



Maryland Registered Voters' Opinions About Voting and Voting Technologies

Prepared for the Maryland State Board of Elections

February 2006

National Center for the Study of Elections
of the
Maryland Institute for Policy Analysis & Research
University of Maryland, Baltimore County

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Executive Summary

This survey of registered voters in Maryland found that voters have a high level of confidence in Maryland's touch screen voting system. Most voters surveyed agreed that the current voting system was easy to use (89 percent), made voting quicker (85 percent), and recorded and counted the votes accurately (82 percent). Voters also felt that, even given the controversy around them, touch screen systems are reliable (73 percent), can be trusted (64 percent), accurately record and count votes (73 percent) and that security measures prevent tampering or hacking (53 percent). Seven in ten (70 percent) respondents agreed that that Maryland has done all it could to prevent fraud or tampering.

While the majority of respondents voiced confidence in the current voting system, they expressed concerns about external threats to the system. Forty-seven percent agreed that touch screen systems could be tampered with and hacked into, while over half of respondents (55 percent) said they believed that that the systems could be corrupted by malicious software programming.

The telephone survey, requested by the State Board of Elections, asked 800 registered voters who voted in the 2004 general election in Maryland their opinions about a series of issues around voting and voting technologies in the state. The survey had a margin of error of plus or minus 3.5 percent at a 95 percent level of confidence.

The survey found that Maryland's registered voters are computer-literate, with 81 percent reporting that they use computers daily or several times a week. Of those, 85 percent use the Internet daily or several times a week. While a large majority of respondents (70 percent) said they have a high level of trust in computers, only 44 percent of Maryland voters have a high level of trust in government.

The use of alternatives to touch screen voting systems, as well as the introduction of vote verification systems, has been the subject of debate in Maryland and other states. Nevertheless, fewer than half (45 percent) of respondents said they had heard or read anything about touch screen systems within the past year, with 49 percent of those reporting they heard positive things and 48 percent reporting they heard negative things. Further, only one in five (23 percent) of registered voters said they had heard or read anything about people calling for different voting technologies to be added to or substituted for Maryland's touch screen voting system.

Voters were also unfamiliar with the concept of a paper trail (i.e., a system that produces a paper record or receipt that the voter can use to confirm his vote), one of the vote verification systems under discussion in Maryland. Of the 23 percent of voters who had heard or read about different voting technologies to be added to or substituted for Maryland's touch screen voting system, only 35 percent (about 8 percent of all voters sampled) responded that the primary thing that they had heard or read about involved a paper trail.

When the entire sample was asked what paper trail meant, nearly one in four (38 percent) said that they did not know. Only about 6 percent correctly indicated that paper trail means that a voter views a paper record of his vote behind a glass screen to verify the vote. Notwithstanding

the confusion about the meaning of a paper trail, 69 percent said that voters should be able to confirm their votes through paper records or receipts.

The results of this survey indicate that there is no crisis of confidence among voters about Maryland's touch screen voting system as it is currently implemented. At the same time, voters are concerned about security of the system, but unfamiliar with one of the vote verification methods under discussion (paper trail). Given voter concerns, SBE should work with local boards of elections and interested groups to inform and educate the public about what is being done to secure the touch screen voting system used in Maryland from hacking, malicious programming and acts that might compromise elections.

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Registered Voters' Opinions about Voting and Voting Technologies In Maryland

The Maryland State Board of Elections (SBE) engaged the National Center for the Study of Elections (NCSE) of the University of Maryland, Baltimore County (UMBC) to conduct a survey of the opinions of Maryland registered voters about a number of issues around voting and voting technologies in the state. Dr. Donald Norris, director of the NCSE and of the Maryland Institute for Policy Analysis and Research (MIPAR) and professor of public policy at UMBC directed this survey. In cooperation with the SBE staff,¹ he developed and pre-tested a survey instrument of approximately 10 minutes duration. NCSE contracted with the public opinion survey firm, Mason-Dixon Polling & Research, Inc., of Washington, D.C. to conduct the interviews. Mason-Dixon conducted the survey between January 9 and January 12, 2006. A total of 800 registered voters were interviewed statewide by telephone. All indicated that they were registered voters and had voted in the 2004 general election in Maryland.² Those interviewed were selected randomly from a commercially available voter registration list. Quotas were assigned to reflect voter turn-out by county.

The margin for error, according to standards customarily used by statisticians, for this survey is no more than plus or minus 3.5 percent at a 95 percent level of confidence. If a similar survey were conducted 100 times, 95 out of that 100 times, the results would be within plus or minus 3.5 percent of those produced by this survey. This means that we can have a high degree of confidence that the results are valid, reliable and can be generalized to the broader population of registered voters in the state.

To ascertain the representativeness of the sample, I compared sample demographics against data from the 2000 Maryland census and, for partisan registration, against the fall 2004 SBE registration data. As Table 1 shows, for gender and party registration, the sample is nearly identical with the source data and is very close in terms of county of origin, suggesting a high degree of representativeness.

However, when other demographic characteristics from the sample are compared with the 2000 census data, the results indicate that the sample over-represents whites, older voters, more affluent voters and more well educated voters.

The apparent over- and under-representation according to these characteristics is, however, more likely a function of the method of comparison than of the sample itself. The SBE does not (and probably should not) collect data on race, gender, education and income of

¹ The SBE staff provided input regarding issues that they thought would be salient for the survey, and they reviewed and provided comments on drafts of the survey instrument. They did not have any control over the questions (including question content or wording) contained in the instrument or the analysis of the survey data.

² The first question asked was whether the respondent was a registered voter and the second was whether he or she had voted in the 2004 Maryland general election. If both conditions were not met, the respondent was screened out of the survey. The interviewers also screened out voters who voted using absentee ballots or provisional ballots. The respondents, then, included only voters who had voted in election precincts in the 2004 general election and, thus, had used the state's touch screen voting systems.

registered voters. Consequently, I conducted comparisons between this sample of registered voters and data from the 2000 census for the state's population as a whole. It is well-known from many years of voting studies that registered voters who vote in elections are more likely to be more well educated, more affluent, and older and less likely to be minorities, other things being equal, than the general population. Thus, it is highly likely that the sample of respondents in this random survey of Maryland registered voters who voted in the 2004 general election in Maryland is quite representative of the broader population of registered voters in the state.

The survey contained questions on a number of issues. I report the results according to the order in which questions occurred in the survey. Data tables found at the end of the text reproduce the survey results. The survey instrument is found in the Appendix at the end of this report.

