

62nd Annual APWA Mid-Atlantic Chapter Conference & Equipment Show
May 5th to 8th, 2020 Virginia Beach, Va.
Presentation Descriptions

No. Presentation Title

2 Drones in Public Works, How to Get Flying for Your Department

As unmanned aerial systems (UAS), also called ‘drones’, become more popular and cost effective, many municipalities are adding this technology to their tools to get the job done; whether it be stormwater or ditch asset inspections, landfill volume calculations, or building construction and efficiency, a UAS can be a valuable tool for these and other applications. However, there can be downsides to rushing into a UAS purchase without knowing the training, software, and airspace concerns that will play a part of continued operation. This presentation will cover: the applications of unmanned systems for Public Works uses, a look at the UAS program in Virginia Beach Public Works and how that program was created, and the steps a Public Works department would need to take to create and operate a successful, safe, and effective UAS program. There will also be a practical demonstration of a small UAS inside the convention center. *Speakers – Kyle Coolbaugh and Jarrod Genesvich, City of Virginia Beach.*

3 Designing “Better Streets” – Richmond’s Complete Streets Policy

Looking to promote multimodal travel for all users, the City of Richmond adopted a Complete Streets policy in 2014. To turn that vision for Complete Streets into actionable design direction, the City enlisted VHB to develop the City of Richmond Better Streets Manual. The manual provides guidance for designing, constructing, operating, and maintaining complete streets. But with a wide range of needs across Richmond—from historic downtown to industrial areas to residential neighborhoods—how could the City and VHB work together to develop a manual that provides appropriate guidance for all streets? In this session, M. Khara from the City of Richmond and VHB’s Diane Linderman will discuss the collaborative process that led to the development of the Better Streets Manual, explain the development and usage of different street typologies, and share how to use the manual to process a complete streets design. With the Better Streets Manual, Richmond’s streets are well on their way to being safe, green, active, healthy, multimodal, and smart. *Speaker – Diane Linderman, VHB.*

4 Benefits of the Construction Management Association of America Membership and the Path to CCM Credentialing

Perhaps the best way to prepare for the future is to focus on preparing yourself and staff. This presentation will discuss the benefits included with National membership in CMAA and the qualifications and procedures for individuals to become a Certified Construction Manager (CCM). National membership in the organization includes extensive professional development and training resources for owners, consultants and contractors. CCM is considered the gold standard of project delivery and is based upon a neutral template. Attendees will develop an understanding of the mission, vision, code of ethics, and standard of practice that have been developed to improve the CM industry. We will briefly highlight the core testing areas that are the basis of the rigorous qualification platform and testing of industry professionals and providers ultimately striving to become a CCM. Helpful information pertaining to the Construction Manager in Training will be reviewed alongside the CCM application process and requirements for meeting minimum education/work experience qualifications along with steps for preparing with success will be discussed. *Speakers – David Wissmann and Carl Reimer, Construction Management Association of America (CMAA) Baltimore Chapter.*

5 Road Salt and Urban Forestry

Sodium Chloride, the most predominant salt used on streets for melting snow and ice, is the lubricant of the modern lifestyle in northern climates during wintry weather conditions. These same streets and parking lots are also the battleground where urban foresters strive to build green infrastructure for canopy coverage, stormwater management and aesthetics. It is all too common to observe the damages and casualties on roadsides in spring, when plants start to display the impacts of salt through discoloration and canopy loss. At this stage, it is often too late to remedy and correct the damaged plants. The urban forestry community is aware of the issue. Many of these professionals have snow removal as part of their responsibility requiring salts as part of standard operating procedures. We will use case studies in Baltimore MD and controlled environment studies in Richmond VA to demonstrate a unique protocol of protecting plants from salt damages. *Speakers – Wei Zhang and Dr. Hailing Yang, TreeDiaper, and Dan Whitehead, HortSource.*

6 Oakdale Drainage Study: Overcoming Flood Mitigation Challenges in a Century Old Neighborhood

Located in the South Norfolk Historic District, the Oakdale drainage area is primarily comprised of residential properties that were developed in the first half of the 20th century. In recent years, this area has begun to experience a higher frequency of flooding events, likely due to increased rainfall intensity and duration, maintenance, changes in drainage patterns, and system constraints. To address this increasing challenge, the City requested that Brown and Caldwell investigate several proposed solutions from a previous study and evaluate their efficiency for reducing flooding, with the understanding that the preferred alternative should provide the most cost-effective solution for improving storage and conveyance of stormwater. For this project, capacity and conveyance analyses were performed using a City provided Personal Computer Storm Water Management Model (PCSWMM) hydraulic model of the Oakdale drainage area. Simulations for the 1-, 10-, and 100-year SCS 24-hour Type II design storm conditions were developed. Each simulation was run on the existing conditions model using several combinations of a wet pond, upsized pipe, flow diversion, and a flow control structure. The model results and engineering analysis indicate that a combination of a wet pond with a control structure, pipe upsizing, and flow diversion was the most efficient and cost-effective solution. This presentation will discuss several critical aspects of the project including the analyses methodology, key assumptions, final results, and future considerations. *Speakers – Kyle Logue and Carlos Toro, Brown and Caldwell, Troy Eisenberger and Deva Borah, City of Chesapeake.*

