ASCE PITTSBURGH SECTION
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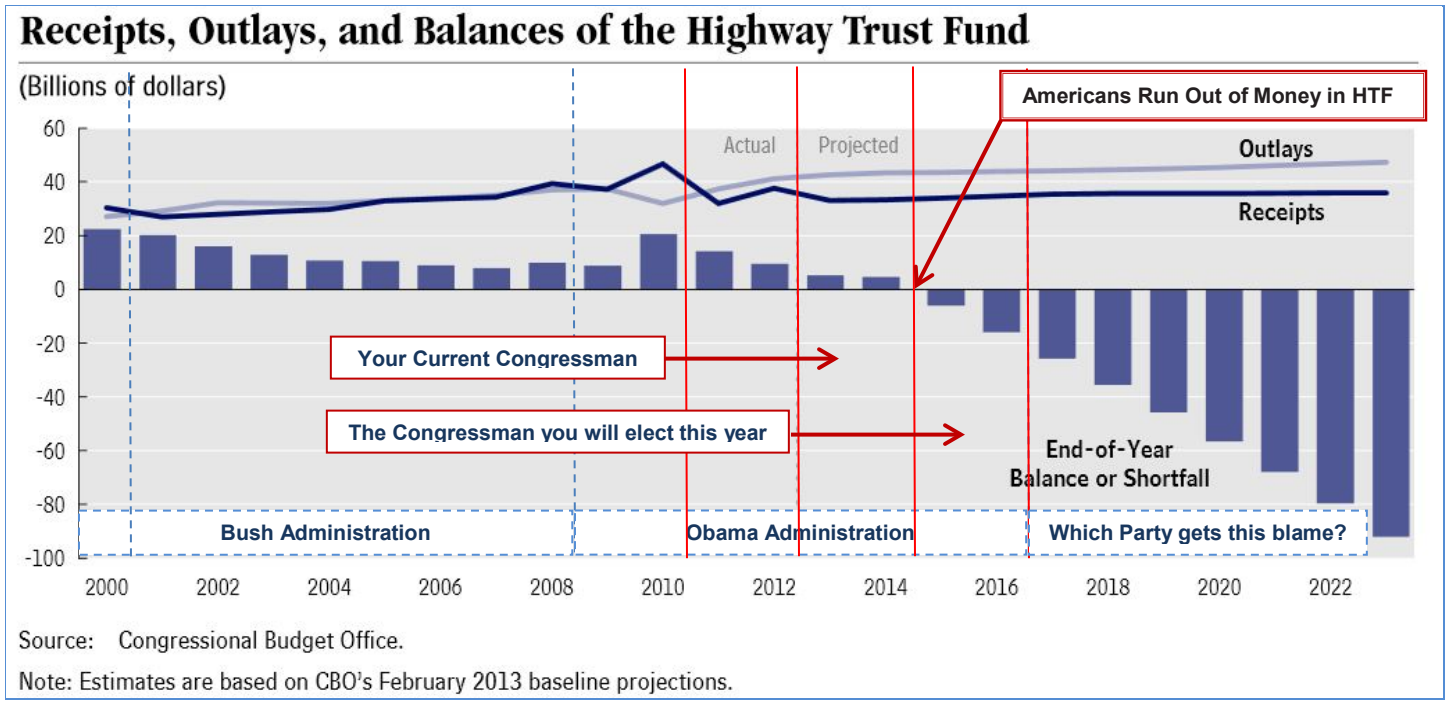
US Federal Highway Trust Fund To Run Out Of Money

The Motor Fuel User Fees we pay with each gallon of motor fuel have two parts: state and federal. With the recent passage of Act 89 of 2013, Pennsylvania increased the state's share of the revenue to maintain our state and local highway system. The Federal portion is derived from the Highway Trust Fund. The Highway Trust Fund's coffers traditionally have been filled by the 18.4 cents per gallon federal motor fuel user fee, but infrastructure expenses have outpaced receipts in recent years by as much as $20 billion annually. The fee is not indexed to inflation, but costs to build and maintain highway infrastructure have nearly doubled (195%) since the last adjustment in the fee.



