

# GIS DAY 2015



## Photo Album





# GIS DAY 2015

## Excellence Awards Ceremony



Awards are given in 11 categories

Tom Conry, GIS & Mapping Services Branch Manager



GIS Excellence Awards ceremony

# GIS DAY 2015



## Awards Ceremony Speakers



Sharon Bulova,  
Chairman of the Board  
of Supervisors



Gordon Jarratt, Enterprise  
Systems Division Director



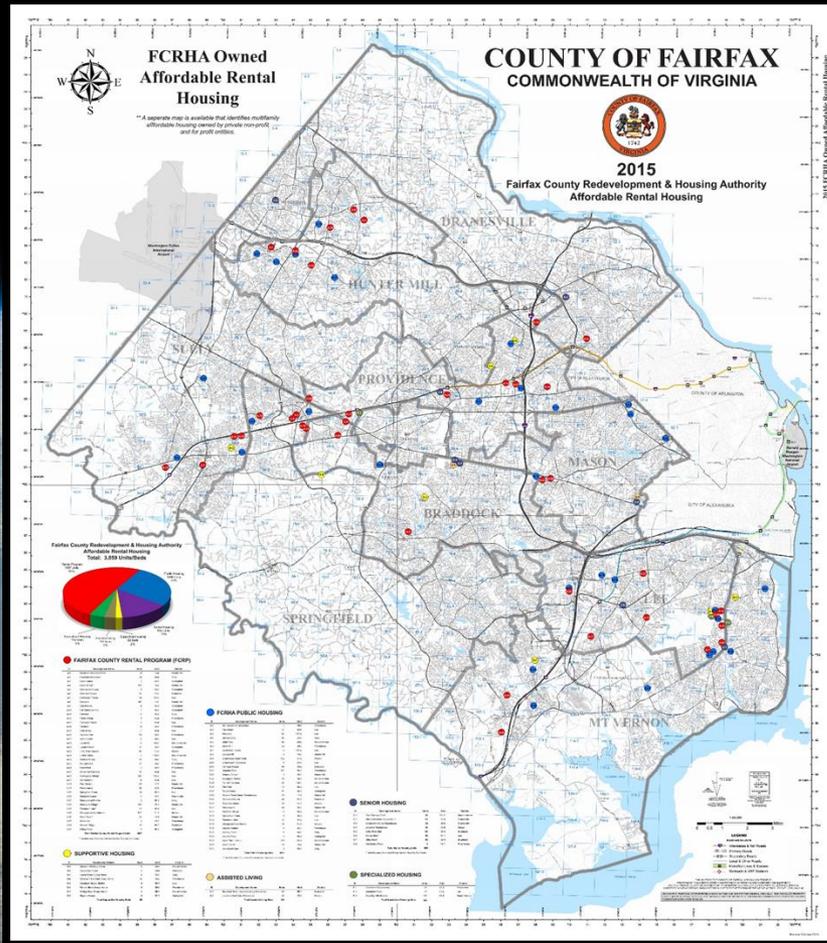
Dave  
Molchany,  
Deputy  
County  
Executive





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Best GIS Cartographic Product/Presentation



