The MyVote1 Project
Final Report
(2004-05)

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Executive Summary

Introduction

This report summarizes the results of the MyVote1 2004 project ("MyVote1"). The data cited in the report was sourced from the accompanying data appendix entitled *National Results: 1.866.MyVote1 and 1.866.OuVote Call Statistics; 1.866.myvote1 Live and Auto Coded Problem-Type Data* ("Appendix") that was prepared by InfoVoter Technologies Corporation ("InfoVoter").[1]

The MyVote1 consortium included InfoVoter, The University of Pennsylvania's Fels Institute of Government, the Common Cause Education Fund, the Reform Institute, the Johns Hopkins Hispanic Voters Project, and the National Constitution Center (together, the "Consortium"). InfoVoter served as the lead partner responsible for organizing the Consortium, providing the technology, and managing the project day to day. The Fels Institute served as the lead academic partner responsible for assisting with project management and for producing this final report. The Fels portion of the project was funded by the Carnegie Corporation, the Open Society Institute, the JEHT Foundation, and the John S. and James L. Knight Foundation.

Project Goals

The project sought to accomplish a twofold mission: (1) provide assistance to voters with questions or problems; and (2) diagnose the flaws in the U.S. electoral system so that they can be fixed. To achieve these goals, the Consortium used an interactive voice response system (IVRS) that both assisted voters and collected information from them during the November 2004 election cycle.

The Project Technology

The IVRS offered callers three automated functions in English or Spanish:

(1) A poll locator;
(2) Transfer to the caller's local election board help hotline; and
(3) The opportunity to leave a one minute message describing the caller's voting complaint or question.

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[1] This report was prepared by Christopher Patusky, Executive Director of the University of Pennsylvania's Fels Institute of Government. The accompanying data Appendix was prepared by Ken Smukler, Chief Executive Officer of InfoVoter.

In order to market the number to the public, the media network MSNBC and its NBC television affiliates broadcast the **1-866-MYVOTE1** hotline number to a national television audience from December 23, 2004 through election-day on November 2, 2004. In return, MSNBC received exclusive television rights to the data for election-day. The hotline was turned off on November 5.

The IVRS stored the data from each call, including the location of the caller, the time and day of the call, whether the caller selected the Spanish language or poll location functions, whether the caller chose to transfer to their local election board hotline, whether the transfer was successfully picked up by the local hotline, and whether the caller left a voice message complaint. The system also stored the callers' voice messages. All of this data, including the recorded messages, was accessible in real time through a web interface.

The voice message recordings were subsequently coded into categories of complaint type by a sophisticated audio mining system that is capable of discerning the subject of the call. The accuracy of the audio mining results was then compared against results from human manual coding of a large message sample. The auto and human coding results were similar enough to confirm the conclusions of this report. The Appendix to this report provides national and state by state graphic displays of the MyVote1 complaint data including the variance between the audio mining analysis and the human coding analysis.

This report will provide a high level analysis of the datasets generated by the MyVote1 project.[2] The MyVote1 data was transferred to the California Institute of Technology during August 2005 for more extensive analysis that could include a detailed description of complaint type as well as the cross-referencing of the MyVote1 data against demographic information, machine-types, and political affiliation, among other data sets.

Summary of Data Results

The project's national results included:

- **Total Calls**: The MyVote1 hotline received a total of 208,524 calls representing 191,687 processed calls and 16,837 hangups.
- **Poll Location Requests**: 102,212 or 49% of all callers asked for their poll location
- **Spanish Language Callers**: 5,741 or 2.7% used the Spanish language function
- **Local Help Line Transfer Attempts**: 96,184 or 46% of all callers attempted to transfer to their local election board help hotlines

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[2] InfoVoter's IVRS also hosted the Election Protection Project's 866-OURVOTE voter complaint hotline during the November 2005 election cycle. The EPP system did not include the voice complaint recording or local help hotline transfer features that were central to the MyVote1 system. Although the OurVote data is included in the Appendix, it is beyond the scope of this report.

- **Successful Transfers to Local Help Line**: 51,056 or 53% of all callers who attempted to transfer to their local help line were able to connect through
- **Complaint Messages**: 56,024 or 27% of callers left a voice message on the system

Tables 1 provides the national results from the audio mining analysis of the 56,024 complaint messages and the human coding of 16,451 of the messages.

