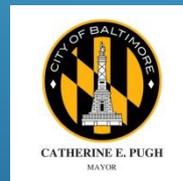
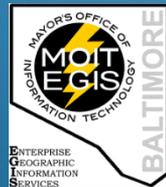


City of Baltimore Election Support

Using ArcGIS Collector and Dashboard for
Polling Center Accountability

Samantha Luckhardt, GIS Supervisor
City of Baltimore

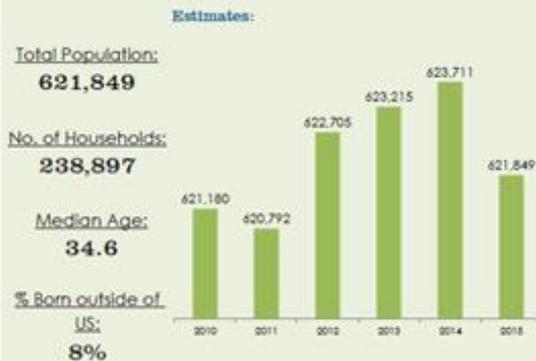


Baltimore City Demographics

BALTIMORE CITY DEMOGRAPHICS AT A GLANCE:

A closer look at the composition of Baltimore City.

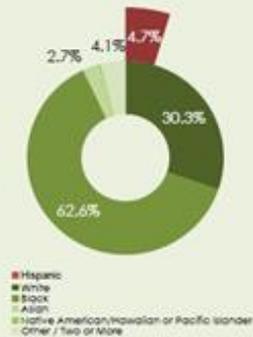
Population



By Age:



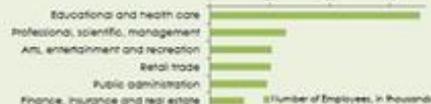
By Race:



Education, Employment and Income



Top Employment Sectors:



