Understanding Patterns and Trends in Rejected Mailed Ballots in Washington State

A Research Study by the Evans Policy Innovation Collaborative (EPIC)

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November 1, 2023

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EXECUTIVE SUMMARY

Increasing attention is being focused on ensuring the integrity of our national, state, and local elections. Washington State is known nationally for administering vote-by-mail elections with a high degree of integrity, security, and voter engagement (Movement Advancement Project, 2023a). In Washington State, ballot envelopes must be signed and deposited in an official drop box by 8 pm on election night, or mailed and postmarked by the date of the election. Ballot signatures are processed by county elections staff when ballots are received. Ballots where signatures are determined not to match state records and ballots missing signatures are then "challenged" by county elections staff. Voters with a challenged ballot receive a written notice sent through first-class mail from the county elections office that their ballot signature could not be matched to the voter signature on file or was missing, and a declaration is included that allows the voter to present a valid signature to the county elections office to correct or "cure" the ballot. Challenged ballots that are not cured before county elections offices certify election results are rejected.

This study poses several research questions to better understand voter experiences with ballot rejection and curing processes:

- How do voters experience the vote-by-mail, ballot return, and ballot curing processes?
- Using longitudinal voter-level and county-level ballot data, how have trends and patterns in ballot rejections varied over time? Do rates of ballot rejections vary by voter demographics or geographic location? How do the reasons for which ballots are rejected vary over time, voter demographics, and geographic location?
- To what extent are challenged ballots cured by voters? How do cure rates vary by voter demographics and geographic location?
- What are common and best practices used by county elections offices to process ballots and support voters' efforts to cure ballots?

To answer these questions, this report gathered and analyzed several sources of data:

- Voter- and county-level ballot data from primary and general elections over the past decade.
- Interviews and in-person elections observations with county auditors and election staff.
- Surveys and interviews with voters in Washington State who had ballots rejected in recent elections to understand their interactions with the curing process.
- Engagement with local and statewide community organizations to understand their work to educate voters.

Several key findings emerge about voters' experiences with vote-by-mail in Washington State:

- From 2012 to 2022, voters in Washington State cast nearly 45 million ballots in primary and general elections.
- Overall, 1.5 percent of all primary ballots cast and 1.1 percent of general election ballots cast were rejected across elections from 2012 to 2022.
    - Roughly 25,000 to 35,000 ballots were rejected statewide in each general election since 2012.
    - A very small percentage of all ballots cast were rejected for missing a signature or having a signature that does not match what is on file – usually about 0.5 to 0.6 percent of all ballots cast.
    - Roughly half of all ballots rejected in primary elections and in many general elections arrive late to county offices.

- There is evidence that voters of color often have higher ballot rejection rates than White voters. For example, Hispanic and Asian voters had ballots rejected at twice the rate of White voters in the 2020 General Election (1.3 percent and 1.2 percent versus 0.6 percent). Black voters experienced ballot rejections in the 2020 General Election at a rate about fifty percent higher than White voters (0.9 percent versus 0.6 percent).
- Self-identifying male voters have slightly higher ballot rejection rates than self-identifying female voters in both primary and general elections.
- Younger voters have a much higher ballot rejection rate than older voters. Nearly 5 percent of voters 18 to 25 years old had ballots rejected in the 2022 general election, compared to 0.8 percent of voters 46 to 65 years old and 0.3 percent of voters 66 or over. Younger voters are much more likely to have ballots rejected due to signature mismatch than older voters.
- In primary and general elections since 2020, about 60 percent of ballots with signature challenges (missing signature or mismatched signature) have been cured before county elections officials submit election results to the State.

The report concludes with recommendations for research, policy, and practice to reduce the number of rejected ballots, increase ballot cure rates, and improve the voter experience in Washington State:

Ballot Envelope Design

- Employ five ballot envelope design principles that would enhance the voter experience:
    1. Make the text easier to read;
    2. Use visual cues to draw attention to important information;
    3. Create space between sections;
    4. Create a clear layout;
    5. Put information where voters will find it.

Future Research

- Continue to examine racial and ethnic differences in ballot rejection rates.
- Pursue research collaboration with county elections offices to measure the impact of innovative practices, such as methods of contacting voters, automatic signature verification, modified cure letter formats and methods of verification, or new ballot processing technology.
- Investigate the impact over time of mailed signature update letters on the voter experience.
- Pursue additional research in collaboration with tribal communities to identify obstacles and barriers facing Native American voters in Washington State.
- Fund the work of the Washington State Election Database at the Center for Studies in Demography & Ecology (CSDE) at the University of Washington.
- Test to evaluate areas impacting voters such as timing and methods of ballot cure notices, local contexts like drop boxes and competitive elections, and signature quality across platforms.

A Stronger Role for Community-based Organizations

- Encourage community-based organizations to encourage voters to return ballots early and help voters learn about ballot processing and signature verification.

Strengthening Elections Administration Practice

- Provide greater state funding for county ballot processing technology.
- Provide state support to ensure all county elections websites provide standard information, translated materials, and links to ballot-tracking features of VoteWA.

- Invest in regular peer learning and engagement activities for county elections staff and external groups to share innovative practices and elections administration solutions.
- Develop statewide outreach or educational programs to inform voters about the signature verification process.
- Encourage county elections offices to offer voters regular opportunities to provided updated signatures.
- Create intentional partnerships with community-based organizations that work within historically marginalized communities more likely to have their ballot rejected.
- Provide additional signature verification trainings for county elections staff and modify current signature verification trainings to ensure positive framing.

State Elections Law and Regulation

- Update standards for ballot envelope design and ballot cure notices statewide to ensure they contain language that is easy to understand across all reading levels and for voters who prefer voting materials in a language other than English.
- Move towards greater standardization of county administrative processes pertaining to signature verification and ballot curing.
- Invite voters to provide self-reported race and ethnic identity at the time of voter registration.
- Explore the extent to which ballot drop boxes could be enhanced to prevent missing signatures.

ACKNOWLEDGEMENTS

This research study received support from the Office of the Secretary of State and Washington State Legislature. Additional support was provided by the Evans School of Public Policy & Governance at the University of Washington. The project was led by the school's Evans Policy Innovation Collaborative (EPIC), a policy lab that brings together researchers, practitioners, policymakers, and the public to co-design actionable solutions to complex societal problems so that our public systems serve all individuals equitably and justly. EPIC applies participatory practices and human-centered design methodology to policy and management challenges, helping organizations adapt to the needs of the communities they serve and embrace change. Scott W. Allard's time on the project was partially supported by the Russell Sage Foundation.

The research team recognizes the feedback, contributions, and support of many colleagues. Thank you to Stuart Holmes and David Elliott from the Office of the Secretary of State for support of the data analytic work and engagement with county elections offices. Thank you to Garth Fell for supporting the project team's work. Many thanks to the county elections staff from across Washington State who participated in in-depth interviews and convenings in support of this project. Thank you to EPIC staff Keala Aronowitz, AK Sterling, and Jessika Gill for their many contributions to this project. Thank you to Wendi Lindquist, Evans School Director of Marketing and Communications, for her support of and contributions to this report. Thank you to Will von Geldern for assisting in administering the online voter survey. Deep appreciation to the Project Advisory Board for its assistance and insight throughout the project. Thank you to Larry Jacobs for expert advice and guidance. Thank you to Lisa Schur and Douglas Kruse for assistance in developing the voter survey instrument. Thank you to Jessica Godwin for her work to build the voter survey sampling frame. Finally, many thanks to the Center for Studies in Demography & Ecology at the University of Washington (CSDE) and the Washington State Election Database housed at CSDE for providing technical support.

PROJECT OVERVIEW

Increasing attention is being focused on ensuring the integrity of our national, state, and local elections. Washington State is known nationally for administering vote-by-mail elections with a high degree of integrity, security, and voter engagement (Movement Advancement Project, 2023a). Advantages of the Mail-in ballot process include assurance that the voter received their correct ballot, the voter has time to complete the ballot, and a higher level of convenience and security than in-person or poll-site voting methods. Washington State's mail-in ballot processes, however, require voters to complete their ballot in accordance with guidelines to ensure the integrity of the system.

In Washington State, these guidelines involve mailing or delivering ballots on-time to a valid postal service mailbox or authorized ballot drop-box and signing the ballot envelope. Ballots not deposited in an official drop box by 8 pm of election night or postmarked by the date of the election are rejected and not counted. Ballot signatures are processed by county elections staff when ballots are received and counted. Ballots with voter signatures are matched by county elections staff to signatures on record. Ballots where signatures are determined not to match state records and ballots missing signatures are then "challenged" by county elections staff. Voters with a challenged ballot receive a written notice sent through first-class mail from the county elections office that their ballot signature was invalid or missing, and a declaration is included that allows the voter to present a valid signature to the county elections office to correct or "cure" the ballot.

A February 1, 2022, report by the Washington State Auditor analyzed ballots rejected for signature mismatch or missing signatures in the 2020 general election. This report determined that the overall rate of rejected ballots was low and that the signature matching system worked effectively. The report also noted, however, that there may be systemic variations occurring due to problems with signature verification. Specifically, the Auditor's report noted modest county-level variation in signature rejections across Washington State. Analyses highlighted evidence that signature rejections were more likely to occur across younger voters, rural voters, and voters of color.

Findings from the State Auditor's report led the Secretary of State's office and members of the Washington State Legislature to fund additional research to investigate trends in ballot rejections, potential causes, and the development of solutions to assure all valid votes in Washington are counted. Specifically, the Rejected Ballots Study -- a collaborative project between the Evans School of Public Policy & Governance and the Washington Secretary of State (SOS) -- was commissioned in March 2022 to improve the voter experience in Washington State. The Evans Policy Innovation Collaborative (EPIC), a policy lab and engagement platform at the Evans School that brings together researchers, practitioners, policymakers, and the public to co-design actionable solutions to complex societal problems so that our public systems serve all individuals equitably and justly, worked in partnership with the SOS in Spring 2022 to develop an 18-month study from July 1, 2022 to December 30, 2023 that extends the work of the State Auditor's 2022 report. Key study components include:

- *Analysis of Ballot Data*: The team analyzed voter- and county-level ballot data from the past 10 years of primary and general elections to analyze trends in ballot rejections across the state, with particular attention to variation by age, race, and geography.

- *Engagement with County elections Office Staff*: The team interviewed county auditors and election staff in Washington State to understand current practices and expenditures around ballot curing and voter outreach as well as offer feasible recommendations based on each county's

unique demographics and resources. The project team also visited several counties in-person to tour and observe office activities during elections.

- *Engagement with Voters*: The team conducted surveys and interviews with voters in Washington State who had ballots rejected in recent elections to understand their interactions with the curing process.

- *Engagement with Community Organizations*: The team engaged local and statewide community organizations to understand their work to educate voters about vote-by-mail and ballot curing processes.

- *Project Advisory Board*: A group of national experts in the field of ballot design, curing, and voter engagement reviewed the study design, commented on analyses, and provided recommendations to reduce the number of rejected ballots in Washington State. See Appendix 1 for more detail about the composition of the advisory board.

The project team is led by several University of Washington researchers: Primary Investigator Scott W. Allard (Evans School and EPIC), Co-investigator Calista Jahn (Evans School and EPIC), Co-investigator Megan Ming Francis (Political Science), and Co-investigator Jacob Grumbach (formerly in Political Science). Appendix 2 provides more detail about the core University of Washington project team. Several Evans School research assistants made significant contributions to the work here: Lucas Owen; Joshua Varela; Will von Geldern; Isaiah Wright. Whitney Quesenbery and Fernando Sánchez from the Center for Civic Design participated in project convenings, led the analyses of ballot envelopes, and developed recommendations. The project also partners with the University of Washington's Washington State Election Database project housed at the University of Washington Center for Studies in Demography and Ecology (CSDE).

In addition to this final report, the project maintains a website providing the latest project reports and archived research products (https://evans.uw.edu/community-engagement/epic/projects/washington-state-ballots-project/). Materials related to this study also are posted and updated at the Washington State Election Database website (https://csde.washington.edu/waelectiondata/) at the University of Washington.

WASHINGTON STATE BALLOT LAWS, REGULATIONS, AND PROCESSES

Washington is a vote-by-mail state, where the Washington Secretary of State (SOS) and Washington State Legislature establish uniform rules and standards for all county elections auditors and county elections office staff to follow in the administration of vote-by-mail (Washington State Legislature 2023a). A visualization created by the SOS traces the vote-by-mail timeline and process is presented in Appendix 3 (See Washington Secretary of State 2021, 2023a).

