

## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Wednesday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Lussi A

**Session Title:** *Spatial prioritization of invasive species management and survey efforts*

**Main Presenter:** Amy Conley; New York Natural Heritage Program

**Abstract:**

With limited resources available for invasive species management, it is essential to focus those resources where they will have the highest potential impact. This could be in areas of high existing biodiversity, where a new invasion could devastate rare or particularly high quality habitat; or in areas more prone to invasive spread, where a new invasion has a higher probability of initially taking hold. The New York Natural Heritage program developed a set of statewide spatial layers (rasters, 30 meter resolution) to help conservation partners decide where to focus their efforts when surveying and managing for invasive species. The model incorporated data about components of ecological significance, priority protected lands, and a variety of anthropogenic stressors linked with invasive species spread. The synthesis layer identifies areas predicted to have high value natural habitat that are also prone to new invasive species populations and dispersals. It can be useful for managers to quickly highlight those areas with the most ecologically valuable habitat at the highest risk from invasive species. To allow managers and planners more flexibility in identifying priority areas, separate layers were also produced that highlight the risk of spread by invasives, as well as areas of highest ecological significance, as described by rare species. The data are publicly available and can be accessed through the New York iMapInvasives website.

**Session Day:** Wednesday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Lussi C

**Session Title:** *Cities RISE: Breaking data silos and empowering cities to address their greatest housing challenges*

**Main Presenter:** Andrew Kieve; Tolemi

**Abstract:**

Earlier this year, the Office of Attorney General Eric T. Schneiderman launched the Cities for Responsible Investment and Strategic Enforcement ("Cities RISE") program, including investments totaling more than \$10 million over the next two years to cities and towns across New York State. The program aims to address and transform blighted, vacant, or poorly maintained problem properties through the use of housing and community data from various governmental sources. Cities RISE advances Attorney General Schneiderman's comprehensive strategy for helping New York families and communities rebuild from the housing crisis.

As part of Cities RISE, each participating city and town has been granted a license for the Building Blocks mapping and data aggregation software. This application unifies data in real-time from across siloed departments and sources, and gives governments an easy-to-use analytics tool to empower data-driven decision-making. By bringing together data from code enforcement, police, tax, and more into a map-based web portal, city leaders are unlocking the power of their data and building resiliency in the wake of the housing crisis.

This session will highlight (a) case studies of cities that are using spatial data to drive strategic code enforcement & transparency, (b) the role that GIS professionals are playing in the implementation & adoption of the platform, and (c) the underlying technology that enables integration of data from across disparate sources within governments.

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**Session Day:** Wednesday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Lussi B

**Session Title:** *Extracting 3D Features from LiDAR Data*

**Main Presenter:** David McKittrick; Blue Marble Geographics

**Abstract:**

As LiDAR data permeates the mainstream, its use and utility is becoming much more widespread and diverse. As a spatial commodity, LiDAR is the raw material from which a wide variety of 3D datasets are generated. Using a series of customizable algorithms applied to the geometric structure and other attributes of the point cloud, buildings, vegetation, utility cables, and other features can be effectively identified, classified, and ultimately extracted into vector models of the features they represent. Subsequently ground points can be isolated and gridded to form an accurate terrain model as the basis for precise volumetric calculation, terrain analysis, and change detection. In this presentation, we explore the workflow whereby features are identified and extracted from LiDAR data. We walk through the procedures for point cloud filtering and noise removal; identification and automatic reclassification of ground points; 3D building model creation; height calculation of forest canopy and individual trees, and delineation of above-ground utility cables.

**Session Day:** Wednesday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Legends

**Session Title:** *Geospatial Programming in GIS Education*

**Main Presenter:** Wende Mix; SUNY Buffalo State

**Abstract:**

The era of point-and-click GIS education is fading. Educators are recognizing the importance of programming to truly understanding basic GIS concepts about spatial data and data analysis. This presentation reports on curriculum at SUNY Buffalo State where geospatial programming is introduced in the ArcGIS desktop environment using python, using python stand-alone modules including Geopandas, PYSAL, etc. and using R. Specific examples of programming activities for visualization, manipulation including data quality checks and cleaning, and spatial analysis are presented. Examples include accessing and analyzing open data as well as using APIs' such as the Census API. The pros and cons of these varied approaches are discussed as well as how the geospatial programming curriculum supports interdisciplinary data analytics/data science education at SUNY Buffalo State.

**Session Day:** Wednesday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Lussi C

**Session Title:** *Data Analytics and Visualization in Public Safety*

**Main Presenter:** Steve Campbell; NYS Office of Information Technology Services

**Abstract:**

The volume of data generated and stored by the day to day operations of public safety agencies is staggering. Public Safety executives need efficient and meaningful ways to quickly view and analyze information which is automatically rolled up and summarized. This presentation will help participants understand the data analytics thought process, tools, and practices currently being developed in the Office of Information Technology Services Public Safety Cluster.

## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Wednesday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Lussi B

**Session Title:** *Urban Drainage Modeling for Storm Water Design using QL2 LiDAR*

**Main Presenter:** Benjamin Houston; GroundPoint Technologies, LLC

**Abstract:**

Airborne LIDAR data for topographic mapping is becoming more and more ubiquitously available across NYS. Recently the USGS has targeted Quality Level 2 (QL2) as having the broadest applications and value for the cost of collection. Once collected, most of this data is available to GIS and design professionals at no additional cost. Several urban drainage projects have demonstrated that QL 2 LiDAR data can be used to characterize surface flows across urban and suburban environments sufficient to support storm water design criteria. Results will be presented based on a project conducted in Ulster County NY.

This session will also explore the relationship between design scale mapping requirements (i.e., 1"=20', 1"=40', 1"=100', etc.) and the most recently adopted geospatial data accuracy standards governing the use of high resolution aerial imagery and laser scanning. The latest ASPRS Standards for Geospatial Data Accuracy help to resolve ongoing confusion over National Map Accuracy Standards and current digital data products.

**Session Day:** Wednesday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Legends

**Session Title:** *Building a Geospatial Pipeline in Western New York: Sample Student Work*

**Main Presenter:** Jonathon Little; Monroe Community College

**Abstract:**

With support from the National Science Foundation Advanced Technological Education program, Monroe Community College has built a geospatial career pipeline between high schools, our GIST (Geospatial Information Science and Technology) Certificate program, 'Get the GIST,' and the geospatial workforce. To build awareness of geospatial technology in local high schools, we offered professional development to teachers in 2015 and 2016. Five teachers will have begun offering introduction to GIST for dual credit by fall 2017. GIST courses aligned to local workforce needs and the Geospatial Technology Competency Model (2014) have been implemented: Introduction to GIS, Cartography, Remote Sensing, Advanced GIST, and a Capstone Course. A student currently enrolled in the GIST program will highlight some of the work in his portfolio. He is using cartography and spatial analysis to improve communication and augment decision making in the field of watershed management, in order to reduce nutrient loading in local watersheds. By developing a geospatial pipeline among high schools, our college, and the industry, the program will be able to meet the local and regional industry needs.

**Session Day:** Wenesday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Lussi A

**Session Title:** *Commercial Fishing and Competing Ocean Uses*

**Main Presenter:** Melissa Albino-Hegeman; NYS Department of Environmental Conservation

**Abstract:**

New York's oceans serve many commercial and recreational uses. As we expand our use of the ocean, how do we make sure these new uses don't negatively impact traditional uses, such as commercial fishing? New York State Department of Environmental Conservation (NYSDEC) is responsible for providing input to help mitigate any these negative impacts. In order to do this, NYSDEC is pulling together spatial information on how the commercial fishing industry uses New York's coastal waters, beginning with the National Oceanic and Atmospheric Administration's (NOAA) Observer data. This data contains information on the fishing effort and where it occurred. The data is collected by a NOAA employee and includes beginning and endpoints for both mobile and fixed gear, such as trawls or nets. Data from 2011-2016 was used to visualize spatial patterns in commercial fishing by species, gear type and vessel size. This was used to identify areas with the least potential impact on the commercial fishing industry.

