



FORUM OFFICERS

FORUM OFFICERS

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Brian Culpepper, *Center for Advanced Spatial Technologies (CAST), University of Arkansas*

Jonathan Duran, *Arkansas GIS Office*

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Sharon Hawkins, *Arkansas Department of Transportation*

Tammy Hocut, *United States Forest Service*

Rusty McAllister, *City of Jonesboro*

Tina Rotenbury, *United States Forest Service*

Tina Thompson, *Western Arkansas Planning & Development District*

ARKANSAS GEOGRAPHIC INFORMATION SYSTEMS BOARD

The State Land Information Board was originally created in 1997 by Arkansas Code 15-21-501. Governor Mike Huckabee appointed twelve initial board members who first met in 1998. Three each of the twelve appointees represent state entities; city, county and local government; the private sector; and institutions of higher education. The twelve voting members serve for a term of four years.

The Board supports economic development and an improved quality of life for Arkansas citizens by providing basic spatial data infrastructure, coordinating geographic information activities, and creating short – and long-term strategies that will result in improved decision making, effective asset management, and reduced costs.

In 2009, the General Assembly renamed the Board as the Arkansas Geographic Information Systems Board, and added the State Technology Officer as the thirteenth voting member of the board. The State GIS Board works closely with the Arkansas Geographic Information Systems Office.

In 2015, Arkansas Legislature transferred the Division of Land Surveys to the Arkansas Geographic Information Systems Office. The Division is responsible for the restoration of the U.S. General Land Office original corner monuments of Arkansas. This includes documenting and publishing detailed certificates of the corner locations for future generations. The Division establishes uniform professional surveying and mapping standards, administers the rules by referring evidence of violations to the State Board of Professional Engineers and Professional Surveyors. The Division is responsible for receiving, filing and publishing land survey plats of Arkansas for public inspection.

ARKANSAS GIS BOARD MEMBERS

Rusty McMillon, County Judge, Greene County, Local Government

Beth Rush, Assessor, Ashley County, Local Government

Russell Gibson, Fort Smith, Arkansas, Local Government

Amy Whitehead, University of Central Arkansas, Higher Education

Dr. Jackson Cothren, U of A, Fayetteville – Center for Advanced Spatial Technologies, Higher Education

Dr. Margaret McMillan, U of A, Little Rock – Department of Earth Sciences, Higher Education

Scott Foster, PS, Arkansas Surveying and Consulting, Inc., Private Sector

Taylor Wynn, Carroll Electric Cooperative, Private Sector

Matthew Charton, Datascout, LLC, Private Sector

Sharon Hawkins, Arkansas Department of Transportation, State Government

Danny Games, Arkansas Economic Development Commission, State Government

Anthony Davis, Arkansas Game and Fish Commission, State Government

Yessica Jones, Director, Arkansas Department of Information Systems, State Technology Officer

2017 Arkansas GIS Users Forum Training and Symposium

Conference Agenda

Tuesday

- 7:00a – 5:00p Workshop and Symposium
Registration
- 8:00a – 5:00p Preconference
Training/Workshops (lunch
on your own)
- 1:00p – 5:00p Golf Tournament

Wednesday

- 8:00a – 10:00a Symposium Registration
- 8:30a – 9:30a Breakfast
- 9:00a Vendor Expo Opens
- 10:00a – 10:15a Welcome to Eureka Springs
- 10:15a – 11:00a Guest Speaker
- 11:00a – 11:30a Awards Presentation
- 11:30a – 11:45a Break with Vendors
- 11:45a – 1:30p Luncheon/Keynote Address
- 1:30p – 3:00p Concurrent Sessions
- 1:30p – 3:30p Arkansas GIS Board Meeting
- 3:00p – 3:15p Break with Vendors
- 3:15p – 5:15p Concurrent Sessions
(Dinner on your own)

Thursday

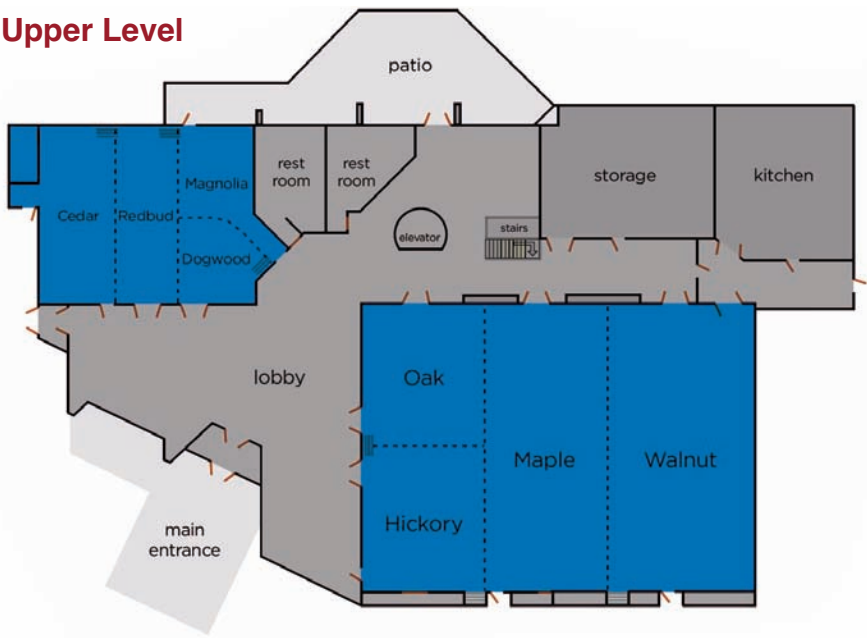
- 6:15a 5K Walk/Run
- 8:00a – 9:00a Breakfast
- 9:00a – 10:30a Concurrent Sessions
- 10:30a – 10:45a Break with Vendors
- 10:45a – 11:45a Concurrent Sessions
- 11:45a – 12:45a Lunch with Vendors
- 12:45a – 1:30p Forum Meeting and Officer
Elections
- 1:30p – 3:00p Concurrent Sessions
- 3:00p – 3:30p Break with Vendors
- 3:30p – 5:00p Concurrent Sessions
- 6:00p – 8:00p Networking Social/Dinner On
site

Friday

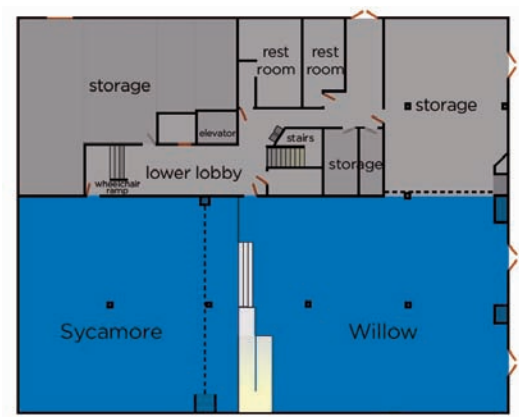
- 7:30a – 8:30a Breakfast
- 8:30a – 10:00a Concurrent Sessions
- 10:00a – 10:30a Break/Checkout
- 10:30a – 11:00a Closing Speaker
- 11:00a – 12:00p Closing Remarks and Door
Prize Giveaway

FACILITY LAYOUT

Upper Level



Lower Level



SPEAKERS



Welcome – Honorable Robert “Butch” Berry, Mayor of Eureka Springs

Prior to graduation from the University of Arkansas, Mr. Berry went to work for the Law Company, a design/build firm specializing in shopping centers, as one of the principle designers. Mr. Berry was responsible for the design of numerous shopping centers from New York to Washington. After receiving his degree in 1973, Mr. Berry moved home to Eureka Springs and developed the design/build firm IDEA (Innovative Design and Environmental Arts) of Eureka

Springs, Arkansas.

In 1982, Mr. Berry joined Mehlburger, Tanner, Robinson and Associates, Inc., Little Rock, Arkansas. During his tenure with MTR & A, Mr. Berry was Project Manager/Architect on numerous projects including apartments, schools, and offices and for industrial clients, such as Tyson Foods and Alltel. In 1989, Mr. Berry accepted the position of Executive Director of the Capitol Zoning District Commission in Little Rock. The Capitol Zoning District is a special legislative district surrounding the Arkansas State Capitol and the Governor's Mansion, a National Register Historic District. As Executive Director of the CZDC, he was responsible for reviewing all construction projects and design review permits in the Governor's Mansion District and the State Capitol District. In 1996 Robert Berry returned to Eureka Springs and established ROBERT D. BERRY, ARCHITECTS, offering full architectural services.

