Computerized Maintenance Management Systems: The New Kid on the Block

By AnJuan Thomas, United States Department of the Interior

As it concerned technology and its place in business, Microsoft founder Bill Gates had two rules, “The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.” A simple glance over today’s business landscape reveals the ways technology has, for better or worse, impacted productivity in the workplace. The ability to do things that were previously unimaginable has had far-reaching effects on operational efficiency—or inefficiency, in some cases—within businesses and organizations in career specialties around the globe. The world of facilities management is no stranger to this, particularly with the emergence of the computerized maintenance management system (CMMS) as one of the most valuable tools a facility manager can utilize in day-to-day operations and maintenance (O&M).

If asked, chances are the consensus amongst all facility managers would be that overseeing the maintenance activities of a facility, manufacturing operation or fleet is no small feat. From the fresh-faced newcomers getting their feet wet in this line of work to the grizzled veterans who’ve experienced it all, to include the kitchen sink, the ability to keep up with the many different aspects of facilities management is a daunting task.

CAUTION: Flooding Ahead – Technologies to Assess and Mitigate Risk from Flooding and Sea Level Rise

By Stephen Meador, CEM, LEED AP O+M

You might remember July 8, 2019 as a particularly rainy summer day, but many others remember it as a day of life-threatening flooding when hundreds of billions of gallons of water fell on the DMV over a very short time. NOAA’s National Weather Service (NWS) said the morning storm dumped between 3.4 and 6.3 inches of rain over a two-hour period, generating flooding in numerous locations including Northern Virginia, suburban Maryland counties, and the Federal Triangle in downtown Washington, DC. The results were road closures and stranded vehicles, public transportation shutdowns, power outages, and the need for dozens of swift water rescues. At the National Archives building on the Mall, an 8-foot high flood wall was deployed to its full extent for the first time.

If you weren’t affected by the July 8 flooding, then your interest in flood risk may not have changed all that much. If you’ve been proactive, you may have looked at Federal Emergency Management Agency (FEMA) flood maps, or perhaps even used an online flood mapping tool and concluded that you are safe because you are outside of a flood risk zone. However, that may not be the safest assumption.
From the President

Whether you are just starting out your career or have been in it for a while, joining a professional association can serve you well. There are so many out there you really have to do your homework to understand what they’re all about, what you get out of it, and whether or not they will serve you in advancing your career. I’ve been a member of several associations, each have been appropriate for the current level or current industry I was in at the time. Some were recommended by colleagues, others I stumbled upon myself, but for all it took some time to figure out whether they were the right place for me or if I needed to move on. This is why our Chapter Orientations are so valuable. These events provide an opportunity for existing members to talk to prospective members about IFMA and what they are getting out of membership. You will hear from those of us who have been involved for a while, that relationship building is one of the key takeaways of being a member. Actually, let me rephrase that. It comes from being involved. Yes, I have said it time and time again that you will only get out of an organization as much as you put into it. More often than not, people say they can’t be involved because they just don’t have the time. Trust me, that was me eight years ago. But the longer I waited, the farther away I felt I was getting from connecting with my peers. Is this you? What if I told you that you can still be involved and not have to spend hours upon hours of volunteer time? Do I have your attention now?

Have you heard of micro-volunteering? Micro-volunteering is a small action or task that takes no more than an hour in support of a bigger project or event. With the number of events and programs the chapter organizes month after month, there are so many opportunities for you to lend a hand. Let’s take Events for example. You can serve as a greeter, work the registration table, take photos at the event, tweet at the event, or perhaps even host the event at your facility. These micro-volunteering tasks will provide you with a great opportunity to network while still being involved. Programs are also a great part of our offering as a chapter. You could speak at a panel discussion or be part of a presentation sharing best practices in FM on the latest hot topics. Or perhaps you can host and facilitate a roundtable discussion among fellow FMs in a professional forum. Maybe take notes at a program to help provide an event recap to share with those who missed it via our newsletter, website, or eBlasts. Connecting with members is also a great way to get involved. Perhaps you could be the first person to welcome new members to the organization with a call, provide mentoring to a new member or Young Professional, or lead an online discussion within IFMA’s Engage platform about an important FM topic. How about writing an article for our newsletter or our Blog on the website? Don’t think you have the writing chops but would still love to have your name in print? Our Communications Team is always happy to help with editing to make sure you are shown in the best light.