7 Huntington Levee – Safety and Resiliency for a Once Flood Prone Neighborhood

Communities located along waterways are increasingly at risk for flooding due to increased runoff from impervious surfaces and intensification of rainfall events. The Huntington community in Fairfax County, VA experienced significant flooding from storm events in 2006, 2008, and 2011. To address this problem, Fairfax County completed the Huntington Levee Project to protect the community from tidal surges from the Potomac River and flash flooding from the 100-yr storm in the Cameron Run Watershed. This presentation will discuss improvements to provide flood protection to the community and the challenges with their design. The improvements include 2,800 linear feet of levee and floodwall, drainage improvements and stormwater conveyance systems, a ponding area for storage and routing of high flows, and two stormwater pumping station sized at 45 cfs and 260 cfs, respectively. Considerations for safety in an urban environment include security barriers at the entrances to the major drainage structures and box culverts to prevent unauthorized access to the pump station wet well (such as from curious children in the neighborhood). The interior drainage network incorporated redundancy and overland relief to provide flow-paths to the pump station if the primary drainage structures or security barriers are clogged. Since being placed into operation in late 2018, this Envision Bronze Award winning facility has successfully protected the community from flooding from Cameron Run and the levee’s internal drainage area. The design accounted for future sea level rise to ensure the system would provide continuous protection for years to come. *Speaker – Chris Soldan, Arcadis.*

8 Going Green with Energy: Solar Panels and Battery Storage

Over the last five years, the mid-Atlantic has seen a dramatic increase in its installed solar capacity. Capacity in Virginia alone has grown from 17 megawatts (MW) in 2014 to more than 400 MW. The increase in solar energy generation is related to decreasing costs for equipment, demand from customers for fossil free power, and development incentives. Virginia’s Energy Plan calls for 3,000 MW of solar and onshore wind to be deployed by 2022. While the state has set these targets, the development of projects occurs at the local level. Local elected officials and staff review the applications relative to their Comprehensive Plan and Zoning ordinances. Local staff handle land use concerns as well as stormwater management and erosion and sediment control practices during construction. Localities in the region have been developing a series of best practices for siting utility-scale solar energy generation facilities and educating stakeholders on the impact to the community. They are now starting to consider the necessary best practices for distributed and consolidated electrochemical battery storage facilities, which pose a higher safety risk than solar panels. The presence of these facilities requires localities to grow their knowledge and skills base among public works and emergency management professionals. Best practices in policies, procedures, and trainings will be shared to address the role of public works in the green energy arena. *Speaker – Denise Nelson, The Berkley Group.*

10 Catch the ViBe: Art as a Gift to the Future - The Challenges and Rewards of Establishing and Maintaining a Successful Arts District –

This session will provide an overview of the history, establishment, and future of the ViBe Creative District in Virginia Beach. The ViBe Creative District is a 501c3 organization which exists to promote, support, connect, and inspire the arts and creative industries to boost the local economy, grow jobs, and enhance the quality of life. Attendees will learn about the challenges to overcome while establishing and maintaining a successful arts district, initiatives for community involvement, place making, and small business growth. A detailed overview of the infrastructure improvements underway at the ViBe will be provided which include pedestrian and bicycle facilities, designated open spaces, outdoor art displays, stormwater and utility upgrades and low impact development. Additionally, strategies being employed to incorporate the arts into projects throughout Virginia Beach's first arts district will be discussed, including the district's "First Friday", "Second Saturday", and other arts-inspired pop-up events. *Speakers – Wes Parker, Clark Nexsen, and Emily Archer, City of Virginia Beach.*

11 As the Tide Turns

Virginia Beach, like many coastal communities, is experiencing more frequent flooding due to sea level rise, increased storm intensity, and aging infrastructure. These issues coupled with tidal impacts and low elevations has resulted in severe flooding in portions of the City. Hurricane Matthew (2016) resulted in the worst structural flooding ever experienced. As a result, the City embarked upon an extensive, multi-year flood mitigation improvement program. The goal is to increase resiliency to future storms, mitigate structural flooding, and improve roadway accessibility. The project area is essentially a "bowl" becoming one pool of water during extreme events. The key to flood mitigation is managing the water levels below flood stage, while not causing adverse impacts downstream. A combination of complementary infrastructure improvements are required to achieve the maximum flood mitigation benefit. Improvements include two large stormwater pump stations (750 and 1,400 cfs), tide gates (three locations), additional storage (430 ac-ft), flood barriers, and storm drains (over 56,000 LF). One of the most critical aspects is creation of additional storage. The proposed plan is to convert a City-owned golf course into a Stormwater Park. Preliminary concepts have been developed to create a multi-tiered storage facility with recreational components (trails, skate park, sports fields, etc.), some of which will also double as flood storage during extreme events. Approximately one-million cubic yards of excavation is anticipated to be removed from the golf course. The presentation will discuss the preliminary engineering analysis, recommendations, challenges, and anticipated phasing. Overall Program estimated at \$350M over 15-years. *Speakers – Nicole Dane, Michael Baker International, and Michael Bumbaco, City of Virginia Beach.*