Mr. Berry has been active in public service by serving on the Eureka Springs Planning Commission for over 15 years and was a city council alderman for 8 years and is presently the Mayor of Eureka Springs. He also serves on several non profit boards including Decision Point, in Bentonville, AR.



Local Speaker – Dr. Van Brahana, Professor Emeritus, University of Arkansas

Dr. Van Brahana received his formal education (groundwater geology) from the University of Illinois and the University of Missouri. He has more than 50 years of groundwater teaching and research experience with state agencies (Illinois State Geological Survey), federal agencies (U.S. Geological Survey), universities (University of Southern Mississippi, Vanderbilt University, University of Arkansas), consulting, and local, regional, and national technical review

boards and consortia. With Tom Sauer, USDA-ARS, he was active in initiating and instrumenting the Savoy Experimental Watershed, a Division of Agriculture site that studies the long-term impacts of sustainable animal production on karstland. This past year, he has actively conducted and supervised a range of pro bono field studies to describe in detail the karst hydrogeology of Big Creek basin, a major tributary of the Buffalo National River, the site of a 6,500-pig CAFO. Although retired, he remains active in consulting, volunteering, and technical hydrogeologic advisory and review boards.

SPEAKERS



Keynote Speaker – Christopher W. Dunn, Attorney and Counselor at Law

Chris Dunn resides in Columbia, Missouri where he is a small business owner, attorney, and expert geospatial witness. Chris holds a Juris Doctor from Mizzou Law as well as Master's and Bachelor's degrees in Geography from Kansas State. Chris uses Geographic Information Systems (GIS) and 3-D software to make specialty maps for his clients and 3-D computer model crime scene reconstructions. Chris's mapping customers include The Missouri Primary Care Association, Community Asset Builders, Truman Medical Center and several legal firms. GeoVelo's maps are used by hospital system boards of directors, CFOs and CEOs for their strategic business development planning, marketing, and facility siting decisions. Prior to becoming an attorney, Chris had a 20-year career as the director of several local government planning, zoning and development departments. Before that Chris spent some time overseas working for his Uncle Sam defusing bombs, and generally making a mess of other people's ammunition stockpiles and infrastructure. Chris is a member of the Missouri Bar, an Eagle Scout, and has won awards for his urban planning, filmmaking, and pro-bono legal work.



Closing speaker – Dr. Richard L. Elgin, PS, PE

A second-generation surveyor, Dr. Elgin was raised in his late father's surveying business in Rolla, Missouri. After serving meritoriously as an Army helicopter pilot in Vietnam (1969), he received the degrees BSCE and MSCE from the Missouri University of Science and Technology (MS&T), and his PhD from the University of Arkansas. Semi-retired, he works part-time for Archer-Elgin Surveying and Engineering, LLC of Rolla and is an Adjunct Professor at MS&T. With his PhD advisor, David Knowles, he wrote Legal Principles of Boundary Location for Arkansas and The U.S. Public Land Survey System for Arkansas. Dick authored The U.S. Public Land Survey for Missouri. He also wrote Shoulda Played the Flute, a memoir of his year flying helicopters in Vietnam (available on Amazon).

Dr. Elgin is a past president of MSPS, and was editor of Missouri Surveyor for many years. He is a member of the Surveyors Historical Society and MS&T and the University of Arkansas' Academy of Civil Engineers. He is a past member of the Missouri Board for Architects, Professional Engineers, Professional Surveyors and Professional Landscape Architects. He is licensed in several states. Dr. Elgin is an avid collector of early American surveying equipment. He rides a Moots bicycle and drives his perfectly restored 1967 Austin Cooper S, or 1976 Alfa Romeo GT 1600 Junior.

A rare surveyor, Dick is a practitioner (sealed about 15,000 surveys), educator (teaches surveying at Missouri S&T), researcher (codeveloper of the "ASTRO" surveying software products), author (written four technical surveying books and frequent contributor to American Surveyor) and collector (owns one of the largest collections of early American surveying equipment in the United States).

LETTER FROM THE CHAIR

Welcome to the 2017 GIS User Forum Symposium and Training. This year marks our return to beautiful Eureka Springs, Arkansas. It has been with pleasure that I have been able to serve as Chair to this organization for the past four years, and I would like to thank all of the members of the Executive Committee for their dedication and commitment to this organization.

Over the last couple years we have worked to bring new training opportunities to the state, support the local user chapters, and have once again planned a symposium showcasing the amazing work of our GIS community. Because it is you – the community - that makes our state a leader in the field of Geographic Information Systems. It is that collaboration that has always been the cornerstone of the success of the GIS fields in Arkansas.

We hope you enjoy the exciting line-up of workshops, speakers and presentations. And, let's not forget to have a little fun while we are all together! We have planned a full agenda with ample opportunity for networking with our sponsors and attendees. Again, thank you for joining us for the 2017 Arkansas GIS User's Forum Symposium and Training!

Kimberly Bogart

Chair, Arkansas GIS Users Forum

PRE-CONFERENCE WORKSHOPS

Were you able to take advantage of our Tuesday Workshop and Training Sessions this Symposium?

We would like to send a **BIG THANK YOU** to all of the instructors that donated their time and effort to put on some **GREAT Workshops!** Here is what was offered this year:

WORKSHOP	INSTRUCTOR
Beginners Guide to ArcGIS	Brian Culpepper, CAST
Boundary Annexation Survey (BAS) and 2020 Local Update of Census Addresses (LUCA)	Alison Shafer, U.S. Census Bureau
How to Read Legal Descriptions and Map Using ArcGIS	Russell Gibson, City of Fort Smith; William Stephenson, Washington County Assessor's Office; Stephanie Shaw, NWARPC
ArcGIS for Microsoft Office	Sunny Farmahan, UA-Little Rock
Mobile Data Collection (ArcGIS Collector vs Terraflex)	Eric Bock, NEI
ArcGIS Pro – Visualizing Your Data in 2D and 3D	Zena Pelletier, Esri
Intermediate Geoprocessing with Python	Tim Sexton, CAST
You Have LiDAR - Now What??	Lee Beshoner, FTN; Elizabeth Bowen, NWARPC; et al.
Creating Hi-Res Ortho-imagery with Unmanned Aerial Systems (UAS)	Malcolm Williamson, CAST
GISP Certification/Exam Prep Course	Tina Thompson, WAPDD
Introduction to ArcGIS Online	Zena Pelletier, Esri
Developing Custom GIS Tools with ArcGIS Modelbuilder (Intermediate)	Robyn Lane, CAST

The Arkansas GIS User's Forum would like to say a special

Thank You!

to Dell for making computers available for our workshops.

Thank you Dell for helping to make the 2017 Training & Symposium a success!



The power to do more

CONCURRENT SESSION SCHEDULE

WEDNESDAY	Cedar	Redbud	Magnolia/Dogwood	Oak/Hickory	Sycamore
	After Luncheon & Key Note Speaker - Break until 1:30p				
1:30	LOCAL INTEREST - GIS Used for Open Space Priority Mapping Efforts	MOBILE GIS - Disconnected Mobile Data Collection Using Open Source Software	IMAGERY - 2017 Arkansas Digital Ortho Imagery	ESRI Hands On Learning Lab (HOLL)	GIS Board Meeting
2:15	LOCAL INTEREST - Efficiency of Space: A Case Study on Conway's Popular Restaurants	MOBILE GIS - Billboards from the Field to the Web	IMAGERY - Best Practices for Very High Resolution DEMs from UAS Imagery	ESRI Hands On Learning Lab (HOLL)	GIS Board Meeting
3:00	Break				
3:15	LOCAL INTEREST - Growing Resilience in Arkansas: Planning for Multifunctional Green Infrastructure	MOBILE GIS - GIS On the Go - Supporting a Mobile Workforce	IMAGERY - Next Generation Oblique	ESRI Hands On Learning Lab (HOLL)	TRANSPORTATION - How Fast Can You Take Out the Trash?
4:00	LOCAL INTEREST - Mile Markers for a City's Trail Network	MOBILE GIS - ArcGIS Apps for the Field	LIGHTNING TALKS	ESRI Hands On Learning Lab (HOLL)	THE BIRDS & THE BEES - Analysis of Monarch Habitat Change Throughout the Central US
4:45	GOLD LEVEL SPONSOR DEMO - Cityworks	GOLD LEVEL SPONSOR DEMO - Esri	GOLD LEVEL SPONSOR DEMO - EFS Geotechnologies	ESRI Hands On Learning Lab (HOLL)	TRANSPORTATION - ARNOLD - A New Look at Your Arkansas Centerline File
5:15	Dinner On Your Own				