Table 1: Percentage Complaint Type on a National Basis

Complaint Type	Auto Coded	Human Coded	Percentage Point Variance
Registration	31%	38%	7
Absentee	26%	17%	9
Poll Access	15%	13%	2
Ballot/Screen	13%	4%	9
Mechanical	5%	3%	2
Coercion	5%	4%	1
Identification	3%	4%	-1
Provisional	2%	2%	0
Other	0%	15%	-15

The data indicates that both processes support the same conclusion; the problems most encountered by voters during the November 2004 election cycle were related to registration, absentee ballots, and poll access. In the only significant divergence between the methods, the auto coding system assigned a higher rank to ballot and voting screen problems than the human coded sample.

Achievement of Project Goals

The project achieved its goals. The MyVote1 system provided poll locations to 102,212 callers and successfully transferred 50,987 callers to their local election boards. In addition, a spike in calls to the hotline from Broward County revealed that the county had lost thousands of absentee ballots. Confronted by the data and the media, Broward quickly disseminated replacement absentee ballots thus assisting additional voters. Therefore, the project helped large numbers of voters individually while also demonstrating the system's ability to identify and correct larger problems in real time.

In addition, the system generated a wealth of data that will enable policymakers to identify and repair shortcomings in the U.S. election system based on auditable evidence rather than on ideology or allegations. For example, the data compels a few simple but powerful conclusions:

- Many people do not know where to vote in the U.S. on election-day

- Many local election board help hotlines fail to provide voters with access to assistance or information
- The most reported systemic flaws in the electoral system relate to registration, absentee ballots, and poll access (e.g. long lines).

The MyVote1 data has already begun to influence the policy debate. For example, the Commission on Federal Election Reform (the Carter Baker Commission) incorporated a preliminary breakdown of the MyVote1 data as "Table 1" to its final report that was issued in September 2005 and used the data to support certain of its recommendations.

Finally, the project established proof of concept for the IVRS. The IVRS successfully answered and processed the calls, recorded the data, and provided a web interface that provided access to the data as it arrived into the system.

Recommendations

The more pervasive problems identified by the MyVote1 project have achievable nonpartisan remedies.

Problem 1: Voters don't know where to vote: the MyVote1 data indicates that nearly half of all callers sought their poll location. Therefore, it is likely that poor access to polling place information is preventing a significant number of people from voting during each election cycle.

The cause of the polling place problem is readily apparent. Local election boards publish announcements in newspapers that tell voters their polling place based on their precinct number. Since most people do not know their precinct number, the announcements are not useful. Moreover, the MyVote1 data indicates that local help hotlines are incorrectly posted, not answered, or busy in many cases, thus foreclosing their use as a reliable source of polling place information. In short, many people do not know where to vote and cannot find out where to vote.

Solution to Problem 1: Require states and localities to host toll free hotlines and websites that provide polling place locations based on residential street address.

Problem 2: Local Election Board Hotlines Are Inadequate: the MyVote1 data demonstrates that nearly half of the callers who attempted to transfer to their local election board hotline failed to get through. The failed connections were likely caused by one of three things: the phone was busy; the phone was not answered; or the county posted the wrong number for its helpline.

Solution to Problem 2: Require the federal government, states and/or localities to provide operational, well-staffed, and widely marketed help lines. Automated systems can reduce staff and training costs as well as human error by automatically routing callers through an IVRS to the right information or to the appropriate staff person.

Problem 3: Election Management Problems: the MyVote1 data indicates that many localities do not effectively manage voter registration, absentee ballot, and access to the polls.

Solutions to Problem 3: Require states and localities to make individual registration and absentee ballot information available to voters through toll free automated hotlines and websites. This would enable voters to quickly and easily determine their registration status and to take action to remedy problems. Similarly, voters could track the status of their absentee ballots through the website or automated hotline.

In addition, the federal, state and local governments, and advocacy groups, should focus more of their resources and energies to promote better local government management of registration, absentee ballot, and poll access issues. In particular, to reduce the long lines that lie at the heart of the poll access problem, local officials should be provided with sufficient resources to fully equip and staff polling locations to meet expected demand based on previous elections.

Conclusion

The MyVote1 project's novel IVRS assisted voters during the November 2004 election cycle and collected important data regarding flaws in the U.S. election system. The datasets, which are the first of their kind, give policymakers, advocates, and managers a much better understanding of the types of problems that confront voters. The MyVote1 project aims to redirect the election reform debate toward those problems that, based on the MyVote1 data, are having the largest negative impact on voters.

