

Withdrawn Draft

Warning Notice

The attached draft document has been withdrawn, and is provided solely for historical purposes. It has been superseded by the document identified below.

Withdrawal Date March 24, 2022

Original Release Date October 21, 2021

Superseding Document

Status Final

Series/Number NIST Special Publication 1273

Title Promoting Access to Voting: Recommendations for Addressing Barriers to Private and Independent Voting for People with Disabilities

Publication Date March 2022

DOI <https://doi.org/10.6028/NIST.SP.1273>

Additional Information N/A

1
2 **Draft NIST Special Publication 1273-draft**

3
4
5 **Promoting Access to Voting:**
6 **Recommendations for Addressing**
7 **Barriers to Private and Independent**
8 **Voting for People with Disabilities**

9
10
11
12 Kerriane E. Buchanan
13 Kevin C. Mangold
14 Sharon J. Laskowski
15 *Information Access Division*
16 *Information Technology Laboratory*

17
18 Karen Reczek, Editor
19 *Standards Coordination Office*

20
21
22
23 This publication is available free of charge from:
24 <https://doi.org/10.6028/NIST.SP.1273-draft>

25
26
27
28

29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67



Draft NIST Special Publication 1273-draft

Recommendations for Addressing Barriers to Private and Independent Voting for People with Disabilities

Kerriane E. Buchanan
Kevin C. Mangold
Sharon J. Laskowski
*Information Access Division
Information Technology Laboratory*

Karen Reczek, Editor
Standards Coordination Office

This publication is available free of charge from:
<https://doi.org/10.6028/NIST.SP.1273-draft>
October 2021



U.S. Department of Commerce
Gina M. Raimondo, Secretary

National Institute of Standards and Technology
*James K. Olthoff, Performing the Non-Exclusive Functions and Duties of the Under Secretary of Commerce
for Standards and Technology & Director, National Institute of Standards and Technology*

68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
101
102
103

Certain commercial entities, equipment, or materials may be identified in this document in order to describe an experimental procedure or concept adequately. Such identification is not intended to imply recommendation or endorsement by the National Institute of Standards and Technology, nor is it intended to imply that the entities, materials, or equipment are necessarily the best available for the purpose.

**National Institute of Standards and Technology Special Publication 1273-draft
Natl. Inst. Stand. Technol. Spec. Publ. 1273-draft, 61 pages (October 2021)
CODEN: NSPUE2**

This publication is available free of charge from: <https://doi.org/10.6028/NIST.SP.1273-draft>

104
105
106
107
108
109
110
111
112
113
114
115
116
117
118
119
120
121
122
123
124
125
126

EXECUTIVE SUMMARY

The Executive Summary is not available in this Draft but will be provided in the final version of the Report.

127	TABLE OF CONTENTS	
128		
129	EXECUTIVE SUMMARY	1
130	TABLE OF CONTENTS	2
131	1. INTRODUCTION	3
132	2. SYSTEMIC BARRIERS TO AND RECOMMENDATIONS FOR VOTING ACCESSIBILITY	5
133	3. VOTER REGISTRATION AND THE NATIONAL VOTER REGISTRATION FORM	23
134	4. VOTING BY MAIL	30
135	5. VOTER TECHNOLOGY	37
136	6. POLLING LOCATIONS	42
137	7. POLL WORKER TRAINING	47
138	APPENDIX I: ACRONYMS	51
139	APPENDIX II: DEFINITIONS	52
140	APPENDIX III: REFERENCES	54
141	APPENDIX IV: ADDITIONAL RESOURCES	55
142	APPENDIX V: THE ASSIGNMENT AND APPROACH	56
143	APPENDIX VI: REQUEST FOR INFORMATION	57
144		
145		

146

147 1. INTRODUCTION

148

149 As stated in Executive Order (EO) 14019, Promoting Access to Voting,¹ the right to vote is the
150 foundation of American democracy. The EO further recognizes that “People with disabilities continue to
151 face barriers to voting and are denied legally required accommodations in exercising their fundamental
152 rights and the ability to vote privately and independently.” This NIST Special Publication is intended to
153 contribute to the efforts of improving accessibility for voters by making recommendations that may help
154 to remove barriers impeding the ability for people with disabilities to vote privately and independently.
155

156

157 NIST has a decades-long history in addressing the accessibility and usability of voting systems and
158 processes through technical research based in human factors to develop guidance as part of its NIST
159 Voting Program. Drawing on this expertise and using its robust stakeholder engagement processes,
160 NIST produced this Draft NIST Special Publication in response to its responsibilities described in
161 Section 7 of the EO. NIST is specifically tasked to:

161

1) Evaluate the steps needed to ensure that the online National Voter Registration Form² is
162 accessible to people with disabilities, and

163

2) Identify barriers and publish recommendations to remove barriers preventing individuals with
164 disabilities from accessing voter registration systems and voting technology, utilizing voting by
165 mail, using polling locations, as well as recommendations that address training and
166 documentation associated with the technical barriers for poll workers to support accessibility.
167

168

169 In producing this Draft NIST Special Publication, NIST explored technical and non-technical barriers by
170 analyzing published material identifying barriers, recommendations, best practices, and existing federal
171 guidance and regulations. NIST engaged stakeholders through discussion and responses to a June 16,
172 2021, Request for Information (RFI)³ to gain an in-depth understanding of accessibility issues and
173 where technology is a barrier, as well as where technology can serve as a solution. We noted that
174 many of the barriers have already been analyzed and recommendations exist in various forums; NIST
175 analyzed this information in the context of how current and future technology can improve accessibility
176 for voters. NIST also received responses that address legislative, regulatory, and enforcement
177 concerns. The barriers and recommendations presented in this report are a synthesis of the
178 aforementioned resources and inputs. These responses have been provided to appropriate federal
179 agencies and offices for their consideration.

180

181 Five core assertions appeared across the material, discussions, and public responses. We relied upon
182 these to guide our analysis about improving independent and private voting for people with disabilities.

183

1. Privacy, independence, and equal access are of utmost importance to voters with disabilities.

184

2. Many barriers exist for voters across a wide range of disabilities.

185

3. More choices mean more accessibility and better design for all voters.

¹ Exec. Order No. 14019, Promoting Access to Voting, 86 FR 13623 (Mar. 07, 2021).

² The Election Assistance Commission (EAC) provides this registration form, otherwise known as the National Mail Voter Registration Form, which can be used to register U.S. citizens to vote and update voter information. See: <https://www.eac.gov/voters/national-mail-voter-registration-form>.

³ Responses to the Request for Information are found on regulations.gov and <https://www.nist.gov/it/voting>.

- 186 4. Multiple standards, laws, guidelines, and best practices exist that increase accessibility.
187 5. Accessibility and cybersecurity must work together.

188
189 This NIST Special Publication presents barriers and recommendations based on our analysis of all
190 documents, stakeholder engagements, and responses to the RFI. We recognize that there is great
191 variability among states and local jurisdictions and unique considerations in their efforts to identify and
192 address barriers to improve voter accessibility. Therefore, this report does not contain specific analyses
193 about any specific state or local jurisdictions' existing barriers or their removal. Further, this report does
194 not make suggestions for how any specific state or local jurisdiction should implement a
195 recommendation. This NIST Special Publication is provided for all stakeholders to analyze and apply
196 based on their own context and efforts to improve accessibility for voters with disabilities.
197

198
199 NIST seeks public comment on this document in full. We are particularly interested
200 in hearing feedback on the systemic barriers and systemic recommendations; as
201 well as the text and suggestions addressing the voter registration form. We seek
202 input on the specific barriers and recommendations provided for each voting
203 activity addressed. This draft report does not include all citations for references,
204 terms, acronyms, etc., but these will be provided in the final document. Please
205 provide feedback and suggestions on the call out boxes and whether the content in
206 these boxes are appropriate examples. Consider using the comment template at:
207 <https://www.nist.gov/itl/voting> if it eases your ability to provide comments; however,
208 use of the form is not necessary. Send comments in the form easiest for you.
209
210

211
212
213
214
215
216
217
218

2. Systemic Barriers to and Recommendations for Voting Accessibility

There are five systemic barriers across the voting process which appeared across the material, discussions, and public responses. These create challenges not only to voters with disabilities, but also to election officials and other stakeholders who implement the process. To address these barriers, we identified five systemic recommendations that impact voter privacy and independence across the voting process.

Systemic Barriers

- Struggles to meet federal standards, laws, and guidelines that address accessibility for voters.
- Gaps in accessible communication and information for voters with disabilities.
- Inaccessibility of paper.
- Design of security solutions may not consider accessibility.
- Extra obstacles encountered by voters with disabilities.

219
220

Systemic Recommendations

- Create guidance to help address meeting federal standards, laws, and guidelines.
- Improve dissemination, outreach, and accessibility of voting information.
- Provide accessible options for the voting process.
- Integrate the disability community into all aspects of voting.
- Conduct research and development to promote access to voting.

221
222
223
224
225
226
227
228
229

Section 2.1 describes the systemic barriers that impact voters with disabilities across the voting process. Section 2.2 describes recommended actions to overcome these barriers and promote access to voting for voters with disabilities. In many cases, we recommend already existing best practices and guidance be applied more broadly to voting across the country. Where relevant, we provide examples of existing guidance, best practices, and research currently put into practice by federal, state, and local governments as well as by researchers, industry, and advocacy groups.

2.1. Systemic Barriers

231
232
233

Accessibility challenges stemming from systemic barriers differ depending on area and access to technology:

234
235

- **Geographic area:** For example, polling location parking is a challenge in both urban and rural areas; urban areas often lack enough parking spaces, and rural areas often lack stable ground

236 in the parking areas. Depending on the time of year that an election is held, weather may create
237 additional challenges (e.g., a curb cut blocked by snow, flooding, etc.).

- 238 • **Access to technology:** Americans with disabilities, regardless of age, are more likely than
239 those without disabilities to experience digital divides using the internet and technology.⁴

240
241 Voters are impacted by barriers depending on where they live. Accessibility differs widely both between
242 states and between jurisdictions within a state. States have different policies and voting laws that can
243 affect voters with disabilities in different ways.
244

245 **2.1.1. Struggles to meet federal standards, laws, and guidelines that address** 246 **accessibility for voters.**

247 Guidelines, standards, and laws exist to ensure accessibility throughout the voting process:

- 248 • The Americans with Disabilities Act (ADA),^{5,6} the ADA Standards for Accessible Design⁷
249 and the guidance from the ADA Checklist for Polling Places,⁸
- 250 • The Voting Rights Act (VRA)
- 251 • Section 508 of the Rehabilitation Act, including the associated Web Content Accessibility
252 Guidelines (WCAG)
- 253 • Help America Vote Act (HAVA)⁹
- 254 • Voluntary Voting System Guidelines (VVSG) 2.0¹⁰
- 255 • The National Voter Registration Act (NVRA)¹¹

256
257

⁴ Anderson M, Perrin A (2017) *Disabled Americans are less likely to use technology*. Pew Research Center (Washington, D.C.) Available at: <https://www.pewresearch.org/fact-tank/2017/04/07/disabled-americans-are-less-likely-to-use-technology/>.

⁵ Americans With Disabilities Act of 1990 (ADA), Pub. L. No. 101-336, 104 Stat. 328 (1990).

⁶ Americans With Disabilities Act of 1990 (ADA), Pub. L. No. 101-336, 104 Stat. 328 (1990), 28 Code of Federal Regulations (CFR) part 35 (title II).

⁷ US Department of Justice (2010) 2010 ADA Standards for Accessible Design. DOJ (Washington, D.C.) Available at: https://www.ada.gov/2010ADASTandards_index.htm.

⁸ US Department of Justice (2016) *Americans with Disabilities Act ADA CHECKLIST FOR POLLING PLACES*. DOJ (Washington, D.C.) Available at: <https://www.ada.gov/votingchecklist.pdf>.

⁹ Help America Vote Act of 2002 (HAVA), Pub. L. No. 107-252, 116 Stat. 1666-1730 (2002), codified at 42 U.S.C. §§ 15301-15545.

¹⁰ U.S. Election Assistance Commission (2021) Voluntary Voting System Guidelines 2.0, EAC (Washington, D.C.) Available at: <https://www.eac.gov/voting-equipment/voluntary-voting-system-guidelines>.

¹¹ The National Voter Registration Act of 1993 (NVRA), Pub. L. No. 103-31, 107 Stat. 77-89 (1993).

258 State and local elections officials face challenges in meeting these laws, standards, and guidelines.
259 For example, in 2016, the Government Accountability Office (GAO) surveyed polling places and
260 found that 83% had at least one potential impediment to voting for people with disabilities, violating
261 ADA requirements.¹²

262
263 A frequent underlying cause of these barriers is the lack of resources and funding available to state
264 and local election officials to provide accessible options for elections for voters with disabilities.¹³

- 265 • Without resources, election officials may be unable to replace old and outdated voting
266 technology. Much of the equipment purchased under HAVA is approaching the end of its
267 designed service life.¹⁴ This lack of resources leads to polling places that are not up to date
268 with current technologies and federal guidelines.
- 269 • Funding concerns limit the ability of state and local governments to develop and implement
270 online voting services, forms, and websites that meet federal standards for accessibility.¹⁵
- 271 • In small local jurisdictions, including both counties with small populations and states where
272 elections are administered by town clerks, there may be as few as a single full-time staff
273 member to run both elections and other functions of the clerk's office. These small offices
274 may face additional challenges in recruiting and training staff or temporary personnel, hiring,
275 and retaining staff with technological skills to design, implement, and troubleshoot
276 technology for voting.
- 277 • Not all voters with disabilities have access to broadband, internet, or computers. For
278 example, only 72% of adults with disabilities have a smartphone compared to 88% of those
279 without disabilities.¹⁶ Election officials may lack resources to provide additional accessible
280 alternatives to voters with disabilities who cannot use online or electronic options even when
281 they are accessible.

283 **2.1.2. Gaps in accessible communication and information.**

284 Voters with disabilities who rely on alternative communication, language, and interaction methods
285 face barriers when:

¹² US Government Accountability Office (GAO) (2017) *GAO-18-4 Voters with Disabilities: Observations on Polling Place Accessibility and Related Federal Guidance*. GAO (Washington, D.C.) Available at: <https://www.gao.gov/assets/gao-18-4.pdf>.

¹³ Presidential Commission on Election Administration (2014) *The American Voting Experience: Report and Recommendations of the Presidential Commission on Election Administration*. Presidential Commission on Election Administration (Washington, D.C.) Available at: <http://web.mit.edu/supportthevoter/www/files/2014/01/Amer-Voting-Exper-final-draft-01-09-14-508.pdf>.

¹⁴ US Government Accountability Office (GAO) (2018) *GAO-18-294 Elections Observations on Voting Equipment Use and Replacement*. GAO (Washington, D.C.) Available at: <https://www.gao.gov/assets/gao-18-294.pdf>.

¹⁵ National Conference of State Legislatures (NCSL) (2021) Available at: <https://www.ncsl.org/research/elections-and-campaigns/election-costs.aspx>.

¹⁶ (see Footnote 4).

