3-23-22. Note. This is the most up to date copy of abstract information.
This file is Alphabetized by title.

Title: Adopt-A-Highway: Managing the Mileage to Keep Virginia Beautiful
Presenter(s): Kinsey Browning, kinsey.browning@stantec.com
Organization: STANTEC
Time: 40 Minutes

Abstract:
Virginia Department of Transportation's Adopt-A-Highway (AAH) Program provides an avenue for individuals, organizations, and businesses to help maintain sections of roadside and rest areas within Virginia's State Highway System. It is an integral part of the Keep Virginia Beautiful effort, which has been affiliated with Keep America Beautiful since 1956. Each year, more than 23,000 Adopt-a-Highway volunteers collect more than 44,000 bags of waste along Virginia's highways.

To enhance the promotion, adoption and management of VDOT's AAH program, VDOT and Stantec have developed a spatially enabled solution that allows for better administration and maintenance of the spatial aspects of the data including mileage, quantities, and frequencies at the various locations. VDOT and Stantec developed a workflow consisting of a series of web applications and custom tools designed to intake the data for adoption of new segments, as well as tracking the completed pickups. A set of semi-automated data review rules assure consistency and accuracy among the data through the many phases of editing, and Dashboards and email notifications were also created to provide an administrative level view of the status of the Adopt-A-Highway program and assets. The enhanced user experience for both VDOT staff, the adoptees, and public at large is anticipated to increase overall participation in VDOT's Adopt-A-Highway program, which will be streamlined with these new tools.

Title: ArcGIS Enterprise in the Richmond Police Dept (RPD)
Presenter(s): Steve Waldron, Steve.Waldron@richmondgov.com, Renee Richardson (Crime Analysis Unit Supervisor), Jen Blackford (Crime Analyst), Karrie Toland (Crime Analyst)
Organization: City of Richmond, VA
Acknowledgement: RPD Crime Analysis Unit
Time: 40 Minutes

Abstract:
Esri GIS technology has been used by the Crime Analysis Unit (CAU) in the Richmond Police Department (RPD) for over 2 decades. This presentation will review how the CAU uses ArcGIS Pro and ArcGIS Enterprise. The overall implementation of "Web GIS" (Pro, ArcGIS Online, and ArcGIS Enterprise) in the City of Richmond will be reviewed. The journey specific to the RPD

CAU will be discussed in this context as lessons learned, advice, and future considerations are also shared. The experience of crime analysis and police operations described here will be transferable to other organizations who are planning to modernize to the Web GIS paradigm in support of their own workflows; public safety-wise or other.

Title: ArcGIS Mobile Overview and What's New
Presenter(s): Dawn Matasic, dmatasic@esri.com
Organization: Esri
Acknowledgments: Daniel Peters
Time: 40 Minutes

Abstract:
See how you can extend your GIS not just outside the GIS office, but outside the office all together. Take a tour of the Esri suite of mobile apps and see how your organization can modernize field workflows with GIS. We will also discuss new mobile apps and what's new with existing apps.

Title: A Review of the Property Sales Dashboard
Presenter(s): William Simmons, delmons@comcast.net
Organization: Richmond Assessor's Office
Time: 40 Minutes

Abstract:
A review of the making of and issues involved with creating a property sales transfer dashboard for ESRI's ArcGIS Online. This case study will cover the creating of a new dashboard which examines such factors as internal use versus external use, multiple views of the data, and updating the data.

Title: A Study in Cadastral Senior Right
Presenter(s): William Simmons, delmons@comcast.net
Organization: Richmond Assessor's Office
Time: 40 Minutes

Abstract: An in depth analysis of a real world property boundary conflict and how the senior rights rule applies to property boundaries. This problem involves reading and drawing legal descriptions from several deeds; understanding magnetic declination and true/grid north; using ArcPro to visualize the issues; and explaining the senior rights concept as it applies to property ownership.

Title: Batty Apps: Customized Field Collection for Management of NCDOT Bat Habitat Structure Data

Presenter(s): Bridget Wagner, bridget.wagner@hdrinc.com
Organization: HDR
Time: 40 Minutes

Abstract:
As a critical element for NC Department of Transportation's (DOT) maintenance and compliance, field inventory efforts are becoming increasingly sophisticated and efficient. By leveraging customized and off the shelf solutions, such as Esri's suite of cloud applications, environmental management and infrastructure assets can be easily collected, organized, and reviewed in user-friendly format. As part of the DOT process improvement initiative (ATLAS – Advancing Transportation through Linkages, Automation and Screening), our team has developed a seamless, cloud-based survey platform for the statewide inventorying of bridges, culverts and caves for potential bat roosting habitat. Utilizing Esri's Collector and Survey123 application, field teams were equipped with the ability to digitally collect environmental and structure field data developed from a Trimble collection/hand written form. This survey also leveraged automated population of standard constant variables (such as date, time), standard bridge attributes from NCDOT's bridge database (such as bridge location, deck type, bridge orientation, height of bridge above water, and unique identifier), and known environmental data (mine and cave locations, land cover) providing crucial time-savings and quality control in the data collection process. To further increase field efficacy, this survey also utilized conditional statements to streamline the inventory process and increase ease of use among field workers; users are prompted to fill the necessary fields for complete collection based on initial survey choice selections. Employing Survey123 has enabled field users, project managers, and the DOT to dynamically collaborate on field efforts in real-time. Additionally, the platform has served as a central "data gateway", providing 24/7 accessibility and adaptability for both the large-scale data effort and the efficiency client-consultant relationship.

