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The Association for GIS Professionals
WWW.WAURISA.ORG

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News From and For the Washington GIS Community

Citizens Report Navy Jet Noise via GIS Website

By: Nick Peihl, GIS Coordinator, San Juan County

The **San Juan County Jet Aircraft Noise Reporting app** is a website for San Juan County citizens to submit reports of disruptive military jet noise coming from Naval Air Station Whidbey Island. San Juan County Council members have received complaints from residents who say jet noise from the military base has interrupted conversations and activities. The Navy has been transitioning from EA-6B Prowler jets to EA-18G Growler electronic attack aircraft that many locals feel is much louder and more disturbing.

The County Manager, Mike Thomas, asked the County's GIS Coordinator, Nick Peihl, if the GIS team could create a website for collecting citizen complaints. Peihl previously created a citizen engagement app for receiving ongoing complaints about stormwater issues by configuring an open source Esri web application called "Citizen Service Request application" (http://github.com/esri/citizen-service-request). Peihl worked with Thomas and the County Council to determine the requirements and goals of the proposed web site. The website had to collect date and times of reports, the "loudness" of the jet aircraft noise, type of aircraft (if known) and the location of the report. The website would be active for six months and a database of the reports would be sent to officials at Naval Air Station Whidbey Island.

Based on the needs and requirements of the project, Peihl decided to use the Citizen Service Request application as a starting point for the Jet Aircraft Noise Reporting app. Peihl "forked" (made a copy of open source software) Esri's Citizen Service Request application hosted on GitHub.com into the SJCGIS GitHub account (http://github.com/SJCGIS). Modifications made to the Jet Aircraft Noise Reporting app are tracked by the Git version control system and visible to anyone on GitHub.com. Peihl feels that sharing his modifications could benefit other agencies and communities looking to build their own similar projects.

Peihl demonstrated the Jet Noise Reporting app to County Council in May 2014. The demonstration showed how citizens could use a computer or mobile device to locate their

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Also In This Issue:

President's Column

By: Heather Glock

Hello - I hope 2015 is starting off well for you! Here at WAURISA, we've been quite busy with conference planning plus keeping day-to-day business moving forward too. Here is a brief update on the activities we're focused on:

2015 GIS Conference: Mark your calendars for our combined conference with Oregon URISA on May 4-6, 2015 at the Vancouver Hilton Hotel and Conference Center. We have a vibrant program coming together for attendees, presenters, and exhibitors. So far it has proven to be a meaningful opportunity to collaborate with our fellow URISA members in Oregon! See page 9 for more details about this year's conference.

WAURISA Website: We are re-grouping our plans to update our website. If you are

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Citizens Report Navy Jet Noise via GIS Website

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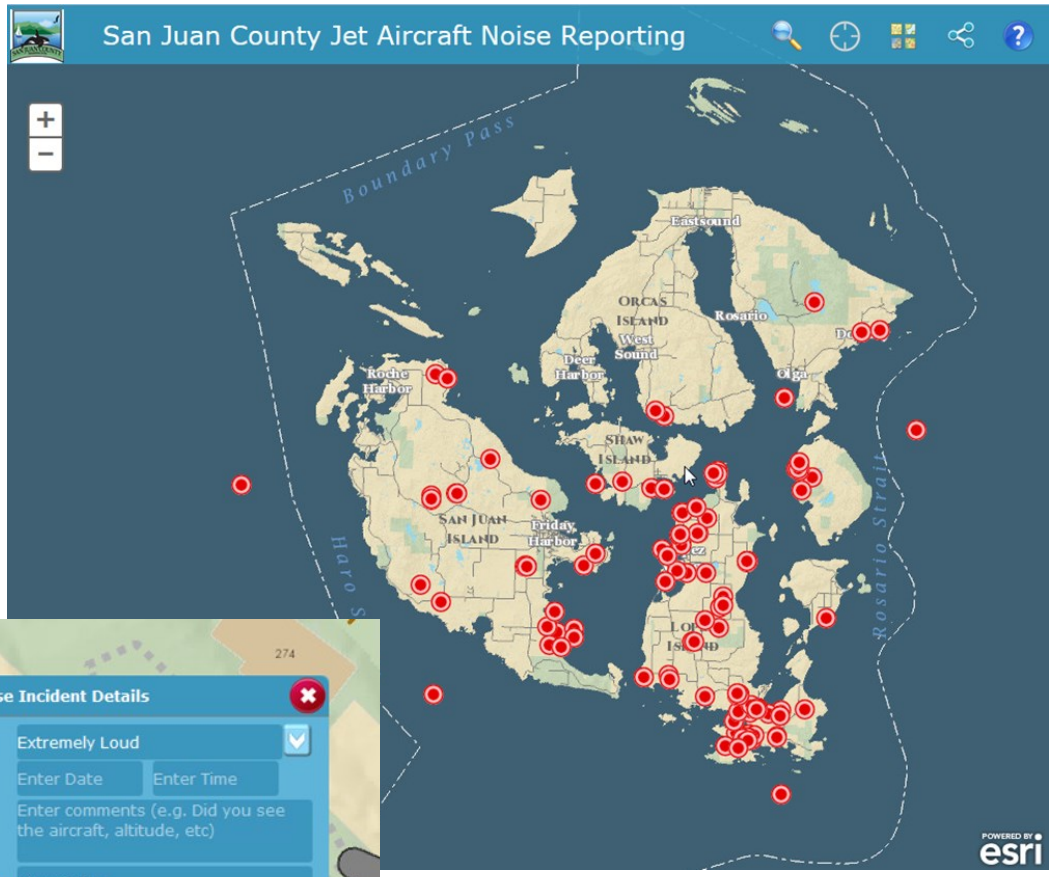
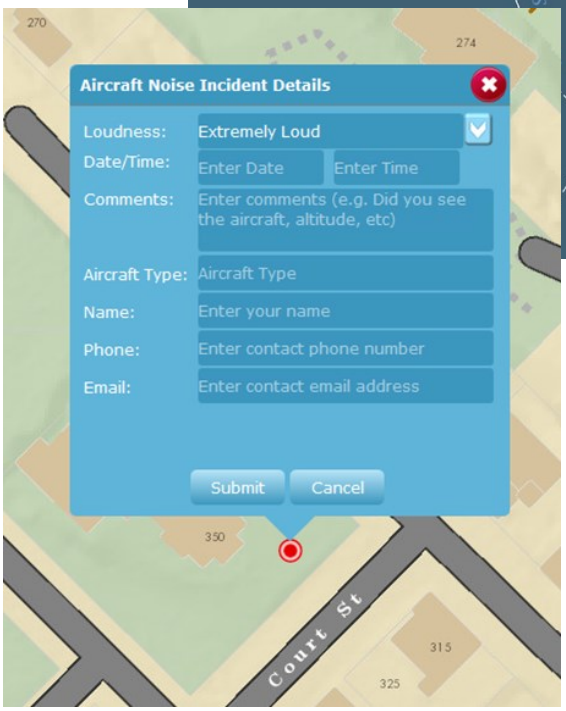
position on the map either by address or GPS, report a noise complaint or view other complaints. Council members were pleased with the demonstration and the Jet Aircraft Noise Reporting app went live on May 16, 2014.



Citizens using the Jet Noise Reporting app can search for their address or use their mobile device's internal GPS to locate their position on the map. They can then click or tap their location to submit a noise report. Reports include date and time of the incident, type of aircraft, intensity of jet noise, contact information for report and comments about the incident. By capturing the locations and plotting the reports on a map, the County and Navy could compare the reports with their flight schedule maps and see how the flights are affecting San Juan County citizens in different locations.



The County Council urged citizens to report all jet noise incidents as quickly and accurately as possible. The Jet Aircraft Noise Reporting app received 159 jet noise reports in its first month. By the end of three months there were 651 reports, including a record 66 reports on a single day, July 3. After six months, 1340 reports had been received. As the number of submitted reports climbed, the loading time for the webpage grew and performance took a major hit. Internet bandwidth on the San Juan Islands is dismal in many areas and citizens grew frustrated with waiting for the website to load.

The Jet Aircraft Noise Reporting app was originally planned to be retired after six months. But jet noise was still an issue for many citizens and the County Council decided to keep it active indefinitely. However, something needed to be done about the increasing webpage load times. Peihl had discussions with County Manager Mike Thomas and Lopez Island councilmember Jamie Stephens about website performance and suggested limiting reports shown on the website to those received within the past month. The County Council agreed to this change provided the older reports were still accessible in the County's database. Peihl made the changes to the Jet Aircraft Noise Reporting app and website performance improved dramatically. A separate website was created for users to view all noise reports received since May 2014.

Naval Air Station Whidbey Island is gathering data and comments for an Environmental Impact Statement (EIS) for proposed expansion of operations. Data accumulated from the noise reports submitted on the Jet Aircraft Noise Reporting website have been forwarded to Naval Air Station Whidbey Island for use in conjunction with the EIS.