13 A Comprehensive Approach to Stormwater Asset Management Planning

The City of Virginia Beach Public Works Operations has taken a proactive approach to stormwater asset management planning through condition assessment, prioritization, and rehabilitation of their storm water infrastructure assets. This approach has resulted in a methodology for condition assessment that considers specific stormwater system criteria and effectively prioritizes improvements for the evaluated assets. A stormwater infrastructure specific coding system for CCTV assessment and a unique above ground defect coding system was developed to supplement National Association of Sewer Service Companies standards. The applied coding system and analysis were utilized to generate an asset grading system. This system utilizes a quantitative risk assessment approach to identify the assets that represent the highest risk to the owner. Combining the probability of asset failure based upon the overall pipe rating and the magnitude of the loss related to the asset's combination of relative geographic position, physical features, and past performance generates the asset's prioritization ranking. This project offers significant benefit to the asset management community due to its unique risk based analysis approach, coding system, and resulting correlation between above ground and buried asset defect observations. The owner benefited by utilizing a defensible, analytical approach to infrastructure capital improvement prioritization and the efficient use of capital funding. Over the past 6 years, approximately 500,000 linear feet of stormwater infrastructure has been analyzed and prioritized with programmed cost savings associated with this methodology exceeding \$5 million for the first year alone. Construction is complete for 10 basins across the City. *Speakers – Emiliee Jessen, City of Virginia Beach, and Kyle Ballance, Hazen and Sawyer.*

14 Finding Success Through Experience – Issue Management on a Water Main Replacement Program

In order to replace the water transmission and distribution mains, many utilities around the country have established proactive programs. These programs focus on risk-based analysis to identify capital projects to replace water mains. As utilities move forward with such programs there are many pitfalls and challenges that can impact projects during design and construction phases of a water main replacement program. The City of Baltimore provides drinking water to more than 1.8 million consumers in the Baltimore metro region. The City's water transmission and distribution systems consist of about 4,500 miles (around 1,500 miles within City limits) ranging between 3" and 144" in size. The average pipe age is around 80 years and the common pipe materials are cast iron, ductile iron, steel, and reinforced concrete. The City is divided into 5 major water pressure zones. In addition to the establishment of a water main replacement program, the City also employed a program manager to provide program management services to assist with the integrated approach for implementation of capital projects and the development of internal workforce through comprehensive training. This paper focuses on the design and construction aspects of the water main program. The intent is to provide an overview of the program, and highlight examples (i.e., case studies) regarding permitting, constructability, and utility coordination efforts needed when designing and when in construction. The case studies will highlight various challenges and solutions adopted by the designers and contractors for successful completion of projects. *Speakers – Muhammad Tak and Renato Nojadera, Hazen and Sawyer, and Hernan Guadalupe, City of Baltimore.*

16 Oregon Avenue – Achieving Sustainability on Urban Transportation Projects

The Reconstruction of Oregon Avenue NW in Washington DC involved an extensive stakeholder engagement process that included public outreach and interagency coordination. The roadway is an urban collector adjacent to Rock Creek Park in what is considered by many as a beautiful woodland setting in the midst of an urban area. Many existing conditions posed significant transportation deficiencies including: 1) Deteriorating roadway pavements, 2) Substandard roadway geometry, 3) Inconsistent roadway width, 4) Inadequate stormwater drainage, 5) Deficient structures, lighting, and pedestrian/bicycle facilities, 6) Poor sight distances, 7) Frequent speeding, and 8) Lack of connectivity and accessibility. The new design addresses these deficiencies while respecting the unique character of Oregon Avenue. The design process included an extensive stakeholder engagement and a collaborative multidisciplinary effort that involved civil, structural, traffic, and geotechnical engineering; landscape architecture and cultural resources. The design improves the roadway with consistent roadway widths; new curb and gutters; improved line-of-sight; stormwater management; and utility relocation and undergrounding. A new uninterrupted sidewalk connects Western Avenue and Military Road along the residential side of Oregon Avenue for 1.75 miles. The sidewalk avoids many existing trees and residential landscape features with an emphasis on preserving the area's park-like character. In December of 2018, the Reconstruction of Oregon Avenue became a recipient of the Institute for Sustainable Infrastructure (ISI) Envision Silver award. The Envision system rates sustainable infrastructure projects across the full range of environmental, social, and economic impacts. The Oregon Avenue project is the first in the District of Columbia to earn a prestigious Envision sustainable infrastructure award. *Speakers – Oliver Boehm, Volkert, Wayne Wilson, City of the District of Columbia, and Lindsey Geiger, Institute for Sustainable Infrastructure.*

