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Vol. 75-4

# Our 89th Year

November, 2002

## **DECEMBER JOINT DINNER MEETING**

Philadelphia Section, American Society of Civil Engineers and the Delaware Valley Chapter, Society of Military Engineers (SAME)

# **WEDNESDAY, DECEMBER 11, 2002**

Philadelphia International Airport Hilton Hotel (see directions below)
Cocktails – 5:30 p.m. • Dinner – 6:30 p.m. • Meeting – 7:30 p.m.

Hors d'oeuvres compliments of Schnabel Engineering Associates - Sponsor of the Meeting

SUBJECT: The Implosion of the Seattle Kingdome Stadium

SPEAKER: Dr. Gordon Matheson, P.E., President, நிருந்தி நிரும் ering Associates

CALL FOR RESERVATIONS AS SOON AS POSSIBLE. Call the Electronic Message Center: 1-800-461-4190 (Open 24 hours/day) or e-mail the Section at info@asce-philly.org. Cost: Members

and Guests - \$30.00; Students - \$15.00.

SPECIAL FEATURE: UNIVERSITY OF PENNSYLVANIA NIGHT - The ASCE Student Chapter, Alumni and Faculty of the Civil Engineering Systems Department of the University of Pennsylvania will be honored at this meeting. All Students, Faculty and Alumni are cordially invited.

**DIRECTIONS TO HILTON PHILADELPHIA AIRPORT,** 4509 Island Avenue, Philadelphia, PA 19153, (215) 365-4150

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From the South – Take I-95 to Central Philadelphia/I-76 West, Exit 13. Follow signs for Island Avenue (stay in the right lane). Go to the traffic light and make a left. The Hotel will be on your left.

From New Jersey – Take Walt Whitman Bridge, Ben Franklin Bridge, or Betsy Ross Bridge. Continue over the bridge and pay toll, follow the signs for I-95 South. Take I-95 South to Enterprise Avenue/Island Avenue, Exit 15. Continue to the stop sign. Make a right on Island Avenue. Continue 1/4 mile and the Hotel will be on your left.

From 1-76 East and Central Philadelphia – Take I-76 East (Schuylkill Expressway) towards the International Airport. At the light, make a right onto the Platt Bridge. Stay in the left lane and exit on Isalnd Avenue. Go to the traffic light and make a left. The Hotel will be on your left side.

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# Greetings of the Season

The Editor and Staff of THE NEWS, Phila. Section, ASCE, on behalf of the Officers, Board of Directors, Technical Groups, Younger Member Forum and Committee Personnel, extend to the Phila. Section Membership, their families, loved ones, friends and Associates, Warmest Wishes for a Happy Holiday Season and a Fruitful, Healthy and Successful New Year.



# TECHNICAL GROUP ACTIVITIES Engineering Management Group

Joint Luncheon Meeting

DATE: Wednesday, December 18, 2002 12 Noon

COST: \$10 Members and Guests; Students Free LOCATION: Conference Room 18-022, 18th Floor, One Parkway Building, 1515 Arch Street, Philadelphia

SUBJECT: Philadelphia Neighborhood Transformation Initiative (NTI)

SPEAKERS: Lance Rothstein, R.A., Project Director, Capital Program Office City of Philadelphia; Michael V. Griffin, P.E., Senior Vice President, Hill International

RESERVATIONS: Call 1-800-461-4190

# Volunteers Needed – Engineering Management Technical Group

Volunteers are needed to help plan activities for the Engineering Management Technical Group. If interested, please contact co-chairmen Bill Mulloy at (215) 656-6583 or Dennis MacBride at (215) 568-6500.

Resolve to attent ALL Section Meetings and Functions This Year! And Invite Your Associates!



## THE PRESIDENT'S MESSAGE

### Volunteering in Civil Engineering ("Voice")

Dear Fellow Members in ASCE,

On November 3-7, 2002 I represented the Section at the ASCE's Annual Conference in Washington, DC. I am pleased to provide you with this report. The conference was held in conjunction with the ASCE's historic150th Anniversary. Another history was made with the installation of first woman ASCE National President-elect. This ASCE Annual Conference was coordinated with two other

major meetings; the Civil Engineering Research Foundation (CERF)/International Institute for Energy Conservation (CERF/IIEC and The Infrastructure Security Partnership (TISP) 1st Annual Congress on Infrastructure Security for the Built Environment (ISBE). History and heritage, presentations and panels, extensive variety of technical, educational and informative sessions, exhibits and celebrations, issues about security and the profession, along with networking opportunities and a 150th Anniversary were all part of the 2002 Civil Engineering Conference and Exposition.

