Wait Time Observations from the 2016 Maryland Primary Election

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ABOUT THE SCHAEFER CENTER FOR PUBLIC POLICY

Established in 1985 with a mission to bring the University of Baltimore's academic expertise to bear in solving problems faced by government and nonprofit organizations, the Schaefer Center has grown into one of Maryland's preeminent policy centers offering invaluable assistance in support of Maryland's public sector.

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Wait Time Observations from the Maryland
Presidential and Mayoral Primary – April 26, 2016

INTRODUCTION

At the request of the Baltimore City Board of Elections, the Schaefer Center for Public Policy at the University of Baltimore's College of Public Affairs studied polling place wait times for the 2016 presidential primary in the State of Maryland. This report presents those findings from the Early Voting period, April 14 through 21, and on Election Day, April 26, 2016.

In prior years, the Maryland General Assembly requested that the State Board of Elections submit a report that (1) describes and summarizes the data collection methods used; (2) analyzes the additional data collected; and (3) includes plans for reducing wait times at Early Voting centers and Election Day polling places. The administration of elections in 2016 remains, as was stated in previous reports, a large complex enterprise involving thousands of individuals and a multitude of federal and state laws, rules and regulations.

For the 2016 presidential general election, the number of individuals participating in the election process is likely to establish a new record number. As of July 31, there were 3,857,809 eligible, active voters and approximately 3 million voters are expected to cast a vote. The major factor expected to affect wait times during Early Voting and on Election Day is the potential high voter turnout. The continuing implementation of new voting equipment and new election procedures will also affect the voter experience and the time it takes to complete the voting process. This report describes the various times voters took to complete discrete steps in the voting process and discusses wait times in the 2016 primary election. Recommendations for the 2016 presidential general election and future elections are included in this report.

WAIT TIME OBSERVATIONS

For the 2016 primary election, a team of observers recorded voter completion times at 37 polling places in four jurisdictions (Anne Arundel County, Baltimore City, Baltimore County, and Prince George's County). Approximately 2,400 observations of voters were made, and 2,216 observations with complete information were recorded. Of the 2,216 observations with complete information, 1,050 were made during the Early Voting period and 1,166 were made on Election Day, April 26, 2016. The total observations recorded represented a 171% increase over observations made for the 2014 general election report.[1]

The research team observed voters, and the time elapsed while voters were at each voting station, from their initial entry into the check-in line to the final insertion of their ballot into the scanner or provisional

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[1] Schaefer Center: "Wait Time Observations from the 2014 Maryland General Election" (hereafter called the 2015 Schaefer Center Report).

ballot bag. As in previous years, the data collection plan was designed to capture variables that would help explain the reasons for changes in wait times. The calculations in this report are based on the observations conducted and not statewide pollbook data, unless otherwise noted.

LOCATIONS

For the 2016 primary election study, early voting centers and Election Day precinct polling places were chosen for observation from the jurisdictions which had severe wait problems in 2012 and 2014. Another criterion for observation was that the polling place appeared to be susceptible to problems in the future. Early voting centers have always been chosen, in part, because of the large volume of voters who could be expected to use those sites.

The research team strategically selected voting centers to observe wait times during Early Voting and Election Day based upon factors such as historical voter turnout, the propensity for a voting center to suffer long wait times, and the assessment of new voting centers.

The focus of strategic data collection was to determine the underlying factors that may contribute to wait times in excess of thirty minutes or other complications that may hinder the voting experience as a result of the implementation of new voting equipment and election procedures in 2016.

It must be emphasized that the voting locations selected to be observed were not selected at random. One factor in selecting these locations was that it was expected that the center would be more likely to encounter wait time problems than other locations.

This research was designed not to find the average experience in the state, but to find and better pinpoint specific wait time problems. The data presented should be read as observations from precincts that could have been expected to have problems and not as data from representative early voting centers and precinct polling locations.

METHODOLOGY

Nineteen observers were recruited to make observations of polling places and of voter behavior during the voting process. Appendix A includes the Polling Place Observation Form that observers were given to record their observations about each polling place. Appendix B contains the form that the observers used to record the observations of voters at each voting station.

The methodology of conducting observations during the 2016 primary elections was derived from 2014 and 2012 efforts; therefore the forms and methodology were similar to those years. The observation team visited assigned voting locations during the morning (7:00 am to 12:00 pm), afternoon (12:00 pm to 5:00 pm), and evening (5:00 pm to 8:00 pm).

Observers used timing devices to record six key steps during the voting process:

1. Time the voter entered the check-in line
2. Time to receiving a voter authority card from the check-in desk
3. Time voter arrived at the ballot issue station
4. Time to receiving a ballot from the ballot issue station
5. Time taken to mark ballot at the ballot marking station
6. Time from completion of ballot marking to ballot being scanned

The analyses of all time data were completed by timing each step in the voting process. The time spent waiting to reach the check-in desk and receive a voter authority card (Step 2 above) was added to the time of each subsequent step. By adding these totals, the research team was able to not only calculate the total time for completion of the voting process, but also used that data as the baseline for various statistical analyses. A mathematical model of the relationships between the factors contributing to wait time was developed for previous reports and has been updated with the observations described above for the 2016 primary election. The form observers used is available in Appendix B.

Following a recommendation on page 24 in the 2015 Schaefer Center Report, additional data was collected by local election officials for the number of individuals in line at the state's 67 early voting centers on each day of the early voting period at the opening of the polls (10:00 am) and at the closing of the polls (8:00 pm).

The data from the Early Voting period, April 14 to April 21, 2016, is presented in Appendix D. Most of the Early Voting centers did have check-in lines at the opening (10:00 am) and did not have check-in lines at closing (8:00 pm). There were lines ranging from 0 to 120 at the opening of the polls, and 0 to 80 at the closing of the polls. Average voter line numbers and details by jurisdiction are presented in the Early Voting Observations section on pages 21 - 24.

REPORT FINDINGS

This report contains two sections. The main body provides an overview of the research team's wait time observations, with comparisons and analyses of previous years' data. A comprehensive look at wait times and voter turnout is included. Further details and analysis can be found in the appendices.

WAIT TIME OVERVIEW

During the 2014 regular session of the Maryland General Assembly, language was included in the general fund appropriation for the Maryland State Board of Elections that required the state and local boards of elections to collect additional data on wait times for voters at select Early Voting centers and Election Day polling places; and to take action to ensure that voters were able to complete the entire voting process within 30 minutes.

In the 2016 primary, the total average time to vote calculated from all jurisdictions observed was 8 minutes and 29 seconds, or 509 seconds from start to finish. This total average time is defined as the elapsed time between when a voter entered the check-in line (or the room if there was no check-in line) until their ballot was accepted by the ballot scanner or placed in the provisional ballot bag.

VOTER TURNOUT SUMMARY

Voter turnout varies depending upon the type of election (gubernatorial, presidential, mayoral, and special) and the relative competitiveness of the election, along with external factors such as the state of the economy, social issues and contemporary events.

OVERALL TURNOUT

For the 2016 presidential primary election, the total voter turnout was more than double the 2012 presidential primary election (596,706) and about double that of the 2014 gubernatorial primary (739,678).

From the 2014 to 2016 primary, all twenty-four Maryland jurisdictions had large increases in turnout, with percentage changes in some jurisdictions of over 100%. Washington County was the highest, with a 129% increase in voters. Talbot County experienced the smallest increase in primary voters, with 30%. Across all jurisdictions, the average turnout increase was 82% when compared to 2014. The percentage increases in voter turnout in all jurisdictions are listed below in Chart 1.

Chart 1: Maryland Jurisdictions: Percentage Increase in Voter Turnout (2014 – 2016 Primaries)

Jurisdiction	Percentage Increase
Washington	129%
Montgomery	125%
Howard	123%
Worcester	113%
Wicomico	110%
Saint Mary's	104%
Baltimore City	97%
Prince George's	91%
Anne Arundel	90%
Baltimore County	87%
Cecil	85%
Harford	85%
Allegany	84%
State of Maryland	82%
Calvert	82%
Frederick	78%
Caroline	68%
Carroll	65%
Garrett	65%
Kent	63%
Charles	58%
Somerset	57%
Queen Anne's	39%
Dorchester	38%
Talbot	30%

Depicted below is the total voter turnout from the last three primary elections in Maryland by jurisdiction.

Table 1: Total Voter Turnout: Primary Elections (2012, 2014, and 2016)

Jurisdiction	2012 Presidential	2014 Gubernatorial	2016 Presidential	2014-2016 % Change	2012-2016 % Change
Allegany	10,709	8,883	16,356	84%	53%
Anne Arundel	56,749	68,885	130,828	90%	131%
Baltimore City	47,861	75,212	148,059	97%	209%
Baltimore County	81,574	110,301	206,115	87%	153%
Calvert	9,450	12,099	21,972	82%	133%
Caroline	3,371	3,756	6,307	68%	87%
Carroll	18,805	29,025	48,025	65%	155%
Cecil	11,430	11,555	21,433	85%	88%
Charles	13,885	22,170	34,956	58%	152%
Dorchester	3,892	5,550	7,666	38%	97%
Frederick	33,061	36,082	64,199	78%	94%
Garrett	4,675	5,319	8,776	65%	88%
Harford	28,680	34,803	64,428	85%	125%
Howard	35,919	40,363	90,046	123%	151%
Kent	3,237	3,370	5,499	63%	70%
Montgomery	91,997	111,194	249,664	125%	171%
Prince George's	77,316	96,910	184,894	91%	139%
Queen Anne's	6,557	9,533	13,214	39%	102%
Saint Mary's	13,455	11,259	22,970	104%	71%
Somerset	2,198	2,954	4,649	57%	112%
Talbot	6,001	8,005	10,404	30%	73%
Washington	19,678	15,594	35,670	129%	81%
Wicomico	9,407	10,048	21,086	110%	124%
Worcester	6,816	6,808	14,473	113%	112%
State of Maryland	596,723	739,678	1,431,689	**82%**	**115%**

EARLY VOTING

In the 2016 primary, the number of early voters substantially increased from 141,566 in the 2014 primary to 259,051. Although the total increase in early voters was substantial, the percentage of the early vote compared to the total voter turnout in the 2016 presidential primary was similar to the percentage in the 2014 primary. Marylanders have only had the option of early voting since the 2010 election cycle.

As stated in the previous section, Washington County had the largest percentage increase in voter turnout. Likewise, Washington County had the largest increase in early voters in 2016. Overall, the early voter numbers ranged from a 28% increase in Carroll County to a 127% increase in Montgomery County, and Washington County with the highest increase, at 149%. Across the state, the average increase in early voters was 71%. All jurisdictions, with their percentage increase in early voters, are depicted below.

Chart 2: Percentage Increase in Early Voting (2014 – 2016 Primaries)

Jurisdiction	Percentage Increase
Washington	149%
Montgomery	127%
Howard	98%
Harford	96%
Worcester	93%
Baltimore City	90%
Saint Mary's	89%
Anne Arundel	87%
Garrett	86%
Kent	79%
Baltimore County	78%
Allegany	76%
Prince George's	75%
State of Maryland	71%
Frederick	58%
Calvert	57%
Somerset	49%
Wicomico	47%
Cecil	47%
Caroline	44%
Talbot	42%
Queen Anne's	42%
Dorchester	38%
Charles	33%
Carroll	28%

For a six-year perspective, Table 2 depicts the total Early Voter turnout from the last four primary elections. The turnout increase ranges from 200% – 400% among Maryland jurisdictions.

