endeavor. Streamlining local highway projects with federal aid funding (referred to by FHWA as the Local Public Agency [LPA] Program) is a major need and priority of local government members of both organizations. Local government APWA and NACE members know only too well that local government officials and citizens do not understand a local transportation project requiring even six years for implementation. They are used to having their projects completed in 2-4 years. But, state and federal highway delivery processes are not currently structured to react that quickly. Additionally, many local governments choose to not apply for federal funding for local highway projects due to either perceived or past experience with too much governmental red-tape, bureaucracy and added costs of federal requirements. Whether this feeling is based on perception or reality, the results are the same—many local governments avoid federal funding on local highway projects. Consequently, many federal highway funds allocated to local programs go unspent.

Over the past year, APWA and NACE have testified and submitted suggestions on improving the federal aid project delivery process to the U.S. House Transportation and Infrastructure Committee’s Highways and Transit Subcommittee’s public hearing on “Accelerating the Project Delivery Process,” several of the U.S. House Transportation and Infrastructure Committee’s “Transportation Bill Listening Sessions,” the U.S. DOT Rules Review public hearing, and FHWA. Major recommendations include:

- State and local projects which receive up to 25 percent or $5 million, whichever is greater, of the total project funding from federal sources should be exempted from federal laws and regulations, provided such projects follow all applicable state and local laws and regulations, including laws and regulations applicable to protection of the environment and right-of-way acquisition. Furthermore, state or local projects do not become subject to federal laws and regulations (“federalized”) until such time as the Federal Highway Administration or Federal Transportation Administration notifies the affected State Transportation Agency or governmental agency that the project has been approved to receive federal funding; prior work by the state or local government is to be acceptable to federal agencies, provided the work followed applicable state and local regulations.
- Provide clarity that federal requirements apply only to the project phases (planning, design, right-of-way, and construction) for which federal funds are used, for the identifiable segment length (project limits) of the project and only until completion of the phase receiving federal funds or when the federal and local match funding is expended.
- Allow state and local government funded work efforts for project planning, environmental review, design and right-of-way, performed prior to award of federal funding, to be used as match for federal funding on the project.
- Designate a lead federal agency for all transportation projects, which has the responsibility and authority to interpret and monitor all federal regulations for the specified type of transportation project, e.g., designate FHWA as the lead federal agency to interpret all federal regulations regarding highways and bridges.
Require all federal permitting agencies to identify additional required information, advise that no permit is required, or issue a permit within 60 calendar days of a permit application for transportation projects.

- Without compromising environmental protection or opportunities for public input, simplify the NEPA legislative language and applicable federal regulations to provide clear guidance, make the process outcome-based, provide for a national clearinghouse submittal of NEPA documents, streamline the process, allow greater opportunity for and more definitive guidance on qualifying projects as programmatic Categorical Exclusions, reduce documentation (paperwork) requirements, allow for greater, less burdensome delegation of FHWA’s environmental authority to states, and increase authority for states and U.S. Department of Transportation (USDOT) to use programmatic approaches for environmental compliance.

- The use of Categorical Exclusions should be expanded, and the establishment of dollar thresholds for review is an important best practice. The review and processes would be reduced and streamlined for projects below these thresholds, to reflect the low risk encountered. A two-page template was submitted that each FHWA Division and State Transportation Agency could utilize for any federal aid highway pavement preservation or rehabilitation, bridge replacement or rehabilitation, safety, sidewalk, bicycle and pedestrian project in the existing right-of-way and not requiring any additional real estate acquisition. The template was developed by NACE from samples currently in use by Minnesota and Alabama to simplify and accelerate processing time. State and local governments would comply with state and local regulations; however, the suggested template is intended to be the only documentation required to be submitted by a state and/or local government for FHWA to authorize the listed project types.

- Allow state and local governments to utilize general engineering consulting contracts for provision of professional engineering services on federally funded projects, when the consultant selection has been performed in accordance with state law or local ordinance or rule similar to the federal Brooks Act.

- Require all State Transportation Agencies to have dedicated offices and staff for the sole purposes of

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preparing guidelines, training, and assisting local governments in applying for federal and state funding and implementing federally- and state-funded projects.

- Allow local agencies to comply with their USDOT agency approved DBE goals in lieu of a State Transportation Agency's DBE program, provided the local agency elects to do so by advising the granting agency of its election in writing.

- Provide that the person in Responsible Charge of a federally-funded local project may be an employee or an agent engaged by the local agency.

- Consider a model similar to the HUD Community Development Block Grant program, where federal funds are granted directly to the local governments. Compliance with federal requirements is necessary and subject to audit, but the local agencies are trusted to carry out the program effectively.

If any APWA member has any additional recommendations for streamlining the federal-aid local government project process, please submit your suggestions to the chair of either the APWA Transportation Committee or Transportation Reauthorization Task Force, or you can send them directly to me and I will forward them to the chairs.

FHWA fielded its EDC Program through a series of 10 EDC Regional Innovation Summits held around the nation. At FHWA’s invitation and with the help of dedicated APWA members involved in transportation, APWA was represented at 7 of the 10 one and one-half day summits, which involved presentations on the identified innovative delivery approaches and new technologies and discussions by the attendees of issues and potential solutions. (Anyone can share their ideas with FHWA on how to Shorten Project Delivery or Accelerate Technology & Innovation Deployment at http://www.fhwa.dot.gov/everydaycounts/contact/innovationbox/.)

It became evident at the EDC Summits that, while some of the innovative delivery approaches could be utilized by local governments, most of the discussions were targeted to delivery of major projects by state departments of transportation (DOTs); as well they should be, because the majority of the federal highway funds are targeted to state highway and bridge projects. However, local governments own approximately 75 percent of the nation’s nearly four-million-mile roadway network and nearly 51 percent of the nation’s bridges (nearly 300,000 bridges are under local control) and manage about 90 percent of the transit systems. A review by FHWA of “The Administration of Federal-aid Projects by Local Public Agencies” in 2006 indicated that locally administered projects represent approximately 20 percent of the overall annual federal-aid program. At the request of APWA and NACE, FHWA has continued to include APWA and NACE in its EDC initiative, by hosting one-day Peer-to-Peer Exchange meetings in conjunction with the American Association of State Highway and Transportation Officials’ (AASHTO) four regional 2011 meetings, held June-August 2011. The purpose of these meetings is for state DOT and local government agency representatives within the region to meet and discuss problems experienced by state and local governments with implementation of federal aid local highway projects and potential solutions to those problems, as well as share Best Practices among attendees. APWA and NACE public agency members are being invited by FHWA to attend and participate in these discussions.

A follow-on step will be for local public agencies in each state to meet with their respective state DOT to discuss state specific improvements to delivery of federal-aid projects by local governments. Situations vary from state to state, requiring most state DOTs to vary their implementation of the federal LPA Program. Therefore, “one-size” will not fit all.

FHWA is also currently developing FREE, web-based training courses on federal LPA project delivery processes. They expect to field that training in the near future. APWA will advise its membership when the courses become available and how to access them. Current FHWA resources for the LPA Program can be found at http://www.fhwa.dot.gov/federalaid/lpa/.

APWA and NACE wholeheartedly agree with Federal Highway Administrator Mendez and Deputy Administrator Greg Nadeau (Administrator Mendez’s very capable lead on this initiative)—“Every Day (and Dollar) Counts!” And, we look forward to continuing to work with FHWA and our state DOTs to streamline the project delivery process and technology fielding to help stretch every dollar as far as we can for our taxing citizens. It is apparent that efforts to increase transportation revenues will not be successful at this time. Therefore, it is imperative that we do everything practical to streamline our processes in order to stretch the available funding as far as possible. Every dollar saved is another dollar available for another project.

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Don’t miss this opportunity to advertise in the September “Congress Show” issue which covers the 2011 APWA International Public Works Congress & Exposition in Denver (Sept. 18-21) and will feature articles from speakers at the conference.

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A brief history of airports

Janet R. Bednarek, Ph.D.
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University of Dayton
PWHS President-Elect

If you define an airport very simply as a place where airplanes regularly take off and land, the world’s first airport was a cow pasture outside of Dayton, Ohio. In 1904 and 1905, Wilbur and Orville Wright used the field as they modified and improved the design of their flying machine. In fact, in the early years of aviation, cow pastures, race tracks, golf courses, city parks—any open, level, well-drained piece of land—could and did serve as make-shift, mostly temporary, airports. Most of the first, permanent flying fields appeared during World War I to answer military needs. After the war more civilian airfields began appearing. Many, if not most, served another branch of the federal government, the Post Office, which first experimented with carrying the mail by air in 1918. By the mid-1920s a national network of airports, linked by a navigational system of lighted beacons, allowed the Post Office to move mail from coast to coast in about 36 hours—far faster than the train.

By the mid-1920s, as well, states had begun to enact the enabling legislation that would empower local governments (cities and counties) to build and operate airports. Though private interests had been behind many of the earliest facilities, as aviation advanced airports became more complex and expensive, and aviation boosters increasingly believed that only public financing could meet demand, especially after the Post Office turned over its airmail system to private contractors with the idea that these companies would carry not just mail, but passengers. The simple fields that had met Post Office needs could not meet the requirements of the new airlines. To attract passengers away from the railroads, the airlines needed to offer regular service. That meant flying day and night and in some adverse weather, which generally required well-lighted fields with hard-surfaced runways. The airlines also called on cities to improve the terminal facilities at their airports. And the first air traffic control towers appeared during the 1930s.

Air travel was a growth industry despite the depression. Though many municipal airports remained somewhat humble in appearance, by the end of the 1930s the first model, modern airports appeared—National Airport in Washington, D.C., and LaGuardia in New York City. Though war would soon slow the growth of civilian air travel, the military’s need for airfields resulted in significant federal investment, not only in new military airfields, but in the existing municipal airports, many of which were converted to military use during the war. After 1945, most of these converted back to municipal ownership in a much improved condition. Additionally, a number of air bases built during the war became surplus with the end of hostilities and turned over to cities to serve as municipal airports.

To a great extent when looking at the major airports serving the commercial airlines in the U.S. today, most all were in place by the end of World War II. Although many smaller local and regional airports were constructed, very few major airports were. Noise and other forms of pollution as well as urban sprawl contributed to the decline in major airport construction. Some cities, though, did gain new airports as military bases continued to be converted to civilian use. Instead, to meet often rapidly increasing demand, since the 1950s the challenge has been to expand and improve existing airports.

Dr. Janet Bednarek is a Professor of History at the University of Dayton and President-Elect of the Public Works Historical Society (PWHS). She is the author of America’s Airports: Airfield Development, 1918-1947 (2001) and the PWHS essay Cities Take Flight: A Centennial History of the American Municipal Airport (2004). Her article, “The Flying Machine in the Garden: Parks and Airports, 1918-1938,” was selected for inclusion in Best American History Essays 2007. She can be reached at janet.bednarek@notes.udayton.edu or (937) 229-2848.

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Highway Safety Improvement Program Project Identification

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Washington, D.C.
Member, APWA Road Safety Subcommittee

The Highway Safety Improvement Program (HSIP) is a core Federal-aid highway program with the primary purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. Many states and local agencies are successfully implementing innovative approaches to HSIP planning, implementation, and evaluation.

**HSIP Project Identification**

States are required (23 U.S.C. 148) to perform safety project identification and analysis as part of the HSIP. However, the law does not specify the methodologies states shall use. The HSIP Manual (FHWA-SA-09-029) outlines the following steps for project identification: collect and analyze data; identify crash types and contributing factors; establish a crash pattern; conduct field reviews; identify countermeasures; assess countermeasure effectiveness; and use the current science (e.g., crash modification factors) to determine and prioritize project selection. The goal is to use data-driven decision making to identify and prioritize projects with the greatest potential for reducing deaths and serious injuries on all public roadways.

In practice, methods used to identify candidate project locations vary significantly from state to state. Many states identify potential locations for safety improvements based on crash frequency or rate, while some have begun to use more advanced methods that incorporate safety performance functions (SPFs) or the Empirical Bayes (EB) method. In addition, some states are changing focus from “hot spot” improvements to a systemic approach. Qualitative information commonly used to identify candidate safety projects include panel reviews, input from public and law enforcement, field reviews, and road safety audits (RSA).

Some state departments of transportation (DOT) select projects at the state level while others distribute funds to DOT District offices to use at each district’s discretion. Many states selecting projects at the state level solicit projects from DOT District offices and local agencies for consideration. States commonly conduct benefit-cost analyses to select and prioritize projects and rank them first using the highest benefit-cost ratio or net present value.

One of the biggest challenges to effective project identification is the lack of data, particularly for local roadways. Even when quality data are available, many states do not have the training, resources, or tools to apply the more advanced and rigorous data analysis methods necessary to use them effectively. In addition, competing political or institutional realities could impose non-data-driven factors on the decision-making process, making it difficult to select those HSIP projects with the greatest potential to improve safety.

While many considerations enter into project selection, quantitative analysis should be used whenever possible in the prioritization process (e.g., comparing cost, effectiveness, and lifespan of the project). Quantitative information lends objectivity to the decision-making process and helps maximize the safety benefit for the resources invested.

**Noteworthy Practices**

The following cases demonstrate noteworthy practices several states are using in HSIP project identification.

The North Carolina DOT (NCDOT) developed four categories of safety warrants used in the network screening process to identify locations with severe crashes and crash patterns that can be addressed by engineering safety countermeasures. To provide a clear and consistent data-driven process, NCDOT developed a decision support tool to perform the initial prioritization of all candidate safety projects from across the state.

The Missouri DOT (MoDOT) made the state’s HSIP more proactive through the systemwide implementation of engineering strategies described in Missouri’s Blueprint to Arrive Alive (Strategic Highway Safety Plan). Using HSIP funds, MoDOT incorporates the installation of rumble strips/stripes, improved signing and delineation, wider pavement markings, and improved shoulders into pavement resurfacing projects. Since 2007, almost two-thirds of MoDOT’s HSIP funds have been allocated to systemic improvements, resulting in a safer system overall.

The Minnesota DOT (MnDOT) restructured its HSIP to provide funding for local agencies to address the large proportion of severe crashes occurring on local roadways, and developed funding goals for proactive and reactive improvements. MnDOT developed a “proactive spectrum” to establish safety funding goals for the Metropolitan District (Minneapolis/St. Paul area) and
rural districts. Minnesota has successfully increased the proportion of safety funding spent on proactive improvements. Almost 90 percent of projects programmed for fiscal year 2010-2011 are proactive.

The Illinois DOT (IDOT), with the assistance of the University of Illinois, developed safety performance functions (SPFs) for all state routes and intersections using the Empirical Bayes (EB) method. IDOT uses the SPFs in the network screening process to identify locations with the highest potential for safety improvement. The use of SPFs in the network screening process enables the state to shift emphasis of the HSIP away from focusing on urban, densely populated areas. The resulting broader focus includes low-cost safety improvements or systemic improvements that may not have been identified using previous screening methods.

The Colorado DOT (CDOT) developed sophisticated predictive and diagnostic tools that incorporate calibrated SPFs for all public roadway types and intersections in the state. These tools enable CDOT to maximize potential crash reduction in the state within the constraints of available budgets. CDOT institutionalized the use of these tools by applying them to all CDOT projects. Over the seven years of applying these methods on all infrastructure projects, the state has achieved an unprecedented fatal crash reduction of 36 percent.

For more information on these and other HSIP noteworthy practices, visit http://safety.fhwa.dot.gov/hsip/resources/fhwasa1102/toc.cfm or contact Ben Gribbon at Benjamin.Gribbon@dot.gov.

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The Department of Resources Recycling and Recovery (CalRecycle) promotes the use of tire-derived products to help reduce the nearly 11 million tires that end up in landfills each year. Over the years, CalRecycle has investigated a variety of waste tire diversion alternatives through its research and market development efforts, and to date, projects involving rubberized asphalt concrete (RAC), civil engineering uses, energy recovery, molded rubber products, and other tire-derived product applications have been explored. Of these, RAC and tire-derived aggregate (TDA) used in civil engineering projects have shown the greatest promise for diverting a significant portion of tires.

RAC has been used in California for 30 years and is the largest recycled tire application in use in California today. Composed of ground tire rubber, and mixed with asphalt and other aggregate, RAC puts 2,000 tires to new use with every paved lane mile. Roads paved with RAC last longer, need fewer repairs, provide better traction, and reduce noise by up to 85 percent. CalRecycle’s RAC grant program helps cities and counties pave streets with RAC, and also provides technical assistance to communities interested in using the product.

While RAC is widely used, and RAC grants have been available for several years, CalRecycle is branching out to promote TDA as an equally beneficial and cost-effective recycled tire product.

TDA is made from shredded tires and can be used for slope stabilization, retaining wall backfill, lightweight embankment fill, vibration mitigation, various landfill applications, and more. TDA constitutes the second largest reuse of scrap tires in California. To promote its use in state highway projects, CalRecycle has partnered with the California Department of Transportation (Caltrans).

