

May 24–25, 2010

TUgis10

23rd Annual Geographic
Information Sciences Conference

**GIS in Budget-
Constrained Times**
Doing More With Less

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CONFERENCE CO-SPONSORS

Towson University Department of Geography and
Environmental Planning

California University of Pennsylvania

Environmental Systems Research Institute

Towson University Center for GIS

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Coordinator, Registration

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California University of Pennsylvania
Coordinator, Concurrent Sessions

Paporn Thebpanya, Ph.D.
Coordinator, Map Gallery

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Baltimore County Government

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California University of Pennsylvania

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Maryland Department of Agriculture

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Chris Slavin
Anne Arundel County

Michael S. Herzberger
Maryland Environmental Service

Robert Slivinsky
Howard County Government

Michael J. Kevany
PlanGraphics, Inc.

Marshall L. Stevenson, III
Frederick County Enterprise GIS

Frederick W. Kutz, Ph.D.
U.S. Environmental Protection Agency
(retired)

E. Jay Stull
GIS Integrated Solutions LLC

Kang Shou Lu, Ph.D.
Towson University

Lawrence B. Swift
Maryland Environmental Service

Michael B. Mahaffie
Delaware Office of State Planning

Paporn Thebpanya, Ph.D.
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Lindsay Major Ringgold
Maryland Department of Natural Resources

Eric G. Wilson
Anne Arundel County

John P. Martin
Anne Arundel County Office of Information
Technology

Raymond Wolf
Lockheed Martin

Kenneth M. Miller
Maryland Department of Information Technology

TUgis 2010 AT A GLANCE

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CONFERENCE PROGRAM

MONDAY, MAY 24, 2010

7:30 – 9:00 REGISTRATION AND CONTINENTAL BREAKFAST Chesapeake I, II, and III

9:00 – 9:30 WELCOME AND OPENING REMARKS Chesapeake I, II, and III

9:30 – 10:30 PLENARY PRESENTATION
StateStat: Executive GIS Management
 Beth Blauer, J.D.
 Director, Maryland StateStat Office

10:30 – 10:45 COFFEE BREAK Potomac Lounge

10:45 – 12:15 CONCURRENT SESSIONS #1

Environmental Applications I Chesapeake II

Session Moderator – David A. Gillum, Anne Arundel County Government

Putting the Public to Work – Achieving Forest Compliance with Tools, Information and Incentives
 Katherine E. Nelson, Christopher McGovern, and Benjamin T. Gruswitz, Montgomery County Planning Department

Utilizing “Freeware” in the Prioritization of Non-native Invasive Plant Species within Parklands
 Jennifer Pfister, Biohabitats, Inc.

Using GIS to Delineate the Zone of Influence for the Texas Marble Quarry Located In Cockeysville, Maryland
 Peter A. Yencsik, Maryland Department of the Environment

Local Government Applications Room 305

Session Moderator - Virginia I. Peterman, Howard County Government

Remapping Montgomery – Bringing Zoning into an Enterprise GIS

Renée Miller, AICP and James Tedrick, M-NCPPC (Maryland-National Capital Park & Planning Commission)

Maps and Geospatial Data for Planning and Managing Residential Common-Interest Communities (Condominiums and Homeowner Associations)

Dr. Derek Thompson, University of Maryland (retired)

Using Geodatabase Replication to assist in E911 Street Centerline Development

Jeff Cox, GISP, Anne Arundel County Office of Information Technology and Jeff Roberts, PMP, JMT Technology Group

Mini-Workshop – Bentley's Enterprise Information Management System**Room 306**

Session Moderator – Chris Slavin, Anne Arundel County

The purpose of this mini-workshop is to describe Bentley's Enterprise Information Management software potential users and systems administrators about best practices for the management of a technical data repository that promotes more advance data integration, data analysis and data publication functions. The workshop will examine topics such as the integration CAD files and other documents with ESRI, advanced 3D designs created with Building Information Modeling, planning and site engineering workflows, evaluation of environmental and encroachment constraints and government regulations, and construction operations and project estimates.

Thomas Speer, Bentley Systems, Inc.

Mini-Workshop – Mapping Maryland's Broadband Inventory – The Maryland Broadband Mapping Initiative**Chesapeake I**

Session Moderator – Raymond Wolf, Lockheed Martin

The mini-workshop presents a project overview and update, as well as a panel discussion focused on project scope and coordination efforts, processes and methodologies, and eventual outcomes of the Maryland Broadband Mapping Initiative. Speakers include key personnel from each partner organization, and a member of the broadband provider community.

Drew Van Dopp, Maryland Broadband Cooperative, Michael Scott, Ph.D., Salisbury University, Kenny Miller, Maryland Department of Information Technology, David A. Sides, Towson University Center for GIS, Julia M. Lukens, Maryland Department of Business and Economic Development

Mini-Workshop – ESRI Technical Workshop #1 – What's Coming in ArcGIS Desktop 10**Chesapeake III**

Session Moderator – Anthony Puzzo, ESRI

This summer, ESRI will release ArcGIS 10 – there are many new enhancements that will improve the way Desktop users work with GIS, from simple productivity enhancements, powerful spatial, temporal and image analysis, and new ways to share GIS projects and data. This workshop will present some of the highlights of this new release, including demonstrations of how the new features can be incorporated into your existing GIS workflows.

Charmel Menzel, ESRI

Poster Session

Loch Raven Room

Ultra-Low-Cost 3D Remote Sensing of Vegetation Structure Using Automated Computer Vision*
Jonathan P. Dandois and Erle C. Ellis, Ph.D., University of Maryland Baltimore County

*Note: This poster will be displayed, along with the Map Design Competition posters, in the Loch Raven Room throughout the conference.

12:15 – 1:30 LUNCH

Sponsored by Environmental Systems Research Institute

Susquehanna Rooms

1:30 – 3:00

CONCURRENT SESSIONS #2

Environmental Applications II

Chesapeake II

Session Moderator – Dr. Martin Roberge, Towson University

A Reinvention of the National Wetlands Inventory Mapping Process for Coastal Georgia

Erin Silva, Lauren McDermott, Eastern Shore Regional GIS Cooperative, Jason M. Wheatley, Greenhorne & O'Mara and Dr. Michael Scott, Eastern Shore Regional GIS Cooperative

Statewide Groundwater Vulnerability Assessment for Maryland

Olufunso Ogidan, The Pennsylvania State University

Understanding the Effects of Map Scale and Data Optimization through Generalization

Jason M. Wheatley, Greenhorne & O'Mara

GIS in Budget Constrained Times I (Conference Theme Session)

Room 305

Session Moderator – Michael Kevany, Plangraphics, Inc.

Shoestring GIS – Cecil County's Thrifty Approach to Data Development, Maintenance, and Deployment

David R. Black, AICP, GISP and Stephen J. O'Connor, Cecil County Office of Planning & Zoning

More Data, Less Time, Even More Data and Even Less Time
Joe DeLuca, EA Engineering, Science & Technology

Save Land and Save Money: Geospatial Technologies at a Nimble and Cost-Conscious Non-Profit Land Conservation Organization
Michael McGeehin and Megan Boatright, Natural Lands Trust

Internet Mapping Applications I

Chesapeake I

Session Moderator - Dr. Paporn Thebpanya, Towson University

Print to PDF and Link to Images in ArcServer 9.3.1 Web Mapping Application
Dawn Blanchard, Anne Arundel County Department of Public Works

Client Centric Geo-Web Applications Using ArcGIS Server, ESRI Client Side APIs, Web Services, Geo-Data Services, and Geo Processes
Alex Bostic and Jeff Galang, URS Corporation

Low Cost Architectural Solutions for Interactive Internet Based GIS Applications
Arthur J. Lembo, Jr., Ph.D, and James R. Garrity, Salisbury University

Mini-Workshop – ESRI Technical Workshop #2 - Leveraging ArcGIS Online/ArcGIS.com in Your Organization

Chesapeake III

Session Moderator – Anthony Puzzo, ESRI

ArcGIS Online Services and ESRI Data provide a variety of comprehensive Web-based resources and datasets that can be used to enhance and extend your ArcGIS projects, with both Desktop and Server. This session will provide an overview on the wide variety of content and capabilities that are available on ArcGIS Online, what's coming with ArcGIS.com, and how to use this online sharing community to enhance your existing GIS workflows.
Charmel Menzel, ESRI

Miscellaneous Applications

Room 306

Session Moderator - Philip R. Canter, Baltimore County Police Department

GIS Applications for Commercial Real Estate
Matthew S. Felton, McKenzie Commercial Real Estate Services

Web-Based Control Systems: Driving the Mapping of the 2010 U.S. Census
Meghan Smith, U.S. Census Bureau

Enabling a Renewed Interest in Geospatial Metadata: A Maryland Spatial Data Infrastructure Perspective
Tyler Stevens, Towson University (graduate student)

3:00 – 3:30 REFRESHMENT BREAK Potomac Lounge

3:30 – 5:00 CONCURRENT SESSIONS #3

Environmental Applications III Chesapeake II

Session Moderator – Dr. Ingrid E. Pfoertsch, Towson University

The KCI GeoFusion Center
Ashton Lamont, KCI Technologies, Inc.

Cost Savings Using Complex Chem-Box Labels in ArcGIS
Gary H. Bowles, Omni Environmental LLC

Application of Information Technology and GIS in Support of Environmental Efforts
Jason Samus, EA Engineering, Science & Technology

Health Applications Room 305

Session Moderator – Dr. Frederick W. Kutz, U.S. Environmental Protection Agency (retired)

The Development of Maryland Environmental Public Health Tracking Network
Min Qi Wang, Ph.D., University of Maryland School of Public Health, Clifford S. Mitchell, MS, MD, MPH, Maryland Department of Health and Mental Hygiene, Jed L. Miller, M.D., Maryland Department of the Environment, John T. Braggio, Ph.D., MPH, Maryland Department of Health and Mental Hygiene, and Betty Debney, Ph.D., University of Maryland School of Public Health

Maryland Poison Center: Saving Lives, Saving Dollars
Julie Spangler, Maryland Poison Center

The Maryland Safety and Crash Analysis Network (MSCAN)
Tom Earp, Towson University Center for GIS, Doug Mowbray and Gary Klein, Maryland State Highway Administration

Internet Mapping Applications II Chesapeake I

Session Moderator - Eric G. Wilson, Anne Arundel County Government

Using Web-Based GIS Technologies for Facilities Management
Matthew Sadecki, Exceptional Software Strategies, Inc.