Experience with Voting Technologies

The first set of questions sought to ascertain the experience of Maryland registered voters on various voting technologies. I asked whether they had *ever used* lever machines, optical scan voting systems, punch card voting systems and touch screen voting systems. (I provided brief descriptions of each system.) The results are shown in Table 2.

The largest number (87.0 percent) of voters said that they had used touch screen systems, followed by lever operated machines (79.6 percent), optical scan voting systems (48.6 percent) and, finally, punch card voting systems (38.1 percent). Since these were registered voters who voted in the 2004 general election in Maryland, 100 percent of the respondents should have said that they had voted on touch screen voting systems because these were the only precinct level voting machines used in Maryland in that election.

Next, I inquired if they recalled which type of system they used to vote in the 2004 general election (Table 3). Here only 80.3 percent recalled correctly that they used touch screen voting systems. The remainder responded as follows: optical scan – 7.3 percent; punch card – 3.9 percent; lever machine – 3.1 percent; and don't know/don't recall – 5.5 percent.

What is interesting about these figures is the imperfect recall of the voters questioned. When asked if they had ever used touch screen systems, 13 percent could not recall having done so. When asked what system they used in the 2004 general election, nearly one in five (19.7 percent) did not recall correctly that they used touch screens.

Notwithstanding recall (and recall of actual events among large groups of persons is hardly ever perfect), I followed up by asking these voters to rate their experience with the voting system that they used in the 2004 general election (Table 4). Nearly two-thirds (62.9 percent) said that the experience with the voting system that they used then was very positive and nearly one in three (29.0 percent) said it was positive. Fully 91.9 percent reported a positive experience versus only 6.8 percent reporting negative experiences (of which only 0.8 percent reported a very

negative experience. In all, Maryland registered voters who voted in the 2004 general election gave the state's touch screen voting system very high marks for a positive voting experience.

The next few questions, framed in the form of statements to which respondents were asked to agree or disagree, were designed to get at particular aspects of the voting experience and also ask voters opinions about aspects of the system on which they voted in the 2004 general election in Maryland (Table 5).³

The first statement was that the system "was easy to use." Here more than three-quarters (78.6 percent) agreed strongly and another 20 percent agreed for a total of 98.6 percent who agreed in some form with the statement that the system that they used to vote in 2004 was easy to use. The second statement was that the machine that the voter used had equipment problems. More than nine in ten voters disagreed with this statement (94.8 percent). More than eight in ten (84.9 percent) agreed strongly with the statement that the system on which they voted made voting faster while only 12.3 percent disagreed. Most voters disagreed somewhat or disagreed that they felt uncomfortable using the system (87.9 percent) while only 11.8 percent agreed.

The final statement concerned an issue of great contemporary concern in Maryland. It read: "I was confident that it [the system I used to vote in the 2004 election] recorded and counted my vote accurately." Here, 60.1 percent agreed strongly, 21.4 percent agreed somewhat (a total of 81.5 percent agreed) while only 9.9 percent disagreed of which only 4.5 percent disagreed strongly (8.6 percent did not know).

Opinions about Touch Screen Voting Systems in General

The following questions attempted to gauge voters' knowledge about and opinions of touch screen voting systems in general (Table 6). We asked, first, if they had heard or read anything about these systems within the past year. Less than half responded affirmatively (45.4 percent). We then asked those who responded affirmatively whether they had read or heard anything about touch screen systems in general (52.1 percent), in Maryland (11.8 percent) or both (32.5 percent).

Next we asked (again only of those who had responded affirmatively above) whether what they had read or heard about touch screen voting systems was positive or negative (Table 7). The responses were nearly evenly divided – 48.8 percent positive versus 47.7 percent negative. This was surprising because much of what has been said and written about these systems in the recent past is from a critical or negative perspective, especially in Maryland. Nevertheless, a plurality of those who have heard or read anything about touch screen voting systems within the past year have heard or read positive things on balance.

³ In this and all instances where interviewers read statements and asked respondents to agree or disagree with the statements, the questionnaire deliberately alternated statements phrased in the positive with statements phrased in the negative so as to avoid the possibility of "leading" the respondents by providing only positive or negative cues to them.

I followed these questions with a series of statements about touch screen voting systems that I asked of all respondents (Table 8). The statements were that touch screen voting systems:

- Are easy to use -- 91.9 percent agreed; 3.2 percent who disagreed.
- Cannot be counted on to count the vote accurately – 60.5 percent disagreed; 19.0 percent agreed and 20.5 percent did not know.⁴
- Are secure from fraud and tampering – 39.9 percent agree; 29.1 percent disagree; 31.1 percent don't know.
- Cannot protect the privacy of the vote – 55.6 percent disagree; 24.7 percent agree; 19.9 percent don't know.
- Provide for an accurate recount of the vote – 55.9 percent agree; 21.9 percent disagree; 22.3 percent don't know.
- Can be corrupted by malicious software programming – 55.1 percent agree; 18.9 percent disagree; 26.0 percent don't know.
- Make voting faster – 85.5 percent agree; 10.0 percent disagree.
- Are not accessible to persons with disabilities – 54.6 percent disagree; 20.2 percent agree 25.4 percent don't know.

Next, I asked for the respondents' overall opinions about touch screen voting systems (Table 9). A clear plurality had a strongly favorable opinion and one in three had a somewhat favorable opinion (for a total of "favorable" responses of 76.3 percent or more than three-quarters of respondents). Only, one in six (16.0 percent) had unfavorable opinions, of whom only 5.1 percent were very unfavorable.

Taken together, the responses in Tables 8 and 9 suggest that Maryland registered voters have very positive attitudes about touch screen voting systems, notwithstanding their understandable concerns about whether these systems are secure from fraud and tampering and can be corrupted by malicious programming. (I will return to these issues later in this report.)

Impact of Debate over Touch Screen Voting

For perhaps the past two years, an important public policy debate has been waged about the Maryland's voting system. In this survey, I endeavored to gauge the extent to which registered voters were "tuned in" to that debate. Hence, I asked whether they "*had heard or read anything*

⁴ Readers will note that for all but two of these statements, between 20 and 30 percent of voters signified that they did not know or could not give an opinion. (Interviewers did not read the "do not know" or "no opinion" choices to the respondents but did record such responses if respondents so indicated.)

about people calling for different voting technologies or equipment to be added to or used in place of Maryland's touch screen voting system." The results, shown in Table 10 show that fewer than one in five (22.9 percent) of Maryland registered voters are aware of this debate.