- 286
- 287
- 288
- 289
- 290
- 291
- 292
- 293
- 294
- 295
- **Asking for information in-person.** When poll workers and election officials do not have the knowledge or resources to communicate with a voter with a disability (e.g., American Sign Language (ASL)), the voter may be unable to complete parts of the voting process.
 - **Receiving election information and registering to vote.** Information is often not provided through accessible communication channels such as ASL interpretation or closed captioning.
 - **Using assistive technology (AT).** Although AT is commonly used by many in the disability community, AT is often not supported in, or compatible with, parts of the voting process, including during interactions with poll workers and voting technology.

296 Information for voters can be inaccessible in several ways:

- 297
- 298
- 299
- 300
- 301
- 302
- 303
- 304
- 305
- 306
- 307
- 308
- 309
- Web information on where to vote, what forms of identification are accepted, voter guides, and accessibility and language options, often do not fully meet ADA accessibility requirements.
 - Online forms and applications may not be set up correctly to work with personal AT or may not be compatible or work correctly on mobile devices preferred by some people with disabilities.
 - Information about the voting process is often not written in plain language, creating challenges for voters with intellectual, developmental, learning, and neurocognitive disabilities, and voters with disabilities who are low literacy or who speak English as a second language.
 - Voters without access to the internet or computers may not be able to obtain information in an accessible method.

310 Voters with disabilities also face barriers when information about the voting process, relevant laws,
311 and details on accessibility are either not available or is not easily found.
312

313 **2.1.3. Inaccessibility of paper**

314 The use of paper in many aspects of voting is a pervasive challenge that excludes some voters with
315 disabilities—especially those with manual dexterity or who are blind or low vision—from privately and
316 independently participating in the voting process.

- 317
- 318
- 319
- Signing and handling a registration form is difficult for voters with print disabilities.¹⁷
 - Marking, writing-in candidates, and handling a paper ballot is difficult for voters with print disabilities.

¹⁷ A print disability refers to “a person who cannot effectively read print because of a visual, physical, perceptual, developmental, cognitive, or learning disability.” Source: George Kerscher, Reading Rights Coalition (1988-1989) “The definition of “print disabled”?”. Available at: <https://web.archive.org/web/20131024195135/http://readingrights.org/definition-print-disabled>.

- 320
- 321
- 322
- While accessibility of voting machines to mark, verify, and cast a paper ballot is improving in newer designs, voters with disabilities often need to still handle a paper ballot to verify and submit their vote.
- 323
- Returning a paper form or ballot is difficult for voters with manual dexterity disabilities, especially when paths to locations are not accessible or locations themselves are not accessible (e.g., polling place, ballot drop box, mailbox, etc.).
- 324
- 325
- 326

327 It is important to note that the use of paper is the barrier. Where paper is used, it is up to the states
328 to ensure that there are accessible alternatives to provide equal opportunity to voters with
329 disabilities consistent with the law.

330

331 **2.1.4. Design of security solutions may not consider accessibility.**

332 The security-related aspects of voting solutions can create barriers when they are not designed to
333 also meet laws that require accessibility. For example, the return to hand-marked paper ballots and
334 electronic ballot markers to address security problems with fully electronic voting systems often
335 creates new barriers, especially for voters with print disabilities¹⁸ (see Sec. 2.1.3).

336

337 **2.1.5. Extra obstacles encountered by voters with disabilities.**

338 Shortcomings in accessible voting have created extra obstacles for people with disabilities,
339 including:

- 340
- Voters with disabilities often have to extensively plan their voting experiences; if they are unable to find accessible transportation, accessible paths to the polling place/ballot drop box, forms to request vote by mail ballots, and methods to communicate, they may be unable to vote.
- 341
- Some voters with disabilities may be placed in situations with challenging physical accessibility or which are inaccessible, including traveling to and navigating polling location parking lots, polling places not located on a ground floor, polling locations that lack curb cuts or ramps, polling locations with inaccessible doors, ballot drop boxes, election offices, and other locations where voters need to obtain information for voting (e.g., Department of Motor Vehicles (DMV), voter registration office, notary office, etc.).
- 342
- Some voters with disabilities have difficulties obtaining a driver's license or state identification. Some of these voters cannot drive or may have difficulties finding accessible transportation to the DMV; they may also have challenges paying any fees associated with the identification, as
- 343
- 344
- 345
- 346
- 347
- 348
- 349
- 350
- 351

¹⁸ (see Footnote 17).

352 there are higher unemployment rates for people with disabilities.^{19,20, 21} Without identification,
353 they may be unable to cast their vote.

- 354 • Voters with disabilities may experience delays when accessible machines, typically electronic
355 ballot markers, are not set up or not working or when poll workers must find the correct method
356 to communicate with voters.
- 357 • Long wait times during in-person voting can be particularly burdensome to voters with
358 disabilities who have difficulty standing for an extended period.
- 359 • It is disrespectful and stigmatizing when voters have their right to vote independently and
360 privately questioned, when voters have their right to choose to be aided by someone other than
361 a poll worker be denied, and when they are segregated from other voters to use accessible
362 voting machines set apart as distinct in a polling place.

363

364 **2.2. Systemic Recommendations**

365

366 **2.2.1. Create guidance to help address meeting federal standards, laws, and guidelines.**

367 The voting process may improve for voters with disabilities if guidelines and requirements currently in
368 national laws are consistently applied across the country. Relevant national laws and guidelines
369 include:²²

- 370 • ADA requirements and guidance for polling place physical accessibility²³ and for effective
371 communications with people with disabilities (i.e., provision of auxiliary aids, services, and
372 reasonable modifications of policies, practices, and procedures)²⁴
- 373 • VRA requirements regarding receipt of assistance from a person the voter with a disability
374 chooses (who is not the voter's employer or an officer or agent of the voter's union) and not
375 conditioning the right to vote on ability to read or write
- 376 • NVRA requirements regarding agencies that provide voter registration services

¹⁹ US Government Accountability Office (GAO) (2014) *GAO-14-634 Elections* Issues Related to State Voter Identification Laws. GAO (Washington, D.C.) Available at: <https://www.gao.gov/assets/gao-14-634.pdf>.

²⁰ Des Cognets J, Rafert G (2019) *Assessing the Unmet Transportation Needs of Americans with Disabilities*.

²¹ U.S. Department of Labor (DOL) Bureau of Labor Statistics (BLS) (2021) PERSONS WITH A DISABILITY: LABOR FORCE CHARACTERISTICS – 2020. DOL BLS (Washington, D.C.) Available at: <https://www.bls.gov/news.release/pdf/disabl.pdf>.

²² US Department of Justice (2014) The Americans with Disabilities Act and Other Federal Laws Protecting the Rights of Voters with Disabilities. DOJ (Washington, D.C.) Available at: https://www.ada.gov/ada_voting/ada_voting_ta.htm.

²³ (see Footnotes 5, 6, 7, and 8).

²⁴ US Department of Justice (2014) Effective Communication. DOJ (Washington, D.C.) Available at: <https://www.ada.gov/effective-comm.htm>.

- 377 • Help America Vote Act requirements²⁵ regarding providing at least one accessible voting
378 system for persons with disabilities at each polling place in federal elections
- 379 • The Voting Accessibility for the Elderly and Handicapped Act of 1984 requiring accessible
380 polling places in federal elections or alternate means of voting on election day
- 381 • Section 508 of the Rehabilitation Act establishes standards for the federal government for
382 information and computer technology; the current version incorporates WCAG 2.0 for digital
383 technology.
- 384 • In some states there are other relevant state laws for accessible forms, information, and online
385 materials
- 386 • VVSG 2.0 requirements for certifying accessible voting technology

387 *Recommended actions to facilitate meeting federal requirements*

388
389 To help state and local election offices meet federal requirements, federal agencies and organizations
390 specializing in accessibility could:

- 391
- 392 • Create templates, resources, and tools for ensuring federal requirements are met.
- 393 • Create repositories of guidance and open-source tools for monitoring compliance with
394 applicable guidelines and that help election officials determine if requirements are met.
- 395 • Sponsor programs, events, and challenges to create interdisciplinary teams to solve specific
396 challenges in meeting federal requirements for voting.
- 397 • Update guidelines for voting to reflect current technology used by people with disabilities as
398 new forms of technology are developed and embedded into daily life.
- 399

400 In addition, the federal government should:

- 401 • Establish a multi-agency working group that takes a holistic view of how the federal government
402 can advance the voting process through its use of technical advances, potential policy changes
403 and compliance. This working group should also ensure recommendations are implemented in
404 an efficient and effective way, and ensure no new barriers are introduced.
- 405 • Expand coordination of technical assistance and increase federal resources to prioritize
406 implementation for the requirements and standards with respect to voting access for individuals
407 with disabilities.
- 408
- 409

410 **2.2.2. Improve dissemination, outreach, and accessibility of voting information.**

411 Improving information about voting so that it is both usable and accessible will benefit all voters in
412 understanding the voting process. “Usable accessibility” or universal design means going beyond basic

²⁵ (see Footnote 9).

413 compliance to create information that is as easy to use for voters with disabilities as for those without.²⁶
414 This will benefit all voters in more easily understanding the voting process, not just those with
415 disabilities.

416 *Recommended actions for state and local election officials*

417
418 To ensure this information is accessible and reaches all voters who need it, state and local election
419 officials should:

- 420 • **Provide information in a variety of channels.** This includes making information available in-
421 person, online, in print media, radio, digital media, text and phone, and available prior to and
422 during voting.
- 423 • **Provide information in multiple accessible formats.** This includes, but is not limited to,
424 Braille, closed captioning, video, and multiple languages (including sign language
425 interpretation). Some voters with intellectual, developmental, learning, and neurocognitive
426 disabilities may benefit from visual formats (e.g., charts, infographics, etc.) and social stories to
427 explain information.
- 428 • **Use plain language.** Phrase concepts and terms in a manner written for clarity and
429 comprehension.
- 430 • **Test information for compatibility with AT.** Ensure that information has been tested to work
431 with a variety of AT.
- 432 • **Provide training and tools to poll workers and election officials.** Poll worker training
433 should include instruction on how to best communicate with people with disabilities (see Sec.
434 7.2 for more information). Technology could also be used to provide a medium for
435 communication and interaction (see examples below and Sec. 2.2.5 for more information)
- 436 • **Create channels for election officials to provide voter support.** Accessible communication
437 methods can more quickly and easily connect voters with election officials when they have
438 questions. Ways to facilitate accessible communication to provide information and updates
439 include:
 - 440 ○ Having voters provide their contact information in order to receive emails and text
441 messages
 - 442 ○ Using messaging systems like ballot trackers
 - 443 ○ Having accessible voter guides available online
 - 444

²⁶ uiAccess. Usable Accessibility. Available at: <http://www.uiaccess.com/usable-access.html>.

445 ○
446
447

448 **Examples of Communication and Dissemination**

- 449 • Washington state has created voter guides in multiple accessible formats and languages.²⁷
- 450 • Jefferson County, Colorado developed an online chat feature for voters to ask questions about the
451 voting process.²⁸

452
453 State and local election officials can also promote access to voting by disseminating information about
454 the voting process, including accessible options, to voters. Tools and strategies state and local election
455 officials can use include:

- 456 • **Accessible voter guides to walk voters through the entire process.** Voter guides should
457 include information on:
 - 458 ○ Options, requirements, and dates for voting in-person or by mail
 - 459 ○ Instructions for marking and casting a ballot in-person or by mail. This includes
460 instructions or tutorials on using accessible voting machine features
 - 461 ○ Physical description of the polling place, especially entrances, exits, accessible public
462 transit, and parking
 - 463 ○ Accessibility options for voting and communicating, how to utilize those options, and
464 what voters' rights are on election day
 - 465 ○ Contact information for additional help and questions
- 466 • **Practice and sample ballots to voters.** Sample ballots should be available online or in-
467 person prior to election day in accessible formats. When voters can practice or receive
468 demonstrations and training on voting technology, they become more comfortable with the
469 machine and may more efficiently use the equipment.
- 470 • **Voting education classes for voters with disabilities.** First-time voters and voters with low
471 computer literacy may especially benefit from learning about the voting process, their
472 accessible voting options, and practice using an accessible voting machine. These could occur
473 in convenient, accessible locations.
474

475 *Recommended actions for the federal government for information dissemination*

- 476
- 477 • **Establish a national hotline or help desk staffed with experts for accessibility concerns**

²⁷ Washington Secretary of State (2020). 2020 General Election Voters' Guide. Washington Secretary of State (Olympia, WA.) Available at: <https://www.sos.wa.gov/elections/voters-guide/2020/2020-general-election-voters-guide.aspx>.

²⁸ U.S. Election Assistance Commission (2020) Jefferson County Clerk and Recorder (CO) 2020 Clearinghouse Award Winner. EAC (Washington, D.C.) Available at: <https://www.eac.gov/election-officials/jefferson-county-clerk-and-recorder-co-2020-clearinghouse-award-winner>.

478 **across the voting process.** The U.S. Vote Foundation’s Voter Help Desk could serve as a
479 model for this process.

- 480 • **Establish guidance and templates for outreach.** Relevant federal agencies could indicate
481 what information voters need prior to election day and in what channels and formats to convey
482 this information. This information should be available in an accessible format and able to be
483 understood by voters with disabilities. For example, vote.gov or another federal website could
484 facilitate providing relevant information to voters.
485

486 **2.2.3. Provide accessible options for the voting process.**

487 When multiple options exist to vote, voters with disabilities can pick the option best suited to their
488 needs and situation. Importantly, all methods of voting must be accessible; it is not sufficient to provide
489 only one accessible method.

490 *Recommended actions to ensure options for voting include accessibility features at the state and local*
491 *level*

492

493 Accessible options are needed when voters choose:

- 494 • **Whether to vote in-person or vote by mail.** Voters should be able to choose how they fill out
495 and cast their ballot. Vote by mail can overcome many barriers voters with disabilities
496 experience, such as transportation challenges. However, several steps must be taken to
497 ensure this process is accessible. Vote by mail should also not be the accessible alternative to
498 voting in-person; in fact, many voters with disabilities prefer to vote in person.²⁹ Therefore,
499 steps must also be taken to ensure in-person voting is accessible.
- 500 • **How to cast their ballot in-person.** Voters should have the option to cast their ballot using
501 paper or using an accessible voting machine. Both options should have accessibility features
502 such as, but not limited to, magnification devices for paper, physical accessibility for voting
503 system stations for voters with mobility disabilities, and adjustable heights for voting system
504 stations. As discussed earlier, VVSG 2.0 has a comprehensive list of accessibility
505 requirements, in particular, for accessible voting machines and ballot scanners.
 - 506 ○ Voters who need assistance may also have a trusted person assist them in filling out
507 and casting their ballot – but that should be an option, not a necessity for those who
508 prefer instead to cast their vote privately and independently.
- 509 • **Whether to use an electronic option.** Increase availability of electronically accessible options
510 for voter information, registration, and other parts of the process. This includes creating
511 accessible PDFs and fillable forms that work with current technology, including AT and mobile
512 devices.
513

²⁹ Schur L, Kruse D (2021) *Disability and Voting Accessibility in the 2020 Elections: Final Report on Survey Results*. Submitted to the Election Assistance Commission (Washington, D.C.) Available at: https://www.eac.gov/sites/default/files/voters/Disability_and_voting_accessibility_in_the_2020_elections_final_report_on_survey_results.pdf.