## 2017 NYGeoCon Session Abstracts

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**Session Day:** Wednesday

**Session Time:** 10:00am - 10:30am

**Meeting Room:** Lussi C

**Session Title:** *Mapping the re-purposing of two rural towns for New York City's water supply watershed*

**Main Presenter:** Neil Curri; Vassar College

**Abstract:**

New York City began creating its distant watershed with the construction of the Croton Dam at Yorktown in 1837. Over the next 150 years, subsequent reservoirs would displace thousands from homes and businesses by submerging land and by regulating land uses within the larger watersheds. In this study, we attempt to measure the impacts of the New York City watersheds on two rural communities (Town of Olive in Ulster County and Town of Kent in Putnam County) in terms of lost land for businesses, farmsteads, villages, roads, etc. A series of maps show how the watershed permanently changed the composition and character of both communities, and encourage new dialogue regarding the acceptable costs of water management programs. There are many challenges when using archival sources to generate historic geographic analyses, but the long-term perspectives that can be generated (here maps show over 100 years of changes) are well worth the added effort.

**Session Day:** Wednesday

**Session Time:** 10:00am - 10:30am

**Meeting Room:** Lussi B

**Session Title:** *LiDAR for the Urban Landscape: How and Why*

**Main Presenter:** Timothy Morrissey; City of New York, DoITT GIS

**Abstract:**

The City of New York has realized the importance of developing accurate and current elevation and land cover data in support of resiliency and green infrastructure initiatives. In 2010, the City acquired high accuracy, bare-earth processed Topographic LiDAR data for the full extent of New York City. This data was used to support a variety of projects such as coastal storm and sea level rise inundation, flood risk assessment, and mitigation, green infrastructure and tree canopy planning.

In 2017, the City has embarked on a project to collect new Bathymetric as well as updated Topographic LiDAR data. This new data will support City operations in the form of data analysis, policymaking, resiliency and environmental planning. In addition, the use of the 2010 and 2017 data will be used to analyze how Hurricane Sandy as well as human interventions have recently altered the City's landscape. Since 2010 the evolution of Aerial Bathymetric LiDAR (TopoBathy) has allowed for elevation data below certain depth of water in and around the City. In the Spring and Summer two aerial missions were set out onto the City to collect both the Topographic and TopoBathy LiDAR data. Collection was captured from 2 different planes, separate crews and sensors. Coordination with the City, FAA, media, the weather and contractors required well organized procedures and systems between all involved. This abstract will look into these tasks during the scope development, coordination and acquisition stages.

The remaining project continues with eventual production and associated derived products, which include land cover, tree canopy change, and Digital Elevation Models will provide an unprecedented opportunity to analyze these changes and understand how New Yorkers are affected by them, and support future resiliency planning efforts. The New York City Department of Information Technology & Telecommunications (DoITT), the Mayor's Office of Recovery and Resiliency (ORR), and the Department of Parks and Recreation (Parks) have contracted with Applied Geographics, Inc. (Boston, MA) to lead a team of experts, which includes Quantum Spatial, Inc. (Dulles, VA), and the University of Vermont's Spatial Analysis Lab.

## 2017 NYGeoCon Session Abstracts

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**Session Day:** Wednesday

**Session Time:** 10:00am - 10:30am

**Meeting Room:** Lussi A

**Session Title:** *Delineating Forests with Terrain Models*

**Main Presenter:** Robert Wills; Dutchess County Planning & Development

**Abstract:**

Existing land cover data like that from the US Geological Survey's National Land Cover Data, is low-resolution raster (grid) data, with pixels typically 30 meters a side. Because of the coarse nature of these data, they are not suitable for parcel-based analysis, and that don't mirror the true outline of forest edge, both of which were requirements for the Cary Institute.

The initial effort to draw all the forests used air photo interpretation techniques on Dutchess County's 2000 aerial photography, with rules developed by Cary for what is or isn't "forest". Eight technicians from both Cary and Dutchess County's Planning and Health Departments completed this work over a couple of months. With a new Lyme Disease research study currently underway at Cary, Dutchess County was asked to update the forest data. Without staff resources to complete the project as it was initially done, GIS techniques were employed on data the county acquired in 2014. By subtracting a layer representing elevations of the earth's surface (digital elevation model) from a layer representing height of features above ground (buildings and vegetation) the height of vegetation was determined, after other techniques to clean up non-vegetative surfaces (building heights) were applied. The original Cary forest-definition rules were employed to eliminate most irrelevant forest areas (single and small areas of trees), resulting in a layer comparative to the original 2000 data. This is a more accurate representation of all forest areas without subjectivity and variability (and error) inherent in a technician's interpretation of aerial photography.

**Session Day:** Wednesday

**Session Time:** 10:00am -10:30am

**Meeting Room:** Legends

**Session Title:** *New York Giant Traveling Map: Hand-on/Feet-on Geography Fun*

**Main Presenter:** Susan Hoskins; Cornell University

**Abstract:**

Explore New York State on foot using a new geography teaching tool from National Geographic. The New York Giant Traveling Map is 15' x 20' of feet-on fun for youth AND adults while learning map reading basics - scale, orientation, geographic reference and map symbols. The floor map activities can be adapted to highlight New York's unique physical geography and history. Educators can borrow the map from the New York Geographic Alliance.

**Session Day:** Wednesday  
Ballroom

**Session Time:** 12:00pm - 1:00pm

**Meeting Room:** Main

**Session Title:** *New York State Fair Drone Film Festival Award Winning Film Screening*

**Main Presenter:** Susan Nixon; CITY OF ITHACA

**Abstract:**

This exciting session will be an onsite screening of the award-winning films from the first ever NYS Fair Drone Film Festival. We will be highlighting the winners of the following categories:

\* Corporate/Industrial/Business: Videos that feature drones and the work they are doing

\* New York State Drones: Videos created completely in New York State

\* Healthcare: Videos highlight how drones are being used to improve the delivery of health services

Participants will see how drones are utilized to overcome barriers in the terrain and capture footage using this cutting-edge technology.

## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Wednesday

**Session Time:** 3:00pm - 3:30pm

**Meeting Room:** Lussi C

**Session Title:** *Adapting to a Cloud Based GIS at a Small Liberal Arts Institution*

**Main Presenter:** Dakota Casserly; St. Lawrence University

**Abstract:**

GIS has a long history at St. Lawrence University (SLU) in Canton, NY. The GIS Program, initially housed in the Geology/Geography Department in the 1990s, transitioned to the University Libraries Department in 2000 and continues to serve all GIS needs at SLU. Our services range from the spatial foundations taught in our introductory GIS classes to projects that serve the sciences, humanities, non-academic departments, student and local community needs. We continue to operate with ArcGIS Desktop as our primary GIS platform, however, we are, pivoting to include additional GIS resources, such as: ArcGIS (Online, Server, Pro), Google Earth Engine, etc. As the GIS landscape evolves so do we. We will highlight a handful of GIS projects that showcase how SLU is adjusting to a changing world. One such project, Mapping the Laurentian Legacy (MLL), is a multi-year cooperative project between SLU's Donor Relations and the GIS Program to map and manage, donor named spaces on campus with Desktop, Pro, AGOL and Collector. Other projects, using a similar software approach as above, support environmental studies faculty monitoring local amphibians, tracking climate change in Alaska, and assessing biomass conditions in Northern New York State. Also, student involvement in our projects, on a variety of levels, is a key component of GIS at SLU.

**Session Day:** Wednesday

**Session Time:** 3:00pm - 3:30pm

**Meeting Room:** Lussi C

**Session Title:** *New York Counts Everyone Because Everyone Counts*

**Main Presenter:** Frank Winters; NYS ITS

**Abstract:**

Once of the most basic tenets of our democracy is counting our population and providing representation based on those counts. As the US Census Bureau prepares for the 2020 census count, the State and local governments have a role to play. This presentation will address the Local Update of Census Addresses (LUCA) process and resources available to make participation in LUCA efficient. LUCA is all about identification of addresses which would otherwise be unknown to the Census Bureau. The State and local governments will also be conducting outreach to encourage our citizens to fill out the census forms they receive.