CONCURRENT SESSION SCHEDULE

THURSDAY	Cedar	Redbud	Magnolia/Dogwood	Oak/Hickory	Sycamore
9:00	TECHNICAL - Geospatial Analysis with Python - Options and Comparison between ArcPy and Open Source	HISTORICAL - Historic Bridges: An online viewer	UAS - Thinking About a Drone? Here is What You Need to Ask	ESRI Hands On Learning Lab (HOLL)	THE BIRDS & THE BEES - Pollinator Protection with Spatial Volunteers
9:45	TECHINICAL - SDI Collaboration Made Easy Through an Automated Rules Based Approach	HISTORICAL - Historical Maps in GIS	UAS - Mapping the Last Steps - Using UAS and GIS to Help Locate People That Become Lost when Crossing Borders	ESRI Hands On Learning Lab (HOLL)	TRANSPORTATION - Are We There Yet? Forecasting Travel in NW Arkansas
10:30					
10:45	GOLD LEVEL SPONSOR DEMO - NEI	HISTORICAL - Broadway Bridge Replacement Unearths Little Rock History	IMAGERY - What's New with the USGS National Geospatial Program	ESRI Hands On Learning Lab (HOLL)	WATER - Floodplain Management for GIS Users
11:15	GOLD LEVEL SPONSOR DEMO - Sanborn	HISTORICAL - An Interactive View into the Past: Historic Washington AR	IMAGERY - The Corona Atlas 2.0: Crowd Sourcing Satellite Image Acquisition and Orthorectification	ESRI Hands On Learning Lab (HOLL)	WATER - Mapping Little Rock Stormwater in the Cloud and on Land
11:45	LUNCH w/ Vendors				
1:30	TECHNICAL - ArcGIS Enterprise Administration Tips, Tricks, BMPs & Lessons Learned	HISTORICAL - Rising Above: Archiving the Experiences of Japanese Internment at Rohwer	IMAGERY - Grave Identification with Hyperspectral Imaging (HIS)	ESRI Hands On Learning Lab (HOLL)	WATER - 911 Addressing and Floodplain Management - Working Together to Solve Floodplain Management Issues

CONCURRENT SESSION SCHEDULE

THURSDAY	Cedar	Redbud	Magnolia/Dogwood	Oak/Hickory	Sycamore
2:15	TECHNICAL - Get Outside - Developing Pulaski County Parks & Trails Application	PUBLIC HEALTH - Sharing County Health Data & Mobile Solution Using ArcGIS Online	IMAGERY - A Multi-Step Approach to Classification Leaf-On and Leaf-Off Trees on Very High Resolution Imagery	ESRI Hands On Learning Lab (HOLL)	WATER - GIS Based Simplified Dam Inundation Mapping at a State-Wide Scale
3:00	Break with Vendors				
3:30	TECHNICAL - Implementing a Highly Available Enterprise GIS for Great Lakes Water Authority	PUBLIC HEALTH - Rabies in Arkansas from 1995 - 2016	DEMOGRAPHICS - Spatial Distribution and Demographics of 911 Calls in Little Rock	ESRI Hands On Learning Lab (HOLL)	WATER - Reduce, Reuse, Recycle - From CAD to NHD
4:15	TECHNICAL - Geospatial Data Collection Using AVENZA Maps	PUBLIC HEALTH - The SWAP Model: Using GIS to Protect Public Drinking Water	MISC - Coordination with Local Elected Officials: Cowboy Boots, Coffee Shops & Gravel Roads	ESRI Hands On Learning Lab (HOLL)	WATER - Sharing GIS Data Layers Developed for USGS Regional Water Availability Studies
5:00	Sessions End @ 5p - Evening Networking & Dinner starts at 6p				

CONCURRENT SESSION SCHEDULE

FRIDAY	Cedar	Redbud	Magnolia/Dogwood	Oak/Hickory	Sycamore
8:30	APPLICATIONS - ArcGIS Solutions for State and Local Government	MISC - Good Company in Arkansas - GIS in Economic Development in Site Selection	DEMOGRAPHICS - Using ACS Census Data for Hot Spot Analysis	ESRI Hands On Learning Lab (HOLL)	
9:15	APPLICATIONS - Connecting the Dots - Water Service Outage Management	MISC - 40 Years of Annexation Homework that No Teacher Ever Graded: Until Now	MISC - OPENGATE: Expanding Opportunities for Geospatial Education in Arkansas	ESRI Hands On Learning Lab (HOLL)	
10:00	BREAK to Checkout of hotel				
10:30	Head to Grand Ballroom for Closing Session & Speakers				

SESSION ABSTRACTS

Wednesday – Cedar

1:30 – 2:15p

Presenter: Elizabeth Bowen, Northwest Arkansas Regional Planning Commission

Title: GIS used for Open Space Priority Mapping Efforts

The NWA Regional Planning Commission made up of 2 County Judges and 32 Mayors adopted a NWA Open Space Plan that uses extensive GIS data and processes to create a priority map for open space conservation efforts in Benton and Washington Counties. This session will talk about how GIS was used to develop the Plan and how GIS is being used to find and conserve priority open space properties.

2:15 – 3:00p

Presenter: Will Dane

Title: Efficiency of Space: A Case Study on Conway's Popular Restaurants

According to planning expert Joseph Minicozzi of Urban3, a consulting firm specializing in the relationship between building design and tax production, revenue per lot is a poor measure of financial productivity. An Analysis of the Feasibility of Mixed-Use Development, a report written by Joseph Rabianski, theorizes that the two factors for cultivating optimal land use are high land density and high production value on that land. In an interview, Wes Craiglow former Deputy Director of Planning & Development for Conway, Arkansas equates density with efficiency and high fiscal production. In this case study, a geospatial analysis further explores the argument that true productivity should be measured in tax per acre. In Conway, Arkansas, Chick-Fil-A and Cracker Barrel are two of the top ranked local restaurants based solely on profit. However, smaller restaurants located in dense, mixed-use environments regularly outperform both restaurants after providing an algorithm to account for their size.

3:15 – 4:00p

Presenter: Brian Culpepper, Center for Advanced Spatial Technologies (CAST); Alison Litchy, Arkansas Forestry Commission

Title: Growing Resilience in Arkansas: Planning for Multifunctional Green Infrastructure

The Arkansas Forestry Commission and the Center for Advanced Spatial Technologies (CAST) at the University of Arkansas are collaborating to expand upon the recently published 'best-practices' guidebook on Green Infrastructure planning. This is an outreach effort to increase awareness, transfer knowledge and help increase the resiliency of Arkansas' smaller communities through Green Infrastructure mapping and planning. Green infrastructure planning strategies help communities prepare for economic growth and development while protecting what is near and dear to the citizens within their community. These green assets have immeasurable ecological value but also contribute to the economic viability of many Arkansas communities, since we are considered: The Natural State. Learn more about the partnerships we're forming within this effort and how we're leveraging geospatial technologies to help protect what we love about Arkansas.

SESSION ABSTRACTS

Wednesday – Cedar

4:00 – 4:45p

Presenter: Michael Morisette, City of Fayetteville

Title: Mile Markers for a City's Trail Network

Roughly 36 miles of paved trails have been constructed in the City of Fayetteville. A large portion of this mileage exists off the street network. There is an increasing need for emergency personnel to locate trail users in distress. The solution to this problem was to develop a linear referencing system for the city trail network.

4:45 – 5:15p

Gold Level Sponsor Demos – Cityworks

Wednesday – Redbud

1:30 – 2:15p

Presenter: Wesley Cleland, Arkansas Game & Fish Commission

Title: Disconnected Mobile Data Collection Using Open-Source Software

Advancements in technology, coupled with the decreasing cost of hardware has more organizations utilizing mobile devices for the collection of geospatial data. As organizations move toward this new trend, it is increasingly becoming more important to be able to collect data in a disconnected environment. Utilizing basic web development (HTML5 and Javascript) with the open-source databases CouchDB and PouchDB you will learn how to easily create your own cross-platform data collection application for mobile devices. This presentation provides a high level overview of a low-cost and efficient “offline-first” custom application that can be utilized to collect spatial data in a disconnected environment.