Table 2: Early Voting: Maryland Primary Elections (2010 – 2016)

Jurisdiction	2010 Primary	2012 Primary	2014 Primary	2016 Primary	2012-2016 Change
Allegany	614	570	657	1,158	205%
Anne Arundel	8,590	8,578	14,935	27,847	326%
Baltimore City	7,235	7,507	15,884	30,110	406%
Baltimore County	12,875	11,945	22,285	39,538	333%
Calvert	925	1,104	1,892	2,985	271%
Caroline	637	494	687	989	201%
Carroll	1,770	1,894	4,395	5,645	300%
Cecil	1,285	1,387	2,229	3,265	238%
Charles	1,962	1,645	3,780	5,016	307%
Dorchester	654	476	882	1,219	257%
Frederick	1,611	2,849	4,855	7,638	270%
Garrett	732	422	742	1,382	328%
Harford	3,790	3,246	6,261	12,256	379%
Howard	4,628	5,951	9,248	18,400	311%
Kent	846	694	829	1,479	214%
Montgomery	7,585	10,037	18,871	42,785	429%
Prince George's	14,541	9,667	21,959	38,493	400%
Queen Anne's	1,006	683	2,343	3,323	487%
Saint Mary's	978	1,578	1,534	2,896	184%
Somerset	391	277	540	802	541%
Talbot	1,431	1,537	2,225	3,169	207%
Washington	833	1,374	1,386	3,450	253%
Wicomico	1,444	1,350	1,946	2,849	213%
Worcester	927	859	1,225	2,357	276%
State of Maryland	**77,290**	**76,124**	**141,590**	**259,051**	**Avg. 343%**

For the general elections (2010, 2012, and 2014), total voter turnout for early voting is depicted below by jurisdiction. Early voting turnout for the 2016 presidential general election is expected to be higher and set a record given the increase in voter registration and increasing voter familiarity with early voting.

Table 3: Early Voting: Maryland General Elections (2010 – 2014)

Jurisdiction	2010 General	2012 General	2014 General	2012-2014 Change	2010-2014 Change
Allegany	1,026	2,695	1,504	-56%	47%
Anne Arundel	28,941	38,136	38,654	1%	34%
Baltimore City	19,856	45,510	25,921	-57%	31%
Baltimore County	31,237	56,236	51,812	-92%	66%
Calvert	3,263	7,039	4,751	-67%	46%
Caroline	1,512	2,365	1,606	-68%	6%
Carroll	5,208	10,408	8,016	-77%	54%
Cecil	3,387	5,890	4,123	-70%	22%
Charles	5,127	11,988	6,880	-57%	34%
Dorchester	1,348	2,465	1,608	-65%	19%
Frederick	5,812	13,862	10,710	-77%	84%
Garrett	933	1,550	1,357	-88%	45%
Harford	11,108	16,390	18,007	10%	62%
Howard	14,902	30,461	21,431	-70%	44%
Kent	1,627	2,385	1,969	-83%	21%
Montgomery	26,756	77,939	35,443	-45%	32%
Prince George's	38,540	69,929	46,227	-66%	20%
Queen Anne's	2,703	4,012	5,156	29%	91%
Saint Mary's	2,873	7,096	4,471	-63%	56%
Somerset	970	1,655	1,263	-76%	30%
Talbot	3,659	5,948	4,869	-82%	33%
Washington	2,096	7,349	3,504	-48%	67%
Wicomico	3,971	6,415	4,944	-77%	25%
Worcester	2,769	2,824	3,439	22%	24%
State of Maryland	**219,624**	**430,547**	**307,665**	**Avg. -55%**	**Avg. 41%**

EARLY VOTING AS A PERCENTAGE OF THE TOTAL

In the 2014 primary, early voters were 18.12% of the total voter turnout. For the 2016 primary, early voters were 17.13% of the total voter turnout. Even though the number of early voters nearly doubled from the 2014 primary to the 2016 primary, the percentage of early voters remained steady.

Across Maryland jurisdictions, early voter turnout as a percentage of the total vote changed very little from the 2014 primary although there have been significant increases from the 2010 and 2012 election cycles as noted in Table 4 below.

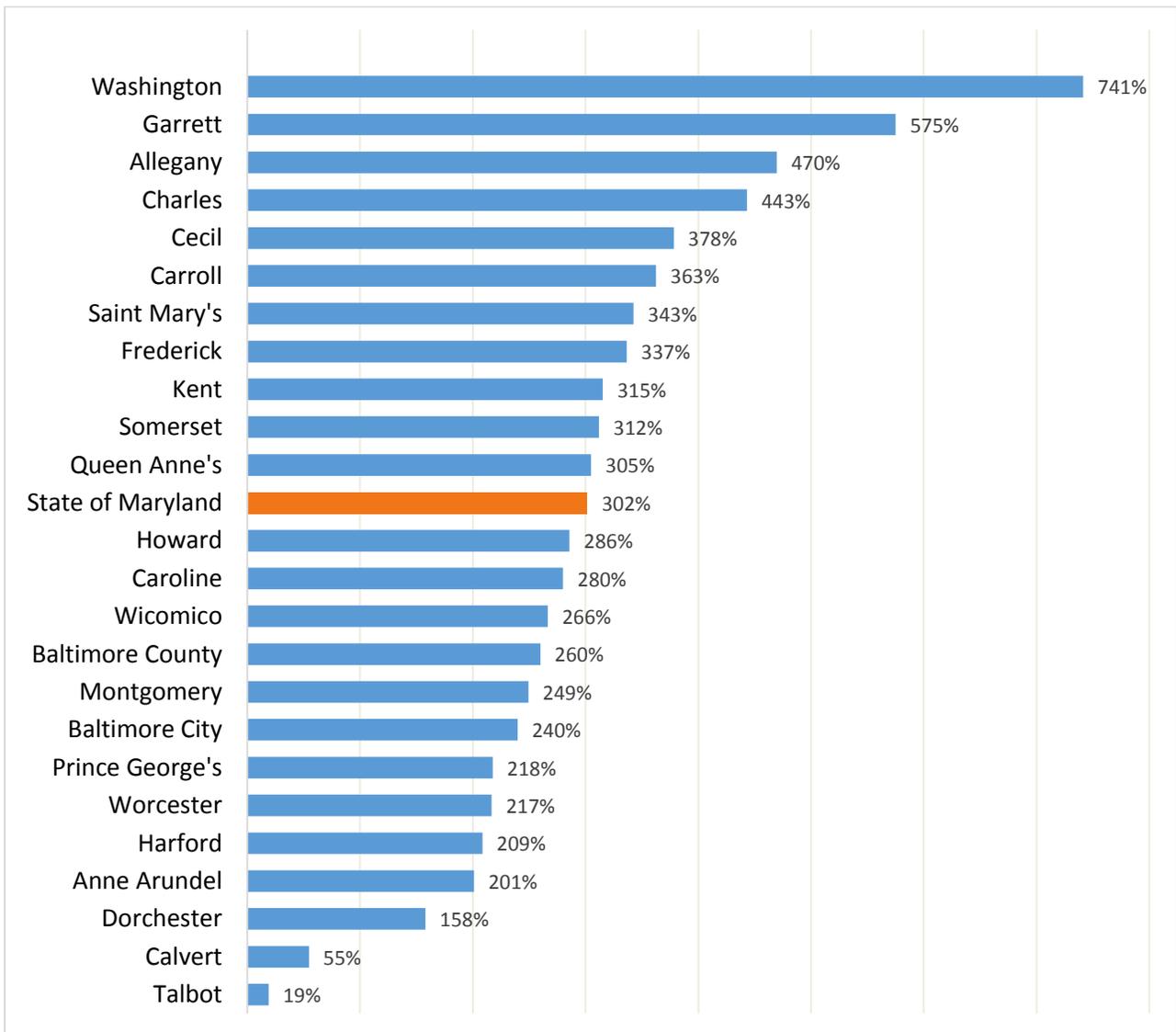### Table 4: Early Voters as a Percentage of the Total Vote (2010 – 2016 Primaries)

Jurisdiction	2010 Primary	2012 Primary	2014 Primary	2016 Primary	% Change 2014 Primary - 2016 Primary
Allegany	4.3%	5.3%	7.4%	7.1%	-0.3%
Anne Arundel	10.9%	15.1%	21.7%	21.3%	-0.4%
Baltimore City	9.9%	15.7%	21.1%	20.3%	-0.8%
Baltimore County	10.0%	14.6%	20.2%	19.2%	-1.0%
Calvert	7.3%	11.7%	15.7%	13.6%	-2.1%
Caroline	13.6%	14.7%	18.3%	15.7%	-2.6%
Carroll	6.5%	10.1%	15.1%	11.8%	-3.3%
Cecil	9.5%	12.1%	19.3%	15.2%	-4.1%
Charles	9.4%	11.8%	17.0%	14.3%	-2.7%
Dorchester	10.1%	12.2%	15.9%	15.9%	0.0%
Frederick	4.8%	8.6%	13.4%	11.9%	-1.5%
Garrett	10.8%	9.0%	14.0%	15.7%	1.7%
Harford	9.6%	11.3%	18.0%	19.0%	1.0%
Howard	11.7%	16.6%	23.0%	20.4%	-2.6%
Kent	19.7%	21.4%	24.5%	26.9%	2.4%
Montgomery	6.7%	10.9%	17.0%	17.1%	0.1%
Prince George's	13.6%	12.5%	22.7%	20.8%	-1.9%
Queen Anne's	10.8%	10.4%	24.6%	25.1%	0.5%
Saint Mary's	7.0%	11.7%	13.6%	12.6%	-1.0%
Somerset	9.5%	12.6%	18.3%	17.3%	-1.0%
Talbot	19.7%	25.6%	27.8%	30.5%	2.7%
Washington	4.0%	7.0%	8.9%	9.7%	0.8%
Wicomico	11.3%	14.4%	19.3%	13.5%	-5.8%
Worcester	8.8%	12.6%	18.0%	16.3%	-1.7%
State of Maryland	**9.98%**	**12.8%**	**18.12%**	**17.13%**	**Avg. -0.98%**

PROVISIONAL BALLOTS

In the 2016 presidential primary, there were 50,457 provisional voters, the largest number for a statewide primary election in Maryland since provisional ballots were authorized by the Maryland General Assembly in 2002. In the 2014 primary, there were 14,496 provisional ballots representing 1.9% of the total voter turnout. In the 2016 presidential primary, provisional ballots were 3.5% of total turnout – an 84% increase.

Provisional ballot increases ranged from a 19% increase in Talbot County to a very high 741% increase in Washington County. All but two jurisdictions had triple-digit percentage increases, and overall, the average statewide increase was 302%. This means that in most jurisdictions, the number of voters needing provisional ballots tripled or even quadrupled. It should be noted that 49.1% of the provisional ballots statewide were rejected, and not counted by the local boards of elections.