**Session Day:** Wednesday

**Session Time:** 3:00pm - 4:00pm

**Meeting Room:** Lussi B

**Session Title:** *A Panel Discussion of LIDAR Project Life Cycles in Government Agencies*

**Main Presenter:** Craig Neidig; USGS

**Abstract:**

Representatives from Federal, State, County, and Local agencies will each briefly discuss various portions of LIDAR project life cycles. This panel discussion will cover from an overall program view for updating LIDAR coverage statewide to specific requirements for a County or City level project. The panel will discuss the 3DEP program, active and planned projects, managing a project, and uses for the final products. As time allows, the panel will answer questions from the audience.

## 2017 NYGeoCon Session Abstracts

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**Session Day:** Wednesday

**Session Time:** 3:00pm -4:00pm

**Meeting Room:** Lussi A

**Session Title:** *Drone Mapping Panel Session*

**Main Presenter:** Benjamin Houston; GroundPoint Technologies, LLC

**Abstract:**

This 90-minute panel discussion will cover a range of UAS implementation topics such as startup, equipment, staff training, field operations, data processing and delivery, and software. Come prepared to hear about tips for success, pitfalls to avoid, and case studies on projects that went well and projects that maybe didn't go so well and why. This moderated session will include questions from the moderator as well as open questions from the audience.

**Session Day:** Wednesday

**Session Time:** 3:30pm - 4:00pm

**Meeting Room:** Lussi C

**Session Title:** *Reintroducing CUGIR*

**Main Presenter:** Keith Jenkins; Cornell University

**Abstract:**

CUGIR, the Cornell University Geospatial Information Repository, has hosted geospatial data for New York state since 1998. After two decades in service, the CUGIR infrastructure has been retired and completely rebuilt using several open source components: PostGIS, GeoServer, Solr, and GeoBlacklight. This presentation will discuss the goals of the rebuild, and demonstrate how the new CUGIR website provides a powerful discovery interface combining keyword- and map-based search. We'll see how search results can be filtered by facets such as topic, year, author, collection, or data type; how individual datasets can be previewed on the website, which allows even non-GIS users to explore the data on a map; and how to use WMS and WFS services to connect to CUGIR data without even downloading a zip file.

**Session Day:** Wednesday

**Session Time:** 3:30pm - 4:00pm

**Meeting Room:** Lussi C

**Session Title:** *DIGGING FOR DATA: Finding Census Data and Shapefiles in One Place.*

**Main Presenter:** David KRAIKER; US CENSUS BUREAU

**Abstract:**

This presentation shows how to look for American Community Survey data within the American Factfinder portal; which datasets to use (5-year, 1-year), and how to download shapefiles within the portal. Instructor will give live demo within the website. Instructor will also show how to construct choropleth maps within the portal so that user my see what he will have before downloading into GIS.

## 2017 NYGeoCon Session Abstracts

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**Session Day:** Thursday

**Session Time:** 8:30am - 9:00am

**Meeting Room:** Lussi C

**Session Title:** *Holding the Line Yet Pushing the Boundaries*

**Main Presenter:** Karen Henry; NYS ITS GIS Program Office

**Abstract:**

The NYS GIS Program Office (GPO) is increasing its efforts to update the content and improve the accuracy of its municipal boundaries data. This data is currently being used by municipalities to validate and update the statewide address points and street centerline datasets. It is increasingly being used in computer aided dispatch systems and will soon be a critical GIS layer for the deployment of Next Generation 9-1-1 systems. Most recently, the GPO has begun working with the US Census Bureau to update TIGER files in preparation for the 2020 census. Many changes are dictated by property annexation and village dissolutions, while others involve improving alignments and integrating with other framework data layers. In every case, the work is done most accurately when we partner with municipalities to incorporate local knowledge and GIS data. This presentation will provide an overview of how this work is being accomplished and why it is mutually beneficial for municipalities and New York State to partner in this effort.

**Session Day:** Thursday

**Session Time:** 8:30am - 9:00am

**Meeting Room:** Lussi A

**Session Title:** *PlowTrax: Real-Time Monitoring of Rochester's Snow Removal Operation*

**Main Presenter:** Michael Ross; City of Rochester, NY

**Abstract:**

PlowTrax is the City of Rochester's snow removal tracking application. It monitors the location of 150 plows in real time, and tracks which streets have been plowed. It's used by our snow operations team, 311, and the public. Use of the application during snow events has dramatically improved both internal communication and public communication about the progress of the snow removal operation. It has also almost eliminated the occurrence of missed streets.

PlowTrax was developed in house by the City IT Department, using ArcGIS Server, the JavaScript API, GeoEvent Extension, and Geoprocessing in Python. It integrates with AVL systems from Reltronics and Sprint GeoTab.

This presentation will review application functionality, the design process, and high-level technical design.

**Session Day:** Thursday

**Session Time:** 8:30am - 9:00am

**Meeting Room:** Lussi B

**Session Title:** *Techniques for Leveraging Survey123 and ArcGIS Online as a Mobile Data Collection Platform*

**Main Presenter:** Larry Spraker; VHB

**Abstract:**

Survey123 is a powerful, form-centric, mobile data-collection application that is completely integrated with ArcGIS Online. This presentation will review a variety of techniques for leveraging Survey123 in the field, how it contrasts with Collector, as well as several system architectures and workflow strategies for accessing, reviewing, and processing the survey data in the back office using ArcGIS Online.



## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Thursday

**Session Time:** 8:30am - 9:00am

**Meeting Room:** Legends

**Session Title:** *Geospatial Development in Government Human and Social Service Programs*

**Main Presenter:** Sam Wear; Westchester County GIS

**Abstract:**

While recognizing the many geospatial technology advancements made over the past 30 years, one area of local government which continues to see limited deployment in GIS applications is in human and social services. The reasons for the slow uptake are many, some of which are obvious and justifiable, but evolving opportunities for broadening GIS development in government social services programs are promising based on advancements in web mapping, vehicle and mobile technologies, increased data availability, and a growing understanding among administrators in these program areas on the value of building geospatial capacity.

With appropriations that often dwarf other local government department operating budgets, human and social services include broad program areas such as public assistance, welfare, special needs, disability programs, housing and homeless services, child protection services and just as important, the many contracted services governments use to assist in administering programs.

This presentation will provide an overview of ongoing discussions and work with Westchester County GIS towards building GIS/geospatial in human and social services program areas. While government human and social service programs may be phenomenally different in structure and administration across New York State, many of the issues and potential GIS/geospatial solutions are conceptually similar.

**Session Day:** Thursday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Lussi B

**Session Title:** *The Road to Pro and beyond: Understanding Esri Licensing in 2017*

**Main Presenter:** Kate Buss; Bergmann Associates

**Abstract:**

Esri is currently offering more software and deployment scenarios than it ever has before, but with all the options comes confusion on how all these pieces of software fit together, especially when it comes to licensing. This presentation attempts to explain the current Esri licensing structure and how ArcGIS Desktop, ArcGIS Pro, Portal, and ArcGIS Online licenses and users can be configured and managed on the new Esri Platform. This presentation will explain what additional software you have access to given your current level of desktop and server subscriptions. You will also learn how to manage ArcGIS Desktop and ArcGIS Pro licensing concurrently.

In addition, this presentation explains Esri's Named User model and what user entitlements are included with your software maintenance. We will also discuss the user options if you already have ArcGIS Online but are now interested in implementing Portal for ArcGIS.

**Session Day:** Thursday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Lussi C

**Session Title:** *Street and Address Maintenance Program Update*

**Main Presenter:** Craig Fargione; NYS GIS Program Office

**Abstract:**

The Street and Address Maintenance (SAM) Program has now been in maintenance mode for a little over two years. We continue to work with existing partners as well as adding new partners to help us maintain our statewide Street and Address data.