The Highway Trust Fund, the funding mechanism that drives our nation's investment in transportation infrastructure, is facing its fifth revenue shortfall since 2008. The Highway Trust Fund is currently allocating more revenues than it receives and the Motor fuel and truck excises supporting the Highway Trust Fund have not been adjusted in 20 years. As a result, the Congressional Budget Office has projected that the trust fund will be insolvent by Summer, 2014. (see p9)

Who among your Congressman below will vote to build America with you? How will you vote on May 20?

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District 9
Bill Shuster

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Keith Rothfus

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Pittsburgh Section Announces New 2014-15 Leaders

The ASCE Pittsburgh Section Board of Directors has approved the following professionals to continue the leadership in the 21st century.

President

Kemal Niksic, P.E., Principal Engineer at Hatch Mott, reflects the commitment and dedication that Kemal has shown to the section and ASCE over the years. Kemal has served as EWRI chair; and has helped get the Northwest Branch revitalized, and recently took on the responsibility of chairing ASCE's first shale gas conference to be held In Pittsburgh in July, 2014. Kemal's extensive and varied accomplishments earned him the honor of Civil Engineer of the year for 2013.

Vice President

Cathy Bazan Arias, P.E. is a senior engineer at DiGioia, Gray, & Associates. Within the past 10 years, Cathy served 1) for 3 years as Pittsburgh Section ASCE newsletter editor; 2) chair of the section geotechnical institute, 3) continuing education chair, 4) section liaison to Engineers Without Borders where she coordinated and participated in an EWB project in Mali, and 5) a position with the ASCE National Board of Directors. Dr. Arias recently completed her term as ASCE national director and is eager to re-engage with the ASCE Pittsburgh Section with a wealth of new knowledge gained since her previous positions.

2014-2017 Directors

Angela Mayer, P.E of KU Resources, has been very active within the YMF in recent years. She recently was accepted into and completed Leadership Pittsburgh's one-year leadership development program. She won the "Best supporting actress" for her lead role in ASCE's outreach video – and is currently YMF president.

Patrick Sullivan, P.E. a Principal at Civil and Environmental Consultants, recently became the Section's Program chair – and has done so with a great deal of enthusiasm, a positive attitude, and sense of determination to ensure the success of the programs our section is providing!

Karl Sieg, P.E. of Sieg & Associates, has an extensive knowledge of the history of this section. Karl also possesses a passion for wanting to make sure this section continues to benefit members Karl received the "Meritorious Service to the Section" award and was previously was honored with the 'Service to People' award. He is completing his year as 'past past president' and section awards chair. Karl also gives much of his time as interim section newsletter editor to ensure that the quality of the newsletter we distribute is of meaningful, substantive content.

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Continuing Education Made Easy

Part 5:

Continuing Education Modes

Sam Shamsi, PE, F.ASCE

This is a multi-part series of short articles on Continuing Education which started in December 2013. Parts 1 to 4 focused on continuing education basics and requirements for professional engineers in Pennsylvania and other jurisdictions. In this 5th part, we discuss various modes of continuing education. The entire series can also be accessed from the Continuing Education page of the Pittsburgh Section Web site: http://www.asce-pgh.org/continuingeducation

Modes of Continuing Education

The method of delivery of continuing education, referred to as mode, can include traditional instructor-led classroom style lectures or unconventional and modern distant learning methods.

Some continuing education programs make heavy use of distance (or distant) learning, which can include independent study, recorded media (e.g., CDs and DVDs), or broadcast programming which has more recently dominated the distance learning community (Wikipedia, 2014).

Distance learning means any of the following (Brenke, 2013):

1. Courses where an instructor and a licensee may be apart and instruction takes place through an online or electronic media.
2. Courses which include, but are not limited to, instruction presented through interactive classrooms, at the job site, computer conferencing, and interactive computer systems.

NCEES Guidelines indicate that PDHs may be earned by successful completion of distance education courses offered through correspondence, television, videotapes, or the Internet (NCEES, 2013).