Caltrans completed its latest TDA project in August 2009 to repair portions of U.S. 101 at Confusion Hill in Mendocino County, which had been damaged by rockslides and road surface slip-outs. These problems became more frequent as years passed, requiring constant and costly maintenance. Caltrans chose to reroute U.S. 101 to avoid the rock slide area and its related problems. The proposed route required two new bridges, but the embankment for one bridge had an existing underground drainage structure that could not handle additional load. Project engineers determined that a lightweight fill material would prevent possible damage to the subsurface drainage. TDA was chosen because of its lightweight properties and cost-effectiveness. The project used approximately 270,000 waste tires and saved Caltrans an estimated $320,000. Based on the success of this project, Caltrans has accepted TDA as a viable lightweight construction material.

Recycled tires: the green and cost-effective solution

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Landslide repair of Marina Drive

56 APWA Reporter July 2011
CalRecycle has also partnered with local governments using TDA on landslide highway repair projects in Mendocino, Sonoma and Santa Barbara Counties.

Portions of Marina Drive in Mendocino County were constructed on steep terrain vulnerable to landslides, especially during heavy rain. In 2006, saturating rains triggered a landslide that damaged Marina Drive for the fourth time in less than 10 years. As in the past, the road surface slipped a few feet. In the interest of minimizing road closures, county crews would normally add more pavement to make the slipped section even with the original road surface. This proved to exacerbate the problem by adding more weight to the repaired section, making it more likely to slip again in the future. With the latest damage, it became apparent a new, longer lasting repair was necessary.

The traditional technique of repairing a landslide or “slip-out” requires excavating unstable material to reach more stable soil, then rebuilding the slope in lifts (compacted layers of soil). Drainage networks are typically added so hydrostatic pressure does not build up behind the fill after rain storms, causing potential instability. With TDA, less excavation is required to achieve the appropriate factor of safety since TDA is much lighter than soil. TDA is also free draining, which means water flows though the backfill material instead of saturating the soil, resulting in a more stable road section. This new design technique resulted in a more cost-effective and permanent way to repair roads that fail because of landslides. Using TDA to repair Marina Drive saved Mendocino County $740,000 and put 133,000 waste tires to use.

CalRecycle also promotes use of TDA in other applications. In 1999, the department commissioned the first field test of TDA as a vibration damping material under light rail tracks. The result of that test led to the recommendation that the Valley Transit Authority (VTA) use TDA for its Vasona Line light rail extension in Santa Clara County.

VTA built a test section in its San Jose rail yard in 2001 to test the vibration-dampening effect of TDA. CalRecycle supplied the TDA and monitored construction and testing of this pilot project.

Tests confirmed that the use of a one-foot-thick layer of tire shreds located beneath the sub-ballast, ballast layers, and ties of the light rail track section was an effective vibration mitigation measure. Based on these findings, VTA chose to construct four sections of track, more than a half-mile in length, with the new TDA vibration mitigation underlayment during construction of the Vasona Line extension, which was completed in 2005. An analysis conducted in 2009 showed the sections of track with TDA were still mitigating vibration effectively after four years of operation.

Using TDA along part of the Vasona Line extension diverted 100,000 waste tires from California landfills and resulted in a savings of $1 million. In a related project, the Bay Area Rapid Transit system will use TDA as a vibration dampening measure as it expands from Fremont toward San José over the next seven years, diverting at least 250,000 tires from landfills.

With the experience gained from these successful state and local partnerships, CalRecycle now considers TDA a truly green solution: a cost-effective, reliable alternative to traditional fill materials such as gravel or soil.

For more information about TDA use in civil engineering projects, visit the Green Roads website at www.paving-greenroads.com.

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Dynamic Monitoring: What it can do for our nation’s bridges

How dynamic monitoring can benefit public works departments

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Bridges are some of the most important structures in our society; we depend on them to facilitate relations and commerce. They are a source of pride, and an essential component for national security and stability. Our nation’s public works departments are charged with the task of maintaining and rehabilitating our nation’s bridges. When the integrity of a bridge becomes compromised, it endangers lives and disrupts economies, causing havoc for public works officials.

Many of our nation’s bridges are currently considered structurally deficient. The United States Department of Transportation rates 12 percent (or 71,000) of the nation’s bridges in the category “structurally deficient,” meaning a bridge has a major defect in its support structure or its deck is cracking and deteriorating.

This is alarming for the reason that engineers generally build bridges in the United States for a useful life of 50 years. The average age of America’s bridges is now 43 years, with 185,000 over 50 years old. By 2030, the number of bridges over 50 could double. The U.S. would then find itself with a huge surplus of bridges requiring attention. This is a nightmare for public works departments tasked with keeping our infrastructure intact.

Monitoring a bridge to ensure conditions don’t worsen is now an option. It will enable public works officials to make educated decisions as to which bridges are swiftly deteriorating and need immediate attention. Dynamic monitoring can be a highly effective means of ensuring safety. Additionally, dynamic monitoring can be installed on bridges as they are built or repaired, so they may be monitored during the construction process.

Static vs. dynamic loads

A deficient bridge is operating under various stresses. These man-made and environmental factors can affect the well-being of the bridge. This is where dynamic monitoring comes into play.

Loads applied to a structural system impart stresses, deformations and displacements. Although loads may be associated with a variety of causes and can elicit diverse structural responses, the overall safety of an entire bridge or for an individual structural element may be related to its displacement capacity.

In general, there are two types of loads that need to be considered: static and dynamic. While most engineers are aware of these types of loads, there are significant differences between the two. In a static loading condition, the load is constant with respect to time. The weight of a bridge would be considered a static load, or even construction equipment parked long-term on a bridge would be a static load.

On the other hand, dynamic loads are the forces that move or change when acting on a structure. It is an external load that varies with time, imparts stresses to the structure’s forces that are also variable with time, creating interdependence between cause and effect. A dynamic load’s ability to influence a structure can also be significant. These loads can come from a variety of inputs including human activity, working machinery, construction work, vehicle collisions, collapse of structural elements, loss of soil support and weather-related issues, such as wind. Any structure with defined characteristics, such as mass distribution, stiffness components, and inherent damping values, will respond differently for various dynamic loads.

Alternatively, changes in the structural characteristics will produce a different response to the same external dynamic event. The measurement of how and when a structure, such as a bridge, moves, vibrates and tilts can provide valuable insight into structural behavior and by extension to structural safety.

Factors affecting dynamic loads

Dynamic monitoring solutions can offer continuous monitoring to public works engineers with routine distribution of the summary reports, serving as an early warning system to identify trends which underlay poor structural response. There are many examples where continuous dynamic structural monitoring has resulted in better assessments of structural health following an extreme event than visual inspections. To this end, dynamic monitoring solutions collect, electronically analyze and distribute structural and environmental measurements to local and remote managers.

Many factors contribute to dynamic loads. Excessive response to a dynamic load may not only result in damage to a bridge or structure, but can have negative physiological and psychological effects on people and degrade machine performance. Meeting the challenge associated with dynamic behavior requires advancements in materials, tools, procedures, design and management (decision-making). The data associated with dynamic response often needs to be contextualized to the problem at hand and made actionable and visible to engineers and decision-makers.
Monitoring the dynamics of a bridge

When monitoring the dynamics of a bridge (or bridge element), profiles are created which describe how the bridge moves, vibrates, tilts, and deforms at rest and under load. These profiles are calculated from the actual responses of the bridge and are based upon the principle that for a given load, a bridge’s response will be the same if the bridge’s capacity to carry that load is the same. If the bridge’s capacity to carry a given load changes or a new loading condition is introduced, then the dynamic response of the bridge will change and these changes can be detected by sensors.

A dynamic monitoring system measures how specific bridge elements respond at rest and under load. Depending on the risk potentials, a typical monitoring package may include placing sensors on the piers, spans, reinforcing/support elements, and substructure and substructure elements.

A system by SENSR—SENSRnet—automatically measures the real-time responses, creates the graphs/summary reports, and posts the information to the Internet. From the Internet, engineers and managers in the public works department can access the data on demand and incorporate the bridge’s actual response information into their decision processes and work plans. The system provides the real-time link and overview capabilities that are needed to ensure that the preplanned activities in a construction schedule are reviewed and confirmed in reference to the current status of the bridge and its environment.

Case studies

Take the example of the bridge replacement project over Lake Champlain, which connects upstate New York and Vermont. The safety of the existing bridge became a concern during an initial evaluation of pier stability. While emergency repairs were under design development, a 3D accelerometer and 2D tiltmeter were installed at the pier that had signs of distress. This monitoring system served two purposes:

1. to establish whether temperature changes were introducing significant pier movements, and
2. to identify any abrupt changes in stiffness which would be associated with crack propagation in the massive unreinforced concrete piers.

According to Theodore Zoli, Technical Director of HNTB, “The 2D tilt meter clearly demonstrated that the bearings were frozen and that the piers were pivoting about preexisting cracks. The 3D accelerometer allowed us to assess whether the preexisting cracks were stable. In this manner, we were able to assess the safety of the structure continuously throughout the period that personnel and equipment were preparing the existing bridge for explosive demolition. In terms of the overall safety assessment of the existing bridge piers, the tiltmeter confirmed expansion pier movements of over an inch during a daily thermal cycle, which helped to confirm the unsafe conditions of the original structure caused by frozen bearings and substantial pier deterioration.”

“Without the data that we were able to obtain, many of the issues we uncovered might not have been as clearly understood during the early stages of analysis,” said Zoli. “Had we moved forward with emergency pier rehabilitation without a clear understanding of the pier behavior, it could have been the wrong decision, particularly given that lake ice was determined to be a significant contributor to the observed pier damage and the ice conditions would have been a major issue during pier rehabilitation. The monitoring system was a key element in the decision-making for bridge replacement, instead of bridge rehabilitation.”

The Burlington Bridge, spanning across the Mississippi River, runs between Burlington, Iowa and Gulf Port, Ill. Carrying a double-tracked rail line, the bridge was constructed in 1868 and reconstructed in 1893. Over the years, the bridge has been closed three times for severe flooding and high water and was declared a navigational hazard by the U.S. Coast Guard. Used for BNSF Railway’s Chicago to Denver mainline, this bridge was in need of major expansion to accommodate the increase in waterway service. In order to ensure a safe solution, preconstruction data were required to provide a baseline for
comparing pier reactions related to the construction activity. Four dynamic monitors were selected to provide this monitoring, as well as the use of a monitoring system to monitor the responses of the bridge. Don Lozano, Assistant Director of Structural Design at BNSF, stated that railway bridges have a unique live load that is often many times greater than the dead load on a pier. As such, there is generally more pier motion on railway bridges than on highway bridges, which is why monitoring solutions are so effective. He noted that pier reaction had never been measured to this type of detail before.

**Benefits of dynamic monitoring**

Aside from the ability to detect and report structural responses and environmental measurements, there are additional benefits to dynamic monitoring. Dynamic monitoring fills in the gaps between periodic inspections by providing continuous trend data and critical measurements that are not discernible by periodic visual inspections. Additionally, public works departments may not always have the budget or manpower to conduct as many onsite inspections as desired. Dynamic monitoring provides the public works staff with real-time data on the condition of the bridges and structures around the city.

![Earthquake recordings with SENSRnet](image)

Continuous monitoring is necessary to ascertain normal or baseline responses, which can be used for comparisons. Used for recording unexpected events such as flooding, earthquakes and collisions, dynamic monitoring solutions can easily transition from a construction monitoring system to a permanent remote bridge monitoring system.

**The myths of monitoring**

There are many myths about dynamic monitoring. It is often overlooked or considered a liability, rather than an asset to the public works department. This couldn’t be further from the truth.

In terms of validation within the public works community, the potential use of dynamic monitoring has been widely underappreciated. Historically, structural engineers have tended to downplay the value of monitoring completed structures. The cost and complexity of such monitoring systems have been the problem in the past. But now, modern systems can be installed in hours, as compared to days for the old systems. Complete systems are available at a reasonable price, often for less than $10,000.

“Most often, structural monitoring is only commissioned once a problem, or a high risk of problem occurring, has been identified. This is just one of the hurdles the monitoring industry needs to overcome. The even bigger issue is that so few engineers are aware of the potential benefits of dynamic monitoring or have the in-house skills to commission or install systems, or the expertise to interpret the data that are gathered,” said Roy Denoon, Vice President of CPP Wind Engineering.

Some of these myths were dispelled during the Burlington Bridge expansion that began in 2009. The test results gathered have provided pertinent data to the project’s safety and efficiency. The more word spreads about the use of dynamic monitoring in these situations, the more awareness is created.

The modern monitoring systems allow public works departments to see and compare real-time data using their smart phones or laptops from anywhere in the world. In an area such as New York City, where it takes hours to get anywhere with equipment, engineers can use their computer to survey all of their structures around the city in minutes.

Dynamic monitoring systems can also perform basic tasks, such as ensuring a structural element does not bend or twist beyond a safe limit or notifying engineers when something is impacted to complex activities, such as modal analysis. Qualified individuals are trained to interpret this data and then draw conclusions as to what effect the data may have on a bridge. Monitoring in advance of a problem is a cost-saving mechanism to prevent problems and the costs associated with them.

**Conclusion**

Dynamic monitoring is a practical solution that can be installed to measure the vibration caused by construction or the angle of a bridge pier during a scour event, and it is the solution to assist engineers and public works departments ensure safety in a bridge.

As dynamic monitoring becomes more mainstream, public works departments will learn the critical aspect of correctly interpreting the data. The wind can cause a very large scatter in the data and it takes experience to interpret the data in a reasonable manner. Experienced specialists play a valuable role in working with the structural engineers and public works departments to correctly gather and interpret the data. Eventually, this advanced detection capability will be used on a regular basis to avoid disasters and trigger the early responses that can minimize property and casualty losses. Now is the time to explore what these systems can do and how they can be integrated into a public works department program to improve monitoring and reduce costs.

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That’s why Corman Construction relies on the National Work Zone Safety Information Clearinghouse to ensure employee and motorist safety and health in road construction zones.

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As public works staff, you are seeing more and more green infrastructure systems being installed along the corridors and within the facility sites that fall under your responsibility. The first issue is often terminology. We have found in our work across the country that terms have evolved. The term “green” may send the wrong message in many parts of the country. For purposes of this article we will group Low Impact Development (LID), Environmental Site Design (ESD), Natural Drainage Systems (NDS), Green Technology and Green Stormwater Infrastructure (GSI). For simplicity, the term “green” is used but understand this to describe the stormwater management approach and vegetation type that works within your climate zone. See sidebar for typical facility definitions.

When it comes to maintenance there are a few primary considerations. These include: original purpose or intent of facility; location; staffing; identification of primary spots; seasonal issues; and level of service. Many of these are very similar to maintenance you already do such as maintaining catch basins and inlets; however, they do require slightly more finesse to maintain the high performance of function and aesthetics that are expected from these facilities. The benefits to your department are that these tasks are very visible to the public. You might even consider celebrating maintenance by using temporary signage indicating crews working on stormwater maintenance!

Understanding of design intent of facility
Ideally upon completion of a project you will have received a maintenance guide that identifies purpose and intent. If not, before you “dig” into maintenance try to contact the designers or project lead to obtain this information. The next option is to observe the facility under wet weather conditions prior to undertaking maintenance steps. Look for obstructions, ponding and through flow. Not all “green” systems are intended to function the same way so any one of these can be good or bad depending on intended function. Maintenance approaches suitable for one facility type may be detrimental to another. For example, a bioswale is primarily a flow-through facility but a bioretention swale often includes a filtering down function. The maintenance for bioretention includes a higher level responsibility for soil function.

Location
Public works maintenance planning involves two types of locations: along the roadway and onsite facilities. As an introduction to green infrastructure maintenance this article will focus on the roadway or transportation zones.

Along the roadway
Along roadways you will typically find bioswales and bioretention swales and, depending on local topography, your systems may include cascades. In urban settings you will also find stormwater planters and tree filter systems along the streets due to space constraints. The highest maintenance concern along roadways is maintaining visibility. Intersection zones should be maintained at a two-foot maximum height. Areas along the road should have a mix of height to maintain visibility between pedestrians, cyclists and vehicles. Common to all these facilities are the maintenance tasks for the through drainage such as a curb cut and trash removal.

Curb cuts or through curb. This entry point can have specific design features. Some include mini-sediment zones to ease cleanup; some include energy dissipaters such as cobbles and others are hardscape slots intended for higher flows. Sediment removal is a primarily year-round function.

During a storm event the primary overflow is blocked by trash; the secondary overflow is still functioning.
frequency depends on the road function with typical recommendation of once a month for arterials and all intersection zones and quarterly for residential applications. Attention to this one task can extend the life of the system by maintaining soil effectiveness and minimizing clogging.

**Trash removal.** This is a common public works task; however, minimizing trash in green infrastructure systems is more an issue of function than aesthetics. This task should be performed weekly or scheduled according to the needs of the location. Trash will gather at curb cuts and block drainage causing ponding at the road edge; plastic bags can create havoc in a storm event when they block the overflows.

**Edges or transition zones.** Along streets and roadways these edges can be of particular concern regarding maintenance. It is recommended that 18 inches to 3 feet be maintained as a level zone along the road and 12 to 18 inches along the sidewalk depending on space.

**Bioswales.** This assumes basic grass bioswales. With a grass bioswale system probably the three most critical tasks are maintaining appropriate grass height; maintaining the grass type or species mix; and maintaining the through-flow function. Keeping the grass height at eight inches or above may be the toughest challenge and you may need to retrain your staff and purchase equipment to maintain the grasses at this higher level.