The official Conference kick-off was at ASCE's Opening Plenary with Tim Russert, Moderator of "Meet the Press," who delivered the Keynote Address. The Plenary allowed Past President Gerry Schwartz enlightened the members on important Society activities of the past year.

Excellent learning and technical sessions covered a wide range of topics highlighting design tutorials; mega-project case histories; IT applications; environmental and transportation matters; sustainability; disasters; innovative materials and contracting; and future education needs and practice issues. Professional Practice blending sessions on management, leadership, diversity, ethics, licensure, professional issues and communications were also presented.

In addition to technical sessions, there was a terrific International session keynoted by former US Secretary of Transportation **Rodney E. Slater.** The Federal Forum with top leaders from the Corps of Engineers, Naval Facilities Engineering Command, General Services Administration, State Department, and Smithsonian Institution engaged in a free-flowing discussion of Federal markets, needs and outlooks, security issues, projects delivery systems and more.

US Secretary of Transportation Norman Y. Mineta, long recognized as a proponent for the Civil Engineering and construction industries from his days as a member of the house Public Works and Transportation Committee, reinforced the civil engineering role in giving an update of what his department was doing to make the world safer since 9/11.

Two full days of the conference were scheduled for ASCE business meetings. The Council of Presidents meeting, sponsored by the Council of Vice Presidents, provided an excellent opportunity for exchange, communications, and networking with ASCE's local and national elected leaders. The Leadership meeting provided an opportunity to hear the vision of ASCE's 2003 President-Elect Pat Galloway. It also included question and answer period with President Tom Jackson, Pat Galloway, new Executive Director Patrick Natale and all Zone Vice Presidents.

The Section and Branch Presidents participated in the Section and Branch Procession of Local Leaders into the Annual Business Meeting. The names of ASCE's Sections, Branches and District, Regional and Younger Councils were scrolled on a large screen presentation as local leaders paraded into the Business meeting. At the Annual Business meeting **Thomas L. Jackson** was inducted as ASCE President 2003, **Patricia Galloway** as President-Elect and other new officers. **Patrick Natale** was introduced as the Society's new Executive Director. Presentation of awards and prizes was also highlighted.

Our Section is blessed to have members honored at the National Conference. Dr. Richard Woodring was recognized as one of the ASCE's newest Honorary Members. He is the third Section

(Continued on Page 6)



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### YOUNGER MEMBER FORUM NEWS

by Michael McAtee, P.E. Forum Editor and Vice President 2002-03

#### Younger Member Forum

Kristen Bowman, PE, 2002-03 President Flow Science Incorporated Two Penn Center, Suite 200 Philadelphia, PA 19102 (215) 854-6445 kbowman@flowscience.com

Young engineers or college students who would like to become part of the YMF and to be added to the announcement list, please contact Alyson Lester, Urban Engineers, Inc. at secretary@ymfphilly.com or at (215) 922-8080. There are no fees to join!

### Recent Accomplishments

On October 7, 2002, the YMF kicked off its college outreach program. Christopher Menna, City of Philadelphia Department of Streets, Kristen Bowman, Flow Science, Inc., and Tom Brady, Vollmer Associates, spoke to 35 students at Villanova University about issues on the job market, professional licensing and graduate studies. Upcoming panel discussions are planned for Drexel and Widener. If you would like to be part of the panel and share your knowledge with the Engineers of the Future, please contact Tom Brady at tbrady@vollmer.com or at (610) 444-6522.

On Saturday, November 9, 2002, the YMF organized another successful volunteer event with the Friends of the Wissahickon (FOW). The region's Younger Engineers came out in full force to spend a beautiful autumn morning maintaining trails in Fairmount Park for hikers. The FOW provided the tools and guidance, the YMF brought the snacks and beverages, and fifteen YMF volunteers supplied the hard work and effort that was required to get the job done. The task at hand this time was the removal of the Yellow-leafed Norwegian maples that were encroaching on the native vegetation along the trails near Lincoln Drive. The YMF has been volunteering with the FOW for several years and each event has been a special way to improve this natural treasure. Thanks to John Federico, Urban Engineers, for organizing this successful event!

