Fairfax County GIS Excellence Awards Ceremony

GIS Day 2009
Wednesday, November 18th

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AGENDA

1. **Opening Introduction**

   Gordon Jarratt
   Enterprise Systems Division Director, Department of Information Technology

2. **Featured Speakers**

   Sharon Bulova
   Chairman of the Board of Supervisors, County of Fairfax Virginia

   Wanda Gibson
   Director of the Department of Information Technology & Chief Technology Officer

   Tom Conry
   GIS & Mapping Services Branch Manager

3. **Presentation of Awards**

   Sharon Bulova, Wanda Gibson, & Tom Conry

4. **Closing**

GIS Excellence Awards
November 18th, 2009

The use of GIS technologies in the County has led to the work that you see posted in the hallways, on display by the exhibitors, and honored here at the GIS Excellence Awards.

As part of the GIS Day celebrations, the GIS Excellence Awards are given annually for outstanding uses of GIS technology by Fairfax County employees and agencies. The awards were created to recognize and celebrate those County employees and agencies which are effectively and innovatively using GIS technology. This year, over 50 submissions were received for the seven categories of recognition.

The awards have two categories recognizing individual and/or team accomplishments and 5 categories recognizing agency accomplishments. The following page lists the new categories and their descriptions.

The awards were determined by a judging panel which included representatives from the George Mason University Department of Geography, Northern Virginia Community College, and the Environmental Systems Research Institute (ESRI).

2009 GIS Excellence Award Categories

Individual/Team Categories
FIRST, SECOND, AND THIRD PLACE AWARDS FOR EACH CATEGORY

Best GIS Cartographic Product/Presentation
This award is intended to showcase the power of GIS tools in creating accurate, instructive, and visually-pleasing maps. Criteria used to evaluate the entries include:
- clarity of purpose and intent
- success in clearly explaining spatial concepts
- visual balance and appeal
- inclusion of necessary map elements and conventions

Best Use of GIS for Analysis
This award is intended to showcase the power of GIS tools in undertaking sophisticated spatial analyses that aid County operations and answer significant questions. Criteria used to evaluate the entries include:
- complexity of analysis
- ingenuity of GIS methods for answering analytical questions
- project benefits to a team or department
- effective demonstration of the information and insight gained (e.g., diagrams, maps, presentations, reports, text)

Agency Categories
ONE AWARD PER CATEGORY

Best Use of GIS on the Web
- Presented to the agency with the best use of GIS interactivity, maps, and/or data on the internet or County intranet

Best Use of GIS for Public Outreach
- Presented to the agency with the best use of GIS to serve the public in such items as map documents, customer service operations, press relations, and public events

Most Significant Data Contributor
- Presented to the agency that has created or refined the most significant spatial data for the County

Best GIS Integration or Application Development
- Presented to the agency that has integrated GIS into their operations to the greatest degree and/or has created a significant GIS software application

Most Significant Progress
- Presented to the agency that has demonstrated the most progress in their use of GIS over the past year

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Best GIS Cartographic Product/Presentation
Individual/Team Awardees

Third Place
Reston Master Plan Special Study Exhibit
Buddy Rose, Pat Rosend, Andy Galusha, Sandy Stallman
Park Authority
The map was created to show existing conditions of the Reston master plan study area for park planning. Existing parks, trails, and property boundaries were combined with the proposed locations of the Dulles line extension metro stations. The map's muted color scheme provided a pleasing aesthetic.

Second Place
Fairfax County Featuring Local Attractions
Krystal Workman
Department of Housing & Community Development
Responding to a request from Visit Fairfax and Chairman Sharon Bulova's office, Krystal created an artistic map of the County highlighting local attractions to be framed in the chairman's office. The map was created in ArcGIS and finished (color, fade, and shadow effects) in Adobe Illustrator. Detailed icons of the various attractions were overlaid on the map, and the Fairfax County seal, compass rose, and scale bar were all "hand drawn" to maintain a consistent look and feel throughout the entire map.

First Place
Fairfax Connector - North & West County Bus System
Mike Demmon, Shari Crane
Department of Transportation
With the first system maps ever created for this section of Fairfax County for the Fairfax Connector bus service, these maps clearly denote Connector routes, Park & Ride locations, and other points of interest. Mike and Shari were presented with a difficult cartographic challenge to display a complicated network of routes; some road segments contain 15 bus routes. A judicious use of symbolic hierarchy, a pleasing and distinctive color palette, and well placed annotation created a rich, effective, and easy to understand map.

Best Use of GIS for Analysis
Individual/Team Awardees

Third Place

Domestic Incidents in Fairfax County (2007-2009)

Camie King

Police Department

This analysis project was completed to raise awareness about domestic incidents in Fairfax County for *Domestic Violence Awareness Month*. Using a combination of a map display and variety of charts, the poster analyzed the occurrence of domestic violence incidents in Fairfax both spatially and temporally. The project used graduated symbols to denote which locations had multiple incidents in the 2-year study period so that clear areas of clustering are apparent in the map. The map does a fine job of marrying GIS and time analysis to provide a robust analysis of the issue.