17 Citizen Engagement through the Public Works Academy

All localities have codes for citizens to follow. More times than the locality would like, those rules are not followed. This causes more time and resources to eradicate the issue. In addition, the interaction with citizens can be negative. Did the citizen know the trash cart needs to be three feet from a parked car? Did the citizen know the leaves cannot be swept down the storm drain? Education is key! There are so many different ways to educate citizens. There is the tried-and-true snail mail to reach citizens yet expensive. The city/county television channel is great for those that watch it. More recently, the social media boom has made it extremely easy to communicate with citizens. Community events are a great way to distribute information to citizens and put a face with a name. The City of Newport News Public Works created a Citizen Public Works Academy to educate citizens. Citizens embark on a ten-week journey to learn firsthand about the Department of Public Works. Through a series of lectures, demonstrations, hands-on activities and field trips, citizens are given an inside look of day-to-day public works operations. Public Works partners with other city departments to achieve the mission. At graduation, citizens share stories about all that they learned and how they will move forward as Public Works ambassadors for the City of Newport News spreading the good news of Newport News Public Works! *Speaker – Karen Self, City of Newport News.*

18 C Street NE – Balancing Commuter and Community Needs when Designing an Urban Corridor

The Rehabilitation of C Street NE in Washington DC involves the redesign of a .72 miles corridor using multiple Road Diet techniques. The results are improved quality of life for the community and more efficient movement of traffic for commuters. The most significant transformation of the corridor is re-purposing travel lanes to implement multimodal improvements. Existing on-street bicycle lanes are replaced with consistent seven-foot-wide cycle tracks, and additional greenspace provides a significant separation between parking lanes and the new cycle track. New bulb outs and raised crosswalks at each intersection enhance bicycle and pedestrian safety, connectivity, and accessibility. Redesigning an urban corridor to accommodate current mobility trends involves focusing on pedestrian and bicycle needs, while at the same time; minimizing the disturbance to existing infrastructure; meeting environmental requirements; accommodating traffic demand; providing efficient and accessible transit facilities, and preserving existing features that define the character of a neighborhood. The presentation will focus on technical design solutions and the project's design process, as well as issues and design challenges which we expect in the future as transportation infrastructure becomes more diversified. The presentation will also touch upon the community engagement process. With stakeholders having increased input to the design process, it is important to educate the community in order to balance their needs with the objectives of the project. *Speakers – Oliver Boehm and Hari Thacker, Volkert, and Wayne Wilson, City of the District of Columbia.*

19 New Technologies for Historic Sewer Asset Verification

The historic City of Richmond, Virginia has experienced significant population growth and construction in its downtown core. To ensure that Richmond DPU can continue to provide an acceptable level of sewer service, they began to model the capacity of its combined sewer system in key neighborhoods such as Shockoe Bottom, Scotts Addition, and Manchester. During modeling, a number of model instabilities were found due to unknown or potentially incorrect sewer invert and location data. Working with modelers, the City identified 83 pipes with the highest severity and impact on model performance. Hazen and the City then started the process of field investigation to verify key asset information associated with the 83 priority pipes. To increase the speed and value of data collected, beyond traditional survey, a collection of new technologies were selected and tested, to include; tablet based data forms and live connectivity to an ArcGIS enterprise server; live linked progress tracking using Power BI; and 360-degree imagery for documentation of field conditions. This presentation will discuss the difficulties associated with the verification of assets that in some cases are over 100 years old and field conditions do not match GIS or model records. Through new technology, we have been able to provide field inspectors with more reference information and speed up the data collection process, all while providing a more comprehensive record. Attendees will have a better understanding of how to approach non-invasive asset investigations of their aging infrastructure with these new technologies. *Speakers – Ryan O'Banion, Hazen and Sawyer, and Grace LeRose, City of Richmond.*

20 There's Got to Be a Better Way for Project Delivery – and There Is! It's Called PPEA!

The presentation will cover the PPEA process from start to conclusion including detail of the benefits and risks as compared to other traditional procurement project delivery methods. Our municipal, owner rep, and GC panel members will share their thoughts and experiences in a group discussion format, where we will discuss a practical and no-nonsense approach that many find obscured within the legislation; but can result in a project that incorporates the best of the public and private sectors. This presentation will provide a roadmap for success including lessons learned and awareness of potential issues/problems to avoid and how to avoid them. The attendee should be prepared to go home with a solution to a procurement problem. *Speakers – Kevin Wills, MBP, Matt Johnson, City of Newport News, Wayne Nelson, Town of Christiansburg, and Ed Stelter, Faulconer Construction.*