**Biotretention swales.** This assumes a mixed vegetated swale that includes an engineered or bioretention soil mix. Generally you will find a mix of grasses and woody vegetation to provide a strong seasonal presence and an enhanced function for stormwater flow and quality. The maintenance task in these swales or cells includes trash removal, weeding, maintaining the compost layer and vegetation management. Weeding should be scheduled at least twice per year; this will improve the function of the intention-ally planted species. Because the soils are generally rich you may find native volunteers, if the species is appropriate to the location they can be retained. The compost layer is both protecting and enhancing the bioretention soil. Observe the swales for areas requiring sediment removal then apply a one-to two-inch layer of compost mulch twice yearly following weeding. Ideally your crews would have access to small chippers allowing the leaves and pruning debris to be immediately put back into the swale. At a minimum do not use blowers to remove leaf debris. Leave the leaves; they add nutrients back into the soil. Vegetation management includes pruning for height and visibility, removal of invasives and plant adjustments. Your supervisors will need to understand function and general plant care and have specialists available for assistance. Plant adjustments involve removal or replacement of plants that are impacting function. This can be due to placement or spread. Some species become aggressive and removal or thinning to maintain a mix may be necessary. Finally, it is recommended that the soils be tested every few years for infiltration and healthy metrics. See level of service for additional guidance.

![Seasonal removal of weeds from swales](image)

**Stormwater planters.** In urban or commercial zones there is rarely room for the grading required for a swale; in these tight locations, under 10 feet in width, you will often find stormwater planters. Many of the maintenance tasks for stormwater planters are similar to swales; however, due to the location, we recommend that the frequency of maintenance be increased. Special attention should be paid to maintaining the walkable zone, keeping the vegetation back from the sidewalk. Due to the tight conditions plant height is best kept at two feet or less with the occasional taller shrub to add interest. Most stormwater planters have curbs or structural edge walls that should be kept visible so the drop in grade is obvious. Pay close attention to the zone next to or below the curb. Soil settlement often occurs with bioretention mixes and generally you will want to “top off” these areas to maintain a maximum drop of approximately six inches.

**Onsite facilities**

Onsite stormwater infrastructure facilities may include various types of swales, rain gardens, stormwater planters, trees, pervious pavements, cisterns, green roofs and green walls. The maintenance tasks of some of these facilities are similar to the roadway maintenance; others such as pervious pavements, green roofs and cisterns are more specific to their design intent. We recommend public works maintenance staff be involved in the planning and design phases of these facilities to ensure that maintenance requirements are addressed. Ground maintenance guides should be included in the facility maintenance manual and commissioning of these systems should be part of the transition to occupancy.

**Staffing and equipment**

Often public works crews are structured for “gray” maintenance and this “green” approach calls for a new style of maintenance, new attitudes and different equipment. We suggest these transitions of maintenance styles be allowed to occur over time. It is recommended to include two to three years of establishment maintenance within the construction contract or immediately following the project acceptance. The establishment period will allow your supervisors to observe the maintenance required and begin their staff planning. Other options are to engage your parks or facilities crews to assist your department in the transition to green maintenance. At a minimum do...
include some training for your crews so that they can be informed and successful in their approach. Natural gardening methods and Integrated Pest Management techniques are necessary as you are managing systems with the intent to clean the water so you want to avoid chemical and fertilizers. Many agencies have developed maintenance checklists for their staff which are available on the web. In speaking with field crews, it is recommended to keep these field checklists to the highlights and critical points so they fit on a page or screen view.

Equipment needs generally fall under the landscape contractor type; however, the equipment should reflect the “green” approach and avoid or strategically use loud, gas-powered tools. Purchasing mowers that are more adaptable to the varying swale grades and desired grass heights may be necessary. Often smaller trucks and electric carts are more useful due to the tighter conditions along the roadway.

**Identification of primary maintenance spots**

Ideally you will be given a plan or a list indicating the low spots or special needs areas for primary maintenance. If that has not occurred, we suggest you use a field diary for the first couple of years to assist you in planning for the long-term needs. Maintain a diary of tasks and document the issues and locations that take more time or have the potential to cause a problem. Be specific as to the time of year, weather patterns, crew hours and equipment used. These issues or locations become the hot spots where you should schedule more frequent or strategic maintenance and these spots are the places to check first in the case of a “storm event.”

**Seasonal issues**

Conditions and seasonal constraints vary across the country with leaves, dust, wet, dry, heat, cold and salt toler-

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**General Terms (definitions change according to local use)**

**Biofiltration Swale:** a designed swale system composed of engineered soil mix and vegetation to filter stormwater for water quality treatment.

**Bioretention:** Practices that manage and treat stormwater runoff.

**Bioretention Soil:** engineered soil mix that will absorb or filter specified storm events.

**Bioretention Swale:** a designed swale system composed of engineered soil mix and vegetation to service multiple functions to hold, filter and absorb stormwater.

**Bioswale:** a planted swale ditch or depression that conveys stormwater.

**Cascade or Weir System:** Generally a bioretention swale on a slope that allows pooling of water.

**Infiltration Zone or Pit:** an engineered area with specified imported materials to enhance localized absorption of stormwater often used in combination with bioretention facilities.

**Pervious Pavement:** hardscape that allows stormwater to penetrate into the subsurface.

**Rain Garden:** a localized, smaller scale bioretention treatment usually more organic in form than linear, can vary in complexity with soil mix, subsurface design and plantings.

**Stormwater Planter:** a smaller contained vegetated area, structural landscape reservoir or infiltration basin that collects and treats stormwater.

**Tree:** an old name for a new stormwater infrastructure tool.

**Tree Box Filter:** mini bioretention areas installed beneath trees typically in urban streetscapes or plazas.

**Web:** a great place to start for additional information.
ance and watering covering the range of issues. There is also an aesthetic issue as citizens come to expect multifunctional performance from infrastructure. Fall leaf drop eventually adds to the soil profile. The key task in areas with a concurrent fall rainy system is removing the leaves from curb cuts, weir zones and inlets/outlets. This becomes a critical task before and during fall season rain events. In dry areas windblown dust and debris needs to be addressed in the design through plant choice and cover to minimize removal of the bioretention soils. If problem spots are observed, additional plantings or cobble cover on exposed soils is important to keep the condition from spreading and exposing roots. Observe plants for stress from oversaturation or drought. During extended dry seasons you may need to water to maintain the vegetative zone viability. Replacement of dead or underperforming plants or grasses due to heat, cold, wet/dry conditions and lack of salt tolerance is a yearly maintenance task. Remember to think function and performance: Is the system serving the function and is it performing at the level we think of for public works infrastructure?

Level of service
Understanding what is required for function and what is desired for aesthetics is not new for public works. Determining the level of service desired is very important for your staff and is equally important to communicate this to your community. Green infrastructure is still new to many in the community and it takes time to adjust to this new style of public infrastructure. Your citizens may not be used to seeing stormwater flowing along the surface or ponding. Remember these conditions used to indicate improper systems. Take the time to inform your staff and engage your citizens. Involve them in the type of facility and the level of maintenance. Incorporating this information in design and maintenance planning will provide multiple benefits and ensure a high-performing system.

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Recycled materials in construction: divert that waste stream!

Freeman Anthony, P.E.
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City of Bellingham, Washington
Chair, APWA Transportation Sustainability Subcommittee
Member, APWA Transportation Committee

Using recycled materials in construction is nothing new, as anyone who has dug up a fill site has likely found the remains of some building or piece of infrastructure that wasn’t useful for anything else other than to take space in the ground. This case for reuse has been historically driven by economics, but in today’s infrastructure construction industry, environmental concerns can go hand in hand with economics to provide benefits to multiple sectors.

Today recycled material use has claimed most of its low-hanging fruit and public agencies and the construction sector need to look more closely at both difficult waste materials and higher percentages of application for future construction practice. This article seeks to identify a critical path to the next level of specification and application for recycled materials. The benefits from increased percentages and more types of waste materials include a lessened impact on the environment, more cost-effective practices, smaller landfills, and regional economic synergy.

Governmental regulation has gone from ensuring some level of environmental and human safety to attempting to realize “true cost pricing” of resource extraction and waste disposal. Permits for new projects come with mitigation requirements or banking in lieu of mitigation in an attempt to reach a “net-zero” impact and to undo regulatory oversights of the past. The practice of using recycled materials in construction has created mutually beneficial partnerships that address resource sourcing and waste reduction in a closed loop. Coal ash as an additive to concrete has been in use for many years and, in 2008, approximately 43% of the 131 million tons produced in the U.S. were reused. This is an accomplishment, but there is clearly more that could be done.

In recent times much research has gone into the uses and impacts of using recycled materials by a number of federal partnerships with industries, academia and regulatory agencies. Durability, processing, storage, standards, past history of use and environmental impacts are some of the areas where waste materials have been prodded for a better understanding of beneficial use. The question is how to take this knowledge and the case studies and pilot projects that have been done and turn that into everyday use and specification.

Why use recycled materials?

Using recycled materials in construction has historically been a way to manage costs by meeting materials sourcing needs with waste management. These factors have historically translated to good economic practice while having side environmental benefits. Today this synergy is the same, with the environmental benefits having greater cost savings due to modern mitigation requirements.

Using waste materials as filler is perhaps the most basic and oldest example, and continues to this day in many forms. Today’s heavy industry also processes “waste” materials into products that can be reused in other applications, rather than being landfilled at substantial expense. These practices ultimately decrease in the need for virgin materials for construction while providing for alternate resting places for “waste” materials. It’s no secret that the cost for permitting the extraction of new materials and new landfill sites is increasing to include the “true cost pricing” of these activities. According to the Division of Waste Management for the State of Kentucky, most landfill applications will cost over $1M for the application only before any construction of liners and related infrastructure can be considered.

The construction industry and its public partners have done much for developing the synergy of waste to construction materials over recent years; however, limits or acceptable “risk” have been reached. In Washington State, WSDOT standards rule most public infrastructure construction and provide the basis for recycled materials use. While comprehensive in providing guidelines for construction, the allowable levels for recycled materials in construction are limited and don’t fully promote progressive design when compared to the designs and applications being proposed by industrial and research sectors. Concerns for project longevity can snub opportunities to push the limits of materials reuse and application. There are, however, opportunities for smaller agencies to vary spec and try their own designs that can complement regional practices and industries. Locally funded projects can be designed specific to provide synergy with regional projects and industrial behavior.

Everyday materials

With recycled asphalt, concrete, and other easily recycled materials, local agencies can increase the value of regionally reclaimed materials by adjusting specs and working with local sup-

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pliers. This can include waste materials from residential/commercial transfer stations where sorting can be required. This type of waste stream diversion is important as it has the added benefit of public engagement.

The City of Bellingham recently partnered with the Whatcom County Housing Authority to take delivery of 400 toilets that had been removed as part of a Federal Stimulus energy and water efficiency project. The City diverted the toilets from a landfill and instead sent them to the local ready-mix supplier who crushed the toilets and substituted the resulting material for virgin concrete aggregate. When the 28-day breaks came back, the City then designed about 500’ of sidewalk to be built with the “poticrete.”

The City is also trying its first project with mandatory recycled coarse aggregate for sidewalk concrete. The combination of these two project efforts will result in a recycled aggregate spec that can utilize a wide variety of waste materials available locally. Concrete rubble can be used as fill easily, but agencies such as the Minnesota State DOT have begun to provide specifications for the use of screened crushed aggregate in concrete. Recycled aggregate in concrete would have a profound impact on aggregate sourcing requirements to any region with a substantial urban center.

Increasing usage can start with review of technical papers and testing to form a starting point for mix design discussion with local suppliers. The paving industry has frequently offered that 40% RAP mixes can meet today’s transportation needs although some state specifications cap RAP usage at 20%. AASHTO also recently introduced a design guidebook for RAP mixes greater than 25% (AASHTO – Designing HMA Mixtures with High RAP Content: A Practical Guide, 1st Edition). The City of Bellingham is currently experimenting with 30% RAP asphalt on two street overlays with local funds.

**Beyond asphalt and concrete**

Materials that require more extensive processing can be overlooked and under-considered as potential sources for construction. Foundry sand, furnace slag, plastics, glass, tires and other products can take more time and expense to prepare for use as construction materials, but as prices rise for virgin materials (including bitumen), the processing costs and sourcing concerns can be reassessed. These products can have key qualities that make them good options in lieu of virgin-quarried materials.

Use of more difficult materials still has hurdles as they generally have some content that can be environmentally unfriendly and needs to be dealt with; however, aggregates are frequently used in some sort of inert matrix that have it serve a useful purpose. Even local agencies can learn about what is available, what the concerns with use are, and facilitate discussions that bring producers, regulators and the construction industry together.

Another waste stream not frequently used by the construction industry, but comprising a large percentage of current landfill volume utilization, is plastic. Standard household recycling can be limited by type and has a substantial reprocessing component that requires sorting and lacks a local reuse aspect. There are processes now available that use mechanical bonds that can use multiple types of plastics foregoing sorting and specialized reprocessing. A combination of heat and pressure can take everything from shredded kayaks to shopping bags and create simple shapes such as toter wheels, plastic sidewalk panels, meter boxes, sheet-goods, pallets and other similar items. The structural qualities would be variable, but for situations where that is not an issue, the waste stream interception would be substantial. Regional operations could be situated to take waste plastic from multiple locations, including manufacturing industries, and increase profits while providing a local material option for a variety of applications. According to the University of Warwick, only 12% of plastics get fully recycled of those that get put out at the curb. This application would greatly increase the waste stream diversion for plastics while providing local jobs and economic synergy. Currently there is a small market for sidewalk panels as an end product of compression-molded plastic, but again, until public agencies
spec these types of materials, it remains a waste stream untapped.

A compression-molded plastic panel (photo by Tim Niemier)

Regulation
For materials such as slag, foundry sand, and industrial ashes, regulations for use in construction applications will generally be under the overview of the EPA, and then by state agencies. While regulatory guidelines are in place for most easily recycled materials, the EPA Office of Resource Conservation and Recovery (http://www.epa.gov/osw/conserve/index.htm) has been developing regulations for more difficult materials to ensure their application is done safely. The failure of the Kingston Fossil Plant fly ash impoundment in 2008 has expanded their efforts to consider the regulation of storage of potentially harmful materials that have reuse potential.

With most inert materials, including RAP and concrete, regulations associated with storage are limited environmental compliance for storage and processing which generally isn’t much more than a typical construction site. For the final use, workability, long-term durability, and exposure are the limiting factors but appropriate placement is straightforward. Crushed concrete runoff can have pH implications and porcelain aggregate can impact the finishability of concrete, but these issues can be managed by considering the material application.

“Strategic Risk”
As new standards are developed, public works departments can move through the process of specification review and revision with an approach of “strategic risk” application. This allows public funds to be spent with an eye to the future for both project longevity and regional economic, social and environmental protection. With most agencies looking to the EPA for regulation, there are a number of standards that must be considered when moving forward with specifications that use materials that can be high in metals or toxics. Other more inert materials need only to be worked into existing specifications in greater percentages, or with more options, to become part of a regional waste stream diversion effort. There may be some trial and error up front, but the long-term economic and environmental impacts frequently justify the effort.

In developing new specifications to promote available recycled materials, the source industries, designers, contractors, public agencies, and suppliers need to be at the table to establish the levels of material availability. Time spent in developing specific specifications is fruitless if the supply becomes limited or exhausted. Include staff or contractors that provide materials testing services, both in the testing and application phase, to ensure that the quality of the final product is ensured. With the right people at the table, economic competitive advantages can be recognized while promoting enhanced waste management and waste stream diversion. Education of constituents of new types of projects and delivery will strengthen local awareness of the economic considerations for recycled materials.

Where to now?
While the FWHA currently supports the use of recycled materials (http://www.fhwa.dot.gov/egsregs/directives/policy/recmatpolicy.htm), and few would argue that it’s a good idea, the next steps are mostly in the court of public agencies, with the regulatory framework still missing for some industrial materials. With the current research available, public works departments and the private sector engineers that support them should become engaged in the revamping of local specifications to better use regionally available reclaimed and recycled materials. Partnerships such as www.recycledmaterials.org and www.industrialresourcescouncil.org along with AASHTO have brought together key information and resources for public agencies and private sector engineers. Much of the research and testing has been done to show that products are available, mixes designed and limitations known, such that items such as plastic sidewalk panels just need to be specified to get them on the ground and encourage an industry shift. In some cases it may just be a test installation that is done for product testing to eventually justify further use. This is part of the “strategic risk” allocation that public agencies and private sector engineers need to consider to support recycled materials use and the associated economic, societal and environmental gains. This topic will be covered by presenters from the IRC, RMRC and the City of Bellingham at the 2011 APWA Congress in Denver (“Recycled Materials in Construction – Divert that Waste Stream!” – September 19 at 10:00 a.m.) and will establish links from the sources, through the testing agencies, to a public agency that is taking steps to increase local synergies with recycled materials in construction.