Second Place

Length and Estimated Age of Stormwater Infrastructure by Subdivision

Keith Appler

Department of Public Works and Environmental Services, Stormwater Management

This project was the initial analysis to support future planning for inspection and replacement of stormwater infrastructure maintained by Fairfax County. Since construction information was not widely available for the stormwater network, it was determined that the completed stormwater easement dataset could be used to derive an estimated age for much of the stormwater infrastructure within subdivisions. The length component was derived by summing the length of pipes and culverts within each subdivision. The estimated age was calculated using the centroids (middle point) of stormwater easement polygons to create a raster surface of the easement effective/granted dates. The two components were weighted to produce detailed County-wide map. The project helped quickly target areas where high mileages of pipe may have already reached their service lifetime so future steps could be taken.

First Place

Herndon Fire Station Alternatives: Emergency Response Performance Analysis

Keg Good, Laurie Stone, Elizabeth Wagner, Eric Fisher

Fire & Rescue Department

In response to the increased load for the Herndon fire station, GIS was used to analyze potential new sites for a larger station. Several GIS-based analyses were performed to determine the operational impact of a relocation: population density, "four minute" travel areas, and locations of past incidents. The analysis led to the conclusion that increased capacity at the current site would best meet service needs of the community. The conclusion led to the application of a construction grant and savings of millions of dollars from avoiding the land cost of a new site.

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Best Use of GIS on the Web
Agency Winner

New Office of Community Revitalization and Reinvestment Website
Office of Community Revitalization and Reinvestment
Adam Kelly

The Office of Community Revitalization and Reinvestment launched its new website in May 2009. GIS maps are an integral part of the site. The site offers a variety of static maps as well as links to GIS applications like My Neighborhood, iCare, and LDS--all directly from the home page. Static PDF maps can be accessed through the maps tab using a clickable overview map, or in each Revitalization District/Area web page. Additional maps are being added frequently, and staff is currently developing an interactive map for the site. Hosting these maps on the web provides a geographical context for people interested in revitalization in the County.

Best Use of GIS for Public Outreach
Agency Winner

Fairfax County Elementary School Students Who Speak a Language Other than English at Home
Department of Systems Management and Human Services
Daphne Sawyer

Fairfax County Public Schools information indicates that 44 percent of all elementary school students spoke a language other than English at home as of May 2009. These households containing elementary students who speak languages other than English at home form a very diverse group with more than 100 different languages being spoken. In an effort to assist the U.S. Census Bureau in the placement of enumerators with various language skills in Fairfax County, maps were created with data from Fairfax County Public Schools to show the concentration of elementary school students who speak languages other than English at home. The initial maps were expanded to include other languages, language families and language groups by geography that are common in Fairfax County. These maps have been shared with Fairfax County Public Schools, U. S. Census Bureau, and are also available on the Fairfax County Internet for the public. This compilation of maps has been created from the 19 original maps and contains a total of 49 data frames with geography of Fairfax County and beyond.

Most Significant Data Contributor
Agency Winner

Enhancing a Routable Centerline for Enterprise GIS
Fire and Rescue Department
Keg Good, Eric Fisher, John "Cliff" Berner, Elizabeth Wagner

The Fire and Rescue Department (FRD) committed extensive resources to improve the enterprise centerline. Routable street networks have always been important to the FRD because of the business emphasis on response times. Previous to this initiative, the department maintained its own street centerline with speed limits, but it was time consuming and not as accurate as desired. With the County's adoption of the Intergraph Computer Aided Dispatch (CAD) System, there was a need for an improved routable centerline. Streets were driven by light-duty firefighters, information was collected, vehicle drivers in the fire stations were interviewed, and GIS analysts made attribute changes & forwarded geometry changes to the GIS team responsible for the centerline. The improvements to the centerline included adjusting speed limits to match signage and correct data errors; locating street connection problems of unconnected streets and yet to be built streets; adding data for impediments to travel such as restrictions, gates and traffic calming devices; and adding one-way data. In the last year, FRD has verified or reviewed over 4,200 miles of roadway used for Public Safety. This constitutes 58% of the total roadway that can be used for routing

Most Significant Progress
Agency Winner

Department of Planning and Zoning
Daniel White

The Department of Planning & Zoning (DPZ) has made significant strides in the creation and use of three-dimensional GIS data. DPZ has moved from a CAD-based system for creation of massing models (3D form and proportions of an architectural design or) of development sites to a more efficient GIS-based method visualizing and quantifying proposed building structures. Built using ArcGIS, SketchUp and Google Earth, massing models of a site can be manipulated to control parameters such as floor area ratio, bulk plane angles, setbacks, etc. These models were created to help DPZ planners illustrate what a proposal includes and to help them make more informed determinations about a proposed site.

