Mapping Election Results
Loudoun County, Virginia

Sara Emani, Susan Carlson, David Torraca
Office of Mapping and Geographic Information
www.loudoun.gov/mapping

Esri Mid-Atlantic UC 2015
Loudoun County Election Districts

- 8 Election Districts
- 93 Precincts
- 7 Virginia House Districts - whole or portion
- 5 Virginia Senate Districts - whole or portion
- WebLogis
- Voting Information Story Map

http://Loudoun.gov/gisday
http://logis.loudoun.gov/weblogis
Esri Local Government Model

Smart Community Delivers Real-Time Election Results
First Step on County’s Journey to Deploy ArcGIS for Local Government Apps

GIS staff in the County of Fairfax, Virginia, are beginning to use ArcGIS for Local Government applications. They want to rapidly create applications that the public can use to access county data and services. For the midterm elections, they implemented their first one—the Election Results application (available online at ArcGIS.com).

“We were excited about delivering continuously updated results on election night,” said Greg Thomas, GIS data administrator, County of Fairfax. “We considered the Office of Elections (staff) hadn’t done before, and they were thrilled with the idea of providing results in map form.”

Local-box capabilities drew the team to the Election Results application template, which they modified slightly with additions like a feedback button. Election results data was being published every 10 minutes.

“It is much easier to see the race results on the map instead of looking at a spreadsheet, which is a little county offered in the past,” said Matthew Miller, spatial analyst, County of Fairfax.

The free ArcGIS for Local Government application template gave the GIS staff the best way to create the results viewers they wanted in a few weeks. “I didn’t need to go to our staff and tell them to build something from scratch,” said Miller. “It’s out there—we just migrated our data to the ArcGIS for Local Government data model and it worked. It was quick and easy.”

On election night, the app averaged 480 unique visitors per hour. The public could see precinct-level voting results for all contests on an Patterson’s ballot, bar charts showing voter turnout and which votes were cast, and social media links for sharing results.

“We ended up meaning our server capacity because it was getting as busy as,” said Thomas.

To promote the app, the county used Twitter and Facebook in addition to monitoring it in a county newsletter. It is also on the Fairfax Geoportal (www.fairfaxcounty.gov/maps/mapportal.html), which provides streamlined access to the county’s interactive mapping applications.

For more information, contact Greg Thomas, GIS data administrator, County of Fairfax, at Greg Thomas@fairfaxcounty.gov.
Election Results Spreadsheets

- County-wide
- District
- Precinct (3)
- VA House
- VA Senate

Spreadsheets with Links

Master Spreadsheet

Links
Workflow

Google Doc → Microsoft Excel → Spreadsheets with Links → File Geodatabase → Layers within MXD

Google Doc → Feature Services → Story Map
Automated Tasks

Python Programs

Excelopenclose.py
• Finds the spreadsheets, open and saves the new updated results

Join.py (Local Government Solution Model)
• Finds the excel tables, joins to the feature layers

Update.py (Esri)
• Updates hosted feature layers on ArcGIS Online

Scheduled run through Task Scheduler
Nov. 3, 2015 Loudoun County Election Results - Preliminary

County-wide Election Results
For full tabular results click here

VIRGINIA SENATE

13th Senate:
B. Jill McCabe 18,809
Richard H. "DIS" Black 19,746
Write Ins 49

27th Senate:
Bill Houckman Vogt 840
Write Ins 42

31st Senate:
Barbara A. Tarpea 2,466
Testing the Process

Original Setup Plans:
- Run script on Task Server – Excel not installed
- Store all files and scripts on shared network drive – 6-8 minutes to run

Final Setup: runs in under 2 minutes!
- Store all files and scripts on local C: drive
- Run python script from local (through Task Scheduler)
- 1 main laptop, 2 backup laptops
Tip: don’t go wireless
Data Validation

Compare each cell in Source spreadsheet...

<table>
<thead>
<tr>
<th>Key: Gray shading will not have results</th>
<th>Public Safety Projects</th>
<th>School Projects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Over Votes</td>
<td>Blank Votes</td>
</tr>
<tr>
<td>STERLING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>701 Sully</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>702 Park View</td>
<td>677</td>
<td>57</td>
</tr>
<tr>
<td>703 Rolling Ridge</td>
<td>677</td>
<td>60</td>
</tr>
<tr>
<td>705 Forest Grove</td>
<td>677</td>
<td>60</td>
</tr>
<tr>
<td>707 Claude Moore Park</td>
<td>677</td>
<td>60</td>
</tr>
<tr>
<td>708 Seneca</td>
<td>677</td>
<td>60</td>
</tr>
<tr>
<td>709 Mirror Ridge</td>
<td>677</td>
<td>60</td>
</tr>
<tr>
<td>710 Sterling</td>
<td>677</td>
<td>60</td>
</tr>
<tr>
<td>STERLING TOTALS</td>
<td>2</td>
<td>329</td>
</tr>
</tbody>
</table>

Log test results:

Against data in popup
Issue: Story Map Popup Bug

Synopsis
When viewing pop-ups in a tabbed story map on a small screen size, the pop-up shifts to a different format, which does not allow for the browsing of overlapping or multiple results.

Additional Information
The issue is not reproducible.

Alternate Solution
Zoom in close enough to ensure only one item is selected. However, this cannot be applied on overlapping polygons.

Workaround:
Don’t use overlapping polygons

Desktop / Larger Screens

Mobile / Smaller Screens

Arrow to cycle through overlapping polygons

Cannot cycle through overlapping polygons
Issue: Attribute Fields

Tried to show all results in one popup...

Solution: Only show results for Candidates and Write Ins (remove Over/Blank/Total vote counts)

• Next election will have fewer races \( \therefore \) fewer columns
• Found script to remove Google Doc formula
Issue: MS Excel

To run Python script successfully...

- MS Excel needs to be installed
- Python module win32com.client needs to be installed
- MS Excel COM Add-Ins may need to be disabled
Election Day - November 3, 2015

Get the word out
- www.loudoun.gov/vote
- www.twitter.com/LoudounMapping
- Press Release

Event Activities
- Co-location
- 10 Minute Updates
- Spot Check

Post Event Activities
- Usage
- Department and State Certification
Plans for 2016

March 1, 2016 Primary
• Two races
• Limit duration of data storage

November 8, 2016 General Election
• More voters
• Fewer contests
Future Improvements

Challenges
• Tedious data quality checks
• MS Excel as intermediate step
• Frequency of updates
• Graphic display of results
• No search capability

Goals
• Decrease time and effort
• Use Google Docs in AGO maps
• Real time map updates
• Add charts for turnout, etc.
• Add address and/or precinct search

Watch for updates and new features from Esri
Thank you!

saraswathi.emani@loudoun.gov
susan.carlson@loudoun.gov
david.torraca@loudoun.gov

www.loudoun.gov/mapping
www.loudoun.gov/vote
http://arcg.is/1LnfjLY
http://loudoungis.maps.arcgis.com

Esri Mid-Atlantic UC 2015