

2018 Gubernatorial General Election IT Staff Summary Report

The objective of this document is to provide a summary of the functions accomplished by the IT Team during the 2018 Gubernatorial General Election.

Overview of IT Tasks for Conducting Elections

The Information Technology Staff is responsible for maintaining, testing, preparing, distributing and accounting for all IT related election equipment. The IT Department also offers support in other areas which includes the call center, set up and dismantling of Early Voting Centers, runners for pre-election set-up activities and Election Day, data upload and verification on election night, and canvass support.

IT Personnel (23 Total):

- BOE Permanent IT Employees: 4
- BOE Temporary IT Employees: 11

The IT Staff was also assisted by the following:

- SBE Regional Manager (State Employee): 1
- SBE County Technician (State Temporary Employee): 1
- ES&S Tech Support: 3
- Department of General Services: 5

Integrity Reports

The Integrity Reports for the BMDs, scanners and pollbooks are created during the Logic and Accuracy preparation process. The data contained on these reports are validated by the IT Team during Logic and Accuracy Testing for the scanners and BMDs and during the Bulk Update process for the EPBs.

For this election, the IT Team achieved the following overall accuracy rates for the three different Integrity Reports:

BMD Integrity Reports – 99.99% (2 errors reported for 480 items)

Pollbook Integrity Reports – 100% (0 errors reported for 3,144 items)

Scanner Integrity Reports – 99.99% (15 errors reported for 3,864 items)

Equipment Deployed

Early Voting

The BOE deployed the following equipment to accommodate voters during Early Voting:

- 39 scanners
- 48 ballot marking devices
- 124 pollbooks

Election Day

The BOE deployed the following equipment to accommodate voters on Election Day:

- 483 scanners
- 317 ballot marking devices
- 1,048 pollbooks

Election Night Reporting

The results from Early Voting were tabulated by 6:00 PM on Election Day and provided to the State prior to 8 PM. The Early Voting results were posted to our website at 8:00 PM but were removed at the direction of SBE due to voting still occurring throughout the state. The results were reposted at 9:27 PM.

For this election, Montgomery County used seven regional sites. Six of the sites were located throughout the county and the BOE location was the central or main site.

Using the regional sites improved our ability to report the results earlier. By 11:00 PM 99.01% of the results were received and uploaded which is equivalent to 263 out of 266 Early Voting and Election Day precincts.

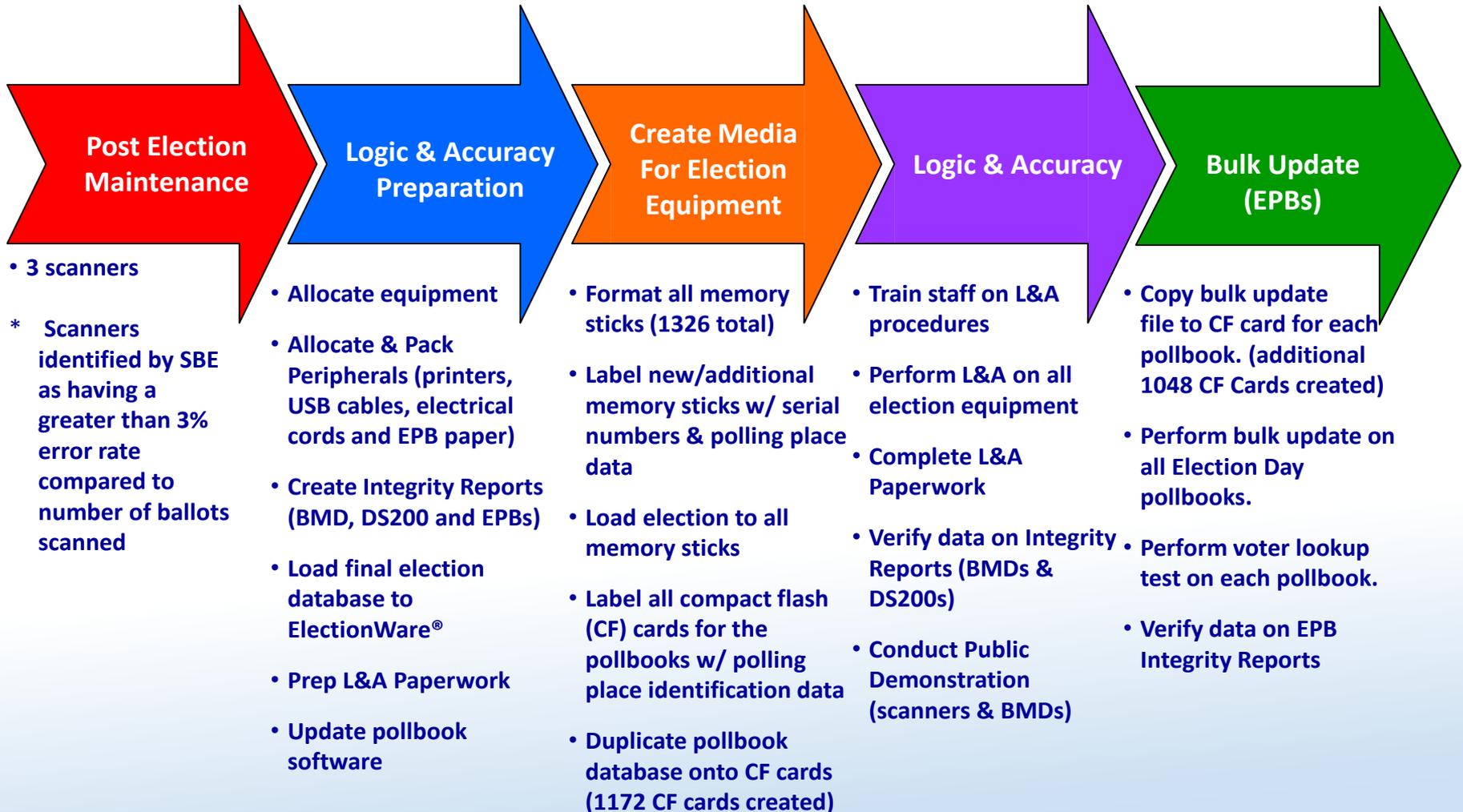
Canvass

At the beginning of canvass, there were issues with both DS850s (high speed scanners) jamming excessively when attempting to scan ballots. The ES&S representatives on site made technical adjustments to both scanners and this mitigated the jamming issues. Due to the volume of ballots for the canvass an additional DS850 was requested and received from SBE.



Information & Technology Report 2018 Gubernatorial General Election

Equipment Preparation



Early Voting Equipment Deployed

D-P	Polling Place Name	Scanners	Additional Scanners	BMDs	Additional BMDs	EPBs
EV-01	Mid County Community Rec Center	2	2	2	4	10
EV-02	Executive Office Building	2	1	2	0	10
EV-03	Germantown Community Rec Center	3	0	2	4	12
EV-04	Marilyn Praisner Community Rec Ctr	3	1	2	4	12
EV-05	Silver Spring Civic Center	5*	0	2	4	16
EV-06	Activity Center at Bohrer Park	2	2	2	2	12
EV-07	Damascus Community Rec Center	2	0	2	0	6
EV-08	Jane Lawton Community Rec Center	3	1	2	0	12
EV-09	St Catherine Laboure Church	3	0	2	2	12
EV-10	Potomac Community Rec Center	4*	1	2	4	12
EV-11	Sandy Spring Volunteer Fire Dept	2	0	2	2	10
	Totals	31	8	22	26	124

* Reserve scanner prepped for the site during L&A

Election Day Equipment Deployed

Equipment	# Deployed	# Added
Scanners	483	2
BMDs	317	0
Pollbooks	1048	0

Scanner added in the following precincts –

07-19 – Wyngate Elementary School

07-23 – Walt Whitman High School

Election Day Scanner Performance

Issue	Number
scanners w/ jams resolved by Roamers or Chiefs	208
scanners w/ jams requiring IT Tech to resolve	18
scanners replaced	4
scanners shutdown/inoperable (no replacement)	3

Scanner replaced in the following precincts –

- 04-10 – Tilden Middle School/Cafeteria
- 05-23 – Marilyn Praisner
- 08-02 – Greenwood Elementary School
- 08-05 – Belmont Elementary School

Scanner shutdown/inoperable in the following precincts –

- 07-01/07-08 – Bethesda Chevy Chase High School
- 09-01 – Gaithersburg Elementary School
- 10-03 – Seven Locks Elementary School

Integrity Reports Accuracy Rates

(Information on report did not match seals/tags on equipment)

Scanner Integrity Report

Opening Report - overall accuracy rate 99.99% (15 errors reported for 3,864 items)

Item	Issues	Total Items	Accuracy Rate
Lid Seal #	1	483	99.79%
Serial #	0	483	100%
Rear Access Door Tamper Tape	1	483	99.79%
Front Access Door Tamper Tape	0	483	100%
Main Ballot Box Seal #	2	483	99.59%
Emergency Compartment Seal #	2	483	99.59%
Left Case Seal #	4	483	99.17%
Right Case Seal #	5	483	98.96%

Closing Report - overall accuracy rate 100% (0 errors reported for 966 items)

Item	Issues	Total Items	Accuracy Rate
Main Memory Stick Serial #	0	483	100%
Rear Memory Stick Serial #	0	483	100%

Integrity Reports Accuracy Rates (cont'd)

(Information on report did not match seals/tags on equipment)

BMD Integrity Report

BMD overall accuracy rate 99.99% (2 errors reported for 634 items)