Housing & Transportation



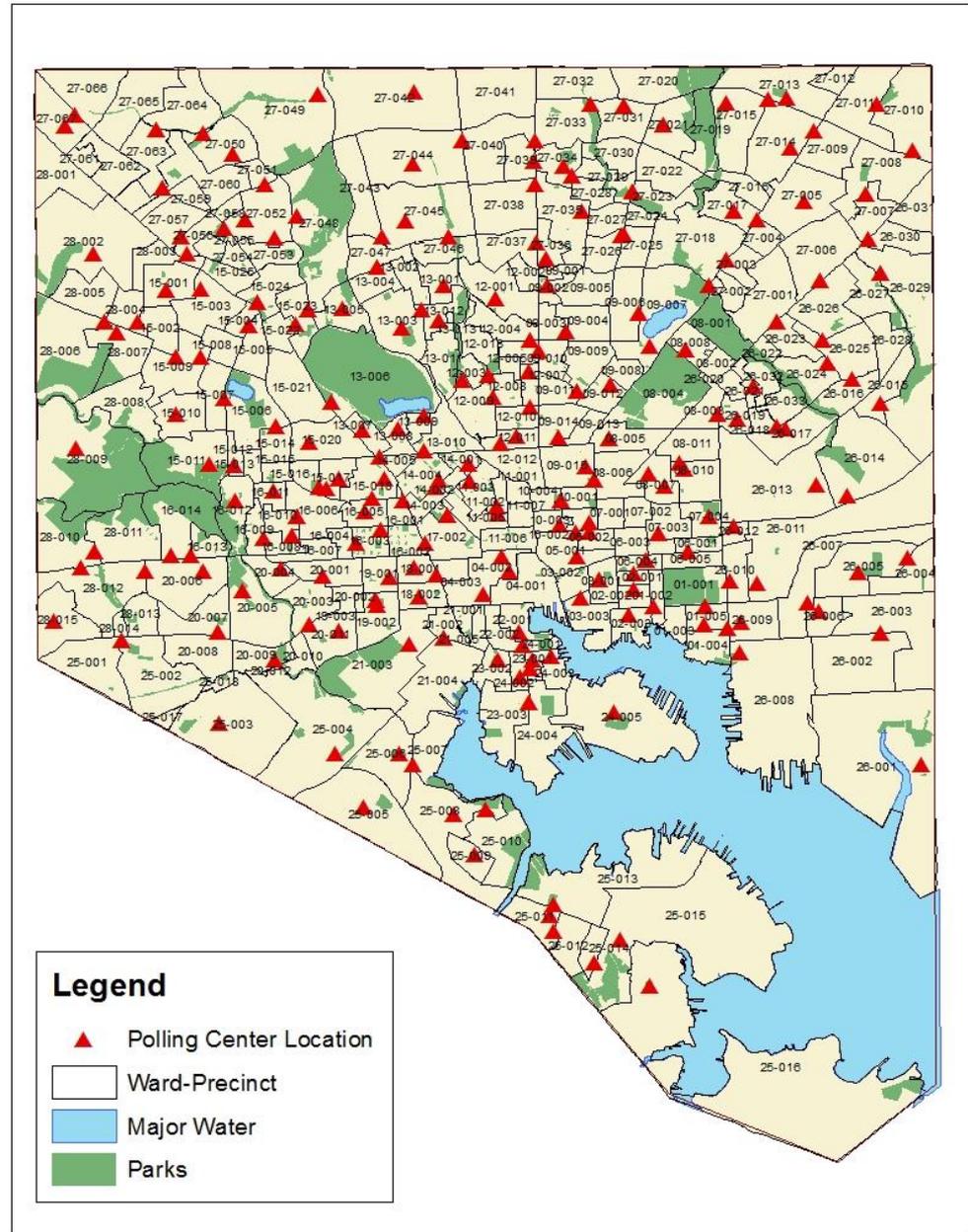
Housing Units by Tenure



Sources: U.S. Census Bureau, 2014 American Community Survey and 2015 Population Estimates.

Voter Geography

- There are 302 polling precincts
- There is a total of 291 voting locations
- There can be multiple precincts voting in a single location
- Voting is managed by the Board of Elections
 - Partner with the Police Department



Voting History

- In the middle decades of the nineteenth century 89 Americans were killed at the polls during Election Day riots. A large number of these deaths occurred in the City of Baltimore
 - Baltimoreans took their politics very seriously and elections, in particular, arouse to a state of such feverish excitement as to produce violence and disorder.
 - Riots, brawls, and other disturbances were quite common; especially during the Presidential election held in 1856.
 - On the day of the election, bloodshed and terror were rampant
 - There were hundreds of stabbings and in one battle artillery was actually used
 - In 1860, the Police Department was reorganized and placed under state control and were directed to restore law and order during election day
 - Today, the City of Baltimore is the only jurisdiction in the State of Maryland that still employs Police Officers during the voting cycle

Modern Day Problems

- **When it began.....2006 Primary Election**
 - Only 75% of locations opened on time.
 - 119 polling centers experienced some sort of problem
 - 180 judges didn't show up.
 - Citizens called 911/311 complaining that they could not vote
 - Lawsuits were filed against the BOE
 - Bad Press
 - City Hall was blamed for the problem

Project History

□ Primary Mitigation Steps:

- CitiStat, the Mayor's accountability agency, worked with EGIS, Election Board, and Baltimore Police to set up a new process, which included:
 - Recruiting and training election day workers
 - Providing cell phones to designated officers at each polling place
 - The creation of an online spreadsheet-based tracking system to monitor and report any potential issues for each location.

Project History

- Officers provided readiness information from each precinct within the district over the phone.
- This information was recorded on a paper form and was then given to the volunteer Mayoral office employee who were placed at each police district headquarters.
- Volunteers would enter this information into a web-based database application

Address <https://www.bcapps.org/BaltElec/PrecinctDetails.aspx>

BALTIMORE CITY POLLING PLACE MONITOR

Poll Name	MERVO TECH HIGH SCH #410	District	NORTHEASTERN
Address	3500 Hillen Road, Gymnasium Baltimore, MD 21218	Ward-Precinct	09- 005

First Call 0615 hours

1.) All Election JUDGES are present.	<input type="checkbox"/> false
2a) Number of REPUBLICAN JUDGES present.	<input type="text" value="0"/>
2b) Number of DEMOCRATIC JUDGES present.	<input type="text" value="0"/>
3) A TECHNICIAN is present.	<input type="checkbox"/> false
4) NO PROBLEMS WITH VOTING EQUIPMENT	<input type="checkbox"/> false
5) NO FACILITY OR OTHER PROBLEMS	<input type="checkbox"/> false
Problem Description	<input type="text"/>

Second Call 0700 hours

6) A vote has been successfully recorded.	<input type="checkbox"/>
7) The poll was open to accept voters at 0700.	<input type="checkbox"/>
8a) How many more Democratic Judges are Needed?	<input type="text"/>
8b) How many more Republican Judges are Needed?	<input type="text"/>

Last Edited: Last Edited By:

History

The entered information would appear onto a spreadsheet. Each row, representing a district, would be colored according to their readiness.

Color	Status	Description
Red	"Can NOT Open"	Precinct has problems that will prevent it from opening.
Green	"Can Open"	Precinct is ready to open. There are no problems reported that would prevent opening.
Yellow	"Open" OR "Can Open"	Precinct can open OR is already open, but there are problems that may need to be addressed, such as missing technicians or the need for additional judges.
Blue	"Open" OR "Can Open"	Precinct is open. No unresolved problems have been reported.
White	"Report Not In"	No information has been received.