514
515

-

516
517

What is an accessible voting system?

518
519
520
521
522
523
524
525

Under Section 301 of the 2002 Help America Vote Act, an **accessible voting system** is one that is accessible for individuals with disabilities, including nonvisual accessibility for the blind and visually impaired, in a manner that provides the same opportunity for access and participation (including privacy and independence) as for other voters. HAVA provides that this accessibility requirement can be met in federal elections through use of a direct recording voting system or other voting system equipped for individuals with disabilities at each polling place. The accessibility of voting systems is further governed by the Americans with Disabilities Act.

526
527

528
529

What are the relevant features of an accessible voting system?

530
531
532
533
534

An accessible voting system typically contains a number of features designed to ensure accessibility for voters with a range of disabilities to allow them to independently mark, verify, and cast their ballots. The most up-to-date features are described in some detail in the Voluntary Voting System Guidelines (VVSG 2.0) adopted by the U.S. Election Assistance Commission under HAVA.

535
536
537
538
539
540
541
542
543
544
545
546
547
548

Often, the **accessible voting machine** for in-person voting is an electronic **ballot marking device** (BMD) or **ballot marker**. This is a device that: permits contest options to be selected and reviewed on an electronic interface, produces a human-readable marked paper ballot, and does not make any other lasting record of the voter's selections. The accessibility guidelines in the VVSG specify that BMDs have accessibility features intrinsic to their design that include visual, enhanced visual, and audio formats and interactions modes that include touch and support for limited dexterity in the form of assistive technology switches. The guidelines also specify that all methods of interaction by voters have the same functionality as the visual format and touch mode not just for voting but also for voter verification, handling, and casting of the paper ballot. A paper ballot (from the BMD or hand-marked) may also be cast directly into a **ballot scanner**. Since these ballot scanners are voter-facing electronic devices and part of the voting system, there are also relevant accessibility guidelines for these scanners in the VVSG. Accessible voting machines, scanners, and voting stations also need to be physically accessible for voters in wheelchairs. More details are provided in Appendix II.

549

550
551

State and local election officials may consider different accessible options to provide. Options many states already use include:

552
553
554
555

- Early voting periods to allow voters to choose the days and times that work best for them.
- Vote centers located at places that are easily accessible.³⁰
- Ballot pick-up services and mobile voting vans.
- Drive-through/curbside voting.

³⁰ Center for Inclusive Democracy. Voting Location Siting Tool. Available at: <https://cid.usc.edu/sitingtool>.

- 556
- Drop-boxes for vote by mail ballots.
- 557
- Vote by mail return by a designated proxy.
- 558

559 State and local election officials may consider the accessibility of transportation to locations as well as
560 the placement and reachability of features at those locations.

561

562 These options not only benefit voters with disabilities but may also benefit voters with similar needs.
563 For example, ballot pick-up services and mobile voting vans benefit voters with limited mobility but
564 could also benefit voters living in rural or remote areas.

565 *Recommended actions for promoting accessible voting options at the national level (by federal*
566 *agencies or other organizations)*

567

- **Enhance training materials, templates, and guidance for state and local election officials.**
568 Ensure that materials start from an accessible sample or template and that guidance includes
569 instructions for tools and techniques for making voting information accessible.
 - **Host events, conferences, and a community of practice for election officials to share**
571 **best practices.** These events could bring together election officials to share best accessibility
572 practices and determine gaps where new practices are needed and could be coordinated with
573 other relevant federal agencies and offices. These events should include representatives from
574 the disability community and/or their advocates.
- 575
- 576

577 **2.2.4. Integrate the disability community into all aspects of voting.**

578 Many barriers to voting can be addressed by engaging with and integrating voters with disabilities into
579 every step of the voting process. Widespread integration, engagement, and involvement of the
580 disability community in the voting process will help to promote accessibility to voting for voters with
581 disabilities. As the disability community says, “nothing about us, without us” (this motto, originally in
582 Latin, has a long political history; the international disability rights community began using it in the
583 1990’s³¹).

584 *Recommended actions for state and local election officials*

585

586 State and local election officials can promote inclusivity of the disability community by:

- **Establishing formal partnerships with disability community partners.** Partners can include
587 protection and advocacy agencies, advocacy groups, disability rights organizations, Centers for
588 Independent Living, state technology assistance programs, and other organizations. Election
589 officials should engage these groups to provide insights and feedback to prepare states and
590 counties for elections. Activities may include:
591
 - Assisting with selecting and preparing polling locations.
- 592

³¹ Charlton, J. I. (1998). Nothing about us without us. University of California Press.

- 593 • Developing and designing poll worker training.
- 594 • Creating voter guides and outreach materials.
- 595 • Testing equipment and technology, forms, and processes used during elections.
- 596 • **Hiring poll workers and election officials with disabilities.** Including people with disabilities as
- 597 part of the staff could also provide additional support prior to voting by serving as part of voter
- 598 support hotlines.
- 599
- 600

601 **Examples of States and Counties that Have Established Formal Partnerships**

- 602 • Los Angeles County’s Community and Voter Outreach Committee brings together “citizen,
- 603 community, and advocacy organizations” to work with the county to provide services and
- 604 information dissemination to voters with specific needs.³² For example, this group provides
- 605 information about voter education on voting methods and systems, and assists with poll worker
- 606 training and voter education.³³
- 607 • Los Angeles County also works with the Voting Accessibility Advisory Committee, a group
- 608 comprising a variety of advocacy groups that works with the county to improve accessibility by
- 609 working on a regular basis with the election office to make specific recommendations.³⁴
- 610 • Wisconsin election officials worked with their Accessibility Advisory Committee and Wisconsin
- 611 Disability Coalition in 2020 to develop training videos, webinars, and guides.³⁵
- 612 • Washington state passed legislation to create Accessible Community Advisory Committees in each
- 613 county, where resources may be used to address barriers to people with disabilities, including in the
- 614 voting process.³⁶

615

616 *Recommended actions for the federal government*

617

³² Los Angeles County (2019) Election Administration Plan 2019. Available at: https://vsap.lavote.net/wp-content/uploads/2019/12/EAP_AMENDED_12-9-19_Final.pdf.

³³ Los Angeles County. Community & Voter Outreach Committee. Available at: <https://www.lavote.net/home/voting-elections/community-voter-outreach/community-voter-outreach-committee/community-voter-outreach-committee>.

³⁴ Los Angeles County. Voting Accessibility Advisory Committee. Available at: <https://www.lavote.net/home/voting-elections/community-voter-outreach/voting-accessibility-advisory-committee/voting-accessibility-advisory-committee>.

³⁵ U.S. Election Assistance Commission (2020) Wisconsin Elections Commission 2020 Clearinghouse Award Winner. EAC (Washington, D.C.) Available at: <https://www.eac.gov/election-officials/wisconsin-elections-commission-2020-clearinghouse-award-winner>.

³⁶ Governor’s Committee on Disability Issues and Employment. (2021) What is the WA State Accessible Communities Act. Available at: <https://accessiblecommunities.wa.gov/about-accessible-communities-wa-state/what-wa-state-accessible-communities-act>.

618 The federal government should continue to coordinate efforts related to accessibility within federal
619 agencies. Coordinated efforts could include:

- 620 • **Creating multidisciplinary working groups and communities of interest.** These teams can
621 examine barriers and solutions to barriers for voters with disabilities with diverse experiences,
622 characteristics, and needs, including voters with disabilities who, for example:
 - 623 ○ Have different types of disabilities, including those with intellectual, developmental,
624 learning, and neurocognitive disabilities
 - 625 ○ Live in congregate settings
 - 626 ○ Live in their own homes and communities
 - 627 ○ Are Black, Indigenous, and People of Color (BIPOC).
 - 628 ○ Live in rural areas.
- 630 • **Including people with disabilities in the decision-making process.** People with disabilities
631 can provide important perspectives and values for identifying solutions to barriers that voters
632 with disabilities face across the voting process. Roles can include:
 - 633 ○ Designing and implementing voting procedures and practices.
 - 634 ○ Providing guidance and implementation during elections at the local and state level.
 - 635 ○ Researching, developing, designing, testing, and certifying voting technology to be
636 accessible and secure.
 - 637

638 **2.2.5. Conduct research and development to promote access to voting**

639 In the last 20 years, people with disabilities have benefited from improvements in technology that have
640 supported increased independence and efficiency in many domains of life. Unfortunately, these
641 technological gains have not fully translated to improvements in the voting process for people with
642 disabilities. In fact, many aspects of the voting process still rely on old or outdated technology (e.g., fax
643 machines, etc.) and have yet to utilize technology and features ubiquitous in the world today.

645 Periodic reviews of both general purpose and specialized assistive technologies commonly used by
646 people with disabilities can help identify new ways these tools can be incorporated into future elections
647 systems or used by voters to navigate polling places, or to vote independently.

649
650 Research and development of technology to integrate into the voting process is one of the greatest
651 opportunities to improve accessibility in voting. Key considerations for future research and
652 development efforts include:

- 653 ○ Establishing multidisciplinary research teams that include experts in accessibility, user
654 experience, human factors, cybersecurity, and elections.

- 655 ○ Applying universal design principles³⁷ ensures that technology is designed and implemented to
656 be usable by and support the needs of a wide range of people, regardless of disability needs.
- 657 ○ Designing and testing new technology with voters with disabilities and their needs as part of the
658 process by implementing user-centered design process standards and best practices.
 - 659 ○ Currently, VVSG 2.0, a set of voting system guidelines adopted pursuant to HAVA by
660 the U.S. Election Assistance Commission for certifying voting systems³⁸, does this by
661 calling for voting technology and its instructions to be implemented using user-centered
662 design processes and tested for usability with both voters with disabilities as well as poll
663 workers, with results reported by system developers in standard formats. This can be
664 expanded to embrace developing technology and processes in voting including online
665 voter registration and vote by mail request webpages and portals, vote by mail
666 instructions and packaging, and voter guides.
 - 667 ○ Voting systems and voting information should be tested with voters with a variety of
668 disabilities (e.g., manual dexterity disabilities, blind or low vision, etc.) who have diverse
669 experiences with AT, technology, and voting. If possible, to encourage participation,
670 compensate voters who participate in the study in line with ethical research practices.
671 Although testing of voting systems is done during development by vendors, states can
672 include testing in their own certification processes.

674 Below we describe how research and implementation can better integrate existing technology into the
675 voting process as well as what areas of future research and technology development can be explored.

676 *Research and implement existing technology into voting processes*

677 Ways current technology can be better integrated into voting through research include:
678
679

- 680 • **Increasing automation of voting processes.** For example, online registration and vote by
681 mail services that provide information personalized to a voter registration record could connect
682 data sources to automate processes. This could streamline the process for both voters and
683 election officials. Many states currently provide these features.
- 684 • **Investigating new communication technology.** Technology that supports alternative
685 interaction styles may include live or remote ASL interpreters.
- 686 • **Customizing and streamlining voters' experiences.** Technology can be used to
687 automatically configure, based on voter information, the accessible features of voting systems,
688 making it easier and faster for each voter to have a customized experience with the accessibility
689 features the voter prefers and to streamline the in-person voting process.
 - 690 ○ The voter registration record could include individual accessibility preferences, including
691 large text, color contrasts or even preferences for different electronic information

³⁷ Connell BR, Jones M, Ron Mace R, et. al. (1997) The Principles of Universal Design Version 2.0. NC State University, The Center for Universal Design (Raleigh, NC.) Available at: https://projects.ncsu.edu/ncsu/design/cud/about_ud/udprinciplestext.htm.

³⁸ (see Footnote 9).

692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709
710
711
712
713
714
715
716

formats. Voting system preferences could match the options available in the local accessible voting machines.³⁹

- Tools to allow voters to use their own technology and AT to mark a sample ballot at home and easily transfer their choices to the accessible voting system support voters with disabilities. They not only speed up the time to vote at the polling place, reducing fatigue from waiting time, but also help voters who may need more time to make their selections.^{40,41,42}
- **Assisting with selecting and setting up polling places.** Online tools that store and analyze data can be used to determine where polling places should be located and assist poll workers with setting up polling places on election day. Collecting this data could be used to document the degree to which accessible voting options are not currently available, and to identify the particular jurisdictions or locations that need more attention. Some examples of using technology to collect this information include:
 - Some state Protection and Advocacy (P&A) agencies have converted the ADA Checklist for Polling Places⁴³ into an electronic form to assess polling places. This checklist provides information for evaluating the physical accessibility of polling places, including parking, passenger drop-off locations, accessible routes, ramps, protruding objects, building entrance, lifts and elevators, and voting area.
 - There are a variety of tools available online that help election officials collect analyze and simulate data from polling places to understand how to best set up, design, and manage polling places. Examples of tools include voting system timers and simulation modeling of polling place flow, and data collection tools.⁴⁴ Use of these tools may help election officials identify how to best arrange a polling place to be accessible as well as how to reduce wait times, delays, and physical barriers.

³⁹ Accessible Voting Technology Initiative (2012) Remote Voting: Voting Profile Development. Accessible Elections Design Workshop. Available at: <https://elections.itif.org/projects/design-workshops/concept-express-voting/>.

⁴⁰ Accessible Voting Technology Initiative (2012) Sample Ballot & Information Transfer System. Accessible Elections Design Workshop. Available at <https://elections.itif.org/projects/design-workshops/concept-sample-ballot-information-transfer-system/>.

⁴¹ Lola P, Eugene W, Hall P, Gilbert JE. Balloting: Speeding up the voting process. In International Conference on Human-Computer Interaction 2013 Jul 21 (pp. 373-377). Springer, Berlin, Heidelberg.

⁴² Los Angeles County Registrar-Recorder/County Clerk. Interactive Sample Ballot. Available at: <https://lavote.net/isb>.

⁴³ (see Footnote 8).

⁴⁴ The University of Rhode Island. URI Voter Operations & Election Systems. Available at: <https://web.uri.edu/urivotes/tools/>.

717
718
719
720
721
722
723
724
725
726
727
728
729
730
731
732
733
734
735
736
737
738
739

○

Examples of Integration of Technology into the Voting Process

- In 2019, Merced County won an Election Assistance Commission (EAC) award for using a tablet to connect voters with a hearing disability with sign-language interpreters on election day.⁴⁵
- The Michigan Voter Information Center allows voters to view personalized information helpful to the voting experience, such as their polling place location and hours and a sample of a ballot.⁴⁶
- The Los Angeles County Interactive Sample Ballot tool allows voters to review their ballot ahead of time, save their choices on their phone or other personal device, and transfer selections to the VSAP Ballot Marking Device at the vote center to be reviewed, printed, and cast.⁴⁷
- The University of Rhode Island has developed tools to help election officials collect and understand data from their polling places. They have developed a voting system timer, a data importing and processing tool, 2D and 3D models of polling locations, and software to simulate polling place flow.⁴⁸
- The Voting Center Siting Tool developed in a university program covers jurisdictions in 10 states.⁴⁹ It uses local demographic and voting data to provide election officials information. The criteria for siting include convenience to public transportation and locations near residential areas with high concentrations of people with disabilities, based on the requirements of California’s Voter’s Choice Act, a law passed in 2016 for making voting more convenient.^{50,51}
- Remote Accessible Vote by Mail (RAVBM) uses current technology to assist voters with disabilities in voting by mail. California is one example of many states that use this system in which voters can download and mark their vote by mail ballot from home using their own AT, and then print, sign, and return the envelope by mail or at a voting location.⁵² See Sec. 4.1 for more information.