21 Lean + Tech: Learn How to Level Up Your Projects

The capital projects industry continues to evolve with wider adoption of BIM, greater use of sensors, the Internet of Things connectivity, and the expanding scope of big data capture and analytics. At the same time, Lean construction principles and tools continue to make inroads into how we execute our projects with limited resources. We recognize that it is in the interests of all owners to maximize the value of projects while eliminating waste to deliver projects on time and within budget. Lean construction provides a number of effective tools for value delivery which are greatly enhanced by using modern technology solutions. In this session, we will explore the use of Lean principles and making work visible on projects by identifying several specific uses of technology to enhance the effectiveness of these innovations. *Speakers – Justin Jacobson and Jim Mascaro, MBP.*

22 Resiliency: Facing the “Rising Tide” of Age

Resiliency means different things to different people, but most infrastructure resiliency planning is focused on adapting to changing climate conditions – extreme floods, rising sea levels, and other changes in weather patterns. Resiliency planning considers protection of existing infrastructure while looking to design and build new infrastructure in a manner consistent with changing conditions. While planning for extreme events and anticipated changes in our environment is important to sustainability, there is another, more looming issue affecting our infrastructure. Water, sewer, stormwater, roads and other infrastructure across America are deteriorating at a rate much faster than we can repair and replace. If we don’t address the “rising tide of infrastructure age” soon, then the natural aging process poses a much larger threat to our infrastructure than extreme events and rising sea levels. Asset management provides a mechanism to address our aging infrastructure as well as other resiliency issues. The decision-making process involved in determining appropriate repair / replacement plans and Capital Improvement Programs can be adapted to include long-term resiliency decisions. Using asset management principals across all infrastructure assets as the foundation for resiliency planning provides an effective means of addressing both present and future risks. This presentation illustrates the effectiveness of asset management in addressing the normal deterioration of assets as well as the impacts of customary resiliency issues. Adaptation of each step of asset management program development to address issues like extreme events, rising sea levels, and other changes in weather patterns will be discussed. *Speaker – Hal Clarkson, Woolpert, Inc.*

23 The Latest in ADA Self-Evaluation & Transition Plan Requirements & Technology Integration

Course attendees will get a concise overview of an ADA Transition Plan, its key components, compliance, coupled with a recommended Action Plan. The latest technology review will be provided to help stream-line and integrate meta-data collection with internal municipal systems. *Speaker – Aaron Hester, Precision Safe Sidewalks.*

24 Safety First: Going Beyond the Slogans

What does the phrase “Safety First” mean to you? Is it a slogan or does it drive everything you do? Explore lessons learned by two agencies on how to go beyond the slogans and create a safety-first culture that REALLY prevents injuries and saves lives. Public Works employees perform duties that are amongst the most dangerous in America. Refuse collectors, and maintenance workers suffer higher fatality rates than their counterparts in public safety. After a fatal accident, Fairfax County transformed its program from one that provided a false sense of security to a values-based approach focused on accountability. Their program became nationally recognized last as most improved by SWANA. Carroll County initiated a “From Zero to Robust” program to launch numerous safety initiatives. Creating a safe workplace is a core responsibility of every employer. This presentation will provide lessons learned, how-to strategies, and innovative approaches on how to build a meaningful program in your organization. *Speakers – John Kellas, County of Fairfax, James Patteson, Blue Heron Leadership Group, and Jeff Castonguay, Carroll County.*

25 Public Works Institute – What’s in it for you and your Team!

PWI is a training course for Public Works professionals, from front Line Supervisors to Directors. PWI provides professional development through interactive setting presented by Public Works subject Matter experts. Whether you are looking to advance your career, transitioning from another career, PWI provides the training tools and networking to help you succeed. This will be a round table of discussion headed by PWI Students and Alumni. *Speaker – Scott Smith, APWA Mid-Atlantic Public Works Institute.*

26 Sustainability Through Pavement Recycling

Asphalt mixes are one of the most recycled materials in the United States! According to a survey conducted by the National Asphalt Pavement Association on behalf of FHWA, over 72 million tons of recycled asphalt pavement (RAP) are used in the United States each year with an overall savings of 2.8 billion dollars (compared to the use of virgin materials). Within Virginia alone, RAP makes up approximately 30% of new asphalt mixes. However, with newer technologies the percentage of RAP can be up to 100%. As the percentage of RAP increases, so does the savings to the owner and the environment. Less virgin asphalt binder and aggregates are needed to produce long lasting pavements. This presentation will focus on the new and emerging technologies with asphalt materials that will result in sustainable pavements. These pavements will have higher percentages of recycled asphalt and other waste/by-products that will reduce demand for new materials while not compromising the performance of roadways. Through this presentation, the

advancements of balanced mix design, in-place recycling and cold plant recycling will be covered. These technologies will allow up to 100% RAP utilization in new pavements. Along with these technologies, emerging technologies under development and evaluation will be highlighted. Through education and information sharing, the possibilities of properly utilizing more recyclable material are endless. *Speaker – David Lee, Virginia Asphalt Association.*

