

WV Association of Geospatial Professionals

April 2016

Dear GIS Community of WV,

This has been an exciting year for me as the president of WVAGP. Our board has been hard at work during these last few months and, because of their time and effort, we have a strong training and social year prepared for you. Please check out our website periodically and watch your emails for invites to these meetings, social events and training opportunities. Check there and in this newsletter for details about our 2016 GIS Conference on May 3-6.



I would like to thank all of you for giving me the opportunity to represent you and the WVAGP as the president of the association. It has been a great experience to serve as the president, and I encourage all of you to invest some of your time by taking action and engaging yourself in the association. You will not regret it. I also would like to thank the board. They have put a lot of time and effort into the organization, and we would not have been able to accomplish all that we did this year without them.

Do not forget to vote! We have six director positions on this year's ballot. Your vote matters. If you are unable to make it to the annual meeting, please mail in your vote by April 30. Mail-in votes will be collected and taken to the annual meeting. Jennings Starcher has emailed out the election packet. If you did not receive it, please contact him at (304) 558-5380 or Jennings.N.Starcher@wv.gov.

I look forward to seeing you all at the 2016 WV GIS Conference.

Sincerely,
Adam Cottrell, GISP
[WVAGP](#) president

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2016 West Virginia GIS Conference

Hosted By:



WV GIS Conference Set for May 3-6

The WVAGP is celebrating 20 years of GIS progress at the biennial West Virginia GIS conference, slated for May 3-6, 2016, on the West Virginia University campus in downtown Morgantown, W.V.

The conference will be hosted by the WV GIS Technical Center housed in WVU's Department of Geology and Geography, as well as the WV state GIS coordinator and the WVAGP.

The event is an opportunity to share geographic information and mapping technologies in the Mountain State. The conference agenda includes concurrent presentations, reports on geospatial activities, workshops and notable speakers. See [updated schedule](#) online.

Tuesday, May 3: Workshops, seminars, WVAGP mixer.

Wednesday, May 4: Executive and legislative session, reports on state GIS activities, keynote speaker Dr. Daniel Sui (see Page 3), annual meeting and sponsor dinner.

A group picture of all conference attendees will be taken in Woodburn Circle from an aerial UAV from 1-1:30 p.m. Wednesday, May 4, weather permitting. The rain date is at the same time Thursday, May 5. The WVAGP got the OK from the Morgantown police chief.

Thursday, May 5: Concurrent presentations, poster/map competitions, Geospatial Jeopardy and WVAGP hospitality.

Friday, May 6: Workshops and seminars. Early registration has been extended. For more information or to register, [visit the conference website](#).

Reasons to Attend Conference

- 150 GIS professionals and 13 exhibitors have registered to date
- Drone group picture of attendees
- 8 plenary sessions, 37 individual oral presentations, 12 posters, 3 workshops
- 22 GIS Lessons from Esri's Hands-on Learning Lab (HOLL) See Page 3
- State Senator Dave Sybolt and other distinguished speakers
- History of GIS & Film Part II
- Funding announcement for counties on converting paper tax maps to digital
- FEMA funding announcement for new lidar for nine WV counties
- Keynote Dr. Daniel Sui discussing "Little Drones Emerging Big Challenges for GIS"
- Esri-led sessions on ArcGIS Online Governance, ArcGIS 10.4, and ArcGIS Pro 1.2
- Emergent geospatial technologies like single photon, Geiger mode lidar
- Captivating concurrent paper and poster sessions on GIS research and applications
- Federal (USGS, FEMA, Census, NRCS, USACE) and state agency reports
- GIS experts and exhibitors from numerous organizations; meet and learn from various sponsors and exhibitors; evening socials to network and meet colleagues
- Recognition of new GISPs, GIS service, conference awards, etc.
- Next statewide GIS conference: 2018

Esri HOLL Slated for WV GIS Conference

We are pleased that Esri has decided to have its Hands-On Learning Lab (HOLL) as a training resource at the WV GIS Conference on May 3-6. The mobile computer lab is an excellent way to introduce ArcGIS software users to a variety of Esri solutions and training opportunities, while learning to use Esri software.