Ballots are mailed to voters at least 18 days before a given election day. Military or overseas citizens are mailed ballots at least thirty days before each special election, and at least forty-five days before each primary or general election. The SOS provides county elections offices with a Ballot Format & Mail Ballot Packet Materials Checklist to provide the minimum language and content that must be present. Guidelines provide a rough template for ballots and ballot envelopes; counties then are able to customize their designs with any additional information the County Auditor deems necessary. County

elections offices send ballot packets to eligible registered voters. Each ballot packet includes a blank ballot, return envelope with pre-paid postage, security envelope/sleeve, and any required inserts. The return envelope includes a place for the voter to sign and use to return the completed ballot. Completed ballots can be returned at an official ballot drop box or through the U.S. Mail. Ballots must be placed in an official ballot drop box by 8pm on election day or postmarked by election day. For military or overseas citizens, instead of the postmark, the date the voter signed the declaration on the return envelope determines the validity.

Once received by county elections offices, returned ballot packets are sorted and processed. It is at this time that the signature on the ballot return envelopes is checked against signature(s) on file for that voter. Most often the signature on file is from the Department of Licensing (DOL) and is captured at the time a driver's license or other state identification is obtained. Election workers and canvassing boards that review signatures for verification must take an oath administered by the county auditor and be given signature verification training. Local law enforcement may instruct on techniques used to identify forgeries. The SOS provides a statewide signature verification training prior to each special, primary, or general election, including provided guidelines on what determines an acceptable signature match (Washington Secretary of State 2023b). Guidelines outlined in state law indicate:

> "A signature on a petition sheet must be matched to the signature on file in the voter registration records. The following characteristics must be utilized to evaluate signatures to determine whether they are by the same writer:
>
> 1) The signature is handwritten.
> 2) Agreement in style and general appearance, including basic construction, skill, alignment, fluency, and a general uniformity and consistency between signatures;
> 3) Agreement in the proportions of individual letters, height to width, and heights of the upper to lower case letters;
> 4) Irregular spacing, slants, or sizes of letters that are duplicated in both signatures;
> 5) After considering the general traits, agreement of the most distinctive, unusual traits of the signatures.
>
> A single distinctive trait is insufficient to conclude that the signatures are by the same writer. There must be a combination or cluster of shared characteristics. Likewise, there must be a cluster of differences to conclude that the signatures are by different writers." (Washington State Legislature 2023b)

If ballots are not signed or the signatures are determined not to match, the ballots are "challenged." Voters whose ballots are challenged will be sent a cure letter via first class mail from county elections offices. These cure letters invite the voter to provide a signature verification that can be matched to the signature on file. Again, the SOS provides county elections offices with templates for cure letters or forms that provide guidance about the language and content that must be present to assist the voter in curing their ballot. If the county elections offices have a phone number or email on the registration record or if such information is present on the ballot envelope, auditors are instructed in law to contact voters with challenged ballots that are unsigned three days before the election is certified (Washington State Legislature 2023c). In 2023, the Secretary of State provided voters with the ability to opt-in to ballot status text alerts via VoteWA. These text alerts would notify the voter when the ballot is received, accepted, and/or challenged.

Challenged ballots involving an envelope signature that does not match a signature(s) on file can receive a second-level of review by the county elections staff before the county elections office notifies the voter that the ballot was challenged. If this second-level review determines a signature match, the ballot is "cured" or accepted without any action by the voter. This means that in some cases, a "challenged" ballot may be resolved and accepted by county elections staff by the time a cure letter is delivered to the voter and/or returned. Some counties choose to audit accepted signatures by county elections staff in addition to the second review of all challenged ballots. When the voter returns the cure form, it is reviewed by county elections staff, and the ballot may be accepted for counting if the signature on the cure form matches the ballot return envelope. If it does not, it will require additional action by the county elections staff. Remaining challenged ballots proceed to a third level of review, completed by the county's canvassing board (Washington State Legislature 2023d, 2023e) on the final day to certify the election. Challenged ballots that are not cured before county certification of election results are rejected. While all canvassing boards review challenged ballots before formally rejecting a ballot, canvassing boards may take recommendations about ballot rejection from county elections staff.

County elections offices have some discretion in how they choose to process challenged ballots and contact voters. For example, county elections offices have the flexibility to address common situations like household swaps without needing to challenge the ballot or send a cure form, whereby individuals residing at the same address all mistakenly sign each other's ballot envelopes. In addition, while all counties are required by law to contact voters with challenged ballots by mail and phone three days before the election is certified, many counties contact a voter much sooner and through repeated attempts. Some counties in Washington State also are piloting text message alerts, in addition to the email and phone methods.

County elections offices in Washington State may use technology to support ballot processing. Interviews with county elections officials identified three primary approaches counties use to process ballots:

1. **Counties with Sorters:** In many counties, returned ballot envelopes are put into mail processing equipment, a.k.a "sorter." The sorter captures an image of the ballot envelope and a crop of the signature area on the envelope. County staff then have procedures for importing those images and returned ballot batches into the VoteWA system. Once recorded in VoteWA, ballot envelopes are then displayed to the county staff in the same batches that they were "sorted" into by the mail processing equipment. County elections auditors and staff complete signature review through VoteWA, comparing the signature captured from the front of the envelope to the signature(s) on file in the voter registration record. When the signature matches the record, that ballot is accepted and proceeds to processing for the purposes of tabulation.

2. **Counties without Sorters:** In counties without sorters, county elections staff handle ballot envelopes. The process is similar to that described above for counties with sorters, but ballots are sorted into batches by hand and physical ballot envelopes are compared to the voter registration signatures in VoteWA using a computer interface.

3. **Counties with Sorters and Using Mechanized Signature Matching:** One county in Washington State currently uses software to conduct initial signature matching. Again, the process is like that described above, with the difference that county elections staff only review ballots when the automatic signature verification (ASV) software program that is installed in the mail processing equipment indicates a signature does not match signatures on file or the ballot envelope is

unsigned. ASV software must first be approved for use in that county by the Secretary of State. Counties using this software are required to audit signatures accepted by this software.

After signature verification or the challenge has been cured, the ballot packets are separated. The security envelope/sleeve is removed from the envelope. This allows for the voter's identity (that is printed on the outside of the return envelope) to be separated from their marked ballot that is inside the security envelope/sleeve. Then, once it is safe to do so, the ballot is removed from the security envelope/sleeve and is reviewed for processing. County elections offices tabulate on-time verified ballots and results are reported publicly. SOS maintains the VoteWA platform and database, which publishes elections results and provides publicly available data on a voter's ballot status. VoteWA also allows voters to follow the status of their ballot in real time.

LITERATURE REVIEW

Washington is one of eight states (and the District of Columbia) that allows for voting mostly or fully by mail, and about 30 other states allow voters to request a mail-in ballot (Gronke, Romero, Shino, and Thompson, 2023; National Conference of State Legislatures, 2023). A primary benefit of voting by mail is the ease with which a registered voter may cast a ballot (Office of the Washington State Auditor, 2022). Voting by mail has been shown to increase voter engagement and voter turnout (Baringer, Herron, and Smith, 2020; Bonica et al., 2021; Gronke, Romero, Shino, and Thompson, 2023; Hanmer and Traugott, 2004; Southwell, 2010). Increased turnout in vote-by-email elections is driven by several factors. First, voting by mail reduces the time and travel costs of voting. Second, voters can mail or return their ballots well before the official election day, which reduces obstacles to voting that may occur for voters who might find it difficult to vote in person on a specific day. Voting by mail also makes the act of voting more accessible to a host of populations with disabilities that may create obstacles to voting in person. Vote-by-mail provides voters with a ballot ahead of time, creating additional time to make an informed vote that may enhance the voter experience (Baringer, Herron, and Smith, 2020; Bonica et al., 2021; Hanmer and Traugott, 2004; Southwell, 2010). The COVID-19 pandemic also underscored how vote-by-mail can help at-risk populations avoid large crowds in polling places (Office of the Washington State Auditor, 2022). In addition, the research literature has not found consistent evidence that vote-by-mail is more susceptible to fraud than traditional ballots (see Bonica et al, 2021).

Scholars and practitioners consistently identify three common reasons that mailed ballots are rejected: ballots are not returned or mailed on time; the ballot envelope is unsigned; the signature provided on the ballot envelope that does not match signatures on file (Janover and Westphal, 2020). Research has identified a number of population sub-groups that face a higher likelihood of mailed ballot rejection. Younger voters are more likely to have mailed ballots rejected because they may be new to voting by mail and may fail to properly complete and sign their ballots. Signature characteristics among younger voters may shift or evolve across early adulthood (California Civic Engagement Project 2014; California Voter Foundation, 2020; Baringer, Herron, and Smith, 2020; Cottrell, Herron, and Smith, 2021; Shino, Suttman-Lea, and Smith, 2022; Smith and Baringer, 2019). Similarly, those voters who are new to a vote-by-mail system or those who participate in elections infrequently may be more likely to have ballots rejected due to limited familiarity with how to properly complete a vote-by-mail ballot or when ballots need to be mailed or returned for them to be considered on-time (California Voter Foundation, 2020; Smith and Baringer, 2019). Voters of color have been found to experience higher rates of mailed ballot rejection than White voters (Asian Americans Advancing Justice – California, 2017; Baringer, Herron, and Smith, 2020; Cottrell, Herron, and Smith, 2021; Shino, Suttman-Lea, and Smith, 2022; Smith and

Baringer, 2019). Analysis by the California Civic Engagement Project (2014) concluded that California voters who indicated a preference for ballot materials in languages other than English in the 2012 general election had higher mailed ballot rejection rates than those who receive their ballots in English.

Given that high-profile presidential or off-year general elections will attract a larger number of new or infrequent voters, it should be expected that ballot rejection rates may be higher in those types of elections than other general elections. Primary elections, particularly in off-years, do not receive the same media coverage or public attention as general elections that help to remind voters about ballot due dates and proper ballot completion, so ballot rejections may be higher in primary than general elections (California Voter Foundation, 2020).

Other aspects of ballots and the administration of elections also shape the degree to which mailed ballots are rejected. Ballot envelope design and the presentation of information about the vote-by-mail process can shape the degree to which voters fail to provide a proper signature or return ballots late (Gronke, Romero, Shino, and Thompson, 2023; Johnson and Quesenbery, 2021; Wilding, 2021). Voter education materials also can affect the prevalence of rejected ballots (Acevedo et. al., 2020; Menger and Stein, 2017). Evidence also suggests that voter interactions and trust with both local election offices and the U.S. Postal Service affect whether voters submit mailed ballots properly and on time (Acevedo et al., 2020; White, Nathan, and Faller, 2015). The rate at which signatures on mailed ballot envelopes are determined not to match voter signatures on file has been found to vary by state laws around signature verification and variation in local election office practice (Baringer, Herron, and Smith, 2020; Janover and Westphal, 2020). The extent to which efforts to help voters cure or correct ballots with missing or mismatched signatures also is shaped by the clarity of how the ballot curing process is explained and is transparent to voters (Flaxman, Hyacinthe, Lawson, and Peters, 2013; Janover and Westphal, 2020). Success of ballot curing processes also has been found to increase when multiple modalities are available for the voter to cure their ballots, such as cure through email, mailed forms, or in-person completion (Flaxman, Hyacinthe, Lawson, and Peters, 2013). Nevertheless, ballot curing efforts have not been found to reduce disparities in ballot rejections by age, race or ethnicity (Smith and Baringer 2019).

Although voter turnout in Washington State is quite high by national standards and the overall number of mailed ballots rejected in Washington State is relatively small, there is evidence that there were differences in ballot rejection rate by age, race, and gender in the 2020 general election (Office of the Washington State Auditor, 2022). Evidence of such disparities in ballot rejection strongly suggest the need for deeper investigation of the voter experience casting ballots, potential causes of ballot rejections, voter experiences with curing processes, and the development of potential solutions to assure *all* registered voters casting valid ballots in Washington State can have those ballots counted.

RESEARCH QUESTIONS

Although there is a growing research literature about voter experiences with vote-by-mail and ballot curing processes, many open questions remain. Moreover, there is need for rigorous evidence examining ballot rejection and curing in states that administer elections fully by mail. Building on the existing scholarly literature and the State Auditor's 2022 report, this study poses several research questions to better understand voter experiences with ballot rejection and ballot curing processes:

- How do voters experience the vote-by-mail, ballot return, and ballot curing processes?

- Using longitudinal voter-level and county-level ballot data, how have trends and patterns in ballot rejections varied over time? Do rates of ballot rejections vary by voter demographics or geographic location? How do the reasons for which ballots are rejected vary over time, voter demographics, and geographic location?

- To what extent are challenged ballots cured by voters? How do cure rates vary by voter demographics and geographic location?