28 How to Slow your Storm Flow - A BMP Retrofit Project that Transformed a 50-acre Drainage Area.

With storm surges on the rise, aging infrastructure, and increasingly impaired water bodies, now more than ever is a crucial time to carefully design efficient and long-lasting stormwater best management practices (BMPs). BMP design is not a “one size fits all” approach. Although each site presents unique obstacles, designers can succeed at controlling the quality and quantity of stormwater by intelligently selecting the right BMP for the job. In response to state mandated total maximum daily load (TMDL) reduction requirements and to satisfy Chesterfield County’s MS4 Permit conditions, three stormwater BMPs were retrofitted at Bailey Bridge Middle School. The construction of three level spreaders, a boulder-step pool, and culvert outlet protection now provides nutrient removal for a 50-acre drainage area that once discharged directly into Swift Creek without treatment. Each of these specific designs reduces the velocity of storm flow and promotes infiltration, ultimately improving treatment efficiencies and maximizing pollutant reductions. This presentation will provide an overview of the design and construction process for the Bailey Bridge Middle School BMP Retrofits project. After joining forces with a safety savvy Contractor, installing boulders that weigh heavier than vehicles, and building strong relationships that led to public outreach opportunities, it is evident that the benefits of this BMP retrofit project were much greater than just enhanced downstream resources. *Speaker – Jillian Parrinello, Arcadis.*

31 Be Alert: Expect the Unexpected

The purpose of this presentation is to explain the strong relationship between emergency management and public works. Public works plays a critical role in emergency management by protecting the community’s critical infrastructure and facilities (i.e. roads, bridges & highways, solid waste management, water & wastewater systems, etc.). Public works supports other operations such as Public Safety, Parks & Recreation, and Building Services. The mission of public works supports the main priority of the community: protecting its citizens. A major project in this presentation, that successfully demonstrates public works responsibilities, is the Middle Peninsula’s Regional Debris Management Plan, which should establish an approach for managing debris removal from private property and demolition of private structures, including identification of all applicable legal and documentation requirements and a defined process for fulfilling the requirements. The presenter will discuss the following three learning objectives in their presentation; the high importance of implementing and exercising emergency plans as well as educating all county officials about the Incident Command Structure (ICS) through free ICS online and in-person courses provided by FEMA and VDEM, how agencies across the nation are better mitigating and responding to sophisticated cyber-attacks, and how county officials can properly handle stress management and mental health after a catastrophic incident and/or planned event. *Speaker – Jessica Roy, Middle Peninsula Planning District Commission.*

33 Development of Wastewater Pump Station Resilience Program

Wastewater pumping stations are a vital part of sewage collection system and maintaining operation during emergencies and natural disasters is important to the health, safety, and welfare of the citizens and to the environment. Preparation for natural and emergency events start with identifying problems and estimating the magnitude of risk and consequences of failure as part of a resilience program. Resilience programs and addressing the issue of sustainability are becoming more common in the best practice management tools in Public Works. Available information is scarce and emerging trends within the industry need to be communicated. This paper describe the items considered in preparing a program and develops an approach. *Speakers – Bud Curtis and Landon Kee, City of Newport News.*

34 Resiliency and Environmental Justice: What Does It Mean For Public Works?

This presentation focuses on the issue of community resilience and environmental justice as it relates to public works. Community resilience is the sustained ability of a community to utilize available resources such as water, energy, communication, transportation, food, and human capital, to respond to, withstand, and recover from adverse situations such as natural disasters, economic collapse, and the impacts of climate change. Environmental justice focuses on the distribution and impact of environmental pollution and environmental risk on low-income and minority populations. In order to build more

resilient communities for all individuals, it is important to include at risk populations, such as minorities, low income individuals, and the vulnerable members of our society, such as the elderly, in the overall plan. Public works plays a large role in building resilient communities. This presentation will include strategies for engaging public works in building resilient communities for all individuals. *Speaker – Celeste Greene, University of Virginia.*

35 APWA and Asset Management – Supporting Members through Advocacy, Education, Resource Development, and Member

The APWA Asset Management Committee’s mission is support APWA members that operate, improve and maintain public works and infrastructure through advocacy, education, resource development, and member engagement in the field of asset management. The presentation will highlight a few of the Committee’s initiatives and demonstrate how they relate to the Top 5 Tech trends. Related asset management activities underway at the City of Newport News will be described. *Speakers – Kirstin Platt and Jacqueline Stephan, City of Newport News.*

36 Tackling Freshwater Salinization in Northern Virginia

The Salt Management Strategy (SaMS) for Northern Virginia has been under development, driven by broad stakeholder input, since 2018. The final SaMS Toolkit will include recommendations to enhance use of best practices that can achieve level of service goals for winter operations, while reducing the negative environmental and other impacts of winter salt use. It also will provide recommendations and tools to track best practice and salt use, educate and communicate with the public, strengthen water quality monitoring/research, enhance intergovernmental coordination, and more. Public Works managers will be especially interested to learn of technical products that detail recommended winter planning protocols, identify the pros and cons of specific winter maintenance best practices, and provide step-by-step application rate determination/evaluation processes. Public communications information has also been prepared to suggest ways the residents and commuters can contribute to reducing winter salt environmental impacts. To set the context and urgency that prompted development of SaMS, information will be presented on surface water quality trends in Northern Virginia and nationally with regard to increased salinity in surface waters, and hone in on the threat this presents to drinking water supplies and public health. SaMS will move from planning to implementation in 2021, and public works departments will have a big role in its successful implementation. *Speakers – David Evans, Virginia Department of Environmental Quality, and Juan Reyes, Fairfax County.*