As a result, polling place readiness improved from:

- 75% (2006 Primaries)
- to:
- 94% (2006 General Election)

Time to Modernize

- The web application was 10 years old, and no longer supported.
- Since 2006, mobile technology, based on smartphones and/or tablets, has emerged as a game changer for capturing information out in the field.
- As a result, it was suggested to leverage mobile technology for entering the polling place data directly at the polling place
- Eliminate steps, reduce number of involved staff, and add a spatial element to quickly identify and mobilize staff/resources to problem areas.

GIS Involvement

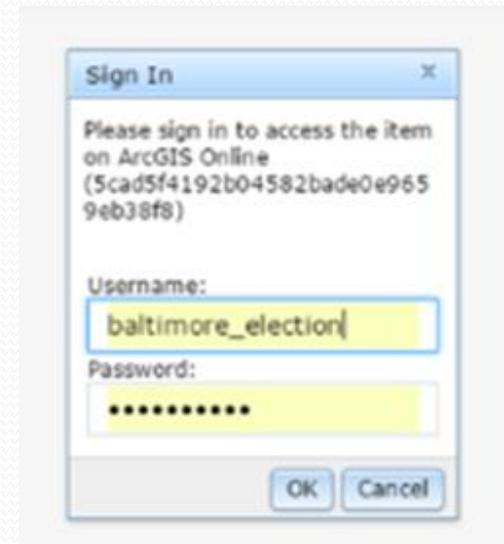
- CitiStat asked EGIS to create a mobile app that could do the following:
 - Have a smart phone with the app installed and distributed to an assigned person at each polling place.
 - The assigned person would first select their precinct, and enter the information through a form.
 - That data would automatically feed into a color-coded map and corresponding spreadsheet at the control room at the Watch Center.
 - From there, they can identify and mitigate problem areas more logistically and effectively.
 - It would also eliminate the staffing of City Hall personnel from the police stations collecting the reporting data.

Technical Requirements

- After a review of ESRI mobile applications, we decided on the Collector App since it would enable the users to enter in data at existing locations that we would create from an ArcGIS project.
- Easy to use – the people entering data on the assigned smart phone often had no technical skill.
- The app would be installed on the smart phones, with a login for each precinct
- Have the entered information feed into both a color-coded map and a table at the Watch Center.

Application Overview

- Smart phone users launch the Collector app by clicking on the icon and logging in.
- Locations were filtered by districts so that users would only see the information for their respective district



Application Overview

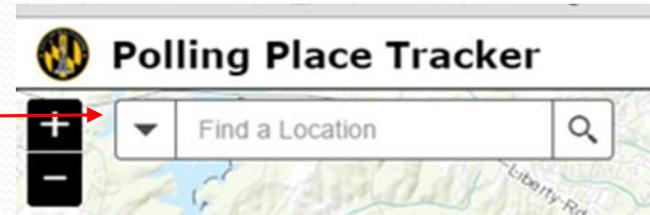
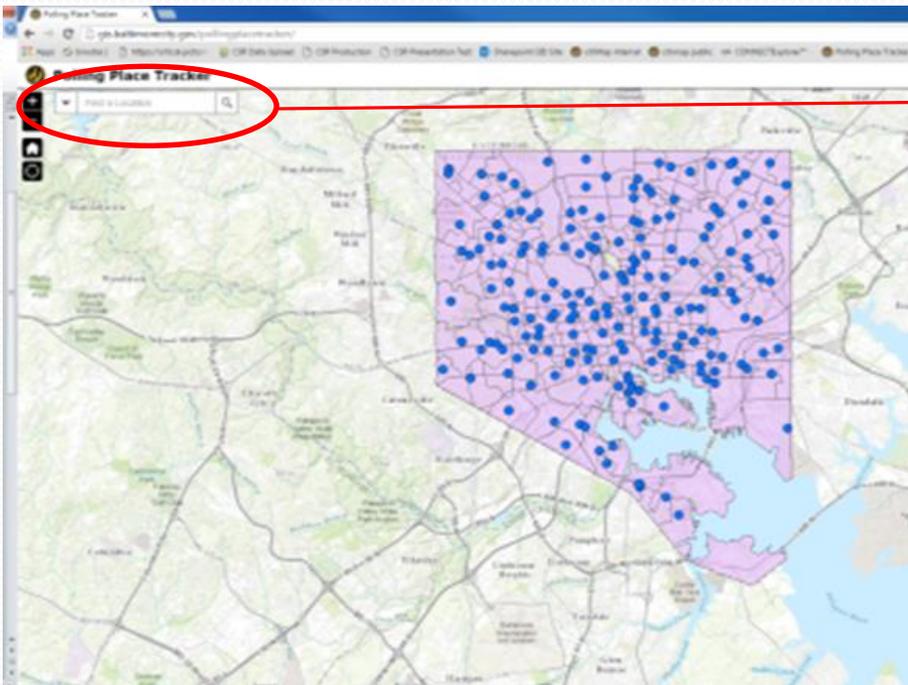
- The field person enters information at 6am to report readiness, and at 7am to report open status.
- This information is immediately reflected on the map being monitored at the Watch Center
- The questionnaire form shown below is based off a layer created in ArcMap and published as a service for ArcGIS Online.