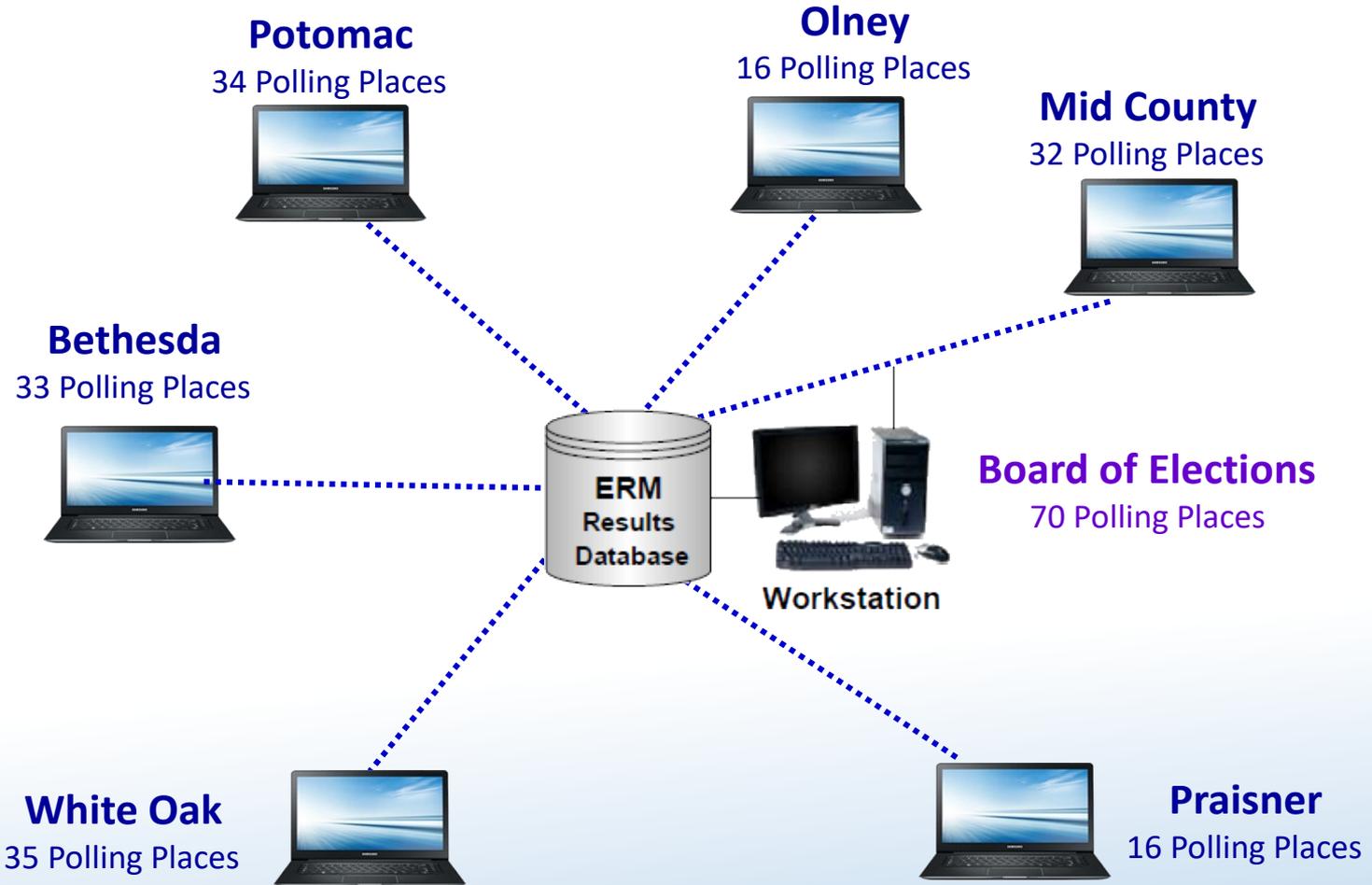
Item	Issues	Total Items	Accuracy Rate
Serial Number	2	317	99.99%
Tamper Tape	0	317	100%

Pollbook Integrity Report

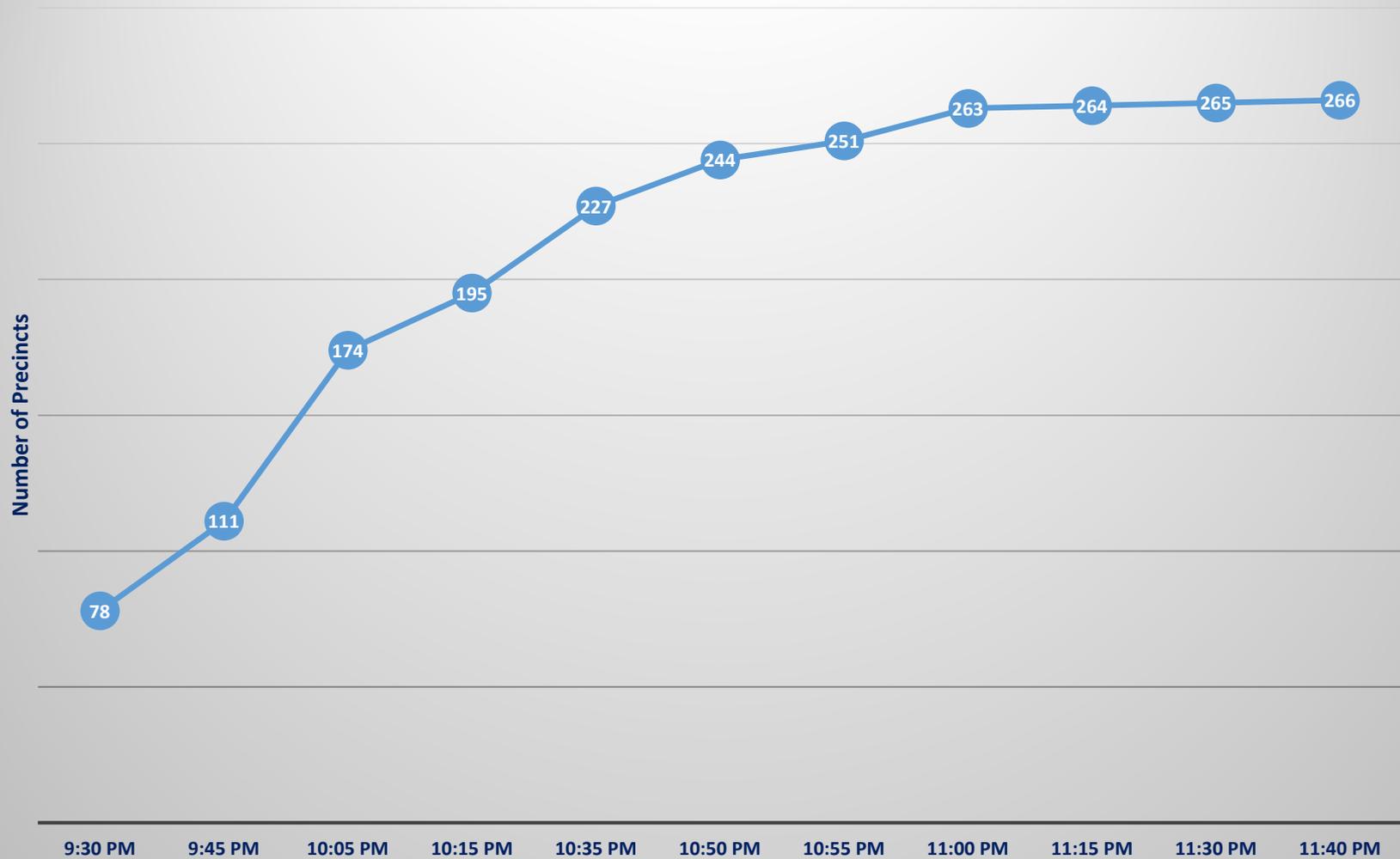
Pollbook overall accuracy rate 100% (0 errors reported for 3,144 items)

Item	Issues	Total Items	Accuracy Rate
State Asset Tag	0	1048	100%
Inner Seal	0	1048	100%
Outer Seal	0	1048	100%

Regional Upload Sites



Election Night Upload Times



Wait Times During the 2018 General Election
Executive Summary
Board Meeting – January 28, 2019

The 2018 General Election saw a significant uptick in voter turnout over recent, similar Gubernatorial General Elections. An overall turnout of 64% of registered voters in Montgomery County was a large increase from the 39% turnout of the 2014 General Election. Voters also chose to use alternative voting methods to Election Day in high numbers. Roughly 37% of those that voted during the 2018 General Election did so via absentee or early voting. This was a sharp increase from the only 20% that used these methods in 2014.

The Board staff examined how these changes in turnout and preparations for the election impacted wait times on Election Day. The goal defined by the Presidential Commission on Election Administration is to have voters wait a maximum of 30 minutes. The Board successfully served 76% of the voters during peak voting within the goal.

By using wait time cards recorded by voters at the polling places, surveys of Chief Judges, and data provided by the state, the Board created a representation of the average and longest wait times for voters at all 236 polling places on Election Day. Since a long ballot caused logistical issues and lines at voting booths and scanners in some places, wait times reported in this summary factor in ALL waits at the polling place – the check-in line, receiving a ballot, the wait for a voting booth, and any wait for a ballot scanner. Many studies of this nature examine only the check-in line.