- What are common and best practices used by county elections offices to process ballots and support voters' efforts to cure ballots?

While there is significant concern about ballot rejections due to signature mismatches, this study also focuses on ballots that are not signed and those that are returned late because those two causes for ballot rejection often compose a sizeable share of all ballot rejections in primary and general elections.

DATA AND METHODS

This study draws upon a number of different primary and secondary data sources to understand the voter experience, ballot processing, ballot challenges, ballot curing, and ballot rejections. It is important to note in advance that much of our analyses focus on August primary and November general elections from 2020 to 2022, although we have some data that go back as far as 2012. Below we provide details about each data source.

Voter-Level Ballot Information

Analyses presented below draw upon several voter-level data sets from the Secretary of State used to construct a longitudinal voter-level file: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022; List of Recipients of Signature Update Requests in November 2022. Combined, these data files provide voter-level information such as name, voter ID number, ballot ID number, self-reported gender, date of birth, date ballot was received by county elections office, indicator if the ballot was rejected, information about the reason a ballot was rejected, information on timing of cure notice, and an indicator that the ballot was cured.

The project team used these data to construct a longitudinal data file following voters from 2020 through 2022, with a focus on the August primary and November general elections from 2020 to 2022. Our analytic data set contains 16,020,372 ballots cast across the three primary and three general elections in this time period.

Washington State does not collect the racial backgrounds of registered voters. By contrast, states with histories of Jim Crow voting laws currently collect the racial backgrounds of individuals when they register to vote, to ensure ongoing state compliance with the U.S. Voting Rights Act. To understand the racial backgrounds of Washington State voters and registrants, therefore, we use Bayesian Improved Surname Geocoding (BISG) statistical modeling. BISG is the premier technique used to estimate the racial backgrounds of individuals in situations where there is no self-reported racial background data. BISG is used routinely in major civil rights and redistricting litigation at the state and federal levels, as well as in cutting edge research across a host of academic fields (Barreto et. al., 2022; DeLuca and Curie, 2022; Decter-Frain et. al., 2023; Fiscella and Fremont, 2006; Grumbach and Sahn 2019; Imai and Khanna 2016).

BISG uses individuals' surnames and geographic locations to statistically estimate the probability that each individual fall into a given racial category (Asian American, Black, Hispanic, or White). Specifically, we take each individual's surname and check it against the Decennial Census Surname Files, which are lists provided by the U.S. Census Bureau of nearly all surnames of Americans—along with the percentage of people with that particular surname that are of each racial category. Surnames are most informative about Asian American and Hispanic individuals' backgrounds, whereas surnames are less informative in distinguishing White and Black individuals. The surname Rodriguez, for example, is held by about 1.1 million Americans, with about 94 percent of them being Hispanic. For Hispanic and Asian Americans, we are able to predict individuals' racial backgrounds with high precision based on surname alone.

To improve upon surname-based predictions, however, our BISG algorithm gains further information about an individual's racial background by looking at their geographic locations of residence. We first link individuals' ZIP codes to corresponding Census Tracts using a ''crosswalk" file provided by the U.S. Department of Housing and Urban Development's Office of Policy Development and Research (U.S. Department of Housing and Urban Development, Office of Policy Development and Research 2023). In a small number of cases where ZIP codes were not available, we used individuals' county of residence as their location. Then, using individuals' residential locations, we query the U.S. Census to see what percent of people in the individual's Census Tract (an area of around 4,000 residents) are from each racial group. Combined, information about surname and residential location helps us to improve our projections.

In the end, our statistical procedures produce a probability that each individual possesses each racial background. There are "errors" in these probabilistic or predictive calculations, in which an individual is given a high probability of having a certain racial background, when in reality they have a different identity. This commonly occurs when people change their surnames in interracial marriages and for racially mixed individuals. For example, Jake Grumbach – a member of the research team, is biracial, with a Black and a White parent. His surname, according to the Census, is held nearly entirely by White people, which leads BISG to estimate him as having a high probability of being White. It is important to emphasize, however, individual "errors" in probabilities tend to cancel out in the aggregate. While BISG might get some individuals' racial backgrounds "wrong," the average or total of individuals across racial groups is estimated very accurately. Thus, in our analyses below, we aggregate the probabilities of racial background across individuals to the state or county level. By aggregating probabilities across individuals, we account for a good portion of the statistical uncertainty of any individual person's racial prediction. Detailed discussion and an example of BISG calculation are provided in Appendix 4.

Finally, county-level measures of geographic area type (e.g., urban, rural) and of presidential election competitiveness were identified and merged to the longitudinal file.
Below we define key terms and measures used throughout this report.

Term or Measure	Definition
Ballot issuance	Ballots delivered by mail, in-person, or electronically to registered voters.
Cast ballot	Ballots received by county elections offices, entered into VoteWA system, and accepted for counting.
Challenged ballot	Primarily cast ballots that are missing a signature on the envelope or have a mismatched signature on the envelope. A small number of ballots are challenged each election for several other reasons (e.g., voter is deceased, empty envelope, voter name changes, witness signature missing).
Curable ballots	Challenged ballots that the voter is able to "cure" or fix, most often for missing a signature on the envelope, or having a mismatched signature on the envelope.
Ballot cured without notice	Ballots that are recorded as having a missing or mismatched signature on the envelope, but are later cured through secondary review.
Ballot cured with notice	Ballots that are recorded as having a missing or mismatched signature on the envelope, but are later cured through voter response to a notice.
Rejected ballot	Cast ballots that a county canvassing board rejects on the final day to certify the results of the election. Most often these are ballots that arrive late, or those with signature challenges that are not cured the day before election results must be certified.
Race and ethnicity	Imputation using Bayesian Improved Surname Geocoding algorithm to identify probability voter is Black, Hispanic, Asian, or White.
Age	Calculated in years from voter registration data.
Gender	Voter registration indication of female, male, other, or no selection/unlisted.
Geography	Counties are categorized as metropolitan or nonmetropolitan, utilizing U.S. Department of Agriculture's Rural-Urban Continuum codes 2013. See U.S. Department of Agriculture (2020).
Electoral Competitiveness	County-level electoral competitiveness is calculated by taking the absolute value of the difference between the share of the two-party vote for the Democratic presidential candidate in a general election and the share of the two-party vote for the Republican presidential candidate in that election. This measure of competitiveness is bounded between zero and one, with measures closer to zero indicating more competitive elections, and measures closer to one indicating less competitive elections. See Ebner (2021) for more detail.

County-Level Ballot Information

The research team also used publicly available data from the Secretary of State's Elections Data and Statistics website to create a longitudinal county-level file from 2012 to 2022 that contains information on ballots cast, ballots submitted late, and ballots rejected due to signature challenge or missing signature. Data on the reasons a ballot was rejected are only available from 2017 to 2022. As with the voter-level data, measures of geographic area type (e.g., urban, rural) and of presidential election competitiveness were identified and merged to the longitudinal file.

Surveys and Interviews with Voters Whose Ballots Were Rejected in 2022 General Election

To learn more about voter experiences with the ballot return process and how it varies by county of residence, the project team conducted an online survey among voters whose ballots were rejected due

to signature issues in the November 2022 general election. Working with survey research staff at the University of Washington Center for Studies in Demography and Ecology (CSDE), the sampling frame was drawn from voter-level records of the 2022 general election. To ensure voters in each county had an opportunity to participate in the survey, voters were sorted into three groups: residing in a low signature rejection county outside of the Seattle metro area; residing in a high signature rejection county outside of the Seattle metro area; residing in the Seattle metro area. Because initial findings suggest that voters of color experience signature rejections at higher rates than non-Hispanic white voters, the project team chose to oversample voters of colors based on probabilistic race imputations described above. The final sampling frame included 750 voters from low signature rejection counties; 1,110 voters from moderate signature rejection counties; and 1,150 voters from the Seattle metro area.

A short survey instrument was developed in consultation with voting research experts and the advisory committee (See Appendix 5). Letters of invitation were mailed on April 15, 2023, to the 3,000 sampled voters. Invited respondents were asked to complete a 5-minute survey containing about a dozen questions about the voter experience with the ballot curing process, and a set of demographic questions to aid in analysis and matching of the survey data to voter records. A reminder postcard was sent on May 15, 2023. In addition to receiving a $10 gift card, survey respondents were eligible for an iPad raffle at the end of the survey project. Of the 3,000 invited participants, we received 137 notices that the invitation letter could not be delivered. Name and address information submitted through the online survey was used to ensure responses were valid and from the intended voter. The online survey was administered from April 15, 2023 through June 16, 2023, and received 111 valid responses, for a response rate of 3.9 percent (111/2,858). The demographic profile of survey respondents is provided in Appendix 6.

At the end of the online survey, respondents were asked if they would participate in a second in-depth interview to better understand their voting experience and experience with the cure process. Of the 111 valid survey responses, 34 respondents indicated they would be willing to participate in the in-depth interview component of the project. In-depth interviews began on June 20, 2023, and 18 interviews were completed by September 29, 2023. Interviews lasted 20 to 30 minutes, and participants received a $50 gift card after completion of interview. Interviews were conducted over Zoom, where they were recorded and later transcribed with participants' consent. The guide used for in-depth interviews can be found in Appendix 7 and the demographic profile of in-depth interview respondents is provided in Appendix 8. After transcribing interviews, the project team reviewed transcripts and interview notes to identify common threads and themes that emerged from interviews.

Observations and Interviews with County elections Staff

To understand the intricacies of the ballot curing and signature verification process and begin to build relationships with the county elections offices, the project team visited five counties to tour the office space and observe the office activities during ballot processing for the November 2022 general election and the February 2023 special election. Project team members engaged with various county elections staff including each county's auditor, elections manager, and seasonal staff.

The team also completed in-depth interviews with county elections staff from 30 of 39 counties in Washington State between April 2023 and October 2023. Staff from 2 counties declined to be interviewed, and the remaining 7 counties did not respond to the invitation to interview. Participants ranged from King County, the state's most populous, to Garfield County, the state's least populous. Metropolitan and Nonmetropolitan counties from across the state were represented in the interviews,

with 16 of 19 (84 percent) of western Washington counties and 14 of 20 (70 percent) of eastern Washington counties participating.

In-depth interviews were completed and recorded over Zoom, and questions were provided to the participants via email prior to the interview. The initial questions used to guide and structure in-depth interviews with county elections staff can be found in Appendix 9. Interviews lasted between 30 to 60 minutes, and one team member conducted the interview while the other took notes. Participants were prompted to elaborate as much as they would like in their responses to all questions. After conducting interviews, the project team reviewed interview recordings and interview notes to identify common threads and themes that emerged from interviews.

Interviews with Community-based Organizations

The research team examined various networks to produce a statewide landscape of community-based organizations (CBOs) that interact with voters (for voter education, ballot assistance, and potentially with curing efforts). Four statewide organizations were identified for preliminary conversations, and a question guide to understand their work and perspectives in the areas of voter engagement, government and county elections staff interaction, funding, and statewide reach and network was created. During interviews with county elections office officials, the project team also asked staff to identify any local CBOs that work around voter education or get-out-the-vote, as well as any members of their county's advisory committee that consults on elections access for voters with disabilities. In addition to these CBOs, the research team connected with the University of Washington's Tribal Affairs director and SOS staff to brainstorm potential connections related to voter engagement within tribal communities. To avoid potential conflicts of interest, the project team did not engage CBOs or statewide organizations currently involved in litigation with the State of Washington and/or county elections offices around ballot signature processes.

Several key themes emerged that highlighted the challenges CBOs face when engaging voters. First, it is difficult for CBOs to operate in the current political climate, leading many organizations to be cautious in how they engage voting behavior or politically charged issues. Second, we found there to be relatively weak ties in a coordinated, standard fashion between CBOs, county elections offices, and the State of Washington around voting policies and practices. Prior relationships or partnerships between CBOs and government have not necessarily been maintained over the past decade (particularly as a consequence of the COVID-19 pandemic). Lastly, most CBOs involved in voter education were prioritizing other elections-related issues and not focused on rejected ballots. Consequently, the research team will continue to host conversations with CBOs and tribal communities to engage around rejected ballots and ballot design.

Hosted Convenings

The research team hosted three convenings of county elections officials, Secretary of State project contacts, and community-based organization leaders already working with county elections offices to review initial findings from the project's areas of work and collectively prioritize identified key issues for future design. Two were in-person in late July 2023 in Spokane and Seattle, and a third was virtual in mid-September 2023. These convenings provided an opportunity for county elections staff to learn more about the research project, engage preliminary study findings, and develop ideas for policy and practice to improve the voter experience. Across convenings, large and small group dialogue methods were used to build consensus and discuss potential ideas to minimize rejected ballots.

