The Virginia Geospatial Newsletter

Showcasing GIS, Remote Sensing and GPS Supported Products and Services in the Commonwealth

Volume 8, Number 1 Winter 2010

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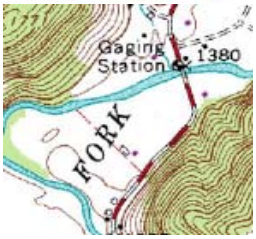
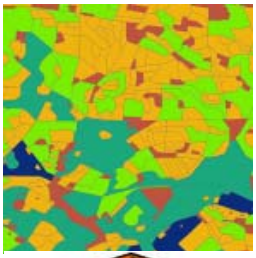
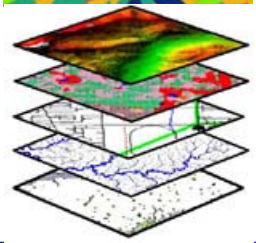
VGEP

http://www.cnr.vt.edu/gep







For more information contact:

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Geospatial Extension Program Targets Marketing Needs of Small, Rural Businesses

John McGee
Virginia Geospatial Extension Specialist
Virginia Tech

Small, rural businesses (e.g. tourism/ agritourism operators, artisans, craftspeople, "mom and pop" restaurants) face many challenges, especially when it comes to marketing and advertising their products and services.

For example, business owners may be preoccupied with 'traditional' forms of advertising, which include signage, yellow page advertising ('the book'), and the dissemination of information through other print media, including magazines and newsletters.

These approaches can be expensive and do not always target intended audiences. Furthermore, some areas of Virginia, including regions along the Blue Ridge Parkway, do not permit some forms of traditional advertising (roadside signage).

Location-based serivces are leveling the playing field. These applications and services are well positioned to support both small and large businesses alike.

Location-based services

Advances in technology have resulted in a revolution in marketing and advertising. Location and place-based services, made possible through the use of global positioning system (GPS) devices (including both portable and in-dash car navigation systems) can be used to geographically connect potential consumers with nearby businesses.

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The Virginia Geospatial Newsletter is a quarterly publication developed through the Virginia Geospatial Extension Program, a partnership between Virginia Cooperative Extension (VCE) and the Virginia Space Grant Consortium (VSGC). The newsletter is published in conjunction with The Virginia Geographic Information Network (VGIN).

The purpose of the Virginia Geospatial Newsletter is to highlight innovative geospatial products and services throughout the Commonwealth and to widely disseminate geospatial knowledge and awareness throughout Virginia.

If you have suggestions or comments, or if you would like to contribute to the newsletter, please contact John McGee at the Virginia Geospatial Extension Program (jmcg@vt.edu or [540] 231-2428).

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Higher Education

Assessing Priority Conservation Areas: Approach and Local Application

Jennifer Ciminelli
Environmental Specialist
VCU Center for Environmental Studies

With an abundance of existing natural resource geospatial datasets, state agencies, planners, non-profits, and citizens have a variety of datasets that can be utilized in their planning efforts dependent on the end objective. While in some instances this provides the end user with the capacity to focus on specific prioritization schemes, for some, the amount of information can make it difficult to prioritize and time intensive to synthesize. The Virginia Department of Game and Inland Fisheries (VDGIF), Virginia Commonwealth University Center for Environmental Studies (VCU-CES), and the Virginia Department of Conservation and Recreation Division of Natural Heritage (DCR-DNH), in collaboration with the Virginia Coastal Zone Management Program (CZM), undertook a project to create a priority conservation layer that could be used to help identify and prioritize conservation areas.

The Priority Conservation Areas (PCA) are defined as ***lands and surface waters identified as important for conservation of Virginia's wildlife, plants, and natural communities. The identified lands/waters can be used to prioritize areas for preservation, protection or specific management action.*** The PCA represent areas that contain features of conservation importance (e.g., a rare community or species' habitat) along with a protective area around them to insure their continued existence and ecosystem function. PCAs may contain areas that are presently developed or otherwise degraded, but if managed properly would produce conservation benefits. An example is a stream riparian buffer that may currently be an asphalt parking lot, but if reverted to natural vegetation would provide a critical buffer protecting downstream habitat.

Each of the inputs used in the development of the PCA have application as stand-alone datasets, and information about these data can be obtained from the agency responsible for the development and maintenance. Provided here are short descriptions of the datasets followed by the application of the PCA in a pilot Community Viz project.

The Virginia Department of Game and Inland Fisheries (DGIF) maintains several GIS datasets showing the location of important wildlife features but not how these features should be prioritized and conserved. The Priority Wildlife Diversity Conservation Areas or PWDCA was developed to create a new GIS dataset to compile wildlife conservation areas. The term *diversity* was included to reinforce the wildlife diversity or nongame wildlife conservation focus. The development of the PWDCA involved the determination of appropriate existing GIS datasets, processing of other datasets to represent conservation actions outlined in the Wildlife Action Plan, and input from biologists.

The Virginia Department of Conservation Division of Natural Heritage (DNH) developed selected data to contribute to the PCA analysis. The Virginia Natural Landscape Assessment (VaNLA) identifies ecological habitat cores and interconnecting landscape corridors and ranks them with an Ecological Integrity score. The Natural Land Network (NLN), a component of the VaNLA, consists of all ecological cores of the two highest ranks, outstanding and very high ecological integrity, the landscape corridors that connect them and the smaller cores that are intersected by those corridors. Another Natural Heritage Plan component of the PCA is the Conservation Sites Layer (CSL), which delineates known habitats of rare plants and animals and exemplary natural communities. Each site is assigned a biodiversity significance rank (b-rank) based upon the rarity, quality, and number of occurrences

Virginia Commonwealth University Center for Environmental Studies (VCU-CES) developed an Aquatic Integrity Resource Layer to aid in the characterization of stream health in the Commonwealth. The layer is a combination of both a local scale assessment and a watershed-based approach to stream health. The local scale assessment was derived using the

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Facilitating Geospatial Literacy Through The Geospatial Revolution Project

James Campbell, Ph.D.
Professor and VirginiaView PI
Virginia Tech

Readers of the *Virginia Geospatial Newsletter* are aware of the value of geospatial data in addressing varied problems of local, state, national, and even international scope.

Penn State Public Broadcasting is developing an informational program that will highlight the synergistic relationships between remotely sensed imagery, GPS, and Geographic Information Systems. Geospatial data can greatly increase the capabilities of businesses and governmental institutions to prepare for emergency response and public safety, to better understand environmental issues, and to plan efficient locations of economic activities. These capabilities reach our everyday activities through immediate access to geospatial data tailored for our own immediate needs though capabilities built into mobile phones, PDAs, and personal navigation devices.

Geospatial information has an impact upon a broad range of issues of significance for the public. Seamless layers of satellites, surveillance, and location-based technologies create a worldwide geographic knowledge base vital to solving myriad social and environmental problems in the interconnected global community. We count on these technologies to:

- fight climate change;
- map populations across continents, countries, and communities;
- track disease;
- strengthen bonds between cultures;
- defend the nation;
- assist first responders in protecting safety;
- enable democracy;
- navigate our personal lives.

The sweeping application of these technologies requires public education to understand both the application of these technologies and the issues of privacy and security that they raise.

The Penn State project will feature a web-based serial release of eight video episodes—each telling an intriguing geospatial story. Overarching themes woven throughout the episodes will tie them together, and the episodes will culminate in a 60-minute documentary. The project also will include an outreach initiative in collaboration with its educational partners, a chaptered program DVD, and downloadable outreach materials.

Readers can view the promotional trailer at:
http://geospatialrevolution.psu.edu/

Although the trailer was developed primarily to promote interest in the broader Geospatial Revolution project, it serves well as an informative vehicle for citizens who are not aware of the nature and role of geospatial data in today's world.