Overall, the Board succeeded in minimizing wait times at most polling places, though some improvements can still be made. Approximately 76% of polling places never exceeded a wait time of 30 minutes at their peak volume of voters. The average wait time for a voter was 7 minutes while the average “peak” wait time at polling places was 20 minutes. A total of 12 polling places (*see below) did have excessively long wait times with the peak wait time being 1-2 hours during the busiest times of the day. Even at these 12 polling places, the average wait time for most of the day was typically about 30 minutes. Peak voting time varied

across the county. The PowerPoint presentation will identify the characteristic of these precinct challenges.

No one factor can explain the long waits at this small group of precincts. Factors which contributed to long lines included

- rain and high humidity impact to paper ballots scanning
- fail-safe message to voter for blank ballots, equipment misfeeds or malfunctions,
- high numbers of provisional voters in the reporting to wrong polling place, perceived shortages of voting booths and scanners
- need for additional election workers in select precincts
- poor line management within the precinct
- voting rooms that were too small, and some cases, an increase number of overall voters in that polling place
- pollbook issues

These 12 polling places typically had 2-3 of these factors at work which caused the longer lines to form, but the combination of factors varied by location and was rarely the same. The Voter Satisfaction Survey strongest complaints were the Silver Spring Library expressing the room was too small and the Tilden Middle School serving two precincts in different parts of the building.

Overall, adjustments to equipment allocations, the rental of additional equipment, fine tuning the allocation process, expanding staffing at busy locations, improvements to polling place layouts, and better polling place signage are suggested solutions to improve wait time performance in the future.

All these “fixes” have a budgetary impact that requires the support of the County administration and Council.

**Polling places with a long wait included: 02-06 Hallie Wells Middle School, 04-03 Carver Educational Services Center, 04-08/04-33 Garrett Park Elementary School, 04-10 Tilden Middle School, 04-14 College Gardens Middle School, 05-04 Riderwood Village, 05-06 White Oak Middle School, 05-23 Praisner Community Recreation Center, 07-15 Thomas W. Pyle Middle School, 07-19 Wyngate Elementary School, 13-05 Silver Spring Library, and 13-38 Cedar Lane Unitarian Universalist Church.*



Election Turnout and Wait Times

2018 General Election

Montgomery County Board of Elections

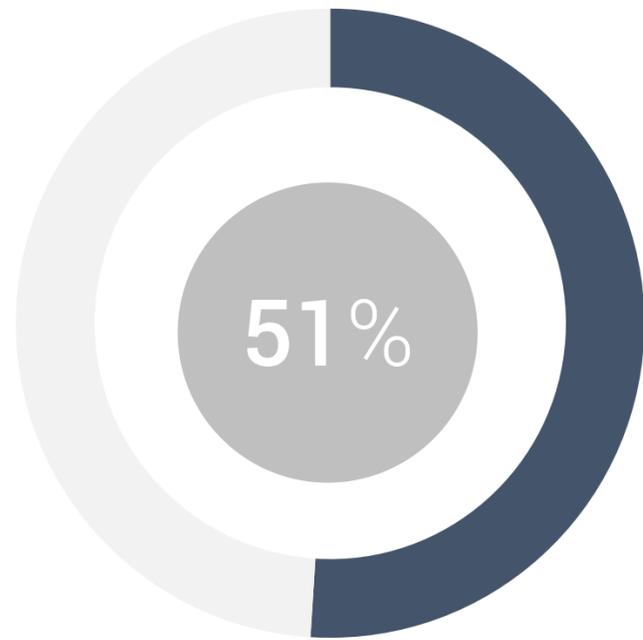
An aerial photograph of a city, showing a dense urban area with various buildings, streets, and green spaces. A white, jagged-edged banner is superimposed over the center of the image, containing the main title and subtitle.

ELECTION TURNOUT

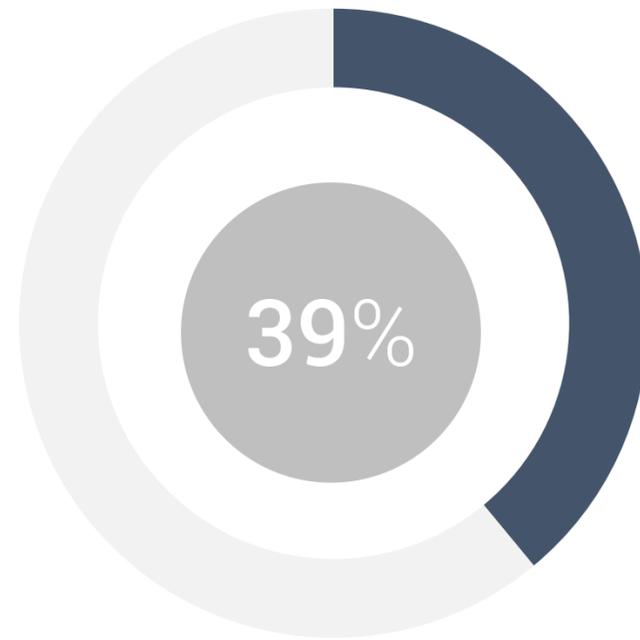
2018 GENERAL ELECTION

Overall turnout was up significantly

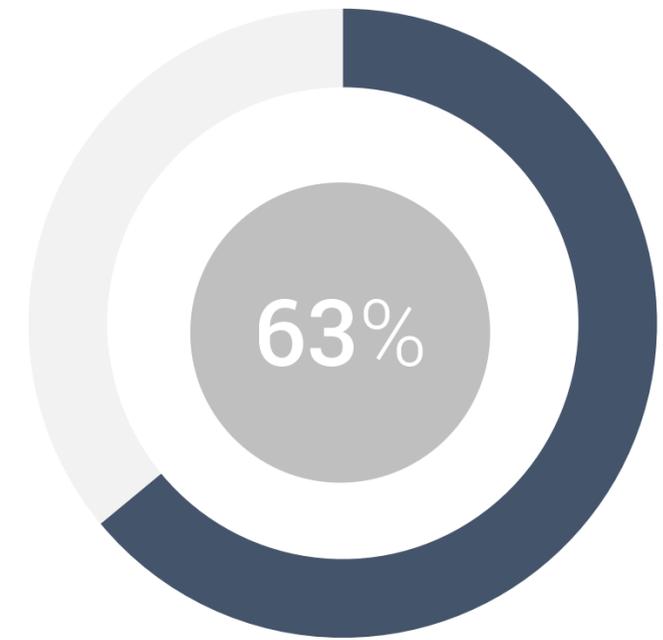
More than 410,000 voters (63%) was a large increase from recent, similar elections