More than 50 elections leaders from more than 25 counties participated in the convenings. As with other engagement activities and primary data collection efforts completed for this project, participants' identities are maintained confidentially. The convenings provided key themes and areas of focus for the study. Lessons and learnings from these convenings also informed the presentation of findings and recommendations below. Appendix 10 provides more detailed reporting of the priority items that emerged at the convenings from participants.

Data Limitations and Caveats

Before proceeding with discussion of study findings, it is important to note a few data caveats or limitations that will place analyses presented below in an accurate light.

First, as noted above, the analyses below focus on voter experiences in August primary and November general elections. Although there are special elections and presidential primary elections at other times of the year, we focused on the two elections that occur in each year and in which voter turnout is highest from year to year.

Second, also noted above, this study only can follow voter-level ballot rejections from 2019 to 2022. Voter-level ballot data are more complete starting in 2020, so voter-level analyses below focus on primary and general elections from 2020 to 2022. Similarly, we have county-level ballot data for August primary and November general elections from 2012 to 2022, but analyses focus primarily on county-level data for 2017 to 2022 where there is information about the reasons a ballot is rejected. While our findings below are consistent across voter-level and county-level data despite the different windows of observation within each, our ability to follow voters' experiences over longer windows of time is limited.

Third, while it would be preferable to have self-reported information about race and ethnic identity, this study relies on imputed race and ethnicity. Our imputation method is limited to making inference about the probability a voter would identify as White, Black, Hispanic, or Asian. This method is unable to make inference about voters who would identify as Native American, many other ethnic identities, or more complex racial and ethnic identities.

Finally, while information presented across voter-level and county-level ballot data are nearly identical, readers may notice slight differences in reported totals or percentages between voter- and county-level data in a given election. These differences across voter- and county-level data are quite minor and do not affect calculation of ballot rejection rates or overall conclusions of the study. Modest differences between voter-level and county-level largely are due to how we shaped voter-level data to focus on ballots rejected for being late, not having signed the envelope, or having a mismatched signature, but also to efforts by county elections offices to correct ballots that were found to be undeliverable after election results were certified, but had been marked "rejected" in when ballot certification occurred.

FINDINGS

Vote-by-mail Process in Washington State

County-level data from the Washington Secretary of State's Elections Data and Statistics system indicates that roughly 43.6 million ballots were cast and received across primary and general elections from 2012

to 2022, (15.5 million and 28.1 million, respectively - see Appendix 11).[1] Voter turnout rates in Washington State elections are quite high compared to other states – with over 70 percent of registered voters statewide casting a ballot in most presidential and congressional year elections since 2012 (Movement Advancement Project, 2023b; Washington Secretary of State, 2023c).

In-depth interviews with voters revealed the popularity of Washington's vote-by-mail system, with voters preferring the convenience and time-saving aspects of vote-by-mail, particularly those households managing complex daily commutes and responsibilities. One voter explained, "I think it's a lot more convenient. And it's like way easier, too. I just feel like if I had to go wait in line to do something I'd be much less likely. And just like I already drop mail at the mailbox anyway, so like, you can just do that. It's easy." Voting by mail allowed for greater accessibility, especially for primary caregivers and those with full-time jobs. Another voter interviewed noted, "It makes it a little simpler if you're busy. I'm a busy mom. I work full time, and so I don't always have time to, you know, go run to the voting station or whatnot."

Voter surveys reveal that about half of voters return their ballots via a drop box and about half return their ballots through the U.S. Postal Service. Interviews revealed voter preference for ballot boxes due to perceptions of greater security. Many voters indicated that they had found a ballot box that was convenient and anticipated using this same drop box location in future elections. A voter explained, "I feel it's way more secure when I drop it in the drop box because, in my eyes, no one else is putting their hands on it before it gets to the people that are like working in the election that are meant to see it." Other voters were quite comfortable returning their ballot through the Postal Service. Another noted, "I trust my mailman, I trust in the mail system. So, I feel like it should be secure and not tampered with. Same thing with dropping in the drop box. I don't feel like someone should be breaking into them, and they're checked regularly." Whether by drop box or mail, surveys also suggest that a large share of voters return their ballot in the manner that is most convenient. About eighty percent of survey respondents indicated convenience to home, work, school, and household errand stops determined where and how they returned their ballot (see Appendix 13).

Interviews with county elections staff revealed substantial variation in resources and staff available to process mailed ballots. As should be expected, larger counties hire more elections staff than smaller counties. The more populous counties in Washington State (those with 250,000 or more residents) reported having large staffs ranging from 9 to 74 full-time permanent election staff; smaller counties (those with fewer than 250,000 residents) often reported having just one or maybe a few full-time permanent staff members overseeing elections. Four counties reported having part-time permanent staff members and many smaller counties would draw staff from other county agencies temporarily to assist with elections work. More populous counties also hired a larger number of seasonal staff during elections, whereas smaller counties typically hired fewer seasonal staff.

There is evidence that counties differ in their ability to access technology to support ballot processing. Only half of all counties interviewed used sorters to process ballots, which can support staff efforts to organize and scan ballots and complete first-pass signature verification. Many counties that currently do not have a sorter indicated they would like one, but several counties indicated they were not likely to acquire a sorter on their own. For this latter group, physical space constraints and costs were a prominent consideration, and many indicated they already had the necessary staff capacity to process the number of ballots cast by voters.

[1] Appendix 12 reports the number of ballots cast drawn from voter-level data, 2020 to 2022.

In our examination of county elections websites in Summer 2022, we identified notable variation in how information was presented to voters, but also what information and resources were presented. Some county websites contained substantial information and resources for voters: clearly marked links to track ballots; dashboards with ballot return statistics; information on the voting process and election security; and live petition information. Other counties provided only election office contact information and links to the VoteWA system. Several counties posted informational videos to describe the election process. Nevertheless, we found many county elections websites did not have information about how to cure votes or an active link to VoteWA in easily accessible places. Some counties provided information about their canvassing board and rules guiding board actions, but many counties do not.

Trends in Ballots Cast and Rejected

Again, county-level data reports that 43.6 million ballots were cast and received across primary and general elections from 2012 to 2022. Ballots are mailed or deposited in drop boxes at a fairly consistent rate in the weeks leading up to election day. Typically, there is a large surge in returned ballots occurring in the days just before the election. To demonstrate the timing of ballot returns, Figure 1 charts the timing of when mailed ballots are received by county elections offices for the 2020 (dashed line) and 2022 (solid line) general elections. In the 2020 general election, nearly three-quarters of all ballots cast were received by 5pm on the Friday before election day – not surprising given the unique nature of that presidential election season. By contrast, 50 percent of ballots cast in the 2022 general election arrived in county elections offices after 5pm on the Friday before election day.[2] Survey responses relate to the 2022 general election echo these findings, as roughly 60 percent of voters indicated they submitted their ballot on election day or a few days before (see Appendix 13).

(INSERT FIGURE 1 ABOUT HERE)

Of the 43.6 million ballots cast across primary and general elections from 2012 to 2022, 541,022 were rejected – 1.2 percent of ballots submitted across primary and general elections in this ten-year period.[3] Consistent with expectations noted above, Figure 2 demonstrates that ballot rejection rates are slightly higher in primary versus general elections from 2012 to 2022. Overall, 1.5 percent of all primary ballots cast and 1.1 percent of general election ballots cast were rejected across elections from 2012 to 2022 (see Appendix 11). Although ballot rejection rates for primary elections varied little from 2012 to 2022 (1.4 to 1.6 percent of all ballots cast), the ballot rejection rate in the 2020 general election was about one-third lower (0.3 to 0.4 percentage points) than most other general elections since 2012. Similar patterns are evident when looking at voter-level data on ballot rejections over a shorter window of time (see Appendix 12). Below, we explore the lower rates of ballot rejection in primary versus general election and the uniquely low ballot rejection rate of the 2020 general election in more detail.

(INSERT FIGURE 2 ABOUT HERE)

Figure 3 traces ballot rejection rates from 2012 to 2022 in primary and general elections across metropolitan versus nonmetropolitan counties. Although rejection rates are slightly higher in metropolitan than nonmetropolitan counties over this decade, there are generally only modest differences in ballot rejection rates between metropolitan and nonmetropolitan counties. Moreover, the

[2] Note this figure reflects those ballots where there is a timestamp in the VoteWA data.

[3] Ballot rejection rates in Washington State are generally consistent with rejection rates calculated by researchers examining vote-by-mail processes in other states (see California Voter Foundation 2014, 2020; Smith and Baringer 2019).

trend lines for each type of county track each other closely. Again, there is evidence that ballot rejection rates are higher in primary elections (dashed lines) than general elections (solid lines) across both metropolitan and nonmetropolitan areas.

(INSERT FIGURE 3 ABOUT HERE)

Next, we descriptively examine county-level variation in ballot rejection rates. Appendices 14 through 19 map county-level ballot rejection rates for primary and general elections in 2012, 2016, and 2020. County-level maps show that ballot rejection rates vary quite a bit from county-to-county, region-to-region, and election-to-election over time. Maps indicate that Puget Sound counties such as King and Pierce, which are home to larger, younger, and more diverse populations, often have slightly higher ballot rejection rates than other Western Washington counties. Similarly, there is some indication that counties on the eastern edge of the state can have slightly higher rates of ballot rejection than those in the central portion of the state. In all these instances, however, the differences in ballot rejection rates often are a few tenths of a percentage point. Nevertheless, maps of county-level ballot rejection rates reveal quite a bit of variability within and between regions of the state from election to election.

Similarly, Appendix 20 shows that the mix of counties with the highest and lowest rejection rates for general elections in 2012, 2016, and 2020 varies quite a bit. Even counties with higher than average ballot rejection rates in an election generally are only a few tenths of a percent above the statewide county average for a given election. Also underscoring how ballot rejection rates can shift within a county over time, Appendix 20 reveals a few instances when a county is among the highest rejection rates in one election and then among the lowest in another. For example, Benton County had a ballot rejection rate of 0.3 percent in the 2012 general election, but a rejection rate of 2.8 percent in 2016. Similarly, Pend Oreille County had a ballot rejection rate of 1.9 percent in the general election of 2016, but a rate of 0.3 percent in the general election of 2020.

Combined, these results suggest that there are narrow differences in ballot rejection rates between metropolitan and nonmetropolitan counties, but little evidence there are counties in Washington State with ballot rejection rates that are persistently much higher than statewide or regional ballot rejection rates across primary and general elections since 2012.

Reasons Ballots Are Rejected

As noted, this study focuses on ballots rejected for three primary reasons: missing a signature on the envelope; signature on the envelope is determined not to match signature on file; and, postmarked after election day or deposited in a drop box after 8pm on election day. Combined, these three reasons for rejection account for over 95 percent of all rejected ballots in primary and general elections.

Interviews with county elections officials indicate that election staff participate in signature verification and are often primarily responsible for oversight of the process. These staff are required to take the Secretary of State (SOS) signature verification training. A small number of counties supplement this training with internal training, or other professional development opportunities relevant to signature verification and election integrity like implicit bias training. Although permanent elections staff conduct signature verification in a large majority of counties, interviews suggested that seasonal staff, staff from the auditor's office or county department, and canvassing board members play an important role in verification as well in counties throughout the state. While all canvassing boards review challenged ballots before formally rejecting a ballot, about one-quarter of counties reported that their canvassing board takes recommendations about ballot rejection from permanent election staff.

Table 1 reports the percentage of all ballots rejected overall and by reason rejected using county-level ballots data from 2017 to 2022. Table 2 reports the percentage of all rejected ballots, which were missing envelope signatures, had envelope signatures that did not match signatures on file, or arrived late across primary and general elections using county-level ballots data from 2017 to 2022.[4]

(INSERT TABLE 1 ABOUT HERE)

Several findings stand out when looking at Tables 1 and 2. First, a very small percentage of all ballots cast are rejected for missing a signature or having a signature that does not match what is on file – usually about 0.5 to 0.6 percent of all ballots cast. Similarly, no more than 1 percent of all ballots arrive late to county offices in any given election – and in many elections the percentage of cast ballots arriving late is well below 1 percent.

Second, consistent with expectations about the relative salience of primary election dates, we find that slightly more than half of all ballots rejected in primary elections are rejected because they arrive late to county offices. For example, Table 2 shows that 52.2 percent of ballots rejected in the 2022 congressional midterm primary election were rejected because they were received after 8pm on election day or were postmarked after election day, lower than most election years since 2017 where data is available and down nearly 20 percent from the 2019 off-year primary election. The degree to which primary election ballots are rejected for being late suggests the need for additional voter education and awareness activity in the weeks leading up to August primary elections.