Distant learning mode of continuing education is generally acceptable provided that proper documentation (to be discussed in the next issue) is maintained. NCEES Continuing Professional Competency Guidelines (NCEES, 2013) indicate that PDHs may be earned by successful completion of short courses/tutorials and distance education courses offered through correspondence, television, videotapes, or the Internet. However, it is always a good idea to confirm in advance what's acceptable for a particular license type in a particular jurisdiction.

Some universities, such as Southern New Hampshire University, have begun to offer hybrid courses. These courses offer adult learners the option of having in-classroom and online learning. In addition to independent study, the use of conference-type group study and online study networks can be used to facilitate learning. A combination of traditional, distance, and hybrid type methods may be used for a particular continuing education course or program (Wikipedia, 2014).

An Example of an Unconventional Course

For several years, the author has successfully offered online distance education courses approved by Pennsylvania Department of Environmental Protection (DEP) for Certified Water and Wastewater operators which are also taken by professional engineers for their continuing education requirements. People can register and pay online. The course content, which is mostly PDF files that don't even have to be printed, can be downloaded online. One course includes watching online educational videos on the

YouTube and answering multiple-choice quiz questions. A course completion certificate is issued to those who score at least 70% in a quiz that can be faxed or emailed to the instructor. So far no one has failed the test. DEP is also notified online by the instructor about course completion, and therefore, attendees do not have to submit the course completion documentation to DEP. An online transcript system is available to operators to track their PDH units and courses. Available at www.GIS-Training.com, some of these courses offer discount to ASCE-Pittsburgh members.

As people have more difficulty taking time away from work to attend conferences and workshops, the idea of offering continuing education courses via the Web has become more desirable.

ASCE Distance Education Courses

ASCE offers similar online distance education courses and much more. At http://www.asce.org/webinars/ you can search the largest catalog of Webinars for civil engineers. Live Webinars are ASCE's high-impact training solution delivered by leading experts, with minimal disruption to your workflow. With Live Webinars you can train an entire group of engineers with a single registration fee, and all participating engineers can earn PDHs and obtain certificates at no additional cost. ASCE allows you to create, update, view, and print a personalized transcript of your PDHs at myLearning—ASCE's new hub for continuing education and your PDH Tracker. Learn more at asce.org/myLearning.

References and Resources

- Brenke, R. (2013). Michigan Licensure Law: Continuing Education Requirements for Professional Engineers, American Council of Engineering Companies (ACEC), September 18, 2013.
- National Council of Examiners for Engineering and Surveying (NCEES) (2013). Continuing Professional Competency Guidelines.
- Wikipedia, The Free Encyclopedia (2014). Continuing Education, http://en.wikipedia.org/wiki/Continuing_education. Site visited March 26, 2014.

In the next issue, we will discuss documentation requirements and recommendations for your continuing education activities.

For more information, contact Continuing Education Committee Chair **Sam Shamsi**, at **sam.shamsi@jacobs.com**

Errata: Table 1, Part 4: Continuing Education Requirements in Other Jurisdictions, March 2014: Ohio's continuing requirements and license renewal changed from annual to biennial beginning with the 2012-2013 renewal cycle. 30 credits are now required every two years.

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EE for CEs:

Fundamentals of Electrical Engineering for Civil Engineers (7 PDH)

"Basic, Practical Electrical Engineering Every Civil Engineer Needs to Know"

Friday, May 16, 2014, 8:00 AM to 5 PM

DoubleTree Hotel in GreenTree, 500 Mansfield Avenue, Pittsburgh, PA 15205

Who Should Attend: Civil Engineers whose basic electrical engineering knowledge is 'rusty' and wish to refresh their and update their knowledge of use of electricity in their projects. Also learn the trends in the industry, electrical safety for construction sites, some cool toys (subsurface utility detection), and how pumps, motors, and electric valve actuators work.