Title: BMP Inspection of the future using mobile technology and merging with other mobile applications at VDOT

Presenter(s): Michelle Fults, michelle.fults@vdot.virginia.gov
Organization: VDOT
Time: 20 Minutes

Abstract:
Since 2013 the Virginia Department of Transportation‘s Maintenance Division (VDOT) and Location and Design (L&D) Division have been collaborating and using mobile technology to inspect and report on structural stormwater treatment facilities (BMP's) in compliance with our

MS4 permit. Collector, Survey123 forms, and WebApp Builder are used for the inventory and inspection of each VDOT basin. VDOT has gone from paper inspection forms entered into nine different databases statewide to a centralized Portal ArcGIS online mobile collection. The inspection consists of basic questions on the nine general stormwater BMP types such as basins, infiltration, filtration, underground, etc., to an explosion of detailed question about 80+ specific BMP types such as dry detention, treebox filter, level spreader, bio retention, etc. Each specific BMP type has been grouped in the appropriate general BMP category with leading questions and drop down menus, depending on how the leading question is answered. Each general BMP inspection category can have upwards of 200+ total questions answered in the field on the tablet computer. Once the inspection is completed, each BMP is assigned an overall rating. If necessary, a work order is generated from the questions whose answers indicated that maintenance is needed. The work order can be uploaded to VDOT's Highway Maintenance Management System (HMMS) for completion of the necessary work. The initial inventory of new BMPs will be gathered through the computerized Regulated Land Disturbance Activity (RLD) application, which is now being developed and, in the future, will be used statewide for each project that is started.

Title: Bridging the Geospatial Education/Workforce Divide
Presenter(s): Dr. Wendy Stout, wrstout@liberty.edu
Organization: Rappahannock Community College
Time: 40 Minutes

Abstract:
The drivers affecting the geospatial community include technological advances, the rise of new data sources and analytical methods, the evolution of user requirements, industry structural shift, and impacts of the legislative environment. GIS thought leaders from across the Commonwealth of Virginia weighed in on how they perceive the the emerging trends related to each of these drivers. The results of this research and what academia can learn from these stakeholder viewpoints will be shared.

Title: Cartography Top 10 – Tips & Tricks for Better Maps in ArcGIS Pro
Presenter(s): Chris Bruce, cbruce@tnc.org
Organization: The Nature Conservancy
Time: 60 Minutes

Abstract:
As GIS professionals we understand the power of maps and data visualizations to tell our stories. In this workshop you'll learn my top 10 tips and tricks for making better maps. This will be done primarily through demonstrations in ArcGIS Pro, with minimal use of PowerPoint. While

workflows will be specific to ArcGIS Pro, most of these tips will be relevant regardless of your software choice.

Title: Changing the Game of 3D Mapping
Presenters: Mackenzie Mills, Mackenziem@Bluemarblegeo.com
Organization: Blue Marble Geographics
Time: 20 Minutes

Abstract:
Recent innovations in 3D mapping technology have largely focused on terrestrial applications. Spurred by the proliferation of lidar data and the rapidly increasing use of drone-collected images for photogrammetric analysis and surface generation, geospatial software developers have introduced a slew of tools for visualizing and analyzing the terrain. While the availability of comparable high-resolution seafloor data is not at the same level, many of the tools designed for terrestrial use, are equally applicable for bathymetric analysis. In this presentation, we will explore the use of Global Mapper - a multi-faceted GIS application developed by Blue Marble Geographics - for seafloor modeling and change detection. Working with a variety of data types including near-shore lidar and sonar-derived point cloud data, we will demonstrate a procedure for improving the quality of the data by identifying and removing noise points and other irregularities. This data will subsequently be transformed into a three-dimensional raster surface model, which is the basis for a variety of analysis procedures, including bathymetric contour generation and volume calculation. Using terrain sculpting tools, we will then simulate the dredging process by creating a channel along the seafloor, which recalculates the per-pixel depth values and lateral slopes along a buffered linear path. Finally, a difference model will be generated to measure and display the offset between the original seafloor and the channel bottom. The aim of this presentation is to show that, although high-resolution bathymetric data is a relatively rare commodity, the tools for processing and utilizing this data are readily available.

Title: Cityworks Insights for Assessing Criticality of Water Pipes
Presenter(s): Christopher Long, christopher.long@timmons.com
Organization: Timmons Group
Acknowledgements: Daniel Legge - Frederick Water Asset Management Coordinator, Stuart Frankfort - Timmons Group Project Manager
Time: 20 Minutes

Abstract:
Frederick Water needed a way to better understand the business risk associated with their water distribution lines. In addition to understanding the risk each line posed to the organization, they needed to categorize each water line by risk to better understand the appropriate response based on risk value. To solve this problem Cityworks Insights, an Asset and Maintenance Analytics Calculation tool, was utilized to identify the Business Risk Exposure score for each

water line. The advantage Cityworks Insights adds is that it utilizes data from your Esri Enterprise GIS data and your historical work information stored in the Cityworks database. Ultimately this tool produced a prioritized list of assets for corrective maintenance.

Title: Cloud-based vs. Local GIS Data Collection Methodologies-Pros & Cons and how to decide which one is best for you.
Presenter(s): Russell Vrhovac, russell.vrhovac@duncan-parnell.com
Organization: Duncan Parnell
Time: 20 Minutes

Abstract:
This presentation will dive into the different styles of GIS data collection modes. Two primary forms include Cloud-based data collection and Non-Cloud-based data collection techniques. With Cloud data collection technology taking the industry by storm, it is important to weigh the benefits when considering this format of data collection. We will be looking at cost, learning curve, staffing, security, infrastructure and other factors that weigh into the decision of going cloud versus staying with a locally installed software solution for data collection. For many, locally installed applications/software is still preferred. This presentation will give users some tools to help decide if they are ready for the cloud.