Third, in presidential and congressional general election years ballots most often are rejected for signature mismatch. Column 4 of Table 2 shows that 74.6 percent and 62.1 percent of general election ballot rejections were due to signature mismatches in 2020 and 2022, respectively. Slightly more than half of ballots rejected in the congressional general election of 2018 were late. Combined, these findings are consistent with expectations that presidential elections may engage higher shares of voters who are new to voting or vote less frequently and thus are less familiar with vote-by-mail processes. Off-year general elections, like primary elections, may not generate the media or public attention that presidential general elections do, which may result in a higher share of ballots returned late.

Finally, ballots are far less likely to be rejected because the voter did not sign the ballot envelope, than because the signature does not match or the ballot is received late. In most primary and general elections since 2017, less than 15 percent of rejected ballots were missing a signature on the envelope (see columns 1 and 2 in Table 2). Nevertheless, unsigned ballots compose a sizeable share of curable ballots in most elections, sometimes roughly one-third of all curable ballots, which makes finding strategies for reducing the share of unsigned ballots an important task.

(INSERT TABLE 2 ABOUT HERE)

Most voters interviewed indicated that their ballot was challenged due to a mismatched signature, but relatively few voters interviewed were aware that the signature most likely matched to the ballot envelope signature captured at the Department of Licensing when they registered to vote. Even still, voters understand that their signature changes over time. As one voter interviewed put it, “It didn't

[4] Appendix 21 contains total numbers of ballots rejected and by reason using county-level ballots data from 2017 to 2022. Figures here mirror voter-level data examining the reasons ballots are rejected in Appendices 22 and 23.

match what I have on my driver's license, which is back from when I was sixteen and didn't know what my signature would be. So, I just wrote my name down." Another voter observed, "I got married and changed my name, and I don't sign my name very often, and so I don't really have a signature for my new last name. And so, I think whenever I sign it, I just kind of sign it without having like an established signature in my mind. And so, every time I think it turns out a little different, and so pretty much, I think every time I find I do it I get it back, saying that it's challenged." Voters also noted that they don't have a "standard" signature. Rather, the signature used on their driver's license may be quite different from everyday signatures, such as those used when signing credit card receipts. County elections staff echoed this latter observation, as many voters may use nicknames or shortened versions of complex surnames in daily life – but those versions of their signature do not match what is on file at the county elections office.

Figures 4 through 9 map county-level percentages of ballots rejected for no signature, a signature that does not match, or was returned late in the 2020 and 2022 general elections. As is the case for overall ballot rejection rates, these figures do not show many evident spatial patterns in the reasons ballots are rejected across the 2020 and 2022 general elections. It appears that rates of rejection from unsigned ballots vary across the eastern and western portions of the state, although rates appear slightly higher in coastal counties and in the Tri-Cities and neighboring Yakima and Walla Walla Valleys (see Figures 4 and 5). In contrast, however, rates of rejection due to the absence of a signature match or due to being received late vary quite a bit by county geography between these two general elections (see Figures 6 through 9).

(INSERT FIGURES 3 THROUGH 8 ABOUT HERE)

It also may be that rejection rates differ depending on the nature of the election or its competitiveness. When elections are more competitive, voters may perceive their votes matter more than in less competitive elections. Competitive elections also may foster more outreach about ballot curing from campaigns and community-based organizations. As a result, voters casting mailed ballots in competitive elections may be more likely to vote early and more likely to be careful to properly complete their ballot envelopes.

Figure 10 charts ballot rejection rates against county-level measures of presidential competitiveness in general elections from 2012 to 2020.[5] Overall, there appears to be a slight negative relationship between competitiveness and ballot rejection rates in presidential general elections (Pearson correlation coefficient of -.09). This provides very modest evidence that ballot rejection rates can be higher in counties when elections are more competitive. As noted, competitive elections engage voters who may be new to or less familiar with vote-by-mail, thereby increasing chances that they may not sign their ballot correctly and return it on time. It also is important to note, however, that there are only a handful of counties in Washington State where presidential elections were within 10 percentage points (55 percent versus 45 percent of the two-party vote), suggesting that sharper local measures of electoral competitiveness may be needed to understand the relationship between ballot rejections and the electoral context in which ballots are cast.

(INSERT FIGURE 10 ABOUT HERE)

[5] Appendices 24 through 26 chart ballot rejection rates by reason ballot was rejected against county-level measures of presidential competitiveness from 2020.

Ballot Rejection Race, Gender, Age, and Geography

Below, we examine the prevalence of rejected ballots across imputed race and ethnicity, gender, and age for elections occurring from 2020 to 2022. Voter-level data from 2020 to 2022 contain roughly 16 million ballots, which allows us to discern differences in ballot rejection rates across many different population subgroups with great statistical precision. Often, however, statistically significant differences are modest in size or meaning. Discussion of findings below, therefore, highlights substantive and statistical significance.[6]

Ballot Rejection Rate. Table 3 reports the percentage of all ballots cast that were rejected across imputed race and ethnicity, gender, age, and metropolitan versus nonmetropolitan county location. Tables 4 through 6 examine the percentage of ballots rejected for no signature, a signature that does not match, or returned late in primary and general elections from 2020 to 2022 across imputed race and ethnicity, gender, age, and metropolitan versus nonmetropolitan county location.

Consistent with findings above, there is evidence that voters of color have higher ballot rejection rates in primary and general elections than White voters from 2020 to 2022. For example, Hispanic and Asian voters had mailed ballots rejected at twice the rate of White voters in the 2020 General Election (1.3 percent and 1.2 percent versus 0.6 percent, respectively, see the top panel of Table 3). Although ballot rejection rates between Black and White voters are more comparable in 2021 and 2022, Black voters experienced ballot rejections in the 2020 General Election at a rate about fifty percent higher than White voters (0.9 percent versus 0.6 percent, respectively).

(INSERT TABLE 3 ABOUT HERE)

Descriptive analyses suggest self-identifying male voters have slightly higher ballot rejection rates than self-identifying female voters in both primary and general elections. For example, 1.3 percent of all ballots cast by male voters were rejected in the 2022 general election compared to 1.1 percent of ballots cast by female voters (see the second panel of Table 3).

Consistent with expectations in the research literature, younger voters have a much higher ballot rejection rate than older voters. Nearly 5 percent of voters 18 to 25 years old had ballots rejected in the 2022 general election, compared to 0.8 percent of voters 46 to 65 years old and 0.3 percent of voters 66 or over (see column 6, third panel of Table 3). Such differences persist for most primary and general elections from 2020 to 2022, except for the 2020 general election, where only 2.5 percent of voters 18 to 25 had their ballots rejected (see column 2 in Table 3).

Findings around the metropolitan or nonmetropolitan location of voters are consistent with county-level analyses presented above. Except for the 2021 general election, voters in metropolitan counties are more likely to experience ballot rejection than voters in nonmetropolitan counties – although the differences in ballot rejection rates between metro and nonmetro areas is only a few tenths of a percentage point in most elections (see bottom panel of Table 3). Nevertheless, slightly higher rates of ballot rejection in metropolitan counties reflect, in part, differences in the composition of voting-age populations in urban versus rural areas. Metro areas in Washington State tend to have younger and more racially diverse voting-age populations than rural areas.

[6] The notes fields in Tables 3 through 6 describe in detail which sub-group differences do not reach conventional levels of statistical significance.

Missing Envelope Signature. Although only a small percentage of ballot envelopes are not signed when they are returned, Table 4 reveals several statistically significant differences across voter demographic sub-groups (see the bottom of Table 4 for more detail). It is important to note, however, that even when observed differences in the share of ballots cast without an envelope signature are statistically significant, the differences are often of modest size substantively. For example, there are several instances where there are statistically significant race differences in the rate at which ballots are rejected because there is no signature on the envelope. In the general election of 2020, Hispanic and Asian voters were far more likely to submit a ballot without an envelope signature than White voters (0.17 percent and 0.14 percent of all ballots cast versus 0.09 percent, respectively, see the top panel of Table 4).

(INSERT TABLE 4 ABOUT HERE)

Male voters are consistently more likely to return a ballot envelope without a signature than female voters in primary and general elections since from 2020 to 2022. In the 2022 general election, 0.18 percent of all ballots cast by male voters did not have a signed envelope, compared to 0.12 percent of ballots cast by female voters (see column 6, the second panel of Table 4).

Perhaps reflecting unfamiliarity with vote-by-mail, younger voters are more likely to return a ballot without an envelope signature than older voters. Roughly 0.3 percent of voters 18 to 25 years of age return a ballot without a signature in most elections from 2020 to 2022, compared to about 0.1 percent for voters 66 years of age and older (see third panel of Table 4).

Even though voters in metropolitan counties are more likely to have their ballots rejected, voters in nonmetropolitan counties were slightly more likely to return a ballot envelope without a signature in 2021 and 2022 (see bottom panel of Table 4). As in other demographic comparisons, however, the percentage point differences between rural and urban voters are relatively small – just a few one-hundredths of a percent.

Signature Mismatch. Table 5 provides evidence of consistent and statistically significant race and ethnic differences in the share of ballots with signature mismatch (see top panels of Table 5). [7] In the general election of 2022, Hispanic and Asian voters were roughly twice as likely to have their ballots rejected for signature mismatch than White voters (1.0 and 1.2 percent versus 0.6 percent, respectively). Black voters also had slightly higher rates of ballot rejection for signature mismatch than White voters in the 2022 general election (0.8 versus 0.6 percent respectively). Similar, but smaller substantively, race and ethnic differences in signature mismatch rates are present in other primary and general elections.

Interviews with county elections office staff and voters experiencing ballot rejection suggest that higher rates of signature mismatch among Hispanic and Asian voters likely are linked to two key concerns. First, ballot materials, including the ballot envelope, may not be translated in languages other than English, which increases the chance of ballot rejection for voters whose primary language is not English. This also may partially explain findings reported above that voters of color were more likely to submit a ballot

[7] Appendix 27 reports the imputed racial, age, and gender composition of voters casting ballots and having ballots rejected in the 2020 and 2022 General Elections. Appendix 28 reports the imputed racial, age, and gender composition of voters casting ballots and having ballots rejected in the 2020 and 2022 Primary Elections. Appendices 30 through 32 report the percentage of all ballots rejected for missing a signature on the envelope, mismatched signature, and being received late across imputed race, age, and gender for primary and general elections from 2020 to 2022.

without an envelope signature than white voters. Second, Hispanic and Asian voters may be more likely to use shortened versions of complex middle names and surnames for signatures in daily life than White voters. Shortened signatures in these instances, however, may not match the full signature on file.

(INSERT TABLE 5 ABOUT HERE)

There is evidence that male voters are slightly more likely to have ballots rejected for a signature mismatch than female voters, but the differences often are just a few hundredths of a percentage point. In the 2022 general election 0.8 percent of male voters had a ballot rejected for a signature mismatch compared to 0.6 percent of female voters (see second panel of Table 5).

Although signature mismatch tends to be the most common reason ballots are rejected across all age groups in elections from 2020 to 2022, younger voters are much more likely to have ballots rejected due to signature mismatch than older voters (see third panel in Table 5). The 2022 general election is a case in point. Whereas only one-tenth of one percent of voters over 65 had ballots rejected due to signature mismatch, 3.2 percent of all voters 18 to 25 years of age had ballots rejected due to signature mismatch. Likewise, voters 18 to 25 experienced signature mismatch in the 2022 general election at a rate three times that of voters 26 to 45 years of age (3.2 percent versus 1.1 percent, respectively).

The bottom row of Table 5 also suggests that while voters in metropolitan areas are more likely to have their ballots rejected due to signature challenges than voters in nonmetropolitan areas, these differences are quite modest in size.

Arrived Late. Finally, Table 6 examines demographic sub-group variation in the percentage of ballots cast that arrive late. Several findings stand out. First, there are several primary and general elections between 2020 and 2022 where Hispanic and Asian voters are slightly more likely to return ballots late compared to White voters. These race and ethnic differences are larger in primary elections than general elections, but often are quite small substantively. Second, even though ballot rejection rates are higher for male than female voters, there are only very modest gender differences in the share of ballots arriving late. Next, there is evidence in the third panel of Table 6 that younger voters are slightly more likely to return ballots late, compared to older voters. Finally, in most elections between 2020 and 2022, voters in metropolitan counties were more likely to return their ballots late compared to voters in Nonmetropolitan areas, but the differences are quite modest in size.