2010 General

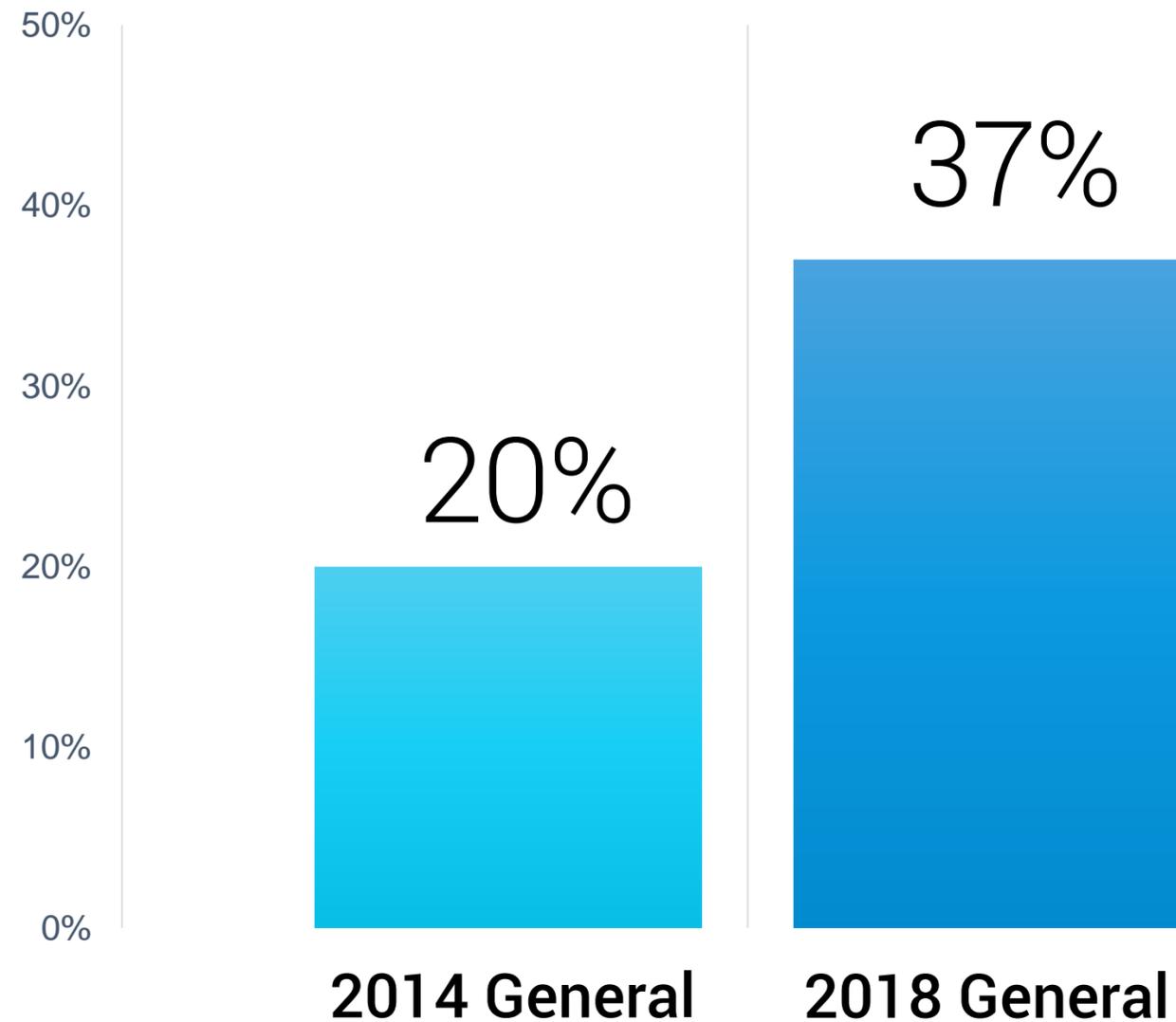


2014 General



2018 General

More voters are voting before Election Day



28% of voters casting ballots used early voting

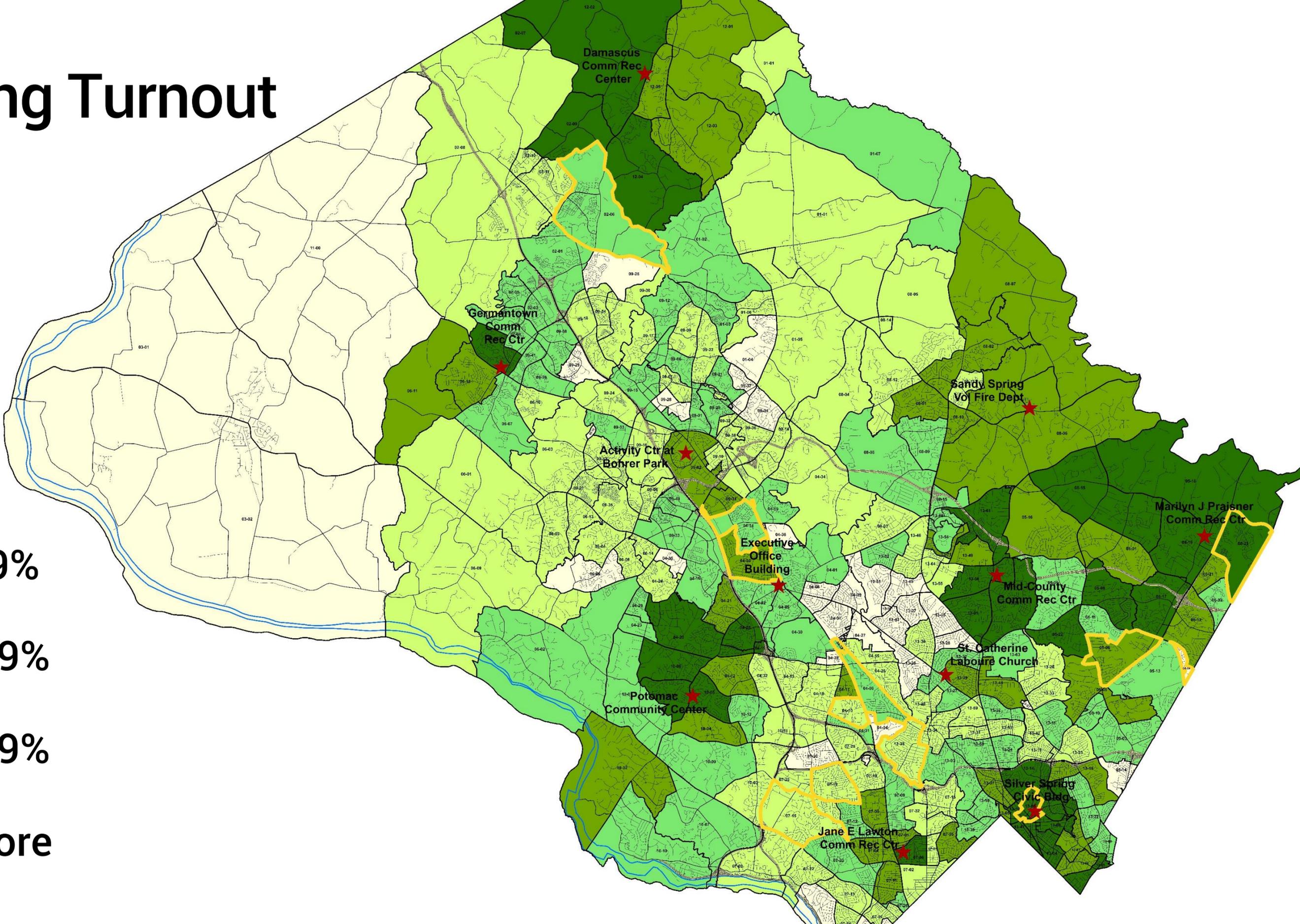
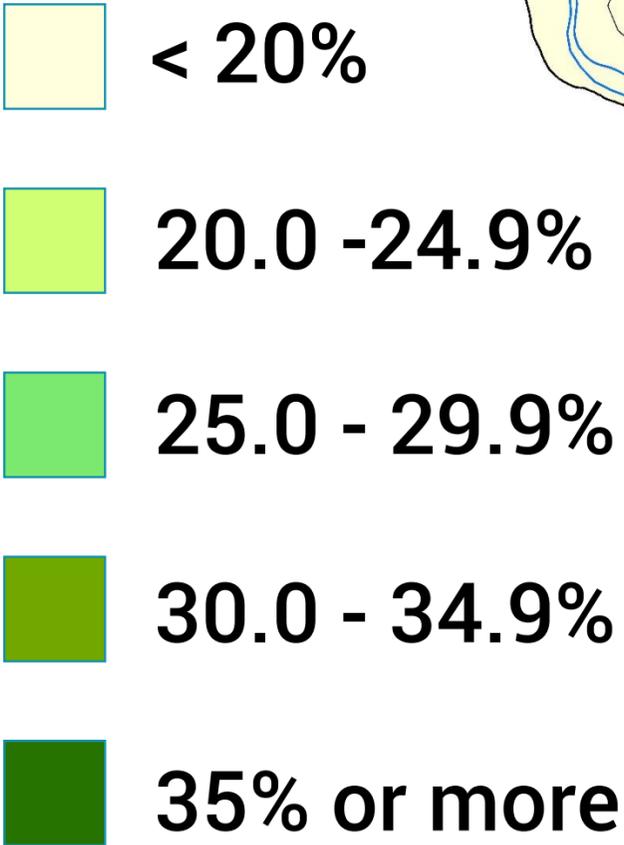


9% of voters casting ballots voted by mail



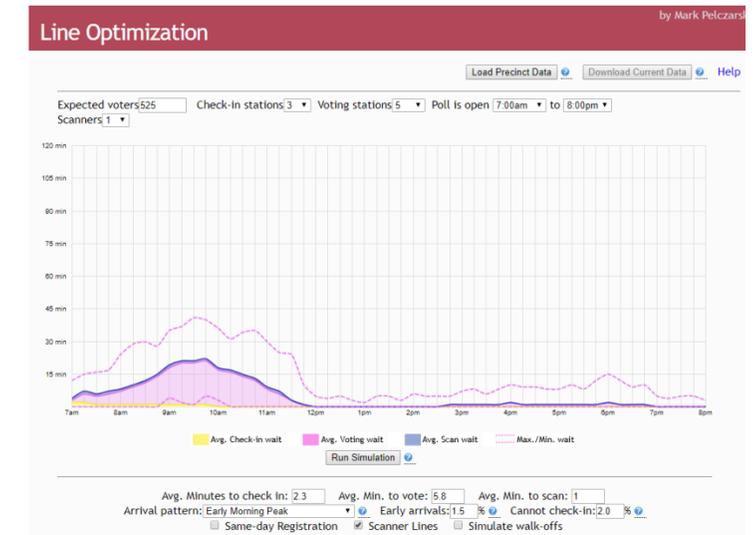
9 precincts had more than half their voters use early or absentee voting

Early Voting Turnout as a % of Actual Voters





Equipment Allocation



Utilized MIT VTP's Line Optimization tool to determine equipment based upon expected voter turnout* and SBE's recommendations

***Formula found at Election Assistance Commission**



Factors in Allocations

- **Election Day turnout**
- **Percentage of elderly in precinct**
- **Percentage of Section 203 population**
- **Other factors**