About eight years ago, that’s how I started my journey with the Capital Chapter of IFMA. I started to micro-volunteer within committees. First it was helping out at a professional development event, then I put one together, until one day I found myself leading a committee of my own. Flash forward to today, where I’m serving my second term as President. It has been a very rewarding experience and I hope that you consider starting in a journey like my own that will lead you to a far more enriched professional career.

Think micro-volunteering might be right for you? Contact us at staff@ifmacap.org or stop by our next Orientation Meeting on October 23rd and talk with one of our committee chairs or members and let them know you’d like to get involved.

Looking forward to hearing about your volunteer experiences!

Mayra Portalatin, SFP
President Capital Chapter of IFMA 2018-2019
New Member Spotlight

Cristine Gibney – Graduate Student/NetZero Building Operations Specialist at American Geophysical Union

By Laurent Myers, Savills

Please provide a brief overview of your career path.

I graduated from Siena College as a Spanish Major with a ROTC commission leading to a 20+ year Army career. The first path led to Germany, Texas and Saudi Arabia and leadership roles with the HAWK and PATRIOT missile systems, including two battery commands. From there I was a Joint Staff Intern in the Pentagon and part of the Army Readiness team during 9/11 before serving two tours in Iraq with “America’s First Team,” 1st Cavalry Division. With 1CD, I was a planner at the Brigade & Division level and Future Operations (FUOPS) Chief. I was mostly in Baghdad, developing, coordinating and assessing a myriad of plans (e.g. security, Iraqi Police expansion, assuring freedom of movement, plus multinational improvements in governance and economic development). Between my Iraq tours I was one of the first federal troops on the ground in response to Hurricane Katrina. Post 1CD, I went to the Joint Staff as the lead policy action officer for Stability Operations, Foreign Assistance, and Security Cooperation, which included managing development of an information system that tracks and manages US military engagements world-wide. On to France, I was a planner and Deputy United States Senior National Representative for Rapid Reaction Corps-France, part of the NATO Force Structure. My final assignment was in Germany, serving as the Commander’s Initiatives Group Chief for LTG Ben Hodges, commander, USAREUR, leading a small team managing engagements in support of US security objectives, synchronizing all aspects of messaging, speech writing, protocol, security, transportation, and information technology. About 18-months ago I accepted a construction-based internship with MGAC which led to a part-time position with the American Geophysical Union (AGU) building team. The Army also helped me pursue advance degrees both on and off duty. I earned master’s degrees in Human Resource Development, Theater Operations and Strategic Studies from Webster University, Army School of Advanced Military Studies and Army War College respectively.

What are your general job responsibilities or areas of expertise?

Since leaving active duty, I have been attending CUA’s School of Architecture, pursuing dual masters degrees in Sustainable Design and City/Regional Planning. This program complements my Army expertise: systems and design thinking, taking ideas to reality through plans and assessment tools. My thesis, “Empowering the Occupant” focuses on...
IFMA’s World Workplace 2019 Conference and Expo

Take Your Facility and Your Career to New Heights at IFMA’s flagship annual conference and expo. World Workplace facilitates idea-sharing and knowledge-exchange between all professionals who support the work environment. Collaboration between all members of our community is key to our profession’s rise as a career of choice. We have many resources at our fingertips, but in today’s digital world, a swipe of the finger can’t replace the handshake of a colleague.

**Dates:** October 16 – 18, 2019  |  **Location:** Phoenix Convention Center  |  **Address:** 100 N 3rd St, Phoenix, AZ 85004

Capital Chapter Happy Hour At World Workplace

Take time out from IFMA’s 2019 World Workplace to connect with colleagues. Join fellow Capital Chapter members for cocktails, food and camaraderie!