1 Chemical & Engineering News, 23 February 2009
2 State of Kentucky – Division of Waste Management, Landfill Permitting Overview
3 Coxworth – Gizmag, December 15, 2010

Freeman Anthony can be reached at (360) 319-4642 or fanthony@cob.org.
In my mind, preserving the night sky was a main reason to replace the fixtures.

— David K. Steele, Oak City Town Councilman

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Sustainable Transportation: A roundabout way to think

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How many of you have been asked to reduce your budget for each of the past five years? Past 10? Who has heard their elected officials ask your department to “Do more with less”? How many of you have been told that we can’t do things the same old way because there is a “New Normal”? Unfortunately, the new ideas that can have the biggest positive impact are often too radical for elected officials to get behind—and we are caught in the middle!

The goal of this article is twofold. First, to provide you with a specific example of a progressive approach to public works that is having a huge impact in at least two communities. Secondly, we want to provide you with powerful new information and a way of thinking that has helped some public works officials build support with stakeholders and elected officials for impactful ideas.

The Problem

What costs over $100 billion per year while killing nearly 650 people EVERY WEEK (2009 data)? Hint #1, it’s not a war. Hint #2: the 650 is a 40-year low, down from a peak of over 800 per week—that’s good, right?

Give up?

Yep, its America’s road and highway network. It would take about three plane crashes per week to equal 650 fatalities. Can you imagine the news stories if three passenger jets crashed every week? And while we are fortunate that collaborative efforts to reduce alcohol-related fatalities and improve highway safety have played a role in this “left handed compliment,” the statistics are still sobering—especially when one considers the nearly six million injuries per year from accidents. How many of you know someone who has permanent health issues from an automobile accident?

And data has consistently shown that about 45% of all accidents occur at intersections, which comprise less than 2% of the system. Coupling this with the congestion at intersections that results in travel delay and environmental impacts, it is clear that intersections are bad for us and need another look. Many agencies, researchers, and designers around the world have come to this conclusion and have more than enough information we can use right away in our communities to change how we approach solving the deadliest problem in our industry.

Linking this negative social impact and the financial impact noted above with the negative environmental impact caused by emissions at congested intersections gives us three strikes at the Triple Bottom Line used to define sustainability. While it may be fair to point out that energy spent applying new methods to our auto-oriented transportation system may not be radical enough, it is also fair to point out that there is clearly enough low-hanging fruit for the 20 years left in my career to make a real sustainable impact on this system.

Nodes not Roads

In the past decade or two, most public works professionals and other experts have come to understand that intersection capacity drives roadway capacity. But traditional solutions often are short-term band-aids, and especially for busy signalized intersections, there is only so much capacity benefit to adding right turn lanes, left turn lanes, dual turn lanes, and so on, due to the need to provide time for various movements to clear. The modern roundabout is one solution that has been used over one thousand times in the United States to address the capacity issue, while providing a safety and air quality benefit. In many situations, the difference in safety, capacity, and air quality when comparing a roundabout solution to traditional improvements is overwhelming in favor of the roundabout. But concerns are always raised about driver behavior and pedestrian safety, not to mention skepticism of “newfangled ideas” or reference to past circular intersection designs that lacked as many as eight or nine of the key design features of a modern roundabout.

It is important to know that a staggering 1000% more people are killed at traditional intersections than the roundabouts that replace them (2000, 2005, the Insurance Institute for Highway Safety, or IIHS.) Plus system-wide data presented below shows cost savings of the replacement roundabouts. And the reason that roundabouts are often a shoo-in for CMAQ funding in non-attainment areas is their order of magnitude improvement on air quality. Aren’t these the very things that are being asked of us—new ideas for the New Normal that do a better job of providing service while spending less?

As public works officials we have learned one critical point of presentation for the education and public relations efforts for any new idea (including roundabouts)—we need
to compare the alternatives, and clearly demonstrate to the layman exactly how the preferred option benefits them and the community. We will touch on the improved safety for pedestrians shortly.

Did you know that the City of Carmel, Ind. (pop. 70,000), has over 60 roundabouts of various sizes, with plans for over a dozen more? The City has also implemented other site-specific alternative intersection designs, particularly at interchanges. Did you know that in 2007, their police department reported that property damage per accident had been reduced, on average by nearly $3,000? The IIHS has compiled statistics at intersections converted to roundabouts, and found a 90% reduction in fatalities. Similar results with vastly more data have been compiled in Europe and Australia. Turning that 90% reduction around, traditional intersections kill 1,000% more people than the roundabouts that replace them.

The New Normal in Carmel has been that the modern roundabout is the first option to be explored for intersections. There are definitely situations where they are not appropriate, but the “first read” is to look for signs that might rule out a roundabout—such as an overwhelmingly dominant through traffic movement. If no “showstoppers” are there, major intersection work, by default will be a roundabout conversion, or other alternative intersection. Due to space limitations, we cannot discuss all alternative intersection designs, but have included a link at the end of our article to an FHWA document which provides excellent photos, explanations, and design information for a wide range of high-volume intersection designs. Again, the roundabout is simply an example of a “new idea” that is resisted, but has been around for 20+ years with thousands of success stories worldwide.

Similarly, the City of Loveland, Colo., also relies heavily on roundabouts in their system, with 13 multi-lane roundabouts and dozens of single-lane neighborhood roundabouts. In addition to achieving the usual dramatic reductions in crashes, injuries and fatalities, reduced idling emissions, and generally less driver frustration, in Loveland, City Traffic Engineer Bill Hange, P.E., PTOE reported that three things really stood out for him in reviewing system-wide data:

1. Reduced Recurring Maintenance Costs – Operations and maintenance of signals $4,000-$5,000/year - roundabouts $0
2. Development Flexibility – Spacing of roundabouts is far less critical than signals in coordinated corridors
3. Wide nodes and narrow roads equals less capital and maintenance costs for roadway and bridges for interchanges

Exploring our financial impact point further, the $100 billion represents a figure of $78 billion in economic impacts caused by congestion, with the remaining amount a very conservative estimate of accident-related costs including medical, property damage, and public safety response costs.

According to the IIHS, statistics show there are orders of magnitude more injuries than fatalities. In summary, accidents are big business that we don’t need!
lifecycle cost comparisons may be enough to convince some
decision makers, here is information for the people in your
community who also need compelling environmental facts
before supporting a project.

A study conducted by the Vermont Department of Public
Service titled “Modern Roundabouts, Global Warming, and
Emissions Reductions: Status of Research, and Opportunities for
North America,” supports the environmental leg of the sus-
tainable stool. The study’s executive summary states:

“Two decades of intersection control modeling and soft-
ware development and research, establish that substantial
fuel savings at busy intersections can be gained by employ-
ing roundabouts rather than traffic signals. Reduced fuel
consumption, pollution emissions and GHGs (greenhouse
gases) are demonstrated through analysis of empirical data
and modeling reported from existing U.S. roundabouts and
those under development.”

Furthermore, a study was conducted by Kansas State Univer-
sity (Environmental Impacts of Kansas Roundabouts, September
2003) at three different locations that were converted from
four-way stop control intersections to modern roundabouts.
The report found a 38-45 percent decrease in carbon mon-
oxide emissions, a 55-61 percent decrease in carbon dioxide
emissions, a 44-51 percent decrease in nitrogen oxides, and
a 62-68 percent decrease in hydrocarbons. Other compiled
studies found that when conventional intersections (sig-
nalized and unsignalized) are converted to modern round-
abouts, there is an average reduction of 30 percent in carbon
monoxide and nitrogen oxides, and a 30 percent reduction
in fuel consumption. These preliminary conclusions in-
dicate that modern roundabouts significantly reduce the
amount of pollutants released into the atmosphere and re-
duce overall fuel consumption.

Pedestrian Concerns
Pedestrian concerns are often the toughest concerns to re-
"solve by just presenting facts—it just doesn’t make a lot of
sense to folks initially that a roundabout can move more
cars faster, while calming traffic AND providing safer cross-
ings for pedestrians. Again, it is critical to compare the tra-
ditional intersection with the proposed roundabout, and
where possible, use physical examples that people can see.
The following facts are useful to have at your disposal, but
we also offer a couple of examples of physical demonstra-
tions below:

1. For years, the IIHS has compiled data showing a 40% re-
duction in vehicle/pedestrian accidents at converted in-
tersections. (Figure 1)
2. Studies have shown that lower vehicle speed is the num-
ber one survival factor in pedestrian-auto crashes. By
design, modern roundabouts are used to reduce vehicle
speeds at intersections.
3. Pedestrian/vehicle conflicts are reduced from 24 locations
to 8 when converting. (Figure 2)
4. Pedestrians only have to worry about traffic from one di-
riction, rather than multiple directions.
5. Modern roundabout design includes moving the cross-
walk away from the intersection a minimum of one car
length, often two, and sometimes over 100 feet. This re-
quires drivers to evaluate decisions in sequence rather
than simultaneously, completely eliminating the possibil-
Figure 1: Reduction in collisions
Figure 2: Conflict Points (diagram courtesy of Alaska Roundabouts)
ity that a driver entering the intersection will be in conflict with a pedestrian crossing the street.

6. Related to the above, the busier the roundabout is, the more opportunities there are for pedestrians to cross behind the first vehicle in the queue—so any other vehicles are also stopped.

7. Conversely, when a roundabout is off-peak (and cars yield but do not stop), there are ample gaps for pedestrians to cross, with less wait time than a traditional intersection cycle.

**Visual/Physical Examples: Making your point**

One of the more interesting physical demonstrations was by Greg Hayes, the City Engineer for Fulton, Mo. As part of their public outreach, they chalked a scaled-down version of their first roundabout in a shopping center parking lot, and had golf carts available for citizens to practice. With advance publicity and nearby businesses sponsoring booths, this event was well received, with a festival-like atmosphere. A great example of a sound public relations tactic: creating a fun event that is educational.

Visual evidence is hard to argue—to show driver-pedestrian interaction behavior, I once took video of a roundabout on an arterial road through a college campus, with peak hour counts at a single crosswalk of nearly 900 pedestrians and over 400 bicycles. This told a story of how it works better than any statistic we presented.

Another physical technique is to put tape on the floor and time people walking, to show how far and how much time the pedestrian is in the traveled roadway for each situation (84 feet for a 7 lane leg vs. 24 feet to the splitter island for a roundabout). With average walking speed of 3-4 fps, the difference is 21-28 seconds vs. 6-8. The point to emphasize is that the best path to pedestrian safety is to minimize the amount of time spent walking in the street, where cars are supposed to be.

Finally, there has been considerable debate on how to best address the needs of the sight-disabled community at roundabouts, particularly those with multiple lanes. Because this conversation is not fully concluded, and space is limited, we have chosen not to address the issue in this article. We do recommend that you include official representatives of this stakeholder community in your design process, and seek a written statement of no objection from them if possible.

**Wrapup**

In closing, roundabouts are just one example of a controversial innovation that is compelling for many public works officials, but difficult to implement the first time. The lesson learned from 30,000 feet is to include information for a wide range of stakeholders so they can see the value and benefit to the community of new ideas, particularly compared to old ideas. And APWA is the ideal venue for gathering this diverse information from our peers.

**Additional Information and Resources**

Presenters from Carmel and Loveland will speak and answer questions on this sustainable approach to transportation on this topic at Congress, at 3:45 p.m. on Tuesday, September 20. As suggested above, the purpose of this article has been to reframe a public works issue that affects millions of people daily, and suggest a different way of thinking as the first step to seeking new ideas that can benefit your community. While we can only scratch the surface of the technical issues, we hope we have also been able to provide some useful thoughts on how to frame the disadvantages of traditional solutions in stark contrast to the benefits of roundabouts or other new ideas. Providing new ideas to better meet the needs of the public with lower lifecycle costs is what we have been asked to do and what we aspire to.

If you are in need of educational resources to help educate residents on roundabouts, there are many excellent web resources, many from public agencies just like yours. APWA’s Sustainable Transportation Subcommittee is currently considering a web resource that would include roundabout information. Some of the most useful sites we have seen so far include:

- [http://www.wcroads.org](http://www.wcroads.org)
- [http://www.dublin.oh.us/engineering/roundabout/](http://www.dublin.oh.us/engineering/roundabout/)
- [http://www.scgov.net/PublicWorks/Roundabouts/default.asp](http://www.scgov.net/PublicWorks/Roundabouts/default.asp)
- [http://www.dot.state.wi.us/safety/motorist/roaddesign/roundabout-works.htm](http://www.dot.state.wi.us/safety/motorist/roaddesign/roundabout-works.htm)
- [http://www.wsdot.wa.gov/Safety/roundabouts/benefits.htm](http://www.wsdot.wa.gov/Safety/roundabouts/benefits.htm)

Insurance Institute for Highway Safety, Roundabout Q&A: [http://www.iihs.org/research/qanda/roundabouts.html](http://www.iihs.org/research/qanda/roundabouts.html)

Finally, while we have assumed most readers have a basic knowledge of roundabouts, there are also a wide range of alternative design solutions for more congested and more complex intersections. FHWA has published a guide titled *Alternative Intersections/Interchanges: Informational Report (FHWA-HRT-09-060)* detailing a wide range of solutions, which also generally provide more of the Triple Bottom Line benefits than traditional intersections. This guide can be found at: [http://www.fhwa.dot.gov/publications/research/safety/09060/09060.pdf](http://www.fhwa.dot.gov/publications/research/safety/09060/09060.pdf).

*Evan N. Pratt can be reached at evan.pratt@tds.net.*
It began in 2006 when Traffic Engineer Tom Tushner challenged his staff to study the signals owned and/or maintained by the County (over 250 of them) to look for possibilities to install these traffic-movers. In 2007/08 the County was slated to receive some new timber revenues and contemplated doing a small flashing yellow arrow project. Then came the recession—and the federal American Recovery and Reinvestment Act (ARRA). With most of our homework done, we had these projects ready to go and out to bid in a very short time. While most jurisdictions used that welcome cash for paving, we decided to invest much of ours in the signal system—a project that, like paving, required little to no environmental review, right-of-way acquisition, etc.

Beneficiaries of the flashing yellow arrow project included the manufacturing sector as well as electrical contractors who were NOT typically benefiting from the stimulus funding otherwise. Signal Construction Group, LLC of Woodburn installed the bimodal flashing yellow arrows at a total project cost of $485,000.

We knew they would cause some driver confusion at first. So we worked with our Sheriff’s Office on public education, including media releases and a new website. Together with our community access television studio, we produced a short video (http://www.youtube.com/WashingtonCntyOregon) that takes viewers inside a moving vehicle to show what to look for from the driver’s point of view—oncoming traffic, pedestrians, bikes, etc. Engineer Stacy Shetler (our new budding

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Principal Engineer
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AECOM is proud to have partnered with the County of Marin and Sonoma Marin Area Rail Transit on the Cal Park Tunnel Rehabilitation and Multi-Use Pathway project, recently recognized by the American Public Works Association. We congratulate all of the honored projects.

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Thinking More Innovatively
You Tube movie star) explains his colleagues are excited because they know the FYA’s can help traffic flow more efficiently. But some drivers were a little hesitant when they saw one, and were not exactly sure what to do. Now they do. Stacy adds, “Some people ask me, ‘Is something wrong with the lights?’ I am happy to answer, ‘No, they are here to stay.’”

Besides investing in the FYA’s, Washington County also used some of the money for signal retiming in arterial corridors—smoothing traffic flow and tempers. We installed 32 solar-powered flashers to warn motorists to slow down in school zones. We replaced 142 interior illuminated signs with signs made with diamond-grade aluminum reflective sheeting—oncoming headlights light them up—no extra electricity needed. That is $0 for power, $0 for maintenance.

We installed 1,420 count-down pedestrian signals—no more walkers wondering how much time was left to cross safely. We replaced in-pavement loops with video detection cameras at 50 different signalized intersections to better mesh with the County’s Intelligent Transportation System (ITS). These cameras save maintenance money and will fit into our evolving ITS system. And we worked with our public safety providers—police and fire—to be sure that those illegal/pirated preemption devices that can turn red lights green were no longer effective.

Taken together, a perfect storm of opportunities and improvements led to a perfect storm of sustainable traffic tools. Great cooperation among our divisions—Traffic Engineering, Capital Projects and Finance, not to speak of the state DOT—made it possible. All these changes have a very positive cumulative effect on energy use and the environment. They reduce our carbon footprint, reduce traffic delay, and save money. It’s step by step to sustainability…and happier, healthier citizens.

Thomas F. Tushner can be reached at (503) 846-7950.

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Just call Amanda or Kristen at (800) 800-0341.
Under the direction of Mayor Greg Ballard, the Indianapolis Department of Public Works (DPW) recently embarked on a one-of-a-kind initiative called RebuildIndy. RebuildIndy is transforming Indianapolis through the investment in infrastructure improvements. RebuildIndy is restoring deteriorating thoroughfares, residential streets, sidewalks and bridges, as well as addressing neighborhood drainage issues. In addition, the multi-million-dollar program is demolishing unsalvageable abandoned homes that pose a public safety threat in neighborhoods.