Chart 3: Percentage Change in Provisional Ballots by Jurisdiction (2014 – 2016 Primaries)

Jurisdiction	Percentage
Washington	741%
Garrett	575%
Allegany	470%
Charles	443%
Cecil	378%
Carroll	363%
Saint Mary's	343%
Frederick	337%
Kent	315%
Somerset	312%
Queen Anne's	305%
State of Maryland	302%
Howard	286%
Caroline	280%
Wicomico	266%
Baltimore County	260%
Montgomery	249%
Baltimore City	240%
Prince George's	218%
Worcester	217%
Harford	209%
Anne Arundel	201%
Dorchester	158%
Calvert	55%
Talbot	19%

Handling a provisional voter typically takes more time during the check-in process and for the 2016 presidential general election. Therefore, election judge training should include enhanced discussion on how to process the provisional voter, especially in light of the implementation of a new voting system and polling place procedures.

KEY TURNOUT FACTORS

Voter turnout typically increases substantially in presidential general elections, especially in contests that received enhanced media attention and are viewed as competitive. Other external factors such as the state of the economy, international affairs, social issues and current events prompt voter participation. Also, Maryland population increases along with improvements in voter registration processes bolster voter turnout.

SAME-DAY VOTER REGISTRATION

During the 2016 presidential primary, election officials implemented the state legislative requirement to offer "same day" voter registration to individuals who appear at an early voting center during the eight days of Early Voting desiring to vote. A qualified individual who is not registered to vote was able to complete a voter registration application and cast a ballot in the 2016 presidential primary election. Overall, the additional influx of voters in this category does not seem to have affected wait times in a statistically significant way during the 2016 presidential primary. Larger numbers of same day registration in the 2016 general election and future elections may have more impact.

Unofficial Same Day Registration and Address Change Turnout	New Registration Total	Address Change Total	Combined Total
2016	1,925	2,049	3,974

THE 2016 PRESIDENTIAL ELECTION

In presidential election years, voter turnout is always expected to be higher, particularly in years like 2016 when there is no incumbent presidential candidate on the ballot.

Table 5 below shows Maryland voter turnout in presidential general elections from 1984.[2] According to a statistical model based on previous years, the research team projects more than 3,866,748 registered voters in the 2016 presidential election. As of July 2016, there were already 3,857,809 registered voters. The total voter turnout for the 2016 presidential election is expected again to set a record for total voter turnout and is likely to be in the high range for voter turnout percentages in Maryland for presidential general elections.

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[2] www.elections.state.md.us/elections/2012/turnout/general/2012_General_Statewide.html and www.elections.state.md.us/press_room/documents/pres_turnout_numbers.pdf

Table 5: Maryland Presidential General Election Turnout (1984 – 2016)

Year	Total Registered Voters	Total Voter Turnout	Turnout Percentage
1984	1,823,994	1,124,633	61.7%
1988	2,310,080	1,747,350	76.0%
1992	2,463,010	1,999,486	81.0%
1996	2,577,199	1,793,991	69.6%
2000	2,719,636	2,036,455	74.9%
2004	3,070,337	2,395,791	78.0%
2008	3,428,935	2,661,905	77.6%
2012	3,694,660	2,734,062	74.0%
2016 (projected)	**3,866,748**	**2,989,751**	**77.3%**
2016 (estimated)	**3,866,748**	**3,093,398**	**80.0%**

As seen in the table above, the 2016 total voter turnout projection, based on previous trends, is 2,989,751 voters, and a turnout percentage of 77.3%. It is forecasted that actual voter turnout will be closer to 80%, which would be a total voter turnout of 3,093,398. Both projections are shown in the following chart.

Chart 4: Total Voter Turnout for the 2016 Presidential Election (1984 – 2016)
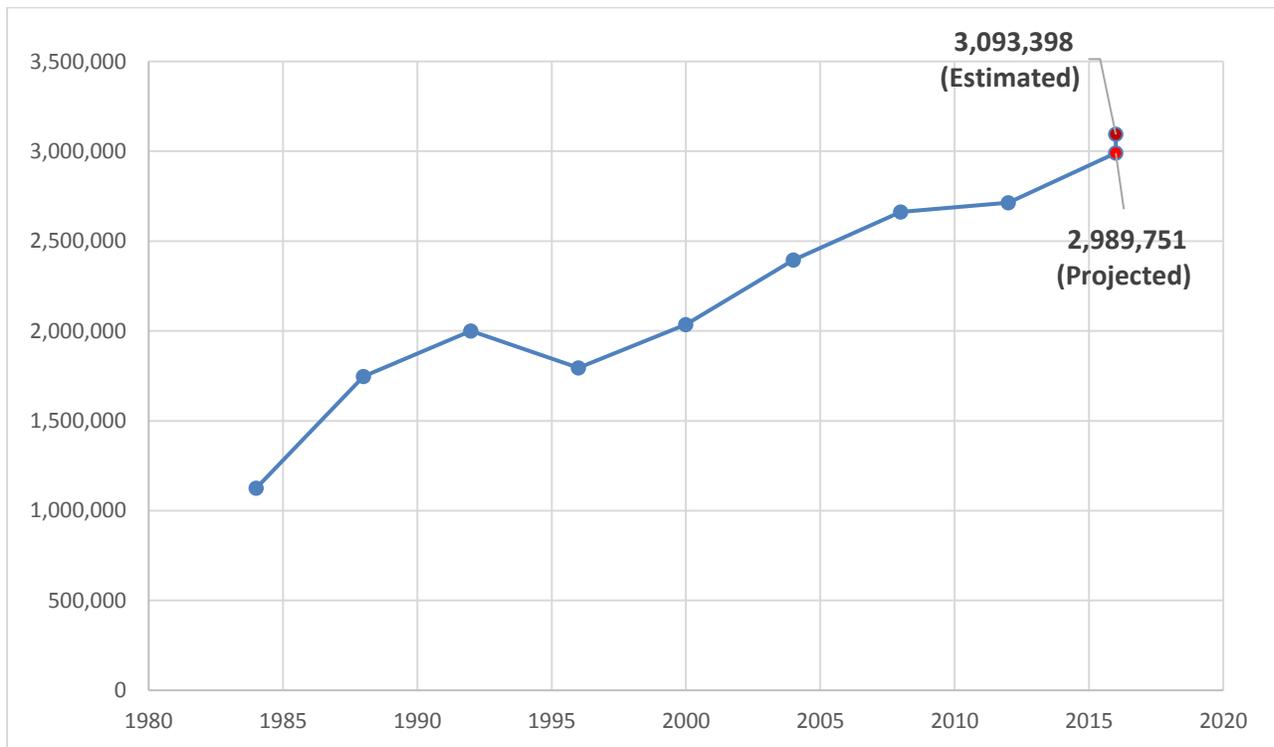
Voter turnout as a percentage of all registered voters is shown below for presidential general elections from 1984 through 2012. A statistical projection, using previous years' turnout data, projects the total

voter turnout percentage at 77.3%. Considering all factors, a voter turnout of approximately 80% is forecasted.

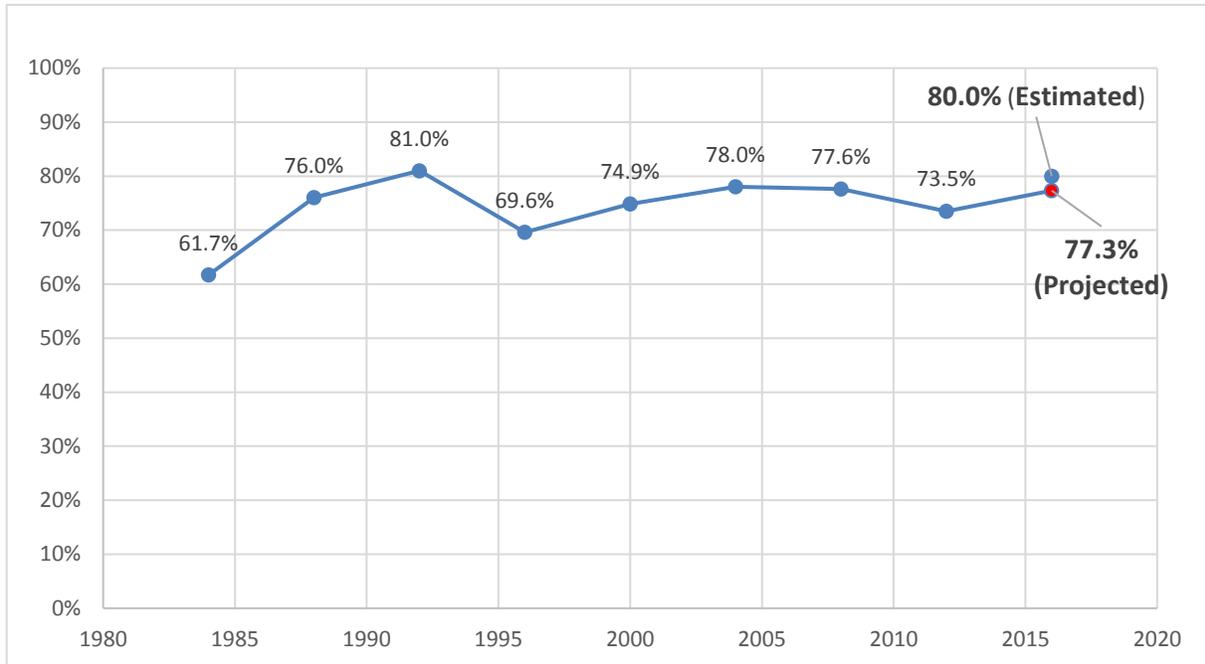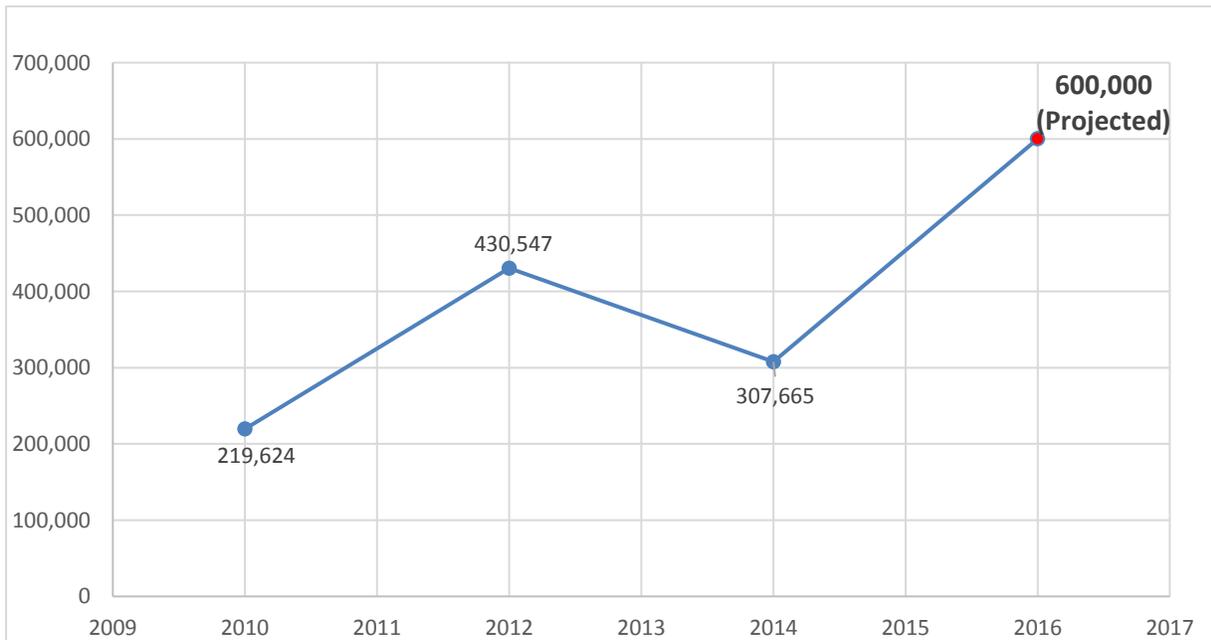**Chart 5: Turnout Percentages for the 2016 Presidential Election (1984 – 2016)**

Chart 6: Projected General Election Early Voting Totals (2010 – 2016)

VOTER COMPLETION TIME FINDINGS

TOTAL OBSERVATIONS BY JURISDICTION

The completed observations of 2,216 voters during Early Voting and on Primary Election Day were recorded in Anne Arundel County, Baltimore County, Baltimore City, and Prince George's County. The following tables depict the observations conducted by jurisdiction, voting session (Early Voting or Election Day), and time of day (Morning, Afternoon, Evening). A significantly higher amount of observations were conducted this year (2,216 vs. 1,293 in 2014). The total number of observations, separated into Early Voting and Election Day, are listed in the following Table 6 and Table 7.