I then asked this group (that is, the 22.9 percent or 183 respondents who indicated that they were aware of the debate) what was the primary thing that they had heard or read (Table 11). This was an open-ended question in which interviewers captured and recorded the respondents' statements and placed them in categories. The interviewers did not suggest answers or categories of answers to the respondents. These, then, are the respondents' own recollections about what they had heard or read and they appear in order of frequency of response.

- Mention of paper or paper trail – 35.0 percent
- Concern about trustworthiness, reliability and related – 17.5 percent
- Lack of ability to provide valid vote count or recount – 9.8 percent
- Mention of concern about hackers, security or related – 7.1 percent
- General concern about malfunctioning equipment – 3.3 percent
- Mention of optical scan – 1.6 percent
- Other – 1.6 percent
- Don't know or don't recall – 24.0 percent

The issue of a paper trail or paper record has been a consistent theme in the debate around Maryland's touch screen voting system for some time. Consequently, I sought to learn what Maryland's registered voters thought that the term paper trail meant. I asked this question of all respondents (Table 12). These were also open-ended questions. The largest fraction of respondents – nearly four in ten (38.1 percent) – said that they did not know or that it did not mean anything to them. This was followed, in order, by:

- Voter receives paper receipt which he gives to an election official – 18.9 percent
- Election officials get paper copies of all votes – 11.4 percent
- Other – 9.1 percent
- Election can be recounted – 9.0 percent
- Voter gets to take a paper receipt when finished voting – 8.0 percent
- Voter views paper record behind a glass screen – 5.5 percent

Perceived Vulnerability of Maryland's Touch Screen Voting System

I next asked about voters' knowledge and opinions around the issue of the vulnerability of the Maryland touch screen voting system to outside threats. In the debate around Maryland's voting system, some parties have claimed (incorrectly) that it is vulnerable to attack because it is connected to the Internet. Here, I asked voters if they knew if the system was connected to the Internet (Table 13). Only 3.4 percent said yes to this question while a plurality (46.3 percent) said no. Slightly more than half (50.4 percent) did not know.

Next, I inquired whether the respondents felt that the system was susceptible to attack by hackers (Table 14). One in three (32.9 percent) responded affirmatively and a quarter (24.9

percent) said no. More than four in ten (42.3 percent) said that they did not know.⁵ The final question in this section inquired about the voters' confidence that the State of Maryland had done all it could to prevent tampering and fraud in elections (Table 15). Seven in ten (70.4 percent) were confident that the state had done all it could, including 22.9 percent who were very confident and 47.5 percent were somewhat confident. Only one in five (21.8 percent) were not confident, including 13.0 percent were not too confident and only 8.8 percent who were not confident at all. Taken together, these data reaffirm the conclusion presented earlier that most Maryland registered voters do not lack confidence in the current voting system, even though they have understandable concerns about external threats to it. (Again, more on this later.)

Controversy over Touch Screen Voting Systems

This section reports registered voters' responses to a series of statements about touch screen voting systems. I prefaced these statements in the context of pros and cons about the systems as presented by opponents and supporters of them. Here is that preface:

As you may know, a disagreement exists about touch screen voting systems. Opponents of touch screen voting systems say that they can't be trusted to accurately record and count votes because they lack independent verification systems to verify the votes at the time of voting and in any recount. Supporters say that touch screen voting systems are reliable and easy to use and that security measures put in place by election officials ensure that they accurately record and count votes at the time of voting and in any recount.

I'm going to read you some statements from both sides of this disagreement. Based on what you know about touch screen voting systems, please tell me whether you agree or disagree with these statements. That is do you agree strongly, agree somewhat, disagree somewhat or disagree strongly.

With one notable exception, the responses were fairly consistent with responses to several previous questions that were asked outside of the specific context of the disagreement over touch screen voting systems. As such and with one exception, these responses serve to reinforce previous findings about voters' mainly positive opinions about and attitudes Maryland's current voting system (Table 16).

Here are the statements and the responses to them. Touch screen systems:

- Are reliable – 73.2 percent agree; 16.2 percent disagree; 10.8 percent don't know.
- Cannot be trusted – 64.4 percent disagree; 24.0 percent agree; 11.6 percent don't know.

⁵ In this case as well as in the cases of several other questions, relatively high fractions of "don't know" responses suggest the availability of a "teaching moment" that the SBE and other parties could employ to educate and inform voters about aspects of the state's voting system.

- Accurately record and counts votes – 72.9 percent agree; 15.5 percent disagree; 11.6 percent don't know.
- Can be tampered with and hacked into – 47.6 percent agree; 35.8 percent disagree; 16.8 percent don't know.
- Election officials' security measures prevent tampering and hacking – 52.9 percent agree; 30.2 percent disagree; 16.9 percent don't know.
- Voters should be able to confirm their votes on paper records or receipts – 69.4 percent agree; 23.0 percent disagree; 7.6 percent don't know

One noteworthy response is that 69.4 percent of registered voters believe that voters should be able to confirm their votes on paper records or receipts. I will return to this matter and place paper trail in the context of the rest of the findings of this study a bit later. Now, I move to the final sets of questions in the survey.

Equipment Attached to Maryland's Touch Screen Voting Systems

I asked three questions concerning voters' factual knowledge about equipment that might be part of Maryland's touch screen voting system (Table 17). Four in ten voters (40.3 percent) correctly stated that the system does not have external printers that provide a paper record. However, just over half (53.9 percent) were not sure and nearly six percent thought it did have external printers. Only 6.9 percent of voters correctly stated that the systems have internal printers than provide a paper record while a third (36.6 percent) said no and more than half (56.5 percent) were not sure. More than one in ten voters (11.8 percent) incorrectly stated that the system has some kind of verification system attached to it while more than one-quarter (26.4 percent) said it did not and nearly two-thirds (61.9) percent were not sure.

Computer and Internet Use; Trust in Computers and Government

I asked questions about computer and Internet use to gauge the extent to which Maryland voters are familiar with information systems and technology. The answers to these questions will be useful in further analysis of the survey responses. For example, is there a digital divide among Maryland registered voters and does it systematically affect their attitudes toward and opinions of voting systems and technology? I will present this higher level analysis in a subsequent report. For now, I report the frequency distribution of the responses.

Maryland is a high socioeconomic status (SES) state. That is, its citizens are among the most well educated and affluent of any state. Many of them also hold high status jobs. Data from previous studies of computer and Internet use show a direct correlation between education and income and computer and Internet use. Maryland is no exception (Table 18). More than eight in ten registered voters (80.9 percent) use computers daily or several times a week while 8.1 percent use computers occasionally. Only one in ten (11.0 percent) report never using

computers. Similarly, most (85.0 percent) of computer users use the Internet daily or several times a week while only one in ten (11.1 percent) use the Internet occasionally and only 3.9 percent report never using it. Maryland voters who use the Internet also buy things using credit cards on the Internet. More than half (57.3 percent) report buying things on the Internet daily or several days a week and another 20.9 percent do so occasionally. Only 21.5 percent reported never buying things on the Internet.