⁴⁵ U.S. Election Assistance Commission (2019) Merced County Registrar of Voters Office – 2019 Clearinghouse Award Winner. EAC (Washington, D.C.) Available at: <https://www.eac.gov/election-officials/merced-county-registrar-voters-office-2019-clearinghouse-award-winner>.

⁴⁶ State of Michigan. Your Voter Information. Available at: <https://mVIC.sos.state.mi.us/Voter/Index>.

⁴⁷ (see Footnote 42).

⁴⁸ (see Footnote 44).

⁴⁹ (see Footnote 30).

⁵⁰ The 14 criteria for locations can be found in: S.B. 450, (California 2016). Available at: https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB450.

⁵¹ California Secretary of State. California Voter’s Choice Act. Available at: <https://www.sos.ca.gov/elections/voters-choice-act>.

⁵² California Secretary of State. Remote Accessible Vote-By-Mail (RAVBM). Available at: https://www.sos.ca.gov/elections/voting-resources/remote-accessible-vote-mail?fbclid=IwAR3qIXSNhEoIQEbYiDxtjzIzWmnGWA50EY5OhVZtXstasoS0_ocCH-ERiM.

740 *Research and develop voting technology of the future*

741

742 Researchers, developers, and designers should continue to explore how to develop solutions and
743 standards for the future of voting. Some areas where research should be continued include:

- 744 • **Integrating personal AT throughout the voting process.** Voters with disabilities could have
745 improved independence if they could use their personal AT when registering, getting to the
746 polling site, and checking-in.
- 747 • **Identifying alternative signature methods for voters who need them.** Voters unable to sign
748 consistently or at all would have increased independence if alternative methods existed to sign
749 both paper forms and online documents securely.
- 750 • **Designing affordable technology to assist with in-person voting experiences.** Technology
751 could be leveraged to overcome the physical barriers voters with disabilities encounter when
752 voting in-person. Current research on technology such as magnification devices, way-finding
753 apps and beacons, and other technology to assist voters should continue.^{53,54}
- 754 • **Developing accessible and secure methods for future voting.** Future research should
755 explore how to continue to securely integrate next generation technology into the voting
756 process. For example, electronic ballot return would overcome many barriers faced by voters
757 with disabilities. However, it is vital that research on security continue as electronic ballot return
758 systems are being implemented.

759

760 **Examples of Modern Voting Technology Evolving from Research**

- 761 • Systems that are certified to the new VVSG 2.0 requirements allow the secure use of AT.⁵⁵ For
762 example, a voter with manual dexterity disabilities could use their own switch technology to control
763 the accessible voting machine as they mark their ballot.
- 764 • ElectionGuard is an example of voting technology being designed with accessibility experts included
765 in the development process.⁵⁶ The software aims to make voting “secure, transparent, and
766 accessible” by using end-to-end (E2E) verifiability.⁵⁷ E2E verifiable voting systems are a type of
767 voting system that is software independent and could potentially perform as a paper-based or
768 paperless system. For more on software independence, see Sec. 5.2.

769

⁵³ Selker T (2014) Research in Accessible Voting Report. Research in Accessible Voting. Available at:
https://www.eac.gov/sites/default/files/eac_assets/1/1/Research%20on%20Accessible%20Voting%20Complete%20Final%20Report.pdf.

⁵⁴ EAC-NIST Human Factors Public Working Group (2016) Assistive Technology in the Polling Place: Current and emerging technology. Center for Civic Design (High Bridge, NJ.) Available at: https://civicdesign.org/wp-content/uploads/2015/05/AT-in-the-Polling-Place_2016-1228.docx.

⁵⁵ VVSG 2.0 requirement 8.1-I Standard PAT jacks (see Footnote 10).

⁵⁶ Burt T (2019) ElectionGuard available today to enable secure, verifiable voting. Available at:
<https://blogs.microsoft.com/on-the-issues/2019/09/24/electionguard-available-today-to-enable-secure-verifiable-voting/>.

⁵⁷ ElectionGuard. Available at: <https://www.electionguard.vote>.

770

771 *Recommended actions for the federal government*

772

773 The federal government should enhance efforts dedicated to multidisciplinary research and
774 development of technology used throughout the voting process. The federal government could
775 establish public-private partnerships to:

- 776 • Set priorities, develop guidance, and provide funding, in the form of grants and contracts, for
777 important research topics in accessible voting.
- 778 • Conduct prize challenge competitions to encourage development of new voting technology.
- 779 • Create channels for sharing research, data, open-source code, and tools through online
780 communities of interest, state and federal databases, and/or national conferences.
- 781 • Establish best practices and guidance for establishing interdisciplinary teams that use universal
782 design and user-centered design principles to fully support accessibility in research, including
783 voting security.
- 784

785 **3. Voter Registration and the National Voter Registration Form**

786

787 **3.1. Voter Registration and the National Mail Voter Registration Form**
788 **Barriers**

Barriers

- National Mail Voter Registration Form challenges
- Online voter registration is insufficient or does not exist.
- Paper is not an accessible option for voters with print disabilities.
- Verifying the form adds additional complexity for voters with disabilities.

789

790

791 Though many states and local jurisdictions offer a variety of methods and opportunities to register
792 to vote, many voters with disabilities still encounter challenges. Online voter registration, currently
793 offered or being implemented by Washington, D.C. and all but six states (as of September 2021),⁵⁸
794 has reduced barriers for many. However, issues still exist, as only 8.8% of voters with disabilities
795 were likely to register online compared to 15% of voters without disabilities — and online
796 registration may itself involve new barriers for at least some voters with disabilities.⁵⁹

⁵⁸ National Conference of State Legislatures (NCSL) (2021) Available at: <https://www.ncsl.org/research/elections-and-campaigns/election-laws-and-procedures-overview.aspx>.

⁵⁹ Schur L, Kruse D (2021) *Fact Sheet: Disability and Voter Turnout in 2020 Elections*. Submitted to the Election Assistance Commission (Washington, D.C.) Available at: <https://www.eac.gov/documents/2021/06/30/fact-sheet-disability-and-voter-turnout-2020>.

“Barriers to voter registration lead to inability to vote. Requiring ID that you have to pay for when you can't drive is a form of a poll tax...Registration needs online options with accessible Websites...”

- Received from Federal Register Notice 86 FR 32026

798

National Mail Voter Registration Form Challenges

799

800

801

802

803

804

805

806

807

808

The National Mail Voter Registration Form (NMVRF) is a form that a voter can fill out and mail to register to vote in 47 states.⁶⁰ The EAC was instructed to create a national mail voter registration form as part of NVRA 52 U.S.C. § 20505 and 52 U.S.C. § 20508 in 1993.⁶¹ Currently, a voter downloads the form, navigates to their state’s specific instructions, and completes the fillable PDF form digitally or prints it out to fill out by hand. The form can then be signed, and mailed to the state.

While the NMVRF itself is an accessible, fillable PDF the process of filling out the form has accessibility challenges:

809

810

811

812

- Because the form is designed to be mailed, some voters with disabilities face the same challenges with this form as any paper form (e.g., printing, physically mailing, etc.) Also, some voters with disabilities may not own printers, thus having to rely on a third party for help.

813

814

- The form must also be physically signed, which is a challenge for voters with print disabilities.⁶²

815

816

817

818

819

- The process to find the relevant state instructions can be cumbersome to voters.
 - The printed form and instructions are 27 pages long which can be overwhelming, complicated, or confusing to those filling it out, especially for those using screen readers or for voters with intellectual, developmental, learning, or neurocognitive disabilities.
- In addition, like all paper voter forms, it is inefficient, because the voter’s information must be manually transcribed into the voter registration database by election staff.

820

821

822

823

Online voter registration systems in many states are insufficient or do not exist.

⁶⁰ With exceptions of North Dakota which does not have voter registration and Wyoming which does not permit mail registration. New Hampshire town and city clerks accept the application as a request for vote by mail registration form. See footnote 2 for more information.

⁶¹ (see Footnote 11).

⁶² (see Footnote 17 for print disability definition).

824
825
826
827
828
829
830
831
832
833
834
835
836
837
838
839
840
841
842
843
844
845

- Online voter registration enables voters with disabilities to use assistive technology that they are familiar with to fill out the form without having to handle paper or needing to physically mail the form back. As of September 2021, six states do not offer or have plans to offer online voter registration.⁶³
- Online voter registration systems can be difficult to use, especially with assistive technology.
 - Some state systems can be inaccessible to assistive technology.
 - Forms built on older technology may not be responsive. For example, long lines of text require a lot of additional scrolling to read each line fully; this can be exceptionally difficult for those with manual dexterity disabilities.
 - Navigating the form is challenging when navigation items (e.g., *Submit* or *Next* links) are in non-standard or inconsistent locations.
 - When using screen magnification technologies, some items on online state systems can be easily missed.
 - Some information is portrayed as an image, which cannot be read by screen readers.
 - Alternative text is not adequately descriptive or is incorrectly coded.
- Complex language can make the forms difficult to understand.
- Poor color contrast of online state registration systems can make text difficult to read.
- Voters with disabilities may not be able to complete the registration process online if there is no alternative to using a state DMV license or ID to provide a signature.

846
847

Paper versions of state voter registration are not an accessible option for voters with print disabilities.

848
849
850

Many voters with disabilities encounter challenges with paper versions of state voter registration. Challenges they face include:

851
852
853
854
855
856
857
858
859
860
861

- Voters may not be able to see the information on the form.
- Filling out and signing the form without assistance is difficult or impossible for voters with print disabilities.
- Returning a physical form is a challenge for voters who have difficulties traveling long distances or to locations that are not accessible. For example, voters in rural areas may have to travel further to access an appropriate drop-off location.
- If the process requires the voter to print the completed form, many voters with print disabilities⁶⁴ who do not own a printer have to rely on a third party for assistance.
- Mailing a form is difficult for voters with some disabilities to complete without assistance, especially packaging, sealing, and addressing an envelope.

862
863

Verifying the form adds additional complexity for voters with disabilities.

⁶³ (see Footnote 58).

⁶⁴ (see Footnote 17 for print disability definition).

864 In many cases, verifying the form's accuracy is done by comparing information with the state's
865 Department of Motor Vehicles information based on the individual's driver's license or a state
866 identification card. However, there are many voters with disabilities who do not have a driver's
867 license or state identification card, which is typically required. While this works for many, it is not
868 sufficient to address the needs of some voters with disabilities.

870 Additional steps may involve having to contact the voter's election official or the local elections
871 office. If the form needs to be corrected, then the voter typically needs to visit their local office in
872 person to provide the updated information. This creates challenges for many voters for whom
873 mobility and/or transportation is a concern.

874
875

876 **3.2. Recommendations for Voter Registration & National Mail Voter** 877 **Registration Form**

Recommendations

- Increase the use of Automatic Voter Registration (AVR) and other methods where voter registration can be combined with other interactions with government.
- Modernize the National Mail Voter Registration Form experience.
- Increase access and improve accessibility to online voter registration services.

878
879

880 The voter registration process can be improved in many ways to reduce barriers that voters with
881 disabilities face. Expanding access to online voter registration services and complying with
882 federal law ensures that persons with disabilities are not discriminated against on the basis of
883 disability, including in the areas of accessibility and communications. This would reduce the
884 barriers that many voters with disabilities face as they retrieve, fill out, and return the forms. The
885 availability of online registration services would also reduce the reliance on paper, which is
886 difficult or impossible for many voters with disabilities to use, especially those with print
887 disabilities.⁶⁵

888

889 **Increase the use of AVR and other methods where voter registration can be combined with** 890 **other interactions with government.**

891

- Ensuring that everyone can obtain state identification easily would increase the number of voters with acceptable forms of identification, reducing barriers when registering to vote, when voting, and when casting their ballot.

893

894

⁶⁵ (see Footnote 17 for print disability definition).

- 895 • States should consider moving to an AVR system. AVR is a process where eligible
896 voters are registered by default, however they can opt out, when interacting with
897 government agencies (e.g., DMV, etc.)⁶⁶ in the 20 states and Washington, D.C. that offer
898 some form of AVR.⁶⁷
- 899 ○ AVR may increase the number of people who register to vote when applying for a
900 driver’s license, applying for social services including Medicaid and Supplemental
901 Nutrition Assistance Program (SNAP), health insurance, filing taxes etc.
 - 902 ○ Implementing AVR would provide a more efficient and effective process; voters
903 with disabilities would not have to complete extra steps to register.
 - 904 ○ Transferring registration information electronically — a feature of many AVR
905 systems — also streamlines the process for states, making it more efficient.
906 Additionally, this may potentially lower costs, allowing states to reallocate money
907 they would typically spend on printing, mailing, and data entry/processing to
908 other areas of the elections process.
- 909 • Ensure efficient reuse of official signatures for other governmental purposes for
910 registration signatures and signature matching. Research and guidance are needed so
911 that states can obtain signatures from multiple sources, beyond the Department of Motor
912 Vehicles (DMV) and other NVRA Section 7 agencies.
 - 913 ○ States could include transactions at agencies including Fish and Wildlife, housing
914 authorities, and tax filings.⁶⁸ For example, Alaska uses information from their
915 Permanent Fund Dividend to support AVR.⁶⁹
- 916 • Work with third parties to perform usability and accessibility testing of new or updated
917 forms, websites, or systems, as development and implementation occurs.
- 918 • Update the vote.gov website to guide voters through the registration process for their
919 state or jurisdiction.

921 **Modernize the National Mail Voter Registration Form Experience**

922 Though the NMVRF itself is an accessible, fillable PDF, the process of using it is not
923 accessible. Currently the form is designed to be printed out and mailed in, which poses
924 challenges for some voters with disabilities. Updating the process to leverage current
925 technologies could allow voters with disabilities to benefit from having access to an
926

⁶⁶ National Conference of State Legislatures (NCSL) Automatic Voter Registration (2021) Available at:
<https://www.ncsl.org/research/elections-and-campaigns/automatic-voter-registration.aspx>

⁶⁷ Morris K, Dunphy P (2019) AVR Impact on State Voter Registration New Brennan Center Report Finds Significant Gains in
Voter Rolls. Brennan Center for Justice, (Washington, D.C.) Available at:
https://www.brennancenter.org/sites/default/files/2019-08/Report_AVR_Impact_State_Voter_Registration.pdf.

⁶⁸ The Brookings Institution (2021) Accessing the vote: A case for tax-time registration. Webcast September 28, 2021.
Information available at: https://www.brookings.edu/events/accessing-the-vote-a-case-for-tax-time-registration/?utm_campaign=Events%3A%20Governance%20Studies&utm_medium=email&utm_content=159776096&utm_source=hs_email.

