



2023 TNGIC Middle Tennessee Fall Regional Forum

Detailed Agenda

- 8:30-9:00 am- Registration Opens
- 9:00-9:20 am- **TNGIC Welcome**
Natalie Robbins & Paul Dudley, TNGIC Board Members
- 9:20-9:40 am- **3D Hydrography Program: A new beginning**
Dennis Pedersen, Director, State of TN STS GIS Services
The State of Tennessee has developed many common framework GIS datasets through the Tennessee Base Mapping Program over the past 25 years. The current focus is enhancing the statewide hydrography layer through participation in the USGS 3D Hydrography Program (3DHP). This presentation will focus on current and planned data acquisition efforts and highlighting/showcasing a sample dataset from the Holston River watershed in East Tennessee.
- 9:40-10:00 am- **GIS Trends within Utilities and Local Government**
Zach Layne, True North Geographic
Zach will provide an overview of GIS trends and patterns within utilities and local government.
- 10:00-10:20 am- **LDIP and the LRS: TDOT's Local Data Integration Program**
Sydney Fuhrig, Planning Specialist, TDOT
The presentation begins with an overview of what the Linear Referencing System is and how TDOT manages it with ESRI Roads & Highways. Next, is an overview of how the Local Data Integration Program (LDIP) is designed to have local entities submit their transportation data directly to TDOT to be integrated into the roadway network. I'll then discuss LDIP's goals of increasing community involvement, improving the accuracy and granularity of data, and increasing efficiency in the Planning Data Office at TDOT. I will also discuss the process of LDIP implementation and our progress on the project working with our partner, the Center for Urban Informatics and Progress at the University of

Tennessee at Chattanooga. Finally, I will conclude with a discussion of our next steps and reiterate our desire for community involvement throughout the project lifecycle.

10:20-10:40 am- **Break**

10:40-11:00 am- **Exploring The Integration of Drone Multispectral Data with DSM And Vegetation Indices for Mapping Winter Wheat, Chickweed, and Hairy Buttercup**

Clement Akumu and Samuel Ajibade, Tennessee State University

The mapping of winter wheat, chickweed, and hairy buttercup is essential for crops and weeds' management. The goal of the study was to explore the integration of drone multispectral data with Digital Surface Model (DSM) and Vegetation Indices (VIs) for mapping winter wheat, chickweed, and hairy buttercup. Drone multispectral data with DSM and derived vegetation indices were integrated to map the canopy cover of winter wheat, chickweed, and hairy buttercup using supervised random forest classification algorithm. We found that the overall mapping accuracy of the canopy cover of winter wheat, chickweed, and hairy buttercup increased by about 6% when drone multispectral data was integrated with DSM and VIs relative to standalone drone multispectral data. This finding could be used to enhance winter wheat crop monitoring and site-specific application of herbicides for controlling weeds' infestation.

11:00-11:20 am- **Documenting the Battle of Nashville: Recent Research in Sevier Park**

Adam Fracchia, Archaeologist, Metro Historical Commission

Over the last year, the Sunnyside Mansion in Sevier Park has undergone extensive renovations. Built in 1852, this historic house in south Nashville is the current office of the Metro Historical Commission which seeks to protect and preserve the historic and archaeological resources of Metro Nashville/Davidson County. Recent renovations and archaeological work at Sunnyside have documented extensive damage to the property during the Battle of Nashville. This paper details the efforts to record this information in partnership with the Metro Nashville Police Department.

11:20-11:40 am- **Experience Builder: Advice, Hints, and Recommendations for App Success**

Andrew Pericak, GIS Analyst, TDOT

I will share tips, tricks, and lessons learned that I have picked up while migrating web apps from Esri's Web AppBuilder (WAB) to the new Experience Builder (EB). I am not an Esri employee nor an EB expert, but I imagine those statements are true for you too—so I will discuss the things I think you need to know as you begin working with EB.

Experience Builder is the replacement for the tired-and-true but sadly soon-to-retire Web AppBuilder. While we all have through at least 2025 to switch our web apps to EB, if you're anything like me, EB's learning curve has presented a bit of a challenge. But through work in translating existing WAB apps to EB, I have already found a set of concepts, best practices, and unwritten rules that can smooth that curve and—dare I say it—make creating apps in EB exciting and fun. I am eager to share what I have learned with you and to hear your own wisdom for finding Experience Builder success.

11:40-12:00 pm- **Partner Spotlights**

12:00-1:00 pm - **Catered Lunch from Moe's** (vegetarian options available)

1:00-1:20 pm - **cARTography in ArcGIS Online**

Andrew McDonagh, GIS Manager, TDEC State Parks

Sometimes a simple trick is just the thing needed to make your data pop. Learn a few tips and tricks to take your webmaps to the next level by exploring blend modes, effects, charts and arcade expressions in popups with a real life example from Tennessee State Parks.

1:20-1:40 pm- **Proactive Risk Analysis for Vulnerable Road Users in Tennessee**

Will Rogers III, TDOT

Tennessee's Department of Transportation needs to know 1) where to prioritize pedestrian safety projects each year using funding from Highway Safety Improvement Program (HSIP) to reduce pedestrian fatalities and serious injuries and 2) to estimate the crash risk and latent demand for pedestrian, bicycle, micromobility and/or transit facilities during hundreds of project reviews conducted each year within the TDOT Multimodal Planning Office. A "Multimodal Planning Toolbox" is proposed consisting of a direct demand toolkit, crash toolkit, level of traffic stress toolkit, and a communities of concern toolkit. The four toolkits each contain a few variables or "tools" such as population density in the direct demand toolkit. The toolkits are combined to produce a Multimodal Priority Score, ranking Tennessee's 4,562 census block groups. Example methods include Random Forest Forecasts and Emerging Hot Spot Analysis.

1:40-2:00 pm- **Break**

2:00 -2:20 pm- **GIS in Disaster Response**

Mike Curtis, GIS Manager, Rutherford County GIS

Utilizing GIS techniques in response to the 1 APR 2023 EF-2 Tornado that struck several areas of Rutherford County including Eagleville and Readyville. Teams of GIS personal used UAVs, Survey123, Site Scan, and Experience Builder to collect and display data. The teams answered numerous time sensitive questions for responders and recovery efforts.

2:20-2:40 pm- **GeoAI: Harnessing Deep Learning and FOSS Geospatial Software for Archaeological Exploration**

James Zimmer-Dauphinee, Vanderbilt University

James will explore techniques to use GeoAI and Open Source Software used on Archaeological projects.

2:40-3:00 pm- Closing Remarks

2023 TNGIC Middle Tennessee Business Partners



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