A person's trust, whether in technology or institutions, may affect his or her attitudes and behavior. Hence, I asked about the voters' trust in computers and in government. Not surprisingly, especially given the findings presented in Table 18, Maryland registered voters have a high level of trust in computers (Table 19). Here, nearly three-fourths (70.0 percent) have either a very high or a high level of trust computers compared to only 21.2 percent whose level of trust in computers is either low or very low.

Government does not fare as well (Table 20). Only 44.4 percent of Maryland voters have a high or very high level of trust in government compared to 46.4 percent with a low or very low level of trust.

Paper Trail and Security Concerns in Context

In this section, I place the seemingly anomalous responses from registered voters about wanting a paper trail and security concerns around touch screen voting systems into the context of the overall findings of this study.

First, positive responses to survey questions far outnumber negative ones. Here are the principal examples. Voters' experiences with the voting system that they used in the 2004 general election were highly positive (91.9 percent – Table 4). A large majority of voters (81.5 percent) were confident that the system that they used in 2004 recorded and counted their votes accurately (Table 5). Fewer than half of the respondents (45.5 percent) had heard or read anything about touch screen voting systems in the past year or two. And half of these respondents (48.8 percent) had heard or read positive things (Tables 6 and 7).

Most voters (60.5 percent) believe that touch screen systems count the vote accurately and provide for an accurate recount (55.9 percent). A plurality (39.9 percent) believe that they are secure from fraud and tampering (Table 8). And voters' overall opinion of touch screen voting systems is favorable (76.3 percent).

Few voters (22.9 percent, $n = 183$) have heard or read of people calling for different voting technologies or equipment to be added to or used in place of Maryland's touch screen voting system (table 10). Fewer still (35 percent of the 22.9 percent, $n = 64$) mentioned paper or paper trail when asked what they had heard (Table 11). Also, few voters understand what the term paper trail means (Table 12).

Most voters (70.4 percent) are confident that Maryland has done all that it could to prevent tampering, fraud or other actions that could adversely affect the outcome of elections

(Table 15). Most voters also agree that touch screen voting systems are reliable (73.2 percent), can be trusted (64.4 percent), accurately records and counts votes (72.9 percent) and that security measures instituted by election officials prevent hacking (52.9 percent). See Table 16. Finally (Table 19), voters have a high level of trust in computers (70.0 percent).

These data suggest two things. First, contrary to some of the rhetoric heard in the debate around the election system in Maryland, no crisis of confidence exists among Maryland registered voters about the State's touch screen voting system as it is currently implemented. Second, to the contrary, voters exhibit a reasonable and in some cases a high level of trust and confidence in that system.

These findings, however, must be balanced with responses from other questions that suggest that voters have understandable concerns. For example, a majority (Table 8) believes that touch screen voting systems can be corrupted by malicious software programming (55.1 percent although 26.0 percent responded that they don't know). The reality is that any computer or information system can be so corrupted. Table 8 also shows that while a plurality of voters (39.9 percent) believe that touch screen voting systems are secure from fraud and tampering, nearly a third (29.1 percent) disagreed and about the same fraction (31.1 percent) said that they did not know.

When given the preface and context that a disagreement exists about touch screen systems and then asked to respond to statements about those systems, nearly half of respondents (47.6 percent) said that they could be tampered with or hacked into (Table 16). However, 35.8 percent of voters disagreed and 16.8 percent said that they did not know. Maryland registered voters are relatively sophisticated. They are high SES persons who use computers and the Internet. As such, they will be aware that in general computer and information systems are susceptible to be tampered with or hacked into. But as shown above, a larger fraction (52.9 percent) believes that *"security measures put in place by election officials make certain that the touch screen voting systems cannot be tampered with or hacked into..."*

Finally, seven in ten respondents (69.4 percent) agreed that voters *"should be able to confirm the votes they cast on touch screen systems by looking at paper records or receipts of their votes."* This should not be surprising, given people's familiarity with receipts from self-service transactions (e.g., gas pumps, movie ticket kiosks, ATMs, etc.). Ask if anyone wants a receipt after any transaction, and the majority of persons will almost certainly say yes. No empirical data, of which I am aware, exist on the subject of receipt retention, use and management, and additional research in this area would be helpful. There is evidence from at least one election that most voters do not use the paper trail to verify their votes. In a video study of voters in Las Vegas in the 2004 general election, fewer than 40 percent actually looked at the paper trail to confirm their ballots and many of those voters merely glanced quickly, hit the confirm button and moved on (Los Angeles County, Registrar/Recorder, 2004).

The usability study of vote verification systems conducted for the SBE by Herrnson, et al. (2006) confirmed this finding in a different way. This study found that voters did not carefully and attentively confirm their ballots in the voting booth. Moreover, voters experienced recall difficulties between the act of voting on the touch screen and the act of confirmation on the vote

verification unit. Findings from both of these studies call into question whether voter verification, in any event, will be a useful add-on to any voting system.

Finally, the data in Table 20 show that Maryland registered voters do not have a higher level of trust in government (44.4 percent have a high level of trust in government versus 46.4 percent with a low level of trust). More voters have a higher level of trust in computers (70.0 percent) than in government (Table 19).

Conclusion

The findings from this survey of registered voters in Maryland show that there is no crisis of confidence in Maryland's touch screen voting system as it is currently implemented. In fact, the data show the opposite. They show that voters are satisfied with and confident in the system. At the same time, and even though voters believe that the state has done all it could to secure the system from fraud and tampering, they are concerned about matters of security around and hacking into the system.

Here, the SBE can do two things that should improve voters' confidence that the system is secure from fraud, tampering and hacking. First, as recommended in the technical study of vote verification systems conducted by UMBC researchers (of which I was a co-researcher), in future elections the SBE should expand its use of parallel testing to raise the security bar even higher. It should also undertake a full scale security analysis of current procedures and practices. Second, the SBE, perhaps together with groups like the League of Women Voters and with the local boards of elections (LBEs), can and should conduct a public information and education campaign to show voters what is being done to secure the system from tampering, hacking, malicious programming and other malicious acts and accidents that may compromise elections.