Getting Out of Harm's Way: Evacuation from Natural Hazards

By: Jeanne Jones, Nathan Wood, and Peter Ng

Scientists at the U.S. Geological Survey have developed a new mapping tool, the Pedestrian Evacuation Analyst, to estimate how long it may take someone to travel on foot out of a hazard zone. The ArcGIS extension allows the user to create travel-time maps and to determine the number of people that may or may not have enough time to evacuate. The maps take into account the elevation changes and the different types of land cover that a person would encounter along the way.

Maps of travel time can be used by emergency managers and community planners to identify where to focus evacuation training and hazard education. The tool can also be used to examine the potential benefits of vertical evacuation structures, which are buildings or berms designed to provide a local high ground in low-lying areas of the hazard zone. In Washington State, coastal communities are threatened by tsunamis associated with Cascadia subduction zone earthquakes. USGS scientists partnered with the Washington State Military Department, Emergency Management Division, and used the tool to create evacuation travel time maps within tsunami-hazard zones and to evaluate the potential benefits of vertical evacuation (VE) structures. In this article, we demonstrate the functionality of the tool for understanding tsunami evacuation potential using the coastal community of Ocean Shores in southwest Washington. Additional information on this work is summarized at http://www.sciencedirect.com/science/article/pii/S2212420914000387

Developing Travel Time Maps

The Pedestrian Evacuation Analyst Tool (PEAT) software and user's guide are available at http://geography.wr.usgs.gov/science/vulnerability/tools.html, along with a short guide to data preparation. The tool was designed for ArcGIS 10.1, Service Pack 1, advanced version, and the user's guide installation instructions contain information on compatibility with other versions of ArcMap. The custom toolbar contains icons for each of the processing steps (Fig. 1a) and is designed to guide you through the modeling process (Fig. 1b).

Preparing data layers for GIS analysis is time-consuming, and PEAT provides steps to check input data projections, clip or extract data to the study area, and resample or aggregate data according to the desired processing resolution. For our work with Ocean Shores, WA, we used a digital elevation model (DEM) derived from 1-meter resolution LiDAR data, land cover created from 1-meter resolution NAIP imagery, and a hazard layer from the Washington Department of Natural Resources. For land cover preprocessing, our land cover layer contained 6 classes: light brush, heavy brush, wetlands, impervious or developed, beach or unconsolidated surface, and water. During land cover processing, the tool accepts additional layers to merge with the land cover, and for Ocean Shores we added roads, trails, buildings, and an additional water layer. For hazard zone processing, PEAT determines safe zones, or areas of sufficient elevation to serve as safe havens during evacuation, by erasing the hazard zone from the study area.

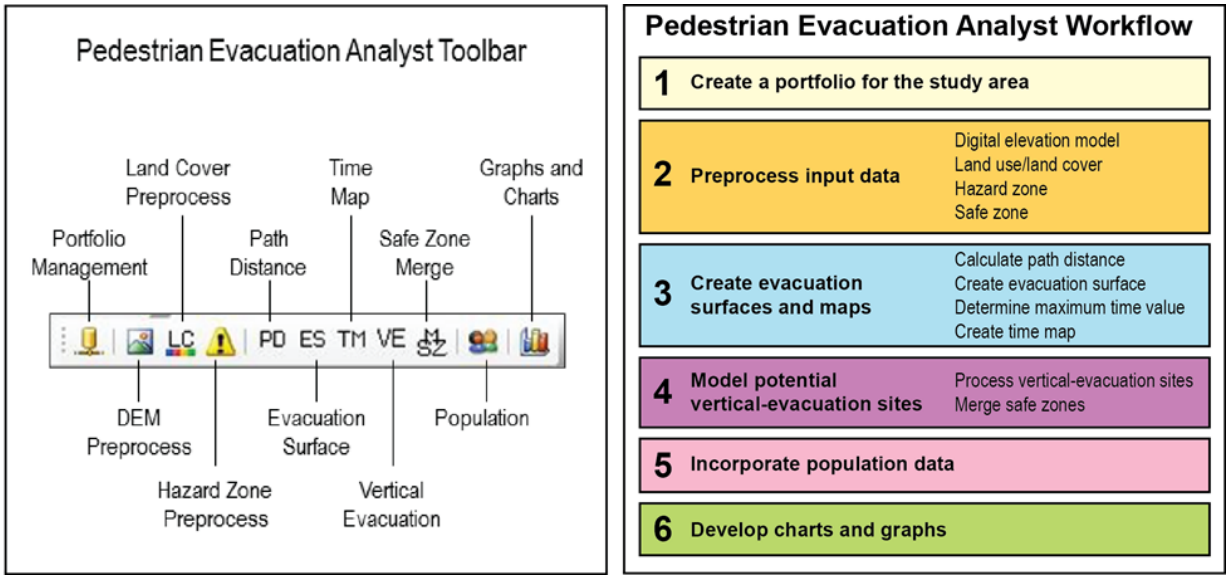


Figure 1. (a) The Pedestrian Evacuation Analyst toolbar within ArcMap and (b) the generalized workflow for modeling evacuation travel times

The heart of PEAT's travel time analysis is Esri's Path Distance tool. Here travel distance is calculated by finding the shortest path across a cost surface from any point in the hazard zone to the safe zone. This cost analysis con-

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Getting Out of Harm's Way: Evacuation from Natural Hazards

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siders the direction of movement and assigns a higher cost to steeper slopes, based on a table contained within the tool. The analysis also adds in the energy costs of crossing different types of land cover, assuming that you will expend less energy walking along a road than walking across a sandy beach. The values range from 0 for water to 1 for roads, and the tool window as well as the user's guide provide information to help choose appropriate values.

With all data preprocessed, the next steps are path distance calculations and travel time map generation. Through the tool windows, you navigate to the preprocessed layers to be used in the calculations and start the path distance modeling. Once this computationally-intensive step is complete, you can create multiple evacuation surfaces with different travel speeds in order to compare the effect of speed on evacuation times. The map generation step takes the evacuation surface and groups the values into 1-minute increments for easier visualization, and this map is created in both raster and vector format. For the Ocean Shores travel time map (Fig. 2a), we used a slow walking speed of 1.1 meters/second (about a 24-min mile). The black 25-minute contour line is highlighted to correspond with the assumption of first wave arrival time of 25 minutes. As you can see from the map, travel on foot at a slow walking speed from most of the community would take much longer than 25 minutes.

Comparing Vertical-Evacuation Options

One mitigation option for coastal communities is the use of vertical evacuation (VE) structures to provide local safe havens for evacuation (Fig. 2b). In Ocean Shores, we used an input file with 20 potential VE locations identified during community planning (Project Safe Haven) meetings. Once the baseline time map is created, potential VE time maps are generated in the VE module by selecting the baseline time map and an input file of VE structures. PEAT will select each structure in turn, merge it with the original safe zone, and run the path distance, evacuation surface, and time map generation steps automatically, using the baseline time map travel speed. For the time maps in figure 3, the locations were added as input to the VE module and the tool produced 20 travel-time-to-safety maps, one for each VE structure. Each small VE map shows the expected 25-minute evacuation range for that structure.

Estimating how many people will have enough time to evacuate

With completed time maps, you can determine the population counts at different

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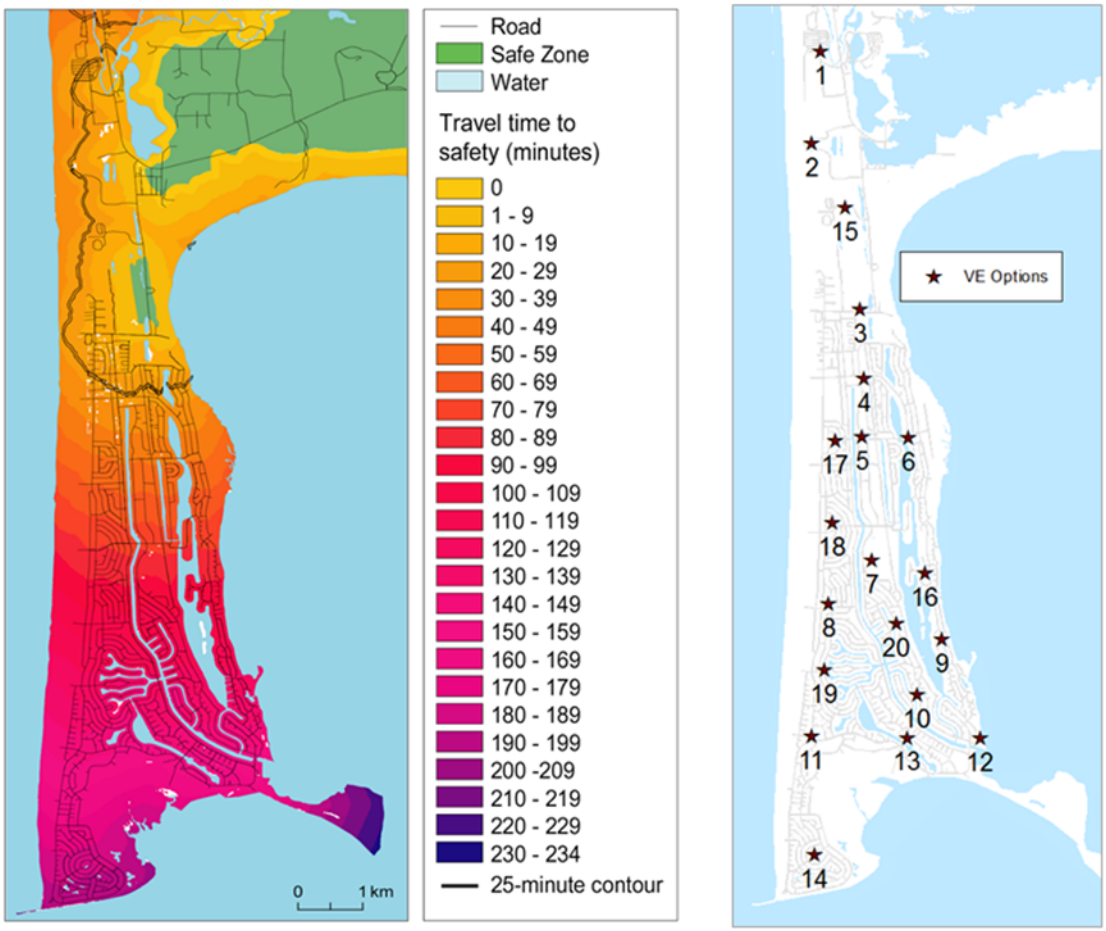