**Date:** October 16, 2019  |  **Time:** 5:00 PM - 7:00 PM  |  **Location:** The Park  |  **Address:** 3 S. 2nd St., Phoenix, AZ 85004

Sponsored by:

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Workshop Session: EA 1.05

Moving the Needle: A GWI Case Study (no CEU offered)

**Thursday, October 17, 2019 | 10:30am - 11:30am**

**Venue:** Phoenix Convention Center  |  **Room:** Expo Education Arena 1

Everyone has been discussing the talent gap for years. What we have been struggling with is how to contribute and help move the needle from accidental to intentional FM. Chesapeake Chapter joins Silicon Valley and the Denver Chapter to share successes from 2018-2019 in breaking ground for local job seekers and local students to become aware of the FM career path. This was done not by inventing new things, but by proving the Global Workforce Initiative efforts of the Foundation are repeatable.

**Speakers:**
- **Connie Miller,** Service Sales Representative, Limbach
- **Carolyn McGary,** Manager, Facilities & Security, WonderWoman Consulting
- **Christian Pellecchia,** VP of Operations, Slatter Construction
The Certified Facility Manager (CFM) credential sets the industry standard for ensuring the knowledge and competence of practicing facility managers. IFMA’s certification process is designed to assess competency in the field through work experience, education and the ability to successfully complete a comprehensive exam that covers the 11 core competencies that make up the facility management body of knowledge. Since the program began in 1992, more than 3,100 facility managers from 32 countries have achieved this prestigious recognition.

CFM Exam Prep Workshop

This 1-day workshop is designed to assist facility professionals seeking certification with preparation for the competency-based exam. This workshop focuses on the tools that can help lead to success on the exam, techniques to properly perceive challenging situations, and strategies to assist in maintaining the right perspective. Sample test questions with answer reviews are conducted at the beginning and end of the session. Continental breakfast, lunch and course workbook are included.

Date: Thursday, November 7, 2019
Time: 8:00 am – 5:00 pm
Location: Mercy Ridge, 2525 Pot Spring Road, Timonium, MD 21093
Cost:
- IFMA Chesapeake Members: $100.00
- IFMA (non-Chesapeake Chapter) Members: $250.00
- Non-IFMA Members: $400.00

Note: The workshop fee does not include the CFM exam fee, nor does it register you for the exam.

Click here to review CFM eligibility requirements and get more information. Contact Gary Pfeifer with questions.
Chapter Professionals Learn to Overcome Staffing Challenges

By John Mackay, Procon Consulting LLC

On Thursday, September 19th area facility professionals gathered at FHI360 in Dupont Circle to discuss challenges finding qualified FM staff applicants, filling jobs, and on-going staff development.

As the group shared individual situations, some consensus emerged:

- Every FM organization has staff retiring or near retirement;
- Every FM organization is chasing very few qualified candidates - be it those who self-perform, or contract, or provide FM services;
- Many find an HR imbalance between transactions (hire/fire) and more strategic services FMs need like developing job expansion and enrichment programs and balancing line, supervisory and senior management positions within the FM department;
- Many HR departments are not well versed in where good FM job sites are, how to write effective position descriptions with clear roles and responsibilities, or how skills and experience translate into market-competitive compensation; and
- Almost 40 years in, there is still a material lack of awareness of FM as a career, particularly among entry level candidates.

To address the sourcing issue one attendee, whose FM department is largely event support-focused, has found local hospitality program graduates well prepared and receptive to, but largely unaware of, FM and its close skills alignment with that industry. Some have found success connecting with area organizations who support veterans transitioning to new careers. Many successful middle managers have been found internally in mail and call center operations where these employees have wonderful knowledge of your organization, its processes, and customer service.

Once hired, it is an ongoing challenge for FMs to create opportunities for job growth, expansion, and promotion. For many years, Capital Chapter members have supported FM adult education through George Mason University’s FM Certificate program with both instructors and students. To bring a similar impact and awareness to High Schools, members are now working with DC’s Office of State Supervisor of Education’s (OSSE) Career and Technical Education program to enhance its existing architecture and construction (home) curriculums to include facility management. The chapter also supports SkillsUSA’s Virginia Faciliton program and hopes to help create a similar program for DC this year. The activities should fill the pipeline over the long run.