Table 6: Observations by Jurisdiction – Early Voting

Jurisdiction	Morning	Afternoon	Evening	Total
Baltimore City	61	81	18	160
Baltimore County	13	68	22	103
Prince George's County	430	438	249	1,117

Table 7: Observations by Jurisdiction – Election Day

Jurisdiction	Morning	Afternoon	Evening	Total
Anne Arundel	189	92	79	360
Baltimore City	124	112	97	333
Baltimore County	45	87	24	156
Prince George's County	132	156	84	372

OBSERVATIONS AT EARLY VOTING CENTERS

The number of early voting centers increased in Maryland from 64 in 2014 to 67[3] while the early voting period remained as an eight-day period.[4] In 2016, early voting observations were conducted in Prince George's County, Baltimore County, and Baltimore City. Election Day observations were conducted in Anne Arundel County, Prince George's County, Baltimore County and Baltimore City on April 26, 2016.

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[3] Maryland State Board of Elections, 2016:
http://www.elections.state.md.us/press_room/2016_stats/PP16_EarlyVoting_by_Location.pdf
[4] http://www.elections.state.md.us/elections/2016/2016_Election_Calendar.pdf

In addition to measuring how long it took to complete the voting process, the research team analyzed each step in the voting process:

1. Time the voter entered the check-in line
2. Time to receiving a voter authority card from the check-in desk
3. Time voter arrived at the ballot issue station
4. Time to receiving a ballot from the ballot issue station
5. Time taken to mark ballot at the ballot marking station
6. Time from completion of ballot marking to ballot being scanned

Chart 7: Average Elapsed Time between Voting Intervals (Minutes)
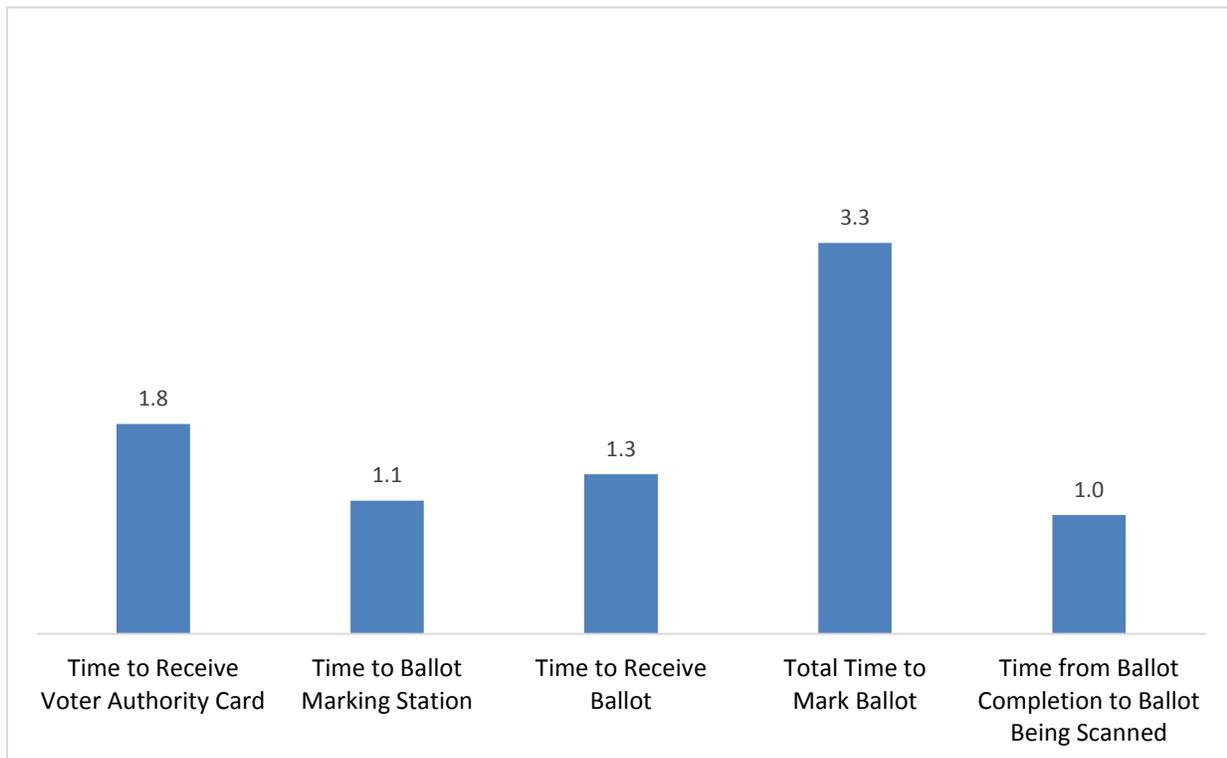
The longest average elapsed time occurred as voters filled out their ballot (3.3 minutes). The second longest average time observed was during the voter's entrance in the check-in line until they received their voter authority card (1.8 minutes). It should be noted that the above chart presents average times from 2,216 observations. Voters in line at the beginning of the day at some early voting centers waited before the polls opened and experienced longer check-in times before the initial line was cleared. Also, some early voting centers had queues at the end of the day and during the day when groups of individuals arrived at the same time to vote and it took longer than the average elapsed time to clear the initial voter check-in line.

As Stewart and Ansolabehere's (2013) election research stated, long initial wait times can have negative consequences for voter confidence and turnout. Prior election research suggests that long voting lines may impact the confidence of voters even if they do not personally experience waiting in those particular lines.[5] In fact, "voter line fatigue" may even cause voters to leave the polling place before casting a vote and increase negative sentiment – i.e., that their vote will not count. These consequences tend to occur after 10-minute-long wait times in the initial check-in line which was only observed during the 2016 primary election in limited circumstances.

CHECK-IN TIMES AND BALLOT MARKING TIMES (2014 – 2016)

Although the voting system changed between the 2014 general election and the 2016 primary election, it is useful to compare the voting steps that remained the same. While the time spent in the check-in line remained about the same (1.68 to 1.8 minutes), the time a voter took to mark the ballot decreased. In the 2014 general election, voters took an average of 4.76 minutes to vote on the touchscreen. In the 2016 primary, voters took an average of 3.3 minutes to mark their paper ballot, representing a 44% decrease in time.

Chart 8: Average Minutes Elapsed at Check-In and to Mark Ballot, By Year

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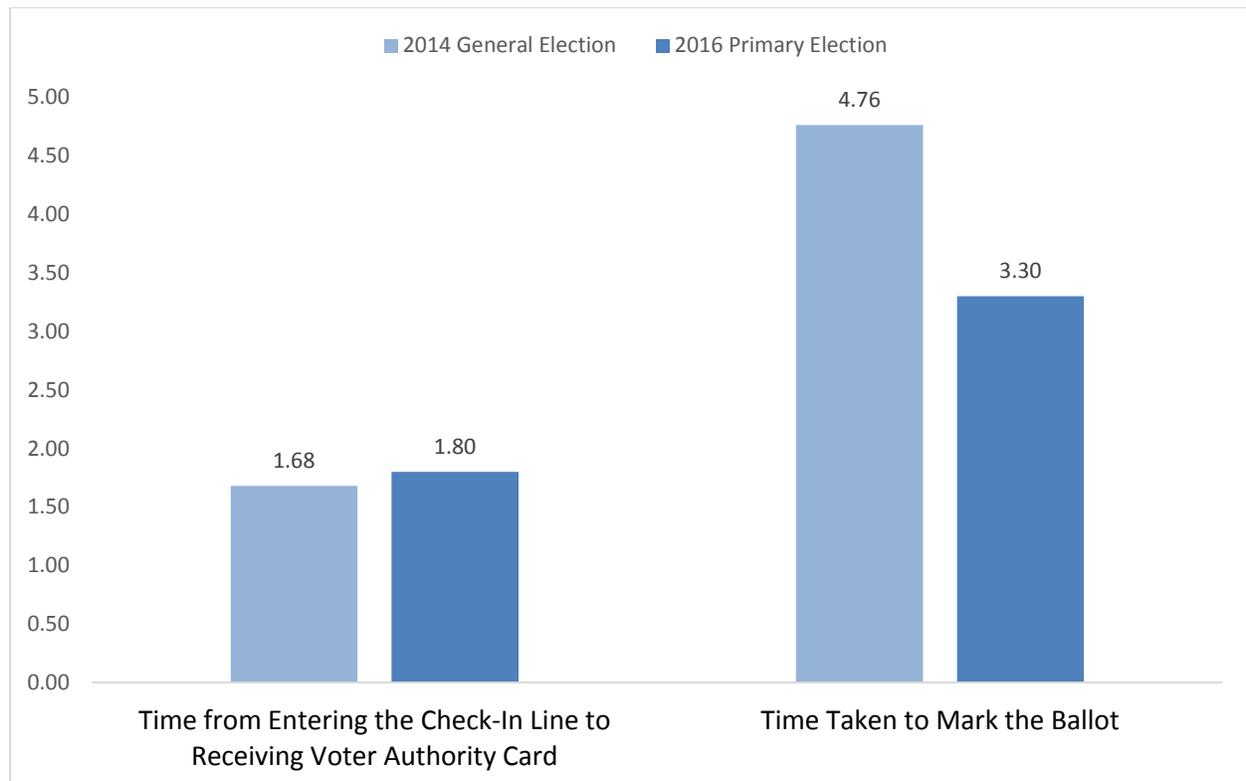
[5] Stewart III, C. H., & Ansolabehere, S. (2013). Waiting in Line to Vote.

The use of the DS 200 optical scan voting system meant that the check-in judge no longer had to issue an access card from electronic pollbooks. The elimination of the voter access card read/write processes may have shortened wait times by improving the overall throughput of the electronic pollbooks by 5 to 10%.

TIME TAKEN TO VOTE

The following chart shows the total time voters took to mark their ballot, by jurisdictions observed.