Figure 2. (a) Estimated pedestrian travel time at a slow walking speed (in minutes) in Ocean Shores to evacuate predicted tsunami-hazard zones associated with a Cascadia subduction zone earthquake, and (b) possible locations for vertical evacuation structures proposed at a community meeting.

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travel times to safety with PEAT's population module. A time map and various population input files are selected, and the tool overlays the population points on the time map and extracts travel times for each population location. If a separate vector file of jurisdictional boundaries within the study area is also added, each count will be subdivided by jurisdiction. Currently, two different population groups (residents and employees) and three business types (dependent care, community service, and public venue) are identified in the tool, with the option of adding more user-defined categories. When selecting each population layer, the tool window lets you select columns from the input file's attribute table that contain the values to be counted. If VE time maps have been created, they can be selected in the tool window along with the baseline time map and population counts will be generated for each individual time map. Population counts are stored in comma-separated-value (CSV) text files which allow for quick visualization of the results in the graphing module (Fig. 4) or for the preparation of custom graphics. Figure 4 shows that proposed locations 7 or 18 would likely be more effective as evacuation refuges for residents than locations 2 or 15.

One mitigation option for coastal communities is the use of vertical evacuation (VE) structures to provide local safe havens for evacuation .

Intended Uses of the Pedestrian Evacuation Analyst

PEAT was designed for evacuation analysis from sudden-onset hazards (such as tsunamis, flash floods, and volcanic lahars) where people would be fleeing the hazard on foot and across the landscape, and where the rapid onset of the hazard event would preclude any organized evacuation. It is suitable for areas such as the wide expanses of coastal Washington, but not as much for dense urban environments where the evacuation rate would be slowed by crowds converging on a single exit. Also, the goal here is not to produce mortality estimates, since the model is only a mathematical approximation of travel times, but instead to initiate discussions on mitigation options for vulnerable communities.

The tool was built to provide emergency managers with vital information before an event occurs to allow time for planning and mitigation efforts. When results estimate that a vulnerable community may not have sufficient time to evacuate to naturally-occurring high ground, the model serves as a decision support tool for observing the effect of vertical evacuation structures on the travel times. By repeating the modeling process with a proposed structure added to the safe zone, the resulting travel time map and population table can be compared against the baseline map showing current conditions without any structure in place. This additional information may assist in careful allocation of scarce planning resources and the identification of priorities such as locating a structure near a school.

We would welcome your comments on the Pedestrian Evacuation Analyst and would be interested in any suggestions for improvement. We would also like to hear if you have put the tool to good use. Questions and comments can be sent to Jeanne Jones at jmjones@usgs.gov. Any use of trade, product, or firm names is for descriptive purposes only and does not imply endorsement by the US Government.

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Getting Out of Harm's Way: Evacuation from Natural Hazards

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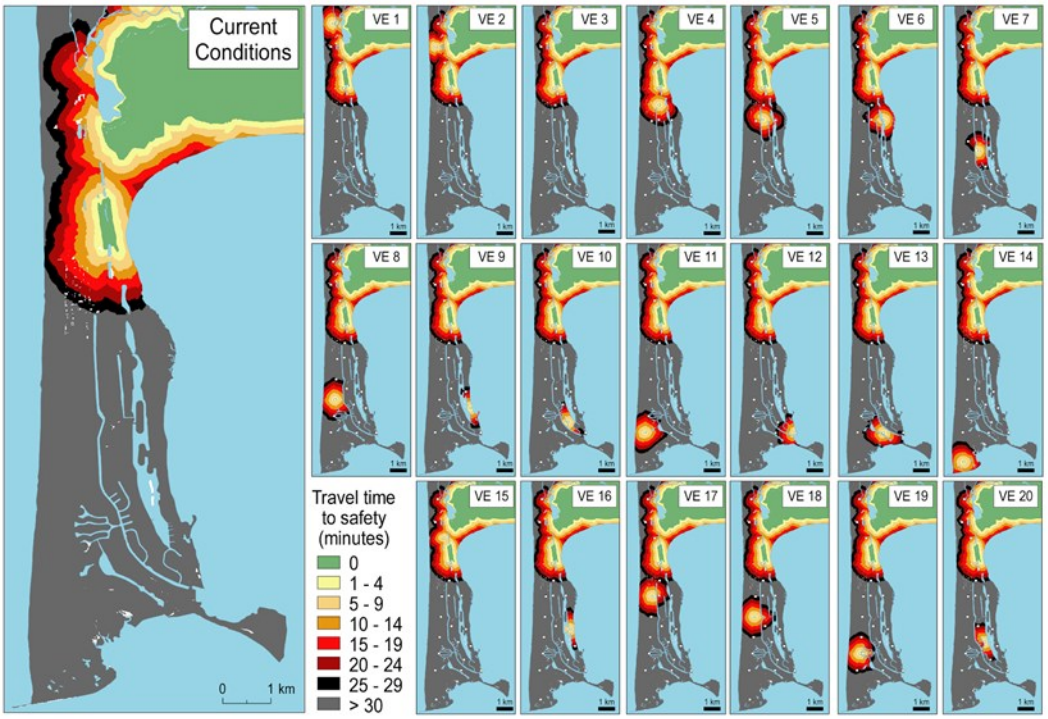

Figure 3. Maps of modeled pedestrian travel time to safety (minutes) under current conditions and for each of the 20 tsunami vertical-evacuation (VE) options proposed during a Project Safe Haven workshop.

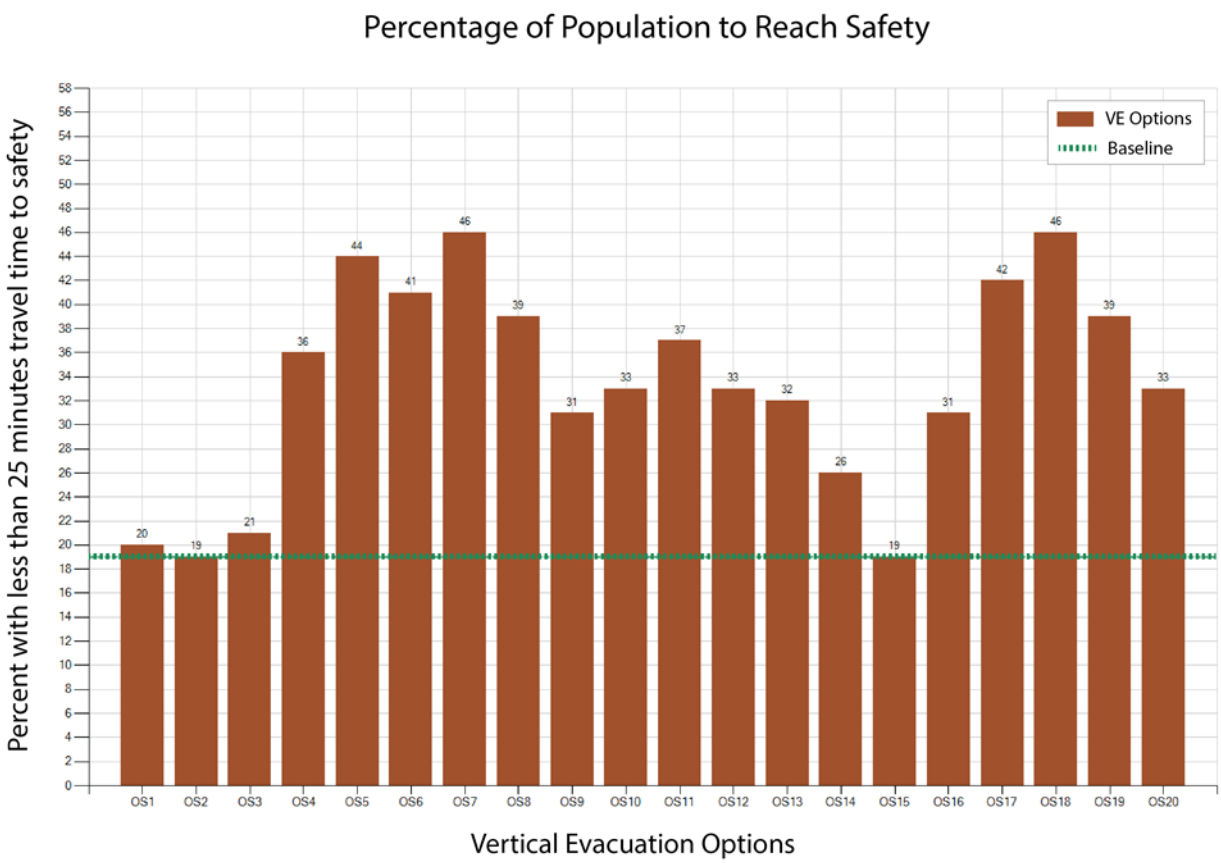

Figure 4. Percentage of residents in Ocean Shores (OS) that would have less than 25 min of travel time to safety, given the various proposed VE options. The dashed green line represents the current conditions.