Title: County address and road data dissemination to commercial mapping firms
Presenter(s): Raymond Crew, crewr@chesterfield.gov
Organization: Chesterfield County Gov
Acknowledgements: Jack Wright, Chesterfield County & Charles Leaton, Timmons Group
Time: 40 Minutes

Abstract:
Chesterfield County adds a fair number of new roads and addresses every year as well as making changes to existing ones. Until recently, the new data and changes would make it to the commercial mapping firms without much action by the County. A few years ago, the County discovered this was no longer happening. The County's GIS group has struggled to find how to provide our new data and have it timely and properly appear in the commercial mapping products. The GIS team has discovered methods improving the situation we wish to share. The GIS team also hopes to gather ideas and solutions from those attending this presentation.

Title: NAIP imagery and LIDAR-derived canopy heights accurately classify land cover with a focus on shrub/sapling cover
Presenter(s): Lesley Bulluck, lpbulluck@vcu.edu
Organization: Virginia Commonwealth University Center for Environmental Studies

Time: 20 Minutes

Abstract:
Publicly available land cover maps do not accurately represent shrubs and saplings, an uncommon but ecologically relevant cover type represented by woody vegetation <4m tall. This omission likely occurs because (1) the resolution is too coarse, (2) poor training data are available, and/or (3) shrub/saplings are difficult to discriminate from spectrally similarities classes. We present a framework for classifying land cover, including shrub/saplings, by combining open-source fi-ne-resolution (1m) spectral and structural data across a large (>6000 km2) mountainous region. Specifically, we used segmented 4-band imagery from the National Agricultural Imagery Program (NAIP) and a LIDAR-derived canopy height model within a pixel-based random forests classification. We then compared landscape metrics calculated at fine (1m) and coarse resolution (resampled to 30m) to metrics calculated with National Land Cover Data (NLCD). We achieved an overall accuracy of 89% and >80% accuracy for each land cover class. The LIDAR-derived canopy height model was consistently ranked as the most important predictor of vegetative land cover classes. Compared with our custom classification, NLCD underrepresented pasture/grassland by up to 10% and overrepresented forest up to 30%. There was no correlation between percent shrub/sapling cover in our custom classification and NLCD suggesting that NLCD is not reliable for applications concerned with this ecologically relevant cover type.

Title: Franklin County, Letting GIS Shine
Presenter(s): Eric Schmidt Eric.Schmidt@FranklinCountyVA.Gov
Organization: Franklin County, VA
Time: 40 Minutes

Abstract:
Franklin County, VA is a large rural county in the Blue Ridge Mountains of southwestern Virginia, best known as “The Moonshine Capital of the World.” Though not as romantic or storied as “Shine,” GIS also has a story in Franklin County as well and we’d like to share it.

In 1997, Franklin County introduced GIS technologies into County operations for one purpose; to assign and track addresses for use in 9-1-1 dispatch. After its rather pointed introduction, GIS technologies gradually found broader footing and wider adoption within County operations. Along the way, however, the development of Franklin County’s GIS implementation began to slow until it finally settled into a quiet and comfortable rut. There it remained for years; its maturation subsequently and significantly stunted.

Since the summer of 2018, however, GIS has been going through a renaissance in Franklin County. This presentation will discuss the factors that led to the good, the bad, and the ugly of Franklin County’s history with GIS. It will also share an overview of the great things that are happening now and offer insights into how they have been brought about. The presentation will

conclude with a brief overview of the vision we are distilling for Franklin County's bright geospatial future.

Title: GIS and Location Analytics in Supply Chain Logistics
Presenter(s): Brendan Wesdock, bwesdock@geodecisions.com
Organization: GeoDecisions
Time: 40 Minutes

Abstract:
Most people in the US didn't give a second thought to how items reached our retail stores and our doorsteps until the spring of 2020 when Supply Chain Logistics entered the national discussion as toilet paper and other consumable products became scarce. Supply chain issues continue to persist. Today, less than 1% of containers, pallets, trucks, chassis, and ships within the supply chain ecosystem produce actionable geospatial information. Simultaneously, the supply chain is strained, with excessive ships at anchor, terminal congestion, long lines of trucks, and gridlocked highways. Even with supply chain operating systems evolving at a rapid pace, these technologies exist in silos and miss one key element: aggregation to make sound business decisions. It has become apparent that GIS and Location Analytics are essential to help solve these supply chain problems. This presentation will focus on real world case studies on how GIS and Location Analytics solve asset tracking, berthing and warehouse space planning, routing, and fulfilling the role of decision support tool of choice for logisticians.

Title: GIS Fellowships: Elevating the GIS Program and Services at your Institution
Presenter(s): Maddy Mulder memulder@wm.edu, Lindsey Rogers larogers@wm.edu, Christina Sabochick casabockick@wm.edu, Shannon White
Organization: Center for Geospatial Analysis at the College of William & Mary
Time: 20 Minutes

Abstract:
A one-year Fellowship in a university GIS or Geography department is a unique opportunity for young GIS professionals. Fellows learn more about geospatial technologies through projects and provide a vital, supportive service to students, faculty and staff. The Center for Geospatial Analysis (CGA) at William & Mary offers a one-year, post-baccalaureate Fellowship program for GIS students following their graduation. At William & Mary, Fellows act as the first-line-of-defense to resolve technical problems, assist with instructional materials, and keep our center and lab open to build a geospatial community on campus. In this session, you will learn from the current CGA Fellows at William & Mary about how this type of Fellowship contributes to the mission of the CGA and the university and receive recommendations on how to establish this type of fellowship at your institution.