A week later, on Saturday, November 16, 2002, the Philadelphia YMF joined up with the Younger Member Group of the Lehigh Valley Branch for a morning tour of the D.G. Yuengling and Son Brewery in Pottsville, PA. This popular event attracted 52 Young Engineers from the area. Many thanks to the Lehigh Valley Branch's Greg Kuklinski, Alfred Benesch & Company, for making this event possible!

### Upcoming Events

MARK YOUR CALENDAR. The Younger Member Forum is planning the Seventh Annual YMF Winter Social! The Winter Social is the YMF's most popular and well-attended event of the year. This is a great opportunity to network! The event will be held on Thursday, January 9, 2003 from 6:00PM to 9:00PM at McGillin's Olde Ale House. Attendance is free of charge and an optional open bar with top-shelf micro-brews will be available for only \$7 per person! An ample buffet dinner will also be provided. As always, the festivities will include a 50-50 raffle, and a portion of the proceeds will be donated to a local charity organization. In the past, local firms have been extremely generous in donating prizes, which have ranged from dinners at high-class restaurants to mall gift certificates. To RSVP, please send an email to RSVP@YMFPhilly.com. We hope you can join us for this lively event!

The YMF College Outreach Program Panel will be going to Drexel University on January 22, 2003 to speak about issues on the job market, professional licensing and graduate studies. If you would like to be part of the panel and share your knowledge with the Engineers of the future, please contact Tom Brady at thrady@vollmer. com or at (610) 444-6522.

#### Member Spotlight

The purpose of the member spotlight is to introduce a fellow YMF member to the Delaware Valley Engineering Community.

Catherine Chomat is an Environmental Engineer working for Environmental Resources Management, Inc. (ERM), an international environmental consulting firm. After growing up in France, where she lived through high school, Catherine received her BS in Civil and Environmental Engineering in 1997 from Swarthmore College. After graduation, Catherine attended Stanford University and obtained an MS in Environmental Engineering and Water Resources in 1998.

She currently works in ERM's Exton, PA office, in the Site Remediation Group. Her projects consist of remediating contaminated sites, primarily Superfund Sites, landfills, former manufacturing facilities and former waste lagoons. In summary, she goes everywhere you do not want to go! Though mostly working in the office, she also gets to do some field work and construction oversight.

Catherine is currently taking classes at Villanova University, working towards a Certificate in Urban Hydrology and Storm Water Management. She recently took the PE exam in October.

She has been a member of ASCE and the Younger Member Forum since 1997. In addition to ASCE, Catherine is an active member of the Valley Forge ToastMasters Club. For fun, she plays volleyball and coed touch football through the Philadelphia Sport and Social Club. She is also a volunteer at the Schuylkill Center Wildlife Rescue Center where she helps take care of hurt or sick wildlife in order to release them back into the wild. Her favorite activities include volleyball, hiking, tennis, skiing, and socializing. This winter, she is hoping to become a certified ski instructor.

## Urban Engineers, Inc.

(Continued from Page 2)

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## November Joint Dinner Meetina

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placed in a single large tunnel (instead of the more-traditional smaller twin tunnels), and the cut-and-cover sections were used for removal of muck and soil. Over 900,000 truckloads of soil were removed for Metro construction.

In five locations, archaeology teams were onsite on a full-time basis to ensure that recovery efforts were handled efficiently. Such diverse finds as Roman baths, gravesites, Byzantine-era churches, walls and similar features were uncovered. One notable find was, as Mr. Stead described, a virtual "Wal-Mart" of cookware and pottery that was apparently stored away, and when the store structure was demolished, the stored materials were buried intact. There were instances in which archaeological finds were so extensive that ventilation shafts and, in one instance, an entire station, were effectively abandoned to allow increased discovery efforts to continue unaffected by Metro construction. While some of the ventilation structures were relocated, a few others were found to be unnecessary and therefore were not built. Some sites yielded sufficient finds to become full-scale archaeological digs instead of parts of the Metro system.