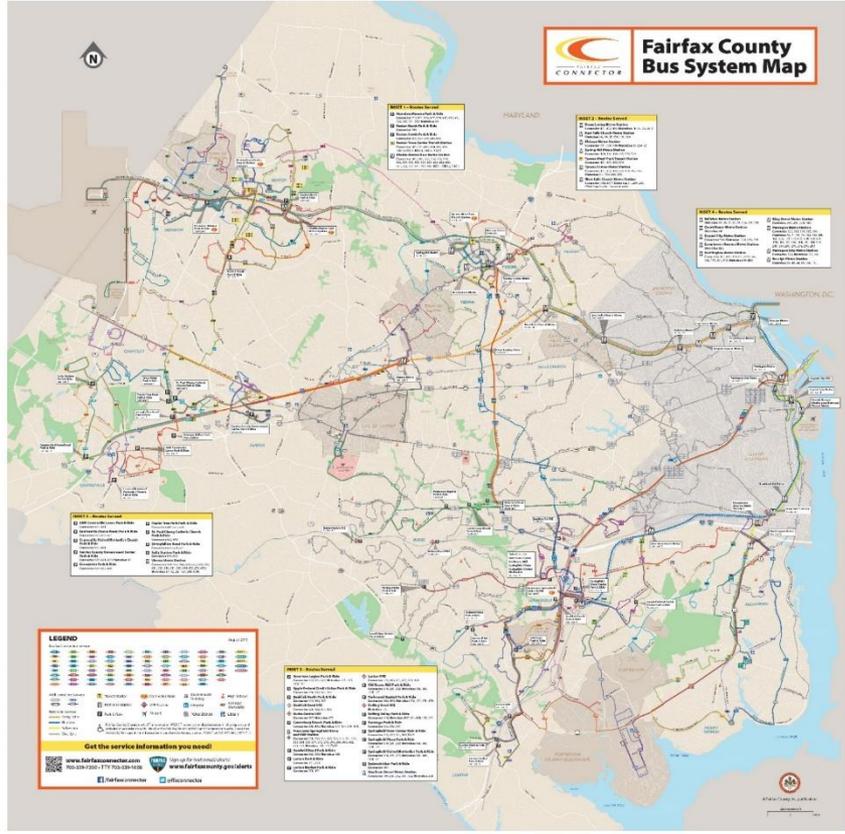
Second place winner - Peter Uhrmacher (Department of Housing and Community Development)



# GIS DAY 2015



Best GIS Cartographic Product/Presentation



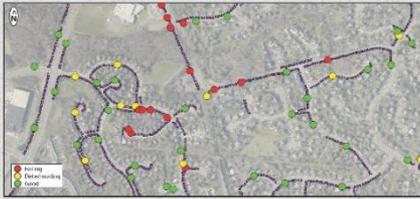
First place winners - Vincent Mendolia, Tom Wampler  
(Department of Transportation)



# ASSIGNING GEOREFERENCED PHOTOS TO WALKWAYS

Automated Photographic-walkway Condition Assessment Assignment Based on Linear Condition Product Ranking.

We obtained 8200 walkway and 486 pedestrian bridge georeferenced photos. These walkway photos were then assigned a condition ratings.



MSMD staff linked the obtained data points and metadata to DPWES walkway asset ID's through the proximity status of each photo. MSMD staff resourced the assessment scores based on summed problem length multiplied by assessed severity.

The process that we used created an integer that represented the calculation of the product of the inverse of contractor severity and length. Assessment rankings were recorded to scale proportionally to damage. Preprocessing was done on walkway points where if a point was greater than 200 feet away from a valid DPWES walkway then that record was removed. Further, if a walkway was given multiple different severity ratings then all of the severity ratings were added. The equation used for the ranking was inverse severity rank multiplied by length where a higher score indicates a greater amount of degradation.

$$\alpha * \beta = \text{Assessed Severity}$$

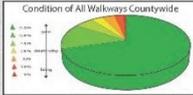
Assessed Condition	Condition Score (α)
Good	1
Deteriorating	2
Failing	3

Length	Length Score (β)
Spot	5
< 25 ft	7
10-25 ft	10
25-50 ft	20
50-100 ft	35
100-200 ft	70
> 200 ft	100