During the 2014 WV GIS Conference in Charleston, there were 222 lessons taken by 74 students—or 37 percent of the 200 attendees completed at least one lesson.

HOLL lessons offered (lessons subject to change):

1. Getting Started with GIS 1: Understanding the ArcGIS Platform
2. Getting Started with GIS 2: Using ArcMAP to Explore GIS

- Data
3. Getting to Know ArcGIS Pro
4. Advantages to Storing Your GIS Data in the Geodatabase
5. Creating Presentation Quality Maps in ArcMap
6. Editing GIS Data in ArcMap
7. Multi-user Editing Using Versioning
8. Editing and Maintaining Parcels Stored in a Parcel Fabric
9. Geocoding Street Addresses to Create Map Points
10. Importing and Preparing CAD Data for Use in ArcGIS
11. The Importance of Spatial Reference in Tactical Applications
12. Exploring Health and Epidemic Patterns Using Spatial Statistics Tools
13. Optimizing Transportation Routing Using ArcGIS Network Analyst
14. Modeling Time and Distance Along Networks Using

- Linear Referencing
15. Working with Geometric Networks to Manage Utilities and Water Runoff
16. Interpolating Sample Points to Create Rasters Using Spatial Analyst Tools
17. Geoprocessing GIS Data Using Python
18. Sharing Maps and GIS Content Using ArcGIS Online
19. Understanding Web Services Using ArcGIS for Server
20. Generating Web Applications for the GIS Novice
21. Getting Started with the Community Maps Data Preparation Tools
22. Mapping Excel Data Using Esri Maps for Office

For information on the HOLL, visit the [WV GIS Conference site](#).

— Kurt Donaldson, GIS Manager, WV GIS Technical Center at West Virginia University

WV GIS Conference Keynote Speaker Dr. Daniel Sui

Dr. Daniel Sui will be the keynote speaker at the 2016 WV GIS Conference on Wednesday, May 4, at West Virginia University in Morgantown, W.V.

Sui's presentation will be on "Little Drones' Emerging Big Challenges for GIS," and will be from noon to 1:30 p.m.

Sui is a full-time Arts and Sciences distinguished professor at Ohio State University. He received his Ph.D. in geography from the University

of Georgia.

He is the director of the Geographic Analysis Core of the Institute of Population Research and a former chair of the Department of Geography at Ohio State University.

Sui has authored and co-authored several books and articles in the field of Geographic Information Science (GIScience).

His current research focuses on four areas:

1. GIS-based spatial analysis

and synthesis for urban, environmental and public health applications.

2. Volunteered geographic information and the use of social media as a new data source for geographic research.

3. Legal and ethical issues of using geospatial technologies in society.

4. Coupling of human and natural systems and security implications of climate change.

WVAGP Board Election Slated for May 4

It is time to elect the six director positions for the WVAGP Board of Directors. Those elected will each serve a term of two years.

To vote, select your top six candidates among those listed below. You can vote for multiple candidates from the same constituency group, and you are not required to select a candidate from each constituency group.

For a full election packet, visit the [WVAGP website](#).

Instructions

1. Fill out ballot: On the

enclosed ballot, select six candidates for the board of directors.

The preferential voting method will be used, so rank your candidates accordingly.

2. Print and sign ballot:

Print and sign your name at the bottom of the ballot. The ballot is not valid unless you print and sign your name.

3. Submit ballot: Mail your ballot in a sealed envelope on or before April 30, 2016, to the following address: WVAGP, c/o Jennings Starcher, P.O. Box 3903,

Charleston, WV 25339.

Alternatively, you can deposit your ballot directly with the treasurer or his/her designee before the annual meeting begins on May 4, 2016.

Please remember to have your membership for the current year (2016-17) paid by the start of the annual meeting, otherwise your ballot will not be considered.

Any ballots received after the close of elections on May 4 will be declared invalid.

— Jennings Starcher,
WVAGP treasurer

13 Candidates Seek 6 Seats on WVAGP Board of Directors

STATE

Marshall Burgess (Charleston): Unit leader of the Programming and Reporting unit in the GTI Section of Planning Division within the Division of Highways.