ProjectDox - An On-Line Geography-Based Plans Review System
 Jeff Bronow and Amit Sharma, Howard County Department of Planning and Zoning

The Future of 3D GIS Visualization: The Integration of the GPU and the Web
 Robert Holicky, Geoweb3d

Mini-Workshop – MarylandView Update **Room 306**

Session Moderator – Dr. John M. Morgan, III, Towson University

An update on the activities of the MarylandView Consortium. Topics to be discussed include current MarylandView activities (including an upcoming summer SATELLITES program, development of a new land cover map for Maryland, and current and future revisions to the MarylandView Web site) and a review of EO Day activities.

John M. Morgan, III, Ph.D, Towson University and Thomas R. Mueller, Ph.D, GISP, California University of Pennsylvania

Spatial Analysis **Chesapeake III**

Session Moderator – Douglas M. Adams, Baltimore County Government

Providing Decision Makers with Decision Tools at Decision Time: Using Spatial SQL Enabled Dashboards to Answer Difficult Questions

James R. Garrity, Eastern Shore Business and Economic Development Dashboard Specialist

Using a Web Based Route Analysis Application to Optimize Site Selection of an Emergency Response Center

J. Brian Adams, Ph.D., P.E., Lancaster Decision Analysis

A Parcel and Sub-Parcel Approach for Modeling Land Use Change and Impervious Surface Expansion

Kang Shou Lu, Ph.D., John M. Morgan, III, Ph.D., and Matthew Sadecki, Towson University, and Jeffrey Allen, Ph.D., Clemson University

5:00 – 5:10 **ICE BREAKER SOCIAL AND DRAWING FOR DOOR PRIZES** **Potomac Lounge**

TUESDAY, MAY 25, 2010

7:30 – 9:00 REGISTRATION AND CONTINENTAL BREAKFAST Potomac Lounge

9:00 – 9:30 WELCOME AND OPENING REMARKS Chesapeake I, II, and III

9:30 – 10:30 PLENARY PRESENTATION
 Ahmed Abukhater, Ph.D., GISP
 ESRI Global Industry Manager, Community Development, Planning, Economic
 Development
Democracy through Planning 2.0: A New Vision for Collaborative Geodesign

10:30 – 10:45 COFFEE BREAK Potomac Lounge

10:45 – 12:15 CONCURRENT SESSIONS #4

Environmental Applications IV Chesapeake II

Session Moderator –Dr. Natalia Fath, Towson University Department of Geography and Environmental Planning

Minimize Project Costs by Utilizing Mapping Applications
 Brent Reeves and William Medina, KCI Technologies, Inc.

Providing Community Level Environmental Information for Anne Arundel County Watershed Stewards
 David Gillum, GISP, Anne Arundel County Office of Information Technology

Construction and Environmental Planning – Applying a Web-Based GIS to Management Capital Construction Projects and Environmental Planning Activities
 William Merrey, GISP, EA Engineering Science & Technology

GIS Career Development**Room 305**

Session Moderator – Dr. Martin C. Roberge, Towson University

What You Really Need Know to Have a Long Lasting Career in the Field of GIS

Eric Wilson, Anne Arundel County Office of Information Technology

Developing Crucial GIS Leadership Skills: The URISA Leadership Academy

Rebecca Somers, Somers-St. Clair GIS Management Consultants

The GIS Certification Institute's GISP Program

Martin Vitiello, Fugro EarthData

Mini-Workshop – ESRI Technical Workshop #3 – Better Ways to Design and Share Maps: Tips and Tricks for Preparing and Transferring Maps to the Web

Chesapeake III

Session Moderator – Anthony Puzzo, ESRI

With the popularity of publishing maps to the Web increasing, ArcGIS users find themselves in an ideal position to learn new practices to improve their productivity in this area. This workshop will highlight content from ESRI's recent half-day seminar of the same title, including topics like building a better basemap, working with map templates, cartographic enhancements, and improved deployment methods.

Rachel Weeden or Matt Kennedy, ESRI

Mini-Workshop – Collaborative Web Application Development for a BRAC Implementation

Chesapeake I

Session Moderator - Douglas M. Adams, GISP, Baltimore County Office of Information Technology

Douglas M. Adams, GISP, Baltimore County Office of Information Technology, Shane Engel, GISP, Dewberry, and Steven S. Overbay, APG - CSSC Regional BRAC Office, and Ashley M. Buzzeo, Towson University Center for GIS

Mini-Workshop – Floodplain Mapping Outreach – Using GIS to Inform Marylanders about Flood Risk and as a Mechanism to Disseminate Spatially Enabled Flood Data

Room 306

Session Moderator – Lawrence B. Swift, Maryland Environmental Service

David Guignet, Maryland Department of the Environment and Michael S. Herzberger, Maryland Environmental Service

12:15 – 1:30 LUNCH **Susquehanna Rooms**
Sponsored by Environmental Systems Research Institute

1:30 – 3:00 CONCURRENT SESSIONS #5

Education Applications **Room 306**

Session Moderator – Dr. Thomas Mueller, California University of Pennsylvania

Using Geospatial Technology in the K-12 Classroom: A LIDAR Example

Katie L. Mercadante, Thomas Mueller, Ph.D., GISP, and Molly Clawson, California University of Pennsylvania

Where Are They All Coming From?: Mapping the Community College of Baltimore County's Student Population

Jaime J. Alvarez, Community College of Baltimore County and Ashley M. Buzzeo, Towson University Center for GIS

Fighting Fires with GIS: A Service Learning Project

Jessica Wright, Lacy Baker and Thomas Mueller, Ph.D., GISP, California University of Pennsylvania

Environmental Applications V **Chesapeake II**

Session Moderator - Michael S. Herzberger, Maryland Environmental Service

Land Use Suitability Mapping for the Fairbanks North Star Borough

Jennifer Pfister, GISP, Biohabitats, Inc.

GrowthPrint: Measuring and Prioritizing within Maryland's Growth Areas

Matt Folley, Maryland Department of Planning

GIS in Budget Constrained Times II (Conference Theme Session) **Room 305**

Session Moderator – Mark Helmken, Towson University Center for GIS

Saving Money, Saving Time, Saving Your GIS: How to Keep a Program Moving in Tough Times

Rebecca Somers, Somers-St.Claire GIS Management Consultants

How to Build a Cost-effective GIS through a Web-based Deployment

Heather Cabral, GISP, Applied Geographics, Inc.

Howard County: Using Open Source Products and Existing IT Infrastructures to Provide GIS Value
 Manesh Pillai and Robert Slivinsky, Howard County Government

**Mini-Workshop – ESRI Technical Workshop #4 – Getting Started with ArcGIS
 Server JavaScript and Flex APIs**

Chesapeake III

Session Moderator – Anthony Puzzo, ESRI

This workshop will provide an overview of how to get started with the ArcGIS JavaScript API and the ArcGIS API for Flex. Users will learn how to create "mash-up" applications that combine local GIS services with online content using JavaScript, and how to configure ESRI's Sample Flex Viewer. Several "live user sites" will be presented as examples of how these technologies can be used to create a common Web GIS platform that supports a variety of uses including public access, operational needs and executive oversight.

Rachel Weeden or Matt Kennedy, ESRI

Transportation Applications

Chesapeake I

Session Moderator - Dr. Michael S. Scott, Salisbury University

Maryland Transportation Authority Enterprise GIS System: An Interoperable Application
 Kaushik Dutta, Maryland Transportation Authority

Leveraging Partnerships: Enhancing MPO Initiatives Using GIS-T for DOT Data Integration
 Shaun Levi , geographIT and Dave Royer, Lancaster County Government

Transcending Spatial Data Interoperability: The Integration of CADD and GIS
 Rob Hudson, Photo Science

3:00 – 3:30 REFRESHMENT BREAK/ICE CREAM SOCIAL

Potomac Lounge

3:30 – 5:00 CONCURRENT SESSIONS #6

Mini-Workshop – MD iMap

Chesapeake I

Session Moderator – Kenny Miller, Maryland Department of Information Technology

MD iMap is a diverse and flexible "system" that provides a wide variety of products and services to the citizens and government employees. These products and services assist in capturing, storing, analyzing, managing, and presenting data linked to a location. This mini workshop will detail the efforts of the

technical and executive committees, the GIO's role, the infrastructure behind MD iMap, and how to use the available products and service.

Kenny Miller, Maryland Department of Information Technology, Douglas M. Adams, Baltimore County Government, Douglas M. Adams, Baltimore County Government, Michael Bentivegna, Towson University Center for GIS, Julia Lukens, Maryland Department of Business and Economic Development, Ashley Buzzeo, Towson University Center for GIS, and Graham Petto, Maryland Department of Planning

Mini-Workshop - Working with Maryland's Soil Survey Database: Data, Tools, and Web Mapping Applications

Chesapeake II

Session Moderator – Dr. Rowland Agbede, Maryland Department of Agriculture

The USDA Natural Resources Conservation Service (NRCS) has completed the first draft of a detailed, digital Soil Survey Geographic (SSURGO) database for Maryland, Delaware, and the District of Columbia. The purpose of this mini-workshop is to describe the SSURGO data particularly the spatial data representing soil delineations and line and point special features as well as an extensive collection of tables describing the properties and qualities of soil map units. The mini-workshop will also include discussion of software tools and techniques available to Soil Survey users so that they can develop soil maps and interpretations for their area of interest and create a custom soil survey with that information.