⁶⁹ Alaska Division of Elections. Permanent Fund Dividend Automatic Voter Registration. Available at:
<https://www.elections.alaska.gov/Core/PFD AVRindex.php>.

927 accessible form that is also easy and efficient to navigate. Updating the form and the
928 process around it using current technology could also benefit voters by improving the
929 efficiency for transmitting, processing, and updating registration information directly with the
930 states.

931
932 In order to modernize the NMVRF, a federal agency working group should be established to
933 look holistically at improving the NMVRF by examining the use of technology, potential
934 changes to federal policy, and collaborative methods to work with state and local
935 jurisdictions. Some areas this group may investigate:

- 936
- 937 • Modernizing how the form can be filled out electronically by the voter to capture
938 information relevant to each state.
 - 939 ○ For example, if the registration process is entirely online, voters would not need
940 to print out and handle the form.
 - 941 ○ Usability studies should be conducted for the chosen methods. These studies
942 should include stakeholder engagement to test the form with:
 - 943 ▪ Voters with different kinds of disabilities
 - 944 ▪ Different types of AT
 - 945 ▪ Different electronic versions of the form (e.g., fillable PDF, mobile version)
 - 946 ▪ Develop the form with design, usability, and accessibility best practices in
947 mind. Examples of guidance include:
 - 948 ▪ Federal plain language guidelines⁷⁰
 - 949 ▪ U.S. Web Design System (USWDS)⁷¹
 - 950 ▪ *Forms that Work: Designing Web Forms for Usability*⁷²
 - 951 ▪ “Website Forms Usability: Top 10 Recommendations”⁷³
 - 952 ▪ “Creating Accessible Forms: General Form Accessibility”⁷⁴
- 953 • Assisting voters with navigation of the forms’ instructions. This could be done by
954 displaying the form on the website in an efficient digital format that displays state
955 instructions only for the state in which the voter is registering.
 - 956 ▪ This could be done to the current form but should also be considered for future
957 versions.
- 958 • Determining electronic and automated methods for transmitting the form to the states
959 accepting them. This should be done in an electronic format that enables states to add

⁷⁰ Plain Language Action and Information Network. Federal plain language guidelines. Available at:
<https://www.plainlanguage.gov/guidelines/>.

⁷¹ General Services Administration (GSA). U.S. Web Design System (USWDS). Available at: <https://designsystem.digital.gov>.
See

⁷² Jarrett C, Gaffney G. Forms that work: Designing Web forms for usability. Morgan Kaufmann; 2009 Mar 2.

⁷³ Whitenon K (2016) Website Forms Usability: Top 10 Recommendations. Nielsen Norman Group. Available at:
<https://www.nngroup.com/articles/web-form-design/>.

⁷⁴ Web Accessibility in Mind (WebAIM) (2020) Creating Accessible Forms: General Form Accessibility. Institute for Disability
Research, Policy, and Practice, Utah State University. Available at: <https://webaim.org/techniques/forms/>.

960 the application to their workflow for approval. This would benefit voters with disabilities
961 in that they would not have to print or mail the form.

- 962 • Considering an appropriate common data format for transmission and storage (e.g.,
963 PDF, Word document, bar code, XML, etc.) depending on the method of electronic
964 return.
- 965 • Ensuring any electronic automation and transfer are secure throughout the process.
- 966 • Making the form interoperable with states accepting electronic registration.

967
968 Though implementing these recommendations could require additional resources and
969 policy/process changes, with these improvements, the NMVRF can be an accessible option for
970 voters with disabilities to register, especially in states that do not currently have online
971 registration services.
972

973 **Increase access and improve accessibility to online voter registration services**

- 974 • Providing voters with the option to register to vote online reduces the reliance voters,
975 especially those with disabilities, have on paper registration forms. Currently, 43 states
976 and Washington D.C. have online voter registration.⁷⁵ For states that don't currently offer
977 online registration, this may require updated technology and infrastructure to support the
978 additional web hosting and processing of incoming data.
 - 979 ○ For those states not yet offering online registration, in addition to the access
980 benefits for voters with disabilities, offering online registration would lower costs,
981 allowing states to reallocate money they would typically spend on printing,
982 mailing, and data entry/processing to other areas of the elections process.
 - 983 ○ States may want to consider offering a software application programming
984 interface that third parties, including other state agencies, can use to create a
985 secure, efficient connection to the voter registration system. Offering this would
986 reduce the amount of software development needed by third parties to convert
987 and transfer information for each individual state. This would enable third party
988 organizations to focus more on widespread voter outreach and organize
989 transportation for those who need it. Research into the cost and feasibility of this
990 would be needed to ensure the return on investment is beneficial. One example
991 of such a system is the Pennsylvania Online Voter Registration WebAPI (Web
992 Application Programming Interface) (PA OVR WebAPI).⁷⁶
 - 993 ■ The federal government could provide a similar solution for voters using
994 the NMVRF and leverage information submitted to other federal agencies.
995 For example, a voter who submits an application for federal student aid
996

⁷⁵ (see Footnote 58).

⁷⁶ Pennsylvania Department of State (2021) Pennsylvania's Online Voter Registration Web application Programming Interface (PA OVR WebAPI). Available at: <https://www.dos.pa.gov/VotingElections/OtherServicesEvents/Pages/PA-Online-Voter-Registration-Web-API---RFC.aspx>.

- 997 could be offered to be forwarded to the NMVRF, which could have pre-
- 998 populated information based on the original application.
- 999 ○ State online voter registration forms need to be updated to ensure they remain
- 1000 fully accessible to voters with disabilities who employ assistive technology to fill
- 1001 in their information. This includes font size, word spacing, the positioning of fields
- 1002 and buttons or links, and color contrasts. A 2015 report by the American Civil
- 1003 Liberties Union (ACLU) examined 20 states' online voter registration websites,
- 1004 finding that only California's website is fully accessible. The report also details
- 1005 common problems and examples of suggested ways to address these
- 1006 problems.⁷⁷
- 1007

1008 **4. Voting by Mail**

1009

1010 **4.1. Barriers to Vote by Mail**

Barriers	
•	Requiring an excuse for absentee voting creates increased burden for voters with disabilities.
•	Requesting a vote by mail ballot online or by mail both have accessibility challenges.
•	Voters with some disabilities encounter challenges returning the ballot.
•	Voters with some disabilities encounter challenges packaging and signing their ballots that may result in their ballot being rejected.
•	Accessible options for electronic blank ballot delivery, marking, and returning are limited for voters with disabilities.

1011 In 2020, 51.3% of voters with disabilities voted by mail, an increase from 23.8% in 2012 (there was

1012 also an increase from 16.4% in 2012 to 43.9% in 2020 for voters with no disabilities). Of those

1013 voters with disabilities in 2020, 5% reported having difficulties with voting by mail, though these

1014 rates varied by disability type, with over 20% of voters who are blind or have low vision reporting

1015 difficulty. Although 5% of voters with disabilities may appear to be a small number of voters, it

1016 amounts to roughly 885,000 voters, and, for comparison, this is almost double the rate of voters

1017 without disabilities who experience problems.⁷⁸

1018

1019

⁷⁷ The American Civil Liberties Union (ACLU) (2015) Access Denied: Barriers to Online Voter Registration for Citizens with Disabilities. ACLU, (New York, NY) Available at: https://www.aclu.org/sites/default/files/field_document/021915-aclu-voterregonline_0.pdf.

⁷⁸ (see Footnote 29).

"I was provided an accessible ballot that I could fill out privately on my computer, but the ballot had to then be printed, signed, and an envelope filled out by hand for it to be returned to the election commission...I had to enlist the help of my son to sign the ballot and then he had to address the envelope for me..."

- Received from Federal Register Notice 86 FR 32026

Requiring an excuse for absentee voting creates increased burden for voters with disabilities.

Illness and disability are valid reasons to request a vote by mail ballot in the 16 states⁷⁹ that require an excuse to vote by mail; however, certifying disability can create added burden to voters with disabilities:

- Voters with disabilities may not be aware they are eligible if information regarding eligibility is not accessible.
- Voters with disabilities must spend extra time and effort to request and receive documentation when it is required.
- Methods to request and receive documents may not be accessible.
- Voters may not wish to disclose their disability on a public form.
- Voters may have significant needs for voting by mail. For example, elderly voters may not consider themselves to be disabled despite having issues with dexterity, mobility, and vision. These individuals may benefit from accessibility features but not know their options.

Requesting a vote by mail ballot online or by mail both have accessibility challenges.

- Filling out forms can be difficult for voters with print disabilities, and they may need to request a new ballot if a mistake is made; receiving, filling out, and then returning the replacement ballot before the deadline may be difficult.
- In many states, voters with a disability must apply for their vote by mail ballot every election. Only 16 states permit voters with disabilities to join a permanent vote by mail list.⁸⁰ In some cases, the burden is placed on voters with disabilities to obtain and submit a doctor's note or other documentation to be placed on the list.
- Fourteen states have a web-based vote by mail application, and eight states and Washington D.C. have other online options for vote by mail applications.⁸¹ However, these

⁷⁹ (see Footnote 58).

⁸⁰ (see Footnote 58).

⁸¹ (see Footnote 58).

1047 methods may pose problems for voters with disabilities when web-based applications and
1048 forms are not fillable or readable by AT or require a scanned signature.

- 1049 • Voters with disabilities who do not have a driver’s license or state identification may also be
1050 unable to request their blank vote by mail ballots online.

1051

1052 **Voters with disabilities encounter challenges returning the ballot.**

1053

1054 Even when voters with disabilities can privately and independently read and mark their ballot,
1055 they may face challenges in returning that could prevent their vote from being counted.

- 1056 • Many voters with print disabilities⁸² do not own printers needed for them to return vote by
1057 mail ballots and other paper forms independently.
- 1058 • Mailing a form is difficult for some voters with disabilities, especially packaging, sealing, and
1059 addressing an envelope.
- 1060 • Some voters with disabilities have difficulties navigating to a ballot drop box, mailbox, or
1061 post office and may lack accessible transportation.
- 1062 • Only 13 states have laws regulating drop-boxes⁸³, though more states used drop-boxes
1063 during the COVID-19 pandemic in 2020. Due to differing definitions and features of drop-
1064 boxes, drop-boxes may not meet the ADA’s accessibility requirements : drop-boxes may be
1065 at improper heights, not close to accessible parking spaces, or have no visible signs
1066 indicating where the box is located.
- 1067 • In some states, voters are not allowed to have someone else, such as a family member,
1068 care provider, or other designated agent, submit the ballot on their behalf. ⁸⁴ This may be
1069 especially problematic for voters with disabilities who cannot leave their homes, live in a
1070 long-term care facility, or are otherwise unable to independently return the vote by mail
1071 ballot package on their own.

1072

1073 **Voters with disabilities encounter challenges packaging and signing their ballots that may**
1074 **result in their ballot being rejected.**

1075

1076 Unfortunately, research suggests that voters with disabilities are more likely to have their ballots
1077 rejected.⁸⁵ These rejections may occur when:

⁸² (see Footnote 17 for print disability definition).

⁸³ (see Footnote 58).

⁸⁴ (see Footnote 58).

⁸⁵ Baringer, A., Herron, M. C., & Smith, D. A. (2020). Voting by mail and ballot rejection: Lessons from Florida for elections in the age of the coronavirus. *Election Law Journal: Rules, Politics, and Policy*, 19(3), 289-320.

- 1078
- 1079
- 1080
- 1081
- 1082
- 1083
- 1084
- 1085
- 1086
- 1087
- 1088
- 1089
- 1090
- 1091
- 1092
- Instructions for creating the vote by mail package and envelope are not easy to follow, especially for voters with print disabilities; if the multiple envelopes and secrecy sleeves are not packaged correctly, the ballot could be rejected.
 - Some voters with disabilities are unable to make a consistent hand-written (or “wet”) signature due to manual dexterity or other disabilities. Without a consistent signature, the signatures made for the vote by mail packages will not match those on file with the elections office and may result in the ballot being rejected.
 - Voters who are blind or low vision may not receive instructions or support in making the signature in the correct area.
 - There may be accessibility barriers to correct signature issues. As a new election administration innovation, only 28 states currently have a process to cure a missing or mismatched signature on a mail-in ballot.⁸⁶ The process may be challenging for voters with disabilities to utilize before deadlines if they are required to travel to the election office or request a new alternative ballot format.

1093 **Accessible options for electronic delivery, marking, and returning are limited for voters with**

1094 **disabilities.**

1095

- 1096
- 1097
- 1098
- 1099
- 1100
- 1101
- 1102
- 1103
- 1104
- 1105
- 1106
- 1107
- 1108
- As of November 2020, 23 states had a Remote Accessible Vote By Mail (RAVBM)⁸⁷ tool statewide or in some counties.⁸⁸
 - RAVBM may suffer from poor design, such as unclear instructions for using RAVBM and poor navigation for AT.
 - According to data from 2019, electronic return of the ballot is only available to voters with disabilities in Utah and Louisiana (fax return); however, electronic return is currently available for Uniformed and Overseas Citizen Voting Act (UOCAVA) voters in 26 states and Washington D.C..⁸⁹ Some states, such as West Virginia, have run pilots for electronic return beyond fax and email.⁹⁰
 - Although electronic return methods currently exist, several security challenges and concerns should be addressed when expanding the use of electronic returns to ensure these methods are secure enough to confidently use to vote.

⁸⁶ (see Footnote 58).

⁸⁷ RAVBM refers to a vote by mail system in which voters can download and mark their vote by mail ballot from home using their own AT and then print, sign, and return the ballot in the envelope. One example is the system in use by California (see Footnote 52).

⁸⁸ This number comes from our analysis of states’ election websites. Note: States may have implemented RAVBM without making it public on the state elections information home page.

⁸⁹ National Conference of State Legislatures (NCSL) Electronic Transmission of Ballots (2021) Available at: <https://www.ncsl.org/research/elections-and-campaigns/internet-voting.aspx>.

⁹⁰ Office of the Secretary of State (2020) Electronic Voting an Option for State's Military & Overseas Voters, and Voters Living with Physical Disabilities. State of West Virginia. Available at: <https://sos.wv.gov/news/Pages/09-03-2020-B.aspx>.

1109
1110

4.2. Recommendations for Voting by Mail

Recommendations
<ul style="list-style-type: none">• Improve access to vote by mail.• Expand electronic options for requesting, marking, and returning ballots when facilitating voting by mail.• Increase accessibility for completing and returning ballots by minimizing physical barriers to voting by mail.• Change procedures for signature processing to support voters with disabilities.

1111
1112
1113
1114
1115
1116
1117

The vote by mail process can be improved for voters with disabilities by increasing access to and usability of electronic delivery of a blank ballot. Current processes can also be improved to make the process more efficient and clearer to voters with disabilities. Lastly, we identify several areas for future research using technology to vote by mail in an accessible and secure manner.

1118
1119
1120
1121
1122
1123
1124
1125
1126
1127
1128
1129
1130
1131
1132
1133
1134
1135

Improve access to vote by mail.