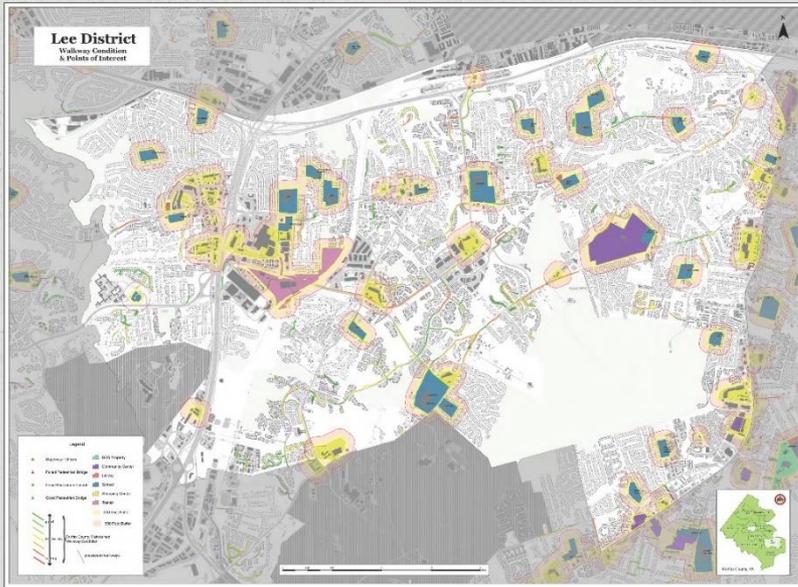


OFFERS GREATER ACCESS  
POPULATED CENTERS  
NEEDS TO IMPROVE  
WALKWAY USED WALKWAYS  
IN URBAN  
NEED OF REPAIR  
CLOSE TO THE NEXT URBAN  
A DETERIORATING WALKWAY  
WITHIN 200 FEET  
OF AN ELEMENTARY SCHOOL



Condition of assessed walkway facilities was translated into a change from when they were last assessed. Assessed walkway condition scores were then translated into scores by year.

MSMD staff made maps showing countywide walkway condition which highlighted the proximity to certain community resources, such as schools, VRE/Metro stations, community centers, and commercial centers.



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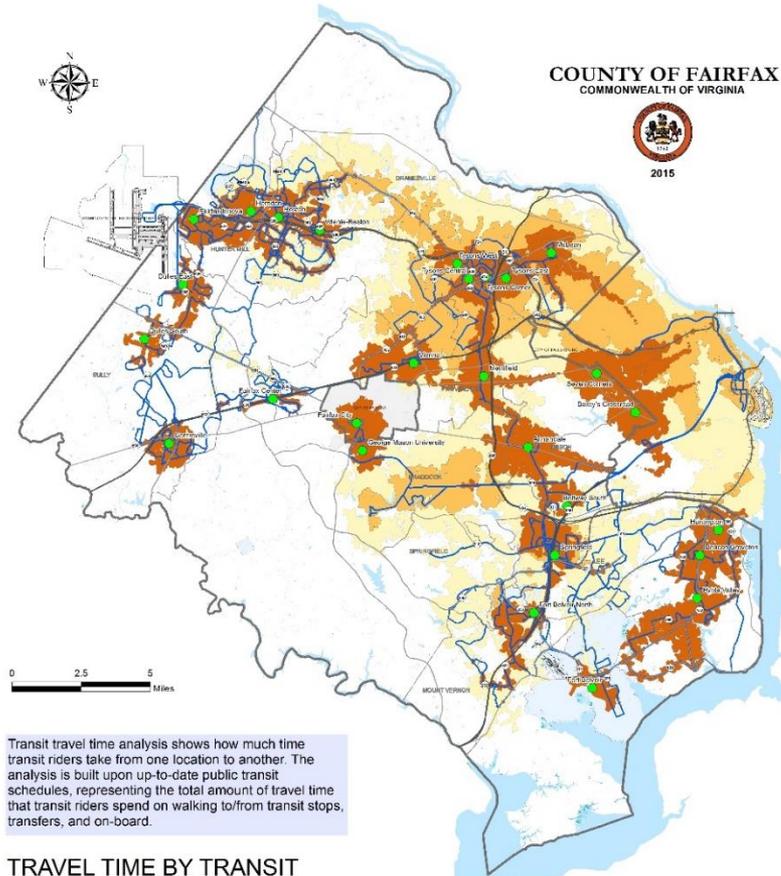
Best Use of GIS for Analysis

Third place winners – Chip Galloway, Andrew Nault, Keith Appler, Shaukat Faheem (Stormwater Management Division of the Department of Public Works and Environmental Services)



# Travel Time to Activity Centers by Transit

9:00 AM Weekday



Transit travel time analysis shows how much time transit riders take from one location to another. The analysis is built upon up-to-date public transit schedules, representing the total amount of travel time that transit riders spend on walking to/from transit stops, transfers, and on-board.