Title: GISCI & GISP Certification History, Process, and Future Directions
Presenter(s): Autumn Fitch, GISP & Stuart Blankenship, GISP
Organization: VAMLIS Executive Board
Acknowledgement: Anthony Spicci, GISCI, tspicci@gisci.org
Time: 60 mins

Abstract: This presentation will provide an update of the GISP Professional Certification process, provide an overview of GIS Certification Institute and its current operations, and briefly review the status of the GISCI Geospatial Core Technical Knowledge Exam and the 2019 Revised Blueprint now guiding the exam process. This presentation is ideal for current and potential GISPs and folks that want to learn more about the GISCI.

Title: GPS data integration – a new way to manage fleet maintenance
Presenter(s): Irma Houck, irmahouck@yahoo.com
Organization: PWCSA
Acknowledgments: Aniruddha Guha
Time: 20 Minutes

Abstract:
Have you ever wondered what is behind the sticker “Vehicle is monitored by the GPS device” placed on certain vehicles when you drive on the road? A few years ago the Service Authority implemented vehicle tracking devices and software for its vehicle fleet. In addition to the safety benefits, the collected vehicle related data has been leveraged for consumption in other systems to automate tasks, provide improved reporting capabilities, and display vehicle information spatially to assist in the decision making process.
Dell Boomi systems integration platform has been utilized to integrate Azteca’s Cityworks AMS asset management system with ESRI ArcGIS Server and the Fleetistics Geotab REST API. The integration periodically pulls device information from GeoTab, updates an attribute table in GIS, and based on work order history in Cityworks creates a work order for a vehicle following established business rules. The vehicle locations are periodically recorded in the GIS database. In the future this will be used to provide a map of vehicle locations at any given time to optimize incident response times.

Title: Let's talk about Cartography
Presenter(s): Jacob Thornton, jacob.Thornton@mbakerintl.com
Organization: Michael Baker International
Time: 60 Minutes

Abstract:

The definition and practice of GIS is constantly expanding, but ultimately it all comes back to maps. In this presentation we will look to some sources of cartographic inspiration, talk about what makes a great map, and discuss how you might continue moving towards cartographic excellence. This talk is aimed at GIS professionals that are steeped in GIS technology but may want a little help on the design side of map making.

Title: Leveraging ArcGIS Hub for Digital Infrastructure Design Delivery
Presenter(s): Bridget Wagner, bridget.wagner@hdrinc.com
Organization: HDR
Time: 40 Minutes

Abstract:
Infrastructure Ontario and Metrolinx are working together on delivering the Ontario Line, a proposed CA$10.9 billion rapid transit line in the City of Toronto officially announced by the Government of Ontario on April 10, 2019 with a completion date projected for 2027.

A technical advisory team, consisting of nearly 1,000 multidisciplinary staff from numerous agencies and engineering, design and environmental firms, was tasked with the development, design and digital delivery of the project.

In order to effectively organize staff, data, and tools across the large project team, the Geospatial and Information Management (GeoIM) team conceptualized and developed the online Ontario Line TA Planning Portal. Based on Esri's ArcGIS Hub cloud platform, the portal provides easy access to data and information via a suite of discipline-specific web applications for reviewing the latest 2D alignment, properties, utilities, environmental impacts, and 3D station design.

This presentation will discuss and demo the setup and configuration of the hub site and its various web application, the automation of the conversion processes for both the 2D and 3D design data into GIS, and the visualization and mesh of the BIM station data with the alignment and 3D city scape.

Title: Leveraging Change Detection - Keeping your datasets current using imagery & LiDAR
Presenter(s): Drew Meren, dmeren@quantumspatial.com
Organization: Quantum Spatial, Inc.
Time: 40 Minutes Presentation

Abstract:

As datasets age, it is important to maintain their currency. Whether it is impervious growth, land use change or erosion of waterways, monitoring changes is critical to providing appropriate services to your communities. Multi-date imagery and LiDAR in combination with advances in machine learning and more robust software, are being used to both identify where change is occurring and identify what sort of change is happening. The workflow that takes the identification of change through to map updates is complex and depends on the type of update wanted. Quantum Spatial in this talk will provide considerations and options available as you undertake these updates with your datasets.

Title: Location Intelligence for Food Equity (LIFE) Participatory GIS Project
Presenter(s): George McLeod, gmcleod@odu.edu
Organization: Old Dominion University
Acknowledgements: Chris Davis, Tom Allen, Nicole Hutton
Time: 20 Minutes

Abstract:
Researchers from Old Dominion University, in partnership with faculty from Eastern Virginia Medical School, Norfolk State University, and the Hampton Roads Biomedical Research Consortium, developed the Location Intelligence for Food Equity (LIFE) participatory GIS project to evaluate food equity and security in three Hampton Roads cities. The project team developed web mapping applications, built on a foundation of existing socioeconomic, food/health, and transportation geospatial data, for the purpose of eliciting new information on community food resources and areas of elevated food access concern from dozens of local and regional subject matter experts (SMEs). The LIFE team designed and convened a live virtual workshop using these web applications and multiple breakout rooms to guide SMEs in their contribution of food equity/security knowledge. The broad goal of this project is to strengthen community partnerships as we develop an innovative engagement platform for stakeholders to inform, analyze and visualize food equity and access disparities, and to improve services and response for healthy outcomes.