Once staff are on board, attendees discussed several ways they have had success engaging staff and shared the following job expansion and enrichment strategies:

- Creating “details” like in the Federal sector, where staff are temporarily “loaned” to another department to try new things, manage special projects, and learn.
- Cross-training both in-house and contractor staff to provide better business continuity, preserve critical knowledge, and to raise staff value.
- Hire back retirees as part-time consultants to preserve knowledge and reduce benefits/burden.
- Enhance job ownership and customer service skills by challenging your staff to find and “discover” new people in your organization and brief the department.

To reinforce development and expansion behaviors, it is important to initiate appropriate change management so staff buy in from the start. Spot bonuses and awards for achievement are also important ways to reinforce these behaviors and goals and make such efforts sustainable over a longer term.

The chapter’s next Professionals Forum will be held in November or December. Watch the chapter website for details.

New Member Spotlight Continued from page 3

establishing conditions for occupants to act symbiotically with buildings to lower energy demand, ultimately enabling more efficient and renewable energy-based electric grids. AGU is striving to be the first NetZero commercial building in DC so it doubles as my “lab.” The most fun part of my job is sharing what I’m learning through tours for the public, schools and industry, explaining about NetZero building technologies and sustainable design.

Tell me about your company.

AGU is an earth space science association with over 60K members and 20+ journals. As it strives for NetZero energy, the headquarters building embodies organizational values. Its mission is “to serve as a beacon for progress in achieving sustainability and embracing learning and collaboration.”

How did you become familiar with IFMA?

My mentor at AGU and my professor at Catholic University are both IFMA members and I noticed they often referred to standards, ideas and people from IFMA, which made me want to learn more.

What interested you in becoming a member?

The Capital Chapter of IFMA is local to my school and work, so joining this chapter allows me to be active in events and increase my local peer network.

How do you expect the Capital Chapter to benefit your career?

I want to be able to meet peers in my field and grow my knowledge base within my diverse professional goals. I think that my membership and active role in the Capital Chapter will help me collaborate with people and ideas that will make buildings and the planet more sustainable.

Some of your favorites….

Movie: Bienvenue Chez Les Ch’tis, a French comedy film
Food: Ice cream in all flavors
Hobby: Reading, yoga and cooking
Vacation Spot: Long Beach, NY (the family homestead)
Restaurant: The Red Hen in DC
Weekend: Gardening, reading, cooking and my thesis work
Competition Was Fierce at the Annual Chili Cook Off and Bake Off

Capital Chapter members and colleagues brought the heat to the second Annual Chili Cook Off and Bake Off on September 23rd. There were 10 different chili recipes represented, along with a variety of delicious baked goods all competing for bragging rights and the coveted wooden spoon award.

It was so fun to see Case Runolfson and some of the other chili cooks selling their chili with great stories of the recipes and food accessories. The Wooden Spoon for the Best Chili went to new member, Mike Terry with Certapro. Our baking champ, Janel Abbass Oneill, secured the Wooden Spoon for the second year with a new dessert recipe!

We raised 60% more than last year, close to $5,000. All proceeds raised will benefit Skills USA scholarships/grants for students with vocational education within the FM field to promote the FM profession. Thank you to those who contributed and made this an even more successful event than last year!
For a great many, this incredible work is conducted through the use of homemade maintenance spreadsheets. Long regarded for its value as a cost-effective approach to O&M, maintenance spreadsheets allow facility managers to conduct many of their primary tasks such as logging work orders and documenting upcoming maintenance cycles. Facility Managers are also able to utilize the filters within the spreadsheet to manipulate specific data sets while producing others, such as lists of completed work and categories of maintenance. While a boon to any business or organization’s budget, maintenance spreadsheets are not without its limits. Chief among them is its inability to react to real-time activities. Spreadsheets alone don’t communicate with each other nor do they provide critical information to the field staff. These limiting factors generally mean that facility managers and their staff must use other communicative means such as email, telephone, shared documents, calendars, offline trackers, and even paper-based products to exchange information. Moreover, the inflexibility of maintenance spreadsheets doesn’t allow facilities managers to have all of the information on any one piece of equipment readily available. They typically have to fetch schematics, manuals, and even warranty information from filing cabinets and libraries. In an industry where the ability to think and act fast with real-time data is paramount, the concept of using maintenance spreadsheets is becoming an archaic practice.