## TRAVEL TIME BY TRANSIT

- Activity Center
- Fairfax Connector Routes
- 30 Minutes to Activity Centers
- 60 Minutes to Tysons Corner
- 90 Minutes to Tysons Corner

First, this map shows the transit-access areas for people using public transportation to get to 27 activity centers within 30-minutes (dark orange).  
Second, using Tysons Corner as an example, the map also shows the 60-minute (orange) and 90-minute (light yellow) commute shed areas.  
This GIS analysis can be used for evaluating the level of transit services in different places, on weekday vs. weekend, or at different times of a day, therefore identifying key improvement areas, in order to move people more efficiently. The analysis can also be used for comparing commute times by transit and drive.

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## Best Use of GIS for Analysis

Second place winner - Hejun Kang (Department of Transportation)







# GIS DAY 2015



## USE OF ARCGIS ONLINE DURING FAIRFAX 2015: THE WORLD POLICE & FIRE GAMES



The 2015 World Police & Fire Games (WPFPG) were hosted by Fairfax County in summer 2015. Nearly 10,000 athletes from 68 countries participated in the games, resulting in over 25,000 visitors to the region.

GIS played a critical role in the games, and ArcGIS Online became a very useful platform for data collection and information sharing.

### Using ArcGIS Online, we were able to:

- Leverage the Special Events Template available via ArcGIS Solutions. By making only slight customizations, we avoided having to set up a special events map from scratch.
- Collect data via Collector; which, after minimal training, allowed non-GIS users involved in WPFPG to collect data.
- Use the Group functionality to collaborate with other agencies, jurisdictions, etc.
- Create and share specific applications developed for Fire & Rescue, Police, and the Board of Supervisors.
- Create and share a situational viewer that was continuously updated with the latest information; for use in the Emergency Operations Center & Games Operations Center.
- Showcase the value of GIS and ArcGIS Online to everyone involved in the games.



Click out  
for app

## PRODUCT EXAMPLES



### Groups

Provided the ability to share data and maps with a select group of users (not just in Fairfax), and keep content organized



### Group Gallery App

A "one stop shop" to access all ArcGIS Online applications developed for the games



### Utilizing the Special Events Template...



### ...and Collector for ArcGIS

Leveraging existing technology/templates saved time! Data collected in the field could be easily used in PDF & online maps



### Situational Awareness Viewer

Provided access to data services related to the games. Always reflected latest schedule/venue changes. End user could query data, change basemap, zoom to venue location, print, etc.



