

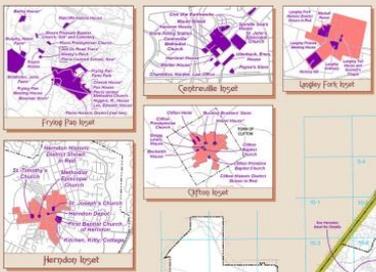
GIS EXCELLENCE AWARDS 2010



Fairfax County, Virginia

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Inventory of Historic Sites

Fairfax County
History Commission



CARTOGRAPHIC CATEGORY

First Place

Inventory of Historic Sites Map
Harry Rado, Indrani Sistla, Laurie Turkawski, Linda Cornish Blank, Greg Chase
 Department of Planning & Zoning, Planning Division

Map prepared for the Fairfax County History Commission by the Department of Planning & Zoning April 2010

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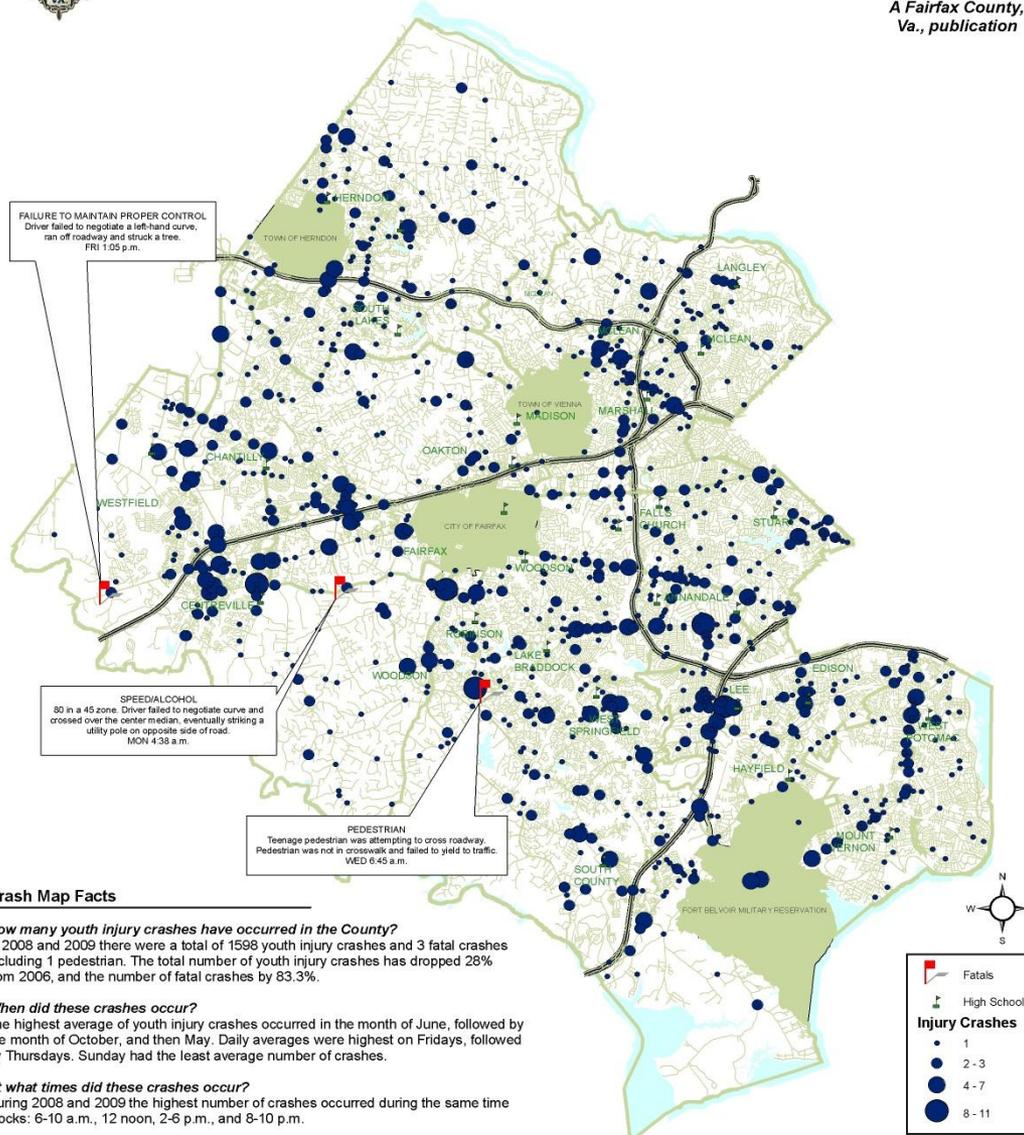
Youth Crash Map

Injury and Fatal Crashes Involving Drivers 15-20 Years of Age

Includes Crashes Occurring Within Fairfax County from 1/1/2008 to 12/31/2009



A Fairfax County, Va., publication



Crash Map Facts

How many youth injury crashes have occurred in the County?

In 2008 and 2009 there were a total of 1598 youth injury crashes and 3 fatal crashes including 1 pedestrian. The total number of youth injury crashes has dropped 28% from 2006, and the number of fatal crashes by 83.3%.

When did these crashes occur?

The highest average of youth injury crashes occurred in the month of June, followed by the month of October, and then May. Daily averages were highest on Fridays, followed by Thursdays. Sunday had the least average number of crashes.

At what times did these crashes occur?

During 2008 and 2009 the highest number of crashes occurred during the same time blocks: 6-10 a.m., 12 noon, 2-6 p.m., and 8-10 p.m.