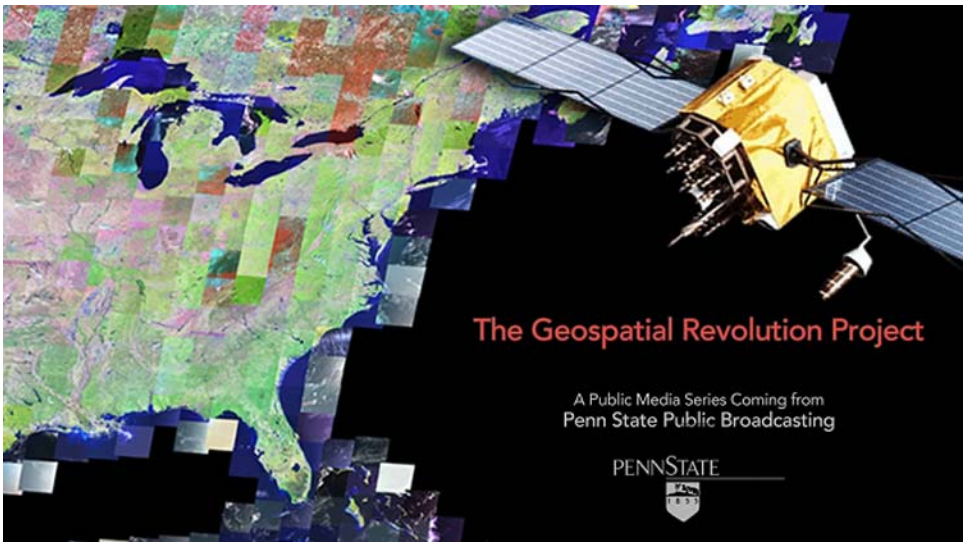


Image Credit: USGS

The President's Message

Russell Minich,
VAMLIIS President

2009 has been a year of successes for VAMLIS. Our successes include co-hosting the 2009 Virginia GIS conference, active participation by VAMLIS members in GIS education and Virginia geospatial legislative issues, and an overhaul of the **VAMLIS Website** (http://www.vamlis.org) , our current work in progress, and a **VAMLIS Group on Linked In** (http://www.linkedin.com/groups?home=&gid=2204699&goback=.hom&trk= NUS_DIG_GENR-ucg_hd). These endeavors have enabled us to carry out our mission of promoting the free exchange of geospatial knowledge and information in the Commonwealth and beyond. As an all volunteer organization, VAMLIS is reliant on our members for the time and services that enable us to achieve these successes on a limited budget. I would like to personally thank all of the VAMLIS members that contributed to these successes.

In 2010 VAMLIS is looking forward to serving and supporting our membership in a variety of ways including:

- Co-hosting the 2010 Virginia GIS Conference with the VAPDC. Planning will start in January 2010.
- Providing opportunities for our members to participate in GIS education through the education committee and by highlighting opportunities to participate in GIS education by working through local educational institutions.
- Completing the overhaul of our website to provide timely information on geospatial events in the region and information on opportunities to engage in the geospatial community.
- Keeping our membership informed of the geospatial related issues in the 2010 legislative session. We will be tracking bills and issues that impact the geospatial community.

The VAMLIS executive committee encourages you be a part of the geospatial community through participation in one of the VAMLIS committees. Remember that VAMLIS is a volunteer organization that is only as strong as its members. Each of these committees provides an essential role in the vitality of VAMLIS. Please consider volunteering.

- The Communications Committee is responsible for information on the website, hardcopy publications, and technology updates to our membership.
- The Education Committee is a critical resource for developing educational policies, programs and standards for the geospatial sciences in Virginia.
- The Legislative Committee is responsible for informing the membership of legislative items that impact mapping and land information professions in Virginia.
- The Membership Committee is responsible for keeping a membership directory and developing programs to obtain and retain membership levels.
- The Nominating Committee administers the nominating provisions set forth in Article V of the Constitution of the Association.
- The Activities Committee organizes events, meetings and socials for the membership.

While 2010 will be challenging for us as we work through the current economic situation, we have much to be thankful for this year and to look forward to next year: our families, building on our work successes, our Commonwealth, and our great nation.

I speak for the entire VAMLIS board in wishing you a happy holiday and a prosperous new year.

HRTPO

Bicycle GAP Analysis

Andy Pickard PE, AICP
Principal Transportation Engineer
Hampton Roads Transportation
Planning Organization
Chesapeake, VA

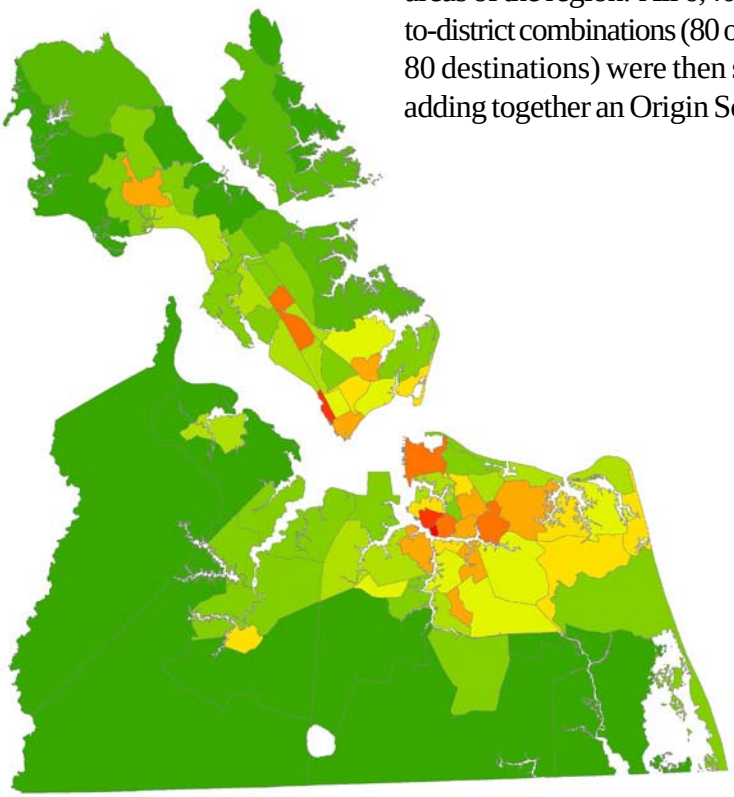
The Hampton Roads Transportation Planning Organization (HRTPO), the Metropolitan Planning Organization (MPO) for the Virginia Beach-Norfolk-Newport News area in Southeast Virginia, is currently developing its 2034 Long-Range Transportation Plan (LRTP) for the region. As a part of the 2034 LRTP effort, HRTPO staff is investigating a means of closing the gaps between bicycle facilities in the region.

A two-part approach is being taken: find the user supply and demand combinations with the highest likelihood for use and then compare these travel patterns to the existing bicycle network to define gaps in connectivity. Closing these gaps will provide opportunities for increased bicycle usage.

The region was divided into 80 districts, which are large but identifiable areas of the region. All 6,400 district-to-district combinations (80 origins and 80 destinations) were then scored by adding together an Origin Score and a Destination Score. A literature review and availability of data influenced the scoring schemes. The Origin Score is a function of population density, the portion of workers commuting by bicycle or walking, and the portion of the population that is non-drivers. The Destination Score is a function of employment density and existing destinations. The Total Score for each district-to-district combination can range from 4 to 50. The original 6,400 possible connections were then reduced in quantity by eliminating the lowest-scoring connections from further analysis.

Gap:
an empty space or interval; interruption in continuity; hiatus.
(source: www.dictionary.com)

The remaining highest-scoring connections, however, will need further refinement due to the complexity of the resulting patterns. The highest-scoring connections will be compared to the existing bicycle facility network. This will be accomplished by analyzing the region in one-mile grids, with each grid being placed in one of three categories: a bicycle facility already exists, no bicycle facility exists and there are no high-scoring connections, or no bicycle facility currently exists but there are high-scoring connections passing through. The product of the grid analysis will be a hierarchy of locations (grids) according to the quantity of high-scoring patterns passing through those locations that don't currently have bicycle facilities. Some degree of judgment will be used in connecting the grids, and the results will be further refined by local technical staff in checking for reasonableness and



Scoring of connections is driven by geographic data, such as year 2034 employment density.

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Non-Profit

What's In Your Runoff?

The James River Association wants to help you find out!

Michelle Kokolis
Watershed Scientist
James River Association
and
Amy Walters
Project Manager
Timmons Group

The James River Association (JRA) is the only non-profit organization in Virginia working solely to protect and enhance the James River and the 15,000 miles of tributaries that flow throughout its watershed. JRA addresses water quality issues throughout the watershed by partnering with corporations, local governments, farmers, landowners, individuals, and state and national agencies. Through these partnerships JRA identifies root causes of pollution in the watershed and implements solutions to reduce or eliminate their negative impacts. JRA carries out its work through its four core programs: Watershed Restoration, Education and Outreach, River Advocacy, and Riverkeeper program. Through this wide range of innovative programs, JRA engages the public to become aware and actively involved in conserving the James River and its tributaries for future generations to enjoy.

More than 1,500 miles of the river and its tributaries are currently listed on the EPA's "dirty water" list. To improve the river's health we must reduce silt and polluted runoff, especially the levels of nitrogen and phosphorus. JRA's Watershed Restoration programs promote responsible land use initiatives within the watershed and showcase solutions through partnerships and innovative projects including the Green Homes project and the "What's In Your Runoff" calculator.

Today the greatest threat to the health of the James River is polluted stormwater runoff associated with urban and suburban development. Due to an abundance of impervious surfaces such as roofs, pavement and parking lots, rainwater cannot penetrate into the soil. Instead, it flows off hard surfaces, picking up pollution, nitrogen, phosphorus, and chemicals such as pesticides and herbicides from lawns. Polluted runoff from imperious surfaces enters streams (or rushes into sewers and storm drains) at a greater velocity, causing erosion and silt buildup.