Colleen Lemasters (Charleston): On May 1, she will begin work as the GIS Coordinator at the WV Division of Culture and History.

Jessica Perkins (Elkins): GIS Programmer Analyst II for the WV Division of Natural Resources.

EDUCATION AND RESEARCH

Frank LaFone (Morgantown): GIS Manager for the WV GIS Technical Center, located in the Department of Geology and Geography at West Virginia University.

Barbara MacLennan (Morgantown): Current WVU Geography Doctoral Candidate. Goal is to examine the spatial nature of public policy.

Michael Strager (Morgantown): Associate professor of spatial analysis, Division of Resource Management, and adjunct professor, Division of Forestry and Natural Resources at West Virginia University.

REGIONAL/LOCAL GOVERNMENT

Jessica Brewer (Buckhannon): Region VII Planning and Development Council, GIS Manager/Project Specialist.

James Boggs (Marlinton): GIS technician for the Pocahontas County Assessor's Office.

Adam Cottrell (Charleston): GIS manager for the City of Charleston, W.V.

Marvin Davis (Oak Hill): GIS coordinator for the city of Oak Hill, WV

Cori Edwards (Princeton): Project manager/GIS specialist for Region I Planning and Development Council, which represents 33 jurisdictions.

PRIVATE SECTOR

Jacob Darrah (Burton): Job is to keep data accessible to Blue Mountain Inc., an aerial mapping, surveying, engineering and environmental firm in Wadestown, W.V.

Harold Yancey (Bluefield): GIS technician at Pocahontas Land Corporation.

For extended information on these candidates, a ballot and more information, visit the [WVAGP website](#).



The WVAGP membership got together in November 2015 for its midyear meeting, taking a little time out from the more serious business to snap this photo.

Current WVAGP Board Members 2016-17

Name	Organization	Sector	Term Ends
JD Adkins	Cabell County Assessor's Office	County	2017
Chris Chrzanowski	Kanawha County Assessor's Office	County	2017
Adam Cottrell, president	City of Charleston	City	2016
Michael Duminiak, secretary	WV Water Development Authority	State	2016
Connie Ervin	Preston County Assessors Office	County	2016
Jessica Gormontz, vice president	Jefferson County GIS/Addressing Office	Regional	2016
Kevin Kuhn	WV GIS Technical Center, WVU	Education & Research	2017
Frank LaFone	WV GIS Technical Center, WVU	Education & Research	2016
Colleen Lemasters	West Virginia State Historic Preservation Office	State	2016
Tony Simental, ex-officio	Office of GIS Coordinator	State	N/A
Jennings Starcher, treasurer	WV Division of Homeland Security & Emergency Management	State	2017
Paul Wray	Putnam County Assessor's Officer	County	2017

Member Spotlight: Robert Shaffer, GISP

Robert Shaffer, GISP, was born in Parsons, W.V., the son of a preacher and a teacher. Proud to be a Mountaineer, Shaffer graduated Parkersburg High School in the summer of 1976 and went straight into the U.S. Marine Corps. He turned 18 while in boot camp at Paris Island, S.C.

Shaffer said his military operational speciality (MOS) in the Marines was as a forward observer for the artillery. This role required a high degree of topographic map interpretation, in order to adjust artillery fire onto the intended target.

"This eventually, in part, led to my mapping job with Wood County," Shaffer said.

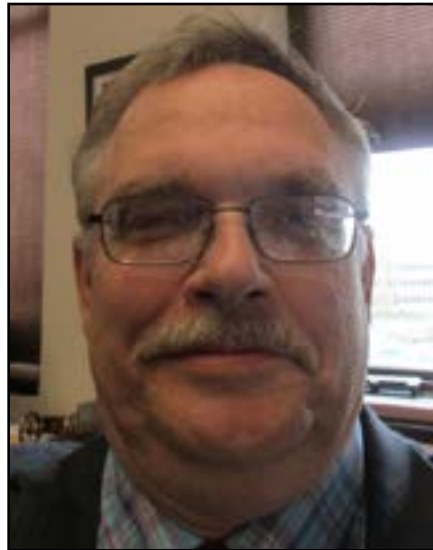
Shaffer was honorably discharged, having fulfilled his commitment "after four hard-working and adventure-filled years."