### Specialized Applications

Allowed for easy data filtering by area & date



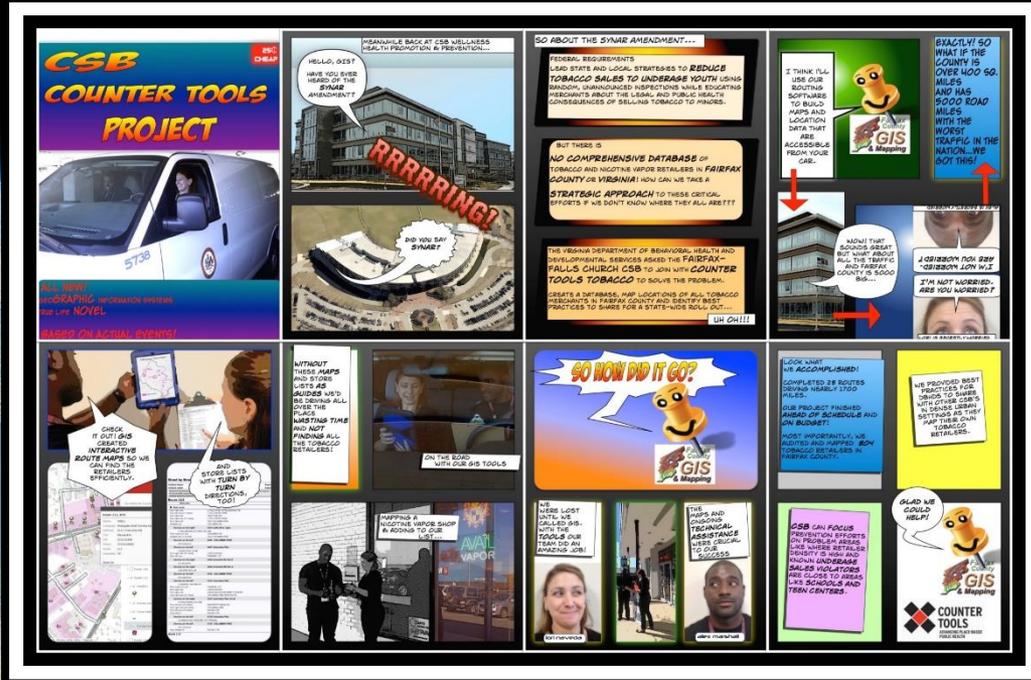
Author: Quality Division, Fairfax County Fire & Rescue Department. Special thanks to Judy Lantry, Deborah Eric Fisher, & Ben Omgene.

## Agency Awards

Best Use of GIS on the Web – Fire and Rescue Department



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## Agency Awards

Most Significant Data Contributor - Community Services Board



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## Fairfax County Fire & Rescue Department: Safety in Our Community (SIOC) Program



The Fire & Rescue Department (FRD)'s Safety in Our Community (SIOC) program is a community outreach program that began in June 2013. SIOC embraces the FRD mission of "Preventing the 911 Call" by ensuring that residences in Fairfax County are equipped with information and supplies necessary to help protect them in the event of a fire or other emergency. As part of the program, firefighters go door-to-door, educating residents and installing smoke alarms, carbon monoxide alarms, and batteries in homes across the county.



### SIOC: History

Historically, SIOC activities were documented using pen and paper. Addresses and data were written on a paper form, and this information was later transcribed into digital format. Any mapping of the activities was done through geocoding; however, obstacles such as spelling mistakes, transcription errors, etc. made this process cumbersome and inefficient.

### The search for a mobile GIS solution!

The SIOC program is inherently geospatial. Attributes are collected at addresses – making the program the perfect candidate for a GIS-based field data collection solution. In 2015 we set out to find this solution:



**Potential Solution 1:** Collector for ArcGIS seemed like a great idea. All of our stations have at least 1 iPad to access to the app. However, we could not overcome the "named user problem" - i.e., we do not have enough named user accounts or the financial resources to obtain enough accounts to allow for data collection throughout the county.



**Potential Solution 2:** The Emergency Data Gathering Repository (EDGR) – an in-house, Fairfax County solution developed by the Department of Information Technology (DIT). EDGR is used for field data collection in the form of Windshield Surveys, so we brainstormed on how the application could be applied to SIOC. After meeting with DIT, we decided that EDGR was the perfect solution for SIOC.

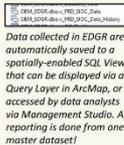
### EDGR for SIOC: How does it work?

EDGR is available to FRD employees and is accessible on any device that has a browser and an internet connection. The application was loaded as an app onto each station's iPad for ease of use.

**Step 1. Log-in to EDGR, type in the address you are visiting.**

**Step 2. Record SIOC activities.**

**Step 3. Retrieve and analyze data.**



EDGR verifies the address and determines the XY location of each entry by querying a customized map service provided by DIT-GIS.

Authors: Fairfax County Fire & Rescue Department (Maura Ardike, Eric Fisher, Shelby Zelonis, Ian Gregoire, Bill Betz). Special thanks to Karen Robal in DIT for her work on EDGR!

### SIOC & EDGR in action

In March 2015, EDGR for SIOC was deployed. Data collection via iPads is easier than ever.