Amanda C. Moore and James E. Brewer, USDA-Natural Resources Conservation Service

Mobile GIS Applications

Chesapeake III

Session Moderator – Dr. Natalia Fath, Towson University

Working Smarter in the Field with ADAMobile
Candice Ottley, JMT Technology Group

Philadelphia SWEEP Code Enforcement Field Application with ArcGIS Mobile
Jesse Stauffer, geographIT

Intuitive Mobile Solutions for Your Data Sharing Challenges
Lon Cornell, TerraGo Technologies

Public Safety Applications

Room 305

Session Moderator – Dr. John M. Morgan, III, Towson University

MD safeMAP: Providing the Public with Geospatial Data During an Emergency (60 minute presentation)
John M. Morgan, III, Ph.D. and Sharad Garg, Towson University

Using GIS to Facilitate Fire Department Operations within Baltimore City in Times of Financial Hardships
Peter Hanna and James Potteiger, Baltimore City Fire Department

Public Works Applications**Room 306**

Session Moderator – Dr. . Ingrid E. Pfoertsch, Towson University

Utilities Management on a Budget: Using GIS and the Adobe Flex API

Elizabeth Stahlman and Greg Hildreth, Allegany County Government

Asset Management: Not a Scary or Costly Concept

Lou Garcia, EA Engineering, Science & Technology

Freely Available Software Utilities that Anne Arundel County DPW GIS Utilizes

Eric Wilson, Anne Arundel County Office of Information Technology

Software Applications**Room 307**

Session Moderator – Raymond Wolf, Lockheed Martin

Thinking Outside the Template: A Case Study for Using the ArcGIS Server Flex API to Solve a Business Challenge

Jeff Roberts, PMP, JMT Technology Group

U-View – More Than Just a Utility Viewer

Jennifer Lishman, JMT Technology Group

EXHIBIT HALL INFORMATION

Alphabetical by Vendor Name

11	Applied Geographics
3	ASPRS
1	Axis Geospatial
19	Bentley Systems
22	EA Engineering, Science & Technology
12	Earth Vector Systems
7	ESRI
24	geographIT
16	GIS Integrated Solutions
2	Greenhorne & O'Mara
20	JMT Technology Group
23	KCI Technologies, Inc.
4	Keystone Precision Instruments
6	Maryland Environmental Servicer
9	Maryland Department of Natural Resources
8	Montgomery County Planning
10	MSGIC
14	National Geodetic Survey/NOAA
5	Photo Science
21	Salisbury University Eastern Shore Regional GIS Cooperative
17	Towson University Center for GIS
18	Towson University DECO/EEOL
13	Towson University Graduate School
15	

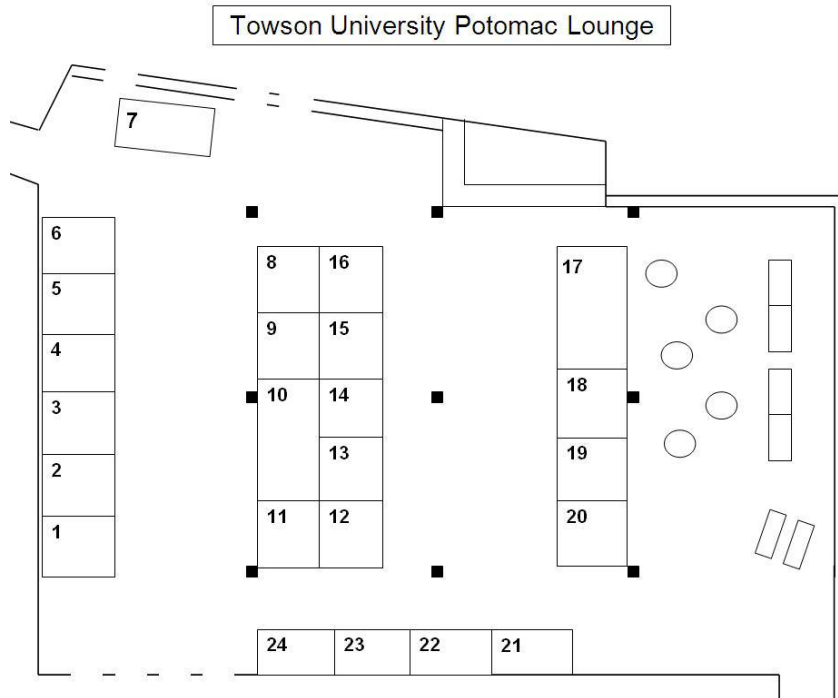


Exhibit Hall Hours

Monday, May 24 – 10:30 am – 7:00 pm

Tuesday, May 24 – 7:30 am – 3:30 pm

EXHIBIT HALL INFORMATION

Numerical by Booth Number

1	Axis Geospatial
2	Greenhorne & O'Mara
3	ASPRS
4	Keystone Precision Instruments
5	Photo Science
6	Maryland Environmental Service
7	ESRI
8	Montgomery County Planning
9	Maryland Department of Natural Resources
10	MSGIC
11	Applied Geographics
12	Earth Vector Systems, LLC
13	Towson University Graduate School
14	National Geodetic Survey/NOAA
15	
16	GIS Integrated Solutions
17	Towson University Center for GIS
18	Towson University DECO/EEOL
19	Bentley Systems
20	JMT Technology Group
21	Salisbury University Eastern Shore Regional GIS Cooperative
22	EA Engineering, Science & Technology
23	KCI Technologies, Inc.
24	geographIT

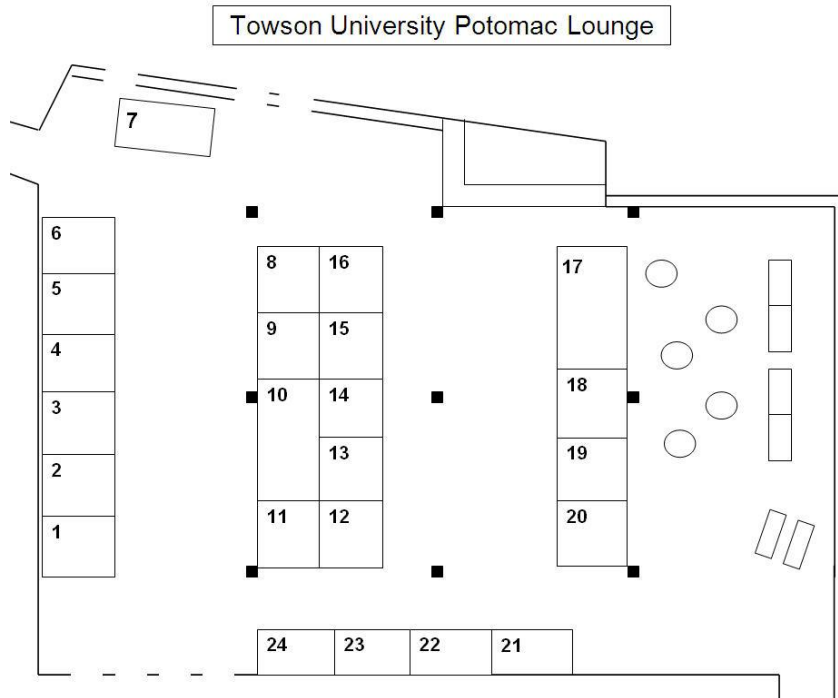


Exhibit Hall Hours

Monday, May 24 – 10:30 am – 7:00 pm

Tuesday, May 24 – 7:30 am – 3:30 pm

ABSTRACTS

Plenary Presentation - Democracy through Planning 2.0: A New Vision for Collaborative Geodesign

Ahmed Abukhater, Ph.D., GISP

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 ESRI Global Industry Manager, Community Development, Planning, Economic Development
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Collaborative Web Application Development for a BRAC Implementation

Douglas M. Adams, GISP, GIS Program Manager

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The Chesapeake Science and Security Corridor (CSSC) Base Realignment and Closure (BRAC) Office for Aberdeen Proving Ground (APG), Maryland facilitated a collaboration among partner organizations to develop and deploy a public facing geographic information systems (GIS) application to support the BRAC activities. The partners include federal, state, county and municipal governments in Delaware, Maryland and Pennsylvania within forty miles of APG. The GIS application is build using Adobe Flex technology on the Environmental Systems Research Institute (ESRI) ArcGIS Server platform. The GIS database combines over seventy data layers from ten partner organizations in three states into a single geodatabase. The application allows partnering organizations and the public to view and analyze geographic information for the CSSC region, in order to make decisions about relocation and development in the area. Data services that support the application are also available for use in desktop GIS.

Using a Web-based Route Analysis Application to Optimize Site Selection of an Emergency Response Center

J. Brian Adams, Ph.D., P.E., President
Lancaster Decision Analysis
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When a local municipality decided to build a new emergency response center, they found themselves caught between the desires of their volunteer fire company and the residents who expressed safety concerns about operations in their immediate neighborhood. They chose to hire Lancaster Decision Analysis to perform a site location analysis to determine if there were other suitable locations within the township that both parties might find satisfactory.

The site analysis began by implementing several traditional GIS techniques to identify possible sites. These techniques refined the parcel selection process based upon size, value, current use and availability, proximity to commercial and residential centers, and travel distance to one of the township's three primary response routes.

Once a set of possible sites had been identified, the sites were analyzed using an interactive decision model. The model developed is a web based application that can determine the optimal travel route for a set of historical emergency responses. The model was used to identify a route for each response, collecting and calculating distance and time statistics for these routes. The web model incorporates several open source techniques including the open layers Javascript library, route analysis APIs from CloudMade, and data from Open Street Maps.

Where Are They All Coming From?: Mapping the Community College of Baltimore County's Student Population

Jaime J. Alvarez, Instructor / Program Coordinator (Essex Campus)
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The Department of Planning, Research, and Evaluation for the Community College of Baltimore County (CCBC-PRE) seeks to meet the informational and data needs of the college's students, faculty,

and staff and to keep the college community informed of new data products and research initiatives. Part of this effort entails periodically analyzing the relationship between student residence locations and the various CCBC campus locations. During the spring semester of 2009, CCBC-PRE requested the compilation of residency data of its degree and non-degree seeking students into a series of maps that showed their distribution and participation rates within Baltimore County, Baltimore City, and adjacent counties. Guided by faculty, students from the CCBC Geospatial Applications Program (CCBC-GAP) used ArcGIS to process and geocode CCBC-PRE's address database of 60,000+ credit and non-credit students. The point locations were then aggregated to provide counts and percentages of students by various spatial units in the Baltimore Metropolitan Area. The CCBC-GAP team produced high-quality hardcopy maps to help CCBC-PRE visualize the distribution of CCBC students for marketing and planning purposes. This presentation will demonstrate the steps taken by students to process raw data and produce a geospatial product for a real-world client.

Shoestring GIS – Cecil County's Thrifty Approach to Data Development, Maintenance, and Deployment

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A growing rural County with limited financial resources, staff of Cecil County Government have built, maintained, and deployed a robust GIS program despite having average annual budgets of less than \$55,000. Combining support from numerous interested parties (i.e. staff from various county and related agencies, representatives from the private sector, and everyday citizens) with lots of hard work and a little bit of luck, the return on investment has exceeded the expectations of all involved. In less than four years, GIS in Cecil County transformed from a decentralized ArcGIS 3.x environment to an integrated, cutting edge enterprise system. This presentation shall provide elucidation into the cost saving methods and techniques County staff have utilized, many of which seem especially suited for the current morose economic climate.

Print to PDF and Link to Images in ArcServer 9.3.1 Web Mapping Application

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This presentation looks at how Anne Arundel County achieved printing a to-scale PDF when the ESRI Web Mapping Application has multiple map services. The method involves creating a task to use in the ESRI's Task Manager. This task uses an open source dynamic-link library (dll) called itexsharp to create the PDF. Secondly, the presentation looks at creating a link to images, such as As-Built drawings for Water and Sewer infrastructure, when clicking on a map feature. ESRI's identify tool was modified to search a database and show the images for the feature identified. All code was written in Visual Studio 2005 (.Net Visual Basic) and converted to Visual Studio Express 2008.