Best GIS Integration or Application Development
Agency Winner

CAD/RMS for Fairfax County Public Safety Agencies
Department of Public Safety & Communications, Police Department, Fire & Rescue Department, GIS & Mapping Services
Tim Menda; Chris Gao; Jeff Gallagher; Eric Fisher; Katherine Good; Judy Lamey-Doldorf; Greg Thomas; Diane Bentley

On October 4, 2009, Fairfax County began receiving 911 calls on a new Computer Aided Dispatch (CAD) system. Nearly 4 years ago, members of the County's public safety and IT communities met to lay the ground work for selecting and implementing a new CAD system. It was determined the core criteria of a new system was the ability to have Automatic Vehicle Location (AVL) and Automatic Vehicle Recommendation and Routing (AVRR.) The new CAD system also had to have an integrated map with user selectable layers. The current system at that time had no AVL, no AVRR and a mapping feature with little user functionality. Data maintenance with the old system involved no other agencies and lacked the positional and attribute accuracy of the enterprise GIS. This new system would require the integration of multiple GIS layers and the involvement of five County agencies including the Police Department, Fire & Rescue Department, Sheriff's Office, Department of Public Safety Communications and Department of Information Technology (DIT.)

Behind CAD AVRR is a strong, routable street "centerline". The centerline must contain information such as speed limits, address ranges, jurisdiction information, and movement impediments to ensure proper routing functionality. The County GIS office spent months creating, preparing and refining their new centerline network transportation model to prepare it for use in the CAD system. Members of the Police Department, Fire & Rescue, Public Safety Communications and DIT met to ensure the centerline would meet the needs of users and allow County Police, Fire & Rescue and Sheriff vehicles with AVL to be recommended and routed to the events nearest them.

Event locations along with police cruisers, fire engines and ambulances are visible on the CAD map. The CAD map functions similar to any GIS application. Users have the ability to pan, zoom, turn layers on and off and click and select units and events; something the old system could not do. The map includes the centerline and point addresses as well as many reference layers. These reference layers include hydro features, parks, pavement layers, parcel boundaries, building footprints, rail lines, tax grid, ADC grid and emergency service zones (ESZ.) The

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ESZ's are polygon boundaries that determine which Police or Fire station area the event occurs in. Each Public Safety agency creates and maintains its own ESZ layer as well as other agency specific GIS layers like fuel depots for police and hydrant locations for fire.

All of the various layers and AVRR functionality come together in the CAD system. When a 911 call comes in, the address of the event is entered and the event created on the map. Once the event type is determined, the system makes a response recommendation to the operator based on the unit closest to the event on the centerline routing network. This information gets passed to the closest unit, which is then provided the route to the event. This new CAD process equals faster response times; that means more lives saved and better protection for the citizens of Fairfax County.

Complete List of
Excellence Award Entries

GIS Cartographic Product/Presentation

West County Bus System Map– Mike Demmon, Shari Crane; DOT

Fairfax County Featuring Local Attractions– Krystal Workman; HCD

Reston Master Plan Special Study Exhibit 2: Parkland and Schools– Buddy Rose, Pat Rosend, Andy Galusha, Sandy Stallman; FCPA

Orr Drive: Storm Sewer vs. Sanitary Sewer– Chip Galloway, DPWES-MSM

Park Athletic Fields Map with Major Field Complexes– Buddy Rose, Lynne Johnson; FCPA

Mount Vernon Planning District Connections & Points of Interest – Buddy Rose, Pat Rosend; FCPA

Planning Determination Maps -2232 Review – Marsha Collins, DPZ

Map Books for Police Enforcement of Lee CPD – Janet Nguyen, DOT

Presenting our Heritage Resources – Indrani Sistla, Laurie Turkawski, Susan Hellman, Linda Cornish Blank, Chris Havlicek, Harry Rado; DPZ

Vienna Planning District Connections & Points of Interest – Buddy Rose, Andrea Dorlester, Andy Galusha, Sandy Stallman; FCPA

Snow Removal Map – Alex Pathammavong, DPWES-SWM

Pipe Integrity Scale – Lisa Miller, Val Tucker; DPWES-MSM

Right-of-Way Map book – Adam Kelly, OCRR

Fairfax County Elementary School Students who Speak a Language Other than English at Home – Daphne Sawyer, DSMHS

Stream Bank Debris – Chip Galloway, Bill Schell, Gary Much, DPWES-MSM

Emerald Ash Borer monitoring Program – Frank Finch, DPWES-UFM

JEB Stuart Park Master Plan Amendment & 2232 Application – Andy Galusha, FCPA

Analysis of Domestic Incidents in Fairfax County – Camie King, FCPD

Use of GIS for Analysis

Herndon Fire Station Alternatives: Emergency Response Performance Analysis – Keg Good, Laurie Stone, Elizabeth Wagner, Eric Fisher; FRD