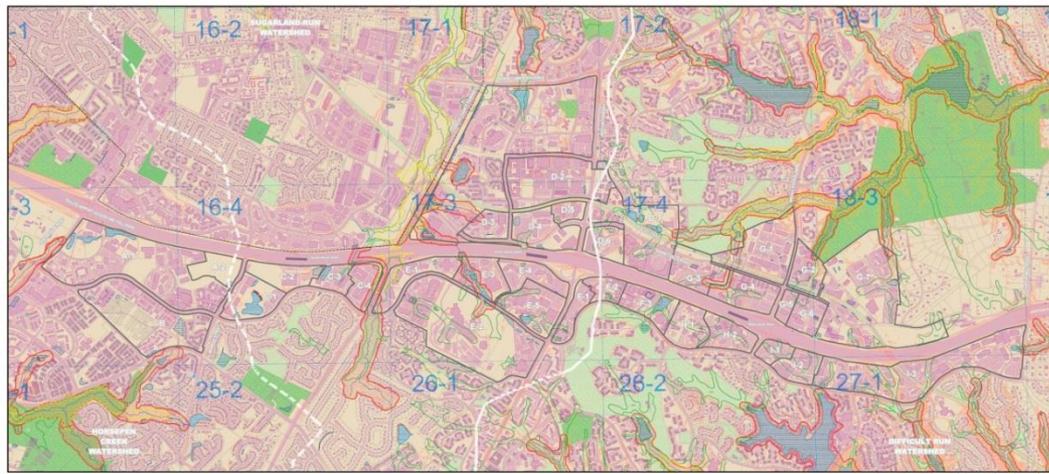


CARTOGRAPHIC CATEGORY

Second Place

2008-2009 Youth
Crash Map
Brandi Horita
Fairfax County
Police Department,
Operations Support
Bureau

CARTOGRAPHIC CATEGORY



Environmental Features
Reston-Herndon
Suburban Center
Fairfax County, Virginia



Environmental Mapping

Reston Master Plan Special Study

The purpose of this GIS map project is to provide to the Reston Master Plan Special Study Task Force the best available GIS information on existing environmental conditions inside the Reston-Herndon Suburban Center. The task force is comprised of Reston area residents and landowners, and will provide citizen guidance to the Department of Planning and Zoning and the Board of Supervisors on future development in the Reston area.

Two maps were prepared. The first map, **Environmental Features**, presents fifteen separate thematic elements. These elements were created using Arc Toolbox tools either by developing new shapes or by definition queries of existing GIS data. These thematic layers are portrayed in combination with several additional base map layers. Much care was taken to ensure a legible final map. The greatest difficulty was finding appropriate patterns and colors to allow an easy read of the thematic information.

The second map is **Ground Cover Analysis**. The land area was assigned to a five-category scheme suggested by the land use planners. The polygons were created by photo interpretation of the infrared aerial, introducing an analytic component to the project. Arc Toolbox tools were used extensively to achieve good fit on the coverages.

The final maps will be published both on-line and at a scale of 1 inch = 600 feet as paper plots. ■

Third Place

Environmental Mapping - Reston Master Plan Special Study

**Harry Rado,
Heidi Merkel,
Faheem Darab,
Richard Lambert,
Sandi Beaulieu**

*Department of
Planning &
Zoning, Planning
Division*



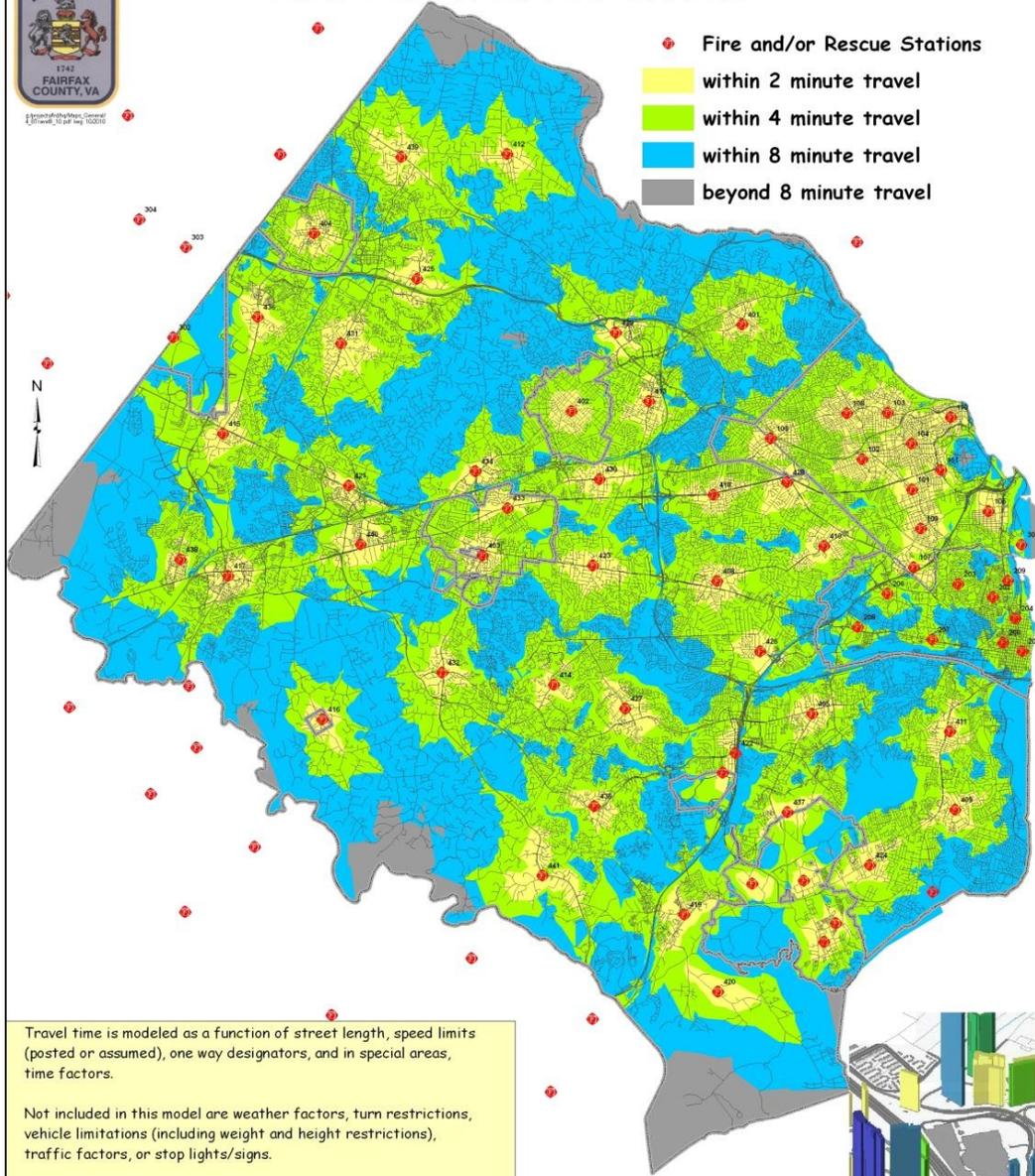
Ground Cover Analysis
Using Infrared Orthophotography
Reston-Herndon
Suburban Center
Fairfax County, Virginia