Mr. Stead described how artifacts (objects that could be moved and recovered, such as pottery and coins) were handled. Features (objects that were not easily portable, such as walls and structures) had to be treated differently. Each would ultimately be put on displays in the completed Metro stations, adding an interesting historical facet and link to the transit facility.

### Construction Problems, Costs, and Archaeological Preservation

Construction vibration and noise had to be minimized during the work, to protect both historical structures and buildings currently in use. The planned Metro lines came very close to the Parliament building and other Greek government facilities.

During the construction phase, the original design of the Metro was changed significantly to reflect its unique service area. Even though Greece has no requirements for accommodation of the disabled, the American influence in its design was apparent through the provision of barrier free entry/exit, including many escalators and elevators. The somewhat plain material finishes were revised to use more marble and granite, which would complement the City's ancient architecture. As Mr. Stead explained, this came at considerable cost, with the work resulting in an increase of over \$500 million over the original budget (the overall final cost of the Metro was over \$2.5 billion). The current estimate of the project during construction was difficult to determine, since there were large-scale fluctuations in foreign currency exchange rates which made the exact cost at any given time difficult to calculate.

Mr. Stead showed many slides of recovered artifacts and features. Much of this reflects a different view of historical items in Greece. For

(Continued on Page 6)

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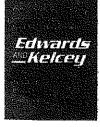
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### NOVENBER JOINT DINNER MEETING

November 21, 2002

The Union League of Philadelphia

"The Athens Metro"

By Bob Wright, Staff Writer and Sid Robin, Editor

Like the first regular Philadelphia Section, ASCE monthly meeting of the 2002-2003 season in October at the Union League, the second meeting at the same location on November 21, 2002 was a tremendous success. It attracted a splendid turnout of Phila. Section, ASCE and Phila. Chapter, American Institute of Architects (AIA) members and guests, officers and members of the ASCE Student Chapter, and alumni and faculty of the Civil Engineering Department of Villanova University. The subject was: "The Athens Metro" and Principal Speaker was William G. Stead, P.E., Transportation Consultant, who served the Greek government as the first Chief Executive Officer of the Metro in the ancient city for its first three years, from 1992 to 1995.

The meeting was excellently co-chaired by Philadelphia Section, ASCE President Ruben D. David, P.E., and Peter H. Brown, A.I.A. Mr. Brown introduced officers and members of the Philadelphia Chapter, AIA, and made announcements of concern to his organization. Mr. David made announcements of interest to the Phila. Section, ASCE.

#### Hill International Sponsorship

Hill International, Inc., Philadelphia, grajously sponsored the November 21, 2002 Joint Meeting. Hill's Senior Vice President, Michael V. Griffin, P.E., acknowledged the Section's gratitude for its generous initiatives to make the meeting successful.

#### Villanova University Night

In keeping with the Philadelphia Section policy of recognizing the ASCE Student Chapters and Civil Engineering Departments of area colleges and universities, the meeting honored these components of Villanova University. **Dr. Frank Falcone**, Professor of Civil Engineering and Faculty Advisor of the Villanova ASCE Student Chapter, thanked his hosts for their courtesies and honoring the Student Chapter. He acknowledged the presence of a formidable number of Villanova Civil Engineering faculty, alumni, and students at the meeting.

### Student Chapter President Speaks

Villanova ASCE Student Chapter President Stephanie Pilipovich also thanked her hosts for their recognition, and introduced her fellow officers: Allison Valentine, Vice President; Jon Crawford, Treasurer; Emmy Calabro, Secretary; Liz Gaynor, Engineering Student Council Representative; and Ted Dallhoff, Social Chair; and Faculty member, Dr. Carl Liu, Professor of Civil Engineering.

Miss Pilipovich described the ambitious renda of the Student Chapter, which includes onthly meetings with noted speakers in their specialties; Younger Member Forum panel participation in Model Steel Bridge Competition (third place overall) and the Concrete Canoe Race Competition (fourth place overall); workshops for

Student Leaders; establishing a website for the Chapter; extensive volunteering activities in conjunction with Phila. Section YMF projects for area environmental improvements; Christmas tree ornamentation and donation; weekend sailing excursions; scholarship opportunities. A busy program, indeed!