Because many people have become aware of their carbon footprint, they are taking action to lessen their impacts. However, few people know the direct impact they have on the watershed in which they live, or how they can change that impact. The goal of the Green Homes program and the development of the runoff calculator is to bring this same awareness to impacts we have on our watershed.

The technical approach of the website was a group effort between Timmons Group Geospatial staff, Timmons Group Stormwater staff, and the James River Association Watershed scientists. This project leveraged a unique relationship among all groups and the result was an easy to use website that still provides a tangible report with goals for landowners to reduce their runoff.

The first step of the technical process was to develop simple, accurate runoff calculations that could be run on the fly with just a few inputs from the user. Timmons Group called on their stormwater engineers to help with this process. Using the Runoff Reduction Method spreadsheet provided by the Virginia Department of Conservation and Recreation, the stormwater engineers helped develop a simplified calculation that could be used with the runoff widget. The calculation required some input from the user as well as some data from JRA and the Timmons Group. GIS data including soil and watershed coverage came from JRA, and default impervious surface percentages for various lot types were provided by the Timmons Group stormwater group and JRA. To use the calculator, the website user enters their property address, parcel size, and provides information about any existing runoff reduction appliances in use such as rain barrels or a rain garden.

Once the GIS data and runoff calculator were gathered, the JRA runoff widget was developed using the

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Bicycle GAP Analysis

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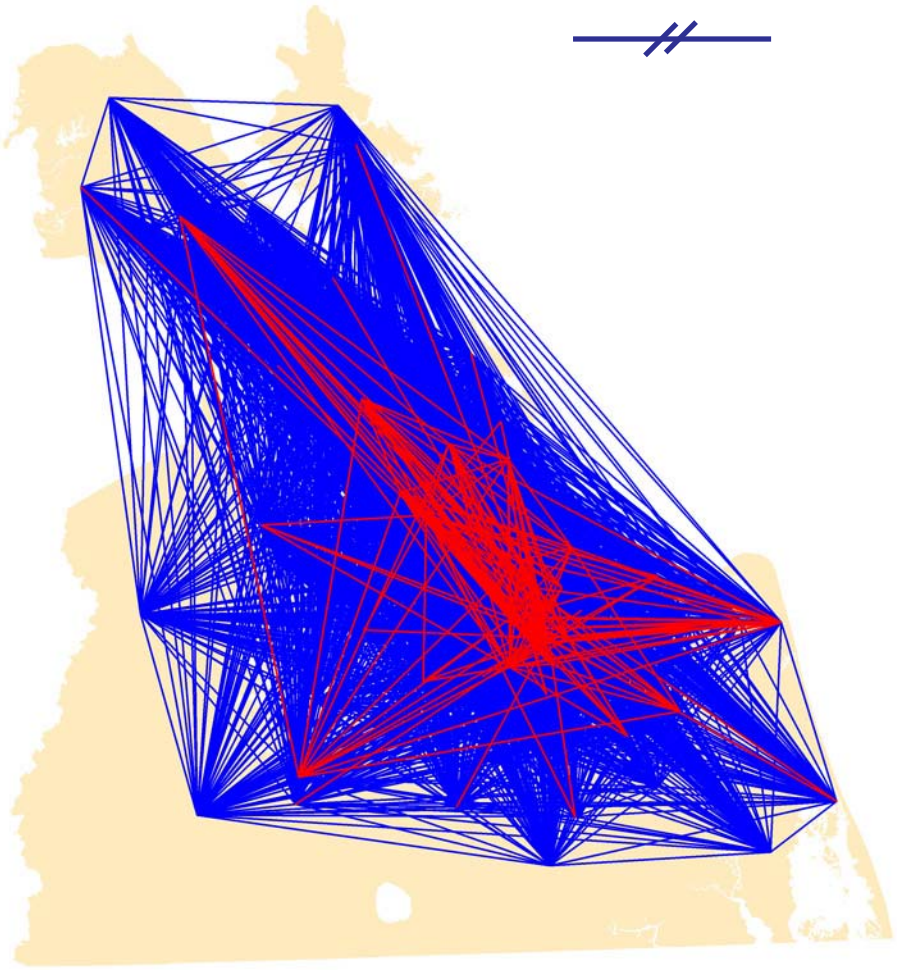
consistency with local plans, in addition to review by the public.

The analysis presented is a work in progress and is subject to change. It is largely GIS-driven, and is expected to continue to rely on GIS for analysis and presentation of results. An ArcView script was used to generate the district-to-district travel patterns ("desire.avx", as found on the support portion of the ESRI website and attributable to Kevin O'Malley, was used). Creating the demographic maps and thresholds, populating the district-to-district travel combinations with the scoring data, performing the grid analysis, comparing results to the existing bicycle network, and facilitating visualization will all be accomplished via GIS in combination with spreadsheets and other data manipulation software.

For additional information on this initiative, please contact Andy at: apickard@hrpdcva.gov



Of all the possible district-to-district combinations (in blue), the highest-scoring combinations (in red) were carried forward for further analysis.

Movin' On...

We wish you the best!

Stuart Blankenship, formerly with the Virginia Geographic Information Network (VGIN), has started in a new postion at WorldView Solutions, where he serves as the Geospatial Applications Manager.

The Holiday Puzzler!

What common holiday phrase is represented by the illustration below?

(and yes, this is what happens when there's a bit of extra space!)

Priority Conservation Areas

Continued from Page 2

Interactive Stream Assessment Resource (INSTAR) to assess stream health. Stream health was calculated and placed in four categories: Exceptional, Healthy, Restoration Potential, and Compromised. The watershed assessments include a broader range of validated *qualitative* biotic data (e.g. species lists) from various sources, including state and federal agencies. These data were used to generate watershed health using six metrics or variables for the 6th order watersheds. Watershed health was calculated and placed in four categories: Exceptional, Healthy, Restoration Potential, and Compromised. The Aquatic Resource Integrity Layer was then created by merging the stream reach assessment layer with the watershed assessment layer.

The final priority conservation area was developed using cell statistics to pull out the maximum cell value of all input datasets to create the final grid. An additional analysis was done with the VCLNA Composite Vulnerability Model to attribute the PCA with a threat value indicative of potential growth. The threat value was averaged for each polygon within the PCA to create a threat attribute in the PCA. The final PCA dataset and metadata are available from http://www.dgif.virginia.gov/gis/gis-data.asp.

Community Viz Application

A pilot project was developed to evaluate the application of use of the PCA at a local level using Community Viz (CV). Placeways Community Viz is an ArcGIS extension used to interactively analyze data, visualize and communicate different working scenario results. Community Viz evaluates working scenarios, runs build-out analyses, develops time growth analysis, and assesses common impacts. The power of the CV extension is extensive and can be explored online at http://placeways.com/.

The pilot project analyzes current and proposed zoning code impacts on Priority Conservation Areas within Northampton County. The application includes the capability to interactively change zoning types and to see the resulting impacts to PCA area depending on the type of zoning code.

The PCA ranks are overlaid on top of proposed zoning with total area of non-compatible PCA displayed in the charts.

Zoning types considered high density may negatively impact the sustainability

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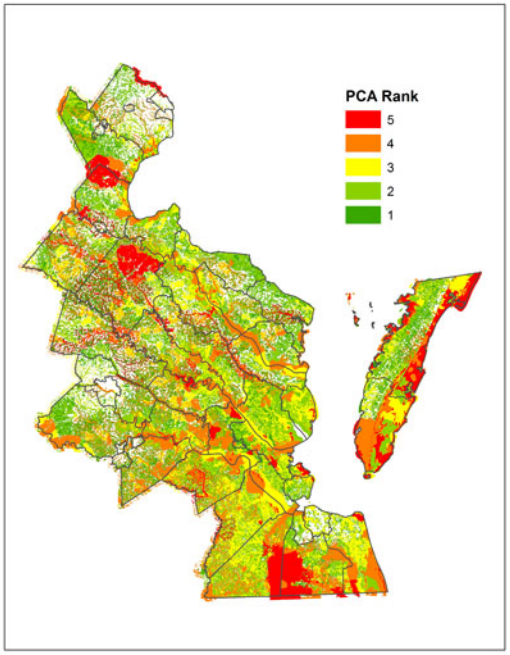
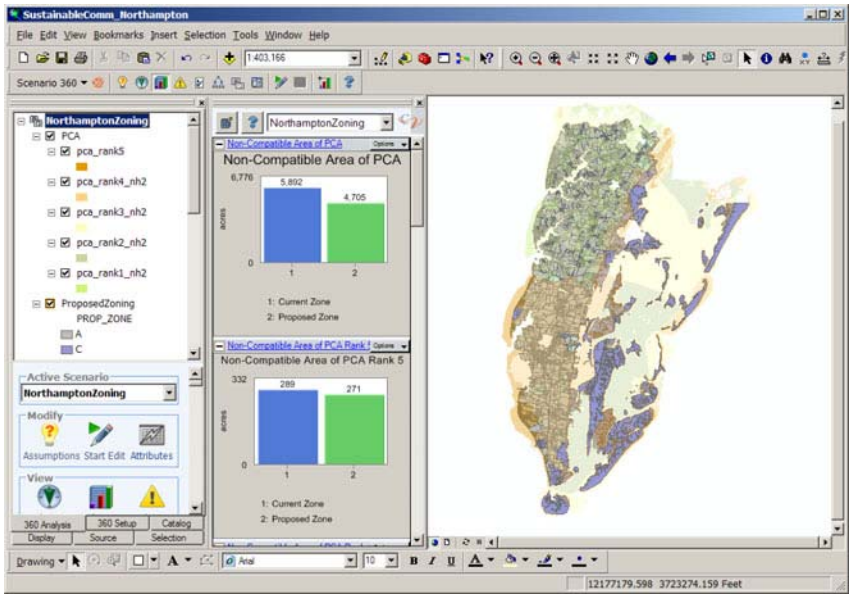


Priority Conservation Areas



Northampton County Community Viz Application

James River Watershed

Continued from Page 6

ESRI Flex API and ArcGIS Server 9.3.1. Timmons Group leveraged their custom UI that already had been developed for the WebLoGIStics product for the Flex API to streamline the User Interface development process. The end user of the website is the general public and not GIS users, so it was important to make the website easy to use.