37 What Does It All Mean? - Understanding Stormwater Quality Device Testing Methods and Data

80% TSS removal? 50% TSS removal? What about phosphorus or heavy metals? Why should I care about New Jersey or Washington State? The purpose of this session is to review existing test protocols for manufactured stormwater treatment devices (water quality units). We’ll discuss the evolution of test methodologies with a focus on widely accepted current tests and the trajectory for future test protocols. We will also consider the relevant data from these test methods in order to assist engineers, agencies/municipalities, contractors, and developers with setting and meeting standards, establishing expectations for longevity, and considering what role manufactured devices might have in meeting your long term stormwater quality objectives. *Speaker – Travis Dorman, Advanced Drainage Systems, Inc./BaySaver Technologies.*

38 What if Someone Had Introduced You to Public Works When You Were in High School? And Why Aren’t You Introducing Public

This presentation is to introduce the efforts of the Hampton Roads Public Works Academy to the APWA Chapter members. The HRPWA’s mission is two pronged. We provide workforce development to our current workforce. We also work with three local Career and Technical Education Centers (The College and Career Academy at Pruden, New Horizons Regional Education Center, and The Virginia Beach Technical and Career Education Center) here in Hampton Roads. We go into the schools and present a range of topics to students who have applied to be members of the Academy. Our topics range from Stormwater Management to Construction Math to Wastewater Collection and Treatment to GIS Use in Public Works. Even better, our member organizations offer paid internships in local Public Works departments to give our Cadets real life experience with our roles. We target every student at these schools, not just the students who are enrolled in what you might consider classical paths to employment in Public Works because we recognize that so many students are not being exposed to the opportunities we find in Public Works. Every year we have interns who transition directly into our workforce. Some have gone on to leadership roles and/or become engineers. *Speaker – Chad Oxtan, Hampton Roads Public Works Academy (HRPWA).*

39 In by 8, Out by 5 – Rebuilding City Streets in a Day in Middleburg, VA using Full-Depth Reclamation with Cement

Aging streets with high severity structural distress are becoming more common as our road systems age; repair strategies that worked in the past may no longer provide satisfactory performance in the future. The presenters will provide a brief overview of the FDR process using cement and present a case study of a VDOT project in Middleburg, VA. In Middleburg, highly distressed pavements were reclaimed with cement and overlaid with asphalt in a single day. Several of the roads were downtown, laden with utilities, and very closely adjacent to historical structures. *Speakers - Andrew Johnson and Stan Bland, Southeast Cement Promotion Association.*

40 Field Testing and Evaluation of the James River Bridge

This presentation describes the extensive field work and thorough evaluation of the 302 prestressed concrete multi-beam approach spans of the James River Bridge (JRB). The JRB, owned and maintained by Virginia DOT, consists of prestressed concrete spans and one steel through-truss lift span with a total length of 4.4 miles. The field evaluation included performing an extensive number of tests not typically conducted during the annual bridge inspection, to evaluate the condition of the bridge approach spans and develop repair recommendations. Testing conducted on the selected decks and beams included rebar cover measurement, chain drag and hammer sounding, visual inspection, half-cell potentials, chloride profile sampling, petrographic analysis, ground penetrating radar (GPR) and laser crack measurement system (LCMS), impulse response and impact echo, ultrasonic shear wave tomography, and a deck joint survey. Based on these test results and information in the existing bridge inspection report, an asset management plan covering the maintenance and rehabilitation of the bridge over the next 30 years was proposed. The maintenance plan is comprised of both restorative maintenance, to repair deterioration in bridge elements, and preventative maintenance to preserve the bridge and slow future deterioration. Repair recommendations included deck and beam patching, pier column FRP wrap installation, and span re-alignment. Preventative maintenance included deck expansion joint seals replacement, beam ends and bent caps epoxy coating, and pile jacket installation with cathodic protection. The 30-year asset management plan is expected to maintain and extend the life of the JRB. *Speakers – Daniel Dowling and Sherif Daghsh, Michael Baker International.*