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This presentation will focus on many ongoing SAM Team activities including pursuing additional address verification methods through new and existing partnerships, transforming SAM data into various formats for multiple 9-1-1 Computer Aided Dispatch (CAD) systems, and adding and populating new fields to the schema to keep the data NENA compliant and make the transition to Next Generation 9-1-1 (NG9-1-1) easier for everyone. Some SAM team members have also been involved in discussions on using the SAM Address Point data to help with LUCA and the upcoming 2020 Census. The presentation will discuss the potential for this use and how it makes it even more important that the SAM data be as accurate as possible. Lastly, with all this work on Streets and Address Points, we'll talk about the continual improvements seen in our publicly available geocoding service and the future upgrade to a newer version.

**Session Day:** Thursday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Legends

**Session Title:** *GIS for Business Intelligence: Getting Cloud Connected*

**Main Presenter:** Ed Farrell; Data Vision Group (DVG)

**Abstract:**

For any company who sells and distributes products to domestic and international retailers, locational knowledge is key. The presentation will focus on a geo-enabling project for a cosmetics company with the goal of transforming from spreadsheets to a GIS driven environment for business data visualization and analytical decision making for sales and operations. Business intelligence (BI) systems have matured over the past several years, and have become a complementary system to GIS. Enhancing BI data with map visualizations and spatial analytics enables organizations to make insightful and sound business decisions. We will discuss how a cloud GIS was connected to an on-premise data warehouse using automation and ETL tools (e.g. Anaconda Python, Azure PaaS). The GIS automation/ETL involves multiple geoprocessing steps, logging/alerting, and ultimately supports ArcGIS Online cloud GIS maps and applications and future applications. We will also focus on the process and impact of the GIS transformation for the company.

**Session Day:** Thursday

**Session Time:** 9:00am - 9:30am

**Meeting Room:** Lussi A

**Session Title:** *Blended Technology to Modernize Local Code Enforcement.*

**Main Presenter:** Sheri Norton; Ontario County

**Abstract:**

Ontario County approached conversion of hard copy code enforcement to digital using complementary applications. ESRI's Survey123 for field inspections stored via Portal to the County's enterprise system is combined with Latitude Geographics's Gecortex Essentials as a central 'hub' for building permit management.

**Session Day:** Thursday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Lussi A

**Session Title:** *Southampton Online Solutions (SOS) - a service request application*

**Main Presenter:** Ross Baldwin; Southampton Town

**Abstract:**

SOS is an online tool that provides the resources for citizens to submit service requests. It allows town staff and officials to play a more integral role in public services, routing neighborhood concerns to the right person, with the right solution.

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We wanted to make a super easy-to-use interface for the public, while providing an efficient way for Town staff to follow up with requests. How we sold the concept to town staff took a delicate approach in order to avoid the concern of an added responsibility. A number of Departments already had their own online complaint forms. SOS brought all of these together into a centralized location, allowing the Town to be able to make intelligent decisions.

**Session Day:** Thursday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Lussi C

**Session Title:** *The Role of GIS in Next Generation 9-1-1 (NG9-1-1)*

**Main Presenter:** Cheryl Benjamin; NYS GIS Program Office

**Abstract:**

GIS has been playing a role in 9-1-1 Computer Aided Dispatch (CAD) map displays and vehicle routing applications for many years but Next Generation 9-1-1 (NG9-1-1) elevates the use of GIS in 9-1-1 to a whole new level. This presentation will explain what NG9-1-1 is, the role of GIS in NG9-1-1, and why GIS data completeness and accuracy is so critical in a NG9-1-1 system.

Attendees will be provided with a basic understanding of 9-1-1 call flow today and how GIS will be used in future NG9-1-1 call processing. A brief overview of the National Emergency Number Association (NENA) NG9-1-1 GIS Data Model Standard that defines the GIS data layers used in a NG9-1-1 system will also be included. GIS professionals who develop and maintain GIS data for use in 9-1-1 or are partnering with the NYS GIS Program Office to maintain the NYS Streets and NYS Address Points data will better understand how NG9-1-1 requirements impact their data maintenance activities.

**Session Day:** Thursday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Legends

**Session Title:** *Point of Interest (POI) Data- Understanding your Footprint*

**Main Presenter:** Bill Loges; Infogroup

**Abstract:**

Using POI data, public agencies use this information for:

- Critical Infrastructure, locating anchor institutions, emergency planning(verify addresses or business types) locate the elderly, large families or households with ailments.

- Locating and identifying industries and sales plus employment numbers. A town or county can determine growth.

- through GIS, POI data will allow anyone to identify hotels, restaurants, theme parks, theaters, gas stations.

Presenters will demonstrate how State, County, and Municipalities use POI data in multiple capacities.

**Session Day:** Thursday

**Session Time:** 9:30am - 10:00am

**Meeting Room:** Lussi B

**Session Title:** *Using Survey123 to Inventory Uncontrolled Crosswalks and Signalized Intersections*

**Main Presenter:** Robert Zitowsky; NYS Department of Transportation

**Abstract:**

Survey123 for ArcGIS is a powerful, form based, mobile data collection application that is integrated with ArcGIS Online. In this presentation, Larry will explain what Survey123 is and how it is different from ArcGIS Collector. Robert will discuss how NYSDOT leveraged Survey123 to collect data on uncontrolled crosswalks and signalized intersections. Lastly, Robert and Larry will mention some best practices for those looking to implement a Survey123 survey.

## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Thursday

**Session Time:** 10:30am - 11:00am

**Meeting Room:** Lussi B

**Session Title:** *Preparing for future climate: The Hudson River Flood Impacts Decision Support System*

**Main Presenter:** Kytt MacManus; Columbia University CIESIN

**Abstract:**

The data, maps, and information in the Hudson River Flood Impact Decision Support System are provided to illustrate the scale of potential flooding in the Hudson River Valley under different sea level rise and storm scenarios. The information can help municipal and regional planners prepare for future floods.

The sea level rise scenarios available within the tool range from 0 to 6 feet above the base mean sea level of 1983-2001, a standard sea level used by the National Oceanic and Atmospheric Administration (NOAA). Users can choose from storm scenarios ranging from the 5-year to the 1000-year flood. Critical infrastructure such as transportation and emergency services can be viewed along with the flood maps, to identify those that could be vulnerable to flooding in the future.

A unique aspect of the information presented here is that it includes freshwater flowing from tributaries into the Hudson, in addition to tides, storm surges, and sea level rise. This means that it captures the effects of rainfall to the extent possible, which can be particularly significant in the upper parts of the Hudson, just below the Troy dam. Current projections from the updated ClimAID report still show great uncertainty in future rates of sea level rise, with projections for the year 2100 ranging from 1.25 to 6.25 feet near New York City. Tools such as this Hudson River Flood Impact Decision Support System can help plan even in the face of uncertainty.

**Session Day:** Thursday

**Session Time:** 10:30am - 11:00am

**Meeting Room:** Legends

**Session Title:** *GIS Resources for Highway and Asset Management*

**Main Presenter:** Erik Backus; Clarkson University

**Abstract:**

This session will demonstrate practical applications of GIS for asset management. Through the example of a project conducted by Clarkson University and the Town of Sherburne, NY, we will show the kinds of improvements that GIS can help accomplish. This session will be partially hands-on, with participants asked to collect information using their smart phones, live in the session making for an interactive presentation. We will also present the results of work accomplished in the Town of Cazenovia, the City of Watertown, the City of Ogdensburg, and the Town of Sullivan, all making improvements in the operations of these municipalities.