Travel Time from Fire Stations

- Fire and/or Rescue Stations
- within 2 minute travel
- within 4 minute travel
- within 8 minute travel
- beyond 8 minute travel



A major component of measurable statistics for the Fire and Rescue Department is response time. One component of response time is travel time. Travel time is the time from acknowledging an emergency call at the unit level to arriving onscene.

National standards produced by the National Fire Protection Association (NFPA) designate specific resources (certified people and apparatus) to meet travel times on specified incident types. Frequent measures of travel time are 4 minutes and 8 minutes.

This map models 2, 4, and 8 minute travel times along streets using the best available data.

The 2 minute travel time is in planning stages as a benchmark for vertical communities. In high rises, measuring time only when arriving onscene does not give a true picture of when a fire floor or patient's side is reached. A 2 minute travel time is under review with the proposed development in Tysons Corner.

Travel time is modeled as a function of street length, speed limits (posted or assumed), one way designators, and in special areas, time factors.

Not included in this model are weather factors, turn restrictions, vehicle limitations (including weight and height restrictions), traffic factors, or stop lights/signs.

Mutual aid fire station's travel times are included when their travel time overlaps into Fairfax County. The complete travel time polygons are not shown because the model did not include all roads outside Fairfax, Arlington, and Alexandria.

Map reflects data for Computer Aided Dispatch effective November 2010 (centerlines as of September 2010).



ANALYTIC CATEGORY

First Place

Travel Time from Fire Stations
Keg Good
 Fire & Rescue Department, Information Technology Branch

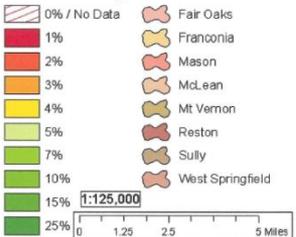
Percent Coverage Map



The map shows the percent of time that 810B and 811B spent in each ESZ. Percents were calculated by taking the total count of AVL points that fell inside each ESZ and divided by the total AVL points.