Enter the CMMS - the ability to conduct large-scale facility O&M in a single, comprehensive system. While not necessarily a new technology, as they’ve been around in some form going back as far as the mid-1960s, the CMMS is likened to the proverbial "new kid on the block" as businesses and organizations move to arm their facility managers with better resources as a means of keeping pace with modern technology in the fast-moving and competitive 21st century. With its introduction into the industry’s mainstream, the CMMS has revolutionized the way facility managers conduct their day-to-day work, shifting them from the dark ages of standalone maintenance spreadsheets to synchronously-performing automated databases in an era where time is literally money. The early returns indicate that the use of a CMMS has improved overall efficiency of facilities management departments while lowering maintenance costs, extending the life of aging assets, improving productivity, and ensuring regulatory compliance.

While they are several standard deviations above the mean, when compared to maintenance spreadsheets and paper-based alternatives, CMMS databases are significantly more expensive and robust to implement into a facilities management operation. For most facility managers looking to justify the expense and labor-intensive implementation, the benefits are plenty. The following are a few of the advantages of implementing a CMMS:

1. **More effective control for facility managers.** Already a pulse point for all O&M activities, facility managers gain even more control with a CMMS. They are able to achieve greater transparency with their staff as well as the ability to plan, manage, and forecast tasks, measure and evaluate performance, and generate specific reports. Facility Managers are also able to see everything in real-time from which assets are offline to who is working on what.

2. **Improved access.** Unlike maintenance spreadsheets, which typically reside on the drives of stationary personal computers with limited and sometimes restricted access, CMMS software is generally cloud-based with data stored on a remote server that can be accessed via the Internet. The majority of today’s CMMS packages have mobile capability, meaning users can enjoy maximum flexibility by accessing it from their phones, notebook computers, and tablet devices.

3. **Improved preventive maintenance.** Through the use of a CMMS, preventive maintenance (PM) can be achieved at a more efficient and effective clip. The software automatically sends triggers when equipment items are in need of PM according to regulatory guidance, manufacturer requirements, or specific facilities management schedule.

4. **Better efficiency in supply chain management.** A CMMS allows facilities management departments to automatically track inventory and manage vendors more efficiently. The software is able to update stock levels, in real-time, when parts and materials are used on work orders. Within some of the more advanced CMMS packages, the software automatically contacts the vendor to re-order parts and materials once a minimum threshold is reached.

5. **More effective communication amongst facilities management staff.** With a CMMS, there is little need for email, telephone, shared documents, calendars, offline trackers, and paper-based products to exchange information. Users receive notifications automatically, allowing them to respond to any request without returning to a centralized office first.

6. **Improved auditing, compliance and reporting.** One of the more celebrated features of a CMMS is the digitalization of the paper trail. All work is documented in real-time within the software. This provides an easy path to finding all of the applicable information for audits, compliance inspections, and reporting to senior leadership.

At its essence, a CMMS provides businesses and organizations with the rare opportunity to accomplish three feats simultaneously: (1) streamline business processes, (2) improve facility operations, and (3) save money over the long-term. When presented with a choice between retaining maintenance spreadsheets and moving forward with a CMMS, organizations and businesses should always go with the latter. Your facility managers will thank you by providing a more productive and efficient facility operation.
dropped between five and six inches of rain within a two-hour period. The resulting floods washed out sidewalks and roads, damaged historic buildings, totaled vehicles, and caused three fatalities. The 2016 flood alone caused more than $20 million in damages and more than $40 million in lost economic activity. These back-to-back floods weren’t unprecedented in size, but they were in frequency. The area had experienced many major floods throughout its history, usually with a decade or more between floods. However, it had never experienced two major floods in less than two years.