Client Centric Geo-Web Applications Using ArcGIS Server, ESRI Client Side APIs, Web Services, Geo-Data Services, and Geo-Processes

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With a focus on developing rapid response systems and cost conservation, URS has developed solutions that afford its clients quite a bit of flexibility and control over the data that is incorporated in their geo-web applications, post development. We currently use two different approaches to accomplish this goal. The first approach involved developing a framework by which client data can be easily added to their website. By adding a new map service and ten lines of code to the core application, the client is able to view the legend, control layer visibility, perform ad-hoc queries, execute identifies, print maps, geo-locate addresses, and zoom to pre-determined areas within the same context of their existing map services. The second approach involved implementing a geo-application using the ESRI FLEX viewer and creation of a geo-data service that the client can access via the internet to update their own attribute data and have it reflected on the website instantaneously. Both approaches utilize ArcGIS Server to implement various techniques that allow for low cost solutions to transform geo-applications alongside ever-changing data needs.

Cost Savings Using Complex Chem-Box Labels in ArcGIS

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As part of a landfill Remedial Investigation located in Camden, NJ approximately 300 environmental samples were collected, yielding over 30,000 analytical laboratory results. Industry standard Chem-Box maps, detailing locations and values, were to be developed to display the data results. Creating Chem-Box maps has typically been a time consuming and tedious task. To meet tight project deadlines, Omni Environmental LLC combined the power of ArcGIS and Visual Basic to develop a time and cost saving methodology to automate the process of Chem-Box map creation. We were successful in taking digital data sheets received from the laboratory, extract all results greater than detection limits, compare these to various environmental and human health criteria, import and link the data in GIS, and create color-coded Chem-Box maps, for approximately one-third of the cost and in one-quarter of the time of standard Chem-Box mapping. This presentation will review and discuss the methods and approaches employed to combine digital laboratory data and GIS and CAD data files in the creation and spatial display of Chem-Box maps using Visual Basic, Visual Basic Scripts and ArcGIS.

ProjectDox - An On-line Geography-based Plans Review System

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The Howard County Department of Planning and Zoning recently implemented a new on-line electronic plans review system. The new system provides better and faster plan reviews allowing DPZ to do more with less staff and save money and paper. There are three parts of the system: 1) e-forms, 2) workflow, and 3) electronic review. E-forms are web-based application forms replacing the old paper forms. The data is instantly captured, so "re-entering" information is not necessary. Data is also instantly linked to the county's on-line GIS system accessible by the public. Workflow, the second part of the system, is a pre-designed communication system that automatically sends e-mails to the appropriate agency and staff at the appropriate time during the plans review process. Electronic review is perhaps the most valuable part of the system. Site plans can be superimposed on GIS layers such as zoning, steep slopes, or floodplains and reviewed electronically by multiple agencies at the same time resulting in better and more efficient reviews.

DPZ is one of the first planning departments in the country to use this system. At full implementation, it is estimated that more than 3,000 reams of paper, or 1.5 million 8 ½ inch by 11 inch sheets of paper, will be saved per year.

How to Build a Cost-effective GIS through a Web-based Deployment

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What is the least-cost path to creating an effective Web GIS for smaller counties or municipal governments? What features and capabilities can you expect from a low-cost GIS website? What core data sets are required? What are the advantages of external hosting? Is there a single best technology? How do you design a website that meets the different needs of both the general public and departmental staff? This presentation addresses these questions and provides a framework for thinking about Web GIS whether you have a GIS system, or not. If you do not already have a GIS, the presentation will provide valuable information for planning a web presence. If you do, the presentation will guide you to take an existing web presence to the next level. This presentation will use Carroll County, Virginia as the primary case study with other examples of GIS Web sites and approaches also described.

Intuitive Mobile Solutions for Your Data Sharing Challenges

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Organizations are now looking to the multi-million dollar investments that have been made in GIS systems to deliver new competitive advantages, whether it is more efficient field operations and resources, more informed decision-making capabilities, or improved customer response time and service. The purpose of this presentation will be to highlight the impact of mobile location-based technologies on traditional GIS departments and to help leaders anticipate the additional pressure their teams will face in this new world of anytime, anywhere access to spatial information.

Using Geodatabase Replication to Assist in E911 Street Centerline Development

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Anne Arundel County will implement a new Emergency 911 Computer Aided Dispatch System in the second quarter of 2010. Since 2008, the County has been working with Johnson, Mirmiran, and Thompsen (JMT) to enhance the GIS Street Centerline feature class to comply with the new E-911 CAD System. This "GeoFile" will be used as the base map layer for incident address matching and public safety vehicle routing. A primary objective of this project is to implement an editing environment that facilitates JMT's execution of updates to the GIS Street Centerline feature class and related tables, while maintaining the County's ability to conduct daily centerline edits. As a result, ESRI's ArcGIS 9.3 Distributed Geodatabase Replication and Synchronization was chosen as the methodology to achieve this objective. Major tasks include the population of existing "0" address ranges, name population of ramps and spurs, and the addition of routing attributes, such as speed limits, one-way street information, and height turn restrictions.

This presentation will review Geodatabase Replication, project objectives and tasks, as well as project challenges.

Ultra-Low-Cost 3D Remote Sensing of Vegetation Structure Using Automated Computer Vision

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High spatial resolution measurements of vegetation structure in three-dimensions (3D) are essential for accurate research of vegetation, carbon accounting and forestry. Light Detection and Ranging (LiDAR) is the standard for making these measurements but may be costly or logistically challenging to deploy on an as-needed basis or at a frequent interval. Here we describe research on creating accurate 3D measurements of tree canopy height across two 2.25 ha test sites on the UMBC campus using an off-the-shelf digital camera with no GPS or IMU equipment and computer vision

software that performs fully automated bundle adjustment photogrammetry. Large sets of digital photos (200 - 600) were collected at tests sites on the UMBC campus using a basic kite aerial photography platform. Computer vision software generated a 3D dataset that resembles a LiDAR discrete return point cloud, but includes RGB spectral attributes selected from the photos at each point. Mean canopy height measurements from computer vision were compared to estimates from LiDAR datasets and field based measurements, with LiDAR ($R^2 > 0.82$) showing greater precision than computer vision ($R^2 > 0.65$), primarily due to challenges in delineating terrain under forest canopy during leaf-on conditions. Our results confirm that automated computer vision can be combined with a very low cost off-the-shelf camera system and hobbyist aerial platform to make accurate measurements of vegetation structure.

More Data, Less Time, Even More Data and Even Less Time

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In the performance of the Rhode Island Broadband Mapping Project our team was faced with collecting data from 30+ sources meaning 30 different types of data; it all had to be conflated and formatted and delivered in two different databases within an advanced time schedule.

Faced with the daunting task of receiving, checking, running QA/QC, verifying the data, and delivering the data in two databases required the use of automated tools and a well designed workflow. This project was accomplished by the upfront planning and flexibility to change during the process allowed for project success. The strategies and methodologies used are transferable to any project of a similar type.

This presentation will run through the planning processes and how new technologies and well thought out workflows are invaluable in approaching a project such as this when the near impossible is expected. Doing more with less was a central theme throughout. Attendees will glean planning and tool use strategies applicable to similar challenges.

Maryland Transportation Authority Enterprise GIS System: An Interoperable Application

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The Maryland Transportation Authority (MDTA) Enterprise GIS was presented to the Governor and his staff in the GIS Subject Stat meeting. The project supports the MDTA goal of Efficiency and Effectiveness: Moving People and Goods. The overall objective of this project is to maximize the performance of MDTA business processes through new technology. The system will display all MDTA assets and the data and work associated with them, including engineering plans, maintenance work, traffic conditions, environmental aspects, utilities, etc.

In Feb. 2009, the Maryland Transportation Authority (MDTA) rolled out the first release of its Enterprise Geographic Information System (GIS). The MDTA Enterprise GIS supports key Authority goals of efficiency and effectiveness, safety and security, strategic financing and customer service. The system provides a unified view of data provided from all MDTA business units including the Engineering, Finance, Operations, Police and Administration divisions. Full support for commonly used GIS formats ensures interoperability of the MDTA GIS with MD iMap, a Governor O'Malley directed effort to provide a statewide repository of authoritative GIS data. The product integrates seamlessly with other state and local GIS applications via KML or web services. Research and discussion revealed that ESRI's ArcGIS Server and Google's Earth Enterprise (GEE) product combination was the best solution for MDTA's GIS needs. The Google Earth Enterprise client (3D) is a fast, easy-to use geovisualization tool for navigating GIS data and requires low maintenance cost. The Enterprise Edition allows MDTA to host their own data (imagery, terrain and vector) with no connection to external Google services.

The Maryland Safety and Crash Analysis Network (MSCAN)

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The Maryland Highway Safety Office (MHSO) is responsible for developing policies and programs that reduce fatalities and serious injuries on the roadway. It has been identified that to meet this important agenda, key stakeholders must improve information and decision support systems, increase the accuracy of crash data reporting, and streamline data analysis. The Center for GIS at Towson University (CGIS) is working with MHSO to create a Web application that will extend data querying, reporting, and analytical tools to highway safety coordinators, planners and engineers, and law enforcement. This application will

help develop data-based strategies for reducing the number of crashes, especially fatalities and injuries. Trend data along with location-based data is crucial for planning education, engineering, and enforcement strategies. This application will support state agencies in accurately directing resources, including personnel and funding, to help reduce the unnecessary cost to human lives on our highways.

GIS Applications for Commercial Real Estate

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GIS is a powerful tool for integrating the diverse data available to the commercial real estate community to assist brokers and clients make informed decisions in reduced turnaround times. An effective GIS platform is a persuasive communication format that enhances collaboration between landlords, tenants, investors, developers, property managers, and brokers and hastens consensus. MacKenzie Commercial Real Estate Services is implementing GIS across its enterprise, applying the technology to all stages of the commercial real estate lifecycle, including development, landlord representation, tenant advisory and site selection, market research, construction, and property management.

GrowthPrint: Measuring and Prioritizing within Maryland's Growth Areas

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This presentation consists of the technical methodology behind the development and analysis of GrowthPrint. The Maryland Department of Planning uses geographic information systems (GIS) and a synthesis of planning and socio-economic data to assess Maryland's effort to manage and target growth-related state programs. GrowthPrint, a web mapping tool that uses the FLEX API, helps practitioners and the public visualize where this targeting is taking place and to help identify areas where further targeting makes the most sense. It builds on Maryland's smart growth laws by further prioritizing areas for revitalization and redevelopment.