SESSION ABSTRACTS

Wednesday – Redbud

2:15 – 3:00p

Presenter: Robert Reed, Arkansas Department of Transportation

Title: Billboards - From the Field to the Web

The Billboards Section in the Right of Way Division of the Arkansas Dept. of Transportation has been building a statewide layer using ESRI's Collector for ArcGIS and providing an accessible viewer through ArcGIS Online. This presentation will discuss the steps they have taken to make this a reality.

3:15 – 4:00p

Presenter: Vince Guillet, Central Arkansas Water

Title: GIS on the Go – Supporting a Mobile Workforce

At Central Arkansas Water (CAW) GIS is an essential tool used for infrastructure asset management, customer service support, water quality planning, land records management, engineering planning, and many other applications. The CAW staff is becoming more and more dependent on access to real-time business and GIS information when they are outside the office and therefore off the corporate networks. This presentation will focus on some conversations and challenges we are facing in moving from disconnected laptops running GIS, Computerized Maintenance Management System (CMMS), and other map based applications, to tablets and other mobile devices that are connected to CAW IT resources over a cellular network. Some items that will be discussed are mobile device management solutions, transitioning from desktop to web GIS/CMMS, and cloud based document editing workflows.

4:00 – 4:45p

Presenter: Matt Bullock, Esri

Title: ArcGIS Apps for the Field

ArcGIS field apps help you use the power of location to improve coordination and achieve operational efficiencies in field workforce activities. This workshop will focus on several ArcGIS Apps for the Field, including Collector, Survey123, Workforce and Operations Dashboard.

4:45 – 5:15p

Gold Level Sponsor Demos – Esri

SESSION ABSTRACTS

Wednesday – Magnolia/Dogwood

1:30 – 2:15p

Presenters: Shelby Johnson, Krysia Sepeta, Matt Delong, Arkansas GIS Office

Title: 2017 Arkansas Digital Orthoimagery

One of the cornerstone framework geospatial layers serving GIS users and the public throughout Arkansas is digital orthoimagery. The Arkansas Digital Orthoimagery Program goes back as far as 1999 with the State's first real foray into digital orthoimagery. Fast forward to 2017 and the latest rendition of this important data set is poised for completion. This panel presentation will provide users some insight from three perspectives; first the overview of the program and the goals provided by the state GIS Board, second the 2017 chosen contractor Sanborn Map Company will break down the project acquisition, specifications and production status, and then finally an in-depth look at how the Arkansas GIS Office will serve up the newest version of the data that everyone loves.

2:15 – 3:00p

Presenters: Joseph Jordan and Fred Limp, Center for Advanced Spatial Technologies (CAST)

Title: Best practices for Very High Resolution DEMs from UAS Imagery

Modern software packages (e.g. Photoscan) that combine features of machine vision and photogrammetric processing have democratized the creation of orthophotos and DEMs from RGB imagery. These solutions are generally “black boxes” and have been developed to provide easy to use solutions to the widest audience. Selection of default parameters and “standard” practices easily create DEMs but with a number of limitations where the highest quality is desired. In this paper, we review information (to date) on best practices for the production of high quality DEMs with uncertainties in the vertical dimension of less than 5 cm.

SESSION ABSTRACTS

Wednesday – Magnolia/Dogwood

3:15 – 4:00p

Presenter: Krysia Sepeta, Sanborn

Email: ksapeta@sanborn.com

Title: Next Generation Oblique

This presentation provides a technical overview of oblique imagery production procedures using high accuracy photogrammetric techniques. Acquiring and processing oblique imagery using established photogrammetric processes is cost effective and greatly improves the accuracy, value and usability of the imagery. Some of these proven and verified techniques include the use of calibrated sensors, aerial triangulation, and generating and applying a Digital Elevation Model (DEM) that is created from the imagery. The resulting accuracy using photogrammetric techniques results in oblique imagery with an accuracy of 2-3 pixels. Orthoimagery can also easily be produced to meet ASPRS Class 1 accuracy specifications.

4:00 – 4:45p (Lightning talks)

(1) Presenter: Brian Culpepper, Center for Advanced Spatial Technologies (CAST)

Title: Preparing for the Next Natural Gas Boom in Arkansas

The Arkansas Natural Resources Commission manages and protects Arkansas' land and water resources for the health, safety and economic benefit of all Arkansans. The ANRC management and GIS staff have been working to improve their Geo-intelligence and management of their non-riparian water permitting and reporting systems within Arkansas. These improvements will improve their efficiencies and decision-making capabilities as demand for our State's fresh water resources increase due to a changing climate and/or market demand for oil/gas production. Don't miss this lightning talk summarizing ANRC's next steps with geospatial technologies.

(2) Presenter: Fred Limp, Jack Cothren and Panagiotis Giannakis, Center for Advanced Spatial Technologies (CAST)

Title: Making Geospatial Technology Skills Available Across the State

Undergraduate and graduate certificates of proficiency in geospatial technologies have now been available to the citizens of Arkansas (and the world) since 2014. The undergraduate certificate is targeted at students with the equivalent of an associate degree or similar experience while the graduate degree focuses on advanced students. The undergraduate program has been approved for funding as part of the new ARFutures Program, providing full tuition support to qualified applicants. This lightning round talk reviews the program and opportunities it provides.

SESSION ABSTRACTS

Wednesday – Magnolia/Dogwood

(3) Presenter: Fred Limp, Joseph Johnson, Katie Wyatt and Justin Rollins; Center for Advanced Spatial Technologies (CAST)

Title: You Got a 3D Picture From Your UAV – Now What?

This lightning talk reviews new course development at the University of Arkansas, Fayetteville focusing on the challenges and opportunities that democratized software and aerial platforms provide for data acquired from UAS. This new course deals with the technical aspects of the acquisition and development of high quality data products and their formal accuracy assessment from RGB, MSS and thermal sensors. Students learn how to determine what level of quality output is both desired and desirable, what steps are needed in mission planning, ground control and the characteristics and effects of changes in parameters in processing. The goal is to prepare students to be able to create high quality data products appropriate to the objectives of the job.

(4) Presenter: Malcolm Williamson, Center for Advanced Spatial Technologies (CAST)

Title: Analyzing Truck Traffic in Arkansas Using Onboard GPS Data

Dr Sarah Hernandez, Assistant Professor of Civil Engineering at the University of Arkansas, is leading a study of freight traffic in Arkansas, for AHTD, using GPS position data provided by the American Transportation Research Institute. CAST is helping with geospatial analysis and web-based mapping.

4:45 – 5:15

Gold Level Sponsor Demos – EFS Geotechnologies

SESSION ABSTRACTS

Wednesday - Sycamore

1:30 – 3:00p

Arkansas GIS Board

3:15 – 4:00p

Presenter: Amy Beck, Arkansas Department of Transportation and Josef Lilly, Arkansas Department of Transportation

Title: How Fast Can You Take Out the Trash?

Arkansas has over 100,000 acres of right-of-way (ROW) and approximately 20,000 speed limit signs along its 16,400+ miles of state highways. Keeping the ROW litter free and the traveling public moving ahead at safe, reasonable speeds are two of the many responsibilities of the Arkansas Department of Transportation (ARDOT). This presentation will highlight how the GIS and Mapping Section at the DOT contributes by organizing, analyzing, and helping to maintain the Adopt-A-Highway dataset and has introduced the creation and maintenance of the Speed Limit dataset. Using tools such as the DOT's video log, Linear Referencing System, and SQL, these datasets will be more robust and sustainable. Learn how you can help keep clean and know your limits on the State Highway System!

4:00 – 4:45p

Presenter: Hanna Ford, Center for Advanced Spatial Technologies (CAST)

Title: Analysis of Monarch Habitat Change Throughout the Central U.S.

An analysis of recent, 2009 - 2016, annual land use change throughout the central flyway of the monarch butterfly. This initial review and analysis explores using the annual Cropland Data Layer in combination with NLCD and other layers, such as soil and transportation data to provide insight into the ability of these methods to reliably inform decisions in the present, and to assess their suitability for applying these methods to older versions of data for 25 year change mapping.

SESSION ABSTRACTS

Wednesday - Sycamore

4:45 – 5:15p

Presenter: Jonathan Duran, Arkansas GIS Office

Title: ARNOLD...A New Look at Your Arkansas Centerline File (ACF) Dataset

At the beginning of 2015 the Arkansas DOT (formerly AHTD) and the Arkansas GIS Office began a partnership that would take a new look at and enhance one of the state's mature datasets, the Arkansas Centerline File or ACF, as it is more commonly known. Driven by requirements from the Federal Highway Administration (FHWA), each state's department of transportation must submit road centerline data, aka ARNOLD (All Roads Network of Linear Referenced Data) supporting linear referencing for every public road in that state, not just highways. To accomplish this, the Arkansas DOT with direct support from the GIS Office adapted and enhanced the existing statewide ACF dataset to meet the federal requirements. Enhancements include the addition of standard attributes pertaining to road ownership and surface type, as well as those enabling the application of linear referencing.