**Session Day:** Thursday

**Session Time:** 10:30am - 11:00am

**Meeting Room:** Lussi A

**Session Title:** *Advancements in GIS for Local Governments*

**Main Presenter:** Mickey Dietrich; NYS Tug Hill Commission

**Abstract:**

Advancements in GIS and GPS technology have helped to break down barriers that used to exist for local governments. This presentation will show you how the NYS Tug Hill Commission and some of their communities have utilized GIS applications such as GIS Cloud, PostGIS, and QGIS to help local governments in the Tug Hill Region advance their GIS capabilities. Also, this presentation will highlight the importance of the advancements in Bluetooth GPS technologies in helping these local governments overcome data collection barriers. Partnerships also played a key role in making GIS for these local governments a reality.

## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Thursday

**Session Time:** 10:30am - 11:00am

**Meeting Room:** Lussi C

**Session Title:** *Developing a Recreational Data Mobile Crowd-sourcing Application: Tell us Where and How You Play!*

**Main Presenter:** Jeffrey Herter; New York Department of State, Office of Planning & Development

**Abstract:**

The NY Department of State, Office of Planning and Development (OPD), in partnership with Stone Environmental Inc., has developed two applications for gathering recreational use and conditions data from recreators in New York State. These applications will provide OPD with historically difficult to capture recreational use data that can be incorporated into offshore, coastal, and inland decision making and planning efforts. Conference participants will learn about app development processes, functionalities, and data uses.

OPD has developed two ways of capturing recreation data: 1) a downloadable mobile app that is contributed to, and populated by, recreation users in New York. Users are able to tag their location and fill out a short survey regarding their recreation activity and experience and upload images and videos, and; 2) opportunistically harvesting location and attitude ("mood") data from public social media posts on Facebook and Instagram. Both data products will be publicly available recreational use datasets on OPD's Geographic Information Gateway (Gateway) as well as a recreational "Mood" map viewer on the Gateway's Latest Conditions page. Crowd-sourced recreational use data will also be used in OPD planning and development efforts.

Presentation attendees will hear about the applications development process beginning with identifying OPD data gaps and user surveys to inform mobile application development, design and beta testing. Attendees will experience demonstrations of the applications and their functionalities. Examples of how OPD will use this data in planning efforts will also be discussed.

**Session Day:** Thursday

**Session Time:** 11:00am - 11:30am

**Meeting Room:** Legends

**Session Title:** *Measuring Walkability through GIS: A Manhattan, New York Case Study*

**Main Presenter:** Bernardita Calinao; Orentreich Foundation for the Advancement of Science

**Abstract:**

The quality of sidewalks, in Manhattan, New York, was measured using an automated rule-based scoring system and GIS. Macroscale data was collected from the New York City Open Data. The results of the study allow the display of degrees of walkability of approximately 12,000 blocks covering 100 miles of sidewalk within 37 square miles (23,700 acres). Walkability is displayed on a color-coded scale of 1 to 5 with 5 (green) being most walkable and 1 (red) least walkable. Maps generated have the ability to show individual sidewalks that are more walkable than others, potentially increasing people's desire and willingness to walk. Open data on the built and natural environment facilitated the objective measurement and display of sidewalk features such as surrounding natural beauty (vegetation), manmade beauty (architecture), utility (land use), safety (crime and traffic accidents), connectivity (multimodal access), comfort (seating and shading), interest (attractions), legibility (sense of place), social equity, and vibrancy (energy of space). Multiple map layers display calculated total walkability scores at block, quarter mile, neighborhood and city levels. Walkability maps are important to millennials (also known as the walking generation) and elderly residents as they perceive walking to have a positive impact on their mental, physical and emotional well-being. Walking also protects the environment by reducing the earth's carbon footprint through less reliance on cars. Walking is also a strong inducer of local economic growth. In addition, these mapping methods and tools facilitate the identification of sidewalk place-making opportunities for planners and local governments to rely on.

## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Thursday

**Session Time:** 11:00am - 11:30am

**Meeting Room:** Lussi C

**Session Title:** *NYCyclist: Crowdsourcing Government Spatial Data*

**Main Presenter:** Conor Clarke; New York City Department of City Planning

**Abstract:**

The Department of City Planning recently launched the NYCyclist web application. The project is a yearlong pilot that allows users to edit the geometry and attributes of the City's bike routes and building footprints spatial data, thereby collaborating with government agencies to maintain datasets.

This presentation will provide insight into how the application was developed, some of the data work that went into it and how the City will use it to improve its official datasets. Users will log in to a webmap interface that allows them to pan around New York City and view and edit the City's latest data. We hope to use this as a way to encourage the public to collaborate with the City to maintain these vital datasets during the pilot. Potential users will come from the cyclist, GIS and developer communities, all of whom may have an interest in this kind of application. The application provides an opportunity to experiment with online, collaborative data editing using GeoGig, a spatial data versioning platform similar to Git.

This project is an effort to build on "Open Data" initiatives, and create a dynamic feedback loop between the New York City government and citizens. While the two datasets that the application crowdsources "bicycle routes and building footprints" are now publicly available, they are maintained solely by the City, limiting their scope and transparency. The agencies that maintain the data will review edits made by citizens with the goal of improving the data and releasing more accurate datasets.

**Session Day:** Thursday

**Session Time:** 11:00am - 11:30am

**Meeting Room:** Lussi A

**Session Title:** *Managing and Preserving Geospatial Records*

**Main Presenter:** Jennifer O'Neill; NYS Archives

**Abstract:**

The New York State Archives authorizes the retention and disposition of New York State local government records and provides advice on managing and preserving records in various formats, including geospatial records. This presentation will provide guidance to local governments in determining how long to retain geospatial records, organizing and naming files, and identifying long-term preservation formats and strategies.

**Session Day:** Thursday

**Session Time:** 11:00am - 11:30am

**Meeting Room:** Lussi B

**Session Title:** *Building Level Flood Hazard Assessment in New York State*

**Main Presenter:** Greg Yetman; CIESIN, Columbia University

**Abstract:**

Adapting to climate change impacts requires access to detailed data on potential impacts from coastal and riverine flooding under different storm and sea level rise scenarios. This presentation will describe the data and methods from projects funded by the New York State Energy Research Development Authority (NYSERDA) to apply the Hazards U.S. (HAZUS) flood assessment methodology to New York State at detailed scales. A new integrated collection of building footprints is being developed for New York State outside of the City of New York. These data will be combined with economic valuations, building characteristics, critical infrastructure data, and modeled flooding from storm and sea level rise scenarios to produce detailed information on possible flood impacts. The project results and data will be made publicly available for use in regional and local planning. The data collection, integration, QA/QC, and analysis methods will be presented along with a summary of the expected data and information that will be made public at the end of the projects.

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**Session Day:** Thursday

**Session Time:** 11:30am - 12:00pm

**Meeting Room:** Lussi A

**Session Title:** *Controlled Unclassified Information (CUI) Program Overview*

**Main Presenter:** Todd Harbour; New York State (NYS)

**Abstract:**

CUI data is data that does not meet the threshold for becoming classified data under Executive Order 13526 but needs to be controlled and protected under Federal law, regulation, or policy. The standard prescribes new procedures for marking, controlling, decontrolling, storing, sharing, and destroying CUI information. The new standard affects Federal executive branch agencies, state, local, tribal, business, and academia that are authorized to receive CUI data. This new standard also includes new technical requirements for information technology (IT) systems that store CUI information.

**Session Day:** Thursday

**Session Time:** 11:30am - 12:00pm

**Meeting Room:** Legends

**Session Title:** *R-based GIS Modeling of Invasive Plants along the Appalachian Trail*

**Main Presenter:** Chris Badurek; SUNY-Cortland

**Abstract:**

Management of invasive plant species is a significant challenge, particularly over the lengthy extent of the Appalachian Trail (AT). This application examines three species as case examples: tree of heaven, purple loosestrife, and Japanese stilt grass. A GIS model of distribution was developed using the environmental variables of elevation, slope, aspect, climate, as well as presence data from EDDmapS and GBIF. An ArcGIS layer of the predicted range for each was developed using logistic regression with the statistical package R. AT access points were also examined to determine predicted likelihood of each species at each location as an approach to developing preventative methods and management of invasive species in areas along the AT.