#### **Bob Wright Introduces Speaker**

Philadelphia Past President (1993-1994) **Bob** Wright, introduced William G. Stead, P.E., the evening's featured speaker. Mr. Stead has backgrounds in both Transportation Engineering and Archaeology, and this unique combination of training made him well-suited to serve as Chief Executive Officer of the Attika Metpo (the Metropolitan Railway of Athens, or Athens Metro) from 1992 to 1995.

Mr. Stead opened with a general overview of the engineering challenges of the Metro project. The first and foremost was the dense population and development of the city of Athens, which has grown explosively from a population of 200,000 in 1920 to 800,000 in 1928 to over 3.5 million today. The result has been significant sprawl within an area confined by mountain ranges and waterways. Private automobile ownership, which was fairly small (39,000) in the 1960's, has escalated to over 1 million. Pollution has had a major impact on the quality of life in the metropolitan area, and its effect on the many historic ruins has been very detrimental.

### Preservation of Ancient Treasures vs. Modern Needs

A second, but by no means less important, concern was the preservation of the many historical and cultural buildings, features and sites that remain from ancient times. In the planning and development of the new system, it was realized that there would be effects both on those features that were known and those which had been buried and covered over time. A plan of attack was needed to be able to effectively handle each of these aspects.

The Metro project would add two new routes to complement an existing one which dates to the 1860's (originally a steam-powered railway that was electrified in the 1920's). The need for the new services became evident in the late 1980's when the decision was made to bring the 2004 Olympic Games to Athens. The crowds anticipated for the Olympics, coupled with the extreme levels of traffic congestion in the city today, made the need for a high-capacity transit system an imperative one.

### Planning and Design

Mr. Stead explained the planning and design of the two new lines of the Metro (Lines 2 and 3), which would cross each other in the center of the City. The routes would penetrate the oldest areas of the city, which were once within the walls of the Ancient City. In the planning stages, extensive

research was performed to determine the impact of Metro construction on the many potentially archaeologically significant sites in its path. Much of Metro would be in bored tunnels, to avoid any disturbance to the many historical features of the city, but where stations and ventilation shafts were planned, traditional cut and cover methods would be imperative. The archaeological research consisted of exhaustive literature searches, which, in many cases, involved diaries and journals written in ancient times.

# Construction Challenges and Archaeological Recoveries

Mr. Stead touched on the physical challenges of construction, especially where several busy roadways had to be closed in phases to facilitate the work. Large tunnel boring machines were used, since both tracks of the lines would be

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## **November Joint Dinner Meeting**

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many years, history was downplayed, and some significant sites were violated or destroyed. Even in the original construction of the Metro Railway and its extensions in the 19th and 20th Centuries (now designated as Line 1), little was recorded about archaeological possibilities. Only recently does this seem to have become important. As noted, a large amount of the recovered materials has been put on display in the Metro stations, which has resulted in these becoming veritable history museums in themselves. The stations entrances, however, have been designed to be complimentary to their environs, and are for the most part very simple and nondescript.

#### Comments and Questions

Mr. Stead's fascinating presentation prompted several insightful questions.

There was detailed discussion between members of the audience and Mr. Stead on the complex engineering and archaeological discovery aspects and relationships of this great project. Mr. Stead explained numerous construction delays due in large measure to archaeological obstacles in discovery and analyses. The Greek Ministry of Culture is planning — to be completed within a few years — to catalog archaeological findings as a result of excavations. Valuable artifacts, elaborate flooring systems and other exotic structure have been discovered after long burial under tons of rock and debris.

The Athens Metro, the largest civil works in the Balkans, has been heavily covered in the media, periodicals, lectures, etc.

He closed his talk noting that at least two "coffee table" books have been published on the many recovered materials, and more will presumably follow. The November edition of "Smithsonian" magazine also has a detailed article on the subject, for those who would like to read more on it.

Philadelphia Section President David presented the Section Gifts of Appreciation to our knowledgeable and articulate speaker for his outstanding presentation.



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## IMPORTANT! 2002-2003 MEETING NOTICES

MARK YOUR CALENDAR NOW! The dates of the Philadelphia Section, ASCE monthly meetings and social functions, are as follows: (Check each upcoming edition of THE NEWS for additional details, possible date and topic changes.) THIS IS A TENTATIVE LIST.