Data Tables

**Table 1
Demographics: Sample Compared to the State**

	Sample		State
	No.	Percent	Percent
Party Affiliation*			
Democrat	427	53.4	55.2
Republican	245	30.6	29.3
Independent	105	13.1	13.9
Other	13	1.6	1.5
Don't Know/Refused	10	1.3	0.0
Age			
18-34	143	17.9	30.2
35-49	232	29.0	33.8
50-64	261	32.6	20.8
65+	151	18.9	15.2
Refused	13	1.6	
Education**			
No High School	22	2.8	16.2
High School degree	142	17.8	26.7
Some College	208	26.0	25.7
Bachelor's	286	35.8	18.0
Graduate/Professional	133	16.6	13.4
Refused	9	1.1	
Gender			
Male	387	48.4	48.2
Female	413	51.6	51.8
Race/Ethnicity***			
White	580	72.5	64.0
Black	181	22.6	27.7
Hispanic	14	1.8	4.3
Other	8	1.0	6.1
Refused	17	2.1	
Household Income			
<\$25,000	35	4.4	20.6
\$25,000-\$49,999	69	8.6	26.1
\$50,000-\$74,999	165	20.6	21.6
\$75,000-\$99,999	178	22.3	13.6
\$100,000+	231	28.9	18.1
Refused	122	15.3	

County of Residence			
Alleghany	10	1.3	1.4
Anne Arundel	80	10.0	9.2
Baltimore City	72	9.0	12.3
Baltimore County	118	14.8	14.2
Calvert	13	1.6	1.4
Caroline	4	0.5	0.6
Carroll	27	3.4	2.8
Cecil	13	1.6	1.6
Charles	20	2.5	2.3
Dorchester	4	0.5	0.6
Frederick	34	4.3	3.7
Garrett	4	0.5	0.6
Harford	38	4.8	4.1
Howard	45	5.6	4.7
Kent	3	0.4	0.4
Montgomery	139	17.4	16.5
Prince George's	107	13.4	15.1
Queen Anne's	7	0.9	0.8
St. Mary's	13	1.6	1.6
Somerset	3	0.4	0.5
Talbot	6	0.8	0.6
Washington	19	2.4	2.5
Wicomico	13	1.6	1.6
Worcester	8	1.0	0.9

* From State Board of Election registration database for October 30, 2004. All other "state" data are from the 2000 census;

** "State" data for education are based on the number of persons over age 25;

*** "State" data for race/ethnicity will not equal total state population or 100% due to categorizations of the census.

Table 2
Have you ever used any of the following voting systems to vote in elections in the U.S.?

	Yes		No		Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%
Lever	637	79.6	132	16.5	31	3.9	800	100.0
Optical Scan	389	48.6	357	44.6	54	6.8	800	100.0
Punch Card	305	38.1	472	59.0	23	2.9	800	100.0
Touch Screen	696	87.0	89	11.1	15	1.9	800	100.0

Table 3
Type of voting system used in the 2004 General Election

	No.	%
Lever	25	3.1
Optical Scan	58	7.3
Punch Card	31	3.9
Touch Screen	642	80.3
Don't Know	44	5.5
Total	800	100.1

Table 4
Rate your experience with the voting system you used in the 2004 General Election

	No.	%
Very Positive	503	62.9
Somewhat Positive	232	29.0
Somewhat Negative	48	6.0
Very Negative	6	0.8
Don't Know	11	1.4
Total	800	100.1

Table 5
The voting system you used in the 2004 General Election

	Agree Strongly		Agree Somewhat		Disagree Somewhat		Disagree Strongly		Don't Know		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Was Easy to Use	629	78.6	160	20.0	9	1.1	0	0.0	2	0.3	800	100.0
Had Machine Equipment Problems	9	1.1	26	3.3	91	11.4	667	83.4	7	0.9	800	100.1
Allowed me to Vote Quicker	455	56.9	224	28.0	90	11.3	8	1.0	23	2.9	800	100.1
I Did not feel comfortable	63	7.9	31	3.9	147	18.4	556	69.5	3	0.4	800	100.1
I am Confident it recorded my vote accurately	481	60.1	171	21.4	43	5.4	36	4.5	69	8.6	800	100.0

Table 6
A. Heard or read anything about touch screen systems?

	No.	%
Yes	363	45.4
No	427	53.4
Not Sure	10	1.3
Total	800	100.1

B. If yes, where was it about (N=363)?

	No.	%
General	189	52.1
Maryland	43	11.8
Both	118	32.5
Not Sure	13	3.6
Total	363	100

Table 7
Was what you heard or read about touch screen systems (N=363)

	No.	%
Very Favorable	45	12.4
Somewhat Favorable	132	36.4
Somewhat Unfavorable	123	33.9
Very Unfavorable	50	13.8
Don't Know	13	3.6
Total	363	100.1

Table 8
Touch screen systems:

	Agree Strongly		Agree Somewhat		Disagree Somewhat		Disagree Strongly		Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Are easy to use	535	66.9	200	25.0	21	2.6	5	0.6	39	4.9	800	100.0
Can't count vote accurately	48	6.0	104	13.0	204	25.5	280	35.0	164	20.5	800	100.0
Are secure from fraud	141	17.6	178	22.3	138	17.3	94	11.8	249	31.1	800	100.0
Can't protect privacy	94	11.8	103	12.9	218	27.3	226	28.3	159	19.9	800	100.2
Provide for an accurate recount	267	33.4	180	22.5	94	11.8	81	10.1	178	22.3	800	100.1
Can be corrupted	220	27.5	221	27.6	91	11.4	60	7.5	208	26.0	800	100.0
Make voting quicker	457	57.1	227	28.4	67	8.4	13	1.6	36	4.5	800	100.0
Are not accessible	67	8.4	94	11.8	162	20.3	274	34.3	203	25.4	800	100.2

Table 9
Overall opinion of touch screen voting systems

	No.	%
Very Favorable	343	42.9
Somewhat Favorable	267	33.4
Somewhat Unfavorable	87	10.9
Very Unfavorable	41	5.1
Don't Know	62	7.8
Total	800	100.1

Table 10

Heard or read anything about calls for different technology to be used with/or in place of Maryland's touch screen system?

	No.	%
Yes	183	22.9
No	617	77.1
Total	800	100.0

Table 11
Primary thing heard or read (N=183)

	No.	%
Paper trail	64	35.0
Don't Know	44	24.0
Trustworthiness	32	17.5
No valid recount	18	9.8
Security risks	13	7.1
Malfunctions	6	3.3
Other	3	1.6
Optical Scan	3	1.6
Negative mention of manufacturer	0	0.0
Total	183	99.9

Table 12
Paper trail means

	No.	%
Don't Know	305	38.1
Voter hands receipt to official	151	18.9
Official gets paper copy	91	11.4
Other	73	9.1
Can be recounted	72	9.0
Voter takes receipt	64	8.0
Voter reviews in booth	44	5.5
Total	800	100.0

Table 13
Is Maryland's touch screen system connected to the Internet when people are voting during elections?