**Session Day:** Thursday

**Session Time:** 11:30am - 12:00pm

**Meeting Room:** Legends

**Session Title:** *Deploying SLAM-based LIDAR for 3D Mapping and Creating an Indoor GIS*

**Main Presenter:** Bill Gutelius; Qntfi, Inc.

**Abstract:**

Handheld laser scanners are rapidly becoming a low-cost option for mapping interior spaces and obstructed areas. Typically, these devices lack GPS and instead rely on Simultaneous Localization And Mapping (SLAM) to provide 3D maps of objects and the environment. SLAM-based handheld laser scanners (LIDAR) have increasingly become a tool for scanning providers to map highly complex, highly obstructed interior environments. Structures such as multi-story buildings, manufacturing facilities, and underground mines present a real challenge to static (tripod-mounted) scanning methods.

By employing SLAM, operators of handheld scanners are able to move in one continuous trajectory (without GPS) around the structure and in between objects causing obstructions to the views of static scanners. This presentation will very briefly review some of the latest handheld laser scanning technologies and contrast and compare them with more traditional static scanners. Additionally, a simple, high-level overview of the principles of SLAM will be covered, especially with respect to direct geo-referenced scanning techniques and scan-to-scan registration used by static scanning technology. Several real-world examples and results will be presented.

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**Session Day:** Thursday

**Session Time:** 11:30am - 12:00pm

**Meeting Room:** Legends

**Session Title:** *Integrating airborne lidar and Landsat data to quantify forest aboveground biomass amount and uncertainty*

**Main Presenter:** Siqi Li; SUNY ESF

**Abstract:**

Quantifying forest aboveground biomass (AGB) is crucial for understanding the role of forests in the global carbon cycle. Light detection and ranging (lidar) data provides accurate measurement of forest structure in the vertical plane; however, current airborne lidar datasets are often practically limited in terms of spatial coverage. This limitation can be compensated by supplementing lidar data with the extensively distributed Landsat imagery. We present a methodology that integrates airborne lidar and multispectral Landsat imagery to estimate the amount of AGB and the uncertainty of that measurement from plot to pixel levels in Heiberg Memorial Forest, a managed property in Central New York State. Our approach trained a regression model to estimate AGB from a limited lidar dataset based on field inventory data. The airborne lidar-derived AGB values were then used as reference data in a random forest algorithm to estimate AGB across a broader study area using Landsat data. Uncertainty propagating from plot level AGB to lidar-derived AGB and then pixel level Landsat-derived AGB was quantified.

**Session Day:** Thursday

**Session Time:** 11:30am - 12:00pm

**Meeting Room:** Legends

**Session Title:** *A New and Improved PTNY Trailfinder*

**Main Presenter:** John Marino; Mohawk Valley GIS

**Abstract:**

In collaboration with Parks and Trails New York, Mohawk Valley GIS was tasked with refreshing the "Trailfinder" interactive map to modern standards. Data for the Trailfinder map includes multiuse trails and parking/trailhead locations from PTNY community partners. New or updated features of Trailfinder include trail and "amenity"/point-of-interest search by a variety of criteria, display of bike-friendly businesses, parking and trailhead locations, in-map directions, current location display, in-map measurement, mobile responsiveness, and more. This session will highlight the collaborative nature of the project while also describing the open source technical tools utilized in the creation of the map, challenges faced in its creation, as well as potential future enhancements.

**Session Day:** Thursday

**Session Time:** 11:30am - 12:00pm

**Meeting Room:** Lussi B

**Session Title:** *Crude by Rail – New York State's Inland Geographic Response Plans*

**Main Presenter:** Scott Stanton; OBG

**Abstract:**

Geographic Response Plans (GRPs) are location-specific plans developed to provide guidance for oil spill responses throughout the United States. Until recently, the majority of crude oil transportation in the United States has occurred via waterways on oil tankers and barges, therefore, most existing GRPs focus on the protection of sensitive biological habitats and socio-economic features in nearshore environments. The recent development of crude oil extraction from the Bakken formation has resulted in a significant increase in the volume of crude oil being transported via railroads and pipelines and has highlighted the need for inland response planning.



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Rail cars transporting the volatile and flammable Bakken crude oil now traverse more than 850 miles of New York State on two major Class 1 Railroads. In response, Executive Order 125 was issued by the governor directing state agencies to strengthen the state's preparedness for incidents involving crude oil transportation. New York State's (NYS) Department of Environmental Conservation (DEC), in collaboration with the Department of Homeland Security & Emergency Services and Department of Health, are leading a multi-stakeholder effort to develop Inland GRPs for the 21 NYS counties currently impacted by crude-by-rail transportation.

County steering committees were established consisting primarily of local first response agencies, as well as their state and federal partners. Utilizing Sensitive Resource Maps developed by DEC, coupled with the local steering committee input, location-specific response plans were drafted, reviewed, and set as final working "evergreen" documents, which are open for update/refinement at any time in the future.

The NYSDEC GRPs are similar to typical GRPs in that they are map-based, location-specific contingency plans that outline response strategies for the protection of sensitive resources. However, the NYSDEC GRPs differ from traditional GRPs in several ways. They extend contingency planning to cover spills on land, in addition to surface water-based spills. Due to the flammability of Bakken crude oil, much more emphasis is placed on the fire risks associated with a train derailment. This is done by mapping sensitive human receptors (e.g., schools, daycare centers, assisted living centers, etc.), critical infrastructure, and identifying fire (and vapor) suppression assets. The NYSDEC GRPs also place more emphasis on the initial response options available to local first responders, options that can be implemented before other response assets may arrive on-scene (State, Federal, and RP). This presentation will discuss the creation and implementation of these plans using ArcGIS, Collector App, and ArcGIS Online.

**Session Day:** Thursday

**Session Time:** 11:30am - 12:00pm

**Meeting Room:** Legends

**Session Title:** *Using GIS to improve aviation safety & efficiency*

**Main Presenter:** Shaun Vincent; Col-East, Inc.

**Abstract:**

Starting in 2012, The Federal Aviation Administration began implementation of the NextGEN National Airspace system. NextGEN will replace the outmoded radar-and-radio based ATC in the USA with a new system utilizing GIS mapping information & GPS positioning to increase safety in air corridors & runways, improve efficiency both on the ground & in the air, and more easily roll out updates to airspace & airport information to flight personnel and traffic controllers.

**Session Day:** Thursday

**Session Time:** 1:00pm - 1:30pm

**Meeting Room:** Lussi A

**Session Title:** *Geospatial Data Act of 2017*

**Main Presenter:** Cheryl Benjamin; NYS GIS Program Office

**Abstract:**

The Geospatial Data Act (S.1253) has been the subject of much discussion over the summer. Some members of the geospatial community have voiced concern about the proposed legislation's potential to add restrictions to federal procurement of geospatial data and services. The Coalition of Geospatial Organizations (COGO) was asked by Senator Hatch's office to provide recommended modifications to the bill to address these concerns and subsequently assembled a working group from their membership which includes AAG, URISA and NSGIC representatives. This presentation will provide a high-level overview of the legislation, its intent to build a robust national spatial data infrastructure, the language of concern, and an update on the legislation's status.

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**Session Day:** Thursday

**Session Time:** 1:00pm - 1:30pm

**Meeting Room:** Lussi B

**Session Title:** *No Cell Service? No Problem!*

**Main Presenter:** Mickey Dietrich; NYS Tug Hill Commission

**Abstract:**

Are you looking to go explore the wilderness, or are you a Forester, or are you just looking for an easy way to view your maps and location in the field? This presentation will highlight how you can utilize GeoPDFs in Avenza Maps to help you accomplish your mapping needs when there is no cell service around. You will see how you can create a GeoPDF from ArcGIS and QGIS to be utilized in Avenza Maps and how to collect information with it when you are out in the field.