Thursday - Cedar

9:00 – 9:45a

Presenter: Brian Clark, Katherine Knierim, USGS

Title: Geospatial Analysis with Python – Options and Comparison Between ArcPy and Open-Source

Zonal analysis, quantification of the percent of some spatial metric within an area, is a common task for geospatial analysis. An example is calculating the percent of each land-use category within a buffer around a point. A U.S. Geological Survey project that included data for thousands of groundwater well locations required zonal analysis with multiple rasters, such as soil types and land use. Because of the data volume and repetitive nature, the task was well suited to Python scripting. The initial code was written with ArcPy and duplicated using the open source Geospatial Data Abstraction Library (GDAL). Computation speed and results accuracy were compared between ArcPy and GDAL. While open-source options required additional programming and testing by the user, the time was compensated by the faster speed of GDAL and similar accuracy compared to the ArcPy-based code.

SESSION ABSTRACTS

Thursday - Cedar

9:45 – 10:30a

Presenter: Lori Sullivan, 1Spatial

Title: SDI Collaboration Made Easy Through an Automated Rules Based Approach

Government entities managing a Spatial Data Infrastructure (SDI) or any agency tasked with data aggregation must handle many data challenges. Data aggregation usually entails dealing with multiple data schemas and/or varying data quality/standards. Additionally, the business requirements to be met by the data are constantly changing. This presentation will share how many agencies are overcoming these data integration and management challenges by using a rules based engine to establish data validation, enhancement and aggregation in an automated, repeatable process. In lieu of complex developer's programs or scripts, intelligent software is being used to establish rules for such data integration tasks as schema standardization, data validation, data aggregation and even change detection. These rules can be applied to both geospatial and non-geospatial data across enterprise data sets. User stories will be shared as examples of successful collaborations.

10:45 – 11:15a

Gold Level Sponsor Demos – NEI

11:15 – 11:45a

Gold Level Sponsor Demos – Sanborn

1:30 – 2:15p

Presenter: Chad Cooper

Title: ArcGIS Enterprise Administration Tips, Tricks, BMPs, and Lessons Learned

Using ArcGIS Enterprise is one thing, administering it is another. Although many of the tasks have remained the same over the years and versions of ArcGIS Enterprise, the tools and methods have been refined and gotten better. Portal for ArcGIS is becoming more prevalent and requires administration. In this talk, we'll discuss and demonstrate some tips and tricks that I've come across through the years of installing, configuring, and administering ArcGIS Enterprise. Topics covered will include installation, data management, publishing, security, and troubleshooting. We will also discuss utilizing the ArcGIS Server RDST Admin interface. Finally, we will talk about best practices and how they can make administration and maintenance that much easier.

SESSION ABSTRACTS

Thursday - Cedar

2:15 – 3:00p

Presenter: James Holley, Justin Rowell, Pulaski Area GIS (PAgis)

Title: Get Outside: Developing Pulaski County Parks and Trails Application

Our objective was to design a web app to provide the people of Pulaski County with an easy to use application for locating, visualizing and accessing information about the parks and trails in the county. We took existing data on parks and trails, currently maintained by our organization, and cleaned and updated that data to make it more appropriate for our application. We made adjustments to our geodatabase to allow us to filter out some information that we didn't need, and add in information that we did. We then took information from the relevant city parks departments to provide more detailed and specific information about individual parks and trails. Finally we created a new basemap that would complement our maps objective, chose appropriate symbology, added features to improve the functionality of the app and published it to the web.

3:30 – 4:15p

Presenter: Chad Cooper

Title: Implementing a Highly-Available Enterprise GIS for Great Lakes Water Authority

Great Lakes Water Authority (GLWA) is one of the nation's largest water utilities, having millions of customers in the four-county greater Detroit metro area. GLWA had an aging enterprise GIS system that needed fully replaced and massively upgraded. GISinc (<http://www.gisinc.com/>) worked with GLWA to scope, spec, design and implement a multi-server ArcGIS Server setup with full internal development, testing, and production environments. In addition to a virtual private cloud was stood up in Amazon Web Services for failover purposes along with database log shipping and scripts and processes to keep all data and map services in the failover environment in sync with internal production. GLWA now has a fully functioning, highly-available, fully documented enterprise GIS system.

4:15 – 5:00p

Presenter: Paige Lott, Arkansas Game & Fish Commission

Title: Geospatial Data Collection Using Avenza Maps

Utilizing commercially available data collection applications provides organizations a cost-effective way to gather geospatial data with many of today's mobile and electronic devices. Avenza Maps is a mobile application that reads georeferenced pdfs, allows collecting of geospatial data, and supports many mobile devices. Combined with the use of in-house maps created for specific data collecting needs, this application can give non-GIS personnel the tools and information they need to collect geospatial data efficiently. Join me for a presentation that will provide a look into the use of Avenza Maps for geospatial data collection during an ongoing conservation project at the Arkansas Game and Fish Commission.

SESSION ABSTRACTS

Thursday - Redbud

9:00 – 9:45a

Presenter: Robert Reed, Arkansas Department of Transportation

Title: Historic Bridges: An Online Viewer

The Environmental Division of the Highway Department maintains records for over 300 bridges that have been determined historically significant. As part of the Department's move to an Enterprise GIS system, an online viewer is being developed to access not only attributed information about these bridges, but also historical photographs as well as reports. This presentation will showcase the online viewer as well as the content being included.

9:45 – 10:30a

Presenter: Gina Hopkins, Arkansas Department of Transportation

Title: Historical Maps in GIS

Old maps are a valuable asset in project planning and decision making in the digital age. Learn about sources, tips, tricks, and cautionary tales for using these assets in the geospatial environment.

10:45 – 11:15a

Presenter: Matthew Strawn, Arkansas Department of Transportation

Title: Broadway Bridge Replacement Unearths Little Rock History

During the construction of the new Broadway Bridge in downtown Little Rock, several cultural discoveries were unearthed. This report will highlight those discoveries and focus how the Arkansas Department of Transportation Environmental Division used various data sets and technologies to research, document, and protect the archaeological finds.

11:15 – 11:45p

Presenter: John Wilson, Center for Advanced Spatial Technologies (CAST)

Title: An Interactive View into the Past: Historic Washington, Arkansas

Historic Washington, Arkansas served as the temporary state capital from 1863-1865 and is now a state park. Explore the town with interactive maps and imagery tied to historic records. Who owned that building through the years? Who were the people who lived there? Who were they associated with? Are there any pictures of the people or the building? Is the building still there or has it been torn down? How long was it there? What does the area look like now? We'll discuss using our web-based interface to answer these questions and more, as well as the technology behind the interface and the methods used to develop it.

SESSION ABSTRACTS

Thursday - Redbud

1:30 – 2:15p

Presenter: Christopher Angel, PhD; Angie Payne; Center for Advanced Spatial Technologies (CAST)

Title: Rising Above: Archiving the Experiences of Japanese Internment at Rohwer

The relocation and detention of thousands of Japanese-Americans during the 1940s produced an array of historical materials that reflected profound shifts in personal experiences, social relationships, and spatial perceptions. The recently released archive, Rising Above, showcases these shifts as they were related to the relocation center at Rohwer, Arkansas. With Rohwer as a study site, it was possible to develop a metadata-rich data capture system enabling the production of geovisualizations, timelines, a data-driven archive, a social network, and a 3D interactive visualization of the site built in Unity3D.

2:15 – 3:00p

Presenter: Nikiya Simpson, UAMS

Title: Sharing County Health Data and Mobile Solution using ArcGIS Online

PHACS is our web-based repository of maps and reports allow community members to visualize social-economic and behavioral factors for health, access to health care, and outcomes focusing on chronic diseases prevalent in Arkansas. We focus on public health indicators by county and other local regions that can be used for program planning and finding health care resources. ArcGIS Online helped us to transform our maps into a responsive design capable of reaching more users through mobile applications.

3:30 – 4:15p

Presenter: Sean G. Young, UAMS

Title: Rabies in Arkansas from 1995-2016

An introduction to zoonotic Rabies in the state of Arkansas. We will examine the spread of the virus across the state from 1995-2016, and discuss the current distribution and risk.