Chart 9: Average Time Taken to Mark the Ballot (Minutes)
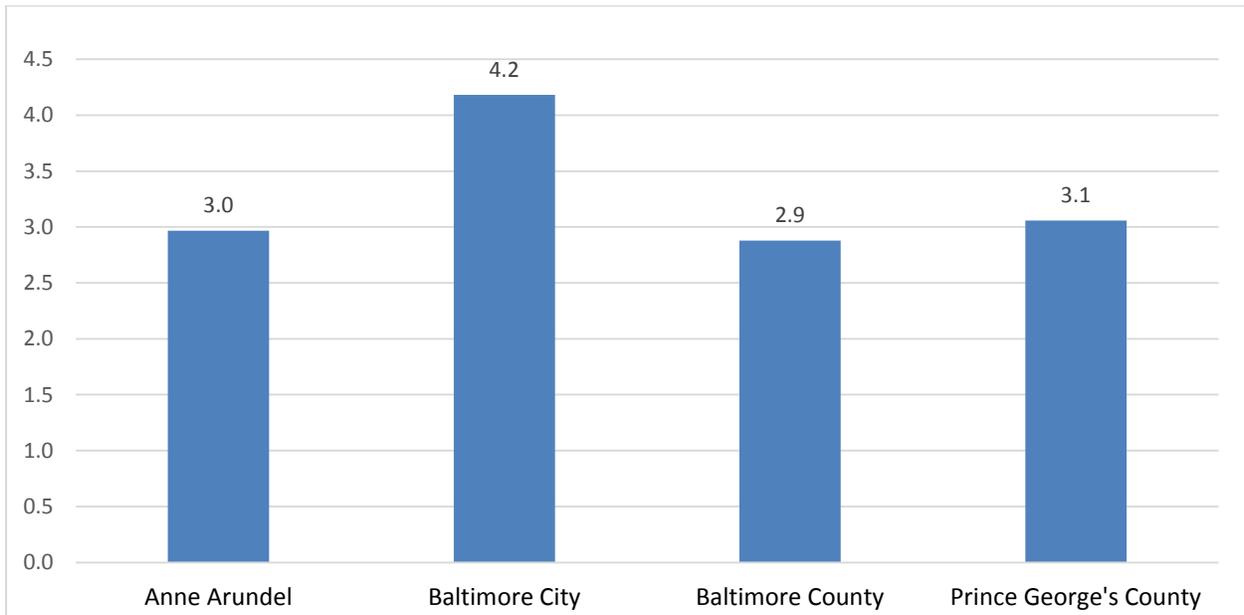
LONGEST COMPLETION TIMES BY VOTING STEP, POLLING PLACE, AND TIME OF DAY

From the previous table of research team observations, the following jurisdictions experienced the longest times per voting interval during the 2016 presidential primary. Results were grouped by Early Voting/Election Day, and time of day (morning, afternoon, and evening).

| Voting Station	Jurisdiction, Voting Phase, Time of Day	Elapsed Time
Entering Line to Check-In	Baltimore City, Early Voting, Afternoon	2.98 minutes
Check-In to Ballot Issue Table	Baltimore City, Early Voting, Afternoon	2.83 minutes
Ballot Issue to Marking Station	Prince George's, Early Voting, Evening	3.50 minutes
Marking Ballot to Ballot Completion	Prince George's, Election Day, Evening	5.84 minutes
Wait Time to Scan Ballot	Baltimore City, Election Day, Evening	1.54 minutes

AVERAGE TIME TO COMPLETE THE VOTING PROCESS

During Early Voting, the longest average time taken to vote was in Baltimore City, with an average time of 11.32 minutes. This means it took the average voter about 11 minutes to complete the entire voting process – from entering the line, checking in, receiving their ballot, marking their vote, and having their ballot scanned. It should be noted that the primary election in Baltimore City included additional contests for mayor, city comptroller, city council president and city council district members.

Chart 10: Average Observed Time to Complete the Voting Process (in Minutes)
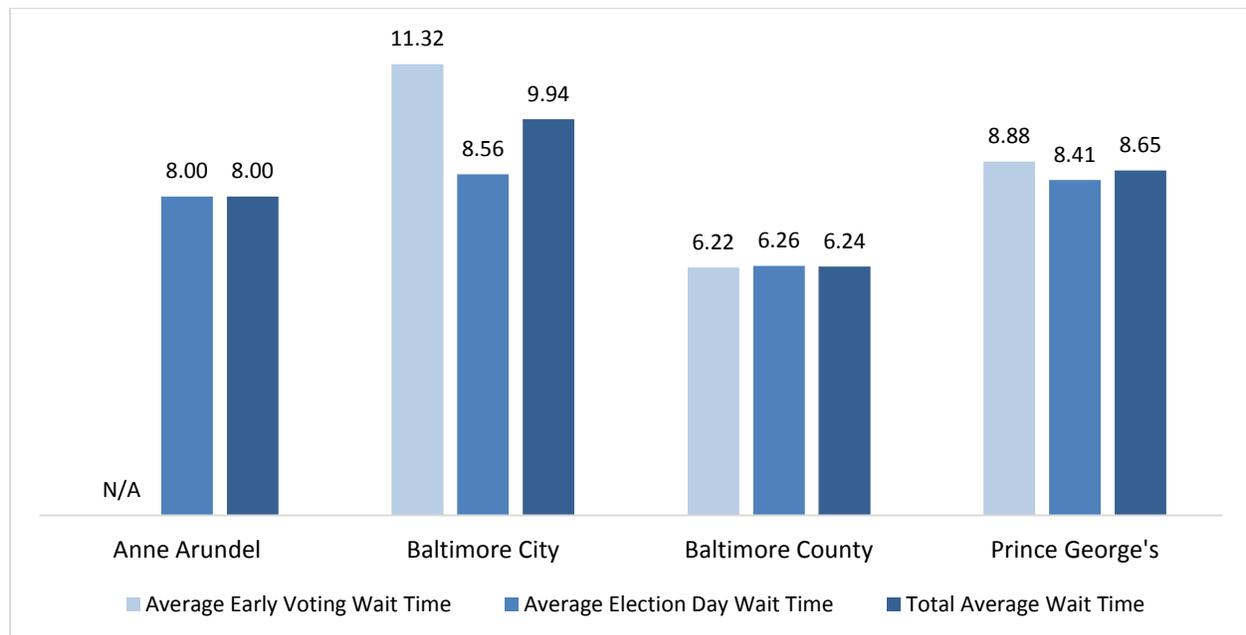
The lowest average time to complete the voting process was observed in Baltimore County, which had an average of 6.24 minutes from start to finish. Analyses were conducted to determine the standard deviation statistics by voting session (Early Voting or Election Day) and by jurisdiction in addition to analyses to determine how many 20 and 30-minute wait times occurred per voting session and by jurisdiction.

Although Early Voting periods are typically perceived to have reduced wait times, all jurisdictions observed experienced higher voting completion times during Early Voting compared to Election Day. The lowest average voting completion times were observed in Baltimore County during both Early Voting and Election Day.

LONGEST VOTER COMPLETION TIMES

The longest single observed voter completion time reported occurred in Anne Arundel County at the Linthicum Community Library during the afternoon of Election Day with a total of 32.55 minutes from the voter's entrance to the waiting line to their insertion of the ballot into the ballot scanner.

EARLY VOTING LINE LENGTH

On each day of the 2016 primary early voting period election, officials or judges recorded the number of people in line at each of the 67 early voting locations at the opening of the polling location (10:00 AM) and at the closing time (8:00 PM). As reflected in the table on the following page, there were considerably longer lines in the morning hours during Early Voting when compared to the evening hours. In nearly all jurisdictions, there were no people in line at the 8 PM closing time.

On average, the number of people in line in the morning peaked on the first and last days of early voting, Thursday, April 14 and Thursday, April 21. Early voting days on the weekend, Saturday and Sunday, had the lowest voter totals. These results are shown in the chart below.

Chart 11: Early Voting – Average Line Length at 10AM, by Early Voting Day
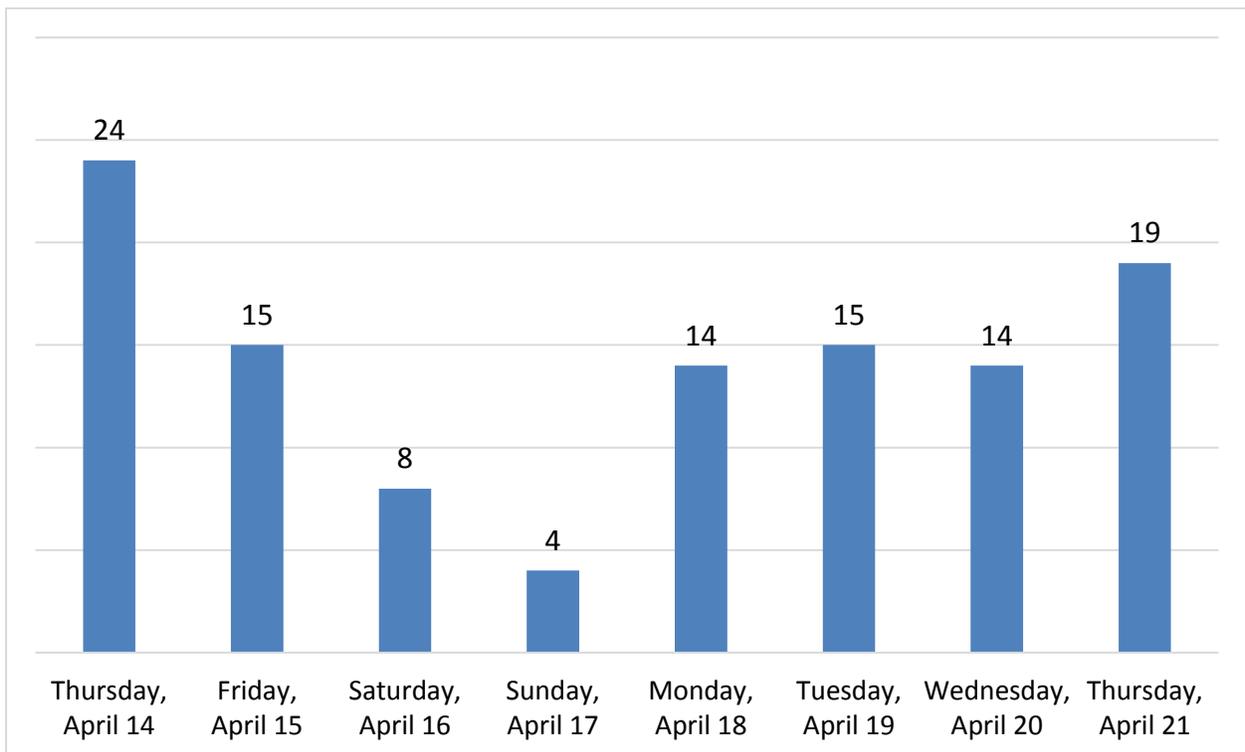
On Day 1 of Early Voting, the top three locations with the highest total number of voters in line were Randallstown Community Center (Baltimore County) with 120, Westside Skill Center (Baltimore City) with 100, and the Wayne Curry Sports and Learning Center and Southern Regional Tech Center (both Prince George's County) with 78 and 75, respectively.

In addition, the research team calculated the average number of people in line at the open and closing of polls during the eight day early voting period for all centers in each jurisdiction. These results are presented in Table 8 below.