Police ESZs Police_Station_Area

Percent Coverage Station Names

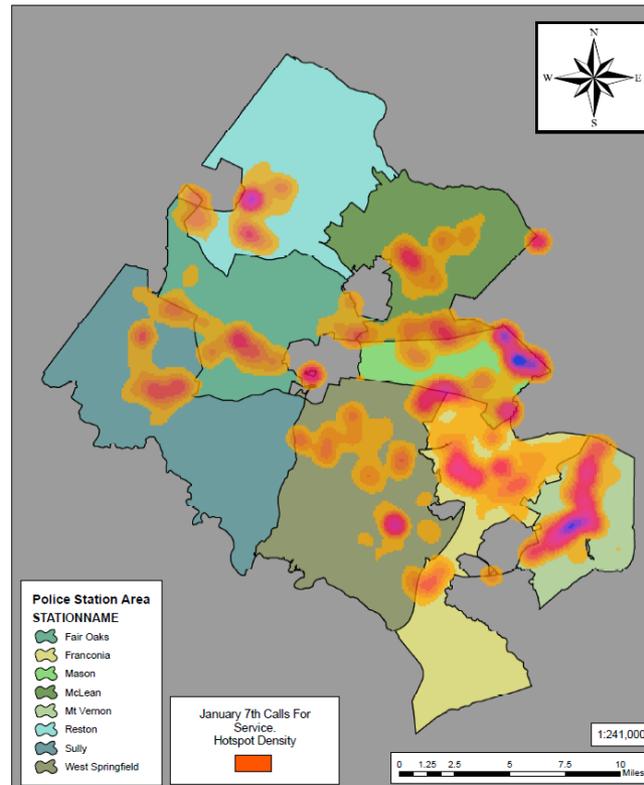


ANALYTIC CATEGORY

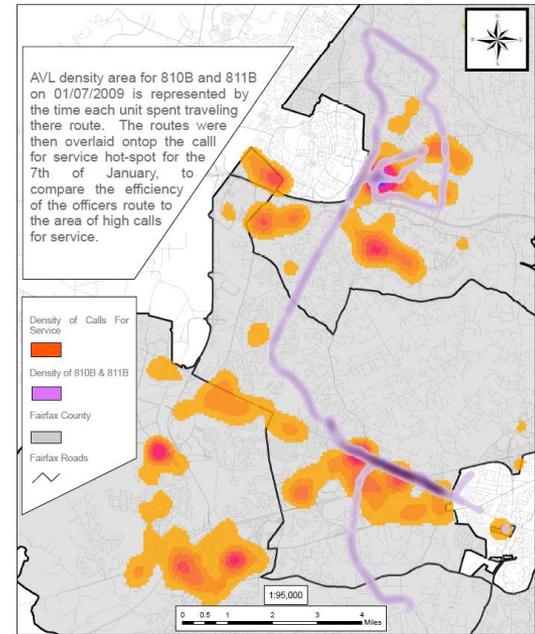
Second Place

Usage of AVL data to Determine Effectiveness of Fairfax County Patrol Officer Routes
Jeff Gallagher
Police Department, Information Technology Bureau

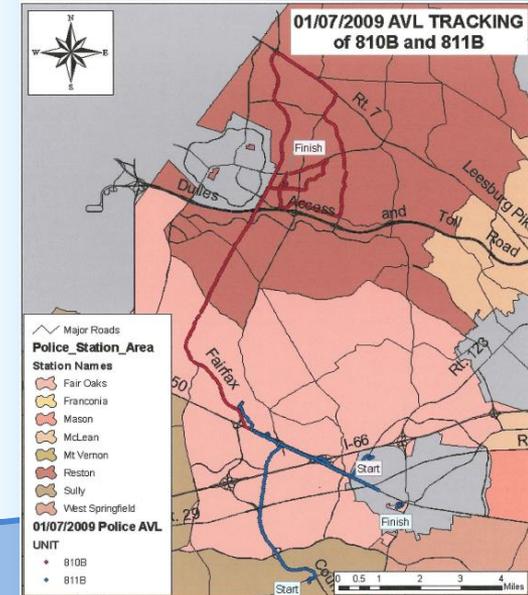
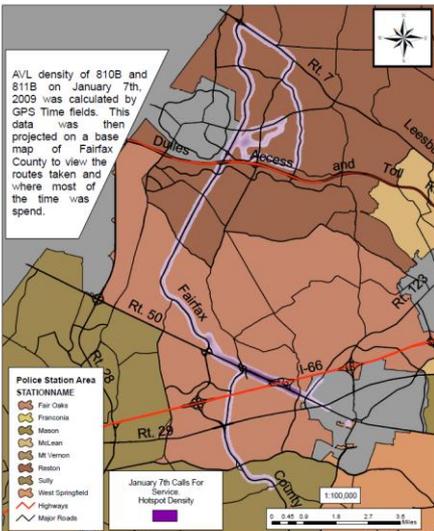
Fairfax County Calls For Service Hot Spot Map For January 7th, 2009.



January 7th 2009 Map of Calls For Service Density In Relationship With 810B and 811B AVL Density within Fairfax County



Density Map From the 01/07/2009 AVL Tracking of 810B and 811B

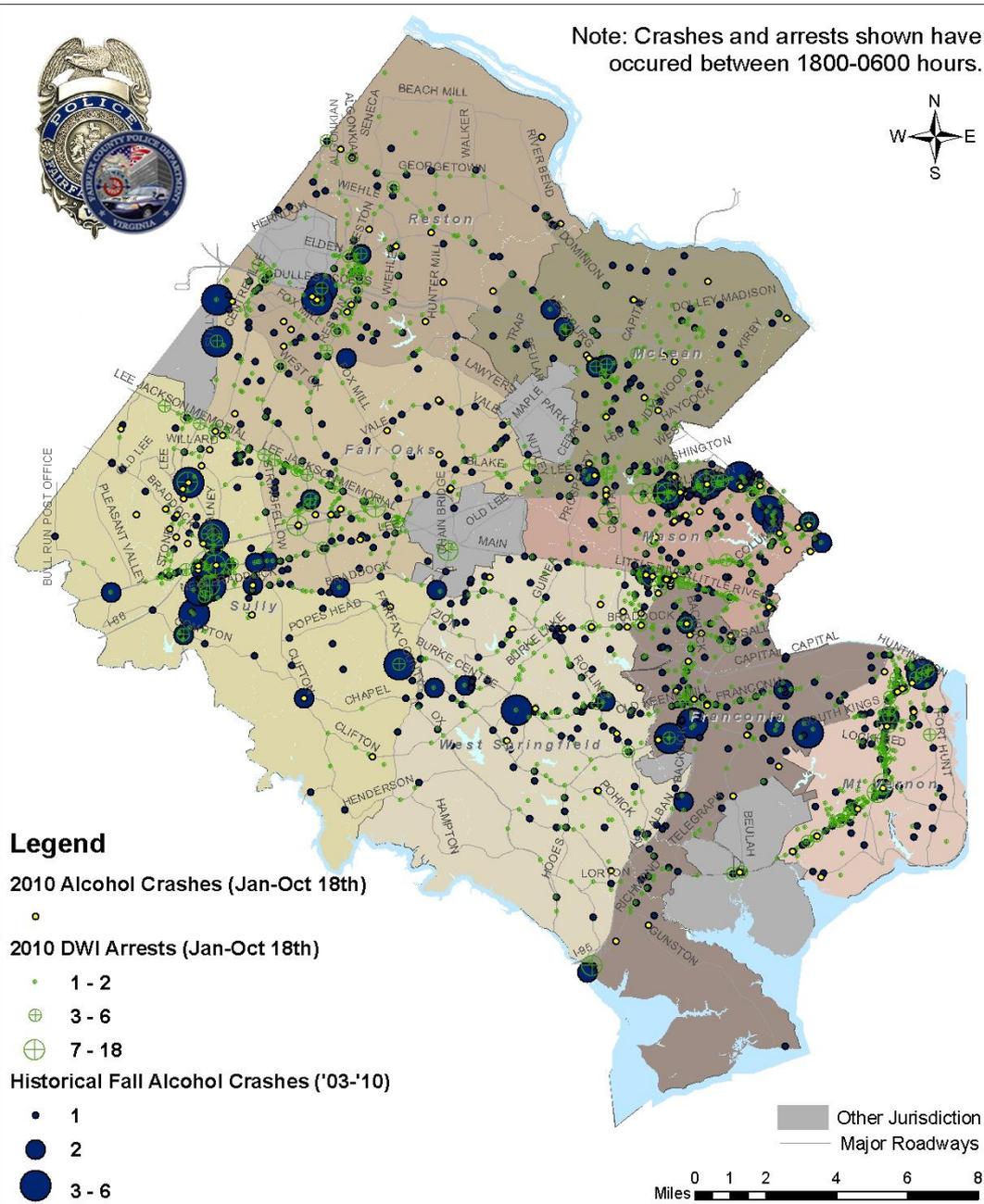
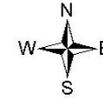