Let's Grow! GeoProfessional Skills and Community Outreach

By: Tonya Kauhi

I recently had the privilege of attending the 2014 ESRI International User Conference (ESRI UC) in San Diego. The ESRI UC is the world's largest event dedicated to geographic information system (GIS) technology. With more than 15,000 attendees, the conference provides opportunities to keep up on the latest GIS technology, meet people in the industry and show off our work.

Typically I give a presentation on the most recent GIS project completed for a GeoEngineers client. This year, however, I presented on a GIS project completed for an organization where I volunteer, Hilltop Urban Gardens (HUG). HUG is a community-based urban agriculture organization working toward food independence by developing a network of urban farms planted within parking strips and yards in Tacoma, Washington. The food produced through HUG is shared with all members of the community (Figure 1).

With the analysis, I was able to identify planting areas that got six or more hours of sunlight during the planting and growing seasons.

Figure 1. Food grown at Hilltop Urban Gardens.

When I heard about HUG through a friend, I immediately wanted to get involved. I helped build my neighborhood community garden from a vacant, dirt lot and love the idea that growing healthy food brings communities together and provides opportunities for food independence. HUG is unlike a typical community garden though where individuals usually grow food for their own consumption on one, centrally located property. HUG's neighborhood food network provides resources (people, labor and building materials) to help individuals grow food on their own property and then share it with the neighborhood. Currently HUG's boundary, or the HUG Zone, encompasses 98 homes on 18 acres within Tacoma's Hilltop Neighborhood. Of those homes, approximately 15 are currently growing and sharing food.

At first, I helped with weeding, planting and harvesting. Then, as I learned more about the organization, it was clear my skills as a GIS analyst could provide value and address their business needs. For example, they did not have an understanding of the amount of growable land (yards and parking strips) within the HUG Zone. I created a GIS layer that displayed and summarized this information, which was vital in predicting how much food the neighborhood could potentially produce, along with being useful for grant applications. For example, a one-acre community supported agriculture (CSA) provides enough food to support 30 households. After completing the growable lands inventory, we discov-

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Let's Grow! GeoProfessional Skills and Community Outreach

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ered our HUG network has more than one acre of growable land in the parking strips alone.

HUG also needed a way to communicate with the volunteers about which homes and garden beds needed watering, planting or harvesting. I created basic volunteer cut sheets that included photos, contact information, garden bed locations and hose and rain barrel locations.

Perhaps the biggest challenge HUG faced was how to focus their community outreach. With limited staff, where do you start within an 18-acre area of 98 homes? We needed a way to focus the community outreach to the prime growing areas that would provide the greatest benefit to HUG. To find the prime growing areas, I completed a 3D volumetric shadow analysis of the HUG network (Figure 2). I had seen this type of analysis demonstrated at a conference to identify areas ideally suited for solar panels, but had never had the opportunity to personally complete one. I was excited to get a chance to use this data visualization technology to solve a real world problem. With the analysis, I was able to identify planting areas that got six or more hours of sunlight during the planting and growing seasons. Outreach efforts were then targeted to those areas because of the growing potential they held.

So if you are a geoprofessional like me and do not love weeding, there are plenty of opportunities to use your skills and provide value to organizations as a volunteer. You may even learn something new in the process.

"We make a living by what we do, but we make a life by what we give."
— *Winston Churchill*

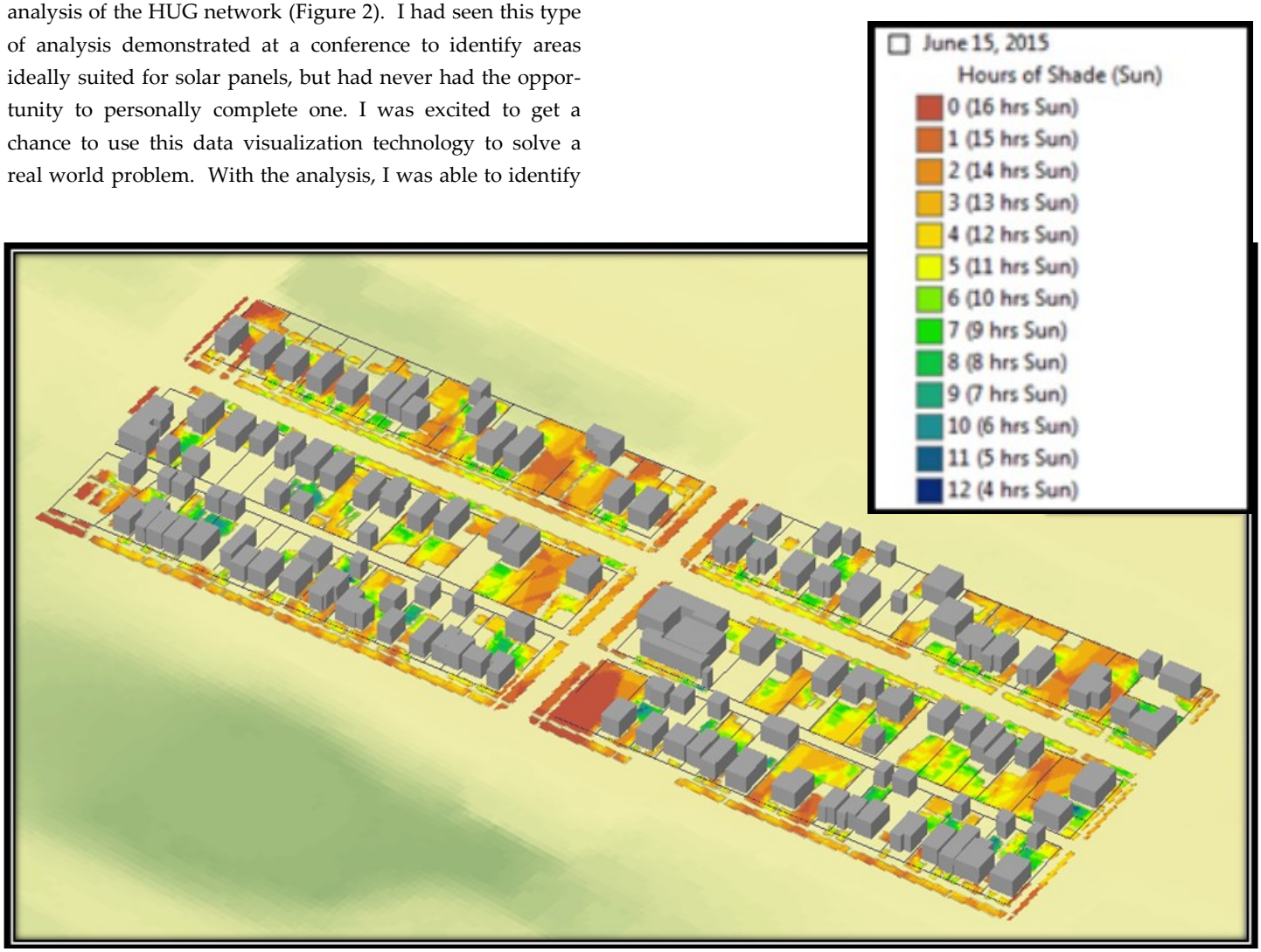

Figure 2. Results of 3D Shadow Analysis.

Announcing the joint 2015 GIS in Action Conference May 4 - 6, 2015!

Oregon & Washington GIS Conference

Spatial Connections

May 4-6, 2015

Hilton Vancouver Washington Conference Center

For more information:

www.gisinaction.org

#GISinAction

The Washington and Oregon chapters of URISA and the Columbia River Region of the ASPRS invite you to join your colleagues at the 2015 GIS in Action Conference. This will be a joint conference, combining the annual GIS in Action conference (sponsored by Oregon URISA and the Columbia River Region of ASPRS) with the annual Washington GIS conference (sponsored by Washington URISA). Our three organizations have joined forces this year to host a single, combined conference that includes the best features of both of these well-established regional conferences! Mark your calendars for May 4-6, 2015 and join us in Vancouver, WA at the Hilton Vancouver Hotel and Conference Center for this year's theme - "***Spatial Connections***".