The widget has several components and walks the user through a few steps to gather the required information to run the calculation. The first step of the widget has the user enter their address, which is then geocoded, or they can simply drop a point on the map to locate their property. This step of the process is important to capture the soil type, soil hydro group, and watershed information for the property. The next step of the widget asks the user for some information on their property size and type. If the user knows approximate impervious and forest coverage percentages for their property they can enter it here, or they can use the default percentages provided by JRA and the stormwater engineers.

Once all the property information is provided, the user goes to the next step of the process, which is to provide information about any existing reduction items already in place. The user then just needs to accept the

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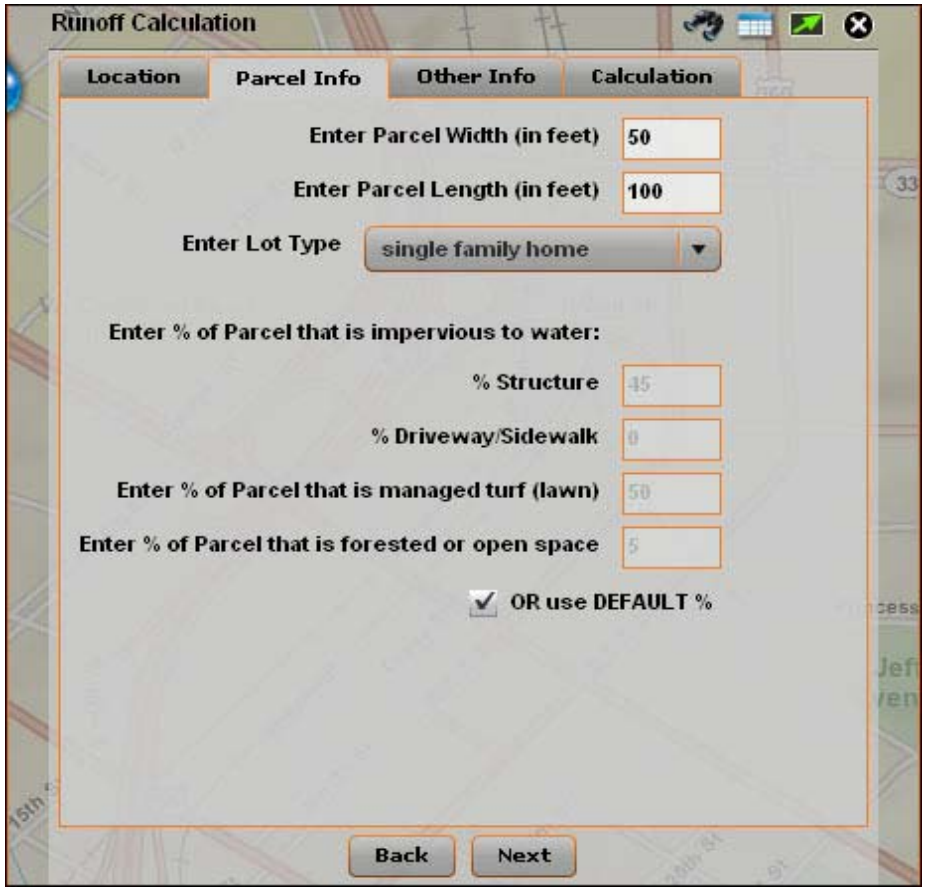
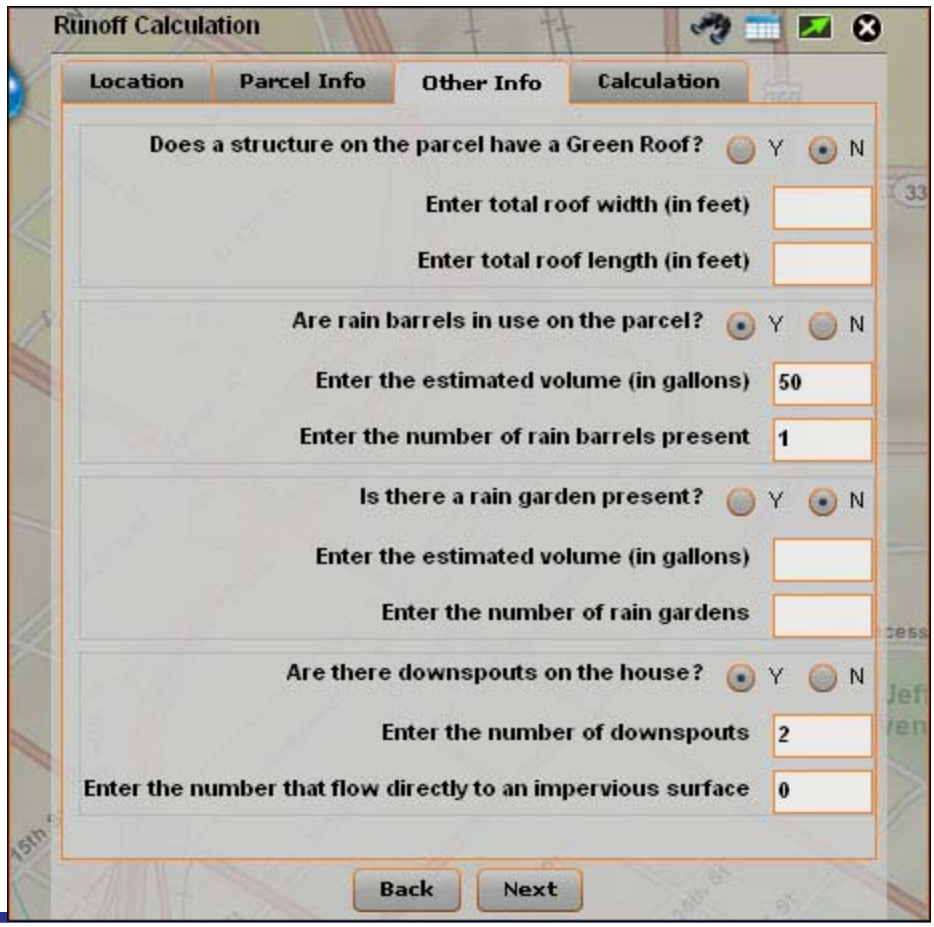


The first step (above) of the Runoff Calculation Widget asks the user to locate their property. The second step (below) of the Runoff Calculation Widget asks the user to enter property specific information.



Geospatial Training Webinars Hosted by the VDOE

Lynn Basham
Virginia Department of Education

The Virginia Department of Education and Charlie Fitzpatrick, ESRI K-12 Education Manager, will present a series of training webinars to assist teachers and school divisions in understanding and using GIS and the statewide site license for ESRI GIS software. Recognizing that many teachers lack the time and mobility to attend face-to-face training sessions, a series of online training sessions has been planned.

The first session, "Introduction to GIS" includes an explanation of what GIS is, who uses it, in what forms it is used,and how GIS integrates GPS vector data and remote sensing (RS) raster data. This session is available under the Recorded Sessions link found at https://vadoe.webex.com/mw0306l/mywebex/default.do?siteurl=vadoe.

The second session will address basics of ArcView including installation, the main menu, range of data, toolbar, communicating data with maps, table of attributes, features (the dynamic link between table and map), and coordinates and scale.

Additional sessions topics planned include:

- Analysis: Classification and Symbolization
- Analysis: Asking Questions of the Data
- Adding and Analyzing Your Own Data
- Analysis: Using Raster Data
- Visualization and Analysis: 3D and Animation
- Routing, Network Analysis, Geocoding

The purpose of these training sessions is to make professional development information available to those who may have taken training previously but feel they need a refresher course, and more advanced information available to those who have reached a level of confidence and are ready to move on to more advanced topics. These sessions will not provide the detail of data files and steps of use that a specific training manual usually contains. However, for the beginner, sufficient data for use is provided with the software.