(INSERT TABLE 6 ABOUT HERE)

Frequency of Ballot Rejections

Voter-level ballot data available can cast some insight into whether voters are likely to experience ballot rejection more than once over primary and general elections from 2020 to 2022, although ideally a longer window of observation would be available. While voter-level data presented in Table 7 indicates that 68.4 percent of registered voters cast a ballot in more than one primary or general election from 2020 to 2022, but just 0.2 percent of those voters experienced ballot rejection more than once in that time for any reason. Moreover, 0.1 percent of voters casting more than one ballot between 2020 and 2022 were rejected more than once due to a signature challenge of some type. These limited data suggest that most voters experiencing multiple rejections are not consistently encountering repeated signature challenges. Nevertheless, roughly 1 in 2 voters experiencing recurrent ballot rejections experienced signature challenges at least more than once.

(INSERT TABLE 7 ABOUT HERE)

Table 7 examines the prevalence of multiple ballot rejections across voter demographic characteristics and geographic location. As with ballot rejections overall, there is evidence that voters of color may be more likely to experience frequent ballot rejection than White voters. For example, while Hispanic and Asian voters compose about 6 percent of all voters casting multiple ballots between 2020 and 2022, Hispanic and Asian voters compose roughly 8 percent of voters experiencing multiple rejections in that time.

Gender differences apparent in ballot rejection rates in any given year also are present when looking at recurrent rejections. Whereas 47.8 percent of men cast more than one ballot between 2020 and 2022, roughly 55 percent experienced multiple ballot rejections.

Finally, consistent with evidence that younger voters are more likely to have a ballot rejected, Table 7 indicates that voters 18 to 45 years of age also are disproportionately likely to have their ballots rejected more than once. Voters 18 to 25 years of age represent just 9.6 percent of all voters who cast more than one ballot from 2020 to 2022, but composed 30 percent of all voters who experienced multiple ballot rejections. In addition, there is evidence in Column 3 of Table 7 to indicate that voters 18 to 25 years of age compose nearly 40 percent of all voters experiencing multiple ballot rejections due to repeated signature challenges. Similarly, about 31 percent of voters casting multiple ballots were ages 26 to 45, but 40 percent of voters experiencing multiple ballot rejections were ages 26 to 45. Voters in this age group compose 42.1 percent of all voters experiencing multiple ballot rejections due to repeated signature challenges.

Ballot Curing

Voters with challenged ballots by law receive a mailed notice from the county elections office inviting the voter to correct or "cure" the ballot and outlining the process to cure the ballot. By law, voters who have not cured their ballot within 72 hours of election certification must receive a phone call from their county elections office with notification of a challenged ballot. Interviews with county officials indicate that roughly two-thirds also contact voters by email, when an address is provided or on file. A small number of counties also attempt to reach voters via text message, when possible. Some counties utilize all possible means of outreach within 24 hours of a ballot being challenged, while others will stagger mode of outreach communication over a short period of time. All counties also noted efforts to reach voters – often by phone – again three days before certification of the election as required by state law.

To understand the extent to which voters cure ballots and insights into why voters may or may not cure their ballots, this section of the report examines voter-level data from 2020 and 2022, voter surveys, in-depth interviews with voters, and in-depth interviews with county elections staff.

Table 8 reports the total number of curable votes, the percent of those ballots cured (either by secondary review or through response to notices), and the percent of ballots cured by a voter response to a notice for primary and general elections from 2020 to 2022. It is important to note that although curable ballots are primarily composed of those lacking an envelope signature or where the signature did not match records on file, there are a small number of ballots that are challenged for other reasons and may be cured by the voter (e.g., witness signature is missing for a voter who cannot sign, voter moved addresses, no signature on file, etc.). The total number of "curable" ballots presented includes challenged ballots that are cured and those that are not, so curable ballot figures reported below are larger than the number of rejected ballots discussed above.

Table 8 shows that of the roughly 16 million ballots returned across primary and general elections from 2020 to 2022, about 230,000 are challenged and eligible to be cured – roughly 1.4 percent of all ballots cast. Of these curable ballots, about 60 percent (see columns 3 and 4) are cured before county elections officials submit election results to the State. Cure rates observed in Washington State are consistent with those observed in other vote-by-mail states (see California Voter Foundation 2020). The vast majority of cured ballots – 82 percent – are done so through voter actions or efforts, which underscores the importance of outreach efforts to voters with rejected ballots. It remains the case, however, 0.6 percent of all ballots cast in primary and general elections from 2020 to 2022 were rejected for signature reasons and not cured.

(INSERT TABLE 8 ABOUT HERE)

Consistent with evidence above that ballot rejection rates and reasons for ballot rejection observed in the 2020 general election differ from other elections in the past decade, Table 8 shows that a slightly higher share of ballots was cured through voter action in the general election of 2020 than in off-year primary or general elections in 2021 or 2022 (see columns 5 and 6).

Consistent with these figures, slightly less than half of voters interviewed and surveyed reported to have completed the process to cure their ballots (see Appendix 33). Voter interviews and surveys offered a consistent set of reasons why they chose not to cure their ballot. For example, it was common for voters to indicate that they received notification about their challenged ballot after election day. In these instances, voters were already aware of which candidates and measures would likely win, and that successfully curing their ballots would not have changed the outcomes. So, despite casting a ballot, they did not pursue the cure process. As a voter explained, “Now, I didn't remediate it because my vote would not have changed any of the outcomes in that election, and it was kind of a hassle to figure out where to go and what to do.”

County elections officials also consistently observed that ballot curing rates likely vary depending on when ballots arrive, confirming that voters returning ballots near or on election day may not receive notice about a challenged ballot until after the election has occurred and projected results are shared in the media. County notices inviting voters to cure ballots generally are mailed within a day of a ballot being challenged for signature purposes. Given the time it may take to process ballots, review signatures, and send cure notices, it may be unlikely that many voters returning ballots by the Friday before election day would receive a cure notice before the media announces projected election returns. As one county elections official described, “once you publish the results, if the results are enough one-sided so that you know what the results are going to be . . . it's harder to get people interested in curing their signatures or signing when they forgot to sign, if the outcome of the election is already known.”

As with other ballot materials, cure letters in English may not be accessible to voters for whom English is not their primary language. When asked if the instructions on the cure letter were easy to understand, a voter said, “Not so much... English was not my first language. So, I think just having language accessibility or, yeah, just a translated document, it was delivered in only English. And they had said that I just needed to rewrite my signature on that sheet and return it, which I attempted to do. So, it was, I think, a little challenging.

Some voters indicated they were too busy to complete the cure process. A voter described the challenge of appearing in person to cure their ballot, “And they wanted me to do some process to verify my

signature. And that meant like going to another location to do that. It wasn't a simple process, so I didn't. I never did it. I don't have the time." Echoing this sentiment, others expressed their intention to cure their ballot, but then noted they forgot about it amidst the busy aspects of daily life.

Finally, voters interviewed for the project noted that the ballot curing process could be confusing or off-putting, which deterred them from curing their ballots. One voter observed, "I think the process as a whole makes sense. I just wish, I don't know if there's a, if there is a better way to communicate it. But I did get kind of confused by what the letter was for, so I don't remember if it said like, I don't know. It just looked very serious, and it kinda spooked me for a second, so I didn't really know what was going on. So, I guess that would be my only complaint, but like besides that it was pretty straightforward."

Descriptive analysis of ballot curing rates identifies important demographic variation consistent with these impressions of why curable ballots are (or are not) cured. First, we find evidence that White voters are slightly more likely to have their ballots cured than Hispanic and Asian voters (61.1 percent versus 53.3 percent and 50.7 percent respectively, see top panel of Appendix 35). Women are slightly more likely to cure ballots than men (60.2 percent versus 57.1 percent respectively). Consistent with expectations about age and familiarity or experience with vote-by-mail, roughly two-thirds of voters 46 years of age and older cure their ballots, compared to only 49.0 percent of younger voters. Finally, descriptive evidence suggests that voters in nonmetropolitan areas are slightly more likely to cure their ballots than voters in metropolitan areas (64.8 percent versus 58.8 percent respectively).

Voter-level data also confirm impressions that the timing of a ballot's return matters, as 55.3 percent of challenged ballots in the 2020 general election and 73.7 percent of challenged ballots in the 2022 general election arrived after 5pm on the Friday before the election. Notices to these voters likely would not be received in the mail until just before election day at the earliest. To consider the extent to which notices of challenged ballots are sent near or after election day, therefore, Figure 11 traces the timing of cure notices to challenged ballots for the 2020 general election. Overall, 46.2 percent of challenged ballot notices in the 2020 general election were sent to voters after 5pm on Friday before the election. Although not shown here, 66.8 percent of challenged ballot notices in the 2022 general election were sent to voters after 5pm on Friday before the election.

(INSERT FIGURE 11 ABOUT HERE)

Signature Updates

Throughout interviews and engagement at project convenings, elections office staff from many counties emphasized that they are unable to use past signatures on previously accepted ballots which would be helpful to enter into individual voters' records. Additionally, counties noted that the quality of signatures collected by the Department of Licensing (DOL) can sometimes be poor and the electronic capture may not compare well to what a voter signs on paper. To remedy some of these concerns about signature quality and capture, county elections offices have the discretion to invite voters to update the signature on file, particularly in a case where the signature is determined to match records on file, but a secondary review was needed to verify a signature match or the signature on file was dated.

Many county elections officials indicated their offices were beginning to invite voters to provide updated signatures typically by sending a form letter post-election through the VoteWA platform. When asked about signature update letters, one county elections official explained their approach, "We are sending newly redesigned signature update letters . . . these signature update letters have three signature spaces for the voter to provide several samples of their signature. We also have a webpage

dedicated to this project that explains why and how you should update your signature with samples of the letter."

County elections officials described sending signature update letters to individuals whose signature was accepted, but may have been dated, and where a new signature would be helpful for future verification. One county elections official described the process used in many counties across the state, "During the signature verification process we will flag records where it appears the voter's signature is changing and could use an update. We do this by checking a signature update box in the verification screen. After each election is certified, we will send out a batch of signature update letters." Another county official echoed this process, "there's a button in VoteWA that you can click and it allows you to do that [send the signature update letter]. We also have a policy we've implemented to make sure we're doing that for the right reasons. We're not looking at things based on someone's age or race, but certainly at the quality of the [signature] image, that's the reason why we do those things." Similarly, another county elections official noted that county elections staff will "see one [signature] that they could tell maybe has gotten older . . . it looks like it needs an update. They will make a photocopy of it, put it in my bin, and then I generate the letter and send it out trying to get an updated signature."

Although examining signature update forms was not part of the original scope of work for this project, Appendix 36 briefly examines the percentage of voters who received signature update requests in the 2022 general election. A few findings stand out and provide insights upon which subsequent research can be based. First, about 34,000 signature update requests were sent after the 2022 general election – equivalent to roughly 1 percent of all ballots cast. While this does not seem like a practice that reaches lots of voters at first pass, there were 53,232 ballots statewide that were challenged for signature mismatches in the 2022 general election. Thus, it appears signature update letters are being sent in rough proportion to the percentage of ballots cast that are rejected for signature mismatch.

It becomes important, therefore, to consider which voters received signature update letters. Here, the study team completed a brief examination of the demographic characteristics of those receiving signature update requests. These initial descriptive findings suggest that requests are sent in proportion to which curable ballots are prevalent. For example, 7.9 percent of Asian voters had curable ballots due to signature issues in the 2022 general election and 8.6 percent of signature update letters were sent to Asian voters at the end of the same election. Similarly, roughly 92 percent of all curable ballots are in metropolitan counties and about 95 percent of signature update letters were sent to voters in metropolitan counties.

It is worth noting, however, that while most rejected ballots cast by younger voters are for signature mismatch, it does not appear that younger voters are particularly likely to receive signature update letters. In the 2022 general election, 22.4 percent of all curable ballots were cast by voters 18 to 25 years of age, but less than 15 percent of signature update letters were sent to voters 18 to 25 years of age.

Since signature update requests are a relatively new tool for reducing the number of challenged ballots and offered at the discretion of county elections offices, additional research is necessary to explore how counties make use of this tool and whether it leads to lower probabilities of having a ballot challenged.

BALLOT ENVELOPE DESIGN

Interviews and convenings with county elections officials consistently pointed to ballot envelope design as an area where voter materials might be improved to reduce the number of ballots returned late, unsigned, or with a mismatched signature. Several county officials noted that the required declaration takes up too much real estate on the envelope, which limits design options that would help ensure voter signed the envelope properly. Consistent with reports of voter confusion about the cure process, county elections officials observed the voter declaration on both the envelope and cure letter is written in formal language that may not be accessible to all voters. Research with voters suggests that overly "official" sounding language can be intimidating to less-engaged voters; the same population most likely to forget to sign the envelope (Center for Civic Design, 2020).