Call for Abstracts

This is your chance to be a part of the program, Receive a conference discount and earn professional certification credits. Click here for details and submittal form: http://www.waurisa.org/conferences/Abstract_submissions/Paper_and_Panel_Discussion.php

Abstracts due: February 9, 2015
Workshop Proposals due: February 10, 2015

Call for Workshops Proposals

We are seeking instructors to give educational presentations and workshops on a wide range of GIS topics at GIS in Action 2015. All submissions are welcome and will be evaluated as a potential workshop focus. Suggested workshop topics, full instructions and presenter benefits are listed on the conference web page. Please email questions to Workshops@waurisa.org.

Call for Exhibitors

Vendors here is your opportunity to feature the latest GIS, GPS, Remote Sensing and Surveying technologies and discuss with our attendees the latest advances in the industry. Questions can be directed to Vendor Coordinators Marcus Glass - MGlass@3dimapping.com and Dana Trethewy - Dana.Trethewy@seattle.gov.

Richard 'Dick' Thomas Memorial Student Presentation Competition & Award

Students! Sharpen your pencils and PowerPoint! The Dick Thomas Award is coming to Vancouver. Four lucky finalists will join us at GIS in Action to present their work to the professional community. A $1,000 grand prize is up for grabs! Go to the WAURISA Awards tab on the conference page for more information.

Stay tuned for more information coming in the next few weeks!

Department of Revenue's Property Tax GIS Receives Two Awards

By: Kim Schmanke and Scott Sampson, Washington State Department of Revenue

The Washington State Department of Revenue's Property Tax GIS application received both national and international acclaim in 2014. In June, the Department of Revenue received an honorable mention for its recently developed **Property Tax GIS** application for centrally assessed properties in the Outstanding Technology Application category at the annual meeting of the Federation of Tax Administrators. The Federation of Tax Administrators is a nonprofit organization composed of taxation and revenue departments of the 50 states, District of Columbia, New York City, and Philadelphia.

On September 10, 2014, the International Association of Assessing Officers (IAAO) announced that the Department of Revenue was the recipient of the 2014 Distinguished Assessment Jurisdiction Award, for its use of enhanced GIS. David Saavedra and Pete Levine represented the Department at IAAO's 80th Annual International Conference on Assessment Administration held in Sacramento for the award. IAAO is recognized as the leading nonprofit educational and research association for individuals in the assessment profession and others with an interest in property valuation and taxation.

The Department of Revenue is responsible for centrally assessing the property of utility companies that operate in the Washington State. The utility companies are in the airline, gas and oil pipelines, electricity generation and distribution, landline and wireless telephones, and railroad industries. The Department estimates the value of their property and apportions it among the taxing districts in which the property is located. Combined, centrally assessed utilities own, and operate real and personal property at 1.5 million locations throughout Washington, accounting for $19.9 billion in assessed property value statewide. This value represents more than $230 million in property tax revenue for local governments and schools that must be apportioned, or divvied up.

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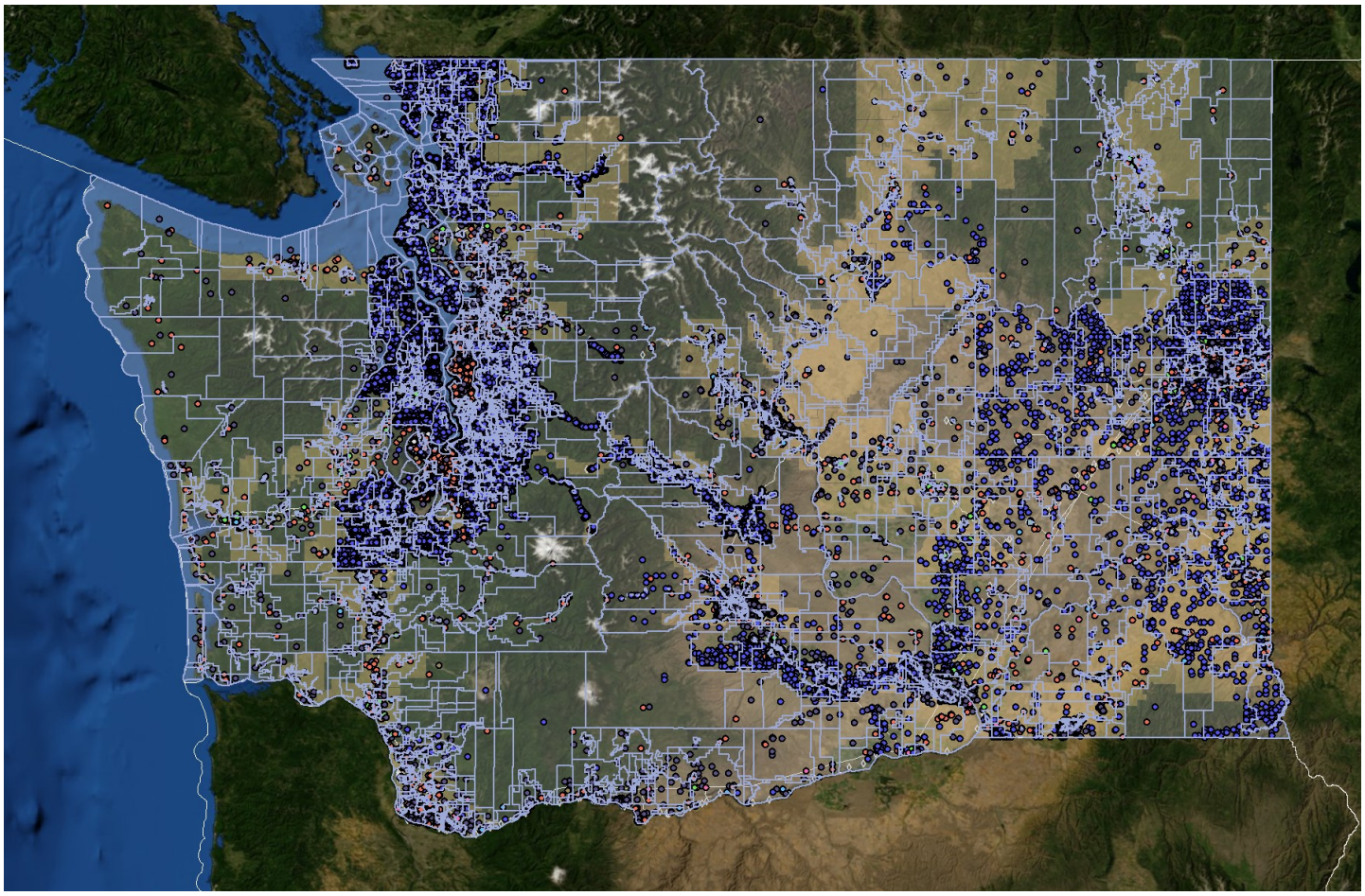

Figure 1. In Washington, there are nearly 3200 unique tax code areas and 1.5 million assets. Each asset must be taxed according to the tax code area in which it falls.

Department of Revenue's Property Tax GIS Receives Two Awards

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Apportionment is like cutting a pie and making sure everyone receives the right size portion. For apportioning assessed values, the utility companies report the location and cost of their real and personal property within each of the state's 3,192 tax code areas annually. These tax code areas are the result of boundary overlaps from the 28 different types of taxing jurisdictions, including cities, counties, port districts, fire districts and park districts. Each tax code area has a unique levy rate that affects the property tax every taxpayer pays.

Prior to the GIS application apportionment was a manual process. However, in 2007 the Legislature changed the law for city and tax district annexations and mapping taxing district boundaries. This change prompted the Department to develop a GIS solution for apportionment. The Property Tax GIS application allows Washington's system to stand out by using GIS tools to streamline, automate, and improve apportionment accuracy.

Prior to the Property Tax GIS, a room of Department staff would spend weeks producing, then mailing, hundreds of maps of the state. Once received, utility company cartographers would spend countless hours meticulously marking by hand their assets on those maps. Eventually, the maps would complete their snail mail round trip to a state office. Then Department employees could finally study the maps, apportion levy rates based on the presumed tax code areas, and send the values to county assessors.

The Department's new GIS application modernizes and streamlines Washington's apportionment process for centrally assessed utilities.

The GIS application allows utilities to report their property locations six different ways: by address, street intersection, assessor parcel number, section/township/range, latitude and longitude, or airport code. The taxpayer pastes or imports their property location and cost data into a Department-provided template and sends the data electronically to the Department.

The Department combines the taxpayer data with the Department's tax code area maps. Because the GIS application assigns each address a map coordinate, the application is able to determine if the property is within the state's border and what tax code area to assign it to. A tax code area is the result of boundary overlaps from the 28 different types of taxing jurisdictions, including cities, counties, port districts, fire districts, and park districts.