The updated statewide license for version 9.3 will be available soon, and efforts are underway to make it available through a download option that will be hosted and provided through Virginia Tech. This method will be tested with a few divisions in December.

For those schools without upgraded computers, earlier versions of the software are still available. This will enable all divisions to take advantage of the opportunity to have technology, science, and social studies educators use professional software to teach detailed lessons. Additional classes that may benefit from the software are agriculture, law enforcement, and other technical courses that use GIS as a basic tool.

For further information, contact:
Dr. Lynn Basham
Lynn.Basham@doe.virginia.gov
or 804-786-4210.

Workshop Circuit Targets Small Businesses

Continued from Page 1

When integrated with the Internet via Smartphone devices, these applications provide a technical bridge, linking potential (and often mobile) customers with nearby businesses and specific products. Likewise, business owners are also able to target and "reach out" to potential customers through the use of virtual coupons and other marketing techniques.

This workshop, provided by the Virginia Geospatial Extension Program at Virginia Tech and Virginia Cooperative Extension, walks business owners through the process of registering their businesses on multiple national business databases. These databases are then consumed by a variety of location-based service devices and applications (TomTom, Garmin, iPhone/Blackberry / PalmPre / Droid GPS applications, etc.). Through the workshop participants will also learn how to leverage free, online tools to support Internet marketing efforts.

Workshop Details and Registration

Workshops have been scheduled at the following locations | dates:

- **Blacksburg, Virginia** - Virginia Tech Microcomputer Lab, 220 Cheatham Hall - January 8th, 2010 from 10:00 am - 1:00 pm
- **Stuart, Virginia** - Patrick Henry Community College - January 22nd, 2010 from 12:30 pm - 3:30 pm
- **Abingdon, Virginia** - The Southwest Higher Education Center - February 11th, from 12:30 pm- 3:30 pm

It is anticipated that the Virginia Geospatial Extension Program will be offering additional workshop opportunities in the following regions as well:

- Galax / Hillsville
- Danville

The cost of the workshop is $40 / participant. Participants should register for the workshop online, or by contacting the Virginia Geospatial Extension Program (phone or email) . Once payment has been received, workshop registrants will receive a confirmation email and payment receipt.

VirginiaGeospatial ExtensionPROGRAM
www.cnr.vt.edu/gep

Registration is required, and space is limited.

Online registration can be accessed here: http://www.cnr.vt.edu/gep/VirtualMarketingEnrollment.html.

A printable registration application (adobe pdf) can be accessed here: http://www.cnr.vt.edu/gep/pdfFiles/Virtual%20World%20Registration%20Form.pdf

If you would like to organize a workshop in your community, please contact John McGee at the Virginia Geospatial Extension Program:
gep@vt.edu
(540) 231-2428

Acknowledgements: This program is modeled after a workshop that Adeel Ahmed developed through the University of Minnesota Cooperative Extension service. Kudos to Adeel for his initiative and support!

Priority Conservation Areas

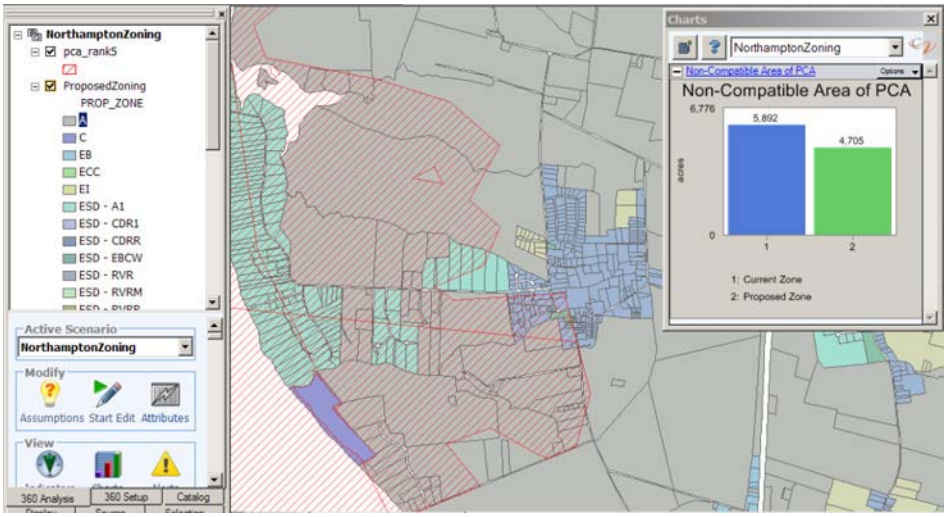
Continued from Page 8

of a PCA to support wildlife and terrestrial species communities and/or aquatic integrity. High density codes were determined from Northampton County's proposed zoning ordinance and used to create dynamic formulas within the CV application. If a parcel is zoned a non-compatible PCA use, the spatial overlap of the PCA with that parcel is calculated. That information is then summarized and displayed in charts as an easy visualization tool for the end user.

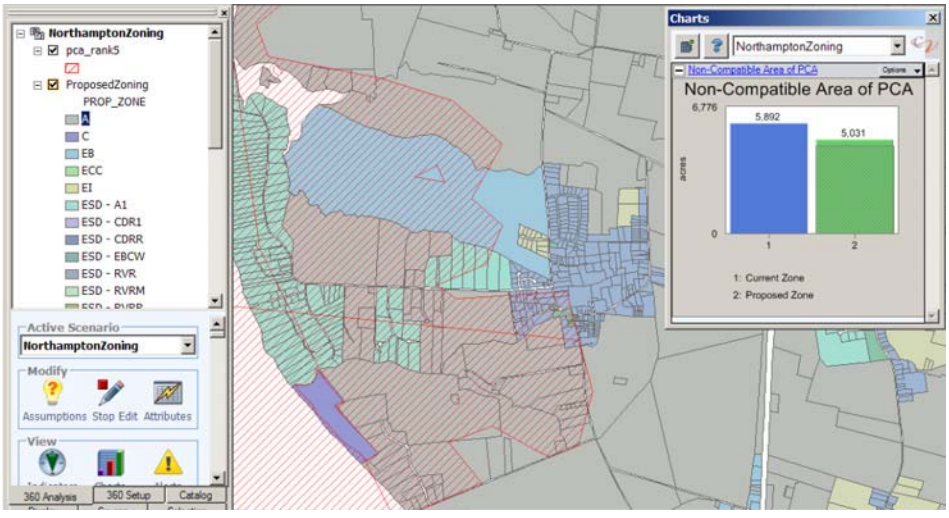
To allow the end user to easily interact with the data, a land use model was developed. The end user is then able to make changes to the data using easy-to-use editing tools, called Sketch Tools. For the Northampton County CV application, a land use model was created to work with the proposed zoning layer. An end user can interactively change a zoning type in the proposed zoning feature class any number of times and see the impacts to the PCA based on the change in zone type.

Another example of use of the PCA and Community Viz at a local level is for green infrastructure planning. The PCA can be used with local datasets to derive a green corridor. For this example, the green corridor was used as part of a local CV application to test for the impact of prohibiting development in a green corridor. The objective was to test the impact to overall density and plan for the best placement of the corridor – where would the impacts be felt and how many lots may be impacted? As an interactive scenario, the end user edits the data to test for the best placement of the corridor.

The power of Community Viz lies in the capability to make interactive changes to the data and be able to immediately see the results. These types of applications can be used in working meetings where ideas can be applied and results can be visualized. This capacity enables the end user to evaluate existing and proposed scenarios, as well as other alternatives that may evolve as part of the effort, providing a more defensible, balanced and holistic analysis.