**Session Day:** Thursday

**Session Time:** 1:00pm - 1:30pm

**Meeting Room:** Lussi C

**Session Title:** *Who Knew Auditors Made Maps!? Adaptive Use of Technology Bridging Audit Data and Spatial Analysis*

**Main Presenter:** Hilary Papineau; Office of the New York State Comptroller

**Abstract:**

Leveraging technologies like GIS, combined with growing access to public data sets, can improve the effectiveness and value of government audit reports. The Office of the New York State Comptroller (OSC) Division of State Government Accountability (SGA) conducts audits of State entities to determine if taxpayer money is being used effectively and efficiently and to help improve government operations, programs, and financial management. SGA recognizes the value of data analysis and visualization made possible by geospatial technology and has developed a team of GIS users who conduct analyses of spatial data for risk assessment and visualization for its audit reports. SGA has also embraced mobile field data collection and analysis through mobile GIS applications to increase staff productivity and skill development. The use of geospatial technology has also led to audit staff becoming increasingly aware of the value of analyzing relationships between traditionally unrelated data sets. This type of analysis can help users identify improvement opportunities for NYS public program and services that impact public health, safety, and quality of life. Our presentation will show how SGA is tailoring spatial technology to improve our data analysis and make reports more digestible and relevant for the public through a variety of map case studies. We will also have a discussion of best practices and challenges that have developed as SGA pursues innovative uses of geospatial technology in auditing and how these principles can be applied to increase use of spatial technology in other nontraditional fields.

**Session Day:** Thursday

**Session Time:** 1:00pm - 1:30pm

**Meeting Room:** Legends

**Session Title:** *Using GIS to Streamline Environmental Project Workflows*

**Main Presenter:** Joseph Segretto; OBG

**Abstract:**

This presentation will show how GIS was applied to support multiple phases of a Lead Remediation Project. The project included over 30 separate facilities, throughout New York State. The project required concurrently dispatching field data collection teams to different facilities to collect environmental samples. The project team included members with diverse backgrounds. GIS tools were created to be useable by each member of the team. A GIS was created to support the field data collection effort which would leverage mobile data collection to a SQL Server enterprise geodatabase. A web mapping application was built to help field staff fill out chains of custody at the end of each day and provide office staff real-time progress updates. As data came back from the lab, a model

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was built in model builder to update records with the sample results. For reporting, the project team constructed a Microsoft Access database to connect to the SQL Server geodatabase, where a team member could select a facility and choose from a number of pre-formatted reports. The GIS tools allowed team members to view sampling efforts in real-time, and generate reports with current reliable data on demand. Reports included sample identification plans with lead data and sample type included, and allowed for visual representation of impacted areas with accuracy and speed. This approach saved the client thousands of dollars due to the efficiencies of collecting digital data for thousands of points, and the ability to then reflect those data using GIS in meaningful, summative documents.

**Session Day:** Thursday

**Session Time:** 1:30pm - 2:00pm

**Meeting Room:** Lussi C

**Session Title:** *Implementing/Automating the U.S. Army Corp of Engineers Wetland Determination Data Form using Survey123, Web AppBuilder, and Geocortex.*

**Main Presenter:** Elizabeth Arabadjis; VHB

**Abstract:**

With 23 offices along the east coast, and a staff of over 1300, VHB has a variety of data collection standards and methodologies. As a result of a few internal initiatives to improve field survey and data reporting efficiency via mobile applications, to promote data collection consistency across offices and regions, and to develop a database of field information; we have created a suite of applications to automate, as much as possible, the data collection and creation of the U.S. Army Corp of Engineers Wetland Determination Data Form. We have developed a Survey123 mobile application for staff to enter information in the field regarding potential wetlands. Also using AGOL and Web AppBuilder (WAB) for ArcGIS, we created a back-office web application to view, edit, QA/QC, post process and create the Army Corp reports. In addition, since VHB has Geocortex, we re-created the back-office web application using AGOL and Geocortex. Each of these applications will be demonstrated; and the pros and cons of survey123, WAB, and Geocortex will be discussed.

**Session Day:** Thursday

**Session Time:** 1:30pm - 2:00pm

**Meeting Room:** Legends

**Session Title:** *Connecting the Dots - Building Stormwater Network Data for 18 Municipalities*

**Main Presenter:** James Hall; Bowne Management Systems, Inc.

**Abstract:**

I propose to present an overview of the current Stormwater Mapping Project for the Sleepy Hollow Mapping Consortium. This is the latest of several projects undertaken by the Consortium and this effort is being funded by a NYS DEC grant. The Consortium is comprised of 18 cities, towns and villages - all are located in Westchester County, New York.

In 2012-2013 the Consortium conducted a project to locate and capture key attributes for all the stormwater manholes and catch basins maintained by the participating municipal MS4s. Over 21,000-point features were captured. GIS data and hardcopy and digital maps were provided to the Consortium members and Westchester County GIS, which hosts the Consortium's data on the Web.

The current project is focused on adding the pipes. A range of hardcopy documents, existing digital data and data collected in the field are being aggregated to build a definitive geodatabase. The deliverables will be similar to the previous project.

The presenter will also describe how the 18 municipal MS4s originally formed and work together effectively as a consortium. This structure has allowed the members to get GIS data for their stormwater networks created with no municipal fiscal outlay. Each member does need to provide in-kind services, which will be described.

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**Session Day:** Thursday

**Session Time:** 1:30pm - 2:00pm

**Meeting Room:** Lussi B

**Session Title:** *Superstorm Sandy Recovery in New York State: Leveraging Web Maps to become More Resilient and Manage Retreat In Floodprone Areas*

**Main Presenter:** Amanda Murphy; NY Governor's Office of Storm Recovery

**Abstract:**

On October 29, 2012, Superstorm Sandy struck the New York metropolitan region, causing unprecedented damage to homes, businesses infrastructure throughout the State. The Governor's Office of Storm Recovery (GOSR) initiated many programs after the storm, one of which being the State's voluntary Buyout program for home owners in high risk coastal areas prone to flooding. This "managed retreat" strategy requires collaboration from a range of stakeholders including the homeowners themselves, the broader public and many levels of government in multiple jurisdictions.

GOSR is using web maps for planning the State's Managed Retreat from high risk areas. This ranges from analysis for internal operations and performance, managing field operations with state staff and vendors, and communicating statuses and plans with a wide range of technical and non-technical audiences (including elected officials, their staffs, and the public). GOSR uses spatial analysis tools and data on a daily basis to create mobile web mapping applications for disaster recovery and resiliency; underpinning the State's efforts to build a more resilient coastline.

Specifically, using data from the Department of Housing and Urban Development, the Federal Emergency Management Agency, the National Oceanic and Atmospheric Association and the U.S. Census, combined with tax parcel information from the NYS GIS Program Office, coastal risk data from the NYS Department of State, GOSR has created a unique tools and applications to track one of the largest Managed Retreats in the country and translate that information to a wide array of stakeholders.

**Session Day:** Thursday

**Session Time:** 1:30pm - 2:00pm

**Meeting Room:** Lussi A

**Session Title:** *State GIS Career Opportunities*

**Main Presenter:** Frank Winters; NYS ITS GIS Program Office

**Abstract:**

Frank Winters will attempt to demystify GIS hiring and advancement in New York State government. While many in our field aspire to start or advance a career with a State position in GIS, few fully understand the hiring and advancement procedures and their subtleties. The Civil Service title series in Information Technology offers opportunities in a career ladder spanning from entry level to executive management. GIS experience, capabilities, education and certifications all now play into an individual's opportunities with the State. In this presentation Frank will cover staff augmentation contracting, registration for State positions, and essential information for promotions including Civil Service testing and the new Selective Certification program.

**Session Day:** Thursday

**Session Time:** 2:00pm 2:30pm

**Meeting Room:** Lussi A

**Session Title:** *HTTPS: What, Why, How*

**Main Presenter:** Carol Goodman Zollweg; Bergmann Associates

**Abstract:**

Any information sent between computers can be eavesdropped by a perpetrator in the middle of the two systems. This perpetrator can now retrieve the information communicated, or worse, impersonate one of the parties to steal

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more secure information. For this reason, modern browsers are moving towards requiring all sites to be secured via HTTPS and this includes GIS environments.