- Allow all voters to vote by mail without an excuse. Allowing any voter to make this request may reduce the burden placed on voters with disabilities to submit documentation of their disability. This would benefit both voters with disabilities and those who may not have documentation of a disability
- Allow voters to request to vote by mail when they register. For example, states may expand use of the Federal Post Card Application⁹¹ for UOCAVA voters to voters with disabilities, allowing voters with disabilities to register and request a ballot at the same time. Coupling these processes would also allow voters to update their information and preferences more easily for vote by mail.
- Allow voters to permanently request a vote by mail ballot. If voters automatically receive their ballot by mail, they do not have to continually submit paper forms or go to the election office to request a form for each election. Five states and Washington D.C. allow any voter to request to be added to a permanent list to receive a vote by mail ballot.⁹²
- Verify voters' identities with voter registration records. Voters with disabilities would benefit from election officials verifying requests for vote by mail ballots using information

⁹¹ Voter Registration and Absentee Ballot Request. Available at: <https://www.fvap.gov/uploads/FVAP/Forms/fpca2013.pdf>.

⁹² (see Footnote 58).

1136 already in voter registration records. Currently, 17 states verify voters' requests for vote
1137 by mail ballots with information in the voter registration record.⁹³

- 1138 • The federal government should establish a working group to create a holistic approach
1139 to provide information on voting by mail and facilitate applying for mail ballots. The
1140 holistic approach should consider technical, policy, legislative and statutory constraints.
1141

1142 **Expand electronic options for requesting and marking blank ballots when facilitating voting**
1143 **by mail.**
1144

- 1145 • Provide fully accessible RAVBM. By marking the ballot at home, voters with disabilities
1146 may also have extra time to read and complete their ballots and use their own AT to
1147 complete a Hypertext Markup Language (HTML) or fillable PDF form. Current guidance
1148 exists for the design, development, and implementation of these systems.⁹⁴
 - 1149 ○ Examples of states that use RAVBM include but are not limited to California⁹⁵,
1150 Ohio⁹⁶, and Maryland.⁹⁷
- 1151 • Allow voters to electronically request the blank vote by mail ballot. Currently 14 states
1152 have an online portal to make this request, and an additional nine states have a system
1153 for electronically requesting to vote by mail.⁹⁸
- 1154 • Research is needed to explore how to expand options to support electronic ballot return.
1155

1156 **Increase accessibility for completing and returning ballots by decreasing physical barriers**
1157 **when voting by mail.**
1158

- 1159 • Improve the ability for voters to sign the voter signature form on vote-by-mail envelopes.
1160 Current strategies include punched holes to guide blind voters to find the space to sign
1161 and accepting a signature anywhere on the envelope. As the processing of mail ballots

⁹³ (see Footnote 58).

⁹⁴ Laskowski S, Dawkins S, Quesenbery, et. al. (2017) Principles and guidelines for remote ballot marking systems. Available at: <https://civicdesign.org/wp-content/uploads/2015/09/Principles-for-remote-ballot-marking-systems-17-0331.pdf>.

⁹⁵ (see Footnote 52).

⁹⁶ Frank LaRose Ohio Secretary of State. Accessible Absentee Voting in Ohio. Available at: https://www.ohiosos.gov/elections/voters/voters-with-disabilities/Votingfaqs/?_cf_chl_jschl_tk=__pmd_QHZizeq4vxd_BuZ7pQSzOwXy0j3jg63af4hbmiztPu0-1632163483-0-gqNtZGzNAICjcnBszQIR.

⁹⁷ Maryland The State Board of Elections. Access by Voters with Disabilities. Available at: <https://elections.maryland.gov/voting/accessibility.html>.

⁹⁸ (see Footnote 58).

1162
1163
1164
1165
1166
1167
1168
1169
1170
1171
1172
1173
1174
1175
1176
1177
1178
1179
1180
1181
1182
1183
1184
1185
1186
1187
1188
1189
1190
1191
1192

becomes more automated, future approaches should focus on reducing need for manual review of accessible vote-by-mail ballots-

- Provide clear instructions in accessible formats to help voters with disabilities sign and package their ballots. Instructions should clearly educate voters on how to package and return their ballots. Several best practices exist, such as providing the voters with a checklist for the process, including instructions on the return envelope, and providing explicit instructions on where and how to sign the package.^{99,100}
- Provide pre-addressed and pre-paid envelopes to voters. Providing pre-addressed envelopes would benefit voters with print disabilities¹⁰¹ in more quickly and easily preparing the envelope to be mailed. This is needed for both traditional vote by mail and RAVBM. Pre-paid envelopes would reduce burden on voters. Currently 17 states have legislation related to paying for postage.¹⁰²
- Consistent with federal law,¹⁰³ allow voters with disabilities to designate who may return their ballots and provide guidance for how to return ballots. When a voter is unable to physically return their vote by mail ballot, allow them to designate someone to submit their ballot for them. In some states this may include a family member, but this may be expanded to caregivers in general, especially for those in long-term care facilities. There is need for guidance for determining when and how this process works, as well as who may be allowed to play this role. States may consider extending guidance from topics described in a 2020 report from Centers for Medicare & Medicaid Services (CMS) and putting out their own guidance.¹⁰⁴
- Support tabulation of RAVBM vote by mail ballots. Voting machines should support tabulation of common paper sizes for at-home printers while maintaining privacy and secrecy. This could be accomplished by using technology to facilitate scanning or automate remaking the ballot. By doing so, election administration could better implement RAVBM, eliminating the need to remake ballots manually.
- Increase access to and accessibility of ballot drop-boxes for returning vote by mail ballots. Ballot drop-boxes can be an additional option to return ballots for voters with disabilities. Drop-boxes should meet the ADA's accessibility requirements, be in an accessible location and have features voters with different disabilities can use.

⁹⁹ Center for Civic Design. (2021) *Vol. 104 Designing vote at home envelopes and materials*. Center for Civic Design (Highbridge, NJ.) Available at: <https://civicdesign.org/fieldguides/104-designing-vote-at-home-envelopes/>.

¹⁰⁰ Summers K, Quesenbery W, & Pointer A (2016) Making Voting by Mail Usable, Accessible and Inclusive. *Advances in Design for Inclusion*, Di Bucchianico G (Springer Nature, Basingstoke, UK), pp.53-64.

¹⁰¹ (see Footnote 17 for print disability definition).

¹⁰² (see Footnote 58).

¹⁰³ Americans With Disabilities Act of 1990 (ADA), 42 U.S.C. § 12132; 28 C.F.R. § 35.130.

¹⁰⁴ Department of Health and Human Services (HHS) (2020) Compliance with Residents' Rights Requirement related to Nursing Home Residents' Right to Vote. HHS (Washington, D.C.) Available at: <https://www.cms.gov/files/document/gso-21-02-nh.pdf>.

Change procedures for signature processing to support voters with disabilities

- Increase transparency and education about signature matching processes in each state. Voters should be informed how their signatures are used to match with voter registration records to understand the process.
- Provide an accessible signature cure process. This method must be efficient for voters with disabilities and allow them to meet the deadlines for submitting vote by mail ballots. An example of an accessible cure process is Colorado’s TXT2Cure process.¹⁰⁵ When a signature is rejected, the voter is notified and can electronically sign and upload identification using their phones. Although this would primarily benefit voters with disabilities who have difficulties making signatures, it would also benefit voters at large by reducing the number of uncounted ballots if voters had the opportunity to cure their ballots.
- Create best practices and standards for the signature verification process. Guidelines for signature verification support election officials in more accurately matching signatures and allow election officials to better understand considerations when matching signatures of voters with disabilities. Several best practices already exist that could be incorporated into formal state or national standards, such as having a tiered system to check signatures.¹⁰⁶ In this tiered process, the signature is first checked by an election worker or automated system, and can be escalated to election office staff and/or supervisors for adjudication. Examples of states with signature verification resources include Colorado and Oregon.^{107, 108}

5. Voter Technology

5.1. Voting Technology Barriers

¹⁰⁵ Colorado Secretary of State (2020) *Colorado Secretary of State Jena Griswold Announces TXT2Cure Program*. State of Colorado Department of State (Denver, CO.) Available at: <https://www.sos.state.co.us/pubs/newsRoom/pressReleases/2020/PR20201007TXT2Cure.html>.

¹⁰⁶ Bloomgarden A, Gupta A, Jensen G, Levine Z, Middleton C, & Sikora K (2020) Behind the Scenes of Mail Voting: The Rules and Procedures for Signature Verification in the 2020 General Election. Stanford-MIT Healthy Elections Project. Available at: https://healthyelections.org/sites/default/files/2020-10/Signature_Verification_0.pdf.

¹⁰⁷ State of Colorado Department of State (2018) Signature Verification Guide Version 2.1. Available at: <https://www.sos.state.co.us/pubs/elections/docs/SignatureVerificationGuide.pdf>.

¹⁰⁸ Secretary of State: Elections Division (2020) Vote by Mail Procedures Manual. Available at: https://sos.oregon.gov/elections/documents/vbm_manual.pdf.

Barriers

- Providing only one accessible voting machine per polling place creates barriers to independently and privately casting a ballot.
- Accessible voting machines, especially older machines, are challenging to learn and use.
- Ballots may be poorly designed for the technology and complicated to understand.
- Voters with disabilities may be unable to independently verify their vote before it is scanned and cast in some circumstances.
- Voters with disabilities encounter additional burdens when returning their ballot.

1219
1220
1221 While the rate of difficulty operating voting machines is relatively low (1%), this rate has not
1222 significantly decreased since 2012, and this rate is higher for voters with Intellectual,
1223 developmental, learning, and neurocognitive disorders (1.5%) and voters who are blind or low
1224 vision (4.1%).¹⁰⁹ When voters with disabilities are unable to use accessible voting machines, their
1225 privacy and independence for casting their ballots in person is threatened: a recent study found
1226 nearly 1 in 5 blind voters were not able to cast their ballot privately and independently when casting
1227 their ballot on a purportedly accessible voting machine in 2020.¹¹⁰
1228

“...I was finally ready to start my ballot. That is when I realized the large screen used for low vision users was facing the entire room, including the incoming line of voters. unacceptable...Then they realized the printer was not setup, no paper, and again was in plain view of everyone.... The total time from then I was handed my code to use on the [redacted voting machine] to when my ballot was finally scanned was around 2 hours...”

- Received from Federal Register Notice 86 FR 32026

1229 1230 **Providing only one accessible voting machine per polling place creates barriers to** 1231 **independently and privately casting a ballot.** 1232

- Voters with disabilities are unable to vote if the single accessible machine is not set up or not working.

¹⁰⁹ (see Footnote 29).

¹¹⁰ National Federation of the Blind (2021) *The Blind Voter Experience: A Comparison of the 2008, 2012, 2014, 2016, 2018, And 2020 Elections*. National Federation of the Blind (Baltimore, MD.)

1235
1236
1237
1238
1239
1240
1241

- In some cases, the machine’s screen, and voters’ selections, are on display for the entire polling place due to lack of privacy features or incorrect placement (e.g., privacy curtains, angle of machine, etc.).
- Because the paper size for a BMD marked ballot often differs from hand-marked paper, these ballots may be able to be identified if only a few voters use the single machine, compromising ballot secrecy.

1242
1243

Accessible voting machines, especially older machines, are challenging to learn and use.

1244
1245
1246
1247
1248
1249
1250

- Although VVSG 2.0 includes detailed, updated requirements for accessibility, no machines are currently certified to VVSG 2.0 or to the 2015 VVSG 1.1 (The VVSG 2.0 was approved in February 2021. The Election Assistance Commission has not yet certified any voting systems to VVSG 2.0).
 - Nearly a third of registered voters have used systems no longer for sale by the vendors that produce them; these machines are less likely to be compatible with updated VVSG guidelines and modern assistive technology.¹¹¹

1251
1252
1253
1254
1255

- Some instructions for using accessible voting machines’ features are difficult to follow.
- Some audio features are not adequately adjustable or poor in quality.
- Mechanical difficulties with printing, jamming, and functionality of buttons and headsets can occur.

1256
1257

Ballots may be poorly designed for the technology and complicated to understand.

1258
1259
1260
1261
1262
1263
1264
1265

- Voters with Intellectual, developmental, learning, and neurocognitive disabilities and those using AT especially struggle to read their ballots and understand how to mark their ballots when these ballot problems are present:
 - Presenting more than one contest per screen, creating information overload.
 - Lack of organization of information and instructions.
 - Lack of plain language to support voters in understanding what to select and how to select.

1266
1267
1268

Voters with disabilities may be unable to independently verify their vote before it is scanned and cast in some circumstances.

1269
1270
1271

- When AT is unable to read the selections on paper, voters with disabilities are unable to verify their ballots. This may be because of the design of the printed ballot that does not consider the requirements for AT to read printed information accurately.

¹¹¹ Based on our analysis data from: <https://verifiedvoting.org/verifier/#mode/search/year/2020>.

- If poll workers remake the ballot to be counted (to transfer it to a format the ballot scanners can read), voters with disabilities are unable to verify the vote that was ultimately cast.

Voters with disabilities encounter additional burdens when returning their ballot.

- Voters with manual dexterity disabilities and who are blind or low vision have indicated difficulty with independently placing the ballot in a privacy sleeve and feeding the ballot into the ballot scanner.
- Some voters with disabilities may have difficulty independently traversing the polling place to go to where the ballot is cast.

5.2. Recommendations for Voting Technology

Recommendations

- Improve accessibility for verifying and casting ballots.
- Increase support for voters with disabilities to use accessibility features.

Existing voting technology addresses many barriers voters with disabilities face in casting their ballots in person on election day. Future research can also better support voters with disabilities in securely casting their votes on accessible systems.

Improve accessibility for verifying and casting ballots.

- Encourage the use of all-in-one voting stations. All-in-one voting technology that can support reading, marking, verifying, and scanning/returning the ballot benefits voters with manual dexterity disabilities. The Los Angeles County Voting Solutions for All People (VSAP)¹¹² is an example of this process, where the ballot printed by the BMD is automatically cast into a ballot box at the voting station after review and verification, without requiring voters to handle the paper.
- Ensure BMD ballots can be read by scanners and tabulators and do not need to be remade, the process by which election officials must copy cast votes onto a paper ballot. Ensure that the paper output of an accessible voting machine can be directly tabulated and counted. This preserves the voters' rights and may increase efficiency on election day in counting the votes.
- Develop accessible and secure methods for voters with disabilities to mark and verify their ballots. Technology should continue to be developed and used to support voters with disabilities in independently marking and verifying the ballot they cast. For example,

¹¹² Voting Solutions for All People (VSAP). Available at: <https://vsap.lavote.net/design-concepts-2/>.

1306
1307
1308
1309
1310
1311
1312
1313
1314
1315
1316
1317
1318
1319

optical character recognition (OCR) technology can continue to be developed to work with AT. Verification should also be secure. Research and development of secure and accessible verification methods of ballots should be done for paper-based (e.g., BMDs) and paperless (e.g., end-to-end verifiable voting systems) systems.