Using locations of existing state programs, GrowthPrint illustrates the State's efforts in revitalization, redevelopment, and other growth-related activities. Existing programs (e.g. Designated Neighborhoods, Enterprise Zones, Community Legacy, BRAC Zones, TOD) are used to map where the State is targeting these efforts.

Asset Management, Not a Scary or Costly Concept

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Defining, planning & implementing an Asset Management Program in a phased process leveraging existing GIS efforts to maximize success and control costs, doing more with less.

Asset management is typically viewed as a large and fiscally expensive program. It does not need to be. The ability to leverage advances in software and data interoperability create the very real environment for a cost effective and robust asset management program. With a well thought out approach and leverage of past and existing efforts it is possible to do “more with less”.

To achieve this, the program needs to be properly defined, expatiations set and managed, and a phased approach built upon previous successes must be utilized. This presentation will begin with defining what asset management is, what an asset management program should be and how the program can be defined and developed specifically for the entity. The presentation will then move to how a strategically and politically driven approach is developed so that quick success can be realized and built upon. The most logical approach may not always be the most advantageous in securing future funding, therefore an approach that allows for some quick returns while supporting the overall strategy can be developed. The presentation will also discuss how past, current and future GIS initiatives can be and should be centric to an asset management program.

Providing Decision Makers with Decision Tools at Decision Time: Using Spatial SQL Enabled Dashboards to Answer Difficult Questions

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This presentation demonstrates some of the techniques and approaches being used by the GeoDASH Initiative at Salisbury University to link the analytical power of GIS with the simplicity and immediacy of executive dashboards; providing decision tools to decision makers at decision time. Delivering key information to makers at the moment it is needed is a fundamental function of business intelligence. GIS at its core is a data management and analysis tool that can be used to answer important spatial questions. By using SpatialSQL as the medium of GIS query, and by allowing the decision makers to modify input parameters and see timely results, we are able to provide the Economic Development community quick decision making tools that ask complex, difficult questions.

Providing Community Level Environmental Information for Anne Arundel County Watershed Stewards

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The Watershed Stewards Academy is an initiative of the Anne Arundel County Department of Public Works and Arlington Echo Outdoor Education Center to train community leaders, called “Master Watershed Stewards”, to reduce the negative impacts of stormwater runoff in Anne Arundel County. They work within the community to coordinate small-scale restoration projects on private property. The County currently maintains very detailed environmental information for Federal reporting programs and there was a need to provide the Stewards with as much of this information as possible. The presentation will focus on the evolution of techniques used, culminating in a simple out of the box implementation of ArcGIS Server to provide the necessary information. We will discuss the additional tools developed to work within the ArcGIS Server Manager and the lessons learned.

Floodplain Mapping Outreach – Using GIS to Inform Marylander’s About Flood Risk and as a Mechanism to Disseminate Spatially Enabled Flood Data

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The State of Maryland, in conjunction with the Federal Emergency Management Agency (FEMA), has been systematically updating Flood Insurance Rate Maps (FIRMs) for communities in 17 of the 24 Maryland counties over the past several years using enhanced hydrology, hydraulics, and new floodplain models as the backbone of this endeavor. Maps are now being released to communities across the State, the implications of which can impact a home owner’s future flood risk status as well as the need to acquire and maintain an active flood insurance policy. A statewide web-based GIS solution is being implemented to help guide the public through the process of determining current as well as future flood risk in addition to what steps are necessary to be in compliance with the National Flood Insurance Program (NFIP). A portion of this workshop will be focused on demonstrating the suite of outreach resources available to make informed decisions about flood risk.

Components used to create the updated digital FIRMs for Maryland are also being repurposed to support floodplain planning, management, and regulatory activities throughout the State. The remaining

portions of this workshop will be geared towards demonstrating the web-based GIS solution leveraged for distributing this spatially enabled flood data out to stakeholders.

Using GIS to Facilitate Fire Department Operations within Baltimore City in Times of Financial Hardships

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For 150 years, the Baltimore City Fire Department has been protecting the citizens of Baltimore. Never in the history of the department has it dealt with such difficult financial hardships as it does today. While the mission of the BCFD remains the same, absorbing budget cuts when the operating budget is 90% personnel has proved challenging. The BCFD is continually looking for ways to do more with less. In the last year, the BCFD has permanently closed a truck company and is rotating closures through the ones that remain. GIS is still new within the BCFD, as it has only been in use for 2 years, but already its value to the department is being proven. This presentation will discuss and highlight the GIS tools, analyses and best practices that are aiding the BCFD to maneuver through this unprecedented period of its history.

The Future of 3D GIS Visualization: The Integration of the GPU and the Web

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Transcending Spatial Data Interoperability: The Integration of CADD and GIS

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Photo Science built a geospatial solution called the CADD Interoperability Application (CIA) to retrieve and post spatial features locked in CADD files to an enterprise geodatabase. This retrieval and posting is performed by an extract-transform-load (ETL) model that included significant “mapping” of CADD features to feature classes and tables residing in an enterprise geodatabase. The ETL model is executed each evening through an automated process created from ArcObjects coding within a Microsoft Windows console application. The CIA sends a highly detailed email message to both the GIS Coordinator and the CADD Manager each morning with a list of features found, read, validated, and posted to the geodatabase. Moreover, it lists the number of features read but not posted to the geodatabase when they did not pass the data validation parameters or were not in compliance with the required CADD standards. This reporting capability has provided the GIS Coordinator and the CADD Manager the ability to review the quality of their CADD data that was not previously available to the Department of Transportation. The CIA requires ESRI’s ArcGIS 9.3 environment; including, the Data Interoperability Extension. The CIA operates within a Microsoft Windows scheduling environment and does not require significant end-user input.

The KCI GeoFusion Center is an Innovative Blending of Technologies Designed to Assist in Monitoring Environmental Compliance on Construction Sites

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Environmental compliance monitoring on a construction site is fast paced and unmerciful. Environmental monitors need immediate and constant access to construction plans, compliance forms, permit status reports, weather reports, and a system to manage the large volume of documents. To address the coordination of these systems, KCI Technologies, Inc. has integrated several industry-standard solutions into a comprehensive web application, the KCI GeoFusion Center.

The KCI GeoFusion Center is a web-based application that leverages the proven capabilities of Google Earth to display spatial data; Microsoft SharePoint to provide document management; and standard html to provide data input capabilities. The KCI GeoFusion Center allows users to view project specific GIS data with respect to the base data of Google Earth along with GeoRSS feeds providing real-time information such as weather. Integrated with Sharepoint, standard online collaboration tools have been implemented such as group calendaring, project schedules, document sharing, and discussion boards. In addition, the integration with Google Earth allows the user to relate documents in SharePoint to spatial features on the project site. Finally, the KCI Fusion Center also includes the capability to complete custom environmental compliance forms in real-time to document water quality, erosion and sediment control, and other compliance issues.

Low Cost Architectural Solutions for Interactive Internet-based GIS Applications

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The use of freely available Microsoft .NET Framework and spatial databases, coupled with low cost (under \$500) and free open source GIS object models provides an opportunity to create rich, interactive GIS based web solutions at a minimal cost. We will describe and demonstrate our architectural approach for integrating Microsoft Silverlight with back-end geo-processing solutions in the form of Internet Map Server applications and geo-dashboard applications. We will also demonstrate live, web based applications completed for law enforcement, State, and private organizations using these approaches.

Leveraging Partnerships: Enhancing MPO Initiatives Using GIS-T for DOT Data Integration

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As part of the Lancaster County Transportation Coordinating Committee's (LCTCC) Fiscal Year 2009-2010 Unified (Transportation) Planning Work Program, the Lancaster County Planning Commission Transportation Division hired geographIT to develop a GIS-T application to integrate County and PENNDOT GIS data resources thereby enhancing LCTCC's planning and work programs. The ensuing GIS-T application includes a custom ArcGIS 9.3.1 Desktop toolbar that replaces an ArcView GIS 3.x extension originally developed for LCTCC by geographIT in 2000. Displaying standard MPO GIS layers and supporting the creation of new layers, the GIS-T tools simplify visualization of PENNDOT Planning Partner information, mapping DOT project and roadway management data, crash data, and accident cluster reports onto Lancaster County's road centerlines. The tools automatically consolidate PENNDOT source files, storing all data in an ArcSDE geodatabase.

While originally implemented as a data integration and visualization tool, inherent to the success

of the GIS-T application is the underlying inter-agency partnership. The web of data requests feeding source content to the GIS-T application requires responsive coordination. The more developed the relationship between LCTCC and PENNDOT, the more effective the technology that depends on the relationship.

The presentation will describe the GIS-T application components and supporting partnership, as well as demonstrate scenarios of how it supports analysis and planning for strategic LCTCC work programs.

U-View – More Than Just a Utility Viewer

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Baltimore City's utility viewer, known as U-View, started as a simple map display and data query tool but has evolved into an enterprise system supporting critical business needs for many City agencies. This presentation will discuss the evolution of U-View from viewer to business system incorporating customer service requests for stormwater complaints, fire hydrant service status, Consent Decree management, right of way and easement record management and geoprocessing tools.

A Parcel and Sub-Parcel Approach to Modeling Land Use Change and Impervious Surface Expansion

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This paper proposes a parcel and sub-parcel based approach to addressing changes in land use and impervious surface. Land use and impervious surface are two different but related concepts. The former changes parcel by parcel discretely in space, whereas the latter often covers only part of a parcel. We take a multi-stage, multi-process approach to modeling. First, we utilize a two-layer neural network with multiple inputs and outputs to predict parcel use change within a five class system. Then, we estimate the demanded size of impervious surface for each parcel based on the type of its use and allocate it spatially: 1) within a subdivided parcel; 2) along a road; or 3) randomly within an undivided large parcel as multiple points or areal units. As applied in Beaufort County, South Carolina, the neural network outperformed a conventional multinomial regression. We used it to simulate and predict parcel use changes through 2030 based on different growth rates and growth boundaries. The use of parcel data enabled us not only to map the historical change of impervious surface on an annual basis, but also to visualize its future expansion under different scenarios.