Scanner Allocation

- **3-4 Scanners = 8%**
- **2 Scanners = 88%**
- **1 Scanner = 4%**

Two polling places had a scanner added on Election Day – 07-19 & 07-23





WAIT TIMES

2018 GENERAL ELECTION



Methodology

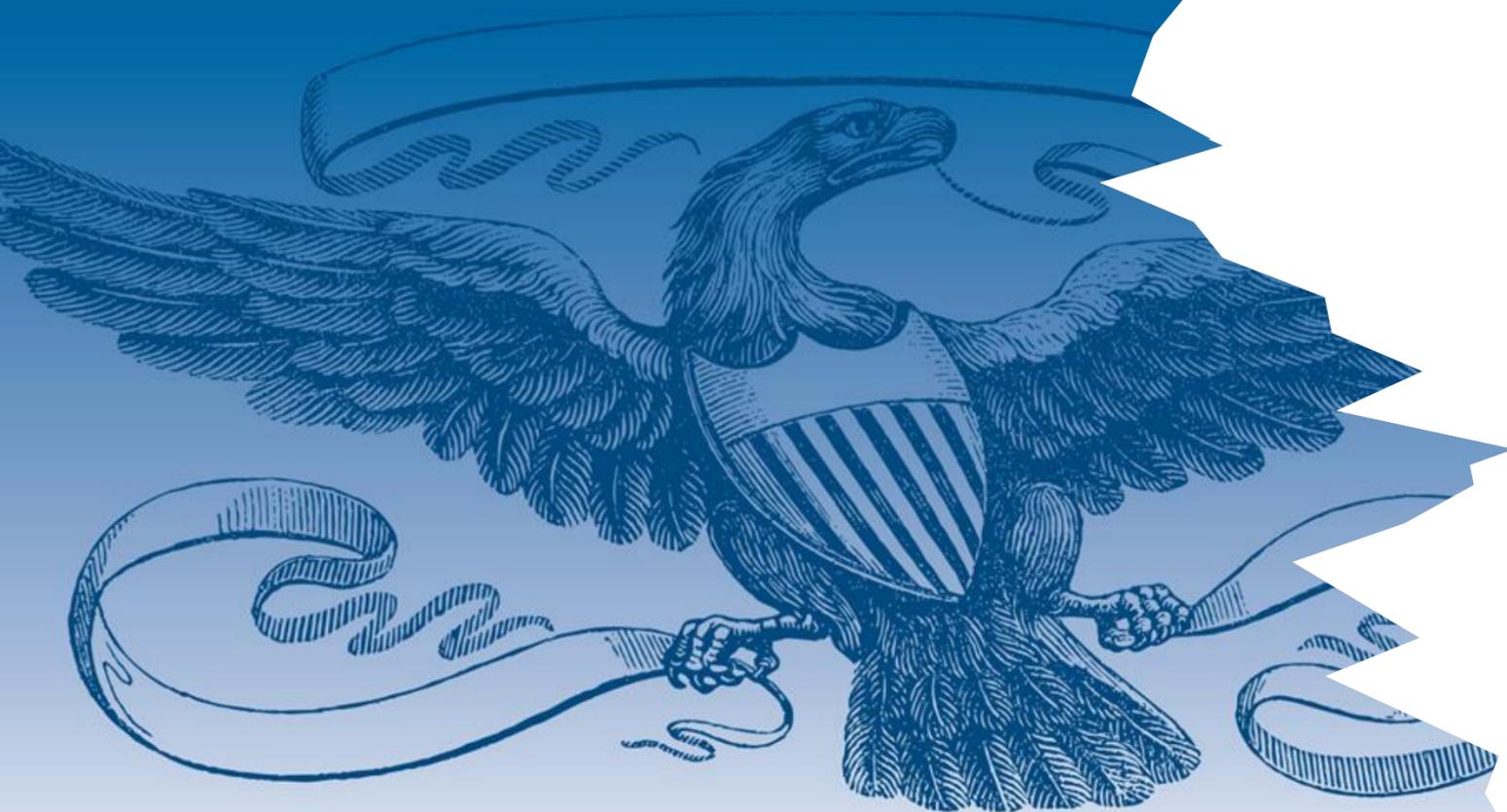
How we determine wait times

Information from wait time cards reported by voters

Survey of Chief Judges asking questions about wait times and resource allocation

Wait Time = waiting time at all stations
(check in, ballot distribution, voting booths, and scanners)

The American Voting
Report and Recommendations
of the
Presidential Commission
on Election Administration



“No citizen should have to wait more than 30 minutes to vote; jurisdictions can solve the problem of long lines through a combination of planning... and the efficient allocation of resources.”

Wait Times

Short to no wait for most voters

76% of polling places never exceeded a 30-minute peak wait time on Election Day

The average wait time for a typical voter was approximately 7 minutes with an average peak wait time of 20 minutes across all polling places