(above) Northampton County PCA rank 5 (red hatching) overlaid on proposed zoning layer



(above) Using sketch tools to change the parcel circled from zoning type A to EI. Note the resulting impacts to the area of PCA displayed in the charts

James River Watershed

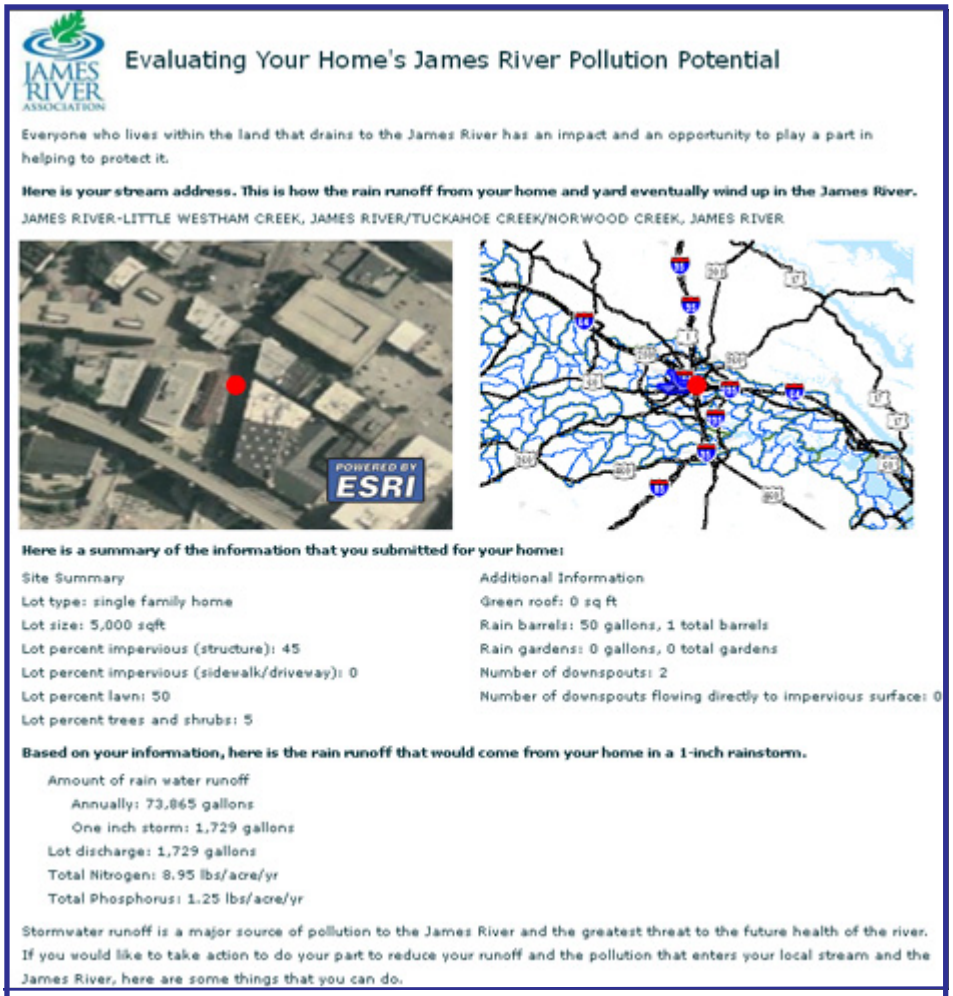
Continued from Page 9

disclaimer and then the report can be reviewed.

The report tells homeowners the amount of polluted runoff coming off their property, including the amount of total nitrogen and total phosphorous in the runoff. It restates physical information about the user's property and graphically shows its connection to the James River.

Lastly, the calculator provides practical ways for families to reduce their impacts to reach zero-discharge goals, including information on rain gardens, rain barrels and downspout disconnections.

Through the Green Homes program and runoff calculator, JRA hopes to expand people's awareness of their connection to the James River and how responsible land stewardship practices can help protect and restore the health of *America's Founding River*.



Evaluating Your Home's James River Pollution Potential

Everyone who lives within the land that drains to the James River has an impact and an opportunity to play a part in helping to protect it.

Here is your stream address. This is how the rain runoff from your home and yard eventually wind up in the James River.

JAMES RIVER-LITTLE WESTHAM CREEK, JAMES RIVER/TUCKAHOE CREEK/NORWOOD CREEK, JAMES RIVER

Here is a summary of the information that you submitted for your home:

Site Summary
Lot type: single family home
Lot size: 5,000 sqft
Lot percent impervious (structure): 45
Lot percent impervious (sidewalk/driveway): 0
Lot percent lawn: 50
Lot percent trees and shrubs: 5

Additional Information
Green roof: 0 sq ft
Rain barrels: 50 gallons, 1 total barrels
Rain gardens: 0 gallons, 0 total gardens
Number of downspouts: 2
Number of downspouts flowing directly to impervious surface: 0

Based on your information, here is the rain runoff that would come from your home in a 1-inch rainstorm.

Amount of rain water runoff
Annually: 73,865 gallons
One inch storm: 1,729 gallons
Lot discharge: 1,729 gallons
Total Nitrogen: 8.95 lbs/acre/yr
Total Phosphorus: 1.25 lbs/acre/yr

Stormwater runoff is a major source of pollution to the James River and the greatest threat to the future health of the river. If you would like to take action to do your part to reduce your runoff and the pollution that enters your local stream and the James River, here are some things that you can do.

(above) The report provides information about the location of the property and stormwater runoff off estimates.

(below) The report also provides ways that the resident can reduce their runoff and goals that they can aim for.

Your Pollution Solutions Suggestions

1 50 gallon rain barrel(s) = 37.50 reduced gallons of rain water runoff

50 square feet of rain garden = 553 reduced gallons of annual rain water runoff

1 downspout disconnections to yard = 50% reduction of rain water runoff

50 square footage of pervious pavement / pavers = 553 reduced gallons of annual rain water runoff

Total Nitrogen: reduce value by 20%

Total Phosphorus: reduce value by 20%

Here are some goals to strive for in taking action for *America's Founding River*

River Friend - Reduce runoff and pollution by 20%

River Steward - Equal to or Below 0.45 pounds of Phosphorus per acre and 3.25 pounds of Nitrogen per acre

River Hero - Equal to or Below 0.28 pounds of Phosphorus per acre and 2.68 pounds of Nitrogen per acre

Save the Date!

Mention or failure to mention any event or workshop does not constitute an endorsement by the Virginia Geospatial Extension Program or its partners.

The Virginia GIS Events Calendar

The Virginia Association of Mapping and Land Information System (VAMLIS | http://www.vamlis.org) is hosting a **new** online GIS Events Calendar for use by VAMLIS membership. VAMLIS will be sending out an email-blast with further infomation about the calendar in the coming weeks!

Marketing in a Virtual World. January 6th, 2010 | Blacksburg, VA
For additional information and registration, go to
http://www.cnr.vt.edu/gep/virtualmarketing.html

Marketing in a Virtual World. January 22nd, 2010 | Stuart, VA
For additional information and registration, go to
http://www.cnr.vt.edu/gep/virtualmarketing.html

Marketing in a Virtual World. February 11th, 2010 | Abingdon, VA
For additional information and registration, go to
http://www.cnr.vt.edu/gep/virtualmarketing.html

Earth Observation Day. March 24th, 2010.
Hosted by AmericaView, Inc.
Additional information is forthcoming in the next few weeks. Reference the VirginiaView Webpage
htttp://www.VirginiaView.net

2010 ESRI Southeast Regional User Group (SERUG) Conference

April 26-28th, 2010 | Charlotte, NC
For additional information, go to http://www.esri.com/events/serug/index.html

Introduction to GIS for High School Educators

June 22nd - 25th , 2010 | Roanoke Virginia
Hosted by Virginia Western Community College and OVERspace
For additional information, contact Chris Carter (cxcarter@odu.edu)

Introduction to GIS for High School Educators

June 28-30th , 2010 | Virginia Beach, VA
Hosted by Tidewater Community College and OVERspace
For additional information, contact Chris Carter (cxcarter@odu.edu)

The Virginia Community College Faculty GIS Institute

July 24th-30th , 2010 | Blacksburg, VA
Hosted by the Virginia Geospatial Extension Program (gep@vt.edu)
For additional information, go to http://www.cnr.vt.edu/gep/VCCS/Summer2010Workshop.html

ESRI Educational Conference July 10-13th, 2010 | San Diego, CA
For additional information and registration: http://www.esri.com/events/educ/index.html

ESRI User Conference July 12-16th, 2010 | San Diego, CA
For additional information and registration: http://www.esri.com/events/uc/about/about.html

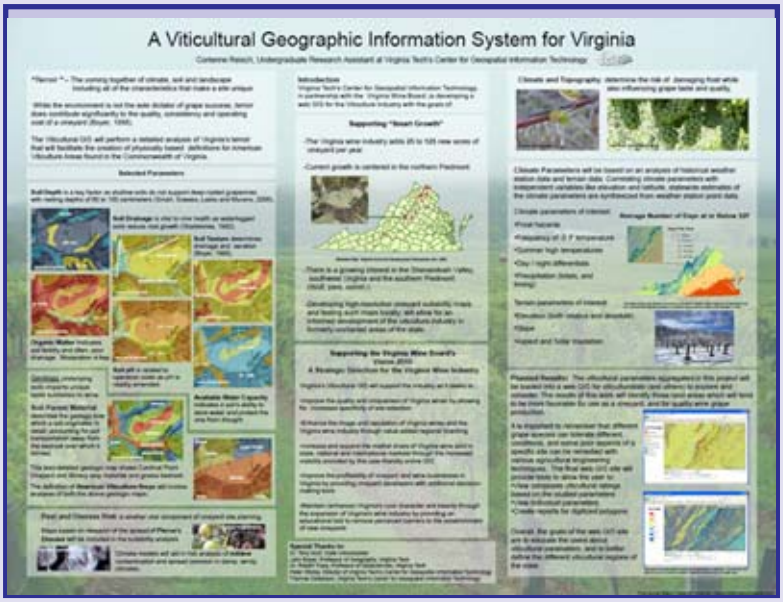
For information on other workshops provided by the Virginia Geospatial Extension Program, please visit the VGEP Workshop Webpage - http://www.cnr.vt.edu/gep/workshop.html
In addition, the Virginia Geospatial Extension Program is providing a clearinghouse of GIS professionals across the state through the Virginia Geospatial Yellowpages. Access this resource here:
http://www.cnr.vt.edu/gep/yellowpages_prof.html

Virginia GIS Conference Poster Awards

Congratulations to the following individuals and organizations for recognition as being the best of the best at the 2009 Virginia GIS Conference in Richmond, Virginia!