"Not only does the Department of Revenue's GIS system save us considerable amounts of time each month, it has streamlined the process to where there is no more guess work involved," said Steven Catlow, financial services assistant for the Benton County Rural Electric Association in eastern Washington. The association has property in more than 60 tax code areas in Benton and Yakima counties. Every year, the utility section devoted two employees for two solid weeks piecing together the specifics of their property locations and costs in order to locate them in the correct tax code areas. This routine task included pasting tax code area maps on the boardroom walls, then assigning their property to each one. Before the Benton Rural Electric Association began reporting on forms designed for the GIS application, Catlow said requesting a filing extension was routine. Now, they simply update the prior year's report by deleting removed property and adding new property.

Another benefit of the application is improved data accuracy. In one case, a cellular telephone company reported its cellular

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Department of Revenue's Property Tax GIS Receives Two Awards

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tower in "Clark County." When the taxpayer added more location information into the GIS application, the tower's proper location was identified as Clark County, Nevada, not Clark County, Washington.

On average taxpayers are filing their property location reports 36 days sooner with the GIS application than before. In addition, taxpayers are filing the very last location report 31 days sooner. This is important because it allows faster delivery to the counties of utility property values for property tax computations.

Enhancements to the GIS application are already being planned. The first upgrade is intended to eliminate Department staff loading apportionment reports into the GIS application. Taxpayers will be able to log on and load their report into the system directly. They will be able to view and edit property locations in the system. The GIS application will eventually provide a platform to enable county assessors to view and change the taxing district boundaries and tax code areas that are their responsibility.

135 companies filed their property location reports with GIS data last year. More than 1.5 million locations were reported, including:

23,091 miles of pipeline & natural gas distribution lines
8,147 cellular telephone locations
5,370 miles of railroad track
112 airports

A taxing district is established by law and authorized to impose a property tax on properties within the district in proportion to the value of those properties. There are 28 types of taxing districts, and over 1,800 taxing districts in the state. Because these districts have overlapping boundaries there are many combinations of total tax. These unique combinations of taxing districts are called tax code areas. There are 3,192 tax code areas in the state, such as:

State – schools	Library
Schools – local special	Hospital
Counties	Parks
Road	Public utility
Cities	Sewer
Ports	Cemetery
Fire	Flood
Emergency medical (EMS)	Mosquito control

State GIS Office Current Activities

By: Joy Paulus, GeoSpatial Program Manager, Office of the Chief Information Officer

The State's Geospatial Program Office (GPO), which is part of the Office of the Chief Information Officer (OCIO), is pursuing the objectives of their strategic plan which was released earlier this year (see the story in the Autumn 2014 Issue of The Summit). There are three activities currently in the works that will help the GPO meet some of the goals:

- Constructing a Master Addressing dataset;
- Assembling a statewide trails dataset; and
- Initiating County outreach efforts.

Washington Master Addressing Service

The Washington Master Addressing Services (WAMAS) was partially funded in Governor Inslee's 2014 supplemental budget, and tasks state agencies to develop and use a standardized address database that is more accurate, complete and compatible for use across state government.

WAMAS would create a single enterprise addressing file and associated tools, which will allow agencies to:

- Correct addresses to U.S. Postal Service standards
- Geocode and locate addresses on a map
- Locate an address in the correct boundary area, such as a voting or taxing district
- Store information for reuse in a state master address file

Most, if not all, state agencies use addressing data to provide services to citizens and business entities. These uses include:

- Taxing residents and businesses based on address
- Mailing materials to constituents or clients
- Reporting whether a death has occurred inside or outside city limits
- Aggregating confidential client data to census tracts and other geography for population analysis and reporting
- Tracking cancer clusters and analyzing environmental impacts
- Dispatching first responders to homes and businesses
- Granting appropriate permit guidance based on where a client lives
- Regulating business activities based on proximity to schools, churches and parks
- Assigning voting jurisdictions

The WAMAS proposal was developed in cooperation with 11 state agencies that are heavy users of addressing data. Agencies now purchase their own data sets and maintain their own address databases that are, in some cases, not standardized. Though actual cost avoidance is hard to quantify, WAMAS has the potential to save the state $1.6 million or more annually as agencies use shared data instead of purchasing their own. Money will be saved, too, as less time will be spent manually correcting and updating address data.

The Office of the Chief Information Officer is responsible for the development of WAMAS and is seeking County participation to ensure that the best available, authoritative addressing information is included in the Master Addressing File (MAF). Project development will be completed on June 30, 2015 and the resulting API's and database will be transferred to the Department of Enterprise Services for operations and maintenance. For more information about this project please contact Joy Paulus at joy.paulus@ocio.wa.gov or visit the initiatives website at https://ocio.wa.gov/initiatives/

Trails Database Project

Washington still is missing a statewide trails database. To date, some of the state and federal hiking, biking, horse and rail trails data have been compiled into a simple GIS dataset but it's still missing valuable county, city and state spatial data and attributes about those trails. This project is the first iteration on building a suitable spatial data design and structure that can be built on and improved over time. With use of on-line collaboration tools and grant funding from the Recreation and Conservation Office in Olympia, staff and interested parties from across the state will be able to contribute digital information into a single sources of best compiled data from all levels of government.

Background

A legislative report was commissioned back in 2006 to report on the feasibility of creating a statewide trails database for Washington and the resulting report was published in January 2007 as "*Cost Estimates for Creating a Database of Motorized and Non-motorized Off-road Trails and Facilities in Washington State*". The report detailed the cost to:

- Develop a geographic information system (GIS) database of trails in Washington State;

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State GIS Office Current Activities

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- Develop an application that would allow public access and downloading of the resulting data; and to
- Develop a web-based portal to allow public links to the existing trails data.

Since then, separate entities continue to collect trails information but not in any particular manner or data structure that would easily allow it to be rolled up, mapped or shared consistently across the state or jurisdictions.

But what has changed since 2008 is the establishment of a national trails data standard, the use of GPS devices embedded into cameras and phones, and the use of social media that has led to vast crowd sourcing activities like *Open Street Map*, *Code for America*, and *Open Trails* to name just a few.

Project Goals

1. Aggregate as much existing trails data into a single database that follows the national trails data standard.

2. Connect as much of that existing line work as possible.

3. Fill in as many trails attribute in the database as we can readily find.

4. End up with a database that others can fold back into their work processes to populate and maintain over time

Biggest Project Challenges

- Controlling expectations - there is only so much you can do with $177,000.
- Ability to find the right person with the data across all the Washington entities who maintain and administer trails in some sort of map form.
- Creating ways that allow private groups like WA Trails Association, ORV Associations and other interested groups to be able to harness their constituents' knowledge to improve the information over time and via an internet browser.

Technical Approach

- A data environment was stood up in late September and leverages all the benefits of the cloud. The project is using Esri's Software as a Service (SaaS) called ArcGIS Server which provides the team a place to store, edit and publish the statewide trails data assembled to date. This approach was used because it will make it easier to work with entities outside state government and supports crowd sourcing.
- An experienced GIS analyst is working on standardizing the data compiled to date and combining the information, resolving conflicting spatial information in problematic areas. Spatial analysis is being performed up front in order to populate certain attributes like ownership and county.
- Two GIS data editors over the next 8 -9 months will be editing existing spatial trails data, adding in existing trailheads from willing partners and adding and editing valuable trails attributes.
- A Trails Data Contact will help manage the partnerships with the various data providers which we hope will include state & federal agencies, local government, and trails associations. This role will also provide editors with some extra support in attributing trails data.
- Software engineers from the Office of the CIO are donating their time to stand up a web based crowd sourcing application that is geared to the various WA trails associations, the ORV, the horse and biking community and others interested in trails data.

(Continued on page 17)

State GIS Office Current Activities

(Continued from page 16)

The hope is that these various organizations will leverage their communities, inject and display the resulting data into their daily work flows, websites and support the projects efforts to improve the data directly. It's in this way that we hope to expand the potential collection and improvement of the data!

Project Team:

Funding Sponsor & Grant Manager: Darrell Jennings, Recreation and Conservation Office (RCO)

Executive Sponsor & Project Manager: Joy Paulus, Geospatial Program Manager, Office of the Chief Information Officer (OCIO)

Team Technical Lead/GIS Analyst: Jenny Konwinski

GIS Editors: Reid Ammann & Michael Hammond

Trails Data Point of Contact: Katz Kiendl

Geospatial Coordination between State and Local Government

Citizens of Washington are entitled to see government run efficiently and effectively. In order to do this, all governmental entities need to work together to ensure that taxes are levied properly, voters are assigned to the right districts, and business permits are processed correctly the first time.

Legal responsibility for the collection and maintenance of valuable data resides with city, county, and state levels of government. Various state agencies often collect local government data, expending a significant amount of efforts on data consolidation and enhancements for state business purposes. This results in unnecessary duplication of effort for all levels of government.

Many state and local entities have indicated that they have reached capacity and are unable to take on new cross-agency data work. However, a solution to this problem is to purposefully coordinate efforts between all levels of government.