Table 8: Early Voting – Average Line Length at Poll Opening and Closing

Jurisdiction (Centers)	Average Voter Line Length (10 AM)	Average Voter Line Length (8 PM)
Allegany County (1)	4	0
Anne Arundel County (5)	25	0
Baltimore City (6)	24	1
Baltimore County (9)	20	3
Calvert County (1)	12	0
Caroline County (1)	4	0
Carroll County (1)	29	0
Cecil County (1)	14	0
Charles County (2)	9	0
Dorchester County (1)	5	0
Frederick County (3)	7	0
Garrett County (2)	0	0
Harford County (4)	9	0
Howard County (3)	20	0
Kent County (1)	5	0
Montgomery County (10)	10	0
Prince George's County (8)	17	0
Queen Anne's County (2)	5	3
Saint Mary's County (1)	9	0
Somerset County (1)	3	0
Talbot County (1)	13	0
Washington County (1)	14	1
Wicomico County (1)	11	0
Worcester County (1)	6	0
Average	**14**	**0**

Spanning all Early Voting days, the top ten locations that had the highest average number of voters in line at 10:00 AM and are listed in the following Table 9.

Table 9: Early Voting – Highest Average Number of Voters in Line at 10 AM

Jurisdiction	Voting Center	Voters Waiting
Baltimore County	Randallstown Community Center	51
Baltimore City	Public Safety Training Center	45
Baltimore City	The League for People with Disabilities	42
Prince George's County	Wayne Curry Sports & Learning Ctr.	39
Baltimore County	Honeygo Community Center	34
Howard County	Miller Branch Library	30
Anne Arundel County	Glen Burnie Regional Library	30
Anne Arundel County	Odenton Regional Library	30
Prince George's County	Bowie Gym	29
Baltimore City	Westside Skill Center	29

EARLY VOTING – EVENING HOURS

In the evening, the average number of voters in line at the close of polls was very small. Overall, the average number of people still in line at 8:00 PM ranged from zero to two people at most Early Voting centers.

There were six locations that were stood out as having the highest average number of voters still waiting in line at 8:00 PM. One observation of note is that all six locations of these locations also had the highest average number of people in line at 10:00 AM. These locations are listed in Table 10 on the following page.

Table 10: Early Voting – Highest Average Number of Voters in Line at 8:00 PM

Jurisdiction	Voting Center	Voters Waiting
Baltimore City	Public Safety Training Center	51
Baltimore City	The League for People with Disabilities	45
Prince George's County	Wayne Curry Sports & Learning Ctr.	42
Prince George's County	Bowie Gym	39
Prince George's County	Southern Regional Tech Center	34
Prince George's County	Upper Marlboro Community Center	30

The locations with the highest average number of voters also had the highest total number of voters at 8:00 PM. These locations are listed in Table 11 below, and all of the highest totals came on the last day of Early Voting – Thursday, April 21, 2016.

Table 11: Early Voting – Highest Number of Voters in Line at 8:00 PM

Jurisdiction	Voting Center	Date	Voters Waiting
Baltimore City	Public Safety Training Center	Day 8 (April 21)	80
Baltimore City	The League for People with Disabilities	Day 8 (April 21)	65
Prince George's County	Wayne Curry Sports & Learning Ctr.	Day 8 (April 21)	48
Prince George's County	Bowie Gym	Day 8 (April 21)	30
Prince George's County	Southern Regional Tech Center	Day 8 (April 21)	20

VOTER COMPLETION TIME STATISTICS

The following tables reflect the standard deviation for statistics gathered by the observers during Early Voting and Election Day by jurisdiction. Baltimore City possessed the highest median time for completion of the voting process during Early Voting and on Election Day. Consistent with the average time data, Baltimore County possessed the lowest median times observed during both Early Voting and Election Day among the four selected jurisdictions.

Table 12: Wait Time Statistics for Early Voting by Jurisdiction (Minutes)

Jurisdiction	Median (Early Voting)	Mode (Early Voting)	Range (Early Voting)
Baltimore City	10.3	5.0	24.4
Baltimore County	5.7	5.5	12.0
Prince George's County	8.1	3.8	29.0

Table 13: Wait Time Statistics for Election Day by Jurisdiction (Minutes)

Jurisdiction	Median (Election Day)	Mode (Election Day)	Range (Election Day)
Anne Arundel County	6.8	4.0	29.5
Baltimore City	7.5	6.0	21.3
Baltimore County	5.6	4.5	12.0
Prince George's County	7.0	3.0	29.0

MAXIMUM WAIT TIMES

The research team assessed the number of observed instances that voters took at least 20 and 30 minutes to complete the voting process.

Due to the variance in the quantity of observations conducted within each jurisdiction during Early Voting and Election Day, providing the number of observations over a certain time period is not the most accurate measurement as some jurisdictions had more observations than others which may have attributed to the higher rate of longer wait times.

As a result, the number of voter completion times over 20 and 30 minutes were divided by the total number of that jurisdiction's observations which yielded a percentage. Any percentage larger than 1% was identified in a separate table to complement the quantity of observations over 20 and 30 minutes.

Table 14: Maximum Time to Vote by Jurisdictions Observed (Minutes)

Jurisdiction	Maximum Time To Vote (Early Voting)	Maximum Time To Vote (Election Day)
Anne Arundel	N/A	32.5
Baltimore City	28.0	24.3
Baltimore County	14.8	15.5
Prince George's	31.1	31.0

During the Early Voting period, Prince George's County was the only jurisdiction to have a single voter completion time that was at least 30 minutes as observed by the observation team. On Election Day, Anne Arundel County and Prince George's County, combined, had three observed voter completion times of at least 30 minutes.

Insofar as there were not a significant number of observed total vote times in excess of thirty minutes during the 2016 primary election, the research team went further to analyze the quantity of voter completion times that lasted at least 20 minutes. The amount of observed times that were at least 20 minutes by jurisdiction and by voting period (Early Voting or Election Day) are depicted in Table 14 above.

During Early Voting, although Prince George's County experienced a higher frequency of observed voter completion times of at least 20 minutes (15), those 15 times were only 1.3% of the number of voters observed. Percentage-wise, the number of observed completion times over 20 minutes was still the highest in Baltimore City (3.8%).

During Election Day, every jurisdiction observed, except for Baltimore County, experienced some observed voter completion times of at least 20 minutes. Those times that were at least 20 minutes occurred most frequently in Prince George's County (19 observations, 5.1%) and Anne Arundel County (14 observations, 3.9%).

VOTER COMPLETION TIMES: STATISTICAL ANALYSIS

To better understand the voter completion time dynamics of the new Maryland voting system, the Schaefer Center conducted statistical analysis of the extensive data collected from the 2,216 completed observations.

At no location were any systematic difficulties leading to significant wait times encountered. The following chart shows the distribution (in minutes) of the total time the observed voters took to vote during the 2016 presidential primary election.

Chart 12: Observed Total Time to Vote in 2016 Primary
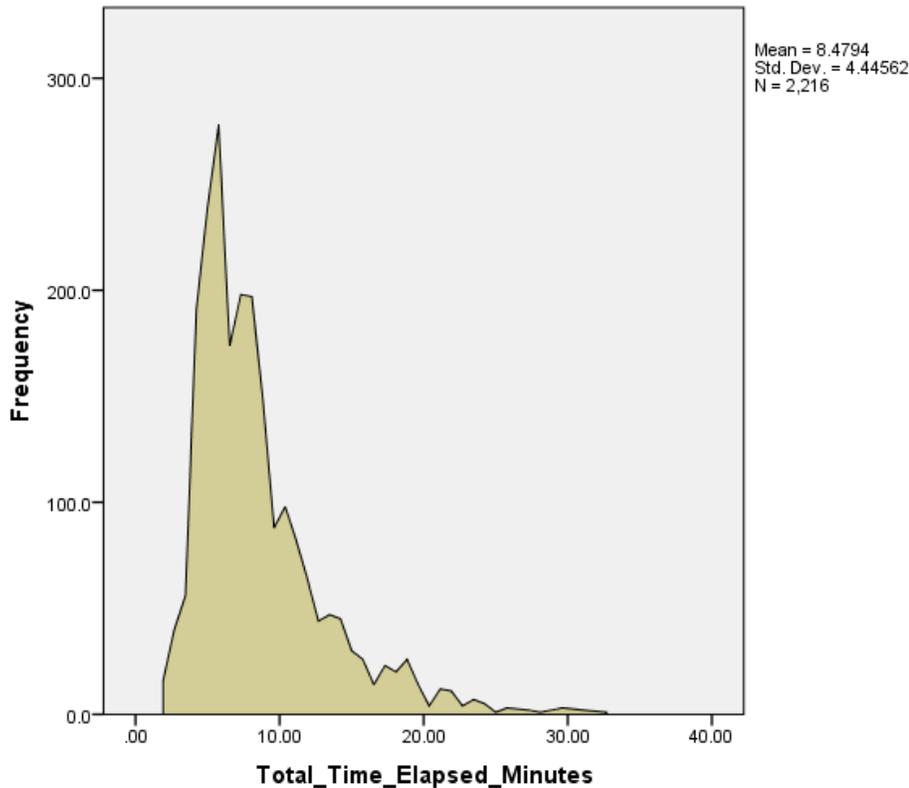
For many voters, the entire voting process only took five minutes in the 2016 presidential primary election. More than half the voters took less than eight minutes, and 95% took less than 20 minutes.

There were three voters observed whose total time took more than 30 minutes. Looking into these cases in more detail shows that these voters took much more than the usual amount of time marking their ballots. One of these voters took more than 22 minutes to mark the ballot and so actually was in a line or communicating with an election judge for less than 9 minutes. In addition, one observer noted that one voter who took significant time was using the audio ballot feature of the ballot marking device.

These observations suggest that future difficulties with wait times using this system are most likely when there are unforeseen errors or breakdowns occurring at particular voting sites or by poor allocation of election judges to different functions at the sites, or when there may be many ballot issues for the voters to consider.

Given the high standard deviation seen in the time it takes voters actually mark the ballots, the availability of marking implements and the number of ballot marking stations may be the critical constraint in some precincts during peak voting hours.

It should also be noted that a key component of the capacity of a voting system to process voters depends on the individual and collective arrival of individuals at the polling place. The voting system does not impact the number of individuals waiting in lines before the polling place opens or the impact of numerous individuals arriving at a polling place simultaneously. During our observations, election judges stated that they were handling voter volume with little delay except when groups of voters arrived at the same time, such as in a bus or other multi-passenger vehicle from a senior center or other entity.

CONCLUSION

In the 2015 Schaefer Center Report, the factors identified by the research team during the 2012 presidential general election as most likely affecting wait times were: (1) the length of the ballot in some jurisdictions; (2) the lack of sufficient voting machines in some precincts; and (3) the physical characteristics of some precinct polling place locations.

During the 2014 gubernatorial general election, ballot length and the physical characteristics of some precincts were observed as contributing factors to voter wait times.

Also contributing to lower wait times for many voters at Early Voting centers in the 2014 gubernatorial general election was the increase in the number of Early Voting centers from forty-eight in 2012 to sixty-four in 2014. The allocation of electronic pollbooks and touchscreen voting units was able to handle the voter turnout in the 2014 gubernatorial general election.

In the 2016 primary, there were increases in voter turnout during the Early Voting period, in voter turnout on Election Day, and in the use of provisional ballots. All of these increases occurred alongside the implementation of new voting equipment and election procedures. The new voting system seems to have been effective and efficient, insofar as voter completion times were lower in the 2016 primary election.