RebuildIndy is not only positively impacting Indianapolis residents as their neighborhoods are being restored, it’s creating jobs. In addition, RebuildIndy is committed to Mayor Ballard’s vision of delivering inclusive business practices to promote the participation of minority-, women- and veteran-owned businesses (M/W/VBE). From the program manager of RebuildIndy, Indianapolis-based American Structurepoint, to the contractors, subcontractors and workforce in the field, the team works to value diversity and to respect each partner.

RebuildIndy is primarily funded by a mechanism called PILOT (Payment in Lieu of Taxes) that was approved by the Indianapolis City-County Council in the spring of 2010. PILOT is a payment made by an organization that is fully or partially exempted from paying a certain tax, such as a property tax on a piece of real property. PILOT compensates a local government for some or all of the tax revenue that the government loses because of the nature of the ownership or use of said piece of property.

The PILOT amount approved for RebuildIndy totaled $153.8 million. If a transfer of water and wastewater to Citizens Energy Group, a public charitable trust, is approved by the Indiana Utility Regulatory Commission (IURC), Indianapolis will receive approximately $400 million to invest in infrastructure improvements throughout the county.

Since RebuildIndy was announced last fall, nearly $140 million has been released for bid. The work is widespread throughout the county; all nine townships in Marion County currently have projects. Because of RebuildIndy, streets that haven’t seen a fresh coat of asphalt in 20 years are being resurfaced. Neighborhoods where segments of sidewalks are missing are being repaired and given new life and connec-
tivity with the addition of multi-use paths around the City. Bridges that thousands of motorists travel on each day are being rehabilitated and made safer. And, people with disabilities are finding it easier to get around thanks to repairs being made to ADA ramps.

“RebuildIndy will enhance our already great city, rebuild the parts that are broken, and put the critically important building trades industry to work at a time when good paying jobs are needed,” said Mayor Ballard.

RebuildIndy project managers are implementing sustainable solutions when possible. As part of a resurfacing project downtown, porous concrete and rain gardens were installed along a segment of Ohio Street. These sustainable solutions will improve drainage on a street where pavement was deteriorating due to the annual freezing and thawing of standing water on the roadway.

“This project is significant because it allows DPW the opportunity to utilize sustainable infrastructure on multiple levels,” said David Sherman, DPW director. “We’re analyzing everything from the interaction of soil types, surface materials, pollutant sources and infiltration rates to broad policy implications on initial cost, maintenance and life cycle. With input from community development corporations and neighborhood groups, we’ve been able to get a better understanding of what will be genuinely sustainable for the long term.”

RebuildIndy is not only achieving unprecedented results in Indianapolis, it is also garnering attention on a national level. In 2010, Mayor Ballard attended the US Conference of Mayors where he was asked to share about the city’s unique funding mechanism for a project that’s not only creating jobs but repairing crumbling, long-neglected infrastructure. At a time when so many cities across the country are cutting back, Indianapolis is doing more than ever before. Rebuilding an already great city will not only improve the quality of life for current residents, but attract new residents and businesses to call Indianapolis home.

For additional information about RebuildIndy, please visit indy.gov/RebuildIndy or call (317) 327-2656.

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Promising results seen in King County paving project using recycled shingles

Enumclaw Plateau roadway paved with hot mix asphalt containing recycled asphalt shingles in near-perfect condition

Kris Beatty
LinkUp Program Manager
King County Solid Waste Division
Seattle, Washington

Every year, an estimated 23,000 tons of tear-off asphalt shingles from roofing projects in King County go to a landfill.

However, a one-year-old pilot project involving local and state agencies that recycles tear-off shingles for use in hot mix asphalt for road paving is showing great promise. Now, officials hope to see this former waste product put to use as the valuable resource it is.

Using recycled asphalt shingles in asphalt paving has the potential to reduce the costs of paving due to the high quantity of oil in the shingles. By recapturing the oil, less new oil needs to be purchased.

The Shingles in Paving Demonstration Project is the first in the state to use recycled asphalt shingles in HMA to pave a public road. Eleven other states already use recycled asphalt shingles in asphalt pavements.

In September 2009, a two-mile-long stretch of Southeast 416th Street near Enumclaw was overlaid with a two-inch-thick layer of asphalt paving materials, in test sections with and without recycled asphalt shingles.

The paving demonstration project is a collaboration between King County Solid Waste Division’s LinkUp Program, King County Road Services Division, Washington State Department of Transportation and Seattle Public Utilities.

The LinkUp program identified asphalt paving applications as the end use for recycled asphalt shingles with the greatest potential, and set out to facilitate development of local markets for the material.

“Recycling asphalt shingles into a useful material achieves our goal of zero waste of resources, saves room in landfills and can save agencies money, too,” said Kevin Kiernan, Director of the King County Solid Waste Division.

Staff from King County and the Washington State Department of Transportation recently surveyed the condition of the test sections of the roadway.

“We are pleased to report that the pavement with recycled asphalt shingles is performing as well as the test sections with traditional asphalt paving,” said Paulette Norman, Interim...
Director of the King County Road Services Division.

“Recycling asphalt shingles not only benefits the environment, but can have positive economic and job cost impacts as well.”

The King County Materials Laboratory performed pavement condition surveys by walking the site and documenting any distressed areas. Additional pavement condition surveys were conducted by the Washington State Department of Transportation using a distress data collection van that provided similar results.

An advisory group of representatives from the recycling and paving industries and solid waste, transportation and regulatory agencies was brought together to provide input and help guide the direction of the project.

“This project is important to the paving industry in our state,” said Tom Gaetz with the Washington Asphalt Paving Association. “It is consistent with our commitment to sustainability and green technologies. Some of our members are already using recycled asphalt shingles in paving, and others are eager to learn more.

“The timing of this project couldn’t be better,” Gaetz said. “Our industry is right now engaged in developing specifications to increase the use of recycled asphalt materials in asphalt paving—all part of our industry’s commitment to deliver the greatest value to our clients and the public.”

King County will continue to monitor the structural performance of the demonstration pavement through 2012, at which time it will consider recommendations for the continued use of recycled asphalt shingles on public roadways in the county.

In the meantime, LinkUp is continuing to develop specifications and guidance to support the use of recycled asphalt shingles in asphalt paving and coordinate with other regional and national efforts to increase shingle recycling. Information on LinkUp is available at www.kingcounty.gov/linkup.

King County Solid Waste Division is also considering using asphalt paving containing recycled asphalt shingles at one or more of its transfer station and landfill facilities.

Kris Beatty can be reached at (206) 296-3740 or kris.beatty@kingcounty.gov.

**WORKZONE**

**Senior Design/Construction Project Managers**

Norfolk, VA

The City of Norfolk Public Works seeks two Senior Design/Construction Project Managers. These positions are responsible for direct oversight of new construction of Main Library (140,000 sf) and Consolidated Courts Complex (315,000 sf), both large-scale, complex, and high-visibility projects. These positions will also provide support to the Construction Bureau, which manages the City’s capital improvement projects. For more details and to apply, please see www.norfolk.gov.

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Each year, APWA presents the Public Works Projects of the Year awards to promote excellence in the management and administration of public works projects, recognizing the alliance between the managing agency, the contractor, the consultant, and their cooperative achievements. This year’s award winners will be recognized during APWA’s International Public Works Congress & Exposition, which takes place September 18-21 in Denver, Colorado.

The 2011 Public Works Projects of the Year Awards Committee consists of Committee Co-Chair Richard J. Benevento, President, WorldTech Engineering, Woburn, Mass.; Co-Chair William E. Spearman, III, P.E., Vice President, Woolpert, Inc., Columbia, S.C.; Peter M. Adler, Project Manager, City of Arvada, Colo.; Dino P. D’Emilia, P.E., Vice President, Construction Services, AndersonPenna Partners, Inc., Laguna Beach, Calif.; Donald D. Jacobovitz, P.E., Public Works Director, Putnam County, Fla.; James J. Proce, MBA, Public Works Director, City of Palm Bay, Fla.; Brian Keith Pugh, P.E., Engineering Services Director, City of High Point, N.C.; Stephanie L. Reid, City Engineer, City of Lincoln City, Ore.; Joel G. Schilling, Water Resources Scientist, Schilling Consultant Services LLC, Mahtomedi, Minn.; and Bill E. Stogsdill, Jr., Director of Public Works, City of Fairway, Kans.

The winners of the 2011 Public Works Projects of the Year Award are:

**Disaster or Emergency Construction/Repair**

- <$5 million: President George Bush Turnpike Wall 301 Emergency Repair
- $5 million but less than $25 million: Metro Nashville/Davidson County 2010 Flood Recovery

**Environment**

- <$5 million: MMSD Underwood Creek Rehabilitation
- $5 million but less than $25 million: Homestead Avenue Interceptor Extension
- $25 million–$75 million: Sudbury South End Sewer Tunnel System
- >$75 million: Prairie Waters Project

**Historical Restoration/Preservation**

- <$5 million: Mosquito Lake Road Middle Fork Bridge Rehabilitation
- $5 million but less than $25 million: Bernal Heights Branch Library
- $25 million–$75 million: Cal Park Hill Tunnel Rehabilitation and Multi-Use Pathway Project

**Structures**

- <$5 million: Ottawa Somerset Street Chinatown Gateway Arch
- $5 million but less than $25 million: Martha Washington Library
- $25 million–$75 million: Lenihan Dam Outlet Modification Project

**Transportation**

- <$5 million: I-44/MO-13 Diverging Diamond
- <$5 million: Phillipston “Heavy Lift” Bridge Replacement Project
- $5 million but less than $25 million: Elwha River Bridge
- $5 million but less than $25 million: Indian Bend Road Improvements
- $25 million–$75 million: SR 519/I-90 Intermodal Access Project
- >$75 million: Hoover Dam Bypass
On July 31, 2001, the North Texas Tollway Authority (NTTA) opened the third phase of the President George Bush Turnpike (PGBT) project. The third segment stretched from Midway Road to Interstate Highway (I) 35E. The average daily traffic count for the PGBT when segment three opened was 25,200 vehicles per day. By 2009 the average daily traffic count had grown to approximately 51,300 vehicles per day.

On January 31, 2010, retaining wall 301 located on the north side of the westbound main lanes near Kelly Boulevard moved laterally approximately 5.2 feet. This movement towards the main lanes of traffic caused the shoulder pavement to heave approximately three feet upward. NTTA's Maintenance Department immediately mobilized a response plan to stabilize the wall and the retained zone which provided the foundation for the frontage road lanes.

The project included excavating 15,200 cubic yards of Eagle Ford clay, removing 66 mechanically stabilized earth wall panels and 38 pieces of retaining wall coping, and installing 578 soil nails and 326 cubic yards of shotcrete on a five-to six-inch-thick wall. All work occurred while keeping the main lanes of traffic open at the base of the wall and the frontage road lanes open at the top of the wall.

Two particular innovations utilized on this project are worthy of note. The first was long-reach loaders which were utilized for excavation from the frontage road above the construction site, minimizing the impacts to traffic along the main lanes of the PGBT. The second innovation is in the use of soil-nailed retaining walls to ensure the stability of the frontage road.

Soil-nailed retaining walls, also known as “soil nailing,” are a well-established construction technique in which nearly vertical soil slopes, excavations or retaining walls are stabilized or reinforced to prevent their collapse. Steel reinforcing bars are inserted into horizontal, pre-drilled holes that are sloped at a slight downward inclination, and the holes are filled with concrete grout. The soil-nailed retaining wall derives its strength from these closely-spaced grouted steel reinforcing bars (the soil nails) and their resistance to being pulled out of the soil into which they are drilled. A rigid or flexible facing is applied to the soil face, often pneumatically-applied concrete sometimes known as shotcrete.

In the case of the subject emergency project, the soil-nailed retaining wall was designed for an approximately one year service life to support the upper frontage roads carrying local traffic. The strength of this wall was verified by materials testing during construction, and its stability continues to be monitored through the use of LiDAR surveying.
PROJECT OF THE YEAR:
DISASTER OR EMERGENCY CONSTRUCTION/REPAIR
$5 MILLION BUT LESS THAN $25 MILLION

Metro Nashville/Davidson County 2010
Flood Recovery

Managing Agency: Metro Nashville Public Works  
Primary Contractors: Storm Reconstruction Services; DRC Emergency Services; Collier Engineering Co., Inc.; and Civic Engineering and Information Technologies, Inc.  
Primary Consultant: Metropolitan Government of Nashville and Davidson County, Office of the Mayor  
Nominated By: APWA Tennessee Chapter

May 1, 2010, will be a date long remembered in Nashville. On that day, extreme and unprecedented weather conditions began producing large amounts of rainfall resulting in a devastating and record-breaking flood.

By mid-day on May 1, ten inches of rain had fallen. Thousands were driven from their homes. More than twenty roads were closed and the infamous classroom building floated down I-24. By the evening, more than fifty boat rescues had been carried out and five fatalities across mid-Tennessee had been reported. The rain continued to fall. Forecasters were predicting another four to five inches in the next thirty-six hours. By May 4, President Obama declared a disaster in four Tennessee counties: Davidson, Williamson, Hickman and Cheatham.

When the rain began, Metro Nashville Public Works (MNPW) ordered its staff involved with the Office of Emergency Management (OEM) operation to respond to the OEM facility. At this point, staff began assisting in monitoring impacts of the flooding, sending emergency equipment out to set up detour routes and temporary four-way stops where conditions allowed, and barricading roads where conditions did not allow, all in order to protect citizens from flood-damaged areas.

MNPW 3-1-1 Customer Service Call Center was activated with staff placed on ten-hour shifts, seven days a week. The call center provided residents a central place to turn to for reporting issues throughout the county as well as a place to get trusted information. Service requests were forwarded to Metro Public Works operations personnel for response and action.

MNPW Finance section, in the face of the enormous volume of cleanup and repair work to be completed, mobilized to finalize emergency contracts that would enable assistance to MNPW staff. Contractors brought in additional manpower as well as equipment and extensive emergency operations experience. A total of ninety pieces of equipment were assembled to collect the 333,000 cubic yards of debris resulting from the flood. Regular brush collection service was suspended indefinitely so trucks and employees could focus on flood debris.

A long-term recovery plan is currently under development. The plan process has involved extensive public input, and more than 1,000 people have participated in the public meeting process.

The leadership from the Mayor’s Office, MNPW, and Metropolitan Government was invaluable to the coordination between the many nonprofits, churches, businesses and residents that responded so quickly to the needs of the community in crisis. The May 2010 flood response is an excellent example of how a metropolitan public works department can, operating as a team, produce high-end results that protect its city’s residents and the community.
PROJECT OF THE YEAR:
ENVIRONMENT LESS THAN $5 MILLION

MMSD Underwood Creek Rehabilitation

Managing Agency: Milwaukee Metropolitan Sewerage District
Primary Contractor: C.W. Purpero, Inc.
Primary Consultant: Short Elliott Hendrickson Inc.
Nominated By: APWA Wisconsin Chapter

Underwood Creek, a major tributary of the Menomonee River, was dramatically altered in the 1970s to provide increased floodwater conveyance during heavy rains. These alterations included floodplain filling, channel widening and realignment, and the installation of concrete channel lining, which eliminated watercourse hydrologic functions as well as related aquatic and riparian wetland habitats.

The Milwaukee Metropolitan Sewerage District (MMSD) initiated the Underwood Creek Rehabilitation Project as part of a comprehensive plan to enhance flood management within the Menomonee River Watershed. Phase 1 of the project established a five-acre wetland floodplain and incorporated a meandering, stone-lined channel with riffles and pools that provide greatly enhanced aquatic habitat suitable for fish passage. The stable, rehabilitated main channel now allows frequent overbank events while also providing hydrated floodplain conditions essential to the development of riparian wetlands supporting desirable native vegetation and wildlife habitat.

The rehabilitated main channel was constructed of continuous rounded stone (from either an alluvial or glacial source) that was sized to be immobile during the 100-year flood. Two different streambed stone gradations were used along different reaches of the channel, with the larger gradation used where bed shear stress were projected to be higher.

A six-inch-thick gravel filter was installed beneath all layers of streambed stone, locking soils in place beneath the rehabilitated channel. In addition, a two-inch minus rounded stone mix (Streambed Granular Fill) was combined with the streambed stone at a rate of 1:4 by volume (small stone to large stone). The Streambed Granular Fill was added to the larger streambed stone to fill the interstitial voids between the larger stone, thereby developing substrate and habitat conditions necessary for the growth of a complex aquatic macro-invertebrate community. Finally, about 170 large boulders, approximately 3.5 feet in diameter, were installed at random locations in the main channel riffles to provide bed variability for aquatic habitat.

The main channel banks were constructed by wrapping dual layers of woven (700 grams/square meter) and non-woven (loose coir in a cotton/jute biodegradable net) coir fabrics around a 12-inch-thick core of soil. This method is known as fabric-encapsulated soil, or FES, which has proven on other projects to be very resistant to flows immediately following construction, while supporting the growth of herbaceous and woody vegetation. The coir fabric was held in place using wedge-shaped wooden stakes.

The project has gained considerable stakeholder support, including that of Thomas Slawski, Ph.D., of the Southeastern Wisconsin Regional Planning Commission, who stated: “The first phase of the Underwood Creek rehabilitation and flood management project is a great example of how to successfully accomplish flood management goals, reconnection of the stream to the floodplain, recreation of riparian buffers, and instream restoration goals simultaneously with removal of concrete.”