SESSION ABSTRACTS

Thursday - Redbud

4:15 – 5:00p

Presenter: Benjamin Gilley, Richard Norwood, Arkansas Department of Health

Title: The SWAP Model: Using GIS to Protect Public Drinking Water

The Arkansas Department of Health developed the source water assessment plan (SWAP) model in the early 2000's to fulfill the source water assessment requirements of the Safe Drinking Water Act Amendments of 1996. The SWAP model utilizes GIS to perform vulnerability assessments of public water sources throughout the state in order to promote drinking water source protection programs for public water systems. The latest update of the SWAP model consisted of two phases. The first phase, completed in 2014, included converting the original Avenue code used in Esri ArcView 3.0 to Python for use in ArcMap 10.X. The phase two portion, completed in late 2016, included the creation of a toolbox that allowed for greater user customization. The final output of the model consists of a detailed source water assessment (SWAP Report) complete with vulnerability tables and maps for every public drinking water source in the state.

Thursday - Magnolia/Dogwood

9:00 – 9:45a

Presenter: Malcolm Williamson, Center for Advanced Spatial Technologies (CAST)

Title: Thinking about a drone? Here's what you need to ask!

Unmanned aerial systems, and the sensors for them, are everywhere you turn today, and they can certainly bring a lot of value to the geospatial community. Unfortunately, there is as much misinformation as good information out there. It is important for you to make a needs assessment of your application and then ask the appropriate questions of the vendors. I'll share the lessons that we've learned and help you get headed in the right direction as you try to sort the good from the bad.

SESSION ABSTRACTS

Thursday - Magnolia/Dogwood

9:45 – 10:30a

Presenter: Malcolm Williamson, Center for Advanced Spatial Technologies (CAST)

Title: Mapping the Last Steps – Using UAS and GIS to Help Locate People that Become Lost When Crossing Borders

The Undocumented Migration Project [UMP] is a long-term anthropological analysis of clandestine border crossings between Northern Mexico and Southern Arizona directed by University of Michigan Anthropology Professor Jason De León. As a result of the U.S. immigration enforcement strategy known as Prevention through Deterrence, undocumented migration has shifted to remote border regions such as the Sonoran Desert, where the well-organized and sometimes violent process has resulted in an alarming number of deaths in the wilderness, including women and children. In May of this year, I joined the UMP team in Arivaca, Arizona, to help them assess the value of fixed wing and multi-rotor drones in helping to locate some of these lost individuals. Our results suggest that drone-collected orthoimagery and web-based GIS platforms can greatly contribute to the ability of these teams to do their humanitarian work.

10:45 – 11:15a

Presenter: Chris Cretini, USGS

Title: What's New with the USGS National Geospatial Program

As one of the cornerstones of the U.S. Geological Survey's (USGS) National Geospatial Program, The National Map (TNM) is a collaborative effort among the USGS and other Federal, State, and local partners to improve and deliver topographic information for the Nation. It has many uses ranging from recreation to scientific analysis to emergency response. The National Map is easily accessible for display on the Web, as products and services, and as downloadable data. This presentation will provide a wide range of updates on current activities of the USGS National Geospatial Program. Topics will include the 3D Elevation Program (3DEP), National Hydrography Dataset (NHD), The National Map data download functions, TNM services, US Topo, and TopoView.

11:15 – 11:45a

Presenter: Christopher Angel, PhD; Center for Advanced Spatial Technologies (CAST)

Title: The Corona Atlas 2.0: Crowd-sourcing Satellite Image Acquisition and Orthorectification

The Corona program collected a large number of satellite images from 1967 -1972 producing over 188,000 images. These missions were declassified beginning in the early 1990s. The primary challenge with these images is that they are not orthorectified. Over the course of a three year project, funded by the NEH, it was possible for the team at CAST to develop a fully open-source, sustainable, browser-driven Corona Referencing System that provides users at all levels of technical capability, with an approachable interface to upload, georeference, and begin orthorectifying Corona images. Additionally, these images are automatically facilitated into our publicly accessible and recently updated Corona Atlas, where any user may explore and download recently orthorectified images for free.

SESSION ABSTRACTS

Thursday - Magnolia/Dogwood

1:30 – 2:15p

Presenter: Adam Barnes, Center for Advanced Spatial Technologies (CAST)

Title: Grave Identification with Hyperspectral Imaging (HSI)

This research tested ground-, air- and satellite-based remote sensing technologies for identifying clandestine graves. Using known grave locations, including human graves interred specifically for this research project, we conducted field spectroscopy, aerial hyperspectral imaging (HSI), and terrestrial and aerial laser scanning (TLS and ALS) to model their surface changes over time. It was anticipated that combining these data types to emphasize subtle grave characteristics not otherwise noticeable using a single method would allow models to be developed for known-but-unmarked graves. With limited data and relatively moderate spatial resolution, we have found it challenging to establish an operational predictive model for probability mapping and remote detection of clandestine gravesites. Image processing techniques that enhance the visual contrast between on- and off-grave surfaces to allow for human interpretation appears to be the best approach. More and higher quality data are needed to fully investigate more sophisticated (e.g. deep learning-based) methods.

2:15 – 3:00p

Presenter: Bishwa Sapkota, UA-Monticello

Title: Automatic crown delineation of bottomland hardwood species using high spatial resolution satellite imagery

Efficient forest management demands detailed and up-to-date information on forest inventories. Individual tree crown delineation is one of the effective method for developing database on forest inventory. With the rapid development in remote sensing platforms and techniques, applicability and effectiveness of such developments in automatic generation of information on forest attributes has been researched. However, in a scenario, where most of the studies on crown delineation have been concentrated around coniferous stands, more research on the applicability of available remote sensing tools in deciduous forest is necessary. This research utilizes high spatial resolution satellite imagery (WorldView-3) in delineating individual tree crown of bottomland hardwood species. Two different commonly used crown delineation algorithms were used (1) Multiresolution segmentation followed by watershed transformation (MSWT) and (2) Region grow (RG). The automatically delineated crowns were assessed with reference to manually delineated crowns and crowns were classified into either of four cases: Matched, Splitted, Merged, and Omitted. MSWT outperformed RG, with 62.79 % of matched cases for MSWT whereas 56.51 % of matched cases for RG. For both the algorithms, most of errors were attributed to (1) irregular gaps within the crowns and (2) large variation in crown sizes. The results suggested that the algorithms developed based on assumptions made for coniferous stands can be applied over deciduous stands, but need to be made even more adaptive. Future research is necessary to explore more adaptive algorithms that can deal with highly varying forest conditions.

SESSION ABSTRACTS

Thursday - Magnolia/Dogwood

3:30 – 4:15p

Presenter: Jennifer Wheeler, Arkansas GIS Office

Title: Spatial Distribution and Demographics of 911 Calls in Little Rock

This presentation explores the methodology behind an analysis of the spatial distribution and demographic predictors of 9-1-1 calls in Little Rock, Arkansas. Knowing where certain calls often originate, such as those linked to theft or assault, could assist law enforcement in predicting high call volume and reducing crime. Also, analyzing the demographic predictors of 9-1-1 calls, such as poverty and economic inequality, can help to explain why some areas experience more crime than others. Further, given the appropriate application of these kinds of spatial analyses, the number of 9-1-1 calls could be reduced in high call volume areas that receive social services intervention. While this presentation will not speak to possible intervention applications, it is intended to provide a systematic approach for exploring the following:

- The spatial distribution of 9-1-1 calls to identify areas of clustering, or hot spots.
- The relationship between 9-1-1 crime calls and demographic predictors.

4:15 – 5:00p

Presenter: Jonathan Duran, Arkansas GIS Office

Title: Coordination with Local Elected Officials: Cowboy boots, Coffee Shops, and Gravel Roads

Working with “non-geospatial” local elected officials on geospatial projects can be challenging from multiple aspects: varying degrees of technological experiences and aptitudes, schedules full of other responsibilities, and sometimes even suspicious or non-cooperative attitudes. Success often relies heavily on the leadership and vision of the official, but underlying these is building a relationship that encompasses more than just your project. Local trust has to be earned, and this cannot be achieved sitting behind a desk. It takes being on the road and having face time with individuals. I'll share thoughts, experiences, and a few stories from the road about how the Arkansas GIS Office leverages local governments to build statewide data sets.