Finally, The IVRS offers promise as an election assistance, monitoring, and reform vehicle for the future. It can provide voters with a simple solution for locating information, it can enable election officials and nonprofit groups to monitor and prioritize voter complaints on election-day, it creates a record that can be used to study actual problems as part of an ongoing cycle of improvement, and it establishes a baseline for measuring election system performance year to year.

MyVote1 Final Report
Narrative

I. Introduction

A. Project Purpose

The MyVote1 project combined a toll free hotline with an Interactive Voice Response System (IVRS) to:

- **Provide assistance to voters during the November 2004 election cycle; and**
- **Collect large amounts of data from voters that could be used to diagnose flaws in the election system**

The system helped tens of thousands of voters find their poll locations and to transfer to their local election board help hotlines. It did this automatically, thus streamlining otherwise costly and cumbersome processes.   It also collected first of kind data that will enable advocates, academics and policymakers to identify and quantify problems in the election system. Finally, the project proved that IRV systems can serve as powerful and efficient mechanisms for voter assistance, election monitoring, and evidence-based reform at all levels of government.

B. Project Funding

The Fels Institute portion of the MyVote1 project was funded by the Carnegie Corporation, the Open Society Institute, the JEHT Foundation, and the John S. and James L. Knight Foundation.

C. Background

November 2000

The U.S. presidential election in 2000 brought to light flaws in the U.S election system. During the recount period, the political parties and reform advocates scrambled to collect anecdotal and other evidence to support claims that machines did not work properly, ballots confused voters, absentee and other ballots were tampered with, and voters were intimidated and coerced, among many other claims. The post-election frenzy left many with the uneasy feeling that the election system could not be trusted to produce fair and accurate results. The country was in the right mood to support a fix.

Unfortunately, there was little evidence available to point reformers in the right direction. Absent good data, a wide assortment of organizations conducted "studies" of the election system based on anecdotal evidence, professional expertise, theory, and ideology. For example, the Carter Ford Commission, the Constitution Project, the National Conference of State Legislators, the National Association of State Election Directors, the California

Institute of Technology, the Election Center Task Force, the NAACP, the Government Accountability Office, and the New York State Task Force, among others, issued reports suggesting changes to the U.S. electoral system. Although many of the changes appeared to make a great deal of sense, they were not evidence-based, so there was no way of knowing whether they targeted the right problems. Therefore, the resulting proposals represented shots in the dark.

The Help America Vote Act

The U.S. Congress took up the issue of election reform soon after the 2000 election. On October 29, 2002, the President signed the Help America Vote Act (HAVA) which sought to remedy some of the problems that surfaced during the 2000 election. The law mandated that states make some changes. First, it provided money to replace punch card voting machines with better machines that would be approved by a new Election Assistance Commission. Second, it required states to implement statewide registration systems, provisional balloting, valid vote definitions, and handicap accessibility requirements. Finally, the law required first time voters to show identification and it adjusted the rules for military voting overseas.

These reforms represented a series compromises between competing demands to increase access to the ballot box and to prevent fraud. However, they were in some respects flawed in concept because they were based on perceived problems rather than actual ones. In addition, the reforms did not include any method for measuring the impact of the reforms.

D.   The MyVote1 Concept

The MyVote1 project sought to improve upon election reform efforts by using evidence to identify and quantify election problems. The project team proposed collecting significant amounts of auditable data from voters regarding their experiences with the voting process and then using that data to design reforms that solved those problems.

The MyVote1 project employed an Interactive Voice Response System ("IVRS") to offer voters the following functions during the November 2004 election:

1. *Poll locator*: Automatically give callers their poll location based on their residential street address.
2. *Transfer to local hotlines*: Offer callers the ability to transfer automatically to their local county election board help line.
3. *Record a complaint*: allow callers to record a voice complaint so that the system could amass a record of thousands of incidents during the election cycle.

Perhaps surprisingly, no one has ever offered the U.S. electorate a simple means to learn where to vote on election-day or to reach their local government election help hotline.

Therefore, the poll locator and transfer system represented break through technologies for voters.

E.   Project Team

The nonpartisan MyVote1 project team included InfoVoter Technologies Corporation ("InfoVoter"), The University of Pennsylvania's Fels Institute of Government, the Common Cause Education Fund, the Reform Institute, the Johns Hopkins Hispanic Voter Project, and the National Constitution Center (together, the "Consortium"). InfoVoter served as the lead partner responsible for organizing the Consortium, providing the IVRS technology, and managing the project day to day. The Fels Institute served as the lead academic partner responsible for assisting with project management and for producing this final report.