Save Land and Save Money: Geospatial Technologies at a Nimble and Cost-conscious Non-Profit Land Conservation Organization

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Natural Lands Trust is a non-profit organization with a rich history and wealth of expertise in preserving land and managing natural resources. Geospatial technologies supported the organization's growth and expansion of services in the past decade. With the use of GIS, GPS, Google Earth, Geospatial Data Clearinghouses, and a well-rounded GIS staff Natural Lands Trust's budget has not been constrained by mounting costs associated with geospatial technologies.

This presentation will review proven and successful cost-saving GIS strategies and explore exciting new possibilities of cost-savings. The cornucopia of GIS data available through Federal and State Geospatial Data Clearinghouses delivers a free and great source of data for non-profit organizations.

Investing in appropriate GPS technology allows Natural Lands Trust to do more on site data collection thus reducing the costs when performing its core service of land transactions for permanent land preservation thus reducing the costs associated with surveying. LiDAR data is a new technology with the opportunity to save organizations from incurring expensive consultant fees for detailed elevation surveys. Google Earth and other neogeography web applications offer organizations the chance to save money by delivering basic and robust GIS tools in the hands of non-GIS Professional staff.

ESRI Technical Mini-Workshop #1 – What’s Coming in ArcGIS Desktop 10

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This summer, ESRI will release ArcGIS 10. There are many new enhancements that will improve the way Desktop users work with GIS, from simple productivity enhancements, powerful spatial, temporal and image analysis, and new ways to share GIS projects and data. This workshop will present some of the highlights of this new release, including demonstrations of how the new features can be incorporated into your existing GIS workflows.

ESRI Technical Mini-Workshop #2 - Leveraging ArcGIS Online/ArcGIS.com in Your Organization

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ArcGIS Online Services and ESRI Data provide a variety of comprehensive Web-based resources and datasets that can be used to enhance and extend your ArcGIS projects, with both Desktop and Server. This session will provide an overview on the wide variety of content and capabilities that are available on ArcGIS Online, what’s coming with ArcGIS.com, and how to use this online sharing community to enhance your existing GIS workflows.

ESRI Technical Mini-Workshop #3 – Better Ways to Design and Share Maps: Tips and Tricks for Preparing and Transferring Maps to the Web

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With the popularity of publishing maps to the Web increasing, ArcGIS users find themselves in an ideal position to learn new practices to improve their productivity in this area. This workshop will highlight content from ESRI’s recent half-day seminar of the same title, including topics like building a better basemap, working with map templates, cartographic enhancements, and improved deployment methods.

ESRI Technical Mini-Workshop #4 – Getting Started with ArcGIS Server JavaScript and Flex APIs

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This workshop will provide an overview of how to get started with the ArcGIS JavaScript API and the ArcGIS API for Flex. Users will learn how to create "mash-up" applications that combine local GIS services with online content using JavaScript, and how to configure ESRI's Sample Flex Viewer. Several "live user sites" will be presented as examples of how these technologies can be used to create a common Web GIS platform that supports a variety of uses including public access, operational needs and executive oversight.

Using Geospatial Technology in the K-12 Classroom: A LIDAR Example

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In order to effectively reach students in the "point and click" generation, teachers must integrate technology into all courses of study. By utilizing technology in geography classrooms, teachers are able to integrate their curriculum over several sets of national standards for education. Though the use of GIS technology, and specifically applications such as Quick Terrain Reader, teachers are able to use inquiry-based learning, by allowing students to explore real-world problems through the use of digital tools and resources. This concept is stressed in the national educational technology standards. These activities are easily modified to meet the needs of all students, regardless of learning style and ability.

This presentation will give examples of hands on activities for students, using Quick Terrain Reader to apply geography skills to a digital format, offer an introduction to LIDAR for the classroom, and will stress the importance of geography education in the K-12 setting. Activities are aligned with numerous National Standards in Education, and emphasize teaching across the curriculum.

Construction and Environmental Planning – Applying a web based GIS system to manage capital construction projects and environmental planning activities

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Institutions managing environmental resources and the National Environmental Policy Act (NEPA) process for a single project find this management to be simple and straight forward. However, institutions having multiple projects going on at once and new projects starting every year find it harder to manage projects and associated mitigation for impacted resources that overlap. To support the Metropolitan Washington Airports Authority (MWAA) in the management and performance of environmental planning and compliance activities at Washington Dulles International (IAD) Airport and Ronald Reagan Washington National (DCA) Airport a web-based environmental data management and GIS mapping system was developed to manage and track construction projects, environmental planning and NEPA status at the airports. The website provides a number of tools to support users in facilitating meetings for project team members, MWAA staff and contractors, as well as managing environmental planning and NEPA status in conjunction with capital improvement projects. These tools include a construction project tracking and planning module, GIS mapping applications, a document repository and NEPA status data access and retrieval functions.

By combining several related but previously disparate functions this approach and subsequent application have shown how, through the use of GIS, MWAA is indeed doing more with less.

MD iMap

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MD iMap is a diverse and flexible “system” that provides a wide variety of products and services to the citizens and government employees. These products and services assist in capturing, storing, analyzing, managing, and presenting data linked to a location. This mini workshop will detail the efforts of the technical and executive committees, the GIO's role, the infrastructure behind MD iMap, and how to use the available products and service.

Working with Maryland's Soil Survey Database: Data, Tools, and Web Mapping Applications**Amanda C. Moore**, State Soil Scientist

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The USDA Natural Resources Conservation Service has completed the first draft of a detailed, digital Soil Survey Geographic (SSURGO) database for Maryland, Delaware, and the District of Columbia. Scale ranges from 1:12,000 to 1:24,000 and vintage ranges from 1970-2010. Official soil survey data can be downloaded from the Soil Data Mart (<http://soildatamart.nrcs.usda.gov/>). SSURGO data consists of spatial data representing soil delineations and line and point special features as well as an extensive collection of tables describing the properties and qualities of soil map units. Attribute data can be imported into a Microsoft Access template ("SSURGO template") that automatically builds relationships and facilitates analysis and mapping of soil numerous soil properties. These data can be used directly in a GIS, or in conjunction with NRCS's Soil Data Viewer (SDV). SDV is a free ArcGIS extension that assists users in querying and mapping information contained in a SSURGO template database. NRCS also supports a web mapping application called Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>). Web Soil Survey users can develop soil maps and interpretations for their area of interest and create a custom soil survey with that information.

MD safeMAP: Providing the Public with Geospatial Data during an Emergency

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State and local government agencies in Maryland have used EMMA since 2005 as a "common operating picture" for their homeland security and emergency management efforts. Unfortunately, no such system currently exists for use by Maryland residents in the event of an emergency. Based on news reports, it is evident that lack of public information was responsible for many of the problems and widespread confusion associated with the evacuation of New Orleans prior to the landfall of Hurricane Katrina. These reports suggest: 1) that federal and state governments have put too much emphasis on disaster response and have neglected efforts to minimize a disaster's impact in advance; and 2) that most Americans have not taken steps to prepare for a natural disaster, terrorist attack, or other emergency

MD safeMAP is an ArcGIS API for Flex application that provides freely accessible information, and appropriate and easy to use tools, to provide a public "common operating picture" in the event of an emergency in the State of Maryland. Development of this application was funded by a Wilson H. Elkins Professorship of the University System of Maryland.

MarylandView Update

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This session will provide an update on the activities of AmericaView and the MarylandView Consortium. Topics to be discussed include current MarylandView activities, including an upcoming Maryland SATELLITES Summer Teacher Institute, development of a new land cover map for Maryland, current and future revisions to the MarylandView Web site, and a review of Earth Observation Day.

Putting the Public to Work – Achieving Forest Compliance with Tools, Information and Incentives

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A user-friendly multimedia Forest Easement Web site was developed for concerned citizens and owners with publicly held forest conservation easements on their property. A Flex web map using high quality air photos, property lines and easement boundaries was developed to assist in locating easements and to allow citizens to report potential forest conservation violations. The tool also provides hyperlinks to legal documents associated with each easement. The site is tied in real time to the Department's easement database. The website provides answers common questions about and educational material on the importance of forest. It clarifies how easements are enforced and the potential consequences of non-compliance. It also provides financial incentives for purchasing trees. Other agencies such as the Department of Environmental Protection, the County Council, and the Department of Permitting Services have also been very positive about the sites' use within their own work programs.

This project was created "in-house" with no outside consultants. Much of the effort was funded with penalty money from developers who were fined for not following their forest conservation plan during the construction process. This Web site and associated tools was recently presented to the Montgomery Planning Board.

Statewide Groundwater Vulnerability Assessment for Maryland

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Groundwater contamination and potential contaminations have resulted in public outcry in the state of Maryland. State and local governments have implemented several policies to help in protecting and reducing contamination of the groundwater system. However, until date there is no statewide groundwater vulnerability map for Maryland. The goal of this project is to utilize the DRASTIC methodology to develop a statewide groundwater vulnerability map that will show the areas with the greatest potential to groundwater pollution.

DRASTIC is an acronym that corresponds to the initials of the seven hydrogeologic parameters that affect and control the movement of water into, through and out of a groundwater system. The seven hydrogeologic factors are Depth to groundwater, net Recharge, Aquifer media, Soil media, Topography (slope), Impact of the vadose zone and hydraulic Conductivity.

The resulting map will rank vulnerability based on the DRASTIC index calculated from the integration of established weighting and assigned rating to each of the hydrogeologic factors. Thereby providing decision makers with areas where targeted critical groundwater quality and vulnerability assessments might be required.

Working Smarter In the Field with ADAMobile

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To ensure accessibility for individuals with disabilities along our nation's transportation networks, ADAMobile provides government agencies with the ability to collect information about pedestrian facilities based on the ADA Standards for Accessible Design. Built on ArcGIS® Mobile technology, ADAMobile provides the capability to perform real-time updates from the field to the office – and back to the field. This session will demonstrate the functionality of ADAMobile and its deployment for the Delaware Department of Transportation as well as how the use of the application can benefit government agencies and the communities they serve.

Land Use Suitability Mapping for the Fairbanks North Star Borough

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Similar to most communities today, Alaska's Fairbanks North Star Borough (FNSB) is facing high-energy costs and high public costs due to sprawling land use patterns. With a large percentage of its developable area located on permafrost or within a floodplain, global climate change is no longer an afterthought it is at the forefront of planning efforts. In addition, conflicting potential land uses as mining, recreational, residential, industrial and commercial areas are creating compatibility issues. In an effort to update its' vague and nearly 25 year old land use plan map, FNSB is hoping to be more forward thinking in updating their land use plan by developing a land use suitability dataset along with a sustainable infrastructure layer.