A dozen polling places had very long wait times of 1-2 hours at their peak times



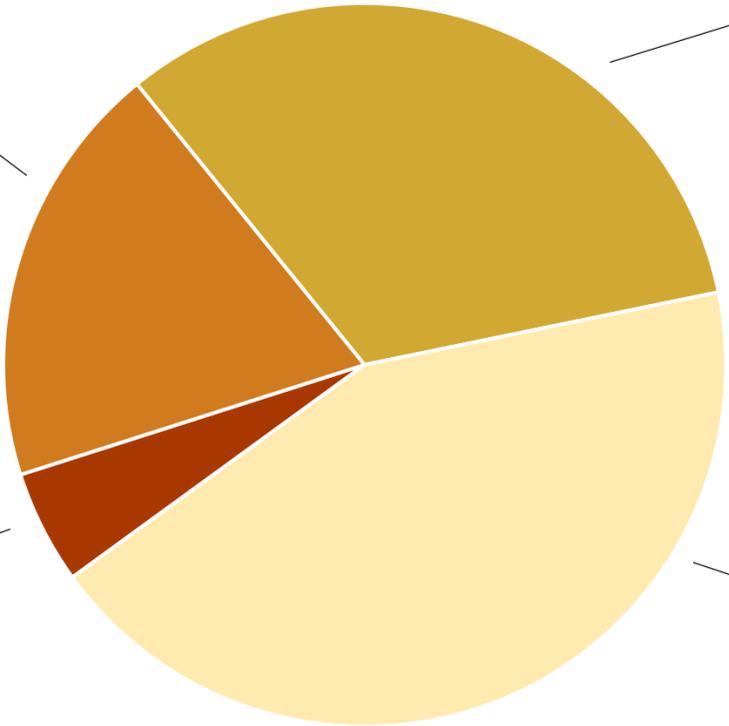
Wait Times Four Comparison Groups

Moderate Wait Group

45 polling places
Peak wait: 35-55 minutes

Short Wait Group

77 polling places
Peak wait: 20-30 minutes



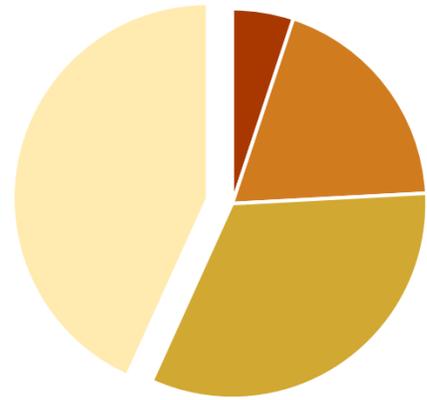
Long Wait Group

12 polling places
Peak wait: 60-120 minutes

No Wait Group

102 polling places
Peak wait: 15 minutes or less

No Wait



102 polling places saw little to no wait



 **10-15**
MAX

 **2**
AVERAGE

 **896**
VOTERS

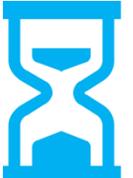
Short Wait



77 polling places peaked at 20-30 minutes



 **20-30**
MAX

 **5**
AVERAGE

 **1,128**
VOTERS

Moderate Wait



45 polling places waited 35-55 minutes at peak



35-55

MAX



13

AVERAGE

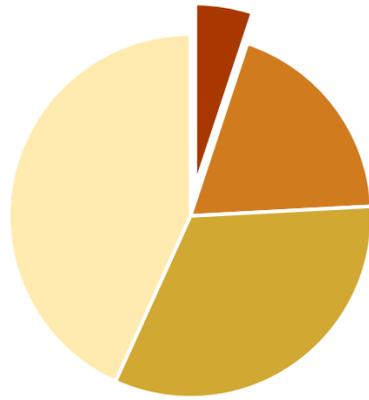


1,402

VOTERS



Long Wait



12 polling places exceeded an hour wait



60-120

MAX



30

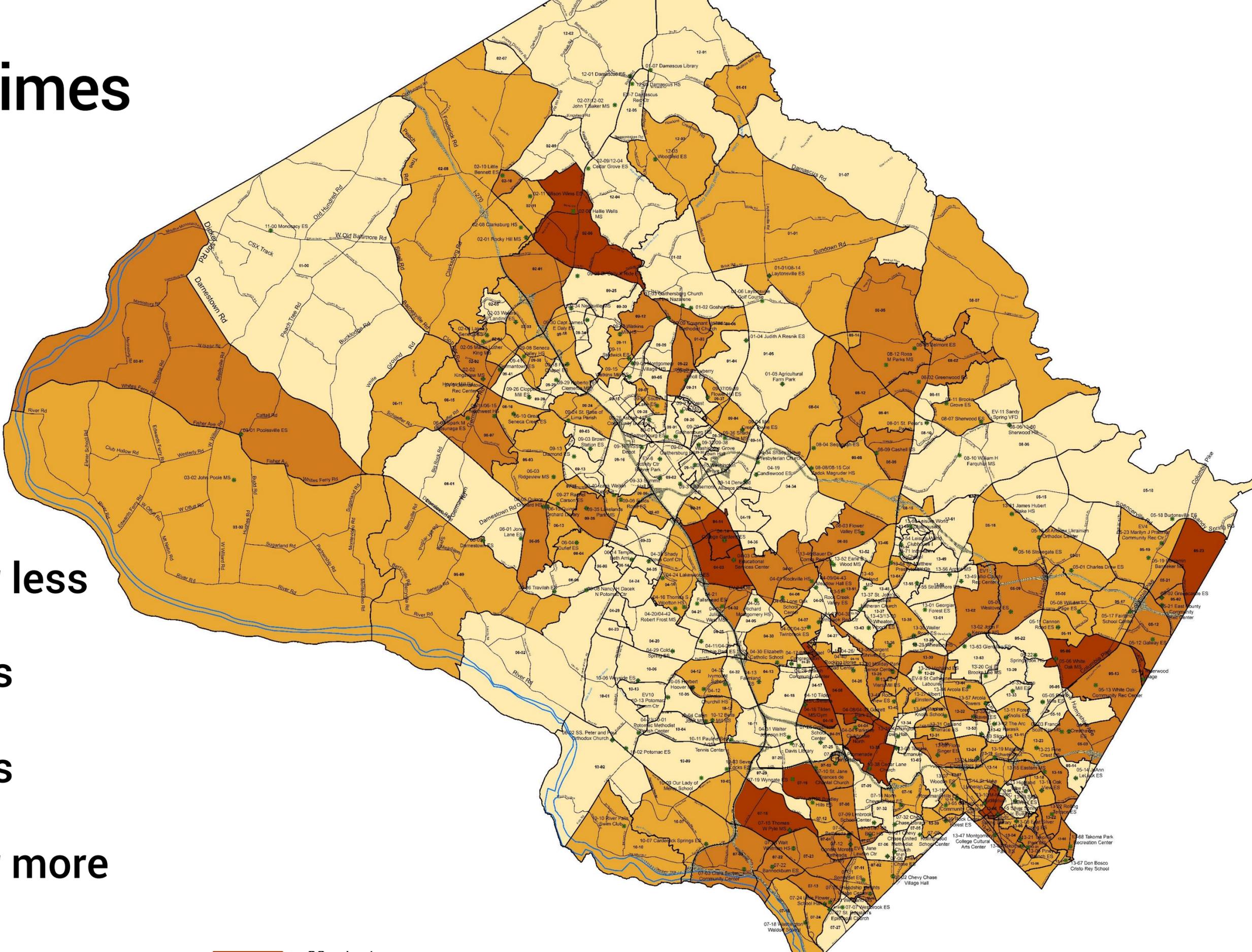
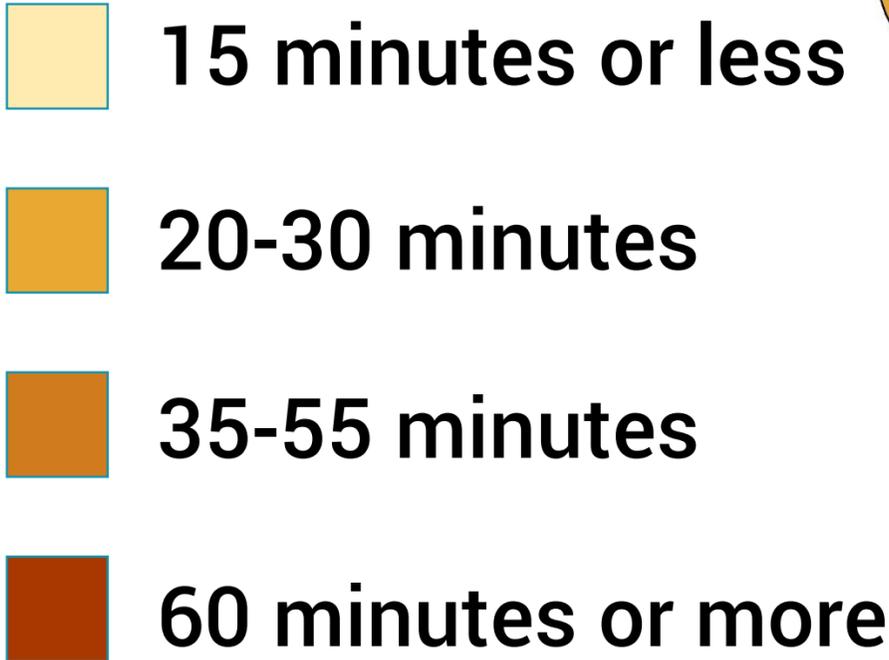
AVERAGE



1,556

VOTERS

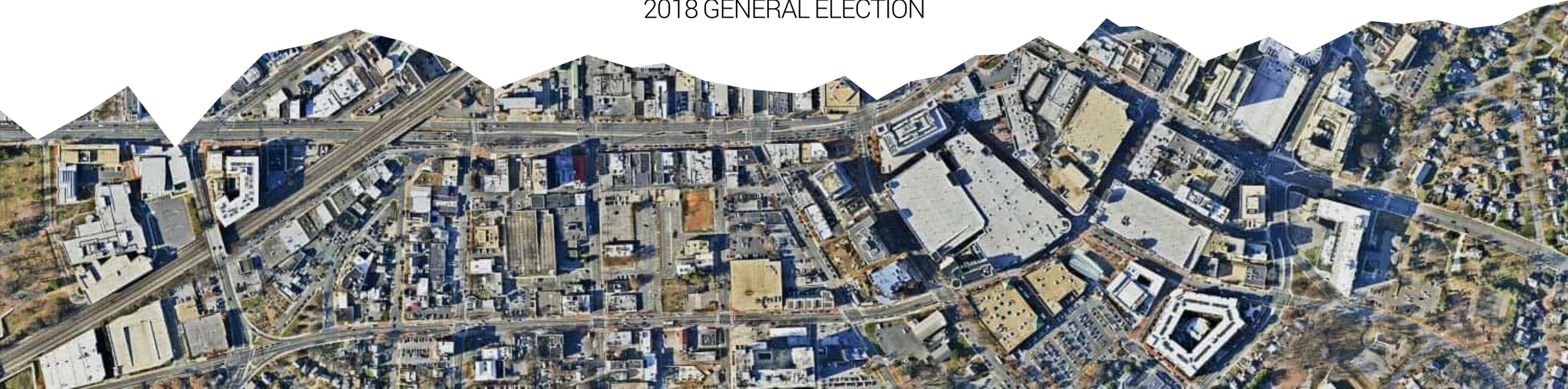
Peak Wait Times By Precinct





CONTRIBUTING FACTORS

2018 GENERAL ELECTION



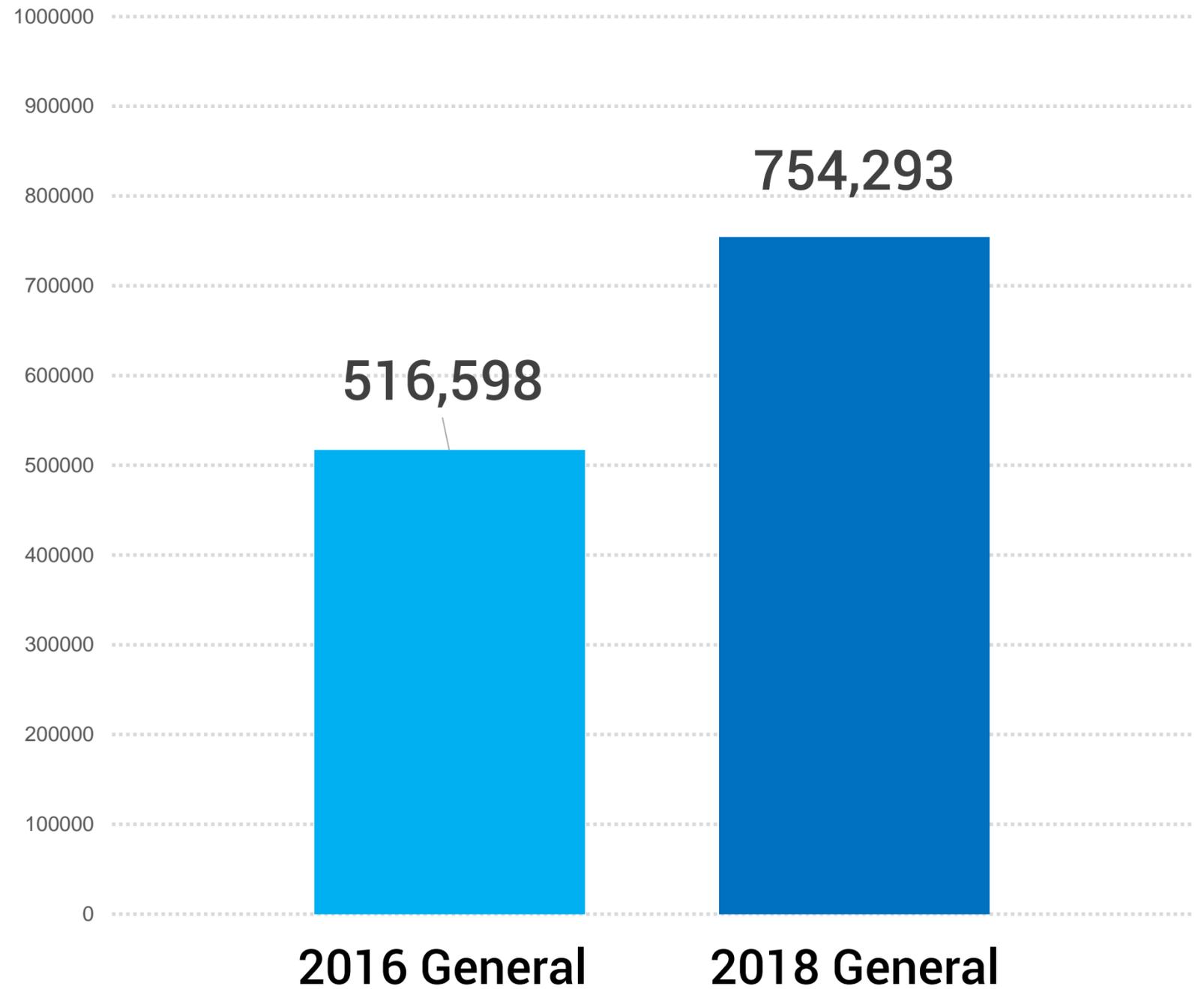


3-Card Ballot

- **A longer ballot on three pages added pressure on workers and equipment**
- **Three pages added valuable seconds to each voter's scanning time**
- **Increases likelihood of scanner jams**



of Cards – Election Day





Scanners and Voting Booths

- **Chief Judges reported wanting more voting booths (72%) and scanners (44%)**
- **Allocations did meet and often exceeded state requirements**