Common Cause, the Reform Institute, and the Johns Hopkins Hispanic Voter Project served as advisors to the project and were given access to the project data. The National Constitution Center hosted the election-day MyVote1 project effort which included a team of Fels Institute graduate students listening to and coding the voice messages as they came in over the hotline. MSNBC marketed the hotline for ten days prior to the election on its cable channel as well as local through NBC affiliates nationwide. In exchange MSNBC received the exclusive right to the data for use on television on election-day.

The MyVote1 project was the brainchild of Ken Smukler, the Chief Executive Officer of InfoVoter. Mr. Smukler's extensive experience as a campaign consultant led him to develop technologies, including the IVRS, that could track large amounts of voter data during an election cycle. He came to realize that the system could be used both to help voters and to create a record of what happened on election-day.

The Fels Institute of Government is one of the oldest public management graduate programs in the country. Its research arm, the Fels Government Research Service, works in concert with government agencies and foundations to develop and implement improved government practices. The Fels GRS took on the MyVote1 project in order to improve election systems nationally. The project fits well with the Service's emphasis on evidence-based government strategies.

II.   How the IVRS Works

A.   IVRS Functions

The Interactive Voice Response System is capable of processing thousands of telephone calls at the same time. The system answers a call, offers a Spanish language option, and then suggests several options to the caller, including the ability to provide their poll location, to transfer to their local election board help line, and/or leave a brief voice message describing their complaint.

The system includes a web-interface that provides anyone with Internet access and a passcode the ability to access the data that comes into the IVRS, including listening to the messages. InfoVoter tested the IVRS prior to the election and then distributed a limited number of pass codes for the website to the project team and a few others to use during the election. InfoVoter used the web interface system to provide data updates to the media throughout the day.

The IVRS records every step the caller makes. It stores the location of the caller, the time and day of the call, whether the caller chooses the Spanish language option, whether the caller chooses to connect to the local help hotline, whether a transfer is successful, whether the caller left a voice message, and a recording of any message.

III.   The November 2004 Election Cycle

A.   The MyVote1 hotline is turned on

The MyVote1 hotline, 866-MYVOTE1, was activated and tested in September 2004. MSNBC and its local NBC affiliates marketed the number on television across the nation from October 22 through election-day on November 2, 2005. The MyVote1 line was turned off on November 5. In the interim the IVRS received a total of 208,524 calls.

Within days after MSNBC began to advertise the MyVote1 "Voter Alert Line", the IVRS recorded a spike in calls from Broward County, Florida. Based on information and audio files provided by InfoVoter form the calls, *WTVJ* (Miami) ran a story citing absentee ballot problems in Broward. That same day, the Philadelphia Inquirer ran a story quoting InfoVoter's Ken Smukler saying, "I think Broward has an absentee-ballot problem right now, just because of the volume of calls and overwhelming number of people frustrated that they haven't gotten their absentee ballot. That might change, although it's a little late for Broward to be handling its absentee ballots."[3] The next day, the *Florida Sun-Sentinal* ran a story citing 60,000 missing absentee ballots in Broward, a story that resulted in the shipping of these ballots via FedEx in the next 48 hours.[4]

MyVote had begun to accomplish its first goal of providing assistance to voters.

B.   November 2, 2004: Election-day

On election-day, the MyVote1 team set up a voter complaint processing center at the National Constitution Center in Philadelphia. MSNBC set up a temporary studio at the Center so that one of its news anchors, Natalie Morales, could broadcast voter complaint information live from that location throughout the election. In order to provide MSNBC with useable data for broadcast purposes, the Fels Institute recruited fifty Fels graduates students and others to listen to the complaint recordings as they hit the system and to code them based on problem type into a computer database. These "human coders", working at computer terminals at the National Constitution Center, coded 7,546 messages

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[3] *Voter Hotline Already Drawing Trouble Calls*, Philadelphia Inquirer, 10/27/2004
[4] *Broward to Resend Thousands of Missing Absentee Ballots*, South Florida Sun-Sentinel, 10/28/2004.

from voters on election-day by gender, problem type, and priority. InfoVoter's software automatically organized the coded data by type and location so that it could be presented in an orderly fashion to MSNBC for broadcast on television.

The system received such a large volume of calls that the Fels students could not code every message on election-day.   Instead, the MyVote1 team focused on calls from battleground states, including Florida, Pennsylvania, and Ohio, and from "hot spots" receiving high call volumes. Ken Smukler continuously fed this data to MSNBC and also provided hourly briefings to print and radio news outlets.