The type of flooding that caused the Ellicott City floods, the 2006 Federal Triangle flood (which motivated construction of the National Archives flood walls), and the July 8 flooding is called interior flooding, aka flash flooding or rainfall-driven flooding. Interior flooding is one of three major types of flooding experienced in the DMV. The other two types are riverine flooding (caused by upstream rainfall and snowmelt, usually increasing stream levels hours or days later) and coastal flooding (caused by high tides and storm surge from tropical weather, like hurricanes). Coastal and riverine floods are easier to model and therefore easier to predict than interior flooding. That’s because interior flooding is highly dependent upon more localized, dynamic factors such as amount of impermeable surface (which can change rapidly due to development, a key driver in the Ellicott City floods), stormwater infrastructure (which changes with development and may not be fully understood by municipalities due to system age and record keeping), and increasing intensity and frequency of heavy precipitation events (which vary geographically, with the largest measured increases happening in the northeastern U.S. according to the latest National Climate Assessment). These factors make modeling interior flooding at the necessary spatial scale, and therefore assessing overall risk, particularly challenging.

“All of these tools we have to look at flood risk are, for the most part, showing you one type. Part of the problem is that they happen at the same time,” said Braff. “As far as maps and tools that show future flood risk due to rainfall-driven flooding, those just don’t exist yet.”

So, what is the best way for a facility manager or building owner to do a quick, no-cost, and high-level risk screening given the current state...
Get the Most from Your Membership with CFM, FMP and SFP Designations

A key benefit of IFMA membership is maintaining professional growth through the facility management professional program which offers three designations: Certified Facility Manager (CFM), Facility Management Professional (FMP) and the Sustainability Facility Professional (SFP).

The CFM credential sets the industry standard for continuing the knowledge and abilities of practicing facility managers.

You can also earn the Facility Management Professional (FMP) designation, a knowledge-based credential demonstrating a proven comprehension of the basics of facility management. The FMP designation can be completed in approximately 12 months, and FMP candidates may customize their training to build the specific knowledge they need to meet individual goals.

IFMA’s SFP is an assessment-based certificate program delivering a specialty credential in sustainability. By earning your SFP credential, you will develop and gain recognition for your expertise in sustainable FM practices while impacting your organization’s economic, environmental and social bottom lines.

UPCOMING COURSES

Facility Management Professional (FMP) Credential Courses

IFMA FMP Project Management • Oct 11 – 12, 2019
FMP Finance and Business • Nov 8 – 9, 2019
IFMA Leadership and Strategy Essentials • Dec 13 – 14, 2019
IFMA FMP Operations and Maintenance • Feb 7 – 8, 2020

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Contact Lee Bennett for more information – abenneta@gmu.edu or 703-993-4805.
Meet the 2019 IFMA Foundation Scholarship Recipients

If you are attending World Workplace in Phoenix this year, you won’t want to miss the scholarship presentations on Thursday, October 17 at 8:00am, Phoenix Convention Center North Ballroom. Come meet the future superstars of FM and the recipient of the IFMA Capital Chapter Barbara Pryor Scholarship, Caitlin Poschner from Conestoga College.

Meet the 2019 Student Scholarship Recipients

Don’t Miss These IFMA Foundation WWP 2019 Activities:

**IFMA Foundation Casino Royal: Shaken not Stirred – Featuring the Battle of the Bonds.** Tuesday, October 15 – 7:00pm to 10:00pm, Ballroom, Level 3, Phoenix Convention Center. This is the biggest celebration of the year for the Foundation. There will be fun, food, silent auction and a chapter competition – the Battle of the Bonds. Cheer for your favorite Bond team as they strut their best Bond swagger on the runway. Plus, this is a great opportunity to meet educators of FM accredited degree programs and student scholarship recipients.

**Scholarship and Academic Presentation** – Thursday, October 17, 8:00am, Phoenix Convention Center North Ballroom. Celebrate the student scholarship recipients and FM Accredited Degree Programs.

**Moving the Needle: Three GWI Case Studies**, Thursday, Oct. 17, 10:30am–11:30am, Phoenix Convention Center Expo Education Arena 1. Learn how the IFMA Foundation’s Global Workforce Initiative is changing and re-energizing three IFMA Chapters and how these chapters are making a difference in building the FM talent pipeline of the future.

**Women in FM: A Panel Discussion**, Thursday, Oct. 17, 1:45pm – 2:45pm, Phoenix Convention Center Room 126. Back by popular demand, Sodexo and the IFMA Foundation partner to increase the number of women in FM. Learn from top women executives in FM.