R
Managing Agency: Metropolitan District Commission
Primary Contractor: Northeast Remsco Construction, Inc.
Primary Consultant: AECOM
Nominated By: APWA New England Chapter

The Metropolitan District Commission (MDC) is a municipal corporation which provides water and sewer services to eight member communities and approximately 400,000 people. In 2006, the MDC entered into a Consent Order with the State of Connecticut Department of Environmental Protection (DEP) to reduce combined sewer overflows (CSOs) to a one-year level of control. As a result the MDC developed the Clean Water Project (CWP) to ensure compliance with the regulatory orders issued by the DEP. The Homestead Avenue Interceptor Extension (HAIE) is the first major project as part of this $2.1 billion CWP and needed to address hydraulics, soft ground microtunneling, Amtrak crossing, Interstate 84 crossing, and surface utility conflicts all within the congested downtown of Hartford, Connecticut.

The HAIE was designed to be 3,010 feet of 72-inch PVC-lined reinforced concrete sewer, installed using pressurized face microtunneling. An additional 965 feet of sewer was specified by open cut and jack and bore techniques. The profile was grade dependent which only allowed for a slope of 0.0008 ft/ft. At each manhole, a two-inch drop was incorporated in the design to give the microtunneling contractor flexibility in meeting the specified tolerances. The vertical tolerance was specified at no more than 0.1 feet higher or lower than the theoretical invert. Five tunneling drives were planned, each with their own unique set of challenges. The longest drive is nearly 1,200 feet.

The layout for the project during design anticipated the use of three jacking shafts and three receiving shafts to complete the five tunnel drives. The planning for the work attempted to account for the needs of the contractor in providing sufficient space for the processing equipment to treat the slurry at each jacking pit and an area set aside to stockpile the slurry until such time that it could be characterized and properly removed. The design team investigated a number of routing alternatives to get the flow from the upstream interface with the Homestead Avenue Interceptor to the Park River Interceptor and Park River Storm Sewer located in historic Frederick Law Olmstead-designed Bushnell Park.

The selection of the chosen route was based on the reduction of potential risks that could have a negative impact on the completion of any of the tunneling runs. Historical construction data on many of the large buildings that line the southern end of the project as well as the elevated box-structure ramp leading into Hartford’s Union Station just south of the tunnel crossing were not available. As additional design information was developed, the alignment of the tunnel was modified to avoid cutting into a parcel so that it would not restrict future development. Once the alignment was set, the final geotechnical program was completed.
PROJECT OF THE YEAR:
ENVIRONMENT $25 MILLION–$75 MILLION

Sudbury South End Sewer Tunnel System

Managing Agency: City of Greater Sudbury, Ontario
Primary Contractor: McNally Construction Inc.
Primary Consultant: R.V. Anderson Associates Limited
Nominated By: City of Greater Sudbury, Ontario

Insufficient sewer system capacity in the City of Greater Sudbury’s “South End”—compounded by significant population growth and aging pipe systems—created two major problems: sewage bypassing into local watercourses, which is a risk to public health and safety, as well as environmental concern; and basement flooding during wet weather events, which are expensive inconveniences to residents.

Recognizing that fixing problems on a case-by-case basis was unsustainable, the City worked with the consultant to plan, design and oversee the construction of a solution that would address the South End’s current needs, while meeting future requirements. The result? A $31 million, 1500 mm by 2100 mm diameter rock tunnel sewer system, blasted through bedrock more than 25 to 30 m below the surface, for 6.5 km.

Cost-Savings Approach: Using an old-school approach by constructing a deep sewage rock tunnel—which goes against current conventional thinking—saved the City an estimated $300,000 per year over the next 60 years, which translates into over $17 million in savings.

Increased Community Achievements: The new tunnel minimized basement flooding, which protects private property. The South End could continue developing, which supports the local economy. The tunnel design included innovative odour control measures.

Minimal Environmental Impacts: Construction primarily occurred underground, not greatly affecting above-ground features. Decommissioning six lift stations helped decrease uncontrolled sewage overflows, which protected local watercourses. Stockpiling the spoil to use on future transportation projects lessened future excavation requirements. Not needing to line the tunnel with concrete helped reduce the overall carbon footprint.

Enhanced Stakeholder Consultation Program: Public open houses addressed public concerns. Extensive discussion with individual residents through one-on-one meetings helped lessen specific concerns. Local media tours with representatives from the local political landscape and media helped maintain good relationships.

Complex Safety Measures: Continuous construction at depths of 25 to 30 m, as well as the need to excavate using drill-and-blast techniques, meant high risks to workers. The construction required complex safety measures: carefully sequencing the connections to mitigate worker exposure to toxic environments; installing steel bulkheads to protect workers against potential flooding; and detailing specific requirements about planning, blasting patterns, and explosive storage to help minimize blasting-associated risks.

Complicated Commissioning: The tunnel was commissioned over six months and required the decommissioning of six separate lift stations, so the flow could be diverted into the tunnel. Extensive planning and close coordination with City operations staff helped verify that the flow diversion wouldn’t create issues elsewhere in the wastewater system.
PROJECT OF THE YEAR:
ENVIRONMENT MORE THAN $75 MILLION

Prairie Waters Project

Managing Agency: City of Aurora, Colorado
Primary Contractor: Western Summit Constructors, Inc.
Primary Consultant: CH2M HILL
Nominated By: City of Aurora, Colorado

The Prairie Waters Project began as a massive planning effort to avert a water crisis the City of Aurora, Colo., was facing following a severe drought that spanned from 2002-2004. Aurora realized it urgently needed to develop additional water supply to protect against drought and prepare for future water needs when the City’s raw water storage had decreased to 26 percent of its capacity, a nine-month supply. City leaders were faced with the potential of needing to ration water for customers to meet the community’s needs. After an exhaustive analysis of options, the City identified the Prairie Waters Project as the fastest, most cost-effective and sustainable way to deliver more than 10,000 acre-feet of new water to the City by 2011. The project was officially dedicated on October 9, 2010, months ahead of its planned completion.

More than 34 miles of 60-inch diameter pipeline and three pump stations connect a North Campus natural purification area to a state-of-the-art purification facility. The system has the ultimate capacity to deliver 50,000 acre-feet of water, meeting Aurora’s needs through 2030.

The project uses renewable water rights from the South Platte River and a multi-barrier approach to purify this new source of supply including a combination of natural and state-of-the-art water treatment. The natural purification area features 17 riverbank filtration wells and aquifer recharge and recovery basins for initial water purification. During these processes, water slowly percolates with the area’s natural sand and gravel, performing the natural purification. Final treatment is performed at the 50-mgd Peter Binney Water Purification Facility. This facility and the natural purification process meet Aurora’s stringent water quality goals, producing water that is indistinguishable from current supply and providing the quality that customers expect.

No other surface water treatment system in the U.S. combines this innovative level of purification capability, and it demonstrates Aurora’s commitment to protecting the health of its customers and its commitment to sustainability.

The integrated project management team, featuring third-party construction management services, was developed with a specific charge to build an unprecedented level of support among stakeholders, adhere to stringent cost control, maximize environmental responsibility, and implement a project in an exceptionally fast schedule.

Maintaining momentum for the fast-tracked project called for a robust public affairs program to meet stakeholders’ needs for information and to address concerns. Successful communication strategies to build stakeholders support contributed to streamlining permit approvals, maintaining positive relations with the community and fostering favorable media coverage. During the project, more than 150 events to educate stakeholders were conducted and more than 270 news articles were written to publicize the Prairie Waters Project.
Mosquito Lake Road Middle Fork Bridge Rehabilitation

Managing Agency: Whatcom County, Washington, Public Works
Primary Contractor: Tiger Construction, LTD
Primary Consultant: Shearer Design, LLC
Nominated By: Whatcom County Public Works

The Middle Fork Bridge was built in Whatcom County, Wash., in 1915. The bridge was listed in the National Register of Historic Places in 1982 under Criterion C for its method of construction as the longest pin-connected highway bridge within Washington State, and as an example of a modified Pratt truss configuration adapted to create a long pin-connected structure.

In 2002, inspections completed by Washington State DOT and Whatcom County indicated that there were several areas of the structure which needed rehabilitation or strengthening to carry the heavy loads of today’s traffic. The inspections showed that the floor beams, stringers, timber deck traffic rails and diagonals needed strengthening, rehabilitation, or full replacement. In addition, inspection of the bridge pins indicated potential critical material failures.

By the time the project was completed, the preservation effort grew to include the following items: replaced both end floor beams; strengthened all intermediate floor beams; strengthened all stringers; replaced 16 upper diagonals; replaced the timber deck with lighter weight steel grate deck; installed new bridge traffic rail; installed seismic isolation bearings; replaced pin nuts; replaced eight lower diagonals; applied new calcium sulfonate anti-corrosion coat of paint.

The bridge had to be raised four inches in order for the new seismic bearing to fit. But it’s not easy to lift an old bridge that weighs over 400 tons. The problem is that there are very few places strong enough to “grab” on to in order to give the old “heave ho.” The project team developed a lifting system that used four 100-ton jacks to push up at the bearing pins and lift the bridge. The contractor developed custom brackets that bolted to the existing concrete piers.

The historic context is bridge building in Washington State, and the Middle Fork Bridge is a rare example of a specific bridge type. The approximately 60-foot-high, 338-foot-long bridge currently conveys its significance through integrity of location, design, materials, workmanship, feeling, and association. The location over the Middle Fork River necessitated removal of two bridge panels and this modification of the Pennsylvania petit truss is directly related to the bridge’s significance as a representative type. The Pennsylvania truss design with a polygonal top chord (sometimes referred to as a “petit”) was a standardization of the fabrication of the component parts that increased the bending moment from the ends to the center of a simple span, demonstrating an economy of construction. All vertical members in the Middle Fork Bridge are of uniform strength and construction, and the sixteen 21-foot, 1½-inch panels are not subdivided.
Originally designed by significant local architect Frederick H. Meyer, the renovation of the Bernal Heights Branch Library expressed sensitivity to the historic architecture by seamlessly blending the work of today’s craft with the expertise exhibited by the previous craftsmen at this most respected neighborhood jewel. Examples of how this 70-year-old facility retained its beautiful heritage from 1940 include the simple cleaning techniques to the original hand-painted ceiling stencils and the reinstallation and exact replication of the original ornate light pendants, which provide the warm glow originally envisioned by Meyer. The superior interior workmanship is evident in the painstakingly matched wood and intricate detailing that flawlessly marries into the original woodwork; the thoughtful use of flooring patterns and materials that evoke the beauty of an architectural past; and the new Beaux Arts staircase that is so beautifully executed that many believe it to be original.

The enormous challenge of successfully renovating the entire basement into much-needed public and staff area was a design achievement that seamlessly echoed the spirit of Meyer’s upper level design. The new lower level provides a children’s room, community meeting room, restrooms and staff rooms. The woodwork detailing, flooring materials, custom-designed and selected furniture are all fully integrated with the upper level.

Much of the exterior remains intact except for the north addition of an access ramp which is gracefully sculpted to include public seating. There are new lighting fixtures which echo nearby streetlamps and the era of the original building. A small veranda facing the corner provides a comfortable place for neighbors to converse and watch passersby. The south façade incorporates a second access ramp into the Children’s Room which does not intrude upon the architectural lines of the building. At the west elevation, a new courtyard paved with terracotta and fenced with wrought iron clearly blends with the architecture.

The procurement of the appropriately specified furniture and equipment could only be realized through the fundraising efforts of The Friends of the San Francisco Public Library. Fundraising included the solicitation and installation of donor bricks and other community events. Client approval of furniture was managed through a series of review presentations by the design team.

Extensive outreach occurred with the community in regard to the design and programming of the facility. A number of community meetings were held at the branch, or before the Library Commission or other civic agencies. Public outreach tables with design plans and information were set up at several street fairs and community events.

The renovation successfully bridges two different eras—1940 and 2010—with beautiful, flawless transition. This library is an inspiring tale of one building, with two levels, and yet it clearly has one theme throughout—continuity and respect of its architectural history.
Managing Agency: Marin County, California, Department of Public Works
Primary Contractors: Drill Tech Drilling and Shoring, Inc.; Ghilotti Construction Company, Inc.
Primary Consultant: AECOM
Nominated By: APWA Northern California Chapter

The Cal Park Hill Tunnel Rehabilitation and Multi-Use Pathway Project is a combined rail, pedestrian and bicycle facility planned, built and operated through a cooperative agreement between Marin County and the Sonoma Marin Area Rail Transit (SMART). Restoring this abandoned tunnel provides safer and improved access for pedestrians and bicyclists in Marin County. This project, opened on December 10, 2010, is the first step in the completion of the 70-mile-long transit corridor currently under design by SMART.

The project has taken shape as a model public works project with regards to sustainability, shared vision, local partnership, and long-term planning. Providing a crucial transportation link between the Cities of San Rafael and Larkspur in Marin County, this Class I multi-use pathway follows an existing railroad right-of-way through the historic Cal Park Hill Tunnel. This “rails with trails” project will eliminate a formidable obstacle for commuting and recreational cyclists: the Cal Park Hill itself, which rises 200 feet above the coastal plain and has traditionally been a barrier between the central and southern portions of Marin County for non-motorized transportation. This 1,100-foot-long tunnel and 1.1-mile-long pathway will provide simultaneous access for rail, pedestrian and bicycle use for a system once reserved only for train service.

Rehabilitation of the entire length of the tunnel included tunnel presupport and ground reinforcement at the portals, demolition of the existing tunnel timber support, installation of structural steel sets and shotcrete, and construction of a fan/electrical control room. The construction of the pathway within the tunnel included structural steel roof beams and a lightweight concrete deck for the pathway mezzanine level, glass fiber-reinforced concrete ceiling panels, and construction of the concrete masonry wall that serves as the separator of the rail side and the pathway. Various water and electrical utilities also were installed for public safety and functionality of the tunnel. Closed circuit security cameras, emergency call boxes, “leaky” coaxial cables, and fire detection facilities were also included in the work.

The pathway construction included removal of the existing railroad track outside of the tunnel; widening of the usable land within the existing railroad corridor; construction of soil nail retaining walls, mechanically stabilized embankment walls, cast-in-place concrete retaining walls supported by piles, and conventional concrete retaining walls on spread footings; a prefabricated pedestrian bridge; water lines for fire and operational uses; barriers separating the rail and the pathway; and the pathway, which includes asphalt surfacing, lighting, a plaza with information for the public, and emergency accesses.

The Cal Park Hill Tunnel Rehabilitation and Multi-Use Pathway construction project signifies successful collaboration among government agencies, stakeholders, private business, and the community by transforming an abandoned historical monument into a valuable green transportation link.
PROJECT OF THE YEAR:
STRUCTURES LESS THAN $5 MILLION

Ottawa Somerset Street Chinatown Gateway Arch

**Managing Agency:** City of Ottawa, Ontario  
**Primary Contractor:** R.W. Tomlinson Construction Limited  
**Primary Consultant:** Delcan Corporation  
**Nominated By:** APWA Ontario Chapter

The Somerset Street Gateway Arch involved a unique partnership with the City of Ottawa, City of Beijing and the Government of Canada to build a traditional Chinese Gateway Archway at the intersection of Somerset Street and Cambridge Avenue. The City of Ottawa provided a significant portion of the budget and obtained funding for the project from the Federal/Provincial governments from the Federal Infrastructure Stimulus Program towards the project. A working group consisting of staff from various City departments was formed to lead the project and work with various stakeholders including the City of Beijing, local business association and residents association.

The City of Beijing provided the architectural design (by the Beijing Architectural and Historic Relic Company) and all non-structural finishing and decorative material installations, including a pair of “Gateway Lions.” The City of Beijing’s contribution also included 26 technicians and artisans who arrived in Canada during the six-month construction period to assemble the decorative structural elements and paint the archway.

The Gateway Arch is a symbol of prosperity, health and good fortune and is of Chinese imperial-style design, with nine distinguished golden roofs covered with glazed tiles. Five symbolic coins of five precious metals (gold, silver, copper, iron and tin) and five threads (red, yellow, blue, white and black) were embedded into this structure. By following these Chinese traditions, it is said to bring blessings to the people and to the land. This twin-city project between the City of Ottawa and the City of Beijing also commemorates the celebration of the 40th anniversary of the establishment of diplomatic relations between Canada and the People’s Republic of China.

The arch consists of a reinforced concrete beam attached to two supporting reinforced concrete columns on either side of the road. The beam supports several decorative panels and roof sections that were shipped from the City of Beijing and assembled onsite by City of Beijing workers. In order to create sufficient sidewalk allowance for pedestrians and snow clearing operations, roadway modifications were required. Utility relocations (gas, telephone and overhead hydro) were also required to accommodate the Arch.

Among the accomplishments of which all can be proud include the communications between the Canadian and Chinese work teams. While the language barrier was significant, all parties adapted through the use of hand signals and developed a unique level of camaraderie. The project may not have been completed within the time frames had the two teams not been able to assist each other and work hand in hand to ensure the decorative elements could be cast and placed in the structural portion of the work. Other accomplishments include the construction of the lower portions of the gateway structure and footing in close proximity to heavy vehicular and pedestrian traffic.