Register and pay online at: http://www.asce-pgh.org/ViewEvent.ashx?eventId=790714

Or, mail payment and the registration form below:

Registration Form EE for CE: Fundamentals of Electrical Engineering for Civil Engineers				
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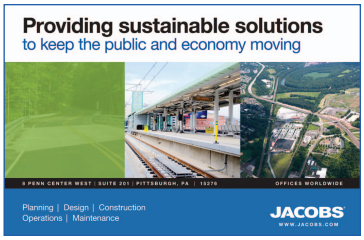

Course Outline

8:00 – 8:30 Registration

1. Fundamentals of Electrical Engineering for Civil Engineers

8:30 – 10:30 Basic Undergraduate Electrical Engineering That You Have Forgotten

10:30 – 10:45 Coffee Break, Networking, Exhibits

10:45 – 11:45 Traffic Signal Systems and Equipment

11:45 – 1:00 Lunch, Networking, Exhibits

2. Applied Electrical Engineering for Civil Engineers

1:00 – 2:30 Electrical Safety on the Construction Site

2:30 – 2:45 Break, Networking, Exhibits

2:45 – 3:45 Subsurface Utility Detection Technologies

3:45 – 4:45 Electric Valve Actuators

4:45 – 5:00 Door prizes

5:00 – 7:00 Happy hour

This is a tentative schedule which may change slightly due to speakers' availability.

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Member prices extend to non-member spouses or one guest of member, except as noted by '*'.

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1. Foster's Restaurant, #10 Foster Plaza, Green Tree
2. Co-sponsored by Pittsburgh Geological Society and Assn. of Engineering Geologists
3. Monetary awards for top presenters of research in a geotechnical field.

April 24, Thursday, CMU – EWRI Networking Event

1. Bloomfield Postnatural History Museum
2. 5:30 p.m.
3. Dinner provided

April 25, Friday, CMU – YMF Joint Social with ASHE, ESWP, PSPE, SAME, CAWP

1. Steel Cactus, 5505 Walnut St., Shadyside
2. 6:00 – 9:00 p.m.
3. $5 cover for drinks and heavy appetizers

May 16, 2014, Friday, EE for CEs – all day seminar 8 am to 5 pm

1. Basic, Practical Electrical Engineering Every Civil Engineer Needs to Know
2. Topics:
   a. Electrical engineering basics,
   b. electrical safety for construction sites,
   c. traffic signals,
   d. pumps,
   e. generators,
   f. electric valve actuators,
   g. plus some cool toys (subsurface utility detection).
3. Hilton Doubletree in Green Tree, 500 Mansfield Avenue
4. **Registration Fees**:
   a. Members: $135,
   b. Non-Members: $150,
   c. Students: $75,
   d. Vendors/Exhibitors: $250 (includes one registration).
5. Seminar brochure and registration form will be available in March.
6. Members $135
7. **Who Should Attend**: Civil Engineers who have forgotten basic electrical engineering and wish to refresh their knowledge of how electricity affects their projects.
8. for sponsorship/exhibitor opportunities Contact **Sam Shamsi, PE**, **412-298-7932** **sam.shamsi@gmail.com**, or **Kathryn Power**, EIT, **KathrynPower@live.com** .

Event Sponsorship and Exhibition Space Available:

Please contact Seminar Manager, **KathrynPower** for sponsorship/exhibitor information.

May 17, 2014, Saturday, ASCE Family Picnic

1. for all Members of ASCE and their families
2. YMF will provide hamburgers and hotdogs. Please bring a side dish of your choice. BYOB!
3. Monroeville Park West, 2399 Tilbrook Road, Monroeville, PA
4. RSVP: By 5/9/14 to Jamie-lynn.widows@hatchmott.com

July 21 - 23, SEEC (Shale Energy Engineering Conference)

1. Lawrence Convention Center
2. Share knowledge of how to enjoy the economic benefits and solve the problems to the environment and health

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Position Available: Civil Engineer 3-Highway Design, Pittsburgh

A member of this team will contribute to CDM Smith's mission by:

- -Performing Civil Engineering work related to Transportation/Highway projects.
- -Performing work involving conventional and straightforward plans, investigations, surveys, structures, or equipment.
- -Possibly supervising or coordinating the work of others assisting in specific assignments.
- -Learning project management techniques and the CDM Smith management system.
- -Managing tasks on large projects or phases of small projects.
- -Developing external client interaction and market development skills.

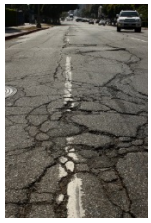
Successful candidate will have: B.S. or M.S. in engineering, at least 3 to 5 years of experience since B.S., E.I.T. or the ability to obtain it within 18 months, Excellent written and verbal communication skills, Familiarity with necessary computer programs.