**Ignite FM! The FM Student Challenge**, Thursday, October 17 – 3:00pm–4:00pm, Phoenix Convention Center North, Room 124B. The students were given three hours to solve a complex FM challenge. Support our future FMs by watching the student scholarship winners present their teams’ solution with the goal of winning a $1,000 prize.

**FM Academic & Research Track Presentations**. Thursday, October 17, 1:45pm - 2:45pm/4:15pm - 5:15pm, Phoenix Convention Center North, Room 124B. In an effort to support FM and related environment academic and research institutions, individuals and researchers, the Foundation presents the FM Academic and Research Track presentation of papers.

**IFMA Foundation Booth #748**. Stop by to say hello and learn more about the Foundation.

The IFMA Foundation Needs You!

We are looking for volunteers interested in leaving a legacy and igniting the future of facility management. If you are interested in making a difference and furthering the cause to mainstream FM as a career of choice and develop the workforce of the future, please stop by the IFMA Foundation booth #748 or contact Christina Gonzales.

You too can make a difference... Join us!
of maps and tools? Braff recommends starting with FEMA Flood Insurance Risk Maps (FIRMs) to understand current flood risk. These maps are used to set flood insurance rates and show 1% or 0.2% annual chance flood hazard areas. These areas are often referred to as the 100-year and 500-year floodplains respectively, which can cause confusion because many people expect those inundation levels to be met only once every 100 or 500 years, which is not the case.

Braff says the next step is utilizing various online mapping tools to assess future risks. These tools typically incorporate the digital FIRMs, and often include projections of storm surge (by hurricane category) and sea level rise (by inundation height, projected year, or low/moderate/extreme scenarios) to give a better sense of overall flood risk. Examples of local mapping tools include the AdaptVA Interactive Map Viewer for Virginia, Digital FIRMs for Maryland, and the DC Flood Risk Tool for DC.

Nicholas Bonard is Chief of the Water Resources Protection and Mitigation Branch at the District's Department of Energy and Environment. He says the DC Flood Risk Tool is designed to provide a more user-friendly way to assess flood risk in the face of a changing climate. He says that while DC does not yet have a full understanding of its interior flooding risk, it is in the process of developing an “Integrated Flood Model” that can map the extent and depth of flooding for various interior flooding scenarios. This model will effectively create a “digital twin” of the city that can simulate how water moves throughout the District. It’s part of a comprehensive approach by the Mayor Bowser Administration to better prepare the city for the consequences of climate change, including flooding.

“No city in the U.S. adequately understands how more intense rainstorms, the kind we are seeing more often due to climate change, will affect our infrastructure and neighborhoods,” said Kevin Bush, the Chief Resiliency Officer for DC. “This new tool will allow us to model the impact of these storms on our community and better plan infrastructure and other investments to prepare for a wetter future.”

Until the tool is developed, DC residents and FMs will have to rely on local knowledge or other “proxy” information to help identify where interior flooding may occur. Bonard says a 2017 report by the DC Silver Jackets, an interagency team of flood experts, can help.

Other tools are currently available to help monitor and assess more immediate risks, such as an ongoing, extreme weather event. The U.S. Geological Survey (USGS) and NWS collaborate to provide local flooding information from stream gauges located throughout the DMV. This information is displayed as observed and forecasted flood levels at gauge locations and is continuously updated. Another tool is the VIMS Tidewatch Map Viewer, which provides 36-hour coastal flood extent forecasts for the Chesapeake Bay area, including the Potomac River. A related tool called StormSense utilizes a network of “Internet of Things” (IoT)-enabled sensors to monitor water levels in real time (currently deployed in the Hampton Roads area only). Because of their low cost, these sensors can be placed more widely than the standard USGS and NWS gauges, including further inland. The sensors are integrated with a system that provides emergency managers with 36-hour forecasts for combined coastal and rainfall-driven flooding. This is a unique and innovative forecast product that can help predict problems like inundation of roadways, which can then be closed by emergency managers in advance of flooding.