- Implement procedures to encourage voters to verify their ballot. To ensure accessibility in marking ballots as well as in securely casting ballots, BMDs should be software independent. Software independence means that, “A voting system is software-independent if an (undetected) change or error in its software cannot cause an undetectable change or error in an election outcome.”¹¹³ Verification by voters is one way to achieve this. Desired procedures include emphasizing the importance of verification to voters and having clear instructions for how to verify and identify where mistakes are made.¹¹⁴ While these methods are important for and would benefit voters with and without disabilities, special attention must be paid to ensuring these processes work for and are clear to voters with disabilities.

1320
1321
1322
1323
1324
1325
1326
1327
1328
1329
1330

Increase support for voters with disabilities to use accessibility features.

- Ensure BMD ballots can be read by AT. Ensure that the printed ballot can be accurately and understandably read to the voter through optical character recognition of the printed ballot. This process can read back the ballot in multiple channels, including audio or enhanced visual displays.
- All systems should be certified to VVSG 2.0 requirements . VVSG 2.0 includes accessibility standards in Principles 5-8, including, but not limited to, customization of preferences, being easy to read, in plain language, and supportive of the voter in correctly marking, navigating, and submitting their selections.

¹¹³ Rivest RL (2008) On the notion of ‘software independence’ in voting systems. *Phil. Trans. R. Soc.* 366: 3759-3767. Doi: 10.1098/rsta.2008.0149.

¹¹⁴ Bernhard M, McDonald A, Meng H, Hwa J, Bajaj N, Chang K, Halderman JA. Can Voters Detect Malicious Manipulation of Ballot Marking Devices?. In 2020 IEEE Symposium on Security and Privacy (SP) 2020 May 18 (pp. 679-694). IEEE.

1331
1332
1333
1334
1335

6. Polling Locations

6.1. Polling Location Barriers

Barriers

- Voters with disabilities have barriers when getting to/from polling locations or navigating the venue.
- While inside the polling location, voters with disabilities face an additional set of barriers that make the act of casting their ballot difficult.
- For jurisdictions that offer it, curbside voting reduces barriers for many voters with disabilities, but there are still aspects that need to be addressed.

1336
1337
1338
1339
1340
1341
1342
1343
1344

When individuals with disabilities go in person to cast their vote, whether they vote early or on election day, they often face challenges that make the process difficult for them. Unfortunately, multiple surveys of polling places for elections have found accessibility issues and low compliance with ADA requirements.^{115,116} Poll workers with a low level of familiarity with accessible equipment or having an inadequate number of workers may compound these issues.

“Even in 2021, my assigned precinct is inaccessible for me as a manual wheelchair user...”

- Received from Federal Register Notice 86 FR 32026

1345
1346
1347
1348
1349
1350
1351
1352
1353
1354
1355

Voters with disabilities have barriers when getting to/from polling locations or navigating the venue.

- Inadequate signage directing voters with disabilities to the accessible path to, from, and within the polling location.
 - Some signage does not meet ADA requirements.
- Accessible entrances or elevators are closed or blocked off.
- No accessible parking or insufficient accessible parking.
- Difficulty getting to and from polling locations due to lack of nearby public transportation.

¹¹⁵ Williamson L, Pamela Cataldo C, Wright B (2018) *Toward a More Representative Electorate: The Progress and Potential of Voter Registration through Public Assistance Agencies*. Demos. Available at: <https://www.demos.org/research/toward-more-representative-electorate>.

¹¹⁶ National Disability Rights Network (NDRN) (2020) *Blocking the Ballot: Ending Misuse of the ADA to Close Polling Places*. NDRN (Washington, D.C.) Available at: <https://www.ndrn.org/resource/blocking-the-ballot-box/>.

- 1356
- 1357
- 1358
- 1359
- 1360
- 1361
- 1362
- 1363
- 1364
- 1365
- Inaccessible pathways to the voting place.
 - No ramps or ramps are too steep.
 - Uneven or steep routes, routes blocked by curbs/stairs or other barriers make navigating to the polling place difficult or impossible.
 - Doorways are too narrow for wheelchairs.
 - Long lines or waiting times are particularly challenging for many voters with disabilities, especially those who have difficulties standing.
 - The temperature or weather also affects the ability to wait in line for many, especially if the line extends outside.

1366

1367

1368

While inside the polling location, voters with disabilities face an additional set of barriers that make the act of casting their ballot difficult:

- 1369
- 1370
- 1371
- 1372
- 1373
- 1374
- 1375
- 1376
- 1377
- 1378
- 1379
- 1380
- 1381
- 1382
- 1383
- Check-in requirements are cumbersome for many voters with disabilities, especially those who do not have a driver's license.
 - Limited space, inaccessible routes, or poor organization inside the polling location makes it difficult for many voters with disabilities as they go through the process of checking in, voting, and casting their ballot.
 - At least one accessible voting machine is required by federal law¹¹⁷, but there is often only one machine, and it is often segregated from the rest of the voting booths and also results in limited availability.
 - Accessible voting machines are not working or not set up.
 - Accessible voting machines are not set up correctly or not configured to ensure privacy from passersby.
 - Machines are placed too closely together.
 - Privacy screens are incorrectly set up.
 - For voters who use wheelchairs, other voters may see the ballot over their shoulders.

1384

1385

1386

For jurisdictions that offer it as an option, curbside voting may reduce barriers for voters with disabilities, but there are still aspects that need to be addressed:

- 1387
- 1388
- 1389
- 1390
- 1391
- 1392
- 1393
- 1394
- 1395
- Curbside voting is offered in less than half of the country.¹¹⁸
 - Some laws prohibit curbside voting from being used or offered at all.
 - There is limited or no signage directing voters to a specified curbside voting area.
 - Some locations that offer curbside voting require the voter to call ahead of time to ensure any equipment needed for curbside voting is set up and available.
 - Some jurisdictions provide a telephone number as the only method for alerting poll workers that a voter is requesting to use the curbside option. If a voter either does not have a mobile phone or has difficulty using a mobile phone, requesting assistance could be challenging.
 - A voter may have a hard time reading instructions for where and how to call the poll worker

¹¹⁷ (see Footnote 9).

¹¹⁸ (see Footnote 58).

1396
1397
1398
1399
1400
1401
1402

- The requirements for accessibility of curbside voting are not always followed completely.
- The availability of curbside voting should be in addition to, rather than instead of, the general accessibility requirements of the polling place, and voters with disabilities should have the choice of which option best suits their needs.
- The ballots brought curbside are most often paper ballots which are not accessible to persons with print disabilities.

1403 **6.2. Recommendations for Polling Locations**

Recommendations

- Make getting to polling locations easier
- Ensure the location and equipment is adequate and available
- Offer curbside voting
- Continue to collect feedback and conduct research on accessibility
- Ensure there are enough, up-to-date, and functioning Accessible Voting Machines

1404
1405
1406
1407
1408
1409
1410
1411
1412

While progress is continually made to ensure that everyone is able to access the polling location and have the ability to cast their ballots privately and independently, there are many measures election officials can take to further reduce the barriers faced by voters with disabilities. Election offices should provide educational materials on their websites or other means to advertise available offerings.

Make getting to polling locations easier

1413
1414
1415
1416
1417
1418
1419
1420
1421
1422
1423
1424
1425
1426
1427
1428
1429

- The federal government and state/local governments should consider ensuring that employers leave enough time for voting on election day or providing additional flexibilities for voting. Some voters with disabilities may need more time or support from a caregiver, family, or friend to get to and from a polling location than those without disabilities. They may also need more time to check-in, mark, and cast their ballot. If employers permitted flexible leave options, and jurisdictions provided flexible days and hours for voting, voters with disabilities would be able to show up and cast their ballot without the stress or loss of pay from having to take off work for an extended period of time; and some voters may not be able to take off at all during the hours of operation of their assigned polling location.
- Strive to have polling locations or vote centers placed near public transportation. If this cannot be done, consider having a free bus that can transport voters between the polling location and a public transportation hub or bus station. For voters with disabilities who do not have their own transportation or are unable to operate a vehicle, this would greatly increase their ability to vote independently.

- 1430 ○ Another option that should be considered is a mobile vote center van which
1431 brings voting to the voters' locations.
- 1432 • Ensure the polling place is accessible per ADA requirements.
- 1433 ○ Regularly audit locations prior to elections and determine what temporary
1434 measures are needed to ensure the location remains accessible or select an
1435 alternative accessible location.
- 1436 ○ Consider using government (county and municipal) buildings as polling places,
1437 as they are more likely to be ADA-compliant.
- 1438 ○ Consider establishing accessible voting centers where any voter in the
1439 jurisdiction can vote.
- 1440 ○ Develop and deploy methods to evaluate the accessibility of polling places on
1441 election days. Allow voters to document and report issues they encountered or
1442 witnessed so they can be addressed quickly.
- 1443 ▪ For example, the State of Wisconsin has such a tool, which they use to
1444 inform areas of focus for future elections.
- 1445 • Ensure that polling places are accessible, including paths from the parking lot to the
1446 building and inside the building to the voting machines, as required by the ADA.¹¹⁹
- 1447 • Ensure that there is adequate signage to direct voters throughout the polling location.
1448 This includes:
- 1449 ○ ADA required signage, for parking spaces and to direct voters to the accessible
1450 entrance(s) or voting area.
- 1451

1452 **Ensure the location and equipment is adequate and available**

1453

- 1454 • Create and use a comprehensive checklist that poll workers must run through every day.
1455 This will ensure that all equipment, including an adequate number of accessible voting
1456 machines, is properly set up and functioning before they open their doors. Voters with
1457 disabilities may need more time to go through the voting process than other voters and
1458 having all equipment set up in advance reduces the amount of time they need to remain
1459 at the polling location.
- 1460 ○ Additional items to consider when setting up accessible voting machines are:
- 1461 ▪ If all voters are not using the same accessible machine, ensure that the
1462 accessible voting machines are not segregated from other machines.
- 1463 ▪ The accessible voting machines are set up so any voter who uses those
1464 machines can do so privately. This includes proper spacing of privacy
1465 screens, table height, and appropriate distance between pathways and
1466 neighboring voting machines.
- 1467 ▪ Polling locations should provide chairs along the line for those who are
1468 unable to stand for extended periods of time.
- 1469

1470 **Offer curbside voting as an option**

1471

¹¹⁹ (see Footnotes 5, 6, and 7).

1472 Curbside voting is a great option that should be offered at all polling locations. It reduces some
1473 barriers faced by voters with disabilities. However, less than half of the country currently offers
1474 it.
1475

1476 When considering offering this, ensure:

- 1477 • Guidelines for accessible curbside voting are developed for use by election officials that
1478 also comply with ADA accessibility requirements. To ensure curbside voting is
1479 accessible, election officials need detailed guidelines they can use to implement
1480 curbside voting in their polling place. This may include procedures for poll worker
1481 staffing, set-up and signage, and protecting voters' independence and privacy while
1482 casting their ballot curbside.
- 1483 • Voting technology used for curbside polling is portable and accessible. Voting
1484 technology must be portable for an election official to carry and to fit into a car for a voter
1485 to use. This technology should also include privacy for the voter to cast their vote.
- 1486 • There is adequate signage and instructions to direct voters to a curbside voting area
 - 1487 ○ Many voters who have curbside voting available do not know it exists. This
1488 signage is essential to direct voters to the right locations. Additionally, there
1489 should be more public outreach advertising the curbside voting options ahead of
1490 elections, so that those with concerns or questions can have them answered
1491 ahead of time.
 - 1492 ○ When at the curbside voting area, adequate signage should be posted that
1493 provides instructions on what to do next. If a poll worker cannot be dedicated to
1494 curbside voting, this should include options to alert a poll worker that they have
1495 arrived at the curbside voting area or if they need assistance.
- 1496 • Review requirements for curbside voting per the Americans with Disabilities Act of
1497 1990.¹²⁰
1498

1499 **Continue to collect feedback and conduct research on accessibility**

- 1500 • Collect feedback from voters with disabilities on an ongoing basis to predict future voting
1501 patterns and needs to better support them, for example, what challenges they had using
1502 equipment and how long it took them to cast their ballot.
 - 1503 ○ It could be used as supporting data to justify changing the polling location or
1504 determine more effective temporary and permanent solutions.
 - 1505 ○ Research and investigate how elections officials can better distribute poll workers
1506 to reduce staffing-related barriers based on collected data.
1507
1508

1509 **Ensure there are enough, up-to-date, and functioning voting machines that are accessible**
1510

¹²⁰ See Footnote 22.

- Current law¹²¹ states that there must be at least one accessible voting machine per location; however, this is not adequate in some cases. More research is needed to determine a method to predict the minimum proper number of machines.
 - Accessible voting machines should not be limited to certain voters. All voters should be informed of the availability of accessible machines and the voters themselves should decide whether to use it. It is not always evident to poll workers that a voter has a disability and may want to use an accessible machine.
 - Investigate the feasibility of replacing all voting machines with ones that adhere to VVSG 2.0.

7. Poll Worker Training

7.1. Poll Worker Training Barriers

Barriers

- Training may not provide poll workers with sufficient knowledge of the needs of voters with disabilities.
- Poll worker training may not adequately prepare poll workers to set up and use the accessible machine.
- Without training and policies for using accessible voting machines, poll workers can unintentionally serve as gatekeepers, not offering voters the accessible voting machine.

When poll workers are not sufficiently trained, they become a barrier to voters with disabilities in using the accessible machine to cast their ballots.

“As a person with low vision, I have a long wait every time I go to vote. The primary issue is the poll workers don't know how to turn the voice on in the voting machine. Sometimes it takes two hours for them to figure out how to turn on the voice.... I have also been asked if someone could help me vote. I deserve to vote independently and privately, as is my right.”

- Received from Federal Register Notice 86 FR 32026

Training may not provide poll workers with sufficient knowledge of the needs of voters with disabilities.

Without adequate training, poll workers are unfamiliar or have challenges with:

¹²¹ (see Footnote 9).

- 1541
- 1542
- 1543
- 1544
- 1545
- 1546
- 1547
- 1548
- 1549
- 1550
- 1551
- 1552
- Recognizing the needs and accommodations of people with disabilities and how to support their access to vote. This is especially true of voters with disabilities that cannot be identified using visual cues (e.g., wheelchair, cane, etc.).
 - Communicating with voters with disabilities who utilize AT or ASL. Some closed-captioning services do not translate well to these communication channels.
 - Poll workers may have biases about people with disabilities regarding access to accommodations, support needed to vote, or engagement in the voting process.
 - Understanding the legal rights of voters with disabilities to vote and have assistance when voting (e.g., using AT, bringing a caregiver, friend, or family member to assist them in voting). In some cases, not understanding these rights may perpetuate damaging misperceptions that people with disabilities cannot vote.

1553 **Poll worker training may not adequately prepare poll workers to set up and use accessible**

1554 **machines.**

1555

1556 Voters with disabilities are delayed in using accessible voting machines or are unable to use

1557 them at all when poll workers are not trained to operate accessible voting machines. Specific

1558 problems include:

- 1559
- 1560
- 1561
- 1562
- 1563
- 1564
- 1565
- Poll workers may have insufficient knowledge of setting up and using accessible voting machines.^{122,123,124} In some cases, the accessible voting machines are not turned on or working when voters with disabilities arrive at the polling place.^{125, 126}
 - Poll workers may have challenges using accessible voting machines' features; problems may be exacerbated when poll workers have low computer/technology literacy and may become flustered under the stress of election day.