*Photo Credit: William P. McElligott Photography Ltd.*
PROJECT OF THE YEAR:

STRUCTURES $5 MILLION BUT LESS THAN $25 MILLION

Martha Washington Library

Managing Agency: Fairfax County, Virginia, Department of Public Works and Environmental Services
Primary Contractor: Harvey Cleary Builders
Primary Consultant: Ritter Architects
Nominated By: APWA VA/DC/MD Chapter

The Martha Washington Library is a single-story community library, with a partial mechanical basement, located on a two-acre site in the Mount Vernon District of Alexandria, Fairfax County. The project entailed renovating the existing 10,220-square-foot library and expanding the facility to 16,663 square feet. As one of the original three libraries built in Fairfax County, the Martha Washington Library has been an important part of the community since 1954 when it opened in a shopping center storefront nearby the permanent site. The library, at its current location, opened in 1969. The site is surrounded on three sides by Fairfax County Park Authority land with the Mount Vernon Recreation Center directly adjacent to the north. The total project budget of $7,310,000 was funded through the library bonds approved by Fairfax County voters in the 2004 bond referendum.

To prepare for the design of one of the County’s oldest libraries, and to establish the library program goals and criteria, the project was broken into two phases: Phase One design work included programming and a feasibility study that included an existing conditions report and conceptual design undertaken in early 2002 through a design consultant team. The first phase established the project scope and cost in preparation for the fall of 2004 Library Bond Referendum. Upon passage of the bond referendum in November 2004, Phase Two, the full design of the project, started in 2006.

At the start of the full design phase, the project goals were established to provide a facility with a strong identity with a significant presence from the street to attract patrons into the building. Additional goals included maximum flexibility, ample natural lighting, and inviting and pleasant interior spaces and reading environment including modern amenities that help deliver quality library services to the county citizens, as well as the creation of a facility that is environmentally friendly in keeping with the County’s overall environmental goals, guidelines and policies. The project team focused on the fulfillment of the stated goals throughout the project development phases, from early planning to construction completion, thus creating a state-of-the-art facility that provides the highest level of services feasible to the library patrons.
At the foot of the rugged Santa Cruz Mountains stands the 50-year-old Lenihan Dam—a 1,000-foot-long earthen barrier, the second largest reservoir under the Santa Clara Valley Water District’s authority. Surrounded by pristine wilderness, the trail system around this reservoir is one of the most scenic in Northern California. Many residents spend their weekends in this public playground—on mountain bikes and foot, exploring nature.

The 2.5-mile-long reservoir has a capacity of 19,044 acre-feet and a surface area of 412 acres. Over the past decade, the dam’s old outlet structure, a 50-inch steel pipe, had begun to corrode and buckle. Despite intermittent repairs, the aging pipe continued to deteriorate and a new outlet structure was required.

The Lenihan Dam Outlet Modification project included a sloping, multi-port intake structure and a shaft located in Lexington Reservoir, and an outlet structure located adjacent to Los Gatos Creek. Discharge flows ranging from three cubic feet per second (cfs) to 410 cfs are controlled by operating valves at the outlet structure. The new 2,000-foot horseshoe-shaped tunnel is 14 feet wide by 13 feet high to house a 54-inch-diameter outlet pipe. The 37-foot vertical shaft was constructed in the reservoir to connect the outlet tunnel with the sloping intake.

Technical challenges included steep terrain with difficult access and very limited space to work, environmental constraints, tunneling adjacent to a dam and creek, and a significant amount of underground and confined space work with the tunnel excavation and the abandonment of the existing outlet pipe. The weak and highly variable geology along the tunnel alignment created excavation challenges, including the risk of instability, deterioration, and squeezing ground.

California dam safety falls under the jurisdiction of the California Department of Water Resources, Division of Safety of Dams (DSOD) who performs inspections during the work and certifies upon completion that the work complies with the approved design. Before completion of the project, the outlet discharge limitations were approximately one-sixth of the design flow due to buckling of the pipeline through the dam. The completion of the project and certification by DSOD now provides for discharge flow rates up to the maximum 410 cfs.

The outlet modification allows the reservoir to drain quickly enough during emergencies, such as after a major earthquake that could cause cracks in the dam, or during a series of heavy winter storms that posed flooding risks to the cities of Los Gatos and Campbell.

There were no lost time incidents on the project with more than 155,000 man-hours worked—a tremendous accomplishment considering the numerous risks. Completion of a safety orientation was required by all workers before entry to the site, as well as a separate orientation for entry into the tunnel.
Managing Agency: Missouri Department of Transportation, District 8  
Primary Contractor: Hartman and Company, Inc.  
Primary Consultant: Missouri Department of Transportation, District 8  
Nominated By: APWA Missouri Chapter

The first Diverging Diamond Interchange in the nation opened to traffic on June 21, 2009, in Springfield, Missouri, the birthplace of historic Route 66. The interchange in Springfield where the Kansas Expressway (MO-13) passes over I-44 is a huge success. At peak hours of the day, southbound traffic on MO-13 would back up to one mile and, at times, up to two miles during major traffic-generating events. Now, the same traffic moves through the interchange within a matter of minutes. The interchange has been the subject of multiple news and journal articles and was chosen as one of the best new engineering innovations of 2009 by Popular Science magazine.

A Diverging Diamond Interchange is a diamond interchange that more efficiently facilitates heavy left-turn movements. While the ramp configuration is similar to a traditional diamond interchange, traffic on the cross route moves to the left side of the roadway for the segment between signalized ramp intersections. By moving traffic to the left, left-turning vehicles can enter the limited access highway without the need for a left-turn signal phase at the signalized ramp intersections. Also, left-turning vehicles on the cross route do not conflict with opposing through traffic and may turn without stopping, creating the unique, “free-left” turning motion.

The intersection of MO-13 and I-44 is a very busy and tightly constrained area. Two of the four corners are high-traffic retail destinations: Super Walmart and Lowe’s Home Improvement stores. The third corner is an outer road backed up to a hotel and light commercial area. The fourth corner is the entry point to the city’s zoo and the Ozark Empire Fairgrounds, an area that hosts over 140 events, concerts and shows throughout the year and generates huge spikes of traffic.

MoDOT engineers believe the Diverging Diamond Interchange is a good fit for the MO-13/I-44 interchange. It has helped relieve congestion in a tight area and yet was a quicker, cheaper reconstruction than more conventional interchange projects. The innovative design was chosen primarily for three reasons: timeliness, monetary savings, and safety.

The project involved removing the existing driving surface on the bridge, repairing the deck and putting down a new driving surface; building a pedestrian walkway down the center of the opposing lanes, divided by concrete barriers; and installing new traffic signals, new striping and other pavement markings, new overhead signs, new islands, new highway lighting and LED lighting for the pedestrian walkway.

A key consideration in the value of the project to the taxpayer was that the design of the interchange permitted the reuse of the existing bridge without any new bridge construction required. That alone generated $9 million in project savings, permitting a $3 million solution to what would traditionally be a $12 million problem.
Phillipston “Heavy Lift” Bridge Replacement Project

Managing Agency: Massachusetts Department of Transportation, Highway Division
Primary Contractor: SPS New England
Primary Consultant: TranSystems
Nominated By: APWA New England Chapter

The Massachusetts Department of Transportation’s (MassDOT) Phillipston “Heavy Lift” Bridge Replacement Project, completed in November 2010, was the fastest bridge replacement in Massachusetts history and the state’s first use of accelerated bridge construction techniques. It is an excellent example of how public works projects can be managed and executed to efficiently provide superior customer service and durable infrastructure improvements while improving work zone safety, developing enduring relationships with local communities and reducing construction-related inconvenience.

MassDOT replaced the structurally-deficient, low-clearance bridge that carried Route 2 over Route 2A (State Road) in Phillipston, Massachusetts, with a new bridge that provides adequate clearance for local truck traffic, a modern safety rail system, and has a 75-year design life. MassDOT replaced the bridge with prefabricated bridge elements using accelerated bridge construction methods.

The design-build entity overcame a major construction obstacle during the project. They originally planned to build the replacement superstructure on temporary shoring towers just north of the bridge location, and then move the superstructure into place along a track using a combination of Hillman rollers and jacks. They found an undocumented utility vault in the exact location where they planned to erect the temporary shoring towers for the replacement superstructures. The location for the shoring towers could only be moved further north. Using the Hillman roller system along such a long distance to achieve the precise movement needed would not have been feasible, so the project team needed to work quickly to come up with a solution.

The project team decided to move the temporary falsework location further north and use Goldhofer Self-Propelled Modular Transporters (SPMTs) to carry the superstructure into place. The crane provided came up with a unique combination of equipment which would prove to successfully carry and place the superstructure with the precision needed.

MassDOT promised the community that Route 2 and Route 2A would only be closed for 202 hours. On October 22, 2010, work crews and local police established the work zone and detours. Then, large demolition crews demolished the existing structure and removed the debris. The team erected the precast abutment caps and poured the necessary connection. During the evening of October 27, the design-build entity began to prepare the path for the SPMTs. Steady rain began to fall, necessitating the use of steel plates and other stabilization measures. This resulted in several additional hours of work. The work crews triumphed over the weather and ambitious project schedule, completing the bridge move in five hours, placing it on its bearings in the early morning of October 28, 2010. MassDOT reopened Route 2 and Route 2A to traffic on October 30, 2010, just 121 hours after closing it for demolition and erection.
PROJECT OF THE YEAR:
TRANSPORTATION $5 MILLION BUT LESS THAN $25 MILLION

Elwha River Bridge

Managing Agency: Clallam County, Washington
Primary Contractor: Parsons
Primary Consultant: BergerABAM
Nominated By: Clallam County, Washington

The Elwha River, a 45-mile-long “scenic and wild” river located on the Olympic Peninsula, is a majestic destination that offers scarce refuge for bald eagles and other rare birds and animals, as well as the most unique salmon species in the world. It is the only river to contain all five species of the Pacific salmon.

The Elwha River Bridge spans the fast-moving current on the upper Elwha River Road, which provides an important connection on Highway 112 and Edgewood Road, along the Strait of Juan de Fuca. The old bridge, a century-old structure listed on the National Register of Historic Places, had become structurally deficient and dangerously in need of replacement. Clallam County closed the creaky one-lane timber bridge in 2007. It was 550 feet long, consisting of two 210-foot-long decked truss spans and timber end spans, and rose approximately 70 feet above the river.

Construction of the bridge met with significant challenges due to the extreme terrain, sensitive environment, and neighboring high-profile projects, including the largest dam removal project in U.S. history. The river is the site for the Elwha Ecosystem Restoration project, the second largest ecosystem restoration project ever attempted by the National Park Service, after the Everglades.

Through an extensive public outreach effort, a Design Advisory Committee was formed, and the solution that best balanced the competing interests of cost, aesthetics, pedestrian access, and ability to minimize environmental impacts, was to construct a double-decked bridge, separating the vehicle deck from the pedestrian deck, using the balanced cantilever method. The new Elwha River Bridge is a three-span, cast-in-place, post-tensioned concrete box girder bridge. The two main bridge piers are supported by four concrete piers, each 10 feet in diameter and extending approximately 100 feet below the river.

The result is an elegantly suspended pedestrian walkway below the new 589-foot-long bridge that seamlessly connects to the Olympic Discovery Trail. At nearly 90 feet above the river and 28 feet wide, the new Elwha River Bridge is the County’s largest bridge and boasts some of the area’s most spectacular and unobstructed views of the river and forests. Stacking the automobile deck above the pedestrian and bicycle deck ensured minimal impact to the salmon-bearing river below, while accommodating all travelers and visitors and ensuring their safety and enjoyment in the area.

WSDOT touts this project as a “jewel in the community.” WSDOT’s Director of Highways and Local Programs, Kathleen Davis, congratulated Clallam County on this “beautiful” project. “I think you have a jewel in this community. You should be very proud. It’s a beautiful structure, and I think it will bring tourists, really, from across the country to your [county]. So congratulations.”
PROJECT OF THE YEAR:
TRANSPORTATION $5 MILLION BUT LESS THAN $25 MILLION

Indian Bend Road Improvements

Managing Agency: City of Scottsdale, Arizona
Primary Contractor: Hunter Contracting Co.
Primary Consultant: URS Corporation
Nominated By: APWA Arizona Chapter

In 1998, Indian Bend Road carried nearly 13,000 vehicles per day. Opening of the Indian Bend Road interchange at Loop 101 in 2000 resulted in increased traffic, growing to almost 20,000 vehicles per day by 2004—an increase of 54% in six years.

Prior to reconstruction, Indian Bend Road between Hayden and Scottsdale Roads was one lane in each direction and was characterized by heavy traffic, peak hour delays, and intermittent flooding that necessitated closing the roadway between two major arterials. Flood events compromised the roadway, creating unsafe travel conditions and limiting emergency vehicle access to the surrounding area.

To alleviate congestion and improve safety, the City of Scottsdale selected URS Corporation to prepare a design concept report and final design to widen and reconstruct Indian Bend Road, including a new bridge and drop structure at the Indian Bend Wash. Hunter Contracting was subsequently selected as the Construction Manager at Risk contractor. Laura Haddad and Tom Drugan of HADDAD/DRUGAN were selected as the project artists. This team worked together to finalize the design and construct the project.

With input from the community, the team incorporated design elements, including aesthetics, bicycle/pedestrian facilities, and preservation of urban wildlife habitat. Working in an active floodplain, the team managed utility relocations, regulatory agency approvals, complex hydraulic analysis, and traffic maintenance. The resulting roadway widening, new bridge and drop structure, extensive landscaping, specialty lighting, multi-use pathways, sidewalks, bike lanes, and public art combine to create one of the Valley’s most visually exciting and functional roadway projects.

This road project is located at a portion of the Indian Bend Wash where two branches of drainage meet and funnel. A concrete drop structure facilitates the flow of floodwater down from a golf course on the north, under a new bridge, and into a basin that controls the water’s progression into an existing natural mesquite grove and lake.

The project provided an opportunity to create site-specific art integral to the structural work. Concepts focused on intertwining and transitioning between cultural narrative and natural phenomena, through focal points in the drop structure and wash basin. A series of fabricated aluminum horse gargoyles, reflecting the site’s history as McCormick Ranch, were integrated into the drop structure. Each pose is different, creating a cinematic progression for cars driving by. During floods stormwater will flow through and around the gargoyles.

Earthwork art characterizes the basin, beginning as a series of stadia walls that sculpturally mark changing water heights. The walls have notches and inset lines of red tile at one-foot vertical increments. They transition into the more naturalistic flow berms, constructed of mortared riprap with linear planters of desert bunch grass. The ends of the berms are the highest points and will appear as islands during floods.
PROJECT OF THE YEAR:
TRANSPORTATION $25 MILLION–$75 MILLION

SR 519/I-90 Intermodal Access Project, Phase 2 – Design-Build

Managing Agency: Washington State Department of Transportation
Primary Contractor: Kiewit Infrastructure West Co.
Primary Consultant: AECOM Technology Corporation
Nominated By: Washington State Department of Transportation

The SR 519/I-90 Intermodal Access Phase 2 project is a $67 million design-build project that increases safety and mobility in the Stadium District and improves an area connection that is considered the premier transportation gateway into the City of Seattle and Washington State. By completing the connection between the I-90/I-5 interchange and the Seattle waterfront near Safeco Field and Qwest Stadium, the project provides a link for commuters accessing I-5, I-90, the Port of Seattle, State Ferry Terminal, sports stadiums, and event centers; and improves safety for pedestrians and bicyclists as they travel between home, work, transit and event facilities. The SR 519 project benefits all modes of travel including trucks serving the Port of Seattle’s container terminals, freight and commuter trains using the BNSF Railway’s rail line, and ferry riders traveling to Colman Dock.

The project includes the following key improvements:

- A new, two-lane elevated ramp connection from westbound I-90 to South Atlantic Street. The new ramp is entirely elevated, passing over 4th Avenue South and connecting to the South Atlantic Street structure east of Safeco Field. This ramp is a five-span cast-in-place (CIP), post-tension (PT) concrete box girder bridge, 1,155 feet in length.

- A new two-lane elevated bridge spanning the existing BNSF railroad tracks, including a new vehicular connection into the Qwest Field parking garage. The new bridge accommodates two-way traffic for vehicular and pedestrian/bicycle modes of transportation. This bridge is a three-span structure consisting of a CIP PT concrete box, a precambered and precast girder, and a CIP concrete box section, 667 feet in length.

- Pedestrian improvements, including two plaza areas referred to as the East and West Plazas, a pedestrian facility with a grade-separated structure on Royal Brougham Way, and a pedestrian elevator at the west end of the pedestrian facility adjacent to Safeco Field.

- Improvements to the intersection of 1st Avenue South and South Atlantic Street. This intersection was widened to provide additional turn lanes and travel lanes, with a new eastbound lane added to South Atlantic Street from 1st Avenue South to Occidental Avenue South.