	No.	%
Yes	27	3.4
No	370	46.3
Not Sure	403	50.4
Total	800	100.1

Table 14
Is Maryland's touch screen system susceptible to attack?

	No.	%
Yes	263	32.9
No	199	24.9
Not Sure	338	42.3
Total	800	100.1

Table 15
Confidence that Maryland has done all it could to prevent actions that could adversely affect the outcome of elections

	No.	%
Very Confident	183	22.9
Somewhat Confident	380	47.5
Not too Confident	104	13.0
Not Confident at All	70	8.8
Don't Know	63	7.9
Total	800	100.1

Table16
Touch screen systems:

	Agree Strongly		Agree Somewhat		Disagree Somewhat		Disagree Strongly		Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Are reliable	259	32.4	326	40.8	59	7.4	70	8.8	86	10.8	800	100.2
Can't be trusted	81	10.1	111	13.9	298	37.3	217	27.1	93	11.6	800	100.0
Accurately count votes	248	31.0	335	41.9	77	9.6	47	5.9	93	11.6	800	100.0
Can be tampered with	142	17.8	238	29.8	195	24.4	91	11.4	134	16.8	800	100.2
Security prevents tampering	154	19.3	269	33.6	153	19.1	89	11.1	135	16.9	800	100.0
Voters should be able to confirm with paper	345	43.1	210	26.3	107	13.4	77	9.6	61	7.6	800	100.0

Table 17

Does Maryland's touch screen voting system have any of the following connected to it?

	Yes		No		Not Sure		Total	
	No.	%	No.	%	No.	%	No.	%
External printer	47	5.9	322	40.3	431	53.9	800	100.1
Internal printer	55	6.9	293	36.6	452	56.5	800	100.0
Any independent verification system	94	11.8	211	26.4	495	61.9	800	100.1

Table 18
How frequently do you:

	Daily		Several Days a Week		Occasionally		Never		Refused		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Use computer (N=800)	574	71.8	73	9.1	65	8.1	88	11.0	0	0.0	800	100.0
Use Internet (N=712)	499	70.1	106	14.9	79	11.1	28	3.9	0	0.0	712	100.0
Buy things on Internet with credit card (N=684)	161	23.5	231	33.8	143	20.9	147	21.5	2	0.3	684	100.0

Table 19
Level of trust in computers

	No.	%
Very High	121	15.1
High	439	54.9
Low	138	17.3
Very Low	31	3.9
Not Sure	71	8.9
Total	800	100.1

Table 20
Level of trust in government

	No.	%
Very High	40	5.0
High	315	39.4
Low	295	36.9
Very Low	76	9.5
Not Sure	74	9.3
Total	800	100.1

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About the Author

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About UMBC

Founded in 1966, the University of Maryland, Baltimore County (UMBC) is a public university located outside of Baltimore, Maryland. Fall 2005 enrollment of nearly 12,000 included 9,400 undergraduate and more than 2,000 graduate students. The University delivers an undergraduate educational experience characterized by a strong liberal arts and sciences core. Graduate programs emphasize selected areas of engineering, information technology, science, public policy, and human services. UMBC is one of 151 institutions in the Carnegie Foundation's doctoral/research-extensive classification for major research universities.

About MIPAR

Established in 1982, the Maryland Institute for Policy Analysis and Research (MIPAR) is the premier center for applied scholarly research on significant issues of public policy at UMBC. MIPAR conducts policy studies, program evaluations, surveys, and conferences on a wide range of topics. MIPAR activities, which are supported by federal agencies, private foundations, and state and local governments, link the resources of the University with policy makers in the state and region. Within the past few years MIPAR has developed a special strength in the area of information technology and government and e-government and e-democracy. MIPAR is affiliated with the UMBC Department of Public Policy, an interdisciplinary graduate program that offers master's and Ph.D. degrees, as well as advanced graduate certificates.

About NCSE

In cooperation with the Maryland State Board of Elections (SBE), MIPAR established the National Center for the Study of Elections (NCSE) in 2005. The goal of the NCSE is to utilize the intellectual resources of the University to address issues concerning elections, election technologies and election administration in Maryland and across the nation. Initially, NCSE will provide technical assistance and research support to the SBE in a variety of areas. UMBC faculty associated with NCSE, independently and in conjunction with the SBE, will pursue an active research agenda on a wide range of topics around elections, election technology and election administration, and will seek funding from a variety of sources to support this research. In this way, the work of the NCSE will have value and impact within the state of Maryland and nationally.

Appendix
Survey Instrument

Maryland Registered Voters Survey (January 2006)

Good afternoon/evening, I am Name of interviewer From the University of Maryland Baltimore County and I'm calling Maryland residents to ask them a few questions about voting in Maryland elections. Could you take a few minutes to talk with me? Your answers will be totally confidential.

SCREENING QUESTIONS:

Screener #1: Are you a registered voter in Maryland?

Yes-PROCEED

No/DK-**TERMINATE**

Screener #2: Can you tell me if you voted in the 2004 general election in Maryland? That is the last presidential election? *(If respondent is not sure, say: The presidential election in which George W. Bush and John Kerry ran for president):*

Yes-PROCEED

No/DK-**TERMINATE**

Screener #3: In that election, did you vote on a voting machine, fill out a provisional ballot or fill out an absentee ballot?