A typical GIS environment consists of a web server (IIS - Internet Information Services), an ArcGIS Server, and a Database Server. Communication between each of these servers must be secure so that the communication between the user and the data that user is viewing is secure from end to end.

In this presentation, we will clearly describe what HTTPS and SSL are. We will show a live example of how unsecured communication between computers can be viewed and subsequently how enabling HTTPS prevents this from happening.

We will then demonstrate how to set up a GIS environment to be secure from end to end. Practical, live demonstrations of securing each piece will be shown and explained.

The participant will leave with an understanding of what HTTPS and SSL are, why they are needed, and how to implement them in a GIS environment.

**Session Day:** Thursday

**Session Time:** 2:00pm - 2:30pm

**Meeting Room:** Lussi A

**Session Title:** *NYSDOT Right of Way Database Creation*

**Main Presenter:** Matthew Palmer; Erdman Anthony

**Abstract:**

This presentation will detail Erdman Anthony's recent project with NYSDOT Region 3 to create a graphical GIS database that would aid the right of way department in records requests. The DOT right of way department maintains records for thousands of miles of highways. The project was a test to see if these records could be implemented into a database without having to reorganize the recording structure. Also, the DOT has limited resources, so a lot of the work had to be automated to reduce labor costs. The DOT has changed the organizing structure of their records a few times over the years, which led to interesting problems. The database also had to incorporate new DOT acquisitions, and add the records automatically. The process for creating the database will be discussed, along with the solutions to the problems we faced.

**Session Day:** Thursday

**Session Time:** 2:00pm - 2:30pm

**Meeting Room:** Lussi A

**Session Title:** *Applying Geospatial Technologies at the Town Level for Hazard Assessments, Emergency Response Planning and Operational Support.*

**Main Presenter:** Dennis Pokrzywka; Town of Ballston

**Abstract:**

NOTE FROM DENNIS: I was contemplating submitting a proposal, then I decided not to because I didn't get prior permission of my co-presenters endorsements in time. But I just had a meeting with my Emergency Management Committee, and they all agree we should present some of our unique work (for a local town) that we are doing. Here is an outline of what we will discuss:

- Allow local responders to ID hazards, analyze and prioritize risks interactively (Pictometry)
- First, zoom in on the Chief's favorite deer stand, the controversial snowmobile trail change of the year, "who owns that back 40, where I've been hunting for the last 30 years?"
- Using the CEPA (County Emergency Preparedness Assessment) model at local level with Geospatial Tools.
- Convincing leadership / officials that "Plans Are Useless, But Planning Is Indispensable"
- Lessons learned in a volunteer organization with-little-to no funding.
- Relationships among local, state, and federal agencies during operations
- Bureaucratic and institutional challenges in Town Government

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- Leaders who share vision, embrace technology The challenges of standing up a committee and using Town of Ballston:
- Significant natural, technological and man-made hazards.
- Using free Geospatial tools like Pictometry (county) Google Earth, Google Maps.
- Non-traditional funding (i.e. Southern Adirondack Library System (SALS) grant Library
- Library as Partner, backup EOC and resources for tech /training (Computers / Networks printers for public / easy access. Grant provided Funding for Pictometry training, ArcGIS Online, Terrago SW tools.
- Getting buy-in from traditional public Safety agencies (Fire, EMS) who “don’t need any of that new high tech stuff” (that the kids are using) “We know where everything is” (in our District”)
- Geospatial information is accessible to wider audiences who lack sophisticated and expensive software required to consume it. Online software offers a number of ways to make this data more accessible, more useful, and ultimately more valuable.
- Pictometry, Google Earth, Drone2Map, ArcGIS, ArcGIS Online

**Session Day:** Thursday

**Session Time:** 2:00pm - 2:30pm

**Meeting Room:** Lussi B

**Session Title:** *Facilitating disaster recovery by empowering non-expert GIS users in government*

**Main Presenter:** Kelly Richardson; NYS Governor's Office of Storm Recovery

**Abstract:**

The NY Rising Community Reconstruction (NYRCR) program in the Governor's Office of Storm Recovery (GOSR) is a "managed participatory" approach to recovery and resiliency, established to aid communities across New York that were severely damaged by Superstorm Sandy, Hurricane Irene, and Tropical Storm Lee. Through 61 planning committees covering impacted communities across the state, communities developed projects and strategies to improve their physical, social, and economic resiliency. The NYRCR program is now working to implement projects proposed in the community plans.

Utilizing the same dataset, we developed both internal and external web applications for the program. The external facing application allows the public to explore project locations, types, phases, budget, and provides links to additional information. Users can filter and manipulate project data to examine which projects impact their communities. Internally, the NYRCR web app empowers non-technical users to examine their project data alongside other relevant datasets and answer commonly asked questions. The internal version of this application places the power to answer spatial questions about project data directly in program hands. This approach creates a web of GIS users who can make decisions and answer questions on their own, lightening the workload of the GIS team and allowing more time to be spent on in-depth analysis and research.

**Session Day:** Thursday

**Session Time:** 2:00pm - 2:30pm

**Meeting Room:** Lussi A

**Session Title:** *The Rochester Water Bureau's Map Modernization Project*

**Main Presenter:** Michael Ross; City of Rochester, NY

**Abstract:**

The Rochester Water Bureau has selected Bergmann Associates to modernize their water distribution system GIS. The project consists of data migration to the ArcGIS Local Government data model, solutions implementation, and user training. This presentation is a project overview and status update.

## 2017 NYGeoCon Session Abstracts

Listed by date and time and shown as submitted by author.

**Session Day:** Thursday

**Session Time:** 2:00pm - 2:30pm

**Meeting Room:** Legends

**Session Title:** *Capturing and analyzing geographic information of high spatial and temporal resolutions to solve the on-going problems*

**Main Presenter:** Tao Tang; State University of New York - Buffalo State

**Abstract:**

Recent advancements of information technology (IT) and artificial Intelligence (AI) have changed the nature of obtaining, storing, and processing geospatial data. One of the current challenges to the practitioners in GIS is to understand "what is happening"? or "what just happened"? This presentation shows a couple of new methods to gather large quantity of or time sensitive geospatial information to analyze what is happening currently. First, the research experiments were conducted to survey the patches of Japanese Knotweed invasive species and the water chestnut invasive species along the Erie Canal using unmanned helicopters or UAVs. The major advantage of UAV based remote sensor data collections is that we can deploy the sensor whenever and wherever we would like. The temporal resolution and concurrent-ability of this type of spatial data can be very high, which otherwise may not be available.

Secondly, research experiment of an ArcGIS online enabled smart cellphone APP was developed and planned to be deployed to millions and millions of cellphone users in collecting spatial data of air pollutions. The revolutionary change of this kind of approaches is to change every cellphone unit into a spatial data collection sensor for large quantity geospatial data gatherings.

The learning objective of this presentation is to show and tell some emerging geographic information analytical methods using new AI and IT technologies. Concurrent spatial pattern predictions in GIS, such as predictions of traffic jams and hurricane trajectories, using the self-deployed sensors including drones or individually owned cellphones are possible.

**Session Day:** Thursday

**Session Time:** 2:00pm - 2:30pm

**Meeting Room:** Lussi C

**Session Title:** *Speaking the Language of Coordinate Systems: From Field to Feature Class*

**Main Presenter:** William Trask; Fisher Associates

**Abstract:**

GISers are the gatekeepers of spatial data; we are expected to download, receive, and retrieve datasets from a number of sources. This typically requires us to take data in various coordinate systems and project them into one coordinate system, especially when we need to do geoprocessing. Knowing how to do this correctly takes careful consideration. In addition to understanding these and other nuances of coordinate systems, we must also be able to identify when there's a problem and how to relay the essence of that problem to our non-GIS colleagues.