ALL DINNER MEETINGS (except as noted):

Cocktails - 5:30 pm; Dinner - 6:30 pm; Meeting - 7:30 pm

Students: All dinner and/or luncheon are at discounted price. If you prefer, you are welcome to attend all meetings after dinner or luncheon, at no charge.

Wednesday, January 15, 2003

Joint Dinner Meeting with Phila. Section's Reading Branch and the Delaware Valley Section, American Society of Highway Engineers (ASHE) • Holiday Inn, King of Prussia, PA • "The New Phillies Stadium" • Speaker, John Stranix • Drexel University Night

Thursday, February 20, 2003

Joint Dinner Meeting with South Jersey Branch, NJ Section, ASCE • Wyndham Hotel, NJ • "One Year After 9/11" • Speaker, John J. Peirce • Temple University Night and Rowan University Night

Thursday, March 20, 2003

Joint Dinner Meeting with Delaware Valley Chapter, American Concrete Institute (ACI) and Women's Transportation Society (WTS) • Union League • "SEPTA's Vision" • Speaker, Faye Moore • Swarthmore University Night

Thursday, April 10, 2003

Joint Dinner Meeting with the Construction Management Association of America (CMAA) • Union League • "City Planning" • Speaker, Dr. Gary Hack • Widener University Night

Friday, May 2, 2003

The Phila. Section, ASCE Annual Spring Dinner Dance and Presentation of Awards • Sugarloaf Conference Center, Chestnut Hill, PA • Details to be announced.

## President's Message

(Continued from Page 2)

member elected to this prestigious ASCE membership level. Section Past President Sandra May was recognized and presented two awards for her commitment and contribution as a member of the 150th Anniversary Task Committee and ASCE Communication Committee. Gerald Donnelly, President of Reading Branch (Philadelphia Section) represented the Branch to receive the award for Zone 1 Top Branch Winner for the 2002 membership drive for recruiting and retaining members. Congratulations to Dr. Woodring, Sandra, and Gerry and to all members of the Section and Reading Branch for their efforts and support of ASCE.

British Historian Roland Paxon covered the Philadelphia's Fairmount Waterworks in his History and Heritage presentation honoring American civil engineering achievements. Ed Grusheski of Water Department offered full presentation on the Waterworks, including Water Department's 203 years of serving a community's needs with engineering solutions and environmental protection.

Lastly, I am pleased to report that our second Section meeting held on November 21 at the Union League of Philadelphia was another huge success. The guest speaker, the topic of presentation and number of attendees were great. All I received are positive comments. Thank you to **Bob Wright** for arranging the speaker and to all members who have been supporting our Section activities. The next Section meeting is on December 11, 2002.

Happy Holidays. Peace to all mankind.

Think VOICE.
Sincerely,
Ruben D. David, PE, President
Philadelphia Section, ASCE

## KUDOS TO DENNIS MACBRIDE

The Editor and Staff of THE NEWS extend their sincerest apologies to Dennis M. MacBride, P.E., Chairman of the Professional Practices Committee, for the omission of the warmest praises for his outstanding assimilation of the data of the 2002 Phila. Section, ASCE Salary and Benefits Survey member response, which was published in the September, 2002 edition of THE NEWS.

Ruben D. David, the Officers, Board of Directors, Technical Group and Committee personnel all join in extending their hands in congratulations to Dennis for a terrific job!

# FUTURE CITY COMPETITION 2003 JANUARY 25, 2003

The Delaware Valley Engineers Week Council is proud to host the 7th Annual Philadelphia Regional Future City Competition! Teams made up of 7th and 8th graders will work with their teachers and engineer mentors to: Design a city of the future using Maxis SimCity 3000™ software; Build a working model of a portion of their city using recycled products; Write an essay about their city; Verbally present their city to a panel of judges from the engineering, planning, and architectural communities.

We need many volunteers for the following opportunities: Mentors, Judges, Competition Support, and/or Steering Committee. Are you interested in helping to making the program a success? For further information, please call, fax, or email: Jennifer Wetzel, telephone (215) 573-3935 or fax (215) 746-6606; jwetzel@pobox.upenn.edu or volunteer @futurecityphilly.org.