1566 **Without training and policies for using accessible voting machines, poll workers can**

¹²² The Information Technology and Innovation Foundation Accessible Voting Technology Initiative (2013) *Understanding Voting Experiences of People with Disabilities*. Available at: <https://elections.itif.org/reports/AVTI-005-Sanford-2013.pdf>.

¹²³ Research Alliance for Accessible Voting (2014) *Training Poll Workers on Disability, Accessibility, and Accommodations*. Paraquad (St. Louis, MO). Available at: https://www.eac.gov/sites/default/files/event_document/files/RAAV_Poll_Worker_Training_Project_Final_Report_%28May_2014%29.pdf.

¹²⁴ (see Footnote 110).

¹²⁵ (see Footnote 110).

¹²⁶ Pederson, E (2019) *2018 Voter Experience Survey Results*. SABE Govoter Project 2019. Self Advocates Becoming Empowered (Washington, D.C.) Available at: <https://www.sabeusa.org/wp-content/uploads/2019/09/Final-2018-SABE-GoVoter-Expereince-Report.pdf>.

1567 **unintentionally serve as gatekeepers, not offering voters the accessible voting machine.**

1568
1569 Anyone with or without a disability should be able to use the accessible voting machines if
1570 requested. Poll workers often have misperceptions about who can use the machines, believing
1571 the machines can only be used by people with a visually identifiable disability. This results in
1572 poll workers:

- 1573 • Reserving the machines only for those who have a visually identifiable disability.
- 1574 • Requiring voters with disabilities to ask the poll worker for permission to use them.
- 1575 • Requiring voters to prove they have a disability, or a particular disability, to use the
1576 machines.

1577
1578 Voters with disabilities who may benefit from using the accessible voting machines may be
1579 blocked from them, forcing voters with disabilities to sacrifice their privacy and/or independence
1580 to cast their ballots, and in some cases, have difficulties marking their ballot as they had
1581 intended.
1582

1583 **7.2. Recommendations for Poll Worker Training**

Recommendations

- Provide training and tools for turning on, setting up, and troubleshooting accessible voting machines.
- Provide resources to poll workers on election day to remind them of important instructions.
- Require information about accessibility in poll worker training to increase awareness and knowledge of the needs of voters with disabilities.

1584
1585
1586 Poll worker training can be improved to increase accessibility in the polling place and ensure
1587 voters with disabilities can vote privately and independently. Ultimately, changes to poll worker
1588 training are needed to ensure poll workers are prepared to help voters with disabilities.
1589

Provide training and tools for turning on, setting up, and troubleshooting accessible voting machines.

- If all machines are not accessible (we recommend that they are all accessible), it is important to teach poll workers to integrate accessible machines fully into the polling place. When the accessible machines are integrated into the polling process, setting up and using the machines will be a part of the process and not a separate step perceived as optional.

- 1598
- 1599
- 1600
- 1601
- Train poll workers to allow any voter to use the accessible machines. Poll workers can avoid becoming gatekeepers to the accessible machines if they make voters aware of the availability of the accessible machines and how to access them.

1602 **Provide resources to poll workers on election day to remind them of important instructions.**

1603

- 1604
- 1605
- 1606
- 1607
- 1608
- 1609
- 1610
- 1611
- 1612
- 1613
- 1614
- Create job aids and checklists for poll workers for all aspects of election day. This can include checklists for setting up the polling place and turning on the accessible voting machines. These aids should include instructions for troubleshooting as well as setup and use. Job aids can also be used as a reference for using equipment or interacting with voters with specific needs.
 - Job aids, checklists, and guides should follow usability best practices and be tested by poll workers. Aides should include pictures and instructions written clearly and in plain language. For example, Contra Costa County’s award-winning training “A Simple (Accessible) Path for All” includes an Accessibility Kit written in plain language and including checklists, maps, and step-by-step guides for fixing obstacles and barriers.¹²⁷

1615 **Require information about accessibility in poll worker training to increase awareness and**

1616 **knowledge of the needs of voters with disabilities.**

1617

- 1618
- 1619
- 1620
- 1621
- 1622
- 1623
- 1624
- 1625
- 1626
- 1627
- 1628
- 1629
- 1630
- 1631
- 1632
- 1633
- Ensure poll workers understand the rights of voters with disabilities, including common accommodations voters with disabilities may have or use and effective communication¹²⁸ and interaction practices to reduce biases. Also ensure that poll workers know what to do if a voter with a disability needs an accommodation that was not specifically covered in training.
 - Integrate real-world scenarios into the training process. Use real-life scenarios and examples to train poll workers to support voters with a disability in the polling place (e.g., handling voter identification, using audio features on an accessible voting machine, etc.).
 - Ensure accommodations and accessibility are considered in the poll worker training procedures, process, and materials. Poll worker training itself must be accessible to people with disabilities. This may include making materials and training accessible and providing accommodations in discussions with individual poll workers. One helpful practice may be to allow split shifts and part-day hours for poll workers, practices already in place in 16 states.¹²⁹ Further research and outreach to the disability community may be needed to determine specific accommodations to facilitate voters with disabilities serving as poll workers.

¹²⁷ U.S. Election Assistance Commission (2018) A Simple (Accessible) Path for All. EAC (Washington, D.C.) Available at: <https://www.eac.gov/election-officials/contra-costa-county-ca-2018-clearinghouse-award-winner>.

¹²⁸ (see Footnote 24).

¹²⁹ (see Footnote 58).

1634
1635
1636
1637
1638
1639
1640

APPENDIX I: ACRONYMS

Acronyms are not available in this Draft but will be provided in the final version of the Report.

APPENDIX II: DEFINITIONS

What is an “accessible voting system”?

“Accessible voting system” and related voting system terminology is used throughout this report. This summary clarifies their origins and provides an overview of the definitions and features of an accessible voting system.

Background. Section 301 of the Help America Vote Act of 2002 (HAVA) describes the capabilities of the voting system and specifically states that *“The voting system shall— (A) be accessible for individuals with disabilities, including nonvisual accessibility for the blind and visually impaired, in a manner that provides the same opportunity for access and participation (including privacy and independence) as for other voters; (B) satisfy the requirement of subparagraph (A) through the use of at least one direct recording electronic voting system or other voting system equipped for individuals with disabilities at each polling place; ...”* HAVA also directs the Election Assistance Commission to adopt voluntary voting system guidelines (called the VVSG) developed by their Technical Guidelines Development Committee (TGDC) with technical support from the National Institute of Standards and Technology (NIST). These guidelines include *“assistive technologies for individuals with disabilities (including blindness).”*

The EAC certifies voting systems if they meet the technical requirements of the VVSG. VVSG 2.0, adopted February 10, 2021, is the current version, but most voting systems are currently certified to VVSG 1.0. It is important to note that VVSG is not a legal mandate. It is guidance and is voluntary for states who may choose to require new voting systems to be certified to the VVSG (or create state standards based on it).

VVSG 2.0 reflects the latest in both industry and technology best practices for accessibility and includes detailed guidance for electronic voting systems to enable voters with disabilities to vote privately and independently, ensuring their ballots are marked, verified, and cast as intended.

Definitions and features of an accessible voting system. The definitions and features build on Section 301 of the 2002 Help America Vote Act: an **accessible voting system** is one that is accessible for individuals with disabilities, including nonvisual accessibility for the blind and visually impaired, in a manner that provides the same opportunity for access and participation (including privacy and independence) as for other voters. HAVA provides that this accessibility requirement can be met in federal elections through use of a direct recording voting system or other voting system equipped for individuals with disabilities at each polling place. The accessibility of voting systems is further governed by the Americans with Disabilities Act.

An accessible voting system typically contains a number of features designed to ensure accessibility for voters with a range of disabilities to allow them to independently mark, verify, and cast their ballots. The most up-to-date features are described in some detail in VVSG 2.0 adopted by the U.S. Election Assistance Commission under HAVA in 2021. Typically, the accessible voting machine for in-person voting is an electronic **ballot marking device** (BMD) or **ballot marker**. This is a device that: permits contest options to be selected and reviewed on an electronic interface, produces a human-readable marked paper ballot, and does not make any other lasting record of the voter's selections. It is accessible throughout the process of marking, verifying, and casting the paper ballot.

1691 The VVSG 2.0 guidance ensures that any BMD can be used by voters with disabilities without
1692 assistance since the accessibility features are intrinsic to the device and include visual, enhanced
1693 visual, and audio formats and interactions modes that include touch and support for limited dexterity. If
1694 a voter requires assistive technology in the form of a headset or switch, these are available with the
1695 BMD, or the voter may use their own personal assistive technology. Voters may need assistance to
1696 plug into the standard audio jack or assistive technology jack. The guidelines specify that all methods of
1697 interaction by voters have the same functionality as the visual format and touch mode not just for voting
1698 but also for voter verification, handling, and casting of the paper ballot.
1699

1700 A voter may choose to hand mark their paper ballot, if that is an option and they have the ability to do
1701 so. In many in-person voting systems, the voter casts their ballot (from the BMD or hand marked)
1702 directly into a **ballot scanner**. The ballot scanner is a voting system that tabulates votes marked in
1703 contest option positions or contained with a barcode on the surface of a paper ballot. There are
1704 accessibility features described in the VVSG 2.0, such as large font and audio cues, that apply to the
1705 scanner display because it is a voter-facing electronic device that is part of the voting system.
1706

1707 For voting by mail, new **remote accessible vote-by-mail systems** are available in some states. These
1708 tools allow voters to use an application on their personal computer or mobile device with their own
1709 assistive technology or preferences to mark and review their selections. Like a BMD, the system then
1710 prints a human-readable ballot to be verified and returned like any other vote-by-mail ballot.
1711

1712
1713 *Other definitions are not available in this Draft but will be provided in the final version of the Report.*
1714
1715

1716
1717
1718
1719
1720

APPENDIX III: REFERENCES

References are not available in this Draft but will be provided in the final version of the Report.

1721 APPENDIX IV: ADDITIONAL RESOURCES

1722

1723

1724 *Additional Resources are not available in this Draft but will be provided in the final version of the Report.*

1725

1726 **APPENDIX V: THE ASSIGNMENT AND APPROACH**

1727
1728 **EXECUTIVE ORDER ON 14019 PROMOTING ACCESS TO VOTING**

1729 Among its objectives, the EO aims to “to protect and promote the exercise of the right to vote,
1730 eliminate discrimination and other barriers to voting, and expand access to voter registration and
1731 accurate election information.”

1732 The EO specifies in: “Sec. 7. Ensuring Equal Access for Voters with Disabilities. Within 270 days of the date of
1733 this order, the National Institute of Standards and Technology (NIST) within the Department of Commerce
1734 shall evaluate the steps needed to ensure that the online Federal Voter Registration Form is accessible to
1735 people with disabilities. During that period, NIST, in consultation with the Department of Justice, the Election
1736 Assistance Commission, and other agencies, as appropriate, shall also analyze barriers to private and
1737 independent voting for people with disabilities, including access to voter registration, voting technology, voting
1738 by mail, polling locations, and poll worker training. By the end of the 270-day period, NIST shall publish
1739 recommendations regarding both the Federal Voter Registration Form and the other barriers it has identified.”
1740

1741 **THE PROCESS NIST USED TO DEVELOP THIS PLAN**

1742 NIST reached out widely to solicit input on barriers to private and independent voting for people with
1743 disabilities. That outreach and consultation included:

- 1744
- 1745 • Publication of a Request for Information in the Federal Register that resulted in 171 relevant
1746 responses. See Appendix VI for the Text of the Request for Information.
 - 1747 • Contacts and discussions with members of other Federal agencies including but not limited to, the
1748 Department of Justice (DOJ), Election Assistance Commission (EAC), General Services
1749 Administration (GSA), Office of Management and Budget (OMB) and the US Access Board.
 - 1750 • Contacts and discussions with members of non-governmental organizations (NGOs) including but
1751 not limited to, the American Civil Liberties Union (ACLU), National Council on Independent Living,
1752 National Disability Rights Network, National Federation of the Blind, and Paralyzed Veterans of
1753 America.
 - 1754 • Briefing with Federal agencies on comments received from RFI.
 - 1755 • Review and comment from Federal agencies’ review on a draft version.
 - 1756 • Review and comment from the public on the draft version.
- 1757
1758
1759

1760
1761 “Executive Order 14019-Promoting Access to Voting.” <https://www.govinfo.gov/content/pkg/DCPD-202100209/pdf/DCPD-202100209.pdf>

APPENDIX VI: REQUEST FOR INFORMATION

Billing Code: 3510-13-P

DEPARTMENT OF COMMERCE

National Institute of Standards and Technology Docket Number: [210608-0123]

Promoting Access to Voting

AGENCY: National Institute of Standards and Technology, U.S. Department of Commerce.

ACTION: Notice; Request for Information (RFI)

SUMMARY: Based on the requirements of E.O. 14019, Promoting Access to Voting, the National Institute of Standards and Technology (NIST) is seeking information about barriers to private and independent voting for people with disabilities. NIST, in consultation with the Department of Justice, the Election Assistance Commission, and other agencies, as appropriate, will analyze barriers, including access to voter registration, voting technology, voting by mail, polling locations, and poll worker training. Responses to this Request for Information (RFI) will inform NIST's development of recommendations.

DATES: Comments must be received by 5:00 p.m. Eastern time on July 16, 2021.

ADDRESSES: Comments may be submitted by any of the following methods:

Electronic submission: Submit electronic public comments via the Federal e-Rulemaking Portal.

1. Go to www.regulations.gov and enter NIST-2021-0003 in the search field,
2. Click the "Comment Now!" icon, complete the required fields, and
3. Enter or attach your comments.

Email: Comments in electronic form may also be sent to pva-eo@list.nist.gov in any of the following formats: HTML; ASCII; Word; RTF; or PDF. Please submit comments only and include your name, organization's name (if any), and cite "Promoting Access to Voting" in all correspondence.

FOR FURTHER INFORMATION CONTACT: For questions about this RFI contact: Kevin Mangold, NIST, at (301) 975-5628, or email Kevin.Mangold@nist.gov. Please direct media inquiries to NIST's Office of Public Affairs at (301) 975-2762. Users of telecommunication devices for the deaf, or a text telephone, may call the Federal Relay Service, toll free at 1-800-877-8339.

SUPPLEMENTARY INFORMATION: As stated in Executive Order 14019, Promoting Access to Voting, the right to vote is the foundation of American democracy. Under section 7 of Executive Order 14019, (Ensuring Equal Access for Voters with Disabilities), NIST is directed to evaluate the steps needed to ensure that the online Federal Voter Registration Form is accessible to people with disabilities. Exec. Order No. 14019, Promoting Access to Voting, 86 FR 13623 (Mar. 7, 2021).

Alicia Chambers, NIST Executive Secretariat.