The 2016 presidential general election will present significant challenges to local boards of elections with voter turnout likely to exceed 77% of registered voters (approximately 2.8 to 3 million voters) and could reach 80%. The resources of the local boards of elections and the sheer number of voters to be handled at some precincts will potentially increase wait times. Based on the analyses of the research team, there are several recommendations to improve voter completion times. It should be noted that the most significant variable, voter turnout, is not controlled by the state and local boards of elections.

RECOMMENDATIONS

PROVISIONAL BALLOTS

During the 2016 presidential primary, the percentage of provisional ballot use increased in the triple digits in all Maryland jurisdictions. Given this substantial increase, it is highly advisable to use available data to anticipate which precincts will have a high number of provisional ballots in the general election, and ensure they have enough equipment, supplies and staff to handle any expected needs.

Special care should be taken to ensure that provisional voters are not permitted to scan their own ballots. There should be changes in election procedures and additional signage to educate voters that provisional ballots should not be scanned.

BALLOT LENGTH

As previously reported, a further complicating issue is the length of the general election ballot which could extend to two pages in some jurisdictions. To the extent ballot length is increased, there will be an adverse impact on the time it takes for a voter to read, mark and scan a ballot. As stated in the 2015 report, every 100 words added to a ballot length will add 16 to 24 seconds to the voting process and will impact line queuing and increase wait times for voters.

The impact of the length of prospective ballots on the administration of elections and resulting wait times for voters at polling place locations should be taken into account by state and local legislative bodies and administrative agencies. Research and expert opinions agree that ballot length is a major contributing factor to wait times for voters.

LINES AND ARRIVAL ISSUES

In the 2016 presidential primary, most polling places handled and controlled line formation. It was observed in some polling locations that although there was an adequate number of election judges at check-in tables, there were not sufficient election judges to manage ballot marking stations, provisional ballot areas and scanning units. As a result, voters were often checked-in quickly but experienced other queues at the ballot issue table or at marking stations which reduced throughput and increased voter processing times. It was also observed that some voters evidenced unfamiliarity with the steps in the voting process with the new voting system.

Election directors should be aware of the peak hours in each of their Early Voting centers and Election Day precinct polling locations to ensure that there are enough election judges in the right places to mitigate excessive lines as voters arrive in the morning and after work in the early evening.

Chief judges and other election judges should be trained to think of the voting process as a queuing system and identify the possible key constraints (bottlenecks) in the process. Election judges should be trained to shift resources, if possible, to the bottleneck in the process as it may develop on Election Day.

RECRUITING AND TRAINING HIGHLY QUALIFIED STAFF AND ELECTION JUDGES

Recruiting qualified staff to assist in election preparation and on Election Day – as well as recruiting election judges – is a challenge in many jurisdictions. Some jurisdictions allow county personnel to be compensated for working in the elections. Such policies could be implemented in other jurisdictions to assist the local board of elections.

PLANNING FOR THE FUTURE

With the implementation of the new voting system, post-election data after November 2016 (including wait times) can be analyzed and studies could be conducted that would examine the potential effects of adjusting the size of the precincts on wait times and initiate that adjustment if it is indicated. Simulations informed by existing and new data sources could be used to make recommendations about precinct consolidation and ideal precinct size. Performing empirical tests to help estimate the time it make take voters to complete a ballot may help inform these estimates. With such data, election officials would have better tools with which to design facility configurations.

2016 RECOMMENDATIONS AND REVIEW

On pages 36-40 of the 2015 Schaefer Center Wait Time Observation Report, a list of additional recommendations and suggestions was presented. Some of these suggestions have been implemented by the Maryland State Board of Elections and local boards of elections. Listed below are continuing and additional recommendations for the 2016 presidential general election and future elections:

- The recording of the number of individuals in line at the beginning and end of each Early Voting day at each Early Voting center should be continued.
- A recording should be made of the number of individuals in line at the beginning and end of each Election Day by the chief judges at all precinct polling locations.
- The Chief Judge Chapter and Problems and Solutions Chapter of the 2016 Election Judge Training Manual should contain instructions on how to manage a heavy volume of voters and line formation.
- Local election officials should continue appropriate use of a "greeter" or "screener" election judge at anticipated heavy turnout precinct polling places. It is further recommended that these individuals be equipped in the future with a tablet or other electronic device containing a voter registration database to be able to direct voters to their proper precinct polling place location.
- There should be a continuing evaluation of Early Voting centers and precinct polling places for their capacity to handle expected voter volume.
- There remains a need for substantial voter education before the 2016 presidential general election which should include sample ballots, widespread public demonstrations of the new voting system, use of social media, websites, media events and assistance as well as outreach to schools, senior centers, colleges and universities, libraries and other public buildings and community events.
- Voters should be informed that provisional ballots should not be scanned.

IMPROVING VOTER PREPARATION

The survey of Maryland voters conducted for the 2014 study and observations made during the 2016 presidential primary election demonstrated that those voters who have reviewed sample ballots take significantly less time to vote than do those who have not reviewed a sample ballot. Continued or improved emphasis on getting sample ballots to voters is recommended along with instructions on the voting system and election procedures. Voters unfamiliar with the voting system and election procedures make mistakes that create challenges for election judges in managing their precinct polling places.

Special outreach to voters whose polling place has changed or who are close to Early Voting centers should be made. Anecdotal evidence indicates that voters whose polling places had changed or who were unfamiliar with the difference between Early Voting and Election Day voting were inconvenienced and contributed to line delays.

As part of the outreach to voters, publicity about the Maryland State Board of Election's mobile friendly web based information services could be enhanced. Some local jurisdictions have started to implement such services and collaboration between state and local services can be envisioned. Such services allow a voter to better plan for voting and to confirm that they are at the right place at the right time.

Such services might be enhanced by also informing voters about historical patterns of wait times at voting locations or about the current wait times during an election period. Other measures to encourage voting in off-peak periods could be implemented such as using sample ballot mailings to help set expectations for wait times based on time of day.

IMPROVING THE VOTER EXPERIENCE

To help improve the voter experience during the voting process, recommendations include:

- Polling places should have a single line leading to the check-in table (i.e. do not have separate lines leading to each check-in judge.) This will eliminate a major cause of frustration with lines in general—the unfairness of ending up in the "slow line" through no fault of your own.

- Voters waiting in line should be given something to do—the opportunity to review a sample ballot, read literature on the state and local ballot questions, review information on the voting equipment and procedures—can help voters be more prepared for the 2016 presidential general election and future elections.

- When, as was often the case in 2014, there are backups at the ballot voting stations but not at the pollbooks, it is preferable to form another line (if the available space permits) rather than hold-up or delay check-in lines.

- Election judges should regularly update voters standing in line about expected wait times and provide explanations for any delays.

Individuals assigned to the job of informing voters about the line status could also make sure people are in the proper line, and explain where the bottleneck is and ask people to be ready to vote in an informed way (without creating any pressures).

At high volume precinct polling places, greeters and signs could advise voters that a seemingly long line does not necessarily mean a long wait (and specify, to the extent possible, the expected wait times). For example, a line of 150 voters waiting to vote could easily be more than 300 feet long and wrap halfway around the outside of the polling place. Seeing such a line might discourage many voters from getting in line.

If more than one scanner is deployed in a voting place, queuing theory also recommends that there be only one line feeding into all the scanner stations and not one line for each scanner.

Policies on the use of cell phone and electronic devices in polling places need ongoing study as the capacity of these devices continues to evolve. The psychological theories related to queuing problems indicate that people engaged in an activity perceive their waits as shorter than do others. Perhaps the latest proposed federal regulations on cell phone use on airplane flights could be a model. In those proposals, conversational use of phones is limited, but other uses are not. A regulation might be developed that would allow use of such devices until a certain point in the voting process when they could then be prohibited. Also, election jurisdictions around the country are considering expanded use of these technologies in the voting process.

As stated in previous reports, requesting state and local election boards, election officials, and election judges to do more and more with less resources will inevitably disrupt the voting experience and increase wait times for voters. The number of Marylanders qualified and registered to vote will increase proportionately with the population growth of the state and was 3,857,809 as of July 31, 2016.

If the budgets of state and local boards of education do not keep pace with voter needs and services, the consequences will be diminished capacity and resources to handle a growing number of potential voters. In turn, there would be a likely increase in the time a voter takes to complete the voting process at Maryland's Early Voting centers and precinct polling places.

INSTRUCTIONS FOR OBSERVERS AT EARLY VOTING CENTERS

Thank you for participating as an observer at early voting centers during the 2016 presidential primary election. You have been authorized by the Maryland State Board of Elections (SBE) to make these observations pursuant to a requirement of the Maryland General Assembly that additional data be collected on wait times for voters. The study is being conducted in cooperation with the Schaefer Center for Public Policy at the University of Baltimore who be conducting an analysis of the data collected and preparing a report to be submitted to the Maryland State Board of Elections.

In conducting your observations, please follow the procedures and guidelines presented below and answer the list of questions:

1. You should introduce yourself to the Chief Judges at the early voting site as well as the local election board staff, as conducting observations for the SBE. (You will be provided with a letter of authorization.)

2. You should find a suitable location from which to be able to make the required observations without interfering with the work of the election judges or the flow of voters.

3. Depending upon the volume of voter turnout, it will be impossible to time the activities of each voter, therefore you should collect time samples from a random selection of every 6 to 10 voters who enter the check-in line.

At each Early Voting Center, please note the following:

1. Time of your arrival: _____
2. Time of your departure: _____
3. The length of the check-in line at your arrival: _____ (# of voters)
4. The length of the check-in line at your departure: _____ (# of voters)
5. The number of electronic poll books set up for use: _____
6. The number of ballot marking stations set up for use by voters: _____
7. The number of ExpressVote Ballot Marking Devices set up for voters: _____
8. The number of DS200 Precinct Scanners available for use by voters: _____
9. The number of election judges present: _____
10. The number of voters checked-in while you were on site: _____
    (# should be zero at 10:00am; information available on poll books readable by election judges)
11. How many provisional ballot authority cards were issued during your visit? _____
    (Available by observation of voters or from EPB reports accessible by election judges)
12. Other noteworthy observations about the conduct of the early voting center:

Log for SCPP Voter Time Study **Location:** _____

(name and address): **ED and precinct** _____

	Time entered line check-in line *(ex: 7:00 am)*	Time voter received voter authority card from check-in desk	Time ballot issued to voter	Time voter began marking (Regular, BMD, Provisional)	Time voter finished marking ballot	Time ballot accepted (scanner or Prov.) (note if reissued)
1	:	: :	: :	: :	: :	: :
2	:	: :	: :	: :	: :	: :
3	:	: :	: :	: :	: :	: :
4	:	: :	: :	: :	: :	: :
5	:	: :	: :	: :	: :	: :
6	:	: :	: :	: :	: :	: :
7	:	: :	: :	: :	: :	: :
8	:	: :	: :	: :	: :	: :
9	:	: :	: :	: :	: :	: :
10	:	: :	: :	: :	: :	: :

Total number of volunteer observers: 19

Total number of polling place locations covered: 37 (12 early, 25 general)

Total number of observations: 2,216

Observers

Lauren Burk, Sydney Callahan, Alex Clarke, Debbie Clarke, Antonio Cruz, Will Drew, Vincent Fuller, Will Haller, Stephon Jones, Jasmine Marshall, Dennis McGrath, Tim McGrath, Brian Nicholson, Ricky Parker, Rachel Rachfal, Peter Thomas, Ken Weaver, John T. Willis, Michelle Wilson.