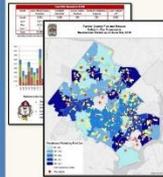


EDGR uses domains and other restrictions on fields, so data collection errors are few and far between.

### Displaying and reporting the results: Product examples

Because the collected SIOC data is accessible to the FRD via a spatially-enabled SQL View, retrieving, displaying, and analyzing the data is simple and efficient. No more manual transcribing and geocoding!

#### System-wide reports



#### Data Driven Pages: Reports by Fire Box



#### Web Mapping Application in Development



ArcGIS Online allows for up-to-the-minute reporting via a link to the SQL database.

**Documenting Saves!** Easy data access/ reporting allows us to tie our incident data to SIOC activities.

### Conclusions

Finding a mobile GIS solution for SIOC has revolutionized the program. Through this process we were able to:

- Leverage existing county technology (EDGR) for a cost-efficient transformation
- Eliminate large sources of error through mobile data collection and automatic address verification; no more data transcription and ArcMap geocoding
- Provide a direct link between the data collected and the data analyzed via MS SQL Server: now Data and GIS Analysts all access, analyze, and report from the same data source, eliminating potential confusion, copies of data, and sources of error. These data can also be linked with our incident data to document lives saved by SIOC.

## Agency Awards

Best GIS Integration or Application Development – Fire and Rescue Department





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## Human Services Environment in Reston

This report brings together Human Services-focused census and county data to support decision-making about the Reston Town Center North redevelopment project. The data are organized by the focus areas that guide the county's Human Services work as a way to highlight certain program goals and at-risk populations.



### Current Human Services Assets in Reston

#### Economic Self-Sufficiency



#### Positive Living for Older Adults and Individuals with Disabilities



NONPROFIT ASSETS	
1	Carroll Area Job Store
2	Farmer's Market
3	Center Ridge Community Resource Center
4	Christ Fellowship Church
5	Compassion (Services)
6	Embry Rucker Community Shelter
7	Faith
8	Faith
9	Horner Woods Fellowship House
10	Lake Anne Fellowship House
11	Laura Leaning Center (Counseling)
12	LINC
13	Reston Community Church
14	Reston Drop-In Center
15	The Closet of Hampton
16	Wheatster Solutions
17	YMCA - Reston
18	NOVA Medical Facilities
HOUSING ASSETS	
19	Center Ridge Comm. Resource Center
20	Center Ridge/Forest Edge Community Center
21	Discount Apartments (COP - Men and Women's Health)
22	DRAP Protection Services
23	DRAP Self-Storage
24	Embry Rucker Shelter
25	FOPD Reston Station
26	Horner House Housing
27	Health Department Clinic
28	Healthworks FQHC
29	Horner Neighborhood Resource Center
30	Horner Senior Center
31	Island Walk Housing Resource Center
32	Lake Fairfax Park
33	Reston Comm. Ctr (2)
34	Reston Care Apartments
35	Reston Regional Library
36	Stokewood
37	Southington Comm. Ctr
38	Stonington Village
39	Teen Ctr at Hushouse ES
40	West Oaks Apartments
41	YMCA - Reston (Teen Center)
42	YMCA - Reston (Teen Center)

#### Healthy People



#### Connected Individuals



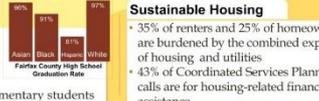
A key factor in Human Services planning is the location and types of services available to at-risk populations. This asset map, populated with Human Services Resource Guide data, shows the location of current services offered. Does the distribution of services align with current and future need as detailed in the accompanying information?

#### Successful Children and Youth

- Disparities in educational attainment
- 28% of Fairfax County students receive free and reduced meals
- 78% of Reston's Dogwood Elementary students

#### Sustainable Housing

- 35% of renters and 25% of homeowners are burdened by the combined expense of housing and utilities
- 43% of Coordinated Services Planning calls are for housing-related financial assistance



## Agency Awards

Most Significant Progress - Department of Neighborhood and Community Services



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## Excellence Awards Gallery Reception



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