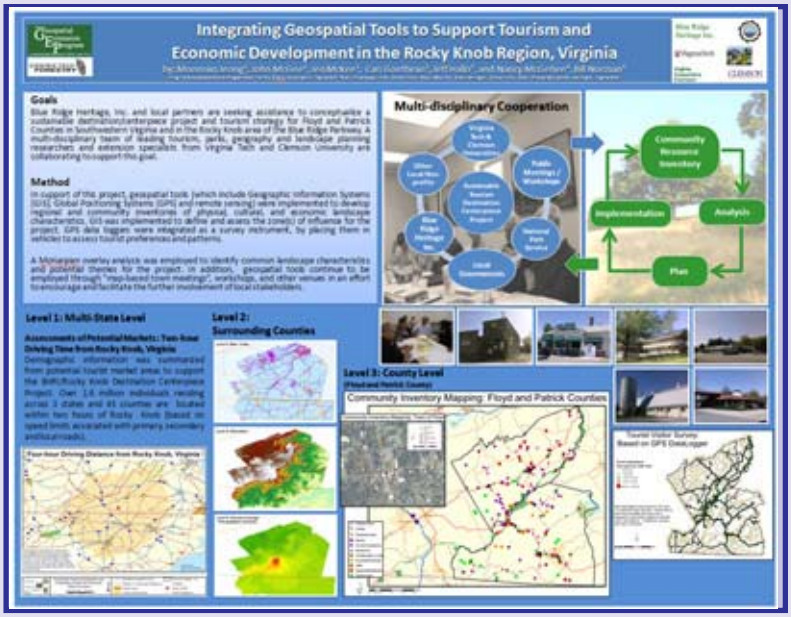
Pre-college Category:

1. First Place ($250): Colonial Heights Proposed River Walk
   By: Colonial Heights High School
2. Second Place ($150): The Amount of Carbon Monoxide at Different Locations in Waynesboro
   By: Shenandoah Valley Governor's School
3. Third Place ($100): Eminent Domain in Page County
   By: Page County High School



Higher Education Category:

1. First Place ($250): A Viticultural Geographic Information System for Virginia
   By: Corienne Reisch, VT
2. Second Place ($150): Integrating Geospatial Tools to Support Tourism and Economic Development in the Rocky Knob Region, VA
   By: Moonsun Jeong, et al., VT
3. Third Place ($100): Repeat Aerial Photography Applied to Canopy Cover
   By: Julia Bartens, et al., VT



Professional Category:

1. Ecological Marine Units and Benthic Habitat Mapping
   By: Chris Bruce
   Nature Conservancy
2. Utilizing Ancillary Data and Landsat Image Transformations to Identify Likely Wetland and Potential Wetland Loss
   By: Steve Quagliata, VT
3. The Battle of Cold Harbor, June 1-3, 1864
   By: Todd Swain,
   Dept. of Planning, Hanover County, VA

The Virginia GIS Conference Planning Committee would like to acknowledge the following: The Virginia Space Grant Consortium (for the cash prizes contributions); Katheryn Keranen (for her continued support and dedication to this effort); and our (anonymous) volunteer judges!

US Topo - A New Generation of Maps

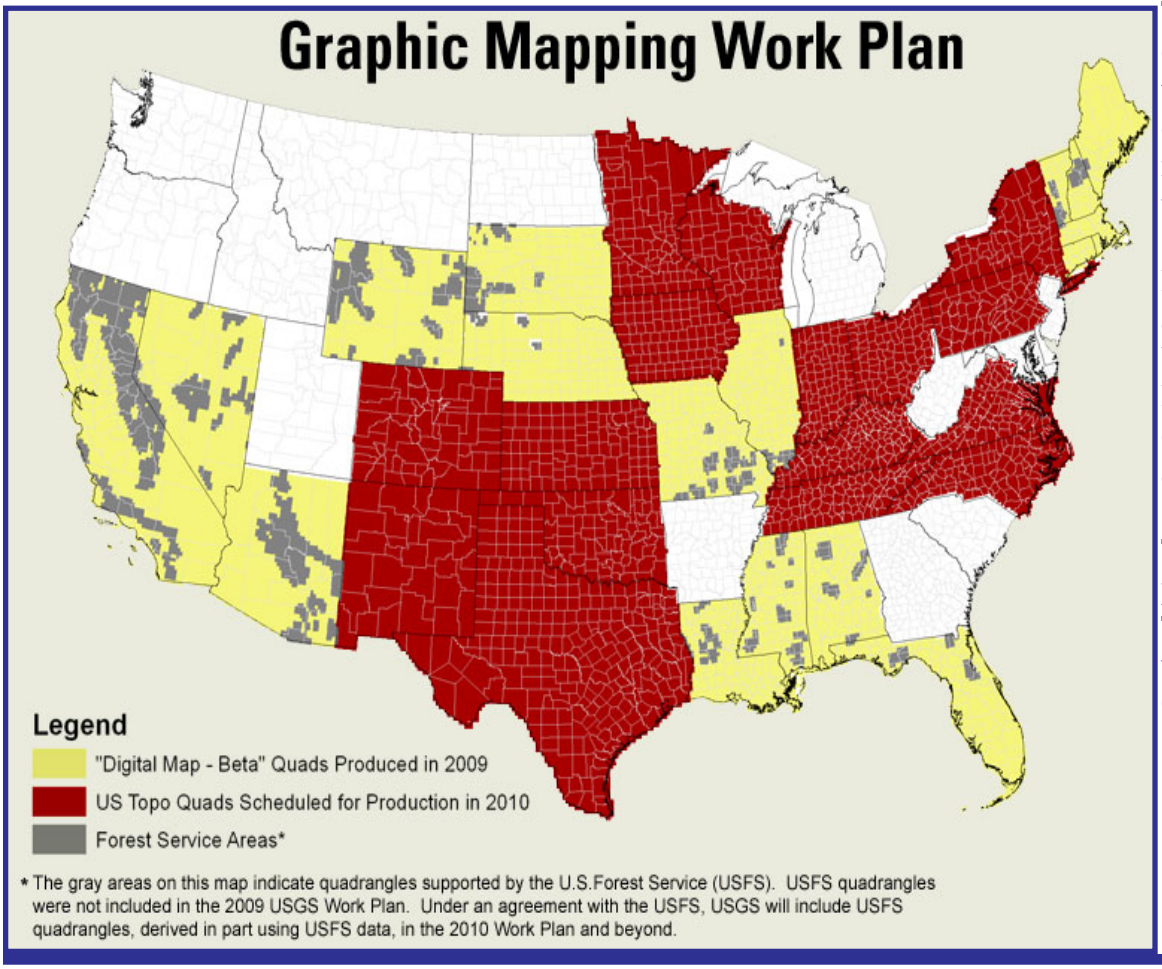
Diane Eldrige
USGS Geospatial Liaison for the Commonwealth of Virginia

On December 3, 2009, the Department of Interior announced the release of the "US Topo" product which is the next generation of topographic maps from the U.S. Geological Survey.

Digital US Topo (http://nationalmap.gov/ustopo) maps are designed to look, feel, and perform like the traditional paper topographic maps for which the USGS (http://www.usgs.gov) is so well known. However, in contrast to paper-based maps, US Topo maps provide technical advantages that support faster, wider public distribution and enable basic, on-screen geographic analysis for all users. **The USGS plans to update all the maps in Virginia to US Topo maps in summer of 2010**.

Key features of the new product include:

- Built from nationally consistent data quality assured to high standards
- Looks and feels like legacy paper USGS topographic maps but has technical advantages
- Can be used on the computer or printed to scale
- Downloadable free from the on-line USGS Store (http://store.usgs.gov/b2c_usgs/usgs/maplocator/%28ctype=areaDetails&xcm=r3standardpitrex_prd&carea=%24ROOT&layout=6_1_61_48&uiarea=2%29/ .do)
- Users can select from various reference systems, e.g lat-long, UTM (Universal Transverse Mercator)
- Direct "mash-up" capabilities with Google Maps®
- Continuous evolution and incorporation of additional data layers.



For further information about how to download and use US Topo, currently available coverage, and the timetable for production of US Topo maps, go to: nationalmap.usgs.gov/ustopo.

For more information about this and other USGS Geospatial Programs in Virginia contact Diane Eldridge at deldridge@usgs.gov.