Early Voting Centers Covered (12)

Baltimore City (6)

EVC-2	League for People with Disabilities
EVC-4	Baltimore City Public Safety Training Center
EVC-1	Westside Skills Center
EVC-5	Southeast Anchor Library
EVC-6	University of Maryland at Baltimore
EVC-3	Maritime Industries Academy School #431

Baltimore County (3)

EVC-2	Randallstown Community Center
EVC-8	Reisterstown Senior Center
EVC-4	Sollers Point Multi-Purpose Center

Prince George's County (3)

EVC-3	Bowie Community Center
EVC-4	Wayne K. Curry Sports Center
EVC-5	Southern Regional Tech

Election Day Polling Place Locations Covered (25)

Anne Arundel County (3)

001-011	Linthicum Community Library
004-001	Maryland City Elementary School
004-009	Maryland City Russett Library

Baltimore City (8)

011-002	Chase House
012-002	1st English Lutheran Church
015-018	School No. 107
024-005	School No. 76
027-013	School No. 339
027-038	Govans Manor
027-042	First Christian Church
027-050	Elderslie St. Andrews Methodist Church

Baltimore County (4)

002-007	Old Court Middle School
002-026	New Town Elementary School
009-009	Loch Raven High School
014-001	Parkville Middle School

Prince George's County (10)

007-003	Kenilworth Elementary School
007-011	All Saints Lutheran Church
010-012	Robert DiPietro Community Center
017-011	Ridgecrest Elementary School
019-003	University Park Elementary School
021-001	Paint Branch Elementary School
021-008	Springhill Lake Elementary School
012-010	Oxon Hill Middle School
007-003	Kenilworth Elementary School
021-008	Springhill Lake Elementary School

APPENDIX D: EARLY VOTING – NUMBER OF VOTERS IN LINE AT OPENING (10 AM) AND CLOSING OF POLLS (8 PM)

Early Voting Date		Day 1 4/14		Day 2 4/15		Day 3 4/16		Day 4 4/17		Day 5 4/18		Day 6 4/19		Day 7 4/20		Day 8 4/21	
Jurisdiction	EV Center Name	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM
Allegany	Allegany County Office Complex	7	0	6	0	0	0	0	0	5	0	5	0	4	0	6	0
Anne Arundel	Odenton Regional Library	41	0	29	0	38	0	11	0	27	0	24	0	25	0	41	0
Anne Arundel	Glen Burnie Regional Library	49	1	18	1	22	0	11	0	29	0	30	0	30	1	49	1
Anne Arundel	Severna Park Community Library	36	0	27	0	17	0	1	0	29	0	30	0	33	2	36	0
Anne Arundel	Annapolis Sr. Activity Center	41	0	31	0	9	0	5	0	20	0	41	0	12	0	41	0
Anne Arundel	Edgewater Community Library	21	0	16	0	15	0	1	0	17	0	8	0	18	0	21	0
Baltimore City	Westside Skill Center	100	0	35	0	10	0	7	0	27	0	34	0	20	0	0	0
Baltimore City	The League for People with Dis.	60	0	61	0	32	0	17	0	35	0	46	0	35	0	47	65
Baltimore City	Maritime Industries Academy School	10	0	17	0	10	0	6	0	10	0	9	0	12	0	19	0
Baltimore City	Public Safety Training Center	4	10	45	0	38	0	28	0	53	4	60	0	65	0	65	80

Early Voting Date		Day 1 4/14		Day 2 4/15		Day 3 4/16		Day 4 4/17		Day 5 4/18		Day 6 4/19		Day 7 4/20		Day 8 4/21	
Jurisdiction	EV Center Name	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM
Baltimore City	Southeast Anchor Library	15	0	5	0	9	0	2	0	0	0	5	0	12	0	0	0
Baltimore City	Community Engag. Ctr	15	0	5	0	5	0	1	0	4	3	15	0	30	0	14	1
Baltimore County	Randallstown Community	120	0	84	0	20	0	17	0	27	1	57	0	38	0	43	2
Baltimore County	Honeygo Community	68	0	35	0	19	0	13	0	46	0	27	1	34	1	29	4
Baltimore County	Arbutus Community	50	0	16	0	16	0	8	0	17	2	20	3	8	0	20	0
Baltimore County	Towson University	21	0	14	0	8	0	10	0	20	0	24	0	14	0	30	0
Baltimore County	Reisterstown Senior Center	33	0	16	0	16	0	5	0	7	0	15	0	13	0	17	1
Baltimore County	Center for Maryland Agriculture & Farm Park	8	0	31	0	7	0	7	0	12	0	14	0	19	0	20	0
Baltimore County	Woodlawn Community Center	19	2	9	0	10	1	5	0	21	0	11	0	11	0	13	1
Baltimore County	Victory Villa Community	5	0	18	0	0	0	3	0	8	0	6	0	11	0	6	0
Baltimore County	Sollers Point Multipurpose	12	0	11	0	5	0	1	0	2	0	2	0	0	0	8	0

Early Voting Date		Day 1 4/14		Day 2 4/15		Day 3 4/16		Day 4 4/17		Day 5 4/18		Day 6 4/19		Day 7 4/20		Day 8 4/21	
Jurisdiction	EV Center Name	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM
Calvert	Community Resources Bldg.	20	0	12	0	8	0	1	0	17	0	5	0	14	0	16	0
Caroline	Caroline County Health Bldg.	13	0	6	0	0	0	2	0	1	0	2	0	3	0	6	0
Carroll	Westminster Senior Activities	35	0	43	0	14	0	12	0	35	0	32	0	17	0	45	0
Cecil	Cecil County Admin. Bldg.	25	0	15	0	2	0	0	0	27	0	13	0	16	0	17	0
Charles	La Plata Firehouse	35	0	21	0	6	0	0	0	12	0	5	0	9	0	18	0
Charles	Gleneagles Center	12	0	5	0	3	0	0	0	0	0	2	0	9	0	7	0
Dorchester	Dorchester Cty. Ofc. Bldg.	11	0	8	0	0	0	0	0	7	0	2	0	7	0	5	0
Frederick	Frederick Sr. Center	24	0	29	0	6	0	4	0	12	0	16	0	17	0	26	0
Frederick	Thurmont Regional Library	9	0	2	0	4	0	0	0	1	0	2	0	1	0	2	0
Frederick	Urbana Regional Library	2	0	2	0	3	0	2	0	2	0	4	0	2	2	4	3
Garrett	Oakland Comm. Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Garrett	Northern Outreach Center	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Harford	McFaul Act. Ctr.	45	0	2	0	14	0	3	0	17	0	14	0	22	0	32	0

Early Voting Date		Day 1 4/14		Day 2 4/15		Day 3 4/16		Day 4 4/17		Day 5 4/18		Day 6 4/19		Day 7 4/20		Day 8 4/21	
Jurisdiction	EV Center Name	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM
Harford	Edgewood Library	10	0	5	0	7	0	1	0	5	0	7	0	4	0	7	0
Harford	University Center	6	0	3	0	2	0	2	0	0	0	9	0	5	0	9	0
Harford	Jarrettsville Library	29	0	9	0	1	3	10	0	0	0	7	0	7	0	9	3
Howard	Ridgely's Run CC	10	0	6	0	6	0	10	0	2	0	5	0	9	0	10	0
Howard	The Bain Ctr.	30	0	31	0	15	0	12	0	22	0	21	0	15	0	30	0
Howard	Miller Branch Library	33	0	50	2	20	0	9	0	25	1	55	0	20	1	30	0
Kent	Kent County Pub. Lib.	15	0	8	1	1	0	0	0	4	0	4	0	2	0	5	0
Montgomery	Silver Spring Civic Center	30	0	18	0	32	0	5	0	8	0	18	0	14	0	50	10
Montgomery	Potomac Rec Center	18	0	16	0	2	0	3	0	16	0	16	0	16	0	22	0
Montgomery	Praisner Rec Center	24	0	18	0	4	0	0	0	15	0	17	0	11	0	17	0
Montgomery	Germantown Rec Ctr.	13	0	14	0	11	0	0	0	10	0	7	0	12	0	17	0
Montgomery	Lawton Rec Center	13	0	3	0	10	0	4	0	13	0	8	0	12	0	18	0
Montgomery	Wheaton Vol. Res. Sq.	12	0	9	0	8	0	7	0	0	0	8	0	9	0	10	0

Early Voting Date		Day 1 4/14		Day 2 4/15		Day 3 4/16		Day 4 4/17		Day 5 4/18		Day 6 4/19		Day 7 4/20		Day 8 4/21	
Jurisdiction	EV Center Name	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM
Montgomery	Exec. Ofc. Bldg.	15	0	0	0	0	0	0	0	10	0	8	0	12	0	15	0
Montgomery	Activity Ctr. Bohrer Park	1	0	15	0	9	0	4	1	0	0	0	0	11	0	11	0
Montgomery	Mid County Rec Center	10	0	2	0	2	0	3	0	0	0	7	0	4	0	10	0
Montgomery	Damascus Rec Center	5	0	3	0	1	0	1	0	0	0	2	0	5	0	3	0
Prince George's	Wayne Curry Ctr.	78	0	12	0	13	0	12	0	51	2	52	3	50	0	45	48
Prince George's	Bowie Gym	41	0	6	0	0	0	0	0	12	6	25	3	50	5	100	30
Prince George's	Southern Reg. Tech	75	0	3	0	12	0	0	0	38	10	18	0	35	0	7	20
Prince George's	Upper Marlboro CC	4	0	11	0	0	0	0	0	16	15	25	3	20	0	26	0
Prince George's	College Park Comm. Ctr.	25	0	5	0	0	0	8	0	18	0	15	4	10	0	15	0
Prince George's	Laurel/Belts. Sr. Center	26	0	0	0	8	0	0	0	12	2	10	0	8	8	9	0
Prince George's	Suitland Comm. Ctr. Center	4	0	0	0	0	0	0	0	6	0	12	0	1	0	20	0
Prince George's	Baden Comm. Ctr.	3	0	0	0	0	0	1	0	2	2	4	0	0	5	2	0

Early Voting Date		Day 1 4/14		Day 2 4/15		Day 3 4/16		Day 4 4/17		Day 5 4/18		Day 6 4/19		Day 7 4/20		Day 8 4/21	
Jurisdiction	EV Center Name	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM	10AM	8PM
Queen Anne's	Kramer Center	9	0	4	0	0	0	2	0	5	0	3	0	8	1	10	0
Queen Anne's	Kent Island Fire Dept.	10	0	2	0	0	0	0	0	3	0	4	0	3	0	10	0
Saint Mary's	Hollywood Carn. Build.	23	0	3	0	0	0	8	0	17	0	8	1	0	0	11	0
Somerset	Somerset County Ofc.	4	0	6	0	1	0	0	0	0	0	2	0	3	0	4	0
Talbot	Easton Fire House	41	2	26	1	4	0	3	1	13	1	7	2	4	1	2	2
Washington	Washington Cty. EVC	15	0	17	0	5	0	0	0	27	0	16	0	14	0	19	0
Wicomico	Civic Ctr Midway Rm.	23	0	7	0	5	0	0	0	8	0	4	0	15	0	26	0
Worcester	Gull Creek	12	0	4	0	2	0	1	0	5	0	14	0	6	0	6	0