The federal portion of the user fee pays to build and maintain highways used in interstate commerce, provided as 'post roads' in the US Constitution, connecting Post Offices in 1787 when travel was by horse.

Since its inception, the federal highway system has facilitated unrestricted commerce and travel throughout the country. It is vital to the U.S. supply chain and has revolutionized the way America does business.

In **Pennsylvania,** the Federal Highway Trust Fund provided nearly half, **46%**, of the annual PennDOT capital outlays for highway and bridge projects prior to the passage of Act 89. The insolvency of the Highway Trust Fund will reverse the progress Pennsylvania has made with the recent passage of this landmark legislation.

Without an estimated $16 billion of additional funding, about $50 per American, the insolvency of the Highway Trust Fund will result in the elimination of ***any*** new Federal transportation spending in FY 2015 and will result in drastic investment cuts: highway investments will go from $41 billion to $6 billion, and transit investments from $11 billion to $3 billion.



The choices available to Congress to avoid these dramatic investment cuts are

- infusion of the required estimated $16 billion in General Funds, which would mean adding to deficit, or
- the creation of new revenues.

The last adjustment to the motor fuels user fee was over 20 years ago. To put that in perspective, what were you doing when Michael Jackson's *'Black or White'* and Queen's *Bohemian Rhapsody* aired and the federal motor fuel user fee was last adjusted in 1993?

Although one method of funding highway maintenance is tolling, federal law mostly prohibits states from adding tolls to existing highway lanes where drivers are already allowed to travel for free.

Those opposed to tolls advise that tolling existing interstates would reverse this progress, raising costs for travelers, businesses, and consumers, and harming the many businesses and communities located along interstate routes subject to new tolls.

Rep. Earl Blumenauer (D-Ore.) introduced a bill to gradually increase the gas tax to 33.4 cents per gallon, but the measure has failed to gain traction in Congress. The AAA Auto Club, the U.S. Chamber of Commerce, the American Trucking Association, and some heavyweights in Washington have come out in favor of an initial 15 cents per gallon increase in the gas tax. But 2014 is an election year for Congress, and necessary action will be difficult before Primary Election Day this spring, and possibly not until after the November General Election, after Congress has let the Highway Trust Fund become insolvent.

ASCE is working with many coalition groups to urge Congress to find a long-term reliable funding source to address the Highway Trust Fund shortage. Every ASCE member is encouraged to share your knowledge with your friends and neighbors about the importance of maintaining the Highway Trust Fund's solvency.

If we allow the Fund to run dry, the U.S. economy will lose jobs, projects will stop, and productivity will come to a halt.

For more information, contact **Greg Scott**, at **Buchart Horn, Inc.**, **412-261-5059**, **gscott@bh-ba.com**

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SAFE AND PROFITABLE MARCELLUS SHALE GAS INDUSTRY

This ASCE skill-building meeting discussed some civil engineering aspects of the shale gas industry. Mark D. Mayle, P.G., of Rettew Associates focused on three key areas of geotechnical design: 1) roadway, 2) new pad construction, and 3) landslide repair.

1) **Roadways** to drill sites must provide safe durable, and inexpensive, access, especially in locations that previously received little vehicle traffic. One method discussed is Full-depth reclamation (FDR) to provide long-lasting roads in areas that require improved subgrade strength. The design of an FDR project involves

a. an initial evaluation of roadway needs,
b. sampling and testing of existing surface and subsurface material,
c. pavement distress analysis, and
d. construction recommendations.

These services are very important to minimize significant repair costs.

2) On any construction site, the design and preparation of a sturdy **working platform** is necessary. 'Pads' that are built wrong can collapse, damaging equipment and sending mud and pollutants into streams and water supplies. In the Marcellus Shale region, especially, many of geologic factors endanger the stability of new embankments and cut slopes. To avoid potential failures, a thorough and careful geotechnical investigation and design must be performed for each and every new pad constructed, including

a. desktop survey,
b. subsurface investigation,
c. lab testing,
d. stability analysis,
e. construction recommendations,
f. inspection

Early in the regional oil and gas boom, some contractors from outside and unfamiliar to the area ignored these essential and responsible engineering and construction steps that are necessary in our region.