To see the complete press release for US Topo maps go to http://www.doi.gov/news/09_News_Releases/120309.html.

VGIN Update, December 2009

Dan Widner
VGIN Coordinator

2009 VBMP Orthophotography

The Virginia Geographic Information Network (VGIN) has completed delivery of new imagery to 87 jurisdictions in eastern Virginia (http://www.vita.virginia.gov/uploadedFiles/ISP/VBMP/2009-2011/2009_2011_Flight_Areas.pdf) from its 2009-2012 Virginia Base Map Program Orthophotography Program. The imagery was acquired from January to April 2009 and has several new features.

This is the first time VBMP has used digital cameras, the Z/I Digital Mapping Camera (DMC), and the first time the imagery has come with a fourth near-infrared spectral band. The imagery is provided in Virginia state plane coordinates using the improved accuracy of the North American 1983 HARN datum. (The HARN datum typically differ about 1 foot, and up to 3 feet, from the North American 1983 Datum.) The standard resolution is 1-foot pixels, except where jurisdictions ordered upgrades of 3-inch or 6-inch resolution. The deliveries included uncompressed GeoTIFF and compressed JPEG2000 image formats, both of which can accommodate the fourth band. 3-band MrSID compressed images are provided by request. More information on the 2009-2012 Orthophotography Program can be found on the VGIN website.

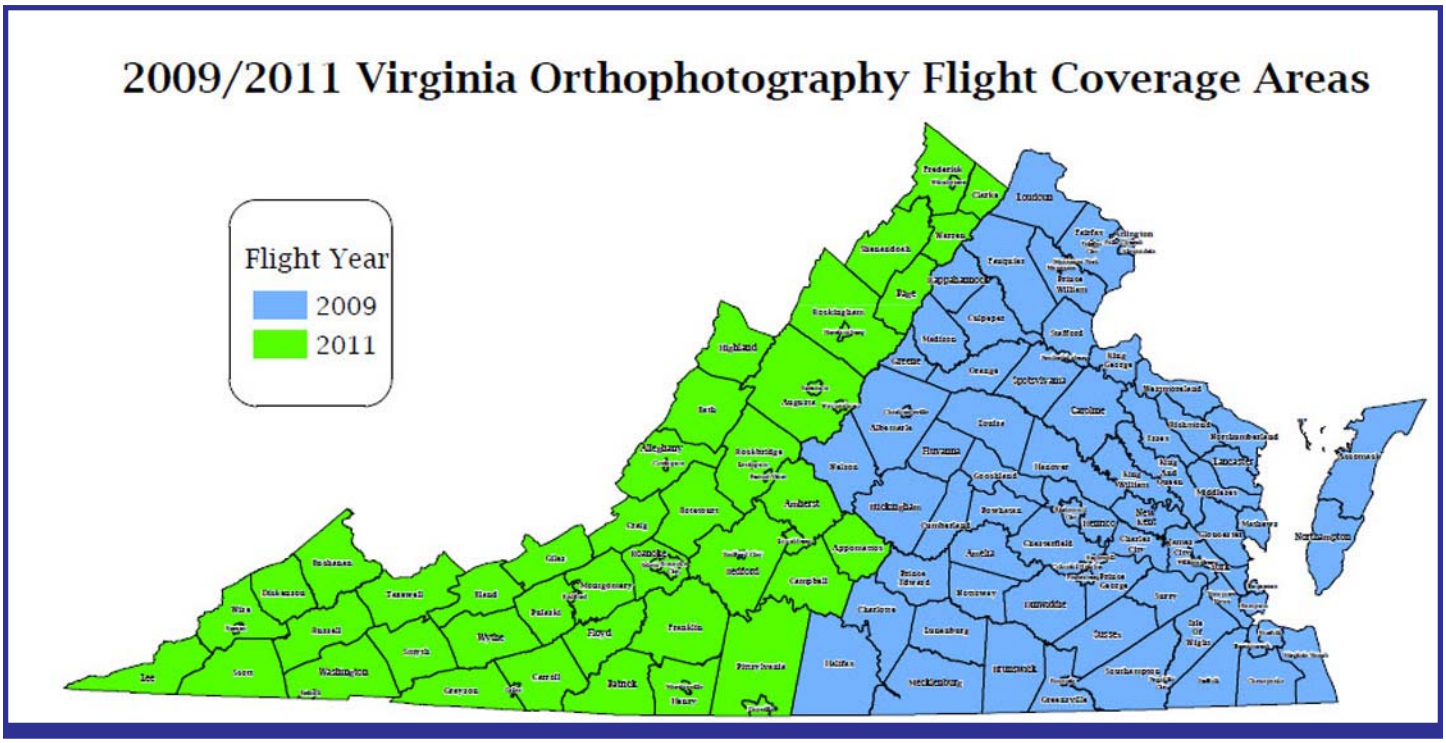
VGIN's Five Year GIS Strategic Plan

The Draft Five Year GIS Strategic Plan is available for public comment between December 9 and December 23, 2009. This is the last chance for input to be considered before the plan is brought to the VGIN Advisory Board for formal approval at the January 6 quarterly meeting. We have had tremendous participation from the GIS stakeholders in the Commonwealth through the online surveys, stakeholder interviews, town hall meetings and follow up to the town hall meetings. This has truly been a stakeholder driven process and VGIN wants to thank all those who have participated. See the "Latest News" at http://www.vita.virginia.gov/isp/

GIS Virginia Blog

VGIN has started a blog about GIS activities pertaining to Virginia http://gisvirginia.blogspot.com/ This is a moderated blog and we welcome articles.

Submit articles for posting to:
Dan Widner
dan.widner@vita.virginia.gov or
John Scrivani
john.scrivani@vita.virginia.gov



The Virginia Geospatial Extension Program

VGEP

Geospatial Training Opportunities Offered by the Virginia Geospatial Extension Program

The Virginia Geospatial Extension Program works with an array of partners and stakeholders to provide geospatial professional development opportunities ranging from the pre-college to higher educational levels. In addition, the VGEP works closely with Geospatial Extension Specialists and other GIS professionals in other states to bring the "best of the best" to support Virginia's geospatial stakeholders. This is a summary of the VGEP's geospatial workforce development program areas. For a complete list of opportunities and additional information, go to the VGEP's Workshop Webpage: http://www.cnr.vt.edu/gep/workshop.html

Introduction to ArcGIS (1 day, 2 day, 3 day, or 5 day workshops are available) - Have you ever wanted to learn more about ArcGIS, but just couldn't find the opportunity? Now the opportunity can come to you. Through this workshop, you will work with exercises that utilize GIS data from Virginia. All exercises are 'hands-on' oriented, with a splash of presentations and dialogue inbetween.

Introduction to GPS (4 hours) - This workshop will answer all of your basic questions associated with global positioning system (GPS) receivers. Learn how GPS works, what to look for in a GPS receiver, and some of the functionalities of recreational handheld / car navigation receivers. Through this workshop, participants will learn about GPS receivers, as well as free (or almost free) software that can be integrated to enhance your GPS experience.

Introduction to Geocaching (3 hours) - Are you ready to take on the world? Introduction to geocaching will provide you with an overview of geocaching... from setting up your own geocache, to interacting with local geocaches and searching for geocaches.

Introduction to ArcPad (4 hours) - This workshop is designed to provide stakeholders with a hands-on experience using ArcPad, a mobile GIS software. Participants will learn how to upload data to their handheld PC, collect data in the field using a handheld device, and transfer the data back onto a desktop computer running ArcGIS. In addition, participants will learn how to make a customizable interface to support data entry on the handheld.

Marketing in a Virtual World (3 hours) - This workshop was developed with the small business owner in mind. Have you ever wanted to list your small business (gallery, agritourism business, bed and breakfast, family restaurant) on a car navigation system (Garmin, Tom Tom, etc) or make it accessible through a smartphone application? This workshop will take you through the steps and will will support your efforts to have your business listed on a variety of other national business databases that are consumed by an array of applications. This workshop was initially developed by the University of Minnesota Extension service. Additional information about this workshop can be access here: http://www.cnr.vt.edu/gep/virtualmarketing.html

GIS on Pennies a Day (1/2 day) - Have you ever wanted to know what types of free GIS software programs were available? This workshop provides an overview of some of the most promising free (and highly discounted) GIS software programs available today. This workshop was initially developed by the New Hampshire Geospatial Extension Program.

Making Maps the Google Way (2 - 3 hours) Learn how to enhance your mapping experience using using GoogleEarth and GoogleMaps. While these server-based applications are not considered to be GIS software applications, you will probably find that they can support some of your needs. This workshop is based off a similar initiative developed by the New Hampshire Geospatial Extension Program.

All workshops are intended to be held regionally / locally... we bring the expertise to you!

The Virginia Geospatial Extension Program
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(540) 231-2428
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The newsletter is developed in conjunction with the Virginia Geographic Information Network (VGIN).

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