Halloween Weekend DUI/DWI Directed Patrol

ANALYTIC CATEGORY



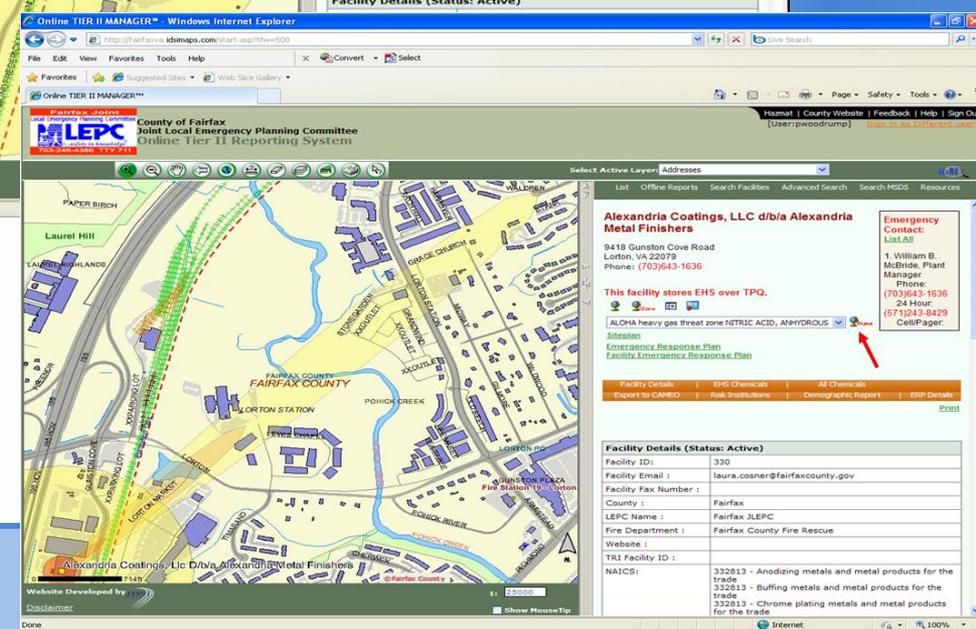
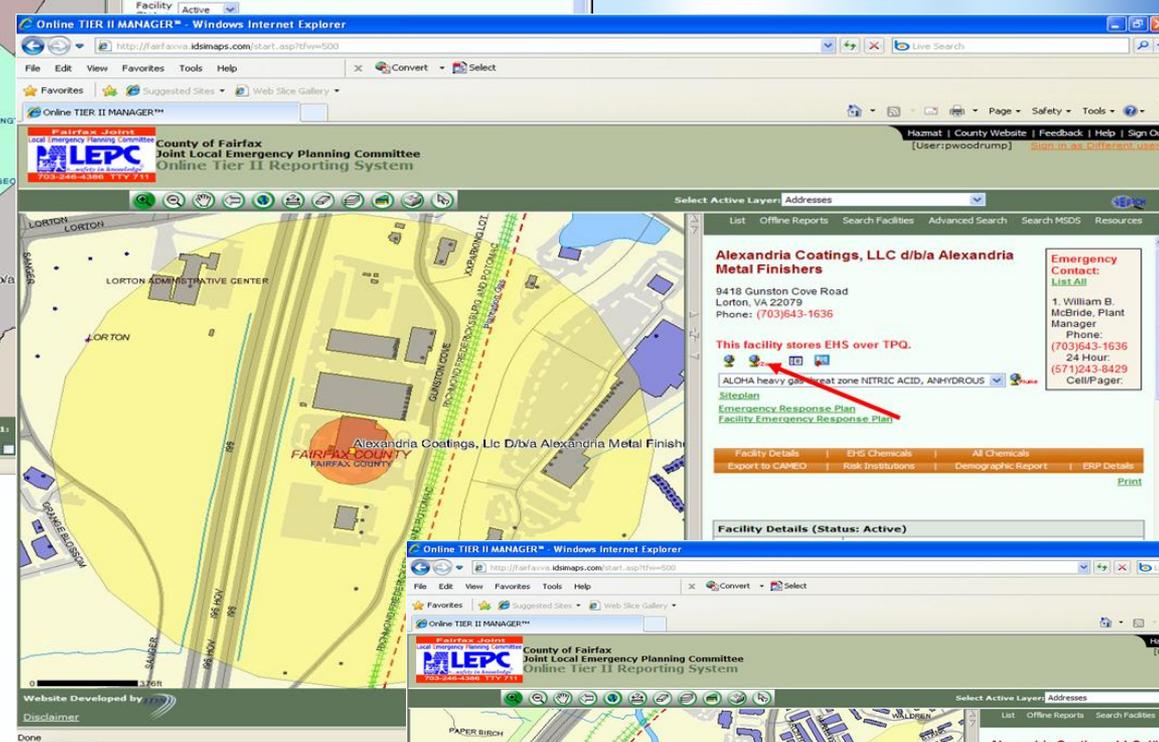
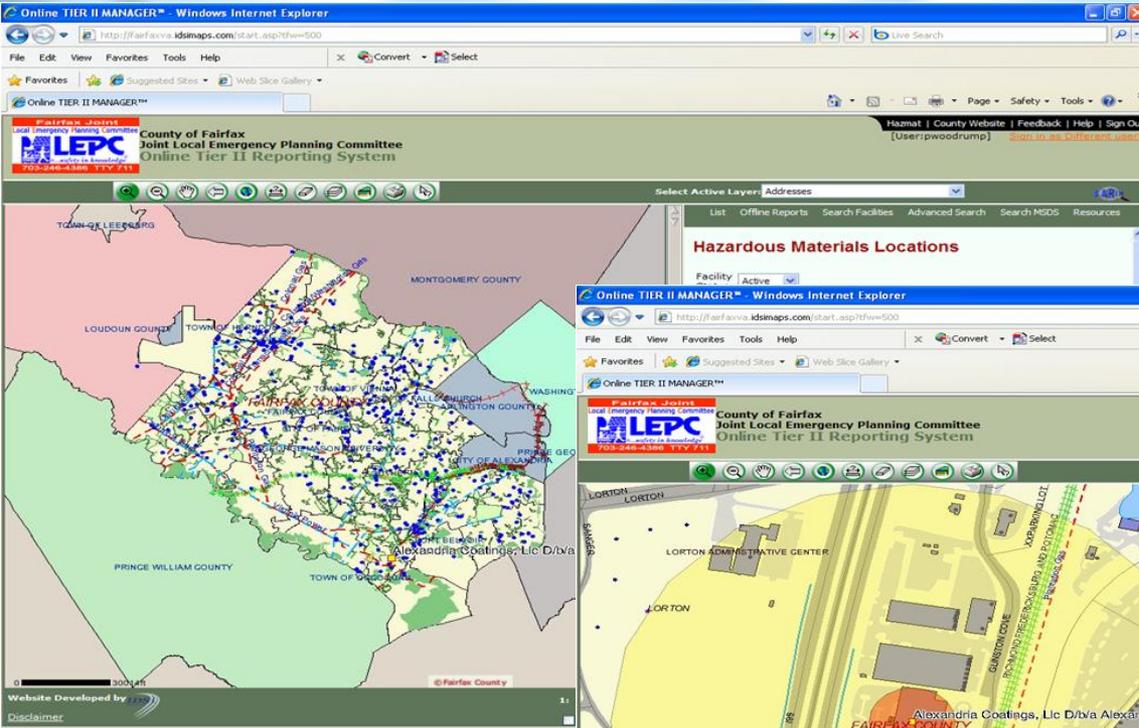
Note: Crashes and arrests shown have occurred between 1800-0600 hours.