As a result, slope failures and maintenance issues arose and dollar costs to drillers and municipalities, and environmental costs and dangers to the public were often multiplied.

As scattered cases of unsafe water occurred, public confidence in the industry and the government eroded and resistance to the economic benefits to the communities rose.

Although most operators have become aware of the stability issues and these failures have decreased, they have not been completely eliminated. Responsible drillers now hire and follow the recommendations of geotechnical consultants for subsurface investigations and construction, although in some cases the information provided can be misinterpreted. For example, a geotechnical report may indicate a profile that would be considered "competent" in other regions can be unstable in this region given the geologic setting or lack of drainage paths. In these cases, the drillers and regulatory agencies must assure that a competent geotechnical engineer is responsible to control the design, recommendations, and inspection of the earthwork.

3) The **repair** of these failures as a result of the landslides that are so common in western Pennsylvania and West Virginia, has become an important aspect of geotechnical design. Some of the key steps include

a. damage assessment,
b. initial stabilization,
c. subsurface investigation,
d. slope re-design, and
e. long term repair.

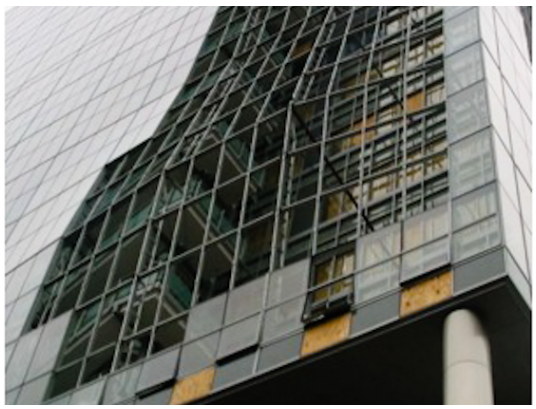
Although landslide repair can be safely managed by qualified engineers and contractors, the cost of these repairs are typically 10 to 20 times that of a designing and building it right the first time starting with a traditional investigation and report.

To learn more about profitably extracting shale gas while assuring public safety, attend the **Shale Energy Engineering Conference** in Pittsburgh, July 21 -23, 2014.

ASCE Members Refine Disaster Response Skills

Based on ASCE's Committee on Critical Infrastructure (CCI) in conjunction with California Office of Emergency Services (CalOES) and the Applied Technology Council (ATC), this workshop for Post Disaster Safety Evaluation was sponsored by the Pittsburgh Younger Members Forum (YMF), attendees learned current methods for safety evaluation of structures and infrastructure in cases of high wind and landslide or other earth movement damage.

Civil engineers serve a critical role in recovery efforts from both natural and man-made disasters. Often teamed with other government officials, civil engineers use their specialized skills in helping a disaster-struck area recover. Certified volunteers quickly reduce recovery effort time from years to days. Recent disasters highlighted the efforts of the volunteer task forces assembled for recovery.



David Swanson, PE, SE, LEED AP, F.SEI. presented the course. David has worked in recovery efforts throughout the United States (Hurricane Sandy, Hurricane Katrina, Northridge earthquake and 9/11) and internationally (Port-au-Prince, Haiti and ChristChurch, New Zealand earthquakes). Swanson provided valuable first-hand accounts of disaster recovery efforts. The course is based upon workshop materials from ATC-20: Procedures for Post-Earthquake Safety Evaluation of Buildings and ATC-45: Safety Evaluation of Buildings After Wind Storms and Floods.

Several attendees registered as CalOES Safety Program Evaluators, and may be notified in the event of disaster recovery efforts. Trained safety evaluators across the nation like these deploy from areas not affected by disasters. When a disaster strikes locally Pittsburgh Section ASCE members can evaluate and identify structures with green yellow or red tags to guide responders to search and rescue effectively and most safely.

To be more involved with Post Disaster recovery efforts, contact **Linda Kaplan**, at **Gannett Fleming, 412-922-5575**, **lkaplan@gfnet.com**

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