He attended Washington Technical College in Marietta, Ohio, and graduated with a two-year degree in electrical engineering.

"I held several jobs," he said. "I did some construction work, sold Rainbow Cleaners, and drove a delivery truck for Sears before ending up at the county."

Shaffer said when he was hired by the county in 1992, he tracked and assessed mobile homes.

"We had just got new Macs and were beginning our quest



Robert Shaffer is a charter member of the WVAGP.

for GIS," he said. "I ended up in mapping to help in this endeavor. Later I became the leader of the charge for GIS and was promoted to mapping director."

Shaffer is a charter member of the WVAGP, serving on the board for six years and as president for two years.

"My goal and main focus was to provide quality, affordable training to our members," he said. "With the help of some of our core members, my goals were exceeded. With great expectations I hope that the AGP will continue to provide training, knowledge, information sharing and a place that new and old mappers can find answers to the ever-changing challenges that face geospatial professional."

Shaffer said the group also needs to continue to provide

a forum where members can meet, socialize and form lasting friendships with fellow mappers around the state and across the borders who share similar knowledge and face like challenges in the daily quest to maintain and update the mapping of West Virginia.

"A few challenges that I faced this year were to learn the new Census GUPS software and submit numerous corrections to our corporation's boundaries," Shaffer said.

"The Census maps, other than Parkersburg, still had the lines that were submitted on paper maps."

He said the county put together a sharing agreement and an RFP for new county-wide leaf off Orthos and have a successful bidder.

"We upgraded from Arc 9.3.1 to 10.4 and set up data driven pages," Shaffer said. "Thanks to a webinar, YouTube, ESRI and WVAGP contacts, this was all accomplished. Now, I can nap till next year! (Ha ha.)"

Shaffer is a longtime member and treasurer of the Wood County Historical Landmark Commission, and a charter member, sergeant and paymaster of Carlin's Battery Civil War Reenactors. He said he also has several old houses that always need to have

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GISCI Press Release: Exam Process, Tips

From the GIS Certification Institute:

The purpose of the GIS Certification Institute is to provide GIS professionals with a formal process that will:

- Allow them to be recognized by their colleagues and peers as having demonstrated professional competence and integrity in the field;
- Establish and maintain high standards of both professional practice and ethical conduct;
- Encourage aspiring GIS professionals to work toward certification for the purpose of professional development and advancement; and
- Encourage established GIS professionals to continue to sharpen their professional skills and ethical performance even as GIS technology changes.

WVAGP is committed to providing its members with educational resources and opportunities for contribution to help its members achieve and retain their GIS Professional Certification.

Presenting papers at or attending WVAGP meetings and conferences, teaching or attending WVAGP workshops, volunteering on a WVAGP committee and simply being a member of WVAGP earns education and contribution points toward GISCI Certification.

Publications distributed at WVAGP events,

such as conference guides and agendas, will have the corresponding GISCI points that can be earned from the event, as well as how they are to be listed. This is the only documentation that GISCI requires.

The exam is a ground-breaking development in the geospatial profession, based on a complete job analysis from a four-year experience level, informed by the GIS&T Body of Knowledge and guided by the Geospatial Technology Competency Model (GTCM).

The Exam and Portfolio Review are offered independently, but both must be completed in order to receive GISP Certification.

When you have started with either the Exam or the Portfolio Review, you have up to six years to complete the other before you have to start over.

The exam questions will come from these Knowledge Areas: (These areas were taken directly from the GIS&T Body of Knowledge.)

- Conceptual Foundations (12%)
- Cartography & Visualization (14%)
- GIS Design Aspects & Data Modeling (29%)
- GIS Analytical Methods (17%)
- Data Manipulation (15%)
- Geospatial Data (13%)

For more information, [visit the GISCI site](#).

— Tony Simental, WVAGP board member

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something done, and he enjoys collecting old coins.

When asked for words of wisdom, Shaffer cited some choice Mark Twain quotes:

“The secret of getting ahead is getting started.