Equipment Breakdowns

- **Scanner jams and errors**
- **Backup scanners were not available (all in use)**
- **Humidity increased jam frequency**
- **Chief Judges understanding of the bypass procedure**
- **Response time was slow**



Slow Process at Scanning Units

- **Frequent corrections meant repeat line trips**
- **Blank pages present a failsafe message**
- **Scanner judge instructions too slow and not clear enough**



Larger Voter Turnout and Heavier Peaks

of Actual Voters by Group

Long group **1,556**

Moderate group **1,402**

Short group **1,128**

No wait group **895**



Election Worker Staffing

Election Workers by Group

Long group 11.8

Moderate group 11.5

Short group 10.8

No wait group 11.0



Size of Polling Places

Most polling places had sufficient space, but 20% of Chief Judges reported needing more room



Voting Behavior

- **The arrival patterns and voting choices of voters will continue to be difficult to predict with more voting options**
- **Factors like weather and voter excitement can impact the timing of voting**

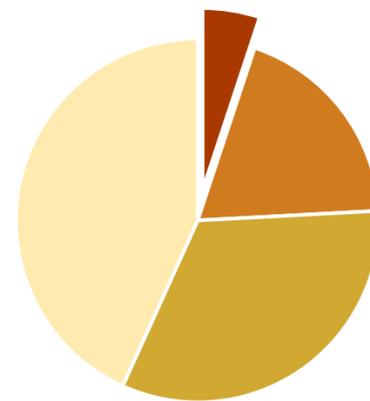


Non-factors

- **Chief Judges reported largely having sufficient pollbooks (83%)**
- **Early Voting turnout did not impact Election Day lines significantly aside from a few exceptions**



Explanations for Long Wait Group



Locations in Long Wait Group



02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Middle School
05-04	Riderwood Village
05-06	White Oak Middle School
05-23	Praisner Community Recreation Center
07-15	Thomas W. Pyle Middle School
07-19	Wyngate Elementary School
13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

More than 150 provisional ballots



02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Middle School
05-04	Riderwood Village
05-06	White Oak Middle School
05-23	Praisner Community Recreation Center
07-15	Thomas W. Pyle Middle School
07-19	Wyngate Elementary School
13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

More than 4,000 registered voters



02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Elementary School
05-04	Riderwood Village
05-06	White Oak Middle School
05-23	Praisner Community Recreation Center
07-15	Thomas W. Pyle Middle School
07-19	Wyngate Elementary School
13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

Over 75% of voters voting on Election Day



02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Middle School
05-04	Riderwood Village
05-06	White Oak Middle School
05-23	Praisner Community Recreation Center
07-15	Thomas W. Pyle Middle School
07-19	Wyngate Elementary School
13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

Voter-to-worker ratio of 150 or more



02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Middle School
05-04	Riderwood Village
05-06	White Oak Middle School
05-23	Praisner Community Recreation Center
07-15	Thomas W. Pyle Middle School
07-19	Wyngate Elementary School
13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

Significant/repeated equipment malfunctions

02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Middle School
05-04	Riderwood Village
05-06	White Oak Middle School
05-23	Praisner Community Recreation Center
07-15	Thomas W. Pyle Middle School
07-19	Wyngate Elementary School
13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

Reported needing additional scanners



02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Middle School
05-04	Riderwood Village
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07-15	Thomas W. Pyle Middle School
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13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

Very large surge of voters late in the day



02-06	Hallie Wells Middle School
04-03	Carver Educational Services Center
04-08/33	Garrett Park Elementary School
04-10	Tilden Middle School
04-14	College Gardens Middle School
05-04	Riderwood Village
05-06	White Oak Middle School
05-23	Praisner Community Recreation Center
07-15	Thomas W. Pyle Middle School
07-19	Wyngate Elementary School
13-05	Silver Spring Library
13-38	Cedar Lane Unitarian Universalist Church

Very large surge of voters early in the day

02-06

Hallie Wells Middle School

04-03

Carver Educational Services Center

04-08/33

Garrett Park Elementary School

04-10

Tilden Middle School

04-14

College Gardens Middle School

05-04

Riderwood Village

05-06

White Oak Middle School

05-23

Praisner Community Recreation Center

07-15

Thomas W. Pyle Middle School

07-19

Wyngate Elementary School

13-05

Silver Spring Library

13-38

Cedar Lane Unitarian Universalist Church



Precinct

005-23

007-19

013-05

004-14

005-04

004-08/33

005-06

004

Praisner RCC

Wyngate ES**

SS Library

College Gardens

Riderwood Village

Garrett Pk ES

White Oak MS

Carver ESC

Pv MS

Longest
Wait Time

Last Ck-in

Last scan

Average w
Minutes

ballot

120 9:09pm

110 7:59PM

105 9:31PM

90 8:49PM

90 8:01PM

70 8:02PM

9:47PM

8:23PM

9:39PM

9:01PM

8:12PM

8:55PM

9:17PM

9:04PM

50 Y

40 N

43 N

20 Y

35 Y

25 N/Y

23 N

39 Y

35 N

15 N

2 N

1679

1947

1380

1393

947

1817

1394

1574

1498

1847

11

1287

1951

895

1376

97

1

11

11

9

9

Detailed Data Provided



STAFF RECOMMENDATIONS

2018 GENERAL ELECTION



Staff Recommendations

Acquire Additional Scanners

- Additional scanners could reduce lines on Election Day and may be needed if a 3-page ballot arises again
- Scanners needed in reserve in case of malfunction

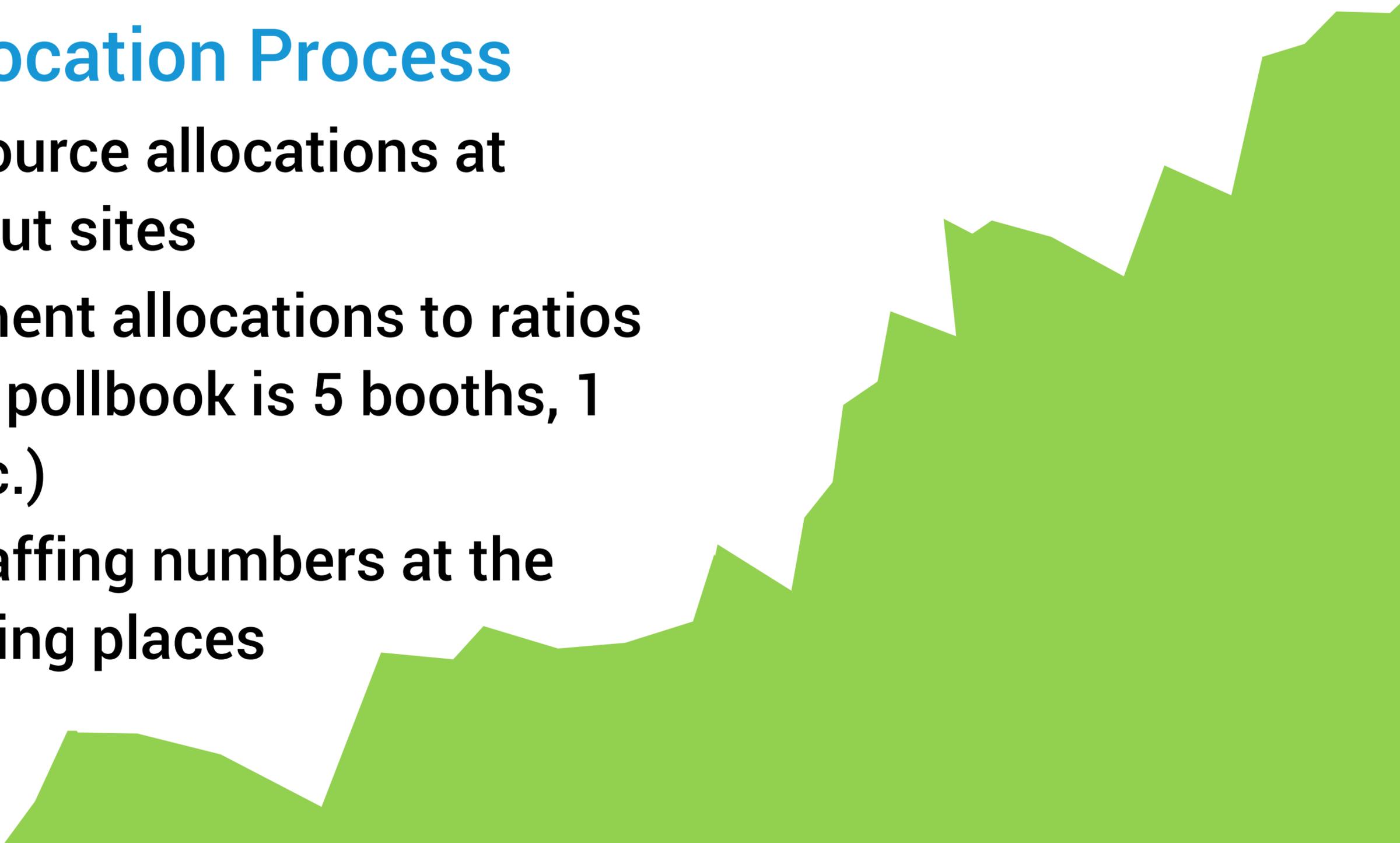
Staff Recommendations

Add Additional Voting Booths

- Quality control on existing booths
- Order additional/replacement booths
- Provide more privacy screens for seated voting to easily increase capacity at low cost