The project team, led by the Center for Civic Design, completed a systematic review of county return envelope design for counties with the lowest challenge rates in the 2022 general election (Franklin, Ferry, Clallam, Greys Harbor, Pacific, Whatcom, Chelan, Pend Oreille, Pierce, Skagit, Cowlitz, Thurston, Island, Asotin, and Klickitat), which involved categorizing layout structures and analyzing specific sections within each envelope: declarations, signature, witness, postmark and signature reminders, and county information. Analysis of envelope design looked for layout commonalities across counties with the fewest challenged ballots and identified 8 distinct layout structures. Within these different layout structures, certain envelope features embodied design principles that are successful in highlighting important information in a more easily digestible manner for the voter. Appendix 37 contains a thorough analysis of the 15 county ballot envelopes.

In the end, the project team's analysis led to the development of five design principles that should improve how voters engage return envelopes and reduce the number of challenged ballots:

Principle #1 - Make the text easier to read. Use the guidelines for plain language to simplify text and reduce the number of words.

- **Why:** Having fewer words makes it easier to understand. It also allows for more white space around each block of text, so each element on the envelope stands out. This applies especially to the declaration.

Principle #2 - Use visual cues to draw attention to important information. Use text size and bolding and visual elements like icons or boxes to make the most important things on the envelope the most visually prominent. Use icons to reinforce meaning, for example a check mark for actions a voter must take.

- **Why:** When voters don't see important information or areas for them to sign and date the envelope, their ballot might not be counted. This applies especially to the signature area.

Principle #3 - Create space between sections. Use spacing and layout to make sure each part of the envelope has its own space.

- **Why:** White space is a buffer between each element on the envelope, helping voters see everything clearly.

Principle #4 - Create a clear layout. Use a grid or column margins to align elements on the envelope so that it looks orderly and creates a flow through the information and actions needed.

- **Why:** Combined with space between sections, this helps voters scan the information easily.

Principle #5 - Put information where voters will find it. Arrange instructions and warnings so that they are in a place where they are most likely to be seen at the right time.

- **Why:** Voters are focused on their ballot, not memorizing the process for packing the envelope. When information is in the right place, they read it "just in time." This applies especially to the reminder to sign and date the envelope and return deadlines.

Figure 11 draws upon these design principles to reimagine a ballot return envelope that could be standardized across the State of Washington.

(INSERT FIGURE 11 ABOUT HERE)

RECOMMENDATIONS

Analyses of election and ballots data, interviews and surveys with voters, interviews and engagement activities with county elections offices, conversations with community-based organizations, and analyses of ballot envelope design yield many recommendations intended to reduce the number of ballot challenges and increase ballot cure rates as well as overall improve the voter experience in Washington State. Below, we organize into those relating to future research, engagement with community-based organizations, elections administration, and state policy.

Future Research

Although this project completed a thorough review of ballot challenges, cures, and rejections, there are a number of important areas for continued and future research:

- Continue to examine racial and ethnic differences in ballot rejection rates within counties and across Washington State.
    - **Why:** In-depth analysis of voter data shows persistent variation in ballot rejections by racial and ethnic groups. Ballot data, however, provide only limited insight into the factors behind such disparities. Greater attention should be paid to process-based and structural causes of race and ethnic disparities in ballot rejections. Continued monitoring of differences by race is critical to improving the voter experience in Washington State.

- Examine use of innovative ballot processing and notification practices, such as automatic signature verification for the 'first-look' at a signature, text messaging for status updates and voter ballot curing, online ballot casting and online signature curing, as well as alternative ways to verify signatures (such as facial recognition or PINs).
    - **Why:** Advances in technology may create opportunities to improve ballot processing and ballot curing rates. But any new practices must remain safe and reliable, be within legal bounds, and be equitable for all demographic groups.

- Collaborate with county elections offices to measure the impact of innovative practices to reach voters, such as ballot envelope redesign, modified cure letter formats, or introduction of new ballot processing technology.
    - **Why:** County elections offices welcomed opportunities to partner with external researchers to learn more about the impact of innovative practices.

- Investigate the impact over time of mailed signature update letters on the voter experience and likelihood of having a signature challenge.

- **Why:** Signature update letters are a new and important way that county elections offices might reduce the likelihood of signature challenges. Understanding whether signature update letters are targeted at voters most at-risk of a signature challenge (e.g., younger voter, voter of color, signature on file hasn't been updated for some time) will help generate insight into their downstream impact on ballot signature challenge and rejection rates.

- Pursue additional research in collaboration with tribal communities to identify obstacles and barriers facing Native American voters in Washington State, perhaps with a focus on best practices for coordinating work around voter education and drop box access with county elections offices.
  - **Why:** Engagement with county elections offices and community-based organizations (including members from several tribal nations) emphasized the unique challenges facing tribal communities when it comes to voter education and turnout.

- Fund the work of the Washington State Election Database at the Center for Studies in Demography & Ecology at the University of Washington (CSDE) to maintain historical ballots data and work with the Office of Secretary of State to improve data quality.
  - **Why:** High-quality data is central to developing and evaluating innovative policy and practice intended to reduce ballot rejections.

- Conduct specific testing to answer the following questions:
  - How is the timing or method of ballot cure notice delivery related to the likelihood a challenged ballot is cured? Do methods of ballot cure notice, other than mail, increase the likelihood a challenged ballot is cured?
    - **Why:** This project finds evidence that about half of all notices are sent near or after election day.

  - How do aspects of local context, such as drop box location or the presence of locally competitive elections, affect ballot curing rates?
    - **Why:** Interviews with county elections officials and voters suggest that there are features of local context that might explain variation in rejected ballots rates. In particular, greater attention should be paid to precinct-level variation in ballot rejections and how the competitiveness of local elections may shape ballot rejection rates. Future research should consider how the location of ballot drop boxes is associated with ballot rejections, as prior research by McGuire, Gonzalez O'Brien, Baird, Corbett, and Collingwood (2020) finds that voter proximity to ballot drop boxes is positively related to voter turnout.

  - Are ballot challenges for signature mismatch associated with variation in signature quality across different platforms for voter registration?
    - **Why:** County elections officials consistently emphasized that digital signatures received through the Department of Licensing (DOL) can be of low-quality, yet many individuals register to vote through the DOL.

A Stronger Role for Community-based Organizations

Project learning and engagement with county elections offices, voters, and community-based organizations identify several areas where community-based organizations could play a stronger role in educating voters and helping voters cure challenged ballots.

- Community-based organizations should encourage voters to return ballots early.
    - **Why:** A large percentage of ballots are returned after 5 pm Friday, which limits opportunities voters may have to cure their ballots before learning of preliminary election results shortly after election day.

- Community-based organizations should work with county and state government to help voters learn about ballot processing and signature verification.
    - **Why:** Convenings with county elections staff highlighted the important role that local community-based organizations can play, particularly among voters from historically marginalized communities.

Strengthening Elections Administration Practice

A number of recommendations for improving elections administration at the state- and county-level emerged from our study:

- Provide greater state funding for county acquisition of sorter and ballot processing technology, maintenance, and training.
    - **Why:** Ensures that ballot processing would be even more consistent and efficient across all counties in the State of Washington.

- Provide state support to ensure all county elections websites provide standard information, translated materials, and access to ballot-tracking features of VoteWA in a manner that is easy to read and navigate.
    - **Why:** There is wide variation in the information posted and available at county elections websites, which may shape ballot rejection rates.

- Invest in regular peer learning activities and external engagement around innovative practices and election administration solutions for county elections staff statewide.
    - **Why:** Convenings of county elections staff and new voices in this project yielded substantial peer-learning and exchange that will strengthen practice and generate new innovations.

- Develop statewide outreach or educational programs to inform voters specifically about the importance of matching ballot signatures with the signature that is on file (usually through the Department of Licensing) and what the signature verification process looks like for a mail-in ballot state.
    - **Why:** It is common for voters experiencing ballot rejection to not understand which signature was being matched to their ballot, or even know that their signature was being verified as a part of the elections process.

- Encourage counties to offer voters regular opportunities to update signatures on file.

- **Why:** Signature update forms are a promising tool for reducing signature challenges in the future, particularly for voters whose signatures may shift over the life course.

- Create intentional partnerships with community-based organizations that work within historically marginalized communities, voters with language barriers, or voters with disabilities to enhance the voter experience.
    - **Why:** County elections officials and voters indicated that English language translation of ballot and educational materials would help many voters of color understand ballot curing process and how complex surnames should be written to match signatures on file.

- Provide additional signature verification trainings for county elections staff and modify current signature verification trainings as needed to ensure positive framing. Have some recorded signature verification training videos to have for use at all times of the year, find and offer additional trainings beyond what SOS provides, and more formally require staff and county canvassing boards to take the signature verification training.
    - **Why:** County elections staff were interested in additional election administration trainings and remote training options to continue to enhance the voter experience.

State Elections Law and Regulation

Project findings yield many recommendations for state government to consider as it seeks to improve the voter experience, maintain the integrity of the state election system, and reduce the number of rejected ballots.

- Update ballot envelope design standards to ensure consistency and adoption of best practices.
    - **Why:** There is substantial county-level variation in ballot envelope design, which may affect ballot challenge and cure rates across the State of Washington.

- Update standards for ballot cure notices to ensure language is easy to understand across all reading levels and for voters who prefer voting materials in a language other than English.
    - **Why:** County elections officials and voters report that ballot cure letters often are hard to read or understand, which reduces the share of challenged ballots that are cured. The Office of the Secretary of State has proposed changes to the Washington Administrative Code (WAC), to take effect in 2024, that will require cure letters to be translated into languages required by the Department of Justice.

- Move towards greater standardization of county administrative processes pertaining to signature verification and ballot curing to improve the voter experience.
    - **Why:** Consistent standards and practices will improve the transparency, predictability, and integrity of elections administered across a diverse state like Washington. While many counties already operate with best practices as found in interviews and observations, the Office of the Secretary of State has proposed WACs in 2023, to take effect in 2024, that will update the signature verification standards, secondary review, and curing process for challenged ballots. The proposed WACs would require the county to contact the voter as soon as reasonable after the returned ballot issuance was challenged by mail, phone, text, and/or email. The proposed WACs also would require the county to institute a process of second review of any challenged, returned ballot.

- Invite voters to provide self-reported race and ethnic identity at the time of voter registration.
    - **Why:** Although race imputation methods provide useful insight into racial and ethnic variation in voting behavior, self-reported race and ethnicity would provide more accurate information.

- Explore the extent to which ballot drop boxes could be enhanced or redesigned to remind voters to sign their ballots.
    - **Why:** A sizeable share of challenged ballots are returned without a signature.

Table 1: Rejected Ballots in Primary and General Elections in Washington State, 2017 to 2022

	Percent of All Ballots Cast that are Rejected		Percent of All Ballots Cast Rejected Because . . .					
			No Signature		No Signature Match		Arrived Late	
Year	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)	Primary (7)	General (8)
2017	1.4%	1.2%	0.2%	0.2%	0.3%	0.4%	0.7%	0.6%
2018	1.6%	1.1%	0.2%	0.2%	0.4%	0.6%	1.0%	0.3%
2019	1.6%	1.2%	0.2%	0.1%	0.3%	0.4%	1.0%	0.7%
2020	1.6%	0.8%	0.2%	0.1%	0.5%	0.6%	0.9%	0.1%
2021	1.5%	1.3%	0.2%	0.2%	0.4%	0.4%	0.9%	0.7%
2022	1.4%	1.2%	0.2%	0.2%	0.5%	0.8%	0.7%	0.3%

Note: Statewide figures of county-level ballot data reported. Reported percentages rounded to the nearest tenth of a percent.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

Table 2: Reasons for Ballot Rejection in Primary and General Elections in Washington State, 2017 to 2022

Year	Percent of Rejected Ballots					
	No Signature		No Signature Match		Arrived Late	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2017	15.2%	18.2%	24.7%	31.4%	52.1%	47.6%
2018	9.9%	13.6%	27.2%	51.3%	59.0%	27.2%
2019	11.1%	11.5%	20.7%	28.9%	64.9%	56.4%
2020	14.7%	14.7%	29.9%	74.6%	53.8%	7.4%
2021	13.6%	13.7%	25.7%	30.8%	58.9%	53.5%
2022	10.4%	13.1%	36.1%	62.1%	52.2%	21.9%

Note: Statewide figures of county-level ballot data reported. Reported percentages rounded to the nearest tenth of a percent.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

Table 3: Rejected Ballots in Primary and General Elections in Washington State by Imputed Race and Ethnicity, Gender, Age, and Geography, 2020 to 2022