Third Place

Halloween Weekend
DUI/DWI Directed Patrol
Brandi Horita
*Police Department,
Operations Support Bureau*

AGENCY CATEGORY Best Use of GIS on the Web



Tier II Manager Emergency Response
Fire and Rescue Department
Paula E. Woodrum, W. Trice Burgess,
Lt. Michael Landstreet, Eric Fisher

AGENCY CATEGORY

Best Use of GIS for Public Outreach

Fairfax County VIRGINIA

Home Living Here Doing Business Visiting Departments & Agencies Search Site Go Advanced Search

Business > Home > Land Use and Development > Geographic Information > Area Plans Review

2009-10 South County APR Nominations

APR
Area Plans Review

The map on the right provides links to summary information for all individual nominations to amend The Comprehensive Plan received as a part of the 2009-2010 South County Area Plans Review by Supervisors' District and forwarded for further consideration by the Planning Commission as part of their screening process.

2009-2010 South County APR Task Force Meetings Schedule

Staff Report Book for Non-VDOT Review Items (June 16, 2010 Planning Commission Public Hearing)

Staff Report Book for Non-VDOT Review Items (July 14, 2010 Planning Commission Public Hearing)

For more information, please see the 2009-2010 South County Area Plans Review (APR) Guide, or call the Department of Planning and Zoning at (703) 324-1380.

Geographic Area of 2009-2010 South County Area Plans Review

The 2009-2010 South County Area Plans Review will review nominations for changes to the Comprehensive Plan for properties located in the Braddock, Lee, Mason, Mount Vernon and Springfield Supervisor Districts, as shown in right.