BECAUSE:

- Accurate state, county and municipal boundary data are required when consolidating data from multiple government entities into single, statewide data products; and
- City and urban growth boundary data are important to local and state agency business functions (e.g. commute trip reduction and setting population estimates); and
- Real property parcels data creation and maintenance happens at the local level and these data are needed by local and state agency for multiple business purposes (e.g. aviation navigation); and
- Road data is needed for local and state business reporting and analysis requirements to meet the federal All-Roads LRS system for Washington; and
- Addressing officials reside at the local level, but a statewide master addressing system is needed by state agencies that are involved in permitting, voting, taxing and emergency services; and
- The national Next Generation 911 system requires states to have compiled administrative boundary (county, municipal and addressed street) layers. It also recommends that address points, cell tower and antenna, parcel and imagery layers exist; and
- Benefits and cost savings to cities, counties, and state agencies will result from closer coordination, and integration and sharing of these data sets.

THUS: The State Geospatial Program Office within the Office of the Chief Information Officer will enter into data coordination and sharing agreements with all interested counties, cities, and tribal governments.

It will: In return, leverage existing federal and state data standards; facilitate the identification of data creation and maintenance practices; set map accuracy guidelines for data creation and maintenance; and provide access to the infrastructure needed to facilitate the storage, collection, and integration of the above mentioned layers. This effort will make it easier for all parties to take advantage of the geospatial work being conducted across all levels of government. This initiative will provide the biggest cost benefit for consolidated statewide geospatial layers for the widest business use.

This initiative was launched in late November 2014 with a call for counties' participation. Ongoing coordination is continuing and a potential five-county pilot is under consideration at this time.

For more information about this project please Joy Paulus at joy.paulus@ocio.wa.gov or visit the initiatives website at https://ocio.wa.gov/initiatives/geospatial-program-office.

President's Column

(Continued from page 1)

in the GIS industry and have website building experience, we're looking for guidance on updating our website. We like the look of the website we're using for the conference this year (Oregon URISA created this site), which was done using Drupal: http://www.gisinaction.org/ Our technology committee has capable people ready to help with this work, but we're looking for someone to help lead the project. We are flexible on approach and method – please don't hesitate to contact us with your ideas and questions. This is a great way to earn GISP points!

WAURISA Board Elections: Becoming a board member of WAURISA offers the opportunity to expand your skills, grow your network, and gain valuable experience guiding the direction of this non-profit group dedicated to the geospatial community in Washington State. This year, the following positions are open for election: President, Vice-President, Secretary, and three member-at-large positions. Give it a thought! Reach out to anyone on the board for more information or to ask questions about their experiences being a board member and consider putting your name into the hat for our elections in May: http://www.waurisa.org/contact.html

The Summit Award: This year we are continuing our long-standing tradition of selecting a candidate for The Summit Award. We've freshened up our nomination criteria and we're ready to accept candidates for the award: http://www.waurisa.org/conferences/Abstract_submissions/Summit_Award.php Please take a moment today to nominate someone you believe is worthy of this award.

Thank you for taking the time to read this column and please enjoy this issue of *The Summit* newsletter. Stay in touch, and don't hesitate to contact me if there is anything I can help you out with.

-Heather

president@waurisa.org

UPCOMING EVENTS

The Census Bureau will be hosting the following free webinars:

Accessing Census Data—Narrative Profiles

Tuesday, January 27, 2015: Click **here**

Thursday, January 29, 2015: Click **here**

Call for GIS Project Proposals & Ideas

Green River College GIS program is calling for GIS professionals and managers to submit project proposals and ideas for use in GIS 291: *GIS Project Planning* offered winter quarter (Jan 5th to Mar 20th) and the continuation course, GIS 292: *GIS Project* offered spring quarter (Mar 30th to Jun 12th). These projects are important to the program as they provide GIS students with real world learning experience. At the same time, the industry can benefit from the up-to-date skills that the students are learning at Green River College. If you have a project proposal, please send the information below to Sabah Jabbouri at sjabbouri@greenriver.edu. For further inquiries, contact Sabah Jabbouri via email or by telephone, 253-833-9111 Ext. 4854.

For proposals, include:

- Your name, department, and contact information
- Project title, purpose, a brief description, and a timeline with deliverables

GIS-Pro & NWGIS 2015 Call for Presentations

GIS-Pro 2015 & NWGIS 2015: Geography at the Nexus of Collaboration
October 18 - 22, Spokane Washington. Deadline for Submissions: March 2, 2015
http://www.urisa.org/education-events/gis-pro-nwgis-2015-call-for-presentations/

The GIS-Pro and NWGIS Conference Committee invite your presentation proposals for the URISA GIS-Pro and NWGIS 2015 Conference in Spokane, Washington. This year's collaborative conference will once again bring together an international audience of your peers to present, discuss, analyze, and share their experiences, insights, solutions and yes, frustrations in the geospatial arena. Help us get the dialogue going. Presenting at URISA and NWGIS is rarely a one-way process… your presentation will just be the start of the discussion.

For more than 50 years, URISA has been at the forefront of what was then evolving technology but is becoming more and more mainstream. For 30 years, the Northwest GIS User Group has been providing a forum for training and the exchange of knowledge, techniques, and data among the users of GIS products and services. GIS continues to find new applications and new adaptations. Presenting your work at the URISA GIS-Pro and NWGIS 2015 Conference helps your peers identify new uses for their GIS systems among end-users and between agencies.

Why should you present at the URISA GIS-Pro and NWGIS 2015 Conference?

•Get recognized for your achievements and enhance your professional profile.

•Increase the visibility of your organization and your project.

•Help somebody else who is facing similar challenges.

•Receive valuable points toward your GISP certification or renewal.

•Practice your presentation skills … discuss your work in a meaningful way to a variety of individuals.

•Receive valuable feedback from your peers. Are you on the right track?

Presentation Topics to Consider

The Conference Committee has provided the following list to consider as possible presentation topics. The list is not meant to be restrictive, but is provided to stimulate ideas. Feel free to think outside the box. Consider innovations, trends, technical and management topics. Propose ideas geared to GIS beginners or recognized leaders.

•Addressing

•Advocacy

•Aerial Photography, Remote Sensing, & LIDAR

•Airport GIS – FAA Requirements, Local, and Regional Airport Planning

•Application Development

•Best Practices, Certifications, & Continuing Education

•Cartography & Map Design

•Developing quality RFPs and measuring ROI

•Education, particularly K-12 and postsecondary

•Emerging Technologies and the Cloud

•Environmental Conservation and Management

•GeoDesign

•Map Publication Systems and Applications

•Mobile Applications & GPS

•Natural Resource Management

•Open Source GIS

•Private Sector Innovations

•Program Management & Planning

•Projects, Implementations, & Strategies

•Public Health

•Renewable Energy & Climate Change

•Smart Cities

•Soft Skills Development

•Surveying

•3D GIS

•Transportation and Transit

•Tribal GIS

•Utilities – Water, Wastewater, Electrical, Gas, Stormwater, Phone, Broadband, etc.

•GIS and 911; Emergency Response; Hazard Mitigation, Fire Management; Earthquake or Flood Response

Please Note: Presentations cannot be sales pitches or commercials.

Editorial

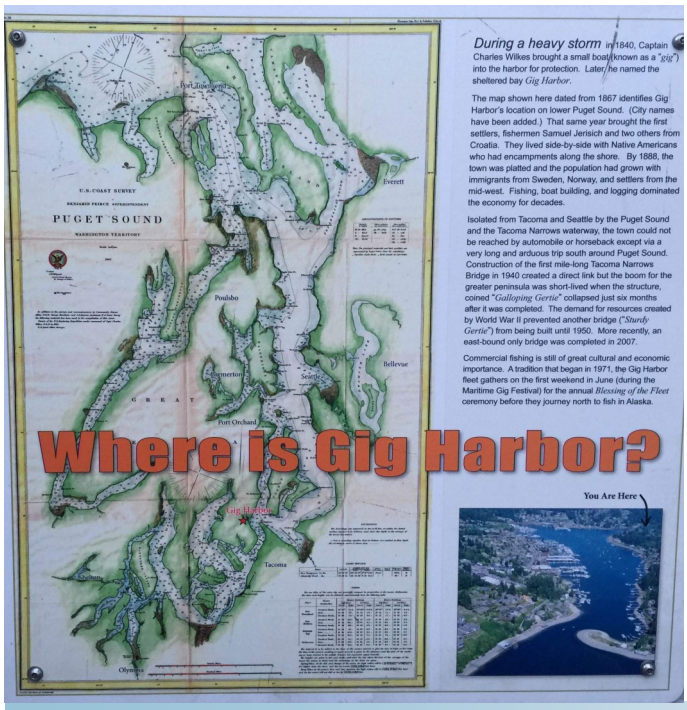
By: Eadie Kaltenbacher, GISP

Better decisions are made with better information. We have some excellent stories in this issue about GIS data being used to inform decision-makers, whether they are deciding about potential regulations regarding jet noise, how to maximize agricultural yields, or planning sites of elevated structures for tsunami mitigation. All these activities are dependent on highly reliable data.