SESSION ABSTRACTS

Thursday - Sycamore

9:00 – 9:45a

Presenter: Brian Culpepper, Center for Advanced Spatial Technologies (CAST)

Title: Pollinator Protection with Spatial Volunteers

The Pollinator Partnership strives to protect our native pollinators by leveraging many volunteers who collect a wealth of data regarding the conditions of many pollinator habitats. The Center for Advanced Spatial Technologies (CAST) at the University of Arkansas have partnered with this non-profit organization to help spatially enable their volunteer workforce and our initial collaboration targets the collection of native plant seeds that are crucial to pollinators within the Eastern Broadleaf Forest ecoregion. The Monarch Wings Across the Eastern Broadleaf Forest project covers five States within the United States and we'd like to share our experiences with building mobile applications to assist their volunteers with this two-year project.

9:45 – 10:30a

Presenter: Cristina Scarlat, Northwest Arkansas Regional Planning Commission

Title: "Are We There Yet?" Forecasting Travel in Northwest Arkansas

The Northwest Arkansas Travel Forecasting Model has been utilized as a tool in modeling transportation by the Northwest Arkansas Regional Planning Commission since 2005. The NWA Travel Forecasting Model is a gravity based regional model that has been periodically improved and was recently upgraded through the addition of a transit component that allows it to forecast transit trips in addition to car trips only. The presentation will include a brief history of the forecasting model and will concentrate on the potential that the model has to forecast vehicular traffic, as well as transit ridership. The speaker will present the model steps and information on the present and future use of the model. A blueprint for future model improvements will also be presented.

SESSION ABSTRACTS

Thursday - Sycamore

10:45 – 11:15a

Presenter: Lee Beshoner, FTN Associates, Ltd.

Title: Floodplain Management for GIS users

Floodplain Management is a wide topic and normally handled by a wide range of people ranging from engineers to GIS personnel to county and city staffers. The goal of this presentation is to provide a basic understanding of floodplains, floodplain management, how the world of GIS is becoming a key component in the floodplain world, and how current GIS personnel can become involved in this area.

11:15 – 11:45a

Presenter: Drew Moffitt, FTN Associates, Ltd.; Dennis Webb, City of Little Rock

Title: Mapping Little Rock Stormwater in the Cloud and on Land.

FTN Associates, working for the City of Little Rock and PAgis, is currently helping the City of Little Rock to complete its stormwater GIS database. Previous city-wide infrastructure mapping projects helped create highly detailed hard-copy maps that are still in use today. A lot of effort went into getting these maps scanned and digitized into a GIS database, but there were still large areas of the City that did not have any stormwater GIS information. For the areas that had been digitized, a fully-connected geometric network was not possible due to missing features and disconnected stormwater assets. We will discuss how FTN Associates is utilizing both ArcGIS Online and ArcGIS Collector to help get the City get from a network of over 120,000 disconnected junctions and linear features to a fully-connected GIS stormwater database.

1:30 – 2:15p

Presenter: Tina L. Thompson, CFM, GISP; Western Arkansas Planning & Development District (WAPDD)

Title: 911 Addressing and Floodplain Management - Working Together to Solve Floodplain Management Issues

WAPDD maintains 911 Addressing and Mapping for 3 Counties and the Cities within in Western Arkansas. Over the years, WAPDD has provided maps for Emergency Management/Floodplain Managers at Sebastian County to assist with their task of managing the Floodplain in their county. In 2013, WAPDD began to work more closely with the Floodplain Management in Sebastian County and have put policies in place to help maintain the floodplain utilizing our 911 Addressing program. These policies have been incorporated in Crawford and Scott counties as well. This session will cover the advantages for 911 Addressing and Floodplain Management to work together. We will review the processes that are used in Crawford and Sebastian counties, as well as some of the issues we have encountered along the way. We will show how GIS is a valuable tool in Floodplain Management and how it is used by WAPDD to assist the Floodplain Managers.

SESSION ABSTRACTS

Thursday - Sycamore

2:15 – 3:00p

Presenter: Drew Moffitt, FTN Associates, Ltd.

Title: GIS Based Simplified Dam Inundation Mapping at a State-wide Scale.

There are two situations when inundation mapping may be required on a state-wide basis:

- 1) when large-scale rain events produce widespread flooding, potentially threatening many dams that may not have dam breach inundation maps; in these cases there may not be sufficient time to develop the needed inundation maps should a dam failure prove imminent; and
- 2) when the original inventory of dams classified as Low Hazard has not been re-evaluated in many years and new development has occurred downstream of them.

This presentation will discuss an overview of how GIS has been used to tackle dam inundation mapping for over 8,000 dams across the country, including Arkansas.

3:30 – 4:15p

Presenter: Katy Hattenhauer, Arkansas Department of Environmental Quality (ADEQ), Sharon Hawkins, Arkansas Department of Transportation

Title: Reduce, Reuse, Recycle - From CAD to NHD

ARDOT and ADEQ have joined forces and are in the process of processing data from CAD into the NHD by means of editing and conflation. For many years, ARDOT digitized and displayed major and minor water features for their county and city map series. In an effort to use one authoritative source for water, the two state agencies have teamed up to enhance the existing NHD data with the CAD information by editing and cleaning the data to meet the NHD criteria. Once the data is ready, the USGS conflation tools can be used to get the data into the NHD. This presentation will explain the processes in place to meet the NHD requirements.

SESSION ABSTRACTS

Thursday - Sycamore

4:15 – 5:00p

Presenter: Drew A. Westerman, USGS

Title: Sharing GIS Data Layers Developed for U.S. Geological Survey Regional Water-Availability Studies

The U.S. Geological Survey (USGS) Water Availability and Use Program is conducting an assessment of water availability throughout the Nation to gain a better understanding of the status of our water resources and how changes in water use and climate may affect those resources. Through this effort, multiple layers of Geographic Information System (GIS) data are created to aid in the development of surface-water and groundwater models that represent a resource of interest. The produced GIS data are standalone products and can be used in other projects and to help guide resource-management decisions. Examples of GIS data include the hydrogeologic framework that contains the altitude and thickness of units within regional aquifer systems, county-level water-use data, geophysical profiles of soil conductivity, and potentiometric surfaces of wells screened in an aquifer. The USGS can quickly disseminate the GIS data using customized web applications or the USGS ScienceBase platform.

Friday - Cedar

8:30 – 9:15a

Presenter: Matt Bullock, Esri

Title: ArcGIS Solutions for State and Local Government

ArcGIS Solutions provide hundreds of ready-to-use maps and apps that can be used to jumpstart your ArcGIS implementations. The solutions help government agencies leverage their geographic information and the ArcGIS Platform to improve government services and enhance services provided to the public. Experience how configurable maps and apps can enhance the services you offer and save implementation time and money.

SESSION ABSTRACTS

Friday - Cedar

9:15 – 10:00a

Presenter: Vince Guillet, John Pfenenger, Central Arkansas Water

Title: Connecting the Dots – Water Service Outage Management

At Central Arkansas Water (CAW) GIS is an essential tool for staff manage our infrastructure assets. A lot of emphasis has been placed on developing geodatabases representing our critical assets such as water mains, valves, hydrants. Customer records related to billing such as meters and service lines have traditionally been stored in the Customer Information and Billing system (CIS). As consumer technology evolves, today's customer expects to be able to quickly access information about the status of their utility services. As a result, CAW is developing a dataset and applications to address this need.

In this presentation CAW GIS staff will step through the processes that are used to map 135,000+ water meters, and automatically tie them into a complete geometric network. Some of the processes are automated and some are manual, but many considerations and requirements of designing and building water utility network will be covered.

The final product will support main shut-downs by automatically identifying the valves needed to be closed to isolate a broken water main. The network will also be used to select and notify affected customers. A web map will also be available to visualize the areas experiencing water service interruptions."

Friday - Redbud

8:30 – 9:15a

Presenter: Dr. Yang Luo-Branch, Arkansas Economic Development Commission

Title: "Good Company" in Arkansas - GIS in Economic Development Site Selection

"When in Arkansas, you're in good company" is not just a tagline for the marketing effort of Arkansas Economic Development Commission (AEDC). It also serves as the guideline of mission for the agency: we recruit and retain companies. Location is utmost crucial to our clients. Not only prospect companies scrutinize the site and facility options before they make a decision about a new territory; the existing companies, more often than we think, reevaluate their current operation locations and make adjustments. In this process, GIS and location intelligence work hand in hand. The paper aims the present the GIS applications in the process of recruiting new companies and retaining existing employers in the Natural State by AEDC. One conclusion is made that GIS is not only a cartography tool and an analytical platform, but also it is a way of thinking, which should be adopted by more economic development professionals.