Title: Mobile Field Photo Collection and Processing
Presenter(s): Michael Hallock-Solomon, mhallock-solomon@vof.org
Organization: Virginia Outdoors Foundation
Time: 20 Minutes

Abstract:
The collection of georeferenced photos is critical during many field inspections and the automated processing of these images can be challenging. Due to limited options to download attachment-enabled online geodatabases and the inability to manipulate them once downloaded with an ArcGIS Desktop Basic license, it is neither straightforward nor easy to use photos in a desktop environment that were collected in the field using ESRI Field Maps. This presentation will describe one solution that leverages python scripts so that photos collected in the field using

ESRI Field Maps can be extracted and processed in ArcGIS Desktop using a Basic license. The result is a streamlined process for field photo collection that can be used on a large scale.

Title: NCDOT NPDES BMP Retrofit Development Program
Presenter(s): Scott Howell, showell@jmttg.com
Organization: JMT Technology Group
Time: 20 Minutes

Abstract:
The North Carolina Department of Transportation (NCDOT), as directed by its National Pollutant Discharge Elimination System (NPDES) permit must identify a minimum of fourteen (14) potential BMP retrofits per year. To facilitate these permit requirements, NCDOT enlisted the services of JMT to develop the GIS-based framework and associated workflows to be used to collect, store, review and display information about potential retrofit sites across the state.

JMT worked with NCDOT to design a geodatabase schema that stores potential stormwater retrofit opportunities in ArcGIS. Once the database was developed, JMT performed a statewide desktop analysis using data provided by NCDOT (outfalls, industrial facilities, etc.) and developed a Retrofit Investigation Areas data layer to be used for field investigations.

JMT developed a workflow for the field using the Esri field stack and is storing retrofit data in ArcGIS Online. Final tasks for the project include developing a retrofit site selection workflow report and providing training on the field applications to NCDOT staff.

Title: Onboarding your GIS for Next Generation 9-1-1 and Beyond: Gotcha's and Process Recommendations
Presenter(s): Matt Gerike, matt.gerike@vdem.virginia.gov
Organization: VDEM 9-1-1 & Geospatial Services
Time: 60 Minutes

Abstract:
Having GIS data ready in the Next Generation Core Systems (NGCS) for geospatial call routing is one of the key components of Virginia's move to NG9-1-1. While the path for "getting the GIS done" is a little different for everyone, nearly everyone in the Commonwealth is in the process or has completed onboarding and is transitioning to maintenance. This presentation balances the "gotcha's" that have made progress difficult for some with practices that have made the process smoother for others. While specific to the GIS component, the discussion has many parallels to project management best practices.

Title: Pixels, Points, & Precision
Presenter(s): Jason Sealy, jsealy@cyclomedia.com
Organization: Cyclomedia Technology, Inc.
Time: 40 Minutes

Abstract:
Cyclomedia captures accurate visual data from the environment around you and transforms it into valuable, actionable insights. This discussion will focus on how local governments are leveraging street-level imagery and LiDAR to bring the field to their employees' offices/homes.

Title: Redistricting Arizona: Next Generation ArcGIS COTS Technology
Presenter(s): Brian Kingery, Brian.Kingery@timmons.com & Parker Bradshaw, parker.bradshaw@timmons.com
Organization: Timmons Group
Time: 40 Minutes

Abstract:
Timmons Group and the Arizona Independent Redistricting Commission worked together to create a transparent process detailing the creation of Arizona's new Legislative and Congressional Districts for the 2020 voting cycle. The purpose of this presentation is to showcase the innovative use of ArcGIS technology and how that can be applied on a local level here in Virginia regarding community outreach and use of Configurable-off-the-shelf (COTS) technology.

Title: SIG: GeoMug
Presenter: Jason Sealy, jsealy@cyclomedia.com
Organization: Cyclomedia Technology
Time: 40 Minutes

Abstract:
The Geospatial Mid-Atlantic Users Group (GeoMUG) is a multi-disciplinary organization with a membership base of users applying Geographic Information System (GIS) technology and applications in both private and public areas. GeoMUG is committed to assisting members within its 121,000 square mile geographical extent (Pennsylvania, Delaware, New Jersey, Maryland, District of Columbia, Virginia, and West Virginia) to identify and educate users regarding GIS trends, Esri product development, local/regional applications, and events of interest. Please stop by our SIG meeting at VAGeoCon2022 to introduce yourself and learn more about this user group. We look forward to meeting you!

Title: State & Local Gov't GIS Managers discussion
Presenter: Eric Schmidt
Organization: Franklin County, VA & VAMLIS
Time: 40 Minutes

Abstract:
This will be an open discussion forum to exchange ideas and share experiences related to GIS in local government. This session is intended for those managing or participating in GIS at the local government level, and the discussion will be specific to the challenges and opportunities faced by those in that professional vertical.