DIGITAL COUNTIES SURVEY
OF
Virginia

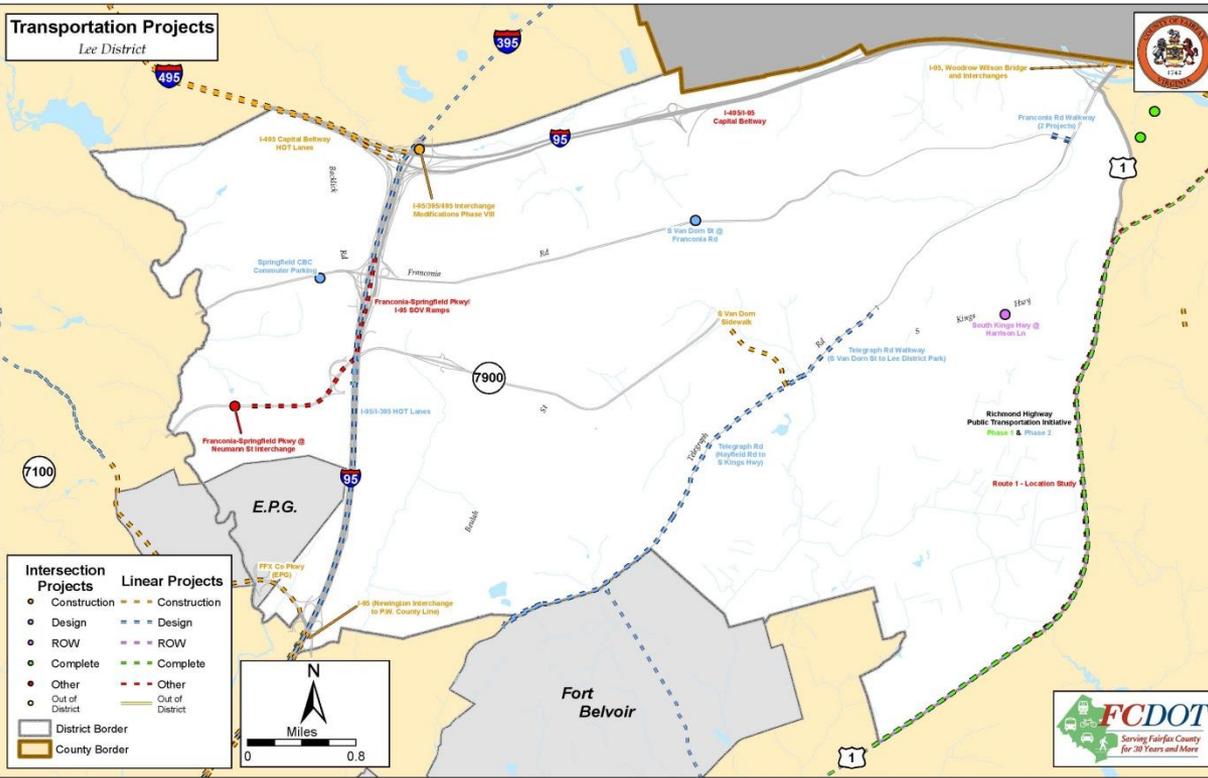
Contact Us: General Office of Public Affairs | Technical Web Administration | Directed Assistance (County Assistance)
Phone: County Main Number - 703-FARFAX (703-324-7326), TTY 711 | County Phone Listing

Accessibility | E-File | Mobile | Update the Site | Web Developer & Privacy Policy | Website Accessibility | Get Adobe Reader
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BEST OF THE WEB
2010

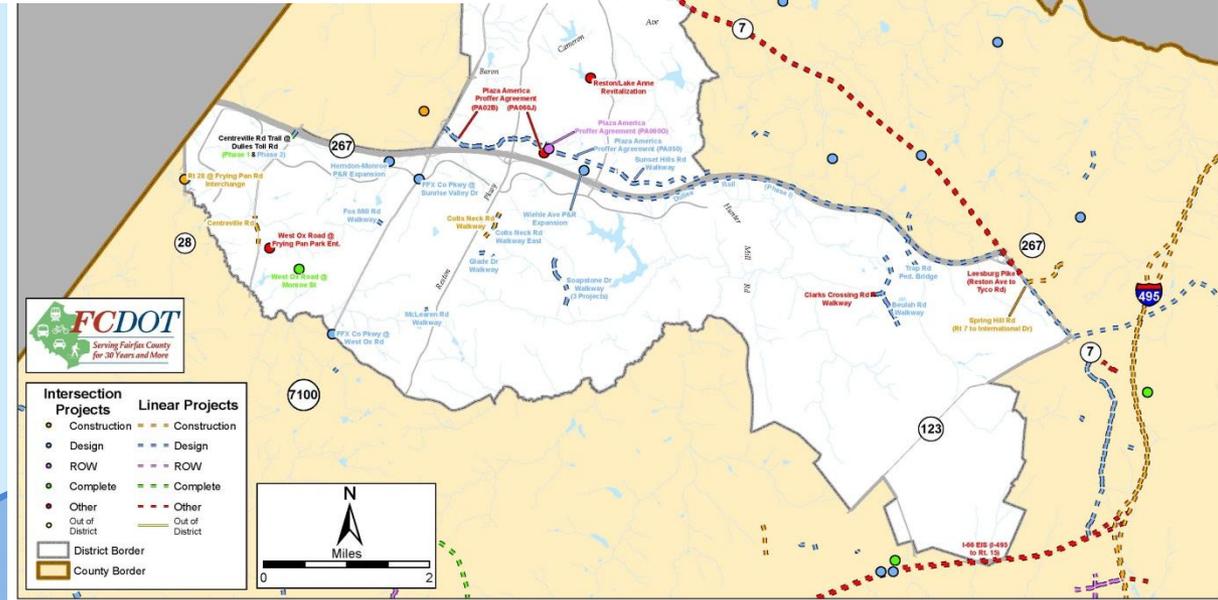
South County Area Plans Review (APR) Public Outreach
Department of Planning & Zoning
Greg Chase,
Harry Rado,
Lilian Cerdeira,
Clara Johnson