This fact folds somewhat uncomfortably into the trend of collecting data from the public. This kind of data has a reputation of being unreliable or incomplete. While these concerns are valid, today there are many more ways to ensure reliability. For example, we can cross-reference data from multiple users, or use the reporting device itself to automatically populate data such as location or date. It is becoming more and more important to complete our datasets by getting input from these people who are essentially eyes and ears on the ground. I am especially impressed by the State's Geospatial Program Office's ventures into this arena with their Trails pilot project.

GIS is about creating, validating, and communicating the necessary information to change our world. I was inspired by the examples in this issue and I hope you were too.

Public Maps in Washington



Literary Corner

"**He had bought a large map** representing the sea,
Without the least vestige of land:
And the crew were much pleased when they found it to be
A map they could all understand.

"What's the good of Mercator's North Poles and Equators,
Tropics, Zones, and Meridian Lines?"
So the Bellman would cry: and the crew would reply
"They are merely conventional signs!

"Other maps are such shapes, with their islands and capes!
But we've got our brave Captain to thank:
(So the crew would protest) "that he's bought us the best--
A perfect and absolute blank!"

-from The Hunting of the Snark, by Lewis Carroll

UPCOMING DEADLINES

Submit articles to *The Summit* for publication by:

	Spring Issue	Summer Issue
First Draft (optional)	4/10/2015	7/17/2015
Final Draft	4/17/2015	7/24/2015

The Summit is the newsletter of WAURISA. To encourage the discussion of issues and ideas of importance to the Washington GIS community, we welcome letters to the editor or opinion essays. Letters should be a maximum of 100 words and essays should be limited to 500 words.

Chief Editor: Eadie Kaltenbacher
Editorial Board: Eadie Kaltenbacher, Greg Babinski, Effie Moody
Interview Editor: Michelle Lortz
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Esri's geographic information system (GIS) software gives you the power to think and plan geographically. GIS is used in more than 350,000 organizations worldwide. It helps cities, governments, universities, and Fortune 500 companies save money, lives, and our environment. Whether transporting ethanol or studying landslides, these organizations use GIS to collect, manage, and analyze geographic information, which helps them see relationships, patterns, and trends. They can then solve problems and make better decisions because they are looking at their data in a way that is quickly understood and easily shared.

David Evans and Associates, Inc. (DEA) is a multidisciplinary consulting firm doing business in the energy, land development, transportation and water markets. Centered on the core purpose of improving the quality of life while demonstrating stewardship of the built and natural environment, our professional staff work together to understand client needs, provide creative thinking and technical excellence, and deliver extraordinary service that exceeds expectations. As an infrastructure planning and design firm, DEA was founded and is headquartered in Portland, Oregon, with offices across the Western United States.

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Founded over 30 years ago, Geoline Inc has long been the leading industry of advanced positioning solutions in the Pacific Northwest. We provide instruments, tools, supplies, software, and solutions for all your Geospatial needs. With showrooms in the surrounding areas of both Seattle and Portland, remote employees in Eastern Washington and Boise Idaho, as well as a Partner dealer in Medford Oregon, our well trained staff is prepared to assist you in any Sales, Service, Rental, Training, or Support needs. Geoline Inc is the only authorized Trimble Reseller of all Trimble Geospatial products in the territory of Washington, Oregon, and Idaho. Our objective

The King County GIS Center provides quality service and exceptional value for our clients with one of the most capable GIS organizations in the Pacific Northwest. Unlike most consultants, our professional staff members are not merely theoreticians, but practicing users of the types of GIS solutions government and business require. Why do we offer our services to outside customers? We have a long-term interest in the success of GIS throughout the region. We know that our success depends on satisfied clients and we are committed to delivering quality GIS business solutions that provide value for our customers. Whether you need consulting, programming, data, mapping, or GIS training - - Let KCGIS help you put GIS to work!

Pioneers of industry leading Spatial Data Access Solutions, Valtus provides users with an easy and reliable storage, management and distribution solution, with software agnostic access being gained through multiple protocols such as OGC WMS, WMTS, ArcXML and ArcGIS imagery services, thereby allowing them to derive greater value from their data.

Accela's GIS-infused software makes government processes easier, faster and more accessible for local, state and federal workers. Accela Automation® automates tasks associated with permitting, licensing, code enforcement, community development, asset management, emergency response, and more. Tight ArcGIS integration lets workers share data and maps in the office or field.

Access Geographic serves local industry and government agencies across the state of Washington by using innovative geospatial technologies without losing sight that care and detailed craftsmanship still drives quality results. The AGL team loves working with geography, and is continually inspired to make it an accessible and useful resource through discipline, creativity and respect for our clients. From aerial mapping to terrestrial LiDAR, Access Geographic works hard to find the appropriate solution for your geospatial goals.

CycloMedia's products offer a complete end-to-end solution for collecting, processing, and hosting street-level panoramas allowing professionals to leverage the intelligence of updated geo-referenced imagery.
We provide ready-made solutions throughout North America and Europe. Our technology is widely used in government, GIS, public safety, and security markets, as well as in construction, infrastructure management and insurance.
Our technology revolutionizes the way asset and property assessment is managed and reported. It reduces field visits and provides accurate feature measurements with easy spot-checking. It simplifies maintenance and enables automated inventory and control processes.

Latitude Geographics helps organizations succeed with web-based geography by enabling them to make better decisions about the world around them. Geocortex software by Latitude Geographics transforms how organizations design, develop and maintain Esri ArcGIS Server and ArcGIS Online web mapping applications. They do more; faster, at less cost and risk, and with better results. ArcGIS by Esri is the world's leading GIS platform and Latitude has been an Esri Platinum Partner since 2010.

Hexagon Geospatial helps you make sense of the dynamically changing world. Hexagon Geospatial provides the software products and platforms to a large variety of customers through direct sales, channel partners, and Hexagon businesses, including the underlying geospatial technology to drive Intergraph Security, Government & Infrastructure (SG&I) industry solutions. Hexagon Geospatial is a division of Intergraph Corporation.

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Krollmap.com

Kroll Map Company - serving the northwest with over 100 years of maps and mapping services. We serve a broad range of organizations with services ranging from Custom Cartography to CAD/GIS Integration to digitizing and geo-referencing. Current clientele includes utilities, telecommunications, recycling-waste industries, and general business/real estate. Kroll offers general mapping services and products through our affiliate - Metsker Maps of Seattle in the Pike Place Market and now also at Sea-Tac International Airport.

With more than 11,000 clients, Tyler Technologies is a leading provider of software and services for the public sector. Designed with an insider's understanding of the public sector market acquired from more than 30 years of industry experience, Tyler Solutions reach all areas of the public sector. Comprehensive and easy-to-use applications streamline processes and improve the flow of information throughout an organization, empowering local and county governments, schools and other entities to better serve citizens.

URBAN STUDIES
UNIVERSITY of WASHINGTON | TACOMA

Salish Coast Sciences is a small highly skilled GIS consulting firm located in Bellingham, Washington. We can help evaluate and fine tune your spatial data tools. With a combined 60 years of experience working with environmental and local government agencies, you get all the benefit of qualified and knowledgeable professionals. We specialize in consulting and mentoring on GIS design and implementation, spatial analysis, web mapping and cartography.

3Di is a leading provider of aerial mapping, LiDAR, and GIS related services with a particular emphasis on supporting clients in the Pacific Northwest. Recent projects have focused on site development, floodplain mapping, transportation engineering, landfills, environmental analysis, facilities engineering, airport master plans, and municipal mapping.

GIS User Groups in Washington

ACSM – Washington State Section
www.wss-acsm.org

Cascadia Users of Geospatial Open Source
groups.google.com/group/cugos
Contact Karsten Venneman

Central Puget Sound GIS User Group
Join Listserve here

Central Washington GIS User Group
Meets the 2nd Wednesday of each month.
Contact Amanda Taub

Cowlitz-Wahkiakum GIS User Group
Meets the last Wednesday of each month at 3:00 pm at the Cowlitz-Wahkiakum Council of Governments meeting room, 207 North 4th Ave, Kelso WA.
Contact TJ Keiran

King County GIS User Group
www.kingcounty.gov/operations/GIS/UserGroups.aspx
Meets 1st Wednesday every other month at 11:00am at the KCGIS Center, 201 S. Jackson Street, Seattle WA, Conf Room 7044/7045.

Northwest Washington GIS User Group
www.wwu.edu/huxley/spatial/nwwgis/nwwgis_mtgs.htm

Southeast Washington/Northwest Oregon GIS User Group
http://gisgroup.wordpress.com

Washington Geographic Information Council (WAGIC)
geography.wa.gov/wagic
Join Listserve here

Washington Hazus Users Group
http://www.usehazus.com/wahug
Contact Kelly Stone

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To be added to *The Summit* mailing list, contact: Marketing@WAURISA.org
Back issues of *The Summit* are available at: http://waurisa.org/thesummit/
Interested in volunteering your time to help WAURISA? Contact any Board member listed on the right.

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