“Never put off till tomorrow what you can do the day after tomorrow.

“Don’t go around saying

the world owes you a living.

The world owes you nothing, it was here first.

“I have never let my schooling interfere with my education.

“Get your facts first, and then you can distort them as much as you please.

“If you tell the truth, you don’t have to remember any-

thing.

“Clothes make the man. Naked people have little or no influence on society.

“Always do right. This will gratify some people and astonish the rest.

“It is better to keep your mouth closed and let people think you are a fool than to open it and remove all doubt.”

3DEP, UAS, Lidar and Crowdsourcing News

As evidenced by the WVAGP, the upcoming WV GIS Conference schedule and this newsletter, there are great things going on within West Virginia in GIS.

We talked to Jeff Lovin, senior vice president and director of government solutions at [Woolpert](#), about some GIS topics in the news throughout the industry.

3DEP

The U.S. Geological Survey (USGS) developed the 3D Elevation Program (3DEP) initiative to address the growing need for high-quality topographic data across the country.

"The 3DEP program is expanding," Lovin said. "It creates the opportunity for states like West Virginia that have not had its elevation updated in about 10 years the chance to do that through partnership with the USGS."

The program is working to create a consistent, precise and up-to-date national map.

The 3D elevation data benefits a range of federal, state, local and private industry applications, from flood plain mapping with the Federal Emergency Management Agency (FEMA) to precision agriculture at local farms.

"Because of 3DEP, communities around the country are getting updated, high-resolution elevation data," Lovin said. "It's a federal program that benefits state and local entities by providing them with much-needed, accurate imagery."

The USGS is collaborating at the state and local level in support of 3DEP, and eliminating duplication at the federal level through its partnerships with agencies like FEMA, the National Resources Conservation Service (NRCS) and the National Oceanic and Atmospheric Administration (NOAA).

"3DEP also encourages partnerships between states," Lovin said.



UAS work is drawing non-GIS professionals into the industry. We have the opportunity to educate some of these individuals through groups such as the WVAGP.

UAS

Lovin discussed the surge in the application of unmanned aerial systems (UAS), as the technology improves and the Federal Aviation Administration (FAA) relaxes its regulations.

"There are probably hundreds of new companies that have popped up that are doing everything from image collection to automated 3D extraction and modeling with the UAS," Lovin said. "It's being used in various geospatial applications, such as construction monitoring, pipeline mapping, volumetric surveys, precision agriculture—the list could go on and on."

Lovin said this means there is an influx of people who are being exposed to geospatial world, albeit somewhat indirectly, solely due to their interest in UAS.

"With the many new automated software processing workflows that accompany these systems, they're getting into remote sensing and GIS without even realizing it," he said. "The industry has the choice; we can exclude

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these folks for their lack of understanding or we can embrace them and get them educated with groups like the WVAGP. That's what I think we should do."

Single Photon, Geiger Mode Lidar

Another hot GIS topic noted was innovations in lidar technology, with the commercialization of single photon and Geiger mode lidar.

"In layman's terms, both of these new lidar technologies collect up to 10 times the density of data from three to four times the current flying height of linear mode sensors being used today," Lovin said. "This will provide great value and efficiency to the end user."

He said this will be a process that takes time, maybe three to five years.

"There's that old saying that when it sounds too good to be true, it usually is," Lovin said.

"There are challenges and nuances to this new technology. The sheer enormity of the datasets will be a challenge for many of the software packages that are currently used for handling point cloud data.

"There are also issues with doing many of the feature extraction and remote sensing functions that we are currently able to do with linear mode data," he said. "However, this will

rectify itself over the next few years as the upside to this new technology greatly outweighs these current challenges."

Crowdsourcing

Lovin is a member of the National Geospatial Advisory Committee (NGAC), which is a federal advisory committee to the Federal Geographic Data Committee (FGDC).

He said that one of the study topics being discussed is crowdsourcing, which is using the collective intelligence of the public to collect, share and edit geospatial data.

"Because of our phones, all these apps and the abundant GPS technology, we are all like human data collectors," Lovin said. "There are things like OpenStreetMap, which is a free editable map of the whole world made by the public."