When the election was over, InfoVoter prepared a report of preliminary data findings that is entitled *InfoVoter Technologies Preliminary Report: November 23, 2004*.[5]

IV.   Post-Election Events

A.   The Election Official HAVA Support Conference

On Tuesday, April 5, 2004, the Fels Institute hosted approximately 50 county and state election officials at its second annual Election Official HAVA Support Conference. The day included a series of talks and panel discussions on subjects dear to county election officials, including the challenge of implementing HAVA at the local level.

At the conference, Ken Smukler delivered a MyVote1 data report that outlined the problems reported in the attendees' states of Pennsylvania, New Jersey and Delaware. As part of the MyVote1 presentation, Mr. Smukler played voter complaint messages for the audience. He further described how the messages could be tracked and accessed through the web interface in real time. In response, several of the county election officials asked whether they could study the messages from their counties. More importantly, they asked whether they could access the web interface and track complaints in their counties during upcoming elections so that they could respond rapidly.

The conference convinced the MyVote1 team that many local election officials would welcome access to an IRV system during future elections.

B.   The Carter Baker Commission

The Federal Election Reform Commission, known as the Carter Baker Commission after its co-chairs President Jimmy Carter and Secretary of State James Baker, was established during 2005 to consider further reforms to the election system. The Commission heard testimony and received reports from numerous witnesses. Ken Smukler was invited to testify before the Commission regarding the MyVote1 data on June 29, 2005. In order to provide the Commission with a thorough report, InfoVoter utilized audio mining technology to scan and categorize those messages that had not yet been human coded. The results from this combined human and auto-coding were included in a submission to the Commission entitled *MyVote1:Voice of the Electorate 2004*.

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[5] The InfoVoter reports cited in this document can be found at www.infovoter.net under "reports".

In September 2005, the Carter Baker Commission issued its final report entitled ***Building Confidence in U.S. Elections*** and incorporated the preliminary MyVote1 complaint data from Mr. Smukler's report as Table 1 to its report.[6]

The MyVote1 project had begun to achieve its second mission of promoting evidence-based election reform.

V.   The Data Appendix

A.   The InfoVoter Data Appendix

The data for this report comes from the accompanying Appendix which is InfoVoter's September 2005 data report entitled ***National Results: 1.866.MYVOTE1 and 1.866.OURVOTE Call Statistics; 1.866.MYVOTE1 Live and Auto Coded Problem-Type Data.*** The Appendix includes data from two hotline projects that InfoVoter's IVRS hosted during the election. This report addresses only the data for the MyVote1 project.

B.   Distinguishing between MyVote1 and OurVote

InfoVoter's IVRS platform hosted two voter hotlines during the November 2004 election cycle: (1) the MyVote1 project that is addressed in this report; and (2) the OurVote project that was organized by the Election Protection Project ("EPP").[7] The EPP's OurVote project, like the MyVote1 project, used the IVRS platform to receive and track calls by number and location and also offered the poll location feature. However, the OurVote system differed from the MyVote1 system in three fundamental ways:

1.   *OurVote Transferred to Volunteers*

The EPP OurVote system transferred callers to a network of live volunteers located in call centers. EPP feared that local election boards would be less helpful to certain voters in some places, including minority and poorer voters, and that the boards therefore should not be used as a source of redress on election-day.

The MyVote1 consortium chose to transfer callers to the local election boards for several reasons. First, it wanted to create a dataset that could be used to measure local help line capacity. Second, the team believed that local officials were better situated, trained, and equipped to provide redress on election-day than volunteers. Third, the MyVote1 project's commitment to nonpartisanship required that it transfer the callers to the responsible governmental authority.

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[6] The Commission's report can be found at http://www.american.edu/ia/cfer/report/full_report.pdf.
[7] The Election Protection Project is a coalition of civil rights and other groups that includes People for the American Way, the Lawyers' Committee on Civil Rights, the NAACP, the Voter Protection Project of America's Families United, the National Coalition on Black Civic Participation, the AFL-CIO, Mi Familia Vota, the Advancement Project, the ACLU, AFSCME and the League of Women Voters.

2. *OurVote Does Not Record Voice Messages*

The EPP OurVote system did not record voice messages from callers. Instead, EPP asked its volunteers to take live notes while on the telephone with the caller. In contrast, the MyVote1 team chose to record the voice messages to create a database that could be audited and analyzed and then used to advance reforms based on the evidence.