Length and Estimated Age of Stormwater Infrastructure by Subdivision – Keith Appler, DPWES-MSM

Analysis of Domestic Incidents in Fairfax County – Camie King, FCPD

Conversion of Raw LIDAR Datasets into DEMs and Contour Generation – Dipmani Kumar, Radwan Idris; DPWES-SWP

Integrating SketchUp and GIS to Model Density – Kimberly Rybold, DPZ

Athletic Field Locations & Types Serving Tysons Corner Study Area – Buddy Rose, Andrea Dorlester, Sandy Stallman; FCPA

Emerald Ash Borer Monitoring Program – Frank Finch, Charles Layton, Joan Allen, Jack Baggett, Sandra Farkas, Steve Jozsa, DPWES-UFM

Employer Outreach – Hot Lanes – Glen Hiner, Mike Demmon; DOT

JEB Stuart park Master Plan Amendment & 2232 Application – Andy Galusha, FCPA

Environmental Assessment Template – Diane Jenkins, HCD

10 Week Burglary Trends – Strategic Reporting – Amisha Amin, FCPD

Resource Protection Zone Map Concept Project – Edmund P. Gavin, FCPA

Craft Road Stormwater – Chip Galloway, DPWES-MSM

Density Analysis of GPS Larcenies from Vehicles: Increases & Decreases 2007 VS 2008 – Simone Engelhardt-Greer, FCPD

Reston Master Plan Special Study; Park Analysis – Buddy Rose, Pat Rosend; FCPA

National Night Out 2009 – Patrick Lucas, Welford Brock, Bret Katinsky, Robbie Clift, Darryl Davis, Patrick Lucas, Darryl Stokley, Sophia Grinnan, Wayne Twombly, Chip Connor, Courtney Thibault, Katy Fernbacher, Chip Cogan, Allie Eggers, Julia Bauer, Pete Feigleson, J.T. Frey, Anne Pollack; FCPD

Use of GIS on the Web

OCRR Website – Office of Community Revitalization & Reinvestment

Web "Clickable" Area Plans Review Maps – Department of Planning & Zoning

Dam Break Inundation Zones - Online – Department of Public Works & Environmental Services - Stormwater Panning Division

Use of GIS for Public Outreach

Fairfax County Elementary School Students who Speak a Language Other than English at Home – Department of Systems Management for Human Services

Analysis of Domestic Incidents in Fairfax County, National Night Out 2009 – Police Department

JEB Stuart Park Master Plan Amendment & 2232 Application, Master Plan special Study: Parks Analysis, Sully Woodlands history Trails Map – Park Authority

All the Way to Chesapeake Bay – Department of Public Works & Environmental Services – Maintenance & Storm Water Management Division

Dam Break Inundation Zones - Online – Department of Public Works & Environmental Services – Stormwater Planning Division

Significant Data Contributor

Enhancing a Routable Centerline for Enterprise GIS – Fire & Rescue Department
Fairfax Connector Routes – Department of Transportation
Conversion of Raw LIDAR Datasets into DEMs and Contour Generation – Department
    of Public Works & Environmental Services – Stormwater Planning Division
Park Athletic Fields with Major Field Complexes – Fairfax County Park Authority

Significant Progress

Creating 3D Massing Models for Site Density – Department of Planning & Zoning

GIS Integration or Application Development

New CAD/RMS for Fairfax county Public safety Agencies – Department of Public
    Safety Communications, Police Department, Fire & Rescue Department,
    Department of Information Technology – GIS & Mapping Services Branch
Integrated parcel lifecycle System (IPLS) Reporting Tool Using Custom Layers –
    Department of Systems Management for Human Services
OnPoint Map Service – Department of Public Works & Environmental Services –
    Maintenance & Storm Water Management Division

List of Department & Agency Exhibitors at the Fairfax County GIS Day Technology Exhibition

Government Center North Atrium, 11 a.m. to 2 p.m.

- Department of Public Works & Environmental Services Agencies
  - Urban Forest Management Division
  - Maintenance & Stormwater Management Division
  - Stormwater Planning Division
  - Wastewater Section
  - Planning & Design Division
- Northern Virginia Soil & Water Conservation District
- Department of Transportation
- Park Authority
- Police Department
  - Crime Analysis
  - Crime Prevention
  - CAD/911 support
- Fire & Rescue Department
- Department of Public Safety Communications
- Office of Emergency Management
- Department of Planning & Zoning
- Office of Community Revitalization & Reinvestment
- Department of Housing & Community Development
- Health Department
- Department of Systems Management for Human Services