Title: Streamlining Stormwater Structure Condition Assessments using GIS and a Progressive Web Apps (PWA)
Presenter(s): Chris Gerecke, chris.gerecke@timmons.com & Chris Lutz, chris.lutz@timmons.com
Organization: Timmons Group
Acknowledgement: Brent Payne - Loudoun County
Time: 40 Minutes

Abstract:
Loudoun County has developed a web-based geospatial solution called the Condition Assessment Tool (CAT) to enable standardized and timely collection of information for stormwater structures, in a way that is streamlined, easy to use and that supports compliance and reporting. The CAT is designed to help the County's stormwater engineers prioritize, distribute, assign, review and approve stormwater structure condition assessment that are inspected by contractors. The solution is map-based and includes a progressive web application (PWA) that enables field staff to locate structures and record the assessments in the field along with associated photos. The CAT tool also extends to the County's Public Works supervisors and crews to support the maintenance request workflows and contains several dashboards to assist with transparency and status reporting. The CAT solution eliminates tedious and expensive legacy inspection and maintenance workflows while enabling more real-time analysis and reporting of inspection data.

This presentation will include additional background on the project and a demonstration of the CAT solution from several different perspectives including the stormwater engineer, assessment contractor, public works supervisor, public works crew, and department leadership personas.

Title: Streamlining Workflows with AGOL applications

Presenter(s): Shonia Holloway, hollowaysm@cdmsmith.com & Kayla Cameron, cameronk@cdmsmith.com
Organization: CDM Smith
Time: 20 Minutes

Abstract:
Come learn how Utility organizations are using Esri's ArcGIS Online Platform to streamline legacy workflows. Some benefits of implementing data, maps, and applications in this platform include reducing the need for paper maps and forms and multiple hard-copy and digital versions of information. Examples will be provided for the processes used to implement Field Maps, Survey123, and Operations Dashboard solutions that not only streamline data management workflows but broaden accessibility of field verified and other critical asset data to larger audiences.

Title: The Chesapeake Polders - Using GIS in water management
Presenter(s): Willem Janssen wim@toledan.com
Organization: Toledan LLC
Time: 40 Minutes

Abstract:
Rising water levels present a severe threat to the cities of the Chesapeake Bay. Instead of a hasty retreat, there's an assertive alternative: drain the bay, gain rich lands.

This presentation explores the possibilities of GIS use in the field of water management, using the fictional new land of Chesapeake Polders as a point of departure. It's inspired by current practices in a country already below sea level - The Netherlands. The presentation includes a short introduction to water management, and data gathering, analysis, and modeling.

Willem Janssen was one of the first programmers of BOS, a dynamic flood modeling and simulation software. He lives in Virginia Beach and is the owner of Toledan LLC, a startup GIS consulting company and developer of a suite of GIS data management software.

Title: The Geographic Approach to Infrastructure
Presenter(s): Julia Wood, jwood@esri.com
Organization: Esri
Acknowledgement: Robert Rike, Esri
Time: 60 Minutes

Abstract:
Using the Geographic Approach of Understand, Plan, Act, and Measure, state and local governments can leverage geospatial data analysis to assess and improve Infrastructure.

Departments across Virginia are already using GIS to achieve organizational goals, and many of you might be thinking of how to apply this geospatial awareness to various Infrastructure initiatives. Please join us as we share success stories and triumphs, as well as resources to get started implementing GIS in new ways to improve Infrastructure resiliency throughout the state of Virginia.

Title: The Power of Collaboration: Leveraging ArcGIS Online as a collaborative learning and solutions driven tool

Presenter(s): Jennifer Ciminelli, s2jmcimi@vcu.edu & Dr. Cathy Viverette, cbvives@vcu.edu
Organization: Virginia Commonwealth University Center for Environmental Studies
Time: 40 Minutes

Abstract:
VCU Center for Environmental Studies collaborated with the VCU Office of Sustainability to catalog the urban forest of the VCU Monroe Park Campus. Students enrolled in a unique block course designed to teach students about urban ecology and applied spatial analysis. The course partnered with the Office of Sustainability and worked to build a data collection application, and collect tree location and attribute information. The information was used to calculate several ecological valuation parameters, and spatial analyses were undertaken to help prioritize future greening locations on the VCU campus, and in the surrounding areas. Students presented their final findings using ArcGIS Online Story Maps. This project is an example of how the power of ArcGIS Online can be used as a collaborative learning and solutions tool.

Title: Tracking drone usages and survey task orders statewide with webmap and Survey123

Presenter(s): Kun Dong, kun.dong@vdot.virginia.gov & Mia Li, mia.li@vdot.virginia.gov
Organization: VDOT
Time: 40 Minutes

Abstract:
Virginia Department of Transportation's Location and Design Geospatial Section has been involved in using Survey123 and ESRI web map applications as powerful tools for tracking and managing drone flights and surveying data. Two web applications were built for this purpose: the Task Order App, and the UAS (Unmanned Aircraft System) Flight Management App. The Task Order Web Application allows users to input different task boundaries for various survey activities associated with a project, including surveys, subsurface utility engineering (SUE), photogrammetry, and LIDAR. A customized KML file importing tool was also developed for users to upload KML files directly into the App for the project or task boundaries without manually drawing the geometries. By centralizing all tasks and showing projects spatially in a

single web application it allows better management practices of the overall projects across the entire state, and it allows managers to track the active projects easily and allocate resources more efficiently.
The UAS Flight Management App creates a system to manage drones' flights for VDOT. A Survey123 form was created to collect information such as planned flight date, flight height, approval decision, and safety information, and the flight events are shown on the map as points indicating their locations. Automated email flows were created from Microsoft power automate, which will send emails to VDOT UAS Manager automatically once a request is submitted to the system. A dashboard was also created to show the statistics of the flight events. It greatly improves the management efficiency for drones and it avoids repeated flight effort, as all the locations and dates of the flights completed are shown on one map.
Using the web map applications and Survey123 forms instead of different paper request forms streamlines the workflow and increases the efficiency in communication between local project managers, district consultants and central office coordinators.