3. *EPP Target Marketed the OurVote Hotline*

The EPP target marketed the OurVote hotline toward poor and minority communities through a loose coalition of newspapers, radio shows, and informal means. In contrast, MSNBC and NBC affiliates marketed the MyVote1 hotline nationally on television. The MyVote1 team sought to reach a cross section of America in order to maintain its nonpartisan status and to obtain data that was representative of the election system as a whole.

VI. Data Analysis

A. Call Traffic Analysis

Table 2 summarizes the national call traffic across the MyVote1 IRV platform during both the entire 15-day hotline period and on election-day, November 2.[8]

Table 2: Total Call Traffic Figures -- MyVote1 Platform

	Total	Poll Location	Recorded Messages	Transfer Attempts	Transfer Success	Transfer Failure	% Transfer Success
Total Calls	208,524	102,212	56,024	96,184	51,056	45,128	53%
Election Day Calls[9]	96,783	49,665	25,179	46,288	20,700	25,588	45%

The data supports the following conclusions:

> 1. ***Many voters do not know where to vote***: Approximately, 49% of callers asked for their poll location overall with 51% of callers using the poll locator on election-day. Therefore, the data indicates that voters need assistance with finding their poll locations.

> 2. ***Local help lines are inadequate***: Local election board help hotlines answered just 53% of the calls transferred to them. On

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[8] The data in Table 2 is broken out by state in Attachment 1 to this report.
[9] The Election Day figures are taken from an InfoVoter data report entitled ***MyVote1: A Preliminary Report – Allegheny, PA; Franklin, OH; Broward, FL; Minnesota***, dated November 23, 2004.

election-day, the percentage dropped to 45%. Therefore, local election board hotlines do not offer voters a reliable source of information.

B.   The Poll Location Data

1.   *Creating the poll location database*

Counties advertise the location of polling places based on precinct number in local newspapers. These postings are not very useful because most voters do not know their precinct number. Also, only nine state websites provide a way for voters to locate their poll location based on their residential street address. Therefore, it is not surprising that large numbers of voters used the MyVote1 poll locator.

InfoVoter went through a laborious process to compile the poll location database that was integrated into the IVRS. First, it obtained precinct to poll location databases from the counties. Second, it acquired databases linking precinct numbers to zip-code-9 numbers. InfoVoter then combined the databases so that callers could go from their zip-9 to their precinct number to their polling place location. The resulting database was the first of its kind.

2.   *Poll location finder: national data*

InfoVoter's poll locator database was incorporated into the MyVote1, OurVote and www.mypollingplace.com systems. A combined total of 156,990 people used the poll locator function in the MyVote1 and OurVote1 systems. In addition, People for the America Way, which ran the polling place website, reported receiving 3 million hits on the website.

It is not possible to extrapolate from these numbers how many voters did not know where to vote. However, it is reasonable to assume that the calls and website hits represent some fraction of the problem. Thus, a lack of access to information regarding polling place location could be preventing more people from voting than any other single system failure.

3.   *Poll location request data by state*

Table 3 below presents the poll locator data by state.

Table 3: Poll Location Requests by State

State	TOTAL	Calls to Poll Locator	% of Calls to Poll Locator
WI	6399	4934	77.11%
TX	13256	8682	65.49%
IN	2814	1805	64.14%
NY	24428	15231	62.35%
ID	411	251	61.07%
AL	2820	1719	60.96%
MS	727	439	60.39%
ND	88	53	60.23%
RI	1542	898	58.24%
MT	294	168	57.14%
PA	23921	13620	56.94%
MI	10019	5699	56.88%
CA	18308	10359	56.58%
CT	1150	613	53.30%
NE	345	180	52.17%
NJ	8315	4329	52.06%
MA	2876	1471	51.15%
VA	3917	1992	50.86%
KY	1027	522	50.83%
GA	4189	2119	50.58%
WA	2379	1200	50.44%
DE	726	365	50.28%
IL	3641	1828	50.21%
OK	1173	581	49.53%
UT	451	216	47.89%
SC	6715	3213	47.85%
IA	1240	588	47.42%
KS	505	239	47.33%
OH	6959	3282	47.16%
NV	1446	676	46.75%
MD	3691	1679	45.49%
CO	1758	797	45.34%
MO	1842	822	44.63%
DC	723	321	44.40%
TN	2427	1064	43.84%
AR	507	218	43.00%
AZ	2147	921	42.90%
LA	809	341	42.15%
MN	1031	429	41.61%
HI	157	64	40.76%
WV	488	191	39.14%
VT	127	49	38.58%
NC	2574	988	38.38%

ME	195	73	37.44%
OR	572	202	35.31%
AK	146	50	34.25%
NM	453	153	33.77%
SD	78	26	33.33%
NH	271	90	33.21%
FL	19566	6448	32.96%
WY	44	14	31.82%
Hangups	16,837		
Total	**208,524**	**102,212**	**49%**

Although the percentage of poll location requests ranges from as low as 31.82% in Wyoming to as high as 77.11% in Wisconsin, the portion of callers who used this function was generally high across the country. The average for all callers is 49% and the median for the states is 47.85%.