Voting Machine
Provisional Ballot
Absentee Ballot
Not Sure

1-PROCEED
2-**TERMINATE**
3-**TERMINATE**
4-**TERMINATE**

INTRODUCTION:

As you may know, several different voting systems are in use in the United States. Let me read them to you and tell me if you have ever used any of them. Have you ever used:

1. A Lever operated voting machine system – that is, a system where you pull levers to indicate your votes:

Yes 1

No 2

Not Sure 3

2. An Optical scan voting system – that is. A system where you mark a paper ballot and insert the ballot in a scanner that reads your vote:

Yes 1

No 2

Not Sure 3

3. A Punch card voting system – that is, where you punch holes in a card to record your vote:

Yes 1

No 2

Not Sure 3

4. A Touch screen voting system – that is, a system where you touch a computer screen to make your vote:

Yes 1

No 2

Not Sure 3

5. Thinking back to the 2004 general election – the one in which George W. Bush and John Kerry ran for president – do you remember which type of voting system you used when you voted? (*Interviewer: Do not read the choices and accept only one.*)

- Lever operated voting machine 1
- Optical scan voting system 2
- Punch card 3
- Touch screen 4
- Don't know or don't remember 5

6. Again, thinking back to the 2004 general election, how would you rate your experience with the voting system or voting machine you used? Was it:

- Very positive 1
- Somewhat positive 2
- Somewhat negative 3
- Very negative 4
- Don't know (*don't ask*) 5

Now I'm, going to read a few statements about your experience with the voting system or voting machine that you used to vote in the 2004 general election, please tell me if you agree strongly, agree somewhat, disagree somewhat or disagree strongly:

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly	Don't know (<i>don't ask</i>)
7. It was easy to use	1	2	3	4	5
8. The specific voting machine that I used had equipment problems	1	2	3	4	5
9. It made voting faster	1	2	3	4	5
10. I did not feel comfortable using it	1	2	3	4	5
11. I was confident that it recorded and counted my vote accurately	1	2	3	4	5

Now I am going to ask you a few questions about a particular kind of voting machine, the touch screen voting system.

12. Have you heard or read anything within the past year or two about touch screen voting systems?

- Yes 1
- No 2-SKIP TO Q15
- Not Sure 3-SKIP TO Q15

13. Was this about touch screen voting systems in general or in Maryland or both?

- In general 1
- In Maryland 2
- Both 3
- Don't know 4

14. On the whole, was what you heard or read about touch screen voting systems:

- Very favorable 1
- Somewhat favorable 2
- Somewhat unfavorable 3
- Very unfavorable 4
- Don't know (*don't ask*) 5

Now, I'm going to read some statements about touch screen voting systems. Please tell me if you agree strongly, agree somewhat, disagree somewhat or disagree strongly. Touch screen voting systems:

	Agree Strongly	Agree Somewhat	Disagree Somewhat	Disagree Strongly	Don't know (<i>don't ask</i>)
15. Are easy to use	1	2	3	4	5
16. Cannot be relied on to count the vote accurately	1	2	3	4	5
17. Are secure from fraud and tampering	1	2	3	4	5
18. Cannot protect the privacy of the vote	1	2	3	4	5
19. Provide for an accurate recount of the vote	1	2	3	4	5
20. Can be corrupted by malicious software programming	1	2	3	4	5
21. Makes voting quicker	1	2	3	4	5
22. Are not accessible to persons with disabilities	1	2	3	4	5

23. In general, is your opinion of touch screen voting systems:

- Very favorable 1
- Somewhat favorable 2
- Somewhat unfavorable 3
- Very unfavorable 4
- Don't know (*don't ask*) 5

24. Have you heard or read anything about people calling for different voting technologies or equipment to be added to or used in place of Maryland's touch screen voting system?

- Yes 1
- No 2-SKIP TO Q31

25. What was it the primary thing you heard or read? (*Interviewer – record responses but don't ask choices.*)

- 1 “paper trail” any mention – **SKIP TO Q27**
- 2 “Optical Scan” any mention – **SKIP TO Q29**
- 3 General concern about the trustworthiness/reliability of system
- 4 General concerns about the technology malfunctioning (not malicious actions of a person)
- 5 Security risks/threats from hackers/internet/outside threats
- 6 Any negative mention of Diebold or the ‘manufacturer’
- 7 System does not provide for valid vote count or valid recount
- 8 Other (record verbatim:_____)
- 9 Don't know or don't recall -**SKIP TO Q31**

26. What else have you heard or read?

- 1 “paper trail” any mention
- 2 “Optical Scan” any mention – **SKIP TO Q29**
- 3 General concern about the trustworthiness/reliability of system -**SKIP TO Q31**
- 4 General concerns about the technology malfunctioning (not malicious actions of a person) -**SKIP TO Q31**
- 5 Security risks/threats from hackers/internet/outside threats -**SKIP TO Q31**
- 6 Any negative mention of Diebold or the ‘manufacturer’ -**SKIP TO Q31**
- 7 System does not provide for valid vote count or valid recount -**SKIP TO Q31**
- 8 Other (record verbatim:_____) -**SKIP TO Q31**
- 9 **Don't know or don't recall (don't ask) -SKIP TO Q31**

27. [**If responded ‘paper trail’ in Q25 or Q26**] Would you favor or oppose adding a paper trail to Maryland's touch screen voting system? Is that strongly favor/oppose or somewhat favor/oppose?

Strongly favor	1
Somewhat favor	2
Somewhat oppose	3- SKIP TO Q31
Strongly oppose	4- SKIP TO Q31
Not Sure	5- SKIP TO Q31

28. What are the primary reasons you would favor adding a paper trail to Maryland's touch screen voting system?
[Interviewer – record responses but do not read choices. Record all responses offered by respondents]

- 1 Addresses general concerns about the trustworthiness/reliability of system
- 2 Provides for **audit trail/independent verification** of vote
- 3 Provides for accurate **vote tally** or **recount**
- 4 Addresses Security risks/threats from **hackers/internet/other outside threats**
- 5 Addresses General concerns about the **technology malfunctioning** (not malicious actions of a person)
- 6 Addresses concerns about **Diebold or the ‘manufacturer’**
- 7 Other (verbatim_____)
- 8 Don't know

*** SKIP TO Q31 ****

29. **[If mentions optical scan in Q25 or Q26]** Would you favor or oppose using the optical scan voting system in place of Maryland's touch screen voting system? Is that strongly favor/oppose or somewhat favor/oppose?

- | | |
|-----------------|---------------|
| Strongly favor | 1 |
| Somewhat favor | 2 |
| Somewhat oppose | 3-SKIP TO Q31 |
| Strongly oppose | 4-SKIP TO Q31 |
| Not Sure | 5-SKIP TO Q31 |

30. What are the primary reasons you would favor using the optical scan voting system in place of Maryland's touch screen voting system? [Interviewer – record responses but do not read choices. Record all responses offered by respondents.]