41 Utilizing “Big Data” to Drive Transportation Decision-Making in Cities: Virginia Case Studies

Is there cut-through traffic in this neighborhood? Can I understand 24-hour traffic conditions on this corridor? How would neighboring facilities be impacted due to a restriction or road closure? Answering these questions has traditionally required extensive, labor-intensive data collection. Now, big data is becoming increasingly accessible to transportation professionals and can provide powerful information that can help answer these types of questions. In the last year, VHB has partnered with multiple government agencies throughout Virginia to incorporate big data (e.g., StreetLight, INRIX/HERE) into transportation studies and decision-making. This data has been leveraged to answer pressing questions like quantifying cut-through traffic and congestion in Crystal City, Arlington; to inform municipal transportation planning decisions like understanding how traffic patterns might influence potential traffic rerouting from a road diet in downtown Harrisonburg; and, to refine details of larger studies like determining vehicular origin-destination movements to assess safety improvements on a major Richmond arterial. Applying these data sources to these questions has produced more comprehensive results. VHB will present on the application uses of big data as it can influence transportation planning and design. VHB’s recent applications of big data throughout Virginia – particularly the Harrisonburg road diet project – will be explored in detail. The Harrisonburg application was more than just a transportation planning project; the results of the study will influence the City’s 2020 Downtown Master Plan. VHB and the City collaborated in developing appropriate visualizations to convey the big data results to the public. *Speakers – Christopher Daily and Chuck Conran, VHB.*

42 Maximizing Resources to Extend the Service Life of Our Structures

Discuss bridge preservation and practical approaches to extend the service life of bridges and culverts within City inventories. Discuss importance of NBIS inspections and associated findings to determine requirements for Bridge Preservation Plan. Discuss preservation techniques and service life extension timelines, best practice approach for implementation of practices and how City’s can utilize in-house resources, ID/IQ contracts or small set aside contracts to get the best bang in costs to extend the life of their inventory. Focus of the preservation will be from an umbrella approach (top-down) which means deck, superstructure then substructure. Specific discussions will include deck preservation (including but not limited to sealing, epoxy overlays and latex overlays - what should be done and best implementation approach for which group of individuals), joint replacements, zone painting of steel elements, and general concrete preservation. *Speakers – Joshua Hill and Billy Jenkins, Moffatt & Nichol.*

44 Coexistence: Creating Public Spaces That Improve Stormwater Quality and Reduce Flooding in Norfolk’s St. Paul’s District

The City of Norfolk is undertaking a redevelopment of its St. Paul’s District through a transformational plan that will ultimately reshape the area’s transportation infrastructure and create a new urban center to more efficiently accommodate commercial and residential spaces. The transformation is supported by a Choice Neighborhoods Initiative (CNI) grant. A prominent element of the St. Paul’s transformation is the restoration of the historic Newton’s Creek – long buried in a culvert through a presently developed area – into a meandering open channel with wetlands surrounded by public park spaces and amenities. This stormwater park, or blue/greenway, will occupy approximately 26 acres and provide multiple functions. It will provide the required stormwater nutrient treatment credits for the CNI grant’s entire watershed, reduce tidal and precipitation related flooding in the neighborhood, and provide an outdoor public space for the enjoyment of residents and visitors to the area. The presentation will describe the early stages of blue/greenway design, which have included validating that all of the stormwater quality and quantity management criteria can be met within the 26 acre footprint while still providing meaningful park amenities. The presentation will also describe the proposed stormwater infrastructure and current concepts for the park features, and how this public infrastructure will fit in context with the overall St. Paul’s transformation plan. *Speakers – Brian Joyner and Arash Niroomandi, Moffatt & Nichol, and Kyle Spencer, City of Norfolk.*

45 Regional Resiliency – What can we do together?

HRPDC staff will discuss the regional coastal resiliency program including the resiliency dashboard at HRGEO.org. The presentation will focus on practical challenges such as changing stormwater design standards, projecting future roadway flooding and potential for water storage features that improve water quality. *Speaker – Whitney Katchmark, Hampton Roads Planning District Commission.*

46 Accreditation – Is it worth it the effort?

Will provide an overview of the self assessment/accreditation process, including benefits, inner workings of the process, requirements including time involved and cost. *Speakers – Judi Hines, City of Newport News, and Matt Villareale, Prince William County.*

48 “Fighting Off the Sharks: Letting the Public Know How Great You Are Before They Come After You”

Like it or not, we live in a communications/message driven society, and those of us who serve in government (not just Public Works) must always be especially prepared to engage with the different audiences and explain and communicate what we do, when we do it, and how we do it. Citizens and neighborhoods affected by projects have a steady stream of questions and want answers. City/County officials want to know the latest information about the projects they approved so they can answer to their constituents. Reporters are always looking for a story, and no one tells a better story with lots of great pictures than public works. Officials also need to keep in mind the importance of crisis management and planning. What happens if there is a serious injury or death involving public works and the news media is alerted? Weather events always attract the news media; how should it be handled? A civic league is opposed to a project and is attracting a lot of attention from both the news media and local officials – how do you handle it? Storm damage? Street closures? The list goes on . . . and the list of people who want answers is longer. This program will present the different options departments have and what will work best – regardless of size or budget. *Speaker – Drew Lankford, City of Virginia Beach.*