Transportation Projects
Lee District



AGENCY CATEGORY
Most Significant Data
Contributor

Capital Projects SDE layers & CFCC Road Data
Department of Transportation
Mike Demmon, Tom Wampler, Brent Payne



AGENCY CATEGORY

Best GIS Integration or Application Development

Park and Ride Demand Estimation

Caijun Lou, Senior Transportation Planner, Fairfax County Department of Transportation
 Michael Demmon, GIS Coordinator, Fairfax County Department of Transportation

Abstract

The Fairfax County Park and Ride Study was a comprehensive analysis of existing park and ride customer origins and market dynamics leading to the development of a GIS-based demand estimation tool to analyze the demand for potential future lots in Fairfax County. Plate numbers were collected from all vehicles at 36 lots in and around Fairfax County and the associated addresses were geocoded to analyze customer origins. Coefficients were developed based on the population, households and work trips originating in market areas around each lot. These values formed the basis for a dynamic GIS based tool that will assist the County in predicting usage at potential future park-and-ride lots.

Key Points

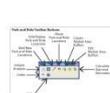
- Park and Ride demand varies greatly based on transit service provided.
- Spatial analysis of park and ride demand indicates that about 50% of demand at most lots comes from within 3-5 miles (driving distance)
- Median density market areas tend to be oval shaped about the axis of radial or circumferential roadways.
- Population, household and trip characteristics of surrounding areas can provide general basis for estimating demand at future park and ride lot.
- Use of Network Analyst to construct driving distance buffers is useful as it accounts for travel barriers (water crossings, freeways).

Acknowledgements

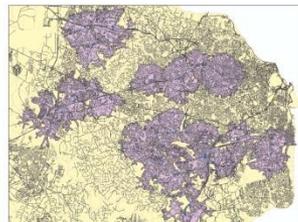
VDOT's Multimodal Planning Office provided the funding for this study.

Fairfax County Department of Transportation requested the funding grant and guided the study team.

Michael Baker Jr. Inc., along with Progy Malhotra and Associates, completed the data collection, analysis and application development on behalf of the VDOT and Fairfax County.



The tool works via an add-on tool bar that leads the user through a multi-step process of selecting lot locations to market area buffer creation and demand calculation.



The tool builds market area buffers, like those above, using Network Analyst to approximate real driving barriers. Users can choose to directly edit the market buffers to better reflect true conditions on the ground that a strict Network buffer might not appropriately handle.

Park and Ride Tool Demand Estimate Output				
Name	Estimated Demand	Population within Market Area	Households within Market Area	AM Work Trips within Market Area
Hendon-Meason Park and Ride	155	51,156	19,000	28,677
Dilwyn West Park Church Station	5,700	38,081	16,055	17,263
VRE Burke Centre Station	746	43,248	14,170	30,959
Commonwealth Park and Ride	99	33,210	12,431	18,656

Based on the analysis of existing park and ride demand, the application develops estimates of potential demand. The tool considers overlapping markets from nearby lots and the population, household and trip characteristics of each market area in developing the estimated demand. Above is the estimated demand and critical demographic and trip characteristics derived from TAZ data for some existing lots.



Once market areas are developed, the tool runs through an intersection, calculation, join, dissolve and final calculation process developed using Model Builder. The intersection and join count process is critical in determining where market areas overlap and adjusting expected park and ride demand.



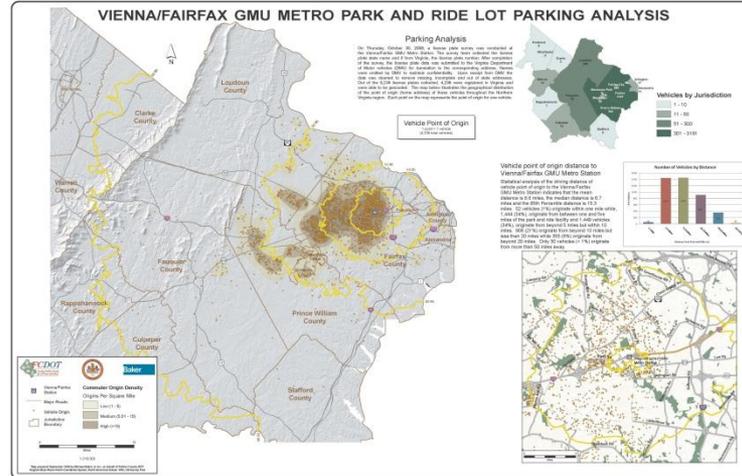
Analysis of Park and Ride facilities by service type and location reveals seven distinct Park and Ride markers. Many of these markers overlap, especially in the northern portion of the county.



Park and Ride lots served by Metrolink tend to have the highest utilization and some of the largest markets. Of particular interest is how the Franconia-Springfield market is split by I-95.



Along the Orange Line, market areas for interior stations are squashed into more oval shapes due to their proximity to each other, whereas the market for the Vienna station stretches miles westward along I-495. This is very different from the pattern for Franconia-Springfield, where a VRE service provides easier access for commuters farther south.



Market patterns are much more circular in shape for VRE lots and the median distance market areas much smaller than most other lots.



Similar to the patterns for interior stations along the Orange Line, Park and Ride markets along the Dulles Toll Road exhibit an elliptical pattern on a north-south axis, perpendicular to the expressway.



Market patterns for smaller lots served by buses or carpools only are harder to distinguish. In the Springfield area, multiple lots in close proximity serve an large geographic area that also overlaps with the Franconia-Springfield Metrolink market.

Park & Ride Analysis Tool
 Department of Transportation
 Mike Demmon, Caijun Luo

GIS Excellence Awards 2010

CONGRATULATIONS!!