Title: Using ESRI ArcGIS to Construct Fully Digital Stormwater Pollution Prevention Plans

Presenter(s): Jason Murnock, jmurnock@res.u, and Katie Clark, kclark@res.us
Organization: RES
Time: 20 Minutes

Abstract:
The National Pollutant Discharge Elimination System (NPDES), Section 402 of the Clean Water Act (CWA), mandates that all construction projects in the US greater than 1 acre of disturbance receive and abide by a Construction General Permit (CGP). Simply put, the intent of the CGP is to ensure that stormwater is properly managed and free of pollution before exiting the jobsite to downstream waterways. The EPA ultimately enforces these permit requirements and did so famously in the mid-2000s, having identified numerous violations during surprise audits at hundreds of active sites around the country. The largest owners of these sites, well-known big box store brands and national homebuilders, were issued fines in the tens of millions of dollars along with years of more stringent program requirements. Presently, violations of the CGP are fineable up to $32,500 per violation per day, and jail time is included for egregious violations.

Among permit requirements is a site-specific Stormwater Pollution Prevention Plan (SWPPP) that addresses erosion and sediment control (E&SC), stormwater management, and pollution prevention during construction. The SWPPP is critical to compliance, mandated to be readily available to project personnel throughout construction, and kept for at least three years post-construction. It is designed to be a living document and must be updated with pertinent changes throughout the project. Yet despite its paramount importance to a permit with severe consequences to infractions, the industry standard is a paper hard copy which is typically kept in a binder and housed within the construction trailer or an onsite mailbox.

RES has been assisting clients with their CGP compliance for twenty years in the Mid-Atlantic Region and has remained at the forefront of industry advancements. We have experienced the panic and frustration of our clients when their only hard copy SWPPP is compromised by outdoor construction activities, weather, vandalism, accidents, and other hazards.

Therefore, in 2015, RES elected to use web-based GIS (ESRI ArcGIS Online) to not only speed up our internal inspection process but to advance the concept of a digital SWPPP. Fundamentally, we geo-referenced E&SC plan sheets so that our inspectors could view the plans relative to their location onsite and add markups and corrective action items using ArcGIS Collector and ArcGIS Web Applications. Combining this concept with the ability to log site activities and job progress, and store documentation digitally, and RES is proud to have enabled a first-of-its-kind digital SWPPP with real-time mapping, able to evade most construction site mishaps while providing for all other requirements. We even applied for, and received, a US Patent for one of the internal aspects of the digital SWPPP.

Join us for a brief description of our digital SWPPP and how ESRI ArcGIS has enabled another layer to what the EPA terms “Next Generation” compliance.

Title: Utilizing Mobile Technology for Monitoring Agricultural Best Management Practices

Presenters: Stuart Blankenship, stuart.blankenship@dcr.virginia.gov & Nicole Keller, nicole.keller@dcr.virginia.gov
Organization: VA DCR
Time: 20 Minutes

Abstract:
The Virginia Department of Conservation and Recreation (DCR) offers tax credits and cost-share funds to Virginia producers implementing best management practices (BMPs) that will reduce nonpoint source pollution to the Chesapeake Bay. Cover crops are high-priority BMP and are utilized by most crop producers, even those not enrolled in DCR’s cost share program. To understand spatial trends in cover crop usage and voluntary (non cost-share) usage rates, DCR leveraged Esri Navigator, Esri QuickCapture, ArcOnline Dashboards, and other mobile applications to efficiently sample a statistically significant amount of cropland in the Chesapeake Bay Watershed. We will present methodology and lessons learned.

Title: Virginia Department of Wildlife Resources Environmental Assessments using Field Maps/Survey123

Presenter(s): Mallory Gill, mgill@jmttg.com
Organization: JMT Technology Group
Time: 20 Minutes

Abstract:
JMT supported approximately 175 Phase I Environmental Site Assessments (ESAs) for the Virginia Department of Wildlife Resources on the Eastern Shore of Virginia using Field Maps and Survey123 to streamline and modernize the inspection process. Converting a “pen and paper” inspection to a digital process expedites data collection and processing, minimizes human error, and standardizes data collected by inspectors. JMT created a web application for inspectors to perform their initial desktop review of parcel sites using historical aerials and topographic imagery. Once the desktop review was completed, JMT configured a workflow using Field Maps to locate the sites in need of inspection. A custom pop-up was also created to launch a pre-populated Survey123 form to complete the site assessment. Within Survey123, conditional logic was used to tailor the survey questions based on the findings in the field. This allowed inspectors to efficiently capture general site characteristics, photos of environmental liabilities, and map locations of environmental interest on the parcel. Lastly, JMT created a Survey123 report template to generate a user-friendly report for each parcel’s inspection results.

Title: Virginia Geographic Information Network (VGIN) Programs and Initiatives
Presenter(s): Joe Sewash, joe.sewash@vdem.virginia.gov
Organization: VDEM 9-1-1 & Geospatial Services
Acknowledgements: Gerry Bernhardt and Matt Gerike
Time: 60 Minutes

Abstract:
The Virginia Geographic Information Network (VGIN), a division of VDEM's 9-1-1 & Geospatial Services Bureau, provides enterprise GIS services and support for state agencies and localities across the commonwealth. This also extends to federal agencies, private sector, academia and citizens. This panel discusses how VGIN programs and initiatives benefit Virginia agencies, localities, and others.