Friday - Redbud

9:15 – 10:00a

Presenter: Shelby Johnson, Arkansas GIS Office

Title: 40 Years of City Annexation Homework that No Teacher Ever Graded: Until Now

Prior to Act 914 of 2015 one of the most challenging data sets to maintain on a statewide basis was the municipal boundary of the cities and towns across the state. In former years, these boundaries made it on the state map at the end of the process. Now we have a law that starts with GIS. The factors driving this move are numerous, but are predicated on the fact that many business processes at the State level demand accurate municipal boundary data to support election administration, sales and use tax revenue assignment, allocation of state turn-back funds, public utility franchise fee reporting and collection and many others. These processes all cement the relationship between the state and its instrumentalities and GIS is the proverbial glue that binds these business processes into reality. This candid presentation will highlight some of the more colorful and fascinating issues involved with improving this data set as a part of our larger GIS framework. We will also discuss the strategy to ensure municipal boundaries are better than ever before for redistricting following the 2020 Census.

Friday - Magnolia/Dogwood

8:30 – 9:15a

Presenter: Jennifer Wheeler, Arkansas GIS Office

Title: Using ACS Census Data for Hot Spot Analysis

For the third component of the Arkansas Department of Veterans Affairs (ADVA) 2015-2020 Strategic Plan, public administration graduate students at the University of Arkansas at Little Rock generated a report that explores options for addressing the long-term care needs of Arkansas veterans. Included in the report is a suggestion that the ADVA partner with the nursing home industry to encourage certification of homes in target areas so these facilities qualify for VA reimbursement. In order to identify those target areas, data from the American Community Survey (ACS) provided by the US Census Bureau was included in a hot spot analysis of veterans aged 65 and older. Because ACS data at the tract level can sometimes be unreliable, this presentation will focus on the steps taken in order to assess ACS data reliability and then conduct a hot spot analysis of veterans compared to appropriate nursing home facilities.

9:15 – 10:00a

Presenter: Robyn Lane, Center for Advanced Spatial Technologies (CAST)

Title: OPENGATE: Expanding Opportunities for Geospatial Education in Arkansas

Be a part of OPENGATE: an NSF-funded initiative to develop spatial skillsets in the workforce by expanding access to education and training in geospatial technologies across Arkansas. CAST, in partnership with four community colleges in the U of A system, is working to integrate spatial technologies into existing degree programs and reinforce relationships between educators, students, and industry in the development of a spatially-enabled workforce. Outreach efforts funded through this project are happening at the K-12, community college, and industry levels and focus on building capacity at the technician level to support economic development across the state.

POSTER ABSTRACTS

TITLE	Author	Affiliation
GIS in the non-GIS Classroom: Using "First-Day" Student Mapping Assignments to Incorporate GIS in Lecture Classes	Patrick Hagge	Arkansas Tech University
Parks, Trails, and More...	James Holley	PAGis
Spatial Distribution and Demographic Predictors of 9-1-1 Calls - Little Rock, AR - 2016	Jennifer Wheeler	Arkansas GIS Office
Current LRS Overlaid on Historic Map of Little Rock (1871)	Andrew Dartez	Arkansas DOT
"Good Company" - Arkansas Landmark Map	Yang Luo Branch	Arkansas Economic Development Commission (AEDC)
Timber Harvests in the Southern Region of the US Forest Service	Brian Barns	United States Forest Service
PHACS for Sharing County Health Data and Healthcare Resources	Nikiya Simpson	University of Arkansas for Medical Science (UAMS)
Efficiency of Space: A Case Study on Conway's Popular Restaurants	Will Dane	City of Conway

BIENNIAL AWARDS

The Arkansas GIS Users Forum is proud to honor those that have shown initiative, innovation, and service to the Arkansas GIS Community. To that end, we have developed awards that are given at the biennial symposium to show our appreciation for their efforts. There are four award categories:

Excellence Award

The Arkansas GIS Users Forum Excellence Award recognizes user organizations for their outstanding application of geospatial technology. Candidates for the Excellence Award demonstrate dedication, insight and a high degree of initiative in implementing successful geospatial systems. The award recognizes the accomplishments of organizations whose success and attention to quality leads others by example.

Innovator Award

The Arkansas GIS Users Forum Innovator Award recognizes the unique and significant contributions of pioneering organizations that have pushed the envelope of geospatial technology through innovative development of a technology, service or application applied within the state of Arkansas. Candidates for this award include organizations whose vision and forward thinking have successfully implemented cutting-edge advances and innovative solutions that benefit geospatial users. Nominees for this award may include any user organization, including government agencies and nonprofits.

Distinguished Service Award

This award is bestowed on an individual for extraordinary personal contribution to the mission and success of the Arkansas GIS Users Forum. Candidates for this esteemed award have demonstrated many years of dedicated service to the Arkansas GIS Users Forum, giving unselfishly of their time and energy. Their purposeful commitment has made a definitive and positive impact on the state. Winners of the Arkansas GIS Users Forum Distinguished Service Award will be inducted into the Arkansas GIS Users Forum Hall of Fame at the biannual Arkansas GIS Users Forum Conference. Nominees may be any current or former member of the Arkansas GIS User's Forum.

Lifetime Achievement Award

This distinguished award recognizes an individual's outstanding contribution and long standing commitment to the Arkansas geospatial community. Candidates for this award include those whose pioneering spirit and demonstrated dedication have contributed greatly to GIS in Arkansas and whose example serves as an inspiration to others. Nominees may be any current or former member of the Arkansas GIS Users Forum.

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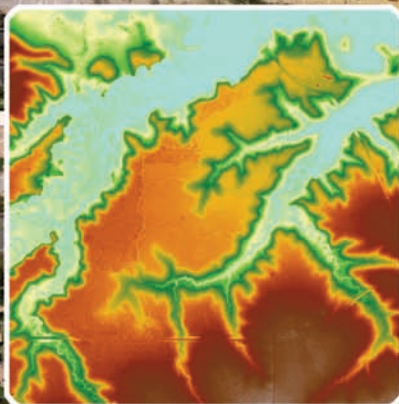
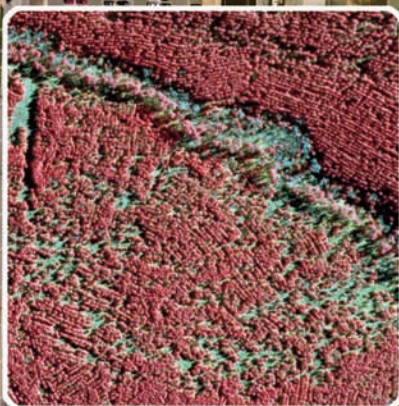
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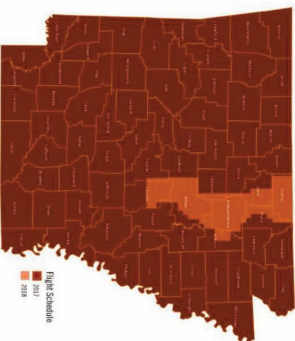


2017 ARKANSAS STATEWIDE ORTHIMAGERY PROGRAM

PROGRAM OVERVIEW

The 2017 Arkansas Statewide Orthimagery Program fulfills the requirement for the Arkansas GIS Office to update the statewide orthophotography base map and manage it as an ongoing program. The resulting imagery products are a resource for state and local governing entities and forms the foundation that enables consistency for geo spatial products and data produced in and for the State of Arkansas.

Additional product sheets are available from Sanborn representatives that contain more detailed information about Sanborn's geospatial offerings and options.



2017 ARKANSAS STATEWIDE ORTHIMAGERY PROGRAM

Optional Products & Services

In addition to base products, agencies may also select from any of the following optional products and services:

- Resolution Upgrade
- Contours
- Structures
- Planimetric Data
- Additional "Off-Year"
- LiDAR
- Oblique Imagery

Delivery

Core products to be delivered within six months, upon completion of flights.

For More Information:

To learn more about the program, please contact:
Ms. Krysia Sapeta, *Director, Strategic Accounts*
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Center for Advanced Spatial Technologies

The Center for Advanced Spatial Technologies is a multi-disciplinary center for spatial research and technology housed within the J. William Fulbright College of Arts and Sciences at the University of Arkansas. Established in 1991, CAST offers students, faculty, and the public opportunities to learn about the various applications of geographic information systems. CAST researchers span the social and physical sciences with expertise in the measurement and analysis of spatially referenced, multi-scalar data and processes, and are funded primarily through external sponsorships.

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