Utilizing "Freeware" in the Prioritization of Non-native Invasive Plant Species within Parklands

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In Fairfax County extensive urbanization and forest fragmentation have created conditions that foster the establishment of non-native invasive plant species. With over 400 park units and approximately 24,000 acres, the county park system is under direct threat from these organisms and is at risk of losing many of the natural assets that led to the acquisition of these lands. Left unchecked, invasive plant species will undermine the regenerative capacity of the county forestland and ultimately produce a

degraded resource that fails to meet many of the key objectives desired of the parks system.

Given the dynamic nature of the invasive species threat, along with the need to maximize the effectiveness of finite control resources, the Fairfax County Park Authority commissioned the development of a comprehensive response strategy and site treatment prioritization model. A primary goal of this project was to develop a defensible work prioritization model to be used by the Fairfax County Park Authority in assessing the relative level of risk of biological invasion on parklands and in determining the proper allocation of limited resources for control. Utilization of “freeware” such as Hawth’s tools and Fragstats analysis software greatly assisted the prioritization.

Howard County: Using open source products and existing IT infrastructures to provide GIS value

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Despite a tough budget situation over the past two years, Howard County GIS continues to provide services to its customers. This has led to creative methods to save money. This presentation will cover two topics. First: The use of small-scale free or “open” technologies to provide remarkably advanced services at little to no cost. Second: The utilization of existing IT infrastructures to provide GIS services instead of GIS-specific products. In addition to saving money, these methods have provided additional benefits to our IT organization which we will also discuss.

Minimize Project Costs by Utilizing Mapping Applications

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Watershed modeling, asset geodatabase creation, and even stormwater design can require a massive field effort as part of the project. Many times multiple field crews are deployed to collect data in the field for these types of projects. This field work includes channel measurements and survey that are input into models, using a GPS unit to collect spatial location of assets for geodatabase development, verifying existing features, and conducting site survey for storm water design. Additional costs are also inherent when data is submitted for a project. Often hard copy analysis reports and maps are produced as part of a submittal. In our past experience we have found that some of the field efforts and data submittals can be accomplished in the office using various applications.

Using aerial photography with GIS, Google Earth, and Google Maps data can be collected in the office that would otherwise require field work. In using these applications, field efforts can be minimized and overall project costs reduced. Field work that otherwise would take multiple staff to complete can be completed by one person in the office. Reducing or even eliminating the need for using hard copy maps and data analysis reports by submitting data in a more useful manor is also a goal to decrease project cost. The objective of the presentation is to provide an over-sight on how aerial photography based application and ArcTools can be used to possibly cut overall project cost. The presentation will provide examples of how these applications assist in the engineering profession and will provide “lessons learned” from past projects.

Thinking Outside the Template: A Case Study for Using the ArcGIS Server Flex API to Solve a Business Challenge

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For years the Delaware Department of Transportation (DelDOT) Planning Review Division managed the land development review process using spreadsheets, discussion, and institutional knowledge. This approach was effective for a small volume of projects, but as Delaware continues to grow, so does the need to manage information. This presentation will demonstrate DelDOT's new web-based Planning and Development Coordination Application (PDCA) that facilitates the review and approval process for Subdivision Record Plans and Commercial Entrance Plans, as well as identifies and manages required cost contributions for offsite improvements. This solution streamlines the review process, providing all project data in one simple location.

Using Web-Based GIS Technologies for Facilities Management

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Facilities Management has long been the domain of CAD. Recent movement has been made in this area from simple CAD drawings and data to a fully functioning GIS, expanding the scope and abilities of such systems. Exceptional Software Strategies, Inc (ESS) is currently working on such a contract that involves the wide scale creation of an interactive, web-based system for presenting Facilities Management Data in a geographic environment. This project involves the conversion of legacy CAD Data to a standardized master records geodatabase, and presenting it in both traditional and web-based GIS environments. This presentation details our progress on this project, as well the new developments made possible through the adoption of Google Earth Enterprise. The end product is an interactive web-based GIS application for use by Facilities Management of the Federal Government.

Application of Information Technology and GIS in Support of Environmental

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EA Engineering has developed a variety of Information Technology and GIS solutions in support of several environmental efforts. Each example demonstrates the unique application of Information Technology and GIS to solve specific challenges(s), resulting in a more efficient process for collecting, managing or reporting of environmental information.

Example 1: The ongoing development of a web-based TurboNEPA application for the Air National Guard to automate and streamline the generation of NEPA documentation. The system includes the ability to pull information from existing NEPA documentation, the ability to generate figures through an integrated mapping application for inclusion in the document, and an approval process to facilitate the approval for all documents.

Example 2: A web-based Project Management and Data Analysis application in support of a major FUSRAP project. The application facilitates communications, data transfer, and validation of data between the project site, analytical laboratories and remote locations. The system also includes an internet mapping application to provide data analysis and visualization capabilities.

Example 3: An enterprise Environmental Management Information System (EMIS) that manages, monitors, tracks and facilitates environmental compliance. The system includes a Tank Management Module that manages agency wide compliance information and an integrate internet mapping application to access information.

A Reinvention of the National Wetlands Inventory Mapping Process for Coastal Georgia

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In 1972, the U.S. Fish and Wildlife Service established the National Wetlands Inventory program to identify the wetlands in the United States in an effort to increase the amount of accurate information available about coastal wetland resources for the better planning and decision-making by federal, state, and local agencies. The NWI maps are to be updated periodically to monitor change, identify trends and to incorporate new data and technology into the mapping process. In 2008, a partnership between PBS&J, the Eastern Shore Regional GIS Cooperative, and EcoScience Corporation was selected to assist in the remapping effort for six coastal counties in Georgia. These six counties cover over 2 million acres of diverse wetlands and were divided into 76 USGS quadrangles for processing. The project team modified the typical NWI mapping process to take advantage of historical NWI data, multiple orthophotography datasets at varying resolutions, and other ancillary information. Analysts utilized GIS throughout this project to simplify complex, repetitive processes, to capture and edit data, to ensure a consistent and topographically correct dataset, to organize, store, and deliver data and to incorporate an extensive data library into the re-delineation process.

Web-Based Control Systems: Driving the Mapping of the 2010 US Census

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This presentation discusses the United States Census Bureau's methods of tracking and controlling, from creation to printing, the nearly 20 million small and large format maps used to support data collection for the 2010 Decennial Census. Web-based control systems were used to manage source data availability, control the map universe, execute Census internal mapping applications, track production, manage workload balancing, and produce reports. These control systems guided fully automated map creation processes, resolution of production problems, and map printing. They controlled the distribution of the electronic map files that were produced at headquarters to approximately 500 local offices. Automated quality control and pre- and post-production quality checks were also managed by web-based systems. Quality control systems were engineered to automatically communicate directly with each other to expedite the accurate flow of critical control data. The web-based format of the control systems allowed decentralized offices to participate in quality control processes and communicate with headquarters. The accessibility, ease-of-use, and integrated nature of the web control systems made possible the daunting task of equipping half a million field enumerators with the maps they need to do the census.

Developing Crucial GIS Leadership Skills: The URISA Leadership Academy

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The success of any GIS program is largely tied to the capabilities of its leader. Strong leadership is necessary to establish a solid GIS program, operate efficiently and effectively, coordinate participants, adapt to change, and move a program forward. Leadership, however, is a skill that must be developed. The URISA Leadership Academy was recently established to meet this need. At the academy participants learn key GIS leadership and management factors and techniques, successful team development, organizational capacity building, program investment and justification, GIS politics, change management, situation assessment, and problem solving. The environment further provides for productive collaboration and networking. This presentation will discuss the key GIS leadership factors and provide an overview of the approach, content, and results of the Leadership Academy.

Saving Money, Saving Time, Saving Your GIS: How to Keep a Program Moving in Tough Times

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Building and running a GIS program can be challenging in the best of times. As budgets get tighter, all organizations are looking for ways to meet their program goals with reduced resources. This situation makes it even more important to recognize and resolve the pitfalls of GIS that waste time and money. Issues that require scrutiny and new perspectives include developing effective ROI tools to measure real value before committing resources, getting more from contracting arrangements,

augmenting staff resources, developing cost sharing arrangements, rethinking decision making (e.g.; committees), using new system development methods, ensuring effective adoption that drives new needs and funding, and making a stronger case for GIS's share of the budget. Although these problem areas may appear to be the usual suspects, organizations are coming up with innovative ways of looking at them and developing new solutions. This presentation will identify areas where significant savings can be realized, describe how different organizations are doing this, and explain how you can turn constrained situations into opportunities to propel a GIS program forward.

Maryland Poison Center: Saving Lives, Saving Dollars

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For 38 years, the mission of the Maryland Poison Center (MPC) has been to decrease the cost and complexity of poisoning and overdose care while maintaining and/or improving patient outcomes. The poison center is currently undertaking an innovative program that applies a suite of geographic information system tools to poison center data to allow better information visualization on trends that might not be apparent by looking at columns of data. This presentation will discuss the advantages and limitations of using poison center data in conjunction with GIS to further the mission of the MPC. Examples of ongoing analysis and research will be highlighted, including spatial analysis of call data and educational outreach.

Bentley's Enterprise Information Management System

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 1-800-BENTLEY

Bentley's *Enterprise Information Management* address's some of the more complex, data integration and workflow requirements that are typically required by facilities managers at all building and site installations, such as:

- Integration of legacy CAD files (AutoCAD or MicroStation) with ESRI as well as any associated documents such as specifications, photographs and utility data without requiring translation or conversion of the original data.
- Advanced 3D designs created with new advanced solutions such as Building Information Modeling (BIM) can be geospatially positioned as a 3D model on an ESRI site plan and connected to the appropriate utility engineering models-- for more advanced capacity analysis.
- Planning and site engineering workflows are provided with immediate access to ESRI and engineering content -- providing improved decision support tools to all user disciplines
- Environmental and encroachment constraints and government regulations that need to be evaluated-- to fast-track capital project and campus expansion strategies

- Construction operations and project estimates can be streamlined by using digital models --a more accurate depiction of “as-is, to-be” scenarios.

Bentley Systems, Inc. (Bentley) has been supporting installation management needs for many years and our *Enterprise Information Management* strategy has been devised to address key work-flow scenarios, server/application software workspace (software configuration management) and system administration training issues that need to be addressed for the successful implementation of an enterprise repository environment. The purpose of this Enterprise Information Management Workshops is to educate potential users and systems administrators through a series of workshops that are focused on utilizing best practices for the management of a technical data repository that promotes more advance data integration, data analysis and data publication functions.