During early 2020, the number of Virginia localities onboarding their GIS data into Next Generation Core systems rose dramatically, as did the number of questions about data and process. The Virginia NG9-1-1 GIS User Group started meeting virtually in July 2020 as a way to bring people across Virginia together to hear and discuss answers to questions encountered. VAMLIS gives us an opportunity to meet in person and discuss questions, problems, challenges, and solutions about the role of GIS in Next Generation 9-1-1 and beyond.

Title: Virginia NG911-GIS User Group Meeting
Presenter: Matt Gerike
During early 2020, the number of Virginia localities onboarding their GIS data into Next Generation Core systems rose dramatically, as did the number of questions about data and

process. The Virginia NG9-1-1 GIS User Group started meeting virtually in July 2020 as a way to bring people across Virginia together to hear and discuss answers to questions encountered. VAMLIS gives us an opportunity to meet in person and discuss questions, problems, challenges, and solutions about the role of GIS in Next Generation 9-1-1 and beyond.

Title: Washington Suburban Sanitary Commission (WSSC) Trunk Walk Manhole Inspection
Presenter(s): David Brooks, dbrooks@jmttg.com
Organization: JMT Technology Group
Time: 20 Minutes

Abstract:
JMT was recently awarded a contract to walk WSSC stormwater trunk lines, look for damage or exposed pipes and inspect manholes. To prepare for this work for JMT and its subcontractors built a series of field applications and back office processes to make the process easier and more efficient for field crews. Esri field maps was used to create an overall map of the infrastructure, streets, and parcels. This allowed the teams to easily see their area of responsibility and quickly locate the trunk lines and manholes. The manhole record then opened the survey application and prepopulated dozens of fields directly from the manhole feature class. The survey uses ESRI's Survey123 and is designed to match PACP and MACP standards. As crews finalize an inspection the data dashboard is updated.

With over 25k manholes to inspect this task will be ongoing for several years. This presentation will describe the process of reviewing the process, building and testing in ArcGIS Online and then moving the applications to an internal enterprise Esri portal for production.

Title: What's New in ArcGIS Online?
Presenter(s): Robert Rike, rrike@esri.com
Organization: Esri
Acknowledgement: Julie Wood, Esri
Time: 40 Minutes

Notes: Must be scheduled 3/29/22

Abstract:
Join us for a discussion of what's new in the world of ArcGIS Online! Learn how the new map viewer can help enhance and streamline your workflows. See what new and updated data has been added to The Living Atlas of the World, and learn how ArcGIS Online can enrich your own data. We'll also be exploring updates to apps such as ArcGIS Hub, ArcGIS Urban, and more!

Title: Why should we take time to plan?
Presenter(s): Shonia Holloway, hollowaysm@cdmsmith.com
Organization: CDM Smith
Time: 20 Minutes

Abstract:
Do you ever feel like you or your organization is caught in a rut? Or your organizational goals just seem out of reach? Then when you get there, the technology has changed already? Come learn why in this fast-paced technological world it's important for us as GIS professionals and leaders to not lose sight of the importance of when to plan, how to plan, and what to do with a plan. Let's take a look at these challenges through the unique lens of the GIS industry.

Title: Women+ in Geospatial Professional Network
Presenter(s): Jennifer Whytlaw jwhytlaw@odu.edu
Organization: Old Dominion University
Time: 20 Minutes

Abstract:
"Women+ in Geospatial is an international professional network that promotes gender-equity in the geospatial industry and academia. The impetus for the network began with a spontaneous call on Twitter one day before International Women's Day in March 2019 and has since burgeoned into a vibrant and active community with more than 3,500 registered members from all over the world and more than 8,500 followers on Twitter. The fast-growing pace of this community is a sign of the importance of providing a space where diversity-focused initiatives are used to inspire, unite, and empower women of all backgrounds. We are celebrating our 3 year anniversary this International Women's Day."

Title: Working together- Land Surveying and GIS
Presenter(s): Chris Jensen christopher.jensen@fairfaxcounty.gov, Kevin Wood and Reed Adams
Organization: The Virginia Association of Surveyors
Time: 20 Minutes

Abstract:
Surveying is a modern profession that utilizes and applies state of the art technology (UAV, LiDAR, CAD, Scanning, Total Stations), law, history, and mathematics to collect and apply data to solve problems and provide solutions for clients. By integrating this survey quality data into

GIS, more accurate and useful data can be applied. Join us for a brief presentation on how the different data surveyors gather can enhance GIS data.

Title: Working with Imagery in ArcGIS
Presenters: Tom Sweet, Esri Imagery Team Account Executive, Coty Welch, Esri Imagery Team Solution Engineer and Robert Rike, Virginia Account Executive
Time: 2 - 2.5 hours

Abstract:
Imagery and Remote Sensing content is coming at us all in greater quantities, at a higher velocity, from increasing numbers of sources and sensor formats. Exploiting this content brings Accountability, Transparency, Accuracy, responsiveness and more! The ArcGIS Imagery system of systems is an integrate able, scalable, solution adaptable to any environment regardless of content life cycle. Most importantly it leverages raw unorganized content by transforming it to organized content and then exploits it to produce knowledge and ultimately the wisdom to make informed decisions. The workshop will focus on Imagery Management capabilities of the ArcGIS System and include a combination of presentation information and live demonstrations. Topics included in the workshop will include Planning, Management, Execution, Analysis and dissemination of Imagery from UAVs; options for managing Imagery Libraries and analysis and feature extraction work flows. New solution capabilities provided with Site Scan, Image for ArcGIS options and solution deployment patterns will also be discussed.