He said what is exciting to see is federal agencies, such as the Census Bureau and others, taking note and interest in crowdsourced data. However this has its challenges.

"The feds have to evaluate things like authoritative sources, privacy, etc.," Lovin noted. "Even so, these are things that can be solved, and I believe we will even see the government using data developed at the local level."

West Virginia/WVAGP News Briefs

- **Newsletter Naming Contest:** There is a naming contest underway for this newsletter until April 30. Choices include "Country Roadmap Newsletter," "The WV Vector," "The Geographic Spin," "Mountain State Geospatial Journal," "The WVAGP Geo Reference," "Mountain Lines," and "The Mountain Geographer." The contest is open to WVAGP members, and the winning name will be announced at the 2016 WV GIS Conference. [Click here](#) to vote on a new newsletter name.

- **West Virginia Population Drop:** According to the U.S. Census Bureau, West Virginia

lost more people in the year prior to July 2015 than any other state. On July 1, 2014, there were 1,848,751 residents, vs. 1,844,128 on July 1, 2015. That's a drop of 0.25 percent. If this trend continues, West Virginia will be one of nine states losing a U.S. House of Representatives seat after the 2020 U.S. Census.

- **New Website:** The [WVAGP website](#) is undergoing renovations and will "go live" after the WV GIS Conference. The new site will have the new board and news from the conference.

- **Next WVAGP Board Meeting:** The next WVAGP board meeting is Thursday, April 21.



Decade of Growth, Change for WVSAMS

Over the past 10 years, the West Virginia Statewide Addressing and Mapping System (WVSAMS) has grown and evolved. The original mapping system was created in the Oracle database, which contained multiple tables linked together and show address points, centerlines, street names, site types, public agency information, community and county names, old address information and building pictures.

A website was created that gave counties that did not have GIS capabilities the ability to add, edit and maintain information in the Oracle database. This information had been collected by a combination of contractors and county addressing coordinators.

In 2007, the WVSAMS Board began the process of having oversight of the Oracle database transferred from the Michael Baker Jr. Inc. to the West Virginia Division of Homeland Security and Emergency Management (WVDHSEM).

WVDHSEM hired a GIS manager and a GIS technician to work with the GIS programmer analyst and form the current WVDHSEM GIS Section.

The goals and objectives of the WVDHSEM GIS Section is to work with the county, addressing coordinators on maintaining their addressing data, working with the U.S. Postal Service and Frontier on postal and telephone conversions for address conversions, and answering inquiries from citizens about the addressing conversion process.

Over the past 10 years, the WVSAMS has continued to evolve as technology has got-

ten better. More counties are now able to maintain their addressing data separately from WVSAMS as CAD technology improved.

Over the past few years, addressing data formats all over the country have continued to evolve and that led the WVDHSEM GIS Section to look at ways to keep up with this ever-changing technology.

In 2014, the WVDHSEM GIS Section partnered with the WV GIS Technology Center on a new WVSAMS platform, which will keep up with the latest technology.

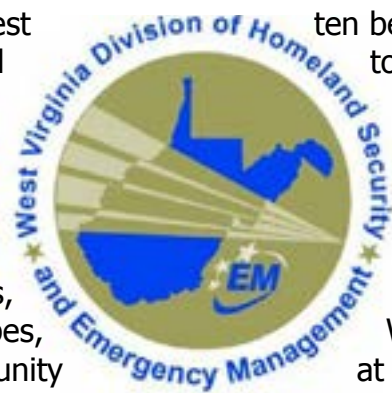
After several discussions on what strategy to adopt, it was agreed upon to migrate the current addressing data from the Oracle database to an Esri-style database.

The new database is modeled after the Local Government Information Model, which will allow for users to use the new WVSAMS in multiple applications (web, tablet and mobile) and allow counties that maintain their addressing data offline a new platform to share and update their data using the latest technology available.