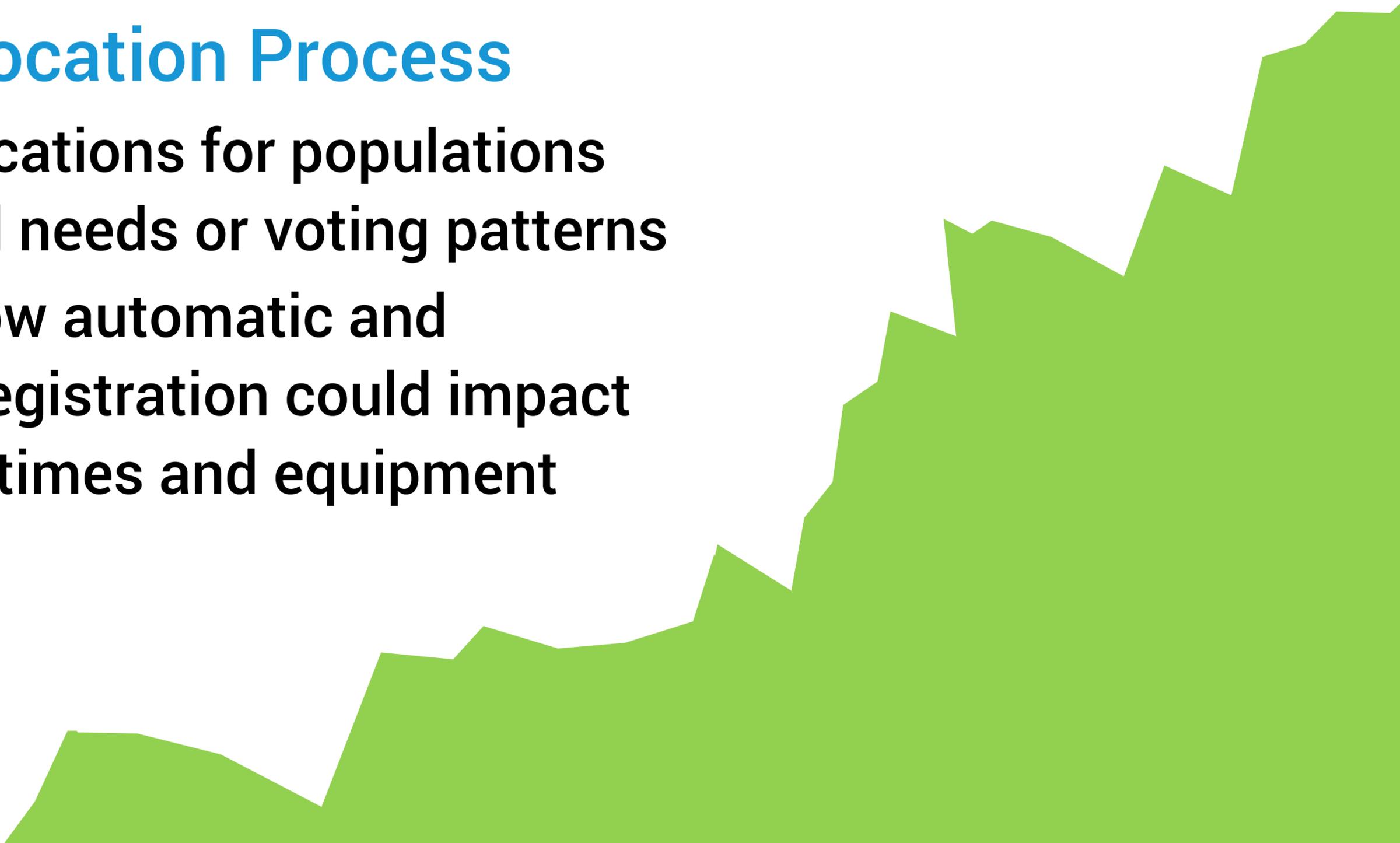
Staff Recommendations

Improve Allocation Process

- **Expand resource allocations at heavy turnout sites**
 - **Link equipment allocations to ratios (e.g. – each pollbook is 5 booths, 1 scanner, etc.)**
 - **Increase staffing numbers at the busiest polling places**
- 

Staff Recommendations

Improve Allocation Process

- **Update allocations for populations with special needs or voting patterns**
 - **Factor in how automatic and same-day registration could impact processing times and equipment needs**
- 

Staff Recommendations

Improve Tech Support Network

- **Expand technical training for roamers already in the field**
 - **Create an IT rover network to more quickly respond to reported issues**
 - **Expand use of county IT staff for cost effectiveness**
- 

Staff Recommendations

Examine Voting Rooms

- Check if alternative facility options might provide a better voting room
 - Use alternative layouts to use space effectively
 - Make sure layouts are maximizing space usage
- 

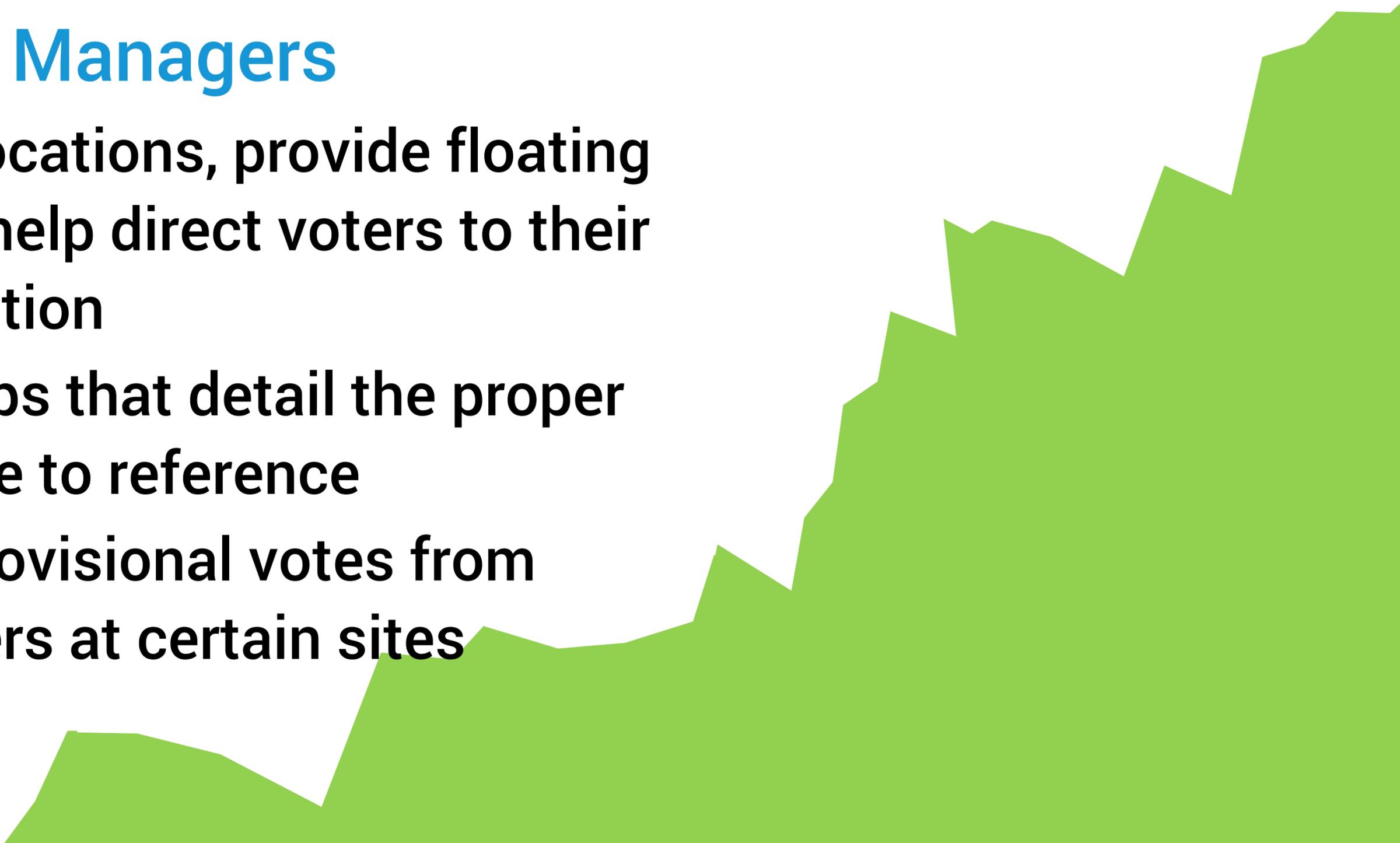
Staff Recommendations

Add and Update Signage

- Reduce election worker traffic control duties by adding large signs with numbers (e.g. – “1 – Check In Here”) so voters know where to go next in the polling place
- Numbers are a universal language

Staff Recommendations

Assign Line Managers

- At certain locations, provide floating workers to help direct voters to their correct location
 - Provide maps that detail the proper polling place to reference
 - Separate provisional votes from regular voters at certain sites
- 



Montgomery County Board of Elections
Report and Analysis by Eric Olsen, Operations Specialist
Contributions by Louise Warner, Janet Ross, Jessica White, Leslie
Woods, Jessica Jones, and Deborah Hamer
January 28, 2019