Utilities Management on a Budget: Using GIS and the Adobe Flex API

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Allegany County is proud to serve over 85% of the county's 72,000 residents with public water and/or sewer access. However, serving most of the population has amplified the need for a utility management application. Over the course of several years, the GIS Office and the Department of Public Works have worked together with the common goal of using GIS to manage the public water and sewer assets of Allegany County. After exploring options for asset management, most third-party solutions seemed too expensive and perhaps too robust for a small jurisdiction with a shrinking budget. Recognizing the importance of having utilities data readily available to managers and field workers, and the potential cost savings associated with using GIS data to make decisions and prioritize maintenance and repair, the County decided to develop an in-house, low-cost solution. With no formal training or prior programming knowledge, Allegany County GIS staff used ArcGIS Server 9.3.1 coupled with the Flex API and Sample Flex Viewer template to develop an effective tool to manage their utility assets. This presentation will discuss the ease of implementing an Adobe Flex application as well as the functionality it can offer.

Philadelphia SWEEP Code Enforcement Field Application with ArcGIS Mobile

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The Philadelphia Department of Streets, Sanitation Division Streets & Walkways Education and Enforcement Program (SWEEP) educates and enforces all Sanitation Laws and regulations found in the Philadelphia Code and City regulations governing municipal collections. The department wanted to move away from its reliance on a paper based system of hand writing violation notices along with the large amount of footwork required to identify parcel owner and address information. With the aid of ruggedized Windows Mobile devices and ESRI's ArcGIS Mobile ADF, geographIT developed a mobile GIS application for the Streets Department that will increase the effectiveness of the SWEEP program. The mobile application allows SWEEP officers the ability to issue warning and violation notices, identify locations on a map via Global Positioning System (GPS), auto fill data on property address and owners, and look up the history of violations for property and non-property based violations. As a means of increasing enforceability, the mobile application also has the ability to capture photographs for each notice and wirelessly print violations and photos in the field on ruggedized Bluetooth printers. Jesse Stauffer, IT Director, will provide a demonstration of the application and its architecture.

Enabling a Renewed Interest in Geospatial Metadata: A Maryland Spatial Data Infrastructure Perspective

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Effective metadata descriptions are essential for the discovery and access of geospatial data by users. Poor quality metadata and mismanaged Spatial Data Infrastructures (SDI's) can minimize the effectiveness of geoportals and therefore lead to ineffective search results and inhibit the discovery of important geospatial data. Understanding the significance of metadata will bring additional value to geoportals. Maryland has large amounts of useful geospatial data that needs to be properly documented and easily accessible. This paper will present preliminary results of metadata activities in Maryland and propose a research method for an assessment of metadata management within Maryland's SDI. The purpose of this study is to enhance the accessibility of metadata and promote a more effective use of geoportals. Examining the behavior of metadata creation activities and the SDI within Maryland will help delineate what may be holding back the effectiveness of spatial data discovery. By examining these behaviors, recommendations can be made for improving the SDI and spatial data discovery. In addition, the recommendations could serve as a model for other local and state agencies who wish to enhance their metadata and spatial data discovery practices.

Remapping Montgomery – Bringing Zoning into an Enterprise GIS

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As part of a comprehensive examination of Montgomery County's Zoning Code, the Montgomery County Planning Department staff are making their enterprise GIS the official source for zoning. The catalyst of this project is a review and potential rewriting of the existing zoning code; GIS data enables easy county-wide zoning analysis and a rapid response if the recommendations from the Zoning Code Rewrite be implemented. Currently Montgomery County's zoning information is stored in a mixture of hand-drawn maps and independent CAD map series. Multiple changes in zoning of properties through the sectional map and local map amendment processes, coupled with inadequate technology and changes in policies, has opened the door to errors. This has led to inconsistent zoning of a property between maps, zoning changes not being applied after Council actions and other errors in the zoning maps. To correct this situation, the zoning information is being migrated to an accurate GIS dataset conforming to the existing County zoning regulations. In this session, we will discuss the conversion process, common issues encountered in constructing the dataset, the strategy for maintaining the zoning data within an enterprise GIS, and the custom tools for producing official maps.

Maps and Geospatial Data for Planning and Managing Residential Common-Interest Communities (Condominiums and Homeowner Associations)

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The domain of management of common-ownership communities has not made much use of modern geospatial technologies. This talk will show how such communities, accounting for almost one-fifth of all households in the USA, primarily residential condominiums and homeowner associations, are beginning to use low-budget map resources for facilities management, administration, and long-range planning.

The talk presents a series of examples, primarily from the author's own HOA, to demonstrate the applicability of government maps for: residential properties, streets, elevation, and land-cover. Further examples suggest how digital geospatial data resources from public sources provide opportunities to managers and community volunteers for drainage projects planning and implementation, designing new or renovated landscape plantings, and communications with owners, staff, and contractors.

The benefits and difficulties for communities to more fully embrace geographic information systems is then reviewed. A principal challenge is how to affordably expand the thematic range of a geospatial database beyond that which can be obtained from public sources. Desirable themes include storm-drains, light poles, trails, planted beds, ornamental trees, recreational facilities, and architectural violations. A second significant challenge is the education and training of professional managers in the community association domain about the benefits of using maps and geospatial data for a variety of purposes.

Mapping Maryland's Broadband Inventory—The Maryland Broadband Mapping Initiative

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The Maryland Broadband Mapping Initiative is funded by an American Recovery and Reinvestment Act of 2009 (ARRA) grant administered through the National Telecommunications and Information Administration (NTIA). Through various activities, the ultimate goal of ARRA broadband projects is to increase broadband access and adoption throughout the Nation. Governor Martin O'Malley chose the Maryland Broadband Cooperative, Inc. (Mdbc) to lead Maryland's data collection, mapping, and planning initiative, which is part of the *State Broadband Data and Development Grant Program*. A working partnership comprising Mdbc, Salisbury University, Towson University, Maryland Department of Business and Economic Development, and Maryland's Geographic Information Officer is developing a comprehensive statewide broadband inventory and a publicly available interactive map that shows the geographic extent that broadband service capability is deployed and available in Maryland from a commercial or public provider. The mini-workshop presents a project overview and update, as well as a panel discussion focused on project scope and coordination efforts, processes and methodologies, and

eventual outcomes. Speakers include key personnel from each partner organization, and a member of the broadband provider community.

The GIS Certification Institute's GISP Program

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The Development of Maryland Environmental Public Health Tracking Network

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This presentation will demonstrate the GIS functionalities of the Maryland Environmental Public Health Tracking Network (EPHTN), developed by the Maryland Department of Health and Mental Hygiene and funded by the Centers for Disease Control and Prevention (CDC). The primary purpose of the EPHTN is to explore relationships between environmental hazards and health outcomes. The EPHTN collected a host of statewide disease variables and environmental factors that now include asthma, myocardial infarction, cancer, birth defects, low birth weight, blood lead, ozone, PM_{2.5}, and water quality. The EPHTN Website was developed with Google Maps, ArcGIS Server 9.3.1, and the Oracle database under a Windows server. Computed health results include counts, age adjusted rates, 95% confidence intervals, and statistics such as the Chi Square. Users can query any geographic area on the GIS, and results are displayed in maps, pop-ups, tables, and graphics. The EPHTN created computational modules and auto-feed tools to eliminate the need for computations or programming, and accommodate future updates of new data, and make the EPHTN website easily self-sustainable. When completed, the EPHTN will become a unique source of environmental public health data, including biomonitoring results, for use by researchers, policy makers, health professionals, and the public.

Understanding the Effects of Map Scale and Data Optimization Through Generalization

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Freely Available Software Utilities that Anne Arundel County DPW GIS Utilizes

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In these financially conscious times there is not a large budget at Anne Arundel County for software purchases. The Department of Public Works has a fairly large library of freely available software that it utilizes to accomplish its tasks on a daily basis. These utilities, used in concert with the standard GIS software suite from ESRI and Autodesk, have allowed the county to keep their operations running efficiently. Presented here are the bulk of those utilities and software programs.

What You Really Need Know to Have a Long Lasting Career in the Field of GIS

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This presentation is geared for college students. The presentation explores the different skill sets required to achieve a long lasting career in the field of GIS. Colleges provide students with baseline skill sets that are valuable to score internships or entry level positions. In many cases however, students are lacking the long term vision of how to develop their skill sets and advance their careers. This presentation attempts to explain to those starting out what employers will want from a GIS professional over time and what will eventually make that individual indispensable to an organization.

Fighting Fires with GIS: A Service Learning Project

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Geographic Information Systems have been an important tool in the public safety sector for years. Recently California University of Pennsylvania (Cal U) and the Springdale Township Volunteer Fire Department (STVFD), West Leechburg Volunteer Fire Department (WLVFD) and Hyde Park Volunteer Fire Departments (HPVFD), collaborated on creating a GIS that would assist the fire department during calls. The fire department surveyed their residences on many issues, including number of householders, pets, and the name of their gas company. Then Cal U students entered this data into a parcel map and added a fire hydrant layer using ArcGIS. Both layers were then added into the Arc Explorer Java Edition (AEJEE) program so that they could be utilized on a laptop. Finally a tutorial and workshop were created for the Volunteer Fire Departments to illustrate the uses of the GIS. Now when a call comes in, the fire department has the necessary information on the location to make informed decisions. This presentation will discuss the processes, successes, and problems of this GIS service based learning project.

Using GIS to Delineate the Zone of Influence for the Texas Marble Quarry Located In Cockeysville Maryland

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In 1994 The Maryland General Assembly passed legislation, which required the Maryland Department of the Environment (MDE) to establish zones of dewatering influence (ZOI) around carbonate quarries in karst terrane. Mining companies are responsible for water supply replacements of water supplies (domestic, commercial, industrial) The Texas quarry is nearly a century year old marble, dolomite, calcite quarry that lies within the Cockeysville Marble Geologic Formation and is situated in a very urban environment. Methods used in the compilation of the ZOI for the Texas quarry included; Stream Gauge (Padonia Creek, Goodwin Run, Beaver Dam Creek) Data, Quarry monitoring well data, field report data (sinkholes), Geologic Mapping, GIS Mapping, watershed, topographical analysis. The Western Boundary of the ZOI is bounded by a geologic contact between the Cockeysville Marble and the Rush Brooke Member of the Loch Raven Schist. The Northern Boundary of the ZOI parallels the southern banks of Beaver Dam Creek, until the stream intersects the MTA Light Rail Bed. The ZOI offsets the rail beds 20 to the east until the tracks intersect Beaver Dam Road. The eastern boundary parallels Beaver Dam Road. The Southern Boundary of the Texas Quarry ZOI parallels Padonia Road, and is underlain by several abandoned underground mine shafts.

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