- 1 Addresses general concerns about the trustworthiness/reliability of system
- 2 Provides for **audit trail/independent verification** of vote
- 3 Provides for accurate **vote tally or recount**
- 4 Addresses Security risks/threats from **hackers/internet/other outside threats**
- 5 Addresses General concerns about the **technology malfunctioning** (not malicious actions of a person)
- 6 Addresses concerns about **Diebold or the 'manufacturer'**
- 7 **Just a better/more trusted/reliable system**
- 8 Other (verbatim_____)
- 9 Don't know

31. Can you tell me what, if anything, the term *paper trail* means to you when discussed in relation to touch screen voting? **(Interviewer: do not read choices.)**

- 1- Election officials get a paper copy of all votes
- 2- A voter receives a paper receipt to verify his or her vote and then gives the receipt to an election official
- 3- A voter views a paper record of his or her vote behind a glass screen to verify that vote
- 4- A voter receives a paper receipt of his or her vote to take when he or she leaves the voting booth
- 5- The election or the vote can be recounted
- 6- Other (verbatim_____)
- 7- Don't know or means nothing

32. To your knowledge, is Maryland's touch screen voting system connected to the Internet when people are voting in elections?

- | | | | | | |
|-----|---|----|---|----------|---|
| Yes | 1 | No | 2 | Not Sure | 3 |
|-----|---|----|---|----------|---|

33. To your knowledge is Maryland's touch screen voting system susceptible to attack by hackers?

- | | | | | | |
|-----|---|----|---|----------|---|
| Yes | 1 | No | 2 | Not Sure | 3 |
|-----|---|----|---|----------|---|

34. How confident are you that the State of Maryland has done all it could to prevent tampering, fraud or other actions that could adversely affect the outcome of elections. Are you:

- | | |
|----------------------------------|---|
| Very confident | 1 |
| Somewhat confident | 2 |
| Not too confident | 3 |
| Not confident at all | 4 |
| Don't know (<i>don't read</i>) | 5 |

As you may know, a disagreement exists about touch screen voting systems.

Opponents of touch screen voting systems say that they can't be trusted to accurately record and count votes because they lack independent verification systems to verify votes at the time of voting and in any recount.

Supporters say that touch screen voting systems are reliable and easy to use and that security measures put in place by election officials ensure that they accurately record and count votes at the time of voting and in any recount.

I'm going to read you some statements from both sides of this disagreement. Based on what you know about touch screen voting systems, please tell me whether you agree or disagree with these statements. That is do you agree strongly, agree somewhat, disagree somewhat or disagree strongly. [Rotate order of Q35-40]

35. As they currently operate, touch screen voting systems are reliable.

Strong Agree 1 SW Agree 2 SW Disagree 3 Strong Disagree 4 Not Sure 5

36. As they currently operate, touch screen voting systems cannot be trusted

Strong Agree 1 SW Agree 2 SW Disagree 3 Strong Disagree 4 Not Sure 5

37. As they currently operate, touch screen voting systems accurately record and count votes in elections.

Strong Agree 1 SW Agree 2 SW Disagree 3 Strong Disagree 4 Not Sure 5

38. As they currently operate, touch screen voting systems can be tampered with hacked into by people who want to disrupt or change the outcome of elections.

Strong Agree 1 SW Agree 2 SW Disagree 3 Strong Disagree 4 Not Sure 5

39. Security measures put in place by election officials make certain that touch screen voting systems cannot be tampered with or hacked into in order to disrupt or change the outcome of elections.

Strong Agree 1 SW Agree 2 SW Disagree 3 Strong Disagree 4 Not Sure 5

40. Voters should be able to confirm the votes they cast on touch screen voting systems by looking at paper records or receipts of their votes.

Strong Agree 1 SW Agree 2 SW Disagree 3 Strong Disagree 4 Not Sure 5

To your knowledge, does Maryland's Touch screen voting system have any of the following connected to or associated with it? That is does it have an: [Rotate Order of Q41-43]

41. External printer that provides a paper record

Yes 1 No 2 Not Sure 3

42. Internal printer that provides a paper record.

Yes 1 No 2 Not Sure 3

43. Any type of independent verification system.

Yes 1 No 2 Not Sure 3

Now let me ask you some questions about your use of computers:

44. How frequently do you use computers at home, at work or elsewhere?

- | | |
|---------------------|------------------------|
| Daily | 1 |
| Several days a week | 2 |
| Occasionally | 3 |
| Never | 4 - SKIP TO Q47 |

45. How frequently do you use the Internet:

- | | |
|---------------------|------------------------|
| Daily | 1 |
| Several days a week | 2 |
| Occasionally | 3 |
| Never | 4 - SKIP TO Q47 |

46. How often do you buy things using your credit card on the internet? [READ LIST]

- | | |
|-----------------------|---|
| Frequently | 1 |
| Occasionally | 2 |
| Rarely | 3 |
| Never | 4 |
| Refused (DO NOT READ) | 5 |

47. In general, what is your level of trust in computers? Is it: [READ LIST]

- | | |
|------------------------|---|
| Very high | 1 |
| High | 2 |
| Low | 3 |
| Very low | 4 |
| Not Sure (DO NOT READ) | 5 |

48. In general, what is your level of trust in government? Is it: [READ LIST]

- | | |
|------------------------|---|
| Very high | 1 |
| High | 2 |
| Low | 3 |
| Very low | 4 |
| Not Sure (DO NOT READ) | 5 |

Now let me ask you a few questions about yourself?

49. With which political party are you registered to vote in Maryland? Are you a registered as:

- | | |
|---|---|
| Democrat | 1 |
| Republican | 2 |
| Independent/Unaffiliated | 3 |
| Or Other Party, such as Green or Libertarian? | 4 |
| DK/Refused (DO NOT READ) | 5 |

50. Can you tell me your age?

18-34	1
35-49	2
50-64	3
65+	4
Refused	5

51. Can you tell me the highest level of education you completed?

Didn't finish high school	1
High school diploma or GED	2
Some college/Technical Training	3
Batchelor's degree	4
Graduate or Professional degree	5
Refused	6

52. NOTE SEX:

Male	1
Female	2

53. Is your race or ethnicity:

White/Caucasian	1
Black/African-American	2
Hispanic/Latino	3
Asian or Other	4
Refused (DO NOT READ)	5

54. Can you tell me your total household income? That is, the total income of all the persons living in your household combined? Is it:

Less than 25,000	1
25,000 to 49,999	2
50,000 to 74,999	3
75,000 to 99,999	4
\$100,000+	5
Refused (DO NOT READ)	6

55. What county do you live in?

Alleghany County	01
Anne Arundel County	02
Baltimore City	03
Baltimore County	04
Calvert County	05
Caroline County	06
Carroll County	07
Cecil County	08
Charles County	09
Dorchester County	10
Frederick County	11
Garrett County	12
Harford County	13
Howard County	14
Kent County	15
Montgomery County	16
Prince George's County	17
Queen Anne's County	18
St. Mary's County	19
Somerset County	20
Talbot County	21
Washington County	22
Wicomico County	23
Worcester County	24