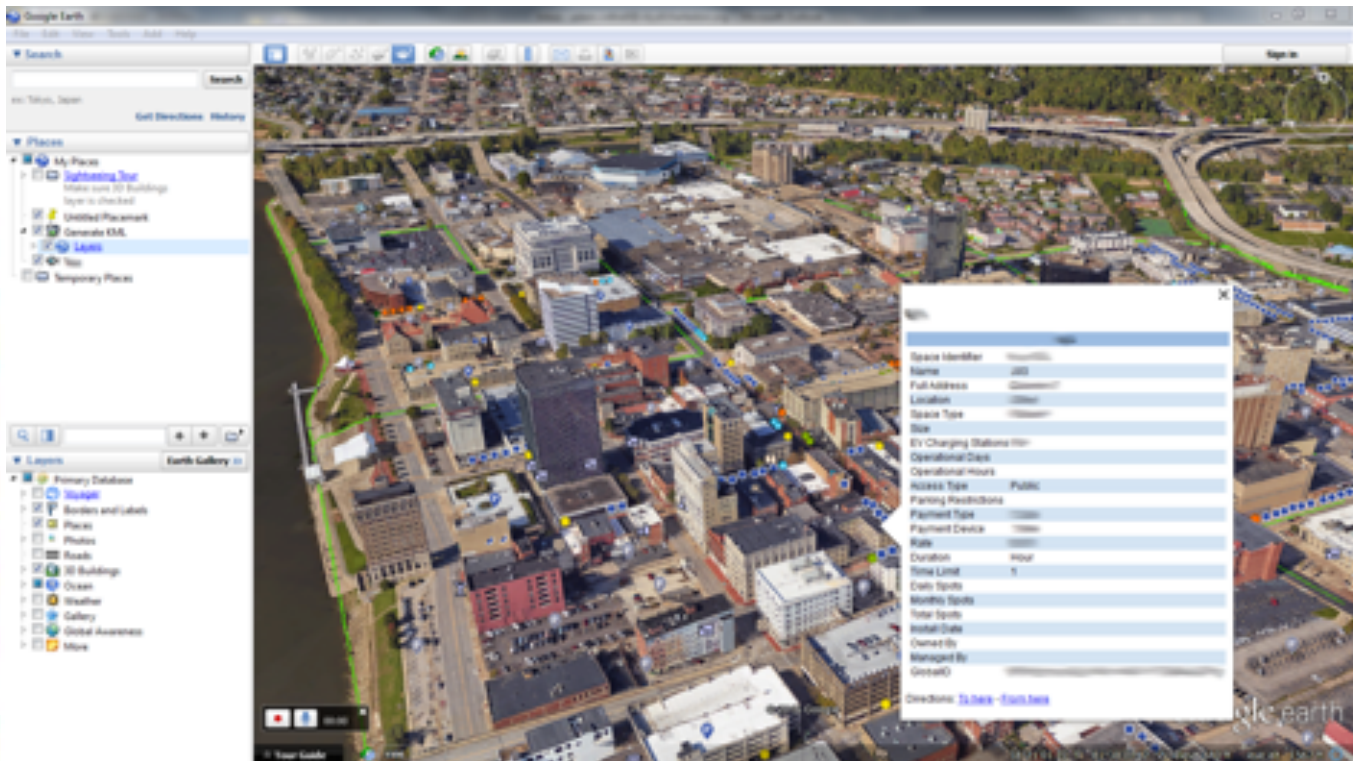
The new WVSAMS website was launched in February 2016, although it is not yet available to the public. The same counties that maintain their data under the previous WVSAMS website are using the new site to make changes and edits to their addressing data.

Over the next 12-18 months, more applications will be added to WVSAMS that will mirror the previous website that started it all over 10 years ago.

— Jennings Starcher, WVAGAP treasurer



ArcGIS Tips and Tricks



Introduction

Have you ever wondered, “Is it possible to add your map services from ArcGIS into Google Earth?” The answer is YES! This is possible if you have an ArcGIS for Server installed and publish map services. In this “Tips and Tricks,” we walk through the basic steps of getting your map service into Google Earth.