The screenshot shows a map interface with a popup window titled "Polling Places". The map background is purple and shows a street grid with labels like "Mount Olive Cemetery", "Gwynns Falls", and "Carroll Park". A blue dot on the map indicates the location of the polling place. The popup form contains the following fields and values:

Field	Value
Ward Precinct	20-010
Are Election Judges Present?	Yes
Num. Of Dem Judges Present?	Yes
Num. Of Rep Judges Present?	No
Is Technician Present?	Yes
Is there Equipment Problem?	No
Is there Facility or Other Problem?	Yes
Problem Description if Any	Doors are locked
7:00 AM Call	7:00AM CALL

Application Overview

- At the Watch Center a City-wide map was shown

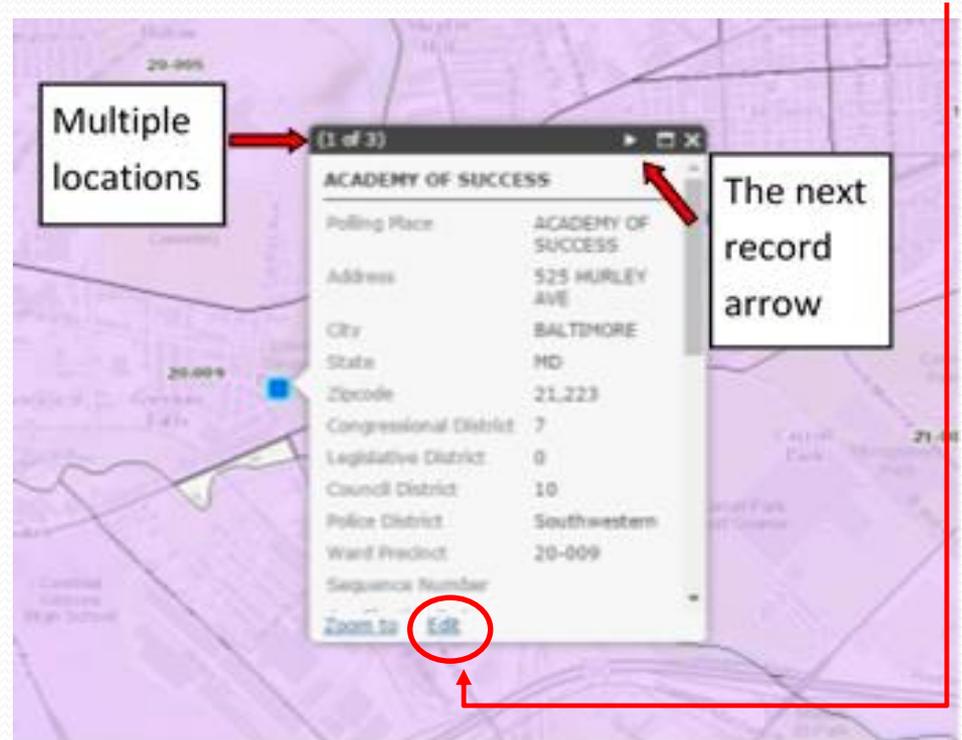


The user can search for a specific polling place location by entering one of the following:

- Ward/Precinct Number
- Polling Location Name
- Address of Polling Place

Application Overview

- By clicking on the dot a pop-up window appears allowing managers to **Edit** the information entered in the table
- This allowed managers to update the information as issues were resolved



Training and Implementation

- The apps were installed on the phones and tested.
- EGIS trained managers and supervisory staff, who would in turn, train the field personnel.
- On the day of the Primary Elections, all of the 180 ward/precincts were able to enter their data through the mobile application

Lessons Learned

- First time implementation was overall a success!
- There were some minor changes that needed to be made:
 - Add another point layer for the 7am call. That way the polling place dots will truly reflect the readiness of each place.
 - Create individual, unstacked points for each polling center location
 - Adding an “intermediate” color for those with issues but could still open
 - Confusion as to what elements truly prevented a location from being opened “on-time”

Questions

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