Pamela Braff has studied road flooding for more than a year, and it’s become an area of real concern. She says that because of climate change, road flooding will likely be happening more frequently and for longer duration, and with greater consequences, especially in areas with only one road in and out. She says that for many people, it’s more likely they will become isolated by choke points on a roadway than have their buildings flood. This road flooding won’t necessarily be caused by storm surge or major floods, but more likely by smaller, low-level events, such as high-tides or intense rainstorms.
in preparation for an extreme event. A few government agencies in downtown DC have taken this course out of necessity, but it’s typically done to protect vital national treasures and interests. A GSA spokesperson said examples of flood hazard controls in the Federal Triangle include permanent flood barriers at the Department of Justice Building, passive flood gates at the National Archives, and numerous modifications to the Herbert C. Hoover Building, including construction of a four-story electrical equipment enclosure, elevating key equipment like chillers and emergency generators, and the addition of flood doors to the sub-basement. Neighborhood-scale engineering modifications have also been implemented downtown recently, including a new post-and-panel closure at 17th Street NW that connects an existing levee running from the Washington Monument to the Lincoln Memorial, a 2,700-foot long, 23-foot diameter stormwater storage tunnel under the Bloomingdale neighborhood in Northwest DC, and a 17-foot seawall around the Blue Plains Wastewater Treatment Plant.

Not surprisingly, engineered solutions aren’t always a no-impact option. Jon Penndorf is a Senior Associate at Perkins & Will and was a presenter at the Resilient Virginia conference in Charlottesville in July.

“Conceptually, if you’ve got a building and you put a seawall around it to block out the flood, you’ve made a really resilient building, but you’re a really crappy neighbor because you’ve pushed all your water on to your neighbors,” he said.

Penndorf recommends a “systems thinking” approach to ensure any actions you take don’t make the problem worse for those around you. Still, certain flood proofing approaches may be the only option for buildings that can’t be structurally elevated above target floodplain levels, protected with neighborhood-scale floodwalls and levees, or relocated from high-risk areas.

A 2018 flood proofing study by the U.S. Army Corps of Engineers examined a number of mitigation options for Ellicott City, including elevating buildings and conducting dry and wet flood proofing for multiple building types. Dry flood proofing creates outer barriers to prevent water intrusion and includes passive approaches like flood proof doors and structural windows, as well as active approaches like removable door and window panels. Wet flood proofing allows water to pass through the base of a structure to minimize pressure differentials and includes devices such as louvers and vents. The majority of dry and wet flood proofing approaches in the study were found to be cost-effective for reducing future flood damage. Still, the scale and severity of the problem in Ellicott City means a building-by-building approach to flood proofing won’t be enough, Howard County recently approved a $140 million mitigation plan that includes demolishing some high-risk buildings and engineering a stormwater tunnel and retention ponds.

As part of its comprehensive approach to mitigating flood risk and climate change, the DC government often incorporates innovative technologies within its policies. For example, stormwater regulations are used to incentivize or mandate green infrastructure such as green roofs, rain gardens, bioswales, and permeable pavers that can detain and retain stormwater. Although these regulations were originally developed to improve water quality, they also have a flood mitigation benefit. The District is also developing “Resilient Design Guidelines” to help owners, managers, and developers think through what climate risks they should be planning for (e.g. how much sea level rise, how many high-heat days, intensity of future storms), the sensitivity of their projects to those risks, and how they can improve the resilience of their projects. The guidelines are currently in a draft stage, and city officials hope to make a revised version broadly available next summer.

DC is also looking at the possibility of providing rebates and grants for certain flood proofing measures, and updating its Flood Hazard Regulations, including a proposal to increase the design flood elevation and change the regulated floodplain from the 100-year to the 500-year floodplain in order to address climate change risks.

One of the more promising flood mitigation approaches the District is exploring is blue-green infrastructure, which connects hydrological functions (blue infrastructure) with vegetation systems (green infrastructure) in urban landscape design. It’s like applying building-scale stormwater management technologies at a neighborhood scale. A typical design for a neighborhood that has a low-lying, flood-prone street might incorporate bioswales and permeable pavements in upland areas to capture stormwater before it reaches the flood-prone area, then retain or convey it to lowland features like a park or a basketball court that is designed to double as a stormwater retention area during heavy rains. Not only could this approach mitigate flooding, the green portion of the infrastructure could provide numerous co-benefits including recreational space, urban heat island reduction, and habitat.

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