“The features of this project reduce freight hauling times and eliminate existing at-grade conflicts with the main rail line through Seattle for vehicles and pedestrians,” said Geraldine Poor, Regional Transportation Manager, Port of Seattle. “During construction, the project team has also worked closely with the Port to minimize lane closures and other traffic disruptions.”
Soaring 890 feet above the Colorado River, the Hoover Dam Bypass overlooks one of the nation’s greatest icons and assets. The October 2010 opening of the bypass, a triumph more than 40 years in the making, helps to protect the security of the historic Hoover Dam by removing through traffic from US 93, reducing the vulnerability to a terrorist attack against an American landmark, and guarding the most sustainable source of electricity and the scarce water supply for the entire Southwest.

By diverting traffic from the hairpin turns and two-lane bottleneck approaching and crossing the dam, the bypass improves driver and pedestrian safety. Bypassing the dam reduces travel time and fuel consumption for motorists traveling between Las Vegas and Phoenix and strengthens the economy by restoring a critical NAFTA trade route—disrupted when trucks were detoured from the dam following 9/11.

The structure of the bridge is as grand as its safety, security and economic impact. The 1,900-foot-long Colorado River crossing is the centerpiece of the project, which included new approaches on both sides of the river and six other bridges. It is the highest and longest arched concrete bridge in the Western Hemisphere and features the world’s tallest precast concrete columns. The innovative hybrid structure is designed to complement the dam with the high-performance concrete arch while limiting the load demands with a modern steel superstructure. It is the first steel-concrete hybrid arch bridge in the United States.

The spectacular setting provides a backdrop for one of America’s most significant modern public works projects but also proved to be the greatest challenge. The Black Canyon below the dam is an 800-foot gorge with dramatic rock cliffs, steep canyon walls and a vast geological palette. Working in such a setting required rock cuts and fills exceeding 100 feet in height, accounting for winds up to 70 miles per hour, and setting concrete at night to avoid desert heat reaching more than 120 degrees. Everything about the construction was extreme.

The Hoover Dam Bypass support and construction team exceeded the diverse priorities and needs of the six-agency consortium managing the project, setting a standard for successful project management for a multi-faceted client. The large, complex team worked seamlessly, thoroughly managing the construction details and collaborating to overcome the hazardous site conditions. A comprehensive safety plan helped deliver a rate of lost-time injuries well below the industry average in spite of the extremes of the project site.

Delivered on time and within budget, the Hoover Dam Bypass bridges greatness between the iconic marvel it protects and the brilliant collaboration of the project team to deliver an outstanding public works project.

Photo Credit: FHWA Central Federal Lands
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“In Annapolis, we have beautiful brick sidewalks in the city’s historic area. In this area, we have a persistent problem with chewing gum on the bricks. We have not figured out a safe and effective way to remove the gum from the bricks. High-pressure water doesn’t completely remove the gum residue, and chemical solvents, although effective in removing the gum, present many problems if they enter the storm drain system. Are you aware of any safe and effective means of removing chewing gum from brick sidewalks?” David Jarrell, Public Works Director, Annapolis, MD

Thanks for the question, David. It comes up from time to time and I always enjoy doing a little research to see if anything has changed. Current technology utilizes a high-pressure power washer equipped with a steam component, a vacuum component, stainless steel brushes to aid in cleaning, differing from the more dated high-pressure washing machines alone. The high-heat steam appears to “blast” the gum and the vacuum collects all the debris, as opposed to the power washers that only throw high quantities of water at the spot. I’m no expert, but from having watched test videos, it appears this might be the way to go to keep your historic pavers intact while protecting the environment from additional stormwater drainage. There are several products available so I’m sure you’ll come upon the ones I reviewed!

“With all the recent natural disasters and emergencies throughout North America, is any progress being made in getting emergency notifications out to the public more efficiently and cost effectively? The old warning sirens just don’t seem to be cutting it anymore.”

There was a recent announcement from New York City that they will be the first city in the U.S. to provide notification to cell phones in the event of a disaster or terrorist attack by the end of this calendar year. While some cell phones already have applications available, the new program, titled PLAN (Personal Localized Alerting Network) would enable individual cell phone users to purchase a special chip that would allow the phones to receive “geographically target, text-like messages” alerting them to imminent safety threats in their own area. The notification system will send the
message directly to your phone since most people are not sitting in front of their computers or telephones when these messages might be needed most to protect lives. The PLAN will also be able to send messages when cell phone towers experience network congestion and can override other calls in an effort to deliver the timely notification. The high mobile phone traffic and downed cell phone towers were considered to be primary reasons for service disruption in New York in the immediate aftermath of the terrorist attacks in 2001. Areas facing the recent tornadoes and flooding could have benefitted from this technology. It is anticipated that the PLAN will be available throughout the U.S. by April 2012. In our highly mobile society, it seems like a good idea!

**Q**

“**I hear there’s a new ‘pay-by phone’ option in San Francisco as part of their parking management program. How will that work? What are the proposed advantages?”**

**A**

The pay-by-phone option is a federally funded two-year experience aimed to combat traffic congestion and air pollution by adjusting the price of parking at curbside meters and in city-owned garages based on demand. The goal is to assure that at least one parking space is available on every block at any given time to keep drivers from circling for parking. When demand is high, parking prices will go up; when it is low, they will decrease. Sensors embedded in the pavement will keep track of the parking occupancy. The technology is designed to give parkers a new way to feed the meter when they park and even to add more time remotely after the first payment is made. There will be an additional service charge of up to 45 cents on top of the regular meter fees. Customers will have to open an account using a credit card and can be done quickly online or by phone. Then, any time they park at a meter in San Francisco they simply have to provide an identification number linked to each meter and the amount of time they need. The transaction can be done on in Internet browser or by smartphone or by calling an automated telephone system. Text messages will be sent when time is about to expire, reducing the chance of getting a parking ticket. The per-hour meter charges will land between 25 cents and $6 depending on the block. But prices would only be changed once a month and can fluctuate no more than 50 cents at a time, up or down. Sounds like an interesting experiment and we’ll be watching to see how it goes.
Q

“ Seems like we are receiving more and more surveys, either by phone or e-mail, on a wide variety of topics all with the premise of ‘improving government’ during these tough economic times. Just how dependable are the results from these surveys?”

A

Some surveys can be very helpful to our local governments. With the dwindling resources we have available, cities and counties are being forced to look at all their programs to determine which are the most critical to providing their mission: protecting the lives, safety and welfare of the citizens. The survey results should provide direction to department management to support either increases in funding for services or reduce the quantity of services provided. Every week I hear from agencies that are still providing twice-a-week solid waste collection to their residents, even though their recycling efforts have greatly reduced the amount they collect. Seems the program is a “sacred cow” that MUST stay in place or the elected officials will face the wrath of their constituents. This seems like a no-brainer to me. While taking the heat will be uncomfortable for some elected officials, they must remember they were elected to make the best, most informed, and responsible decisions regardless of personal discomfort. When staff provides documented evidence of cost savings versus the expense of keeping a “nice thing to do,” seems that advice should be heeded. The results of these surveys at the local level tend to be pretty straightforward. It’s when we get to the upper levels of government that we find the data that is being reported is often from a survey taken as much as five years earlier and it being used now to prove their point, even though it is highly skewed. We’ve all heard it said that you can make a survey say whatever you want it to be by manipulating the data and reporting the results. Let’s not be guilty of that on the local level! I really believe that honest, open communication with the citizens about the facts of an issue, pros and cons, offers the best chance of providing the most needed services for the greatest number of people.

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Snap-Tite®: The No-Dig Culvert Lining System
Snap-Tite, the HDPE no-dig solution to culvert lining and rehab challenges, has a patented joint and installation system that allows replacement of failing culvert piping without the removal of deteriorated pipe. Small segments are “snapped” together, all with strong, watertight seals. With Snap-Tite, 95 percent of culvert repairs or rehabilitations can be done off-road. This means increased safety for both workers and motorists. Snap-Tite meets AASHTO Standard M326 for relining culverts. For more information, contact Snap-Tite® at 1-800-CULVERT or www.culvert-rehab.com.

Vegetation management equipment from Asplundh Highway Division
Asplundh Highway Division offers numerous types of specialized equipment to handle vegetation management efficiently and safely. The Slashbuster, pictured here, can cut a 52-inch-wide swath through brush, and can cut and mulch a tree up to 18 inches in diameter. For more information, please contact Asplundh Highway Division at (877) 863-0022 or see us on the web at www.asplundh.com.

ClearSpan increases manufacturing facilities in Dyersville, IA
With demand for fabric buildings continuing to climb, ClearSpan Fabric Structures has constructed a new 160’ wide by 320’ long Hercules Truss Arch manufacturing facility. The building is designed with sustainable features such as geothermal heating and cooling, natural daytime lighting through the building’s polyethylene cover and an insulation R-value of 19. This new facility will allow the company to increase its manufacturing capacity of Truss Arch Building frames. For more information, visit www.ClearSpan.com or call (866) 643-1010 to speak with one of our ClearSpan specialists.

PowerPlatform™: The next-generation municipal vehicle
The GVM Snow Equipment PowerPlatform is a multi-purpose machine offering high speeds, maneuverability, a large cargo capacity and excellent operator visibility while still maintaining a road legal 102” tire width. The four-wheel drive machine offers four-wheel steering with three steering modes: front steering, coordinated steering, and crab steering. Its unique frame design allows the PowerPlatform to turn around in a nine-foot shorter radius than a pickup truck; ideal for turning around on a two-lane road intersection and maneuvering through cul-de-sacs. For more information, visit www.snowequipmentsales.com.
Design and Control of Concrete Mixtures, 2011 Edition
For more than 85 years, PCA’s Design and Control of Concrete Mixtures has been the authoritative reference on cement and concrete materials. The new, fully revised 15th edition contains the most recent standards, specifications and test methods for ASTM, AASHTO and ACI, and includes the best practice on materials and methods for sustainable concrete construction. For more information or to order, visit www.cement.org/apwa or call (800) 868-6733.

Vaisala RoadDSS Suite
Vaisala, a global leader in environmental and industrial measurement, is pleased to announce the launch of Vaisala RoadDSS Suite. The suite allows customers to make more efficient and timely decisions about road maintenance during the winter season. The suite adds new functionality and combines Vaisala’s existing winter road maintenance products into one solution, enabling collection, quality control and archiving data; customized forecasting; and display of information collected from various sources. The new interface was developed following extensive consultation with road engineers. For more information about Vaisala’s products, call Paul Bridge at (303) 262-4051 or visit www.vaisala.com.

UL expands water testing services
UL (Underwriters Laboratories Inc.), a global leader in water quality and safety, has introduced services to detect Chromium-6 and meet the requirements outlined in the Environmental Protection Agency’s third Unregulated Contaminant Monitoring Requirements (UCMR 3). Certified in 49 states and Puerto Rico, UL has analyzed more than 2.5 million drinking water samples for thousands of public and private entities. From assuring government compliance to analysis of emerging contaminants, UL is a trusted source for water testing and monitoring. For information on UL’s testing services for the water industry, visit www.ul.com/water or contact Dan Klaybor at Daniel.C.Klaybor@us.ul.com.

Sky Cast LLC awarded status as a NPCA Certified Plant
Sky Cast LLC, located in Eloy, Ariz., is pleased to announce it has been awarded status as a National Precast Concrete Association (NPCA) Certified Plant. The designation recognizes Sky Cast LLC as a precast concrete manufacturing plant operating at the highest standards of production and quality control. NPCA established its national plant certification program in 1987 to ensure a consistent industry benchmark and a high degree of excellence among precast operations. According to Ty E. Gable, NPCA president, Sky Cast LLC has proven its commitment to producing high-quality precast products by attaining certification. By specifying NPCA certification and purchasing products from certified plants, engineers, architects and contractors are assured they are receiving products that come from an organization dedicated to the highest level of quality control throughout the manufacturing process. For more information about Sky Cast LLC call Ulrich Kuebler at (502) 464-0141 or visit www.skycastinc.com.

The Gradall: A Story of American Ingenuity
The sixty-five-year history of the iconic Gradall machine is chronicled in this book. The challenges and opportunities of those years described in this book explain how and why Gradall Industries, Inc. has successfully continued to grow in an expanding and
A detailed and fascinating story about the people, products, and business operations of this industry leader in construction and industrial maintenance machinery. This 256-page history of both the machine and the company has over 250 photographs and an Appendix with 26 informative charts and illustrations. For sales information visit the book’s website, www.thegradallbook.com, or www.amazon.com.

**Jenny Products, Inc. offers two-stage service vehicle compressors**

Jenny Products, Inc. offers a line of two-stage service vehicle compressors. The line includes five models, each designed, tested and proven to meet the demands of various users and applications, such as service centers, equipment dealers and construction professionals. The compressors are powered by 5- to 18-horsepower Honda GX series engines. Three models come with 30-gallon air tanks, and the other two have 80-gallon tanks. They are available with recoil or electric start and are offered with three different pump styles to meet a variety of volume requirements. All compressors in the line are built with a heavy-duty, two-stage cast iron compressor pump for superior performance and longevity. For more information, call (814) 445-3400 or visit www.jennyproductsinc.com.

**Siemens introduces new XP100 explosion-proof motors**

Siemens Industry, Inc., a leader in the development and manufacturing of innovative motors, introduces its toughest line-up to date, the XP100 (1-300 hp), designed specifically for hazardous operating environments such as the petrochemical and chemical processing, mining, and grain handling industries. The Siemens line of XP100 motors are UL® and CSA listed for gas and dust ignition-proof environments and are suitable for Division 1, Class I, Groups C & D, Class II, Groups F & G, hazardous area classifications. They are also available for drill rig duty in Division 1, Class I, Group D hazardous locations. Their advanced electrical design meets or exceeds the requirements of the Energy Independence & Security Act of 2007 (NEMA MG1 – table 12-12). For more information about the XP100 visit http://www.sea.siemens.com/us/Products/Electric-Motors/NEMA-AC-Motors/Pages/Hazardous-Duty.aspx

**InSync real-time adaptive traffic control**

Cities in 13 states from California to New York are using the **InSync adaptive traffic control system** to reduce traffic congestion. InSync is a plug-and-play system that is fully compatible with existing cabinets and controllers, so there is nothing to discard. The system’s artificial intelligence instantly adapts traffic signals to actual traffic demand. Studies prove InSync reduces stops up to 90%, travel time up to 50%, and fuel consumption and emissions by 20-30%. Find out why clients call InSync “a traffic engineer’s dream” and “the best system on the market today.” Visit rhythmtraffic.com or call (913) 227-0603.

**Ray-Tech Infrared Corporation: the leading manufacturer of infrared asphalt repair and maintenance equipment**

Ray-Tech Infrared Corporation is the leading manufacturer of infrared asphalt repair and maintenance equipment. Their equipment utilizes the patented infrared technology to allow users to make quality, permanent repairs to virtually any asphalt surface in any weather and temperature. They feature a line of equipment ranging from walk-behind heating chambers to truck- or trailer-mounted heating chambers and reclaimers. They engineer and manufacture a piece of equipment for every size and type of job. Their website is www.raytechinfrared.com. If you would like to find out more, call (800) 884-2072 and ask to speak with Jeff Raymond or send e-mail to info@raytechinfrared.com.

**Innovative solutions from RS&H**

With 800 associates in 35 offices nationwide, RS&H offers comprehensive planning, design, environmental and program management services for transportation and public infrastructure projects. RS&H’s innovative solutions for water resources have ranged from award-winning shared-use drainage facilities resulting in millions in right-of-way savings to an alternative water supply project developed to solve flooding problems and generate revenue for a local community. Services include stormwater management, hydrologic/hydraulic modeling, environmental permitting, and drainage analysis and design. For more information on RS&H’s services, visit www.rsandh.com.
UPCOMING APWA EVENTS

International Public Works Congress & Exposition
2011
Sept. 18-21 Denver, CO
2012
Aug. 26-29 Anaheim, CA
2013
Aug. 25-28 Chicago, IL
2014
Aug. 17-20 Toronto, ON
2015
Aug. 30-Sept. 2 Phoenix, AZ

For more information, contact Dana Priddy at (800) 848-APWA or send e-mail to dpriddy@apwa.net.

2011 Sept. 18-21 Denver, CO
2012 Apr. 29-May 2 Milwaukee, WI
2013 Apr. 7-10 Charlotte, NC

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

National Public Works Week: May 15-21, 2011
Always the third full week in May. For more information, contact Jon Dilley at (800) 848-APWA or send e-mail to jdilley@apwa.net.

JULY 2011
14 APWA: Click, Listen & Learn, “How The Effective Utility Management Tool Will Significantly Improve Your Public Works Department, or Utility” (Live), (800) 848-APWA, www.apwa.net

AUGUST 2011
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22 APWA: Click, Listen & Learn, “Public Infrastructure Inspector Study Guide Part 2” (Rebroadcast), (800) 848-APWA, www.apwa.net

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

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– Bill Verkest, APWA President, 2006-07

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– Jerry Fay, APWA President, 1999-2000

“I just got through spending some time with the July issue of the *Reporter*. It was a joy. A lot of well-written newsy articles about APWA activities, many informative articles about a variety of public works activities, a good review of upcoming national Board officers, and a great report of award-winning projects throughout the country. These latter ones had excellent pictures and concise write-ups explaining each project. What a delight to see the expanded content of the magazine, fully half again as large as recent issues, with a really eye-catching cover.”
– Myron Calkins, APWA President, 1970-71

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