C. Transfers to Local Election Board Hotlines

1. Creating the Local Hotline database

Local election boards host telephone help lines in order to provide information or assistance to voters. These "hotlines" represent the government's front line response to voters seeking information. If they do not work or they are not answered, then voters cannot obtain recourse.

As with the poll locator, InfoVoter created a first of kind database that included county election help lines throughout the country. It obtained these numbers by either pulling them off of county websites or by calling the counties.

2. Local Hotline Transfer Data

Of the 208,524 calls to the MyVote1 line, 96,092 or 46% attempted to transfer to the local election board help lines. Of these, just 50,987 or 53% were able to connect through. On election-day alone, of the 96,783 calls that came into the system, 46,288 or 48% attempted to transfer. Of these, 20,700 or 45% were successfully answered by the hotline. Therefore, local election boards are not a reliable source of information or assistance during elections.

3. Local Hotline Data by State

The following Table 4 presents the MyVote1 transfer success rate data by state.

Table 4: Transfer Request Success Rates by State

State	Total Calls	Total Transfer Attempts	Successful Transfers	Transfer Success Rate
ME	195	80	80	100.00%
AK	146	70	70	100.00%
CT	1150	573	569	99.30%
MN	1031	457	427	93.44%
DE	726	339	308	90.86%
VT	127	60	51	85.00%
WA	2379	1100	909	82.64%
IL	3641	1756	1450	82.57%
RI	1542	659	529	80.27%
NM	453	226	170	75.22%
CO	1758	813	608	74.78%
CA	18308	9482	7062	74.48%
ID	411	240	174	72.50%
MI	10019	5335	3864	72.43%
AL	2820	1335	964	72.21%
OH	6959	3250	2318	71.32%
NV	1446	689	489	70.97%
WY	44	13	9	69.23%
IA	1240	538	367	68.22%
OR	572	272	185	68.01%
AZ	2147	1048	709	67.65%
KY	1027	410	271	66.10%
MA	2876	1415	895	63.25%
FL	19566	10260	6472	63.08%
NE	345	157	99	63.06%
IN	2814	1757	1099	62.55%
WV	488	187	116	62.03%
SD	78	28	17	60.71%
TN	2427	1112	675	60.70%
ND	88	48	29	60.42%
UT	451	179	106	59.22%
KS	505	227	131	57.71%
VA	3917	2137	1226	57.37%
TX	13256	7241	4150	57.31%
HI	157	80	45	56.25%
MS	727	306	172	56.21%
NC	2574	1134	616	54.32%
MD	3691	1850	990	53.51%
AR	507	217	111	51.15%
WI	6399	3356	1583	47.17%
GA	4189	1998	927	46.40%
NJ	8315	4036	1801	44.62%
MT	294	163	70	42.94%
OK	1173	509	205	40.28%

NH	271	121	40	33.06%
LA	809	341	111	32.55%
MO	1842	932	301	32.30%
PA	23921	11699	3421	29.24%
DC	723	336	98	29.17%
NY	24428	11897	3315	27.86%
SC	6715	3716	652	17.55%
Hangups	16837			
Total	**208,524**	**96184**	**51056**	**53.08%**

The successful transfer rate varied widely among the states. Although the average success rate was a troubling 53.08%, some states performed quite well. For example, Maine, Arkansas, Minnesota, Connecticut and Delaware answered more than 90% of the transferred calls, with Maine and Arkansas getting every one. In contrast, South Carolina, New York, the District of Columbia, and Pennsylvania, all answered fewer than 30% of the calls transferred to their local election help lines. In South Carolina, a full 84% of the calls were not picked up, thus eliminating the lines as a viable means of receiving election information within the state.

D. Caller Complaint Messages

1. Description and Purpose

One of the primary goals of the MyVote1 system was to generate a database of voter complaints that could be used to identify and quantify flaws within the election system. The MyVote1 IVRS offered callers the opportunity to record a brief message describing their particular voting complaint. The messages were then analyzed and categorized into various subject areas.