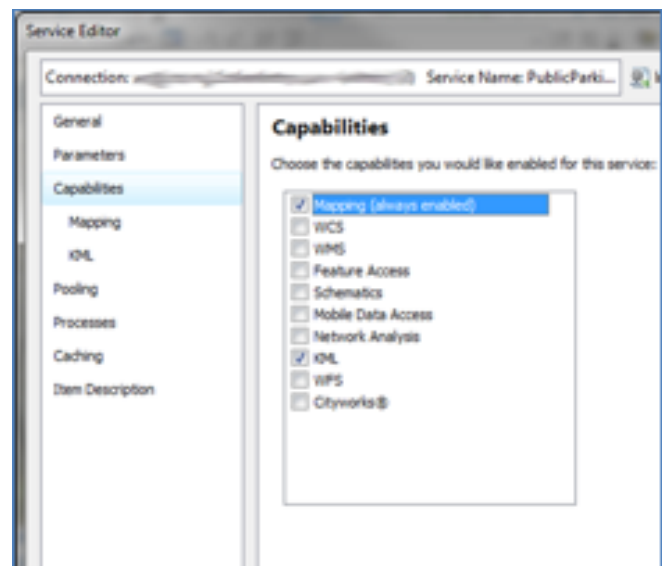
Prerequisite

An existing base of knowledge and experience with ArcGIS for Server application is required, as is an assumption that an ArcMap document has been prepped and ready for publishing to ArcGIS for Server. This walk-through was written using ArcGIS 10.3.1 products and Google Earth 7.1.5.1557.

Walk-through

Step 1: Publishing a map service

a) When publishing a map service, be sure to enable the KML function under the Capabilities item in the right panel (above).



b) Next, under Capabilities, select the KML item by clicking on it in the left panel. Take note of the Rest URL. It will be used in an upcoming step. While you are here, there are other settings that you can configure. Make your needed changes and make sure that

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Google Earth is selected.

c) Click Publish once all other configuration settings are complete.

Step 2: Generate KML

a) Navigate to the rest services directory in a web browser and find the map service that has the KML enabled. Scroll to the bottom and click on the "Generate KML" link.

b) On the next page, give it a name and then select the layers you want to display in Google Earth and the layer options. Once this is done, click "Generate KML" button again.

c) Save the KMZ file anywhere that is accessible, especially so if others will be using this GIS service in Google Earth.

Step 3: Insert KMZ file into Google Earth

a) Open Google Earth.

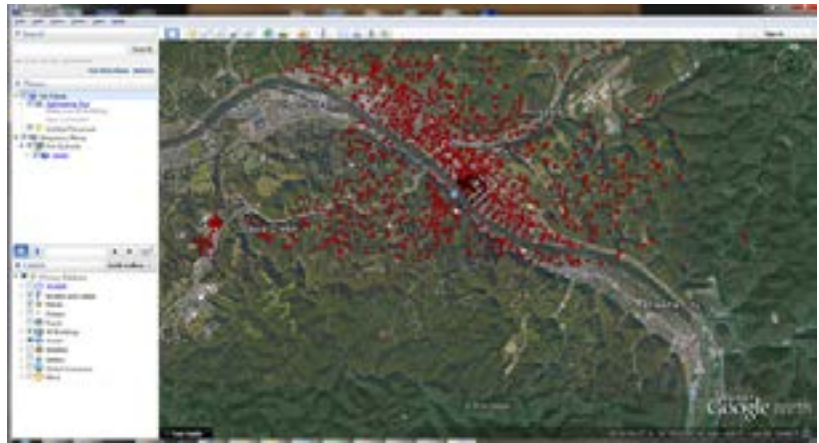
b) Drag and drop Layer into Map display.

NOTES: Google Earth may automatically starting zooming into the extent of the data that was published in ArcGIS for Server. If not, then double click on the layer in the "Places" panel. Also, depending on how many features and the complexity of the Map Service, it may take some time to draw in Google Earth. You may need to be patient in this last step.

c) Now you are ready to starting playing in Google Earth!

In screenshots on pages 13-14, you will see as I zoom into a fire hydrant on the corner of Kanawha Boulevard and McFarland Street.

— Adam Cottrell, WVAGP president



Google Earth's 3D city model of Charleston, W.V.

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