2. Total Caller Complaint Messages

Table 5 summarizes the total number of complaint messages left by callers on the MyVote1 system both throughout the election period and on election-day.

Table 5: National Caller Messages Data

	Total Calls	Recorded Messages	Messages as % of Total Calls
Total	**208,524**	**56,024**	**26.78%**
Election-Day	**96,783**	**25,179**	**26.02%**

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3. *Methodology for Analyzing the Messages*

Strung together, the 56,024 messages recorded through the MyVote1 IRVS represent hundreds of hours of audio recordings. Converting these bulk sound files into intelligible categories of complaints represented the project's greatest analytical challenge.

Prior to the election, and based on a review of existing election reform studies, the project team selected eight categories of problem types that encompassed the expected universe of voter complaints. These categories are:

- **Registration**
- **Absentee Ballot**
- **Poll Access**
- **Ballot/Screen**
- **Coercion/Intimidation**
- **Identification**
- **Mechanical**
- **Provisional**

During the election and thereafter, the Fels Institute and InfoVoter used staff and Fels graduate students to human code a total of 16,451 or 29% of the 56,024 voter messages pursuant to the above complaint categories. The human coders sat at a computer terminal, listened to the messages through headphones, and checked off a box on a drop down computer screen menu to identify the complaint type for the call. The computer system organized the results into a database.

The 16,451 messages that have been human coded to date were not randomly selected. During the election, the project team coded approximately 7,500 messages that were weighted toward battleground states and other high volume areas. After the election the team coded an additional 3,500 messages to achieve specific goals, for example, to prepare a presentation to election officials from Pennsylvania, New Jersey, and Delaware. Finally, the team selected another 5,500 messages for human coding that had failed to meet the accuracy confidence levels established for the audio mining system discussed below.

During the spring of 2005, InfoVoter and Fels investigated the potential for using audio mining technology to automatically analyze and categorize the content of all 56,024 of the voter messages. A more thorough description of the audio mining system is described in Attachment 3 to this report. InfoVoter tested the audio mining system by running a sample set of messages that had already been human coded through the auto-coding system. The results confirmed that auto-coding was comparable to human coding in terms of ranking the messages by complaint type.

4.   *Differences between Audio Mining and Human Coding*

The results from the audio mining of 100% of the messages and the human coding of 29% of the messages were comparable in terms of ranking the percentage volumes of the complaint types for the top three complaint categories which represented approximately 70% of all complaint recordings. However, there are two differences in the methodologies that require explanation in order to better understand the data.

First, the human coders marked 2,530 or 15.4% of the messages they coded as "other" meaning they did not fit within the problem categories listed above. The bulk of these calls were hang-ups. In contrast, the audio mining system analyzed all of the messages but ultimately gleaned complaints from just 31,041 of them. This is because 24,915 or 45% of the calls did not meet the confidence levels for accuracy established by the audio mining system. These would include hang-ups and messages that failed to include key words.

Second, the human coders could only assign one problem to each call. Therefore, there are 16,451 discrete entries from the human coders, one for each message received. In contrast, in many cases, the audio mining system identified more than one complaint subject within a single call that met the program's confidence levels. The audio mining analysis therefore generated 48,546 total complaint entries from 31,041 calls.

5.   *Complaint Type -- National Data*

Table 1 above provides the national percentage of complaints by type as measured by both the auto-coded audio mining of all 56,024 complaint messages and by the human coding of 16,451 messages.

As described in the table, both the audio mining system and the human coders ranked the top three complaint types in order of frequency as: (1) registration; (2) absentee ballot; and (3) poll access. Moreover, the top three problem types represented a total of approximately 72% and 68% of all complaints respectively for the two methodologies. For the remaining categories of complaint, excluding ballot/screen problems, the two methodologies reached results that were within 1 or 2 percentage points of each other. For ballot/screen the auto-coding system found that 13% of callers mentioned this problem whereas the human coders noted that 4% mentioned this problem. Therefore, the data indicates that registration, absentee ballot issues, and poll access represent the largest challenges to voters. The ballot/screen complaint type requires further analysis to determine its true ranking.

6.   *Compaint Type -- State by State Data*

Table 6 provides the percentage of complaints by type on a state by state basis as measured by both the auto-coded audio mining of all 56,024 complaint messages and by the human coding of 16,451 messages. Attachment 2 provides the results in terms of call totals and percentages for each coding method by state.