	Percent of Ballots Cast that are Rejected					
	2020		2021		2022	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
Black	1.7%	0.9%	1.5%	1.3%	1.4%	1.3%
Hispanic	2.1%	1.3%	1.8%	1.7%	1.8%	1.6%
Asian	2.0%	1.2%	1.9%	1.6%	2.0%	1.9%
White	1.4%	0.6%	1.4%	1.2%	1.3%	1.1%
Female	1.4%	0.6%	1.3%	1.1%	1.3%	1.1%
Male	1.7%	0.9%	1.6%	1.4%	1.5%	1.3%
18 to 25	4.0%	2.5%	4.1%	4.3%	4.8%	4.8%
26 to 45	2.3%	1.1%	2.3%	1.9%	2.3%	1.8%
46 to 65	1.3%	0.4%	1.4%	1.1%	1.3%	0.8%
66 or older	0.6%	0.2%	0.7%	0.6%	0.6%	0.3%
Metropolitan	1.5%	0.7%	1.4%	1.2%	1.4%	1.2%
Non-metropolitan	1.1%	0.6%	1.3%	1.2%	1.2%	0.8%

Note: Statewide figures of voter-level ballot data reported. Reported percentages rounded to the nearest tenth of a percent. Percentage of ballots rejected reflects the number of ballots rejected divided by the total number of ballots rejected and accepted. Other statuses for ballots cast are not included in the denominator. Differences in ballot rejection rates for all in-group comparisons within a given election are statistically distinct from zero at the .10 level, ***except for*** the following pairs: Hispanic/Asian comparisons in Primary 2020, General 2020, and General 2021; Metropolitan/Non-metropolitan comparison for General 2021.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

Table 4: Percentage of Rejected Ballots with No Signature in Primary and General Elections in Washington State by Imputed Race and Ethnicity, Gender, Age, and Geography, 2020 to 2022

	Percent of Ballots Cast that are Rejected for No Signature					
	2020		2021		2022	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
Black	0.22%	0.12%	0.18%	0.15%	0.12%	0.16%
Hispanic	0.24%	0.17%	0.21%	0.20%	0.16%	0.20%
Asian	0.28%	0.14%	0.19%	0.17%	0.14%	0.18%
White	0.19%	0.09%	0.17%	0.14%	0.13%	0.13%
Female	0.18%	0.08%	0.16%	0.13%	0.12%	0.12%
Male	0.26%	0.14%	0.21%	0.19%	0.16%	0.18%
18 to 25	0.33%	0.21%	0.28%	0.26%	0.20%	0.29%
26 to 45	0.28%	0.13%	0.22%	0.20%	0.17%	0.19%
46 to 65	0.21%	0.09%	0.20%	0.17%	0.14%	0.15%
66 or older	0.14%	0.05%	0.14%	0.11%	0.11%	0.10%
Metropolitan	0.20%	0.10%	0.17%	0.14%	0.12%	0.14%
Non-metropolitan	0.18%	0.10%	0.22%	0.19%	0.18%	0.16%

Note: Statewide figures of voter-level ballot data reported. Differences in ballot rejection rates for all in-group comparisons within a given election are statistically distinct from zero at the .10 level, ***except for*** the following pairs: Black/Hispanic comparisons in Primary 2020; Black/Asian in General 2020; Black/Hispanic, Black/Asian, Black/White, Hispanic/Asian, and Asian/White Primary 2021; Black/Asian, Black/White, Hispanic/Asian comparisons in General 2021; Black/Asian, Black/White, Hispanic/Asian, and Asian/White in Primary 2022; and Black/Asian and Hispanic/Asian in General 2022; Metropolitan/Non-metropolitan comparison for Primary 2020 and General 2020.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

Table 5: Percentage of Rejected Ballots with Signature Mismatch in Primary and General Elections in Washington State by Imputed Race and Ethnicity, Gender, Age, and Geography, 2020 to 2022

	Percent of Ballots Cast that are Rejected for Signature Mismatch					
	2020		2021		2022	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
Black	0.49%	0.65%	0.36%	0.42%	0.50%	0.81%
Hispanic	0.65%	0.88%	0.51%	0.50%	0.66%	0.97%
Asian	0.68%	0.89%	0.62%	0.60%	0.74%	1.25%
White	0.40%	0.46%	0.32%	0.34%	0.45%	0.64%
Female	0.37%	0.44%	0.28%	0.30%	0.41%	0.62%
Male	0.51%	0.62%	0.42%	0.43%	0.55%	0.82%
18 to 25	1.77%	1.72%	1.83%	2.00%	2.76%	3.23%
26 to 45	0.72%	0.74%	0.63%	0.62%	0.88%	1.15%
46 to 65	0.24%	0.24%	0.23%	0.23%	0.30%	0.41%
66 or older	0.07%	0.09%	0.07%	0.08%	0.09%	0.12%
Metropolitan	0.44%	0.53%	0.35%	0.37%	0.50%	0.74%
Non-metropolitan	0.39%	0.45%	0.30%	0.34%	0.37%	0.39%

Note: Statewide figures of voter-level ballot data reported. Reported percentages rounded to the nearest tenth of a percent. Differences in ballot rejection rates for all in-group comparisons within a given election are statistically distinct from zero at the .10 level***, except for*** the following pairs: Hispanic/Asian comparisons in Primary 2020 and General 2020; Black/White comparisons for Primary 2021.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

Table 6: Percentage of Rejected Ballots Arriving Late in Primary and General Elections in Washington State by Imputed Race and Ethnicity, Gender, Age, and Geography, 2020 to 2022

	Percent of Ballots Cast that are Rejected for Arriving Late					
	2020		2021		2022	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
Black	0.81%	0.06%	0.83%	0.59%	0.66%	0.27%
Hispanic	1.05%	0.08%	0.87%	0.79%	0.80%	0.32%
Asian	0.92%	0.07%	0.92%	0.73%	0.95%	0.33%
White	0.72%	0.05%	0.77%	0.59%	0.65%	0.24%
Female	0.75%	0.05%	0.79%	0.61%	0.68%	0.26%
Male	0.79%	0.06%	0.82%	0.64%	0.71%	0.25%
18 to 25	1.26%	0.14%	1.23%	1.27%	1.17%	0.72%
26 to 45	1.06%	0.07%	1.11%	0.87%	1.02%	0.36%
46 to 65	0.79%	0.04%	0.91%	0.66%	0.78%	0.22%
66 or older	0.36%	0.02%	0.46%	0.34%	0.37%	0.09%
Metropolitan	0.78%	0.05%	0.79%	0.61%	0.69%	0.25%
Non-metropolitan	0.51%	0.04%	0.69%	0.59%	0.55%	0.21%

Note: Statewide figures of voter-level ballot data reported. Differences in ballot rejection rates for all in-group comparisons within a given election are statistically distinct from zero at the .10 level, ***except for*** the following pairs: Black/Asian and Black/White comparisons in General 2020; Black/Hispanic, Black/Asian, Black/White, and Hispanic/Asian comparisons in Primary 2021; Black/White and Hispanic/Asian comparisons in General 2021; Black/White comparisons in Primary 2022; Hispanic/Asian comparisons in General 2022; Male/Female comparisons in General 2020; and Metropolitan/Non-metropolitan comparison for General 2021.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

Table 7: Frequency of Ballot Rejection across Primary and General Elections in Washington State by Imputed Race and Ethnicity, Gender, Age, and Geography, 2020-2022

	Composition of Voters Casting a ballot in more than 1 election, 2020-22	Composition of Voters Experiencing Ballot Rejection More than Once, 2020-22	
		For Any Reason	Due to No Signature or Mismatched Signature Only
	(1)	(2)	(3)
Percentage of All Voters	68.4%	0.2%	0.1%
Voter Characteristics			
Black	3.6%	4.2%	4.3%
Hispanic	6.0%	7.8%	7.5%
Asian	5.9%	8.0%	8.9%
White	84.5%	80.0%	79.2%
Female	52.2%	44.8%	42.2%
Male	47.8%	55.2%	57.8%
18 to 25	9.6%	30.0%	36.4%
26 to 45	30.6%	40.1%	42.1%
46 to 65	34.8%	21.8%	16.8%
66 or older	25.0%	8.0%	4.7%
Metropolitan	88.7%	90.1%	90.5%
Non-metropolitan	11.3%	9.9%	9.5%
N	3,733,193	8,946	5,158

Note: Statewide figures of voter-level ballot data reported. Voter-level data indicates there were 5,454,949 individual voters in this time period. Reported percentages rounded to the nearest tenth of a percent.
Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

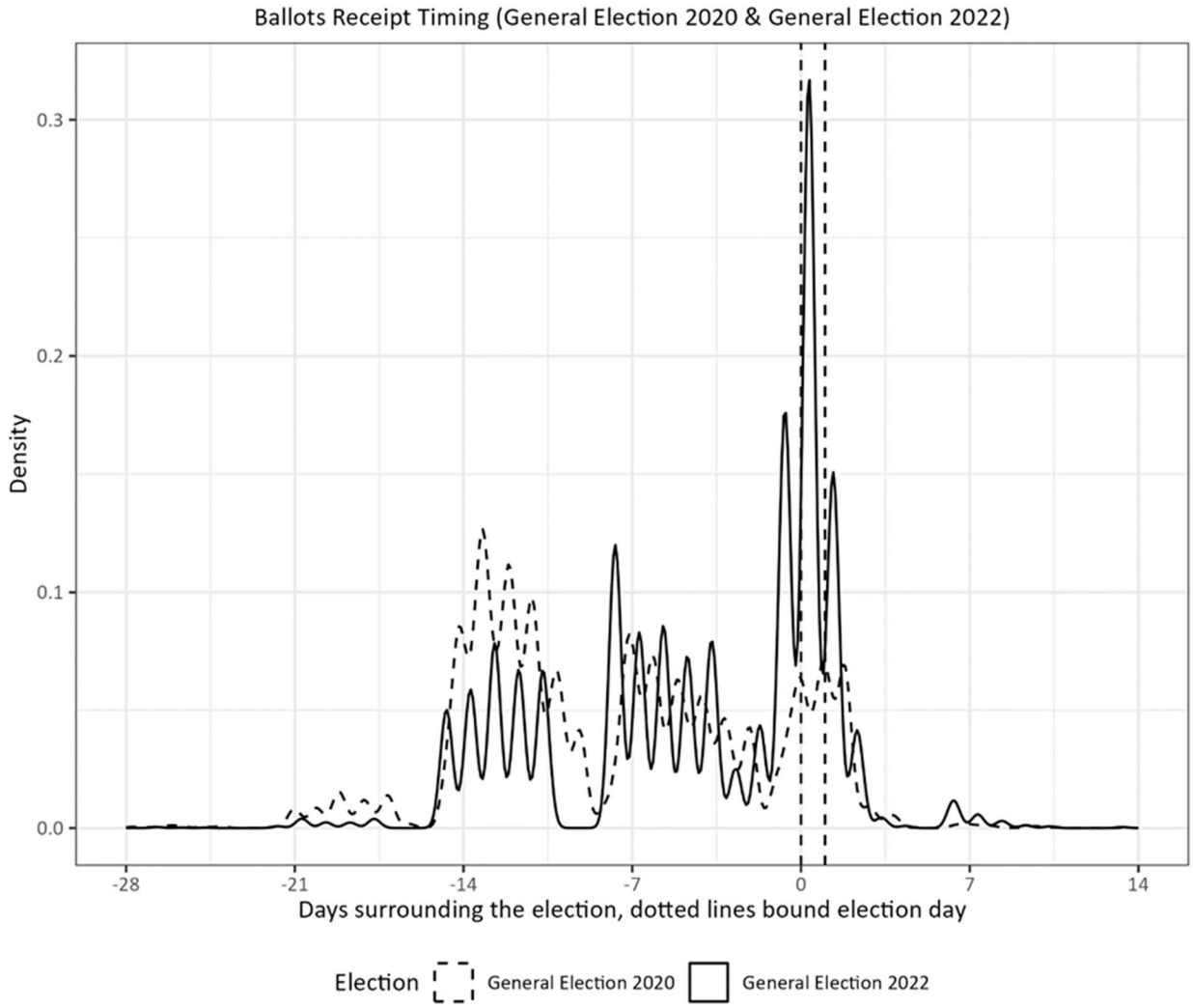
Table 8: Ballot Curing across Primary and General Elections in Washington State, 2020 to 2022

Year	Total Curable Votes		Percent Cured		Percent Cured with Voter Action	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2020	35,680	64,639	55.9%	61.3%	48.9%	54.2%
2021	17,773	25,203	62.1%	61.7%	50.1%	45.1%
2022	29,246	57,837	59.9%	56.3%	45.5%	44.0%
Totals 2020-2022	82,699	147,679	58.6	59.4%	48.0%	48.7%

Note: Statewide figures of voter-level ballot data reported. Reported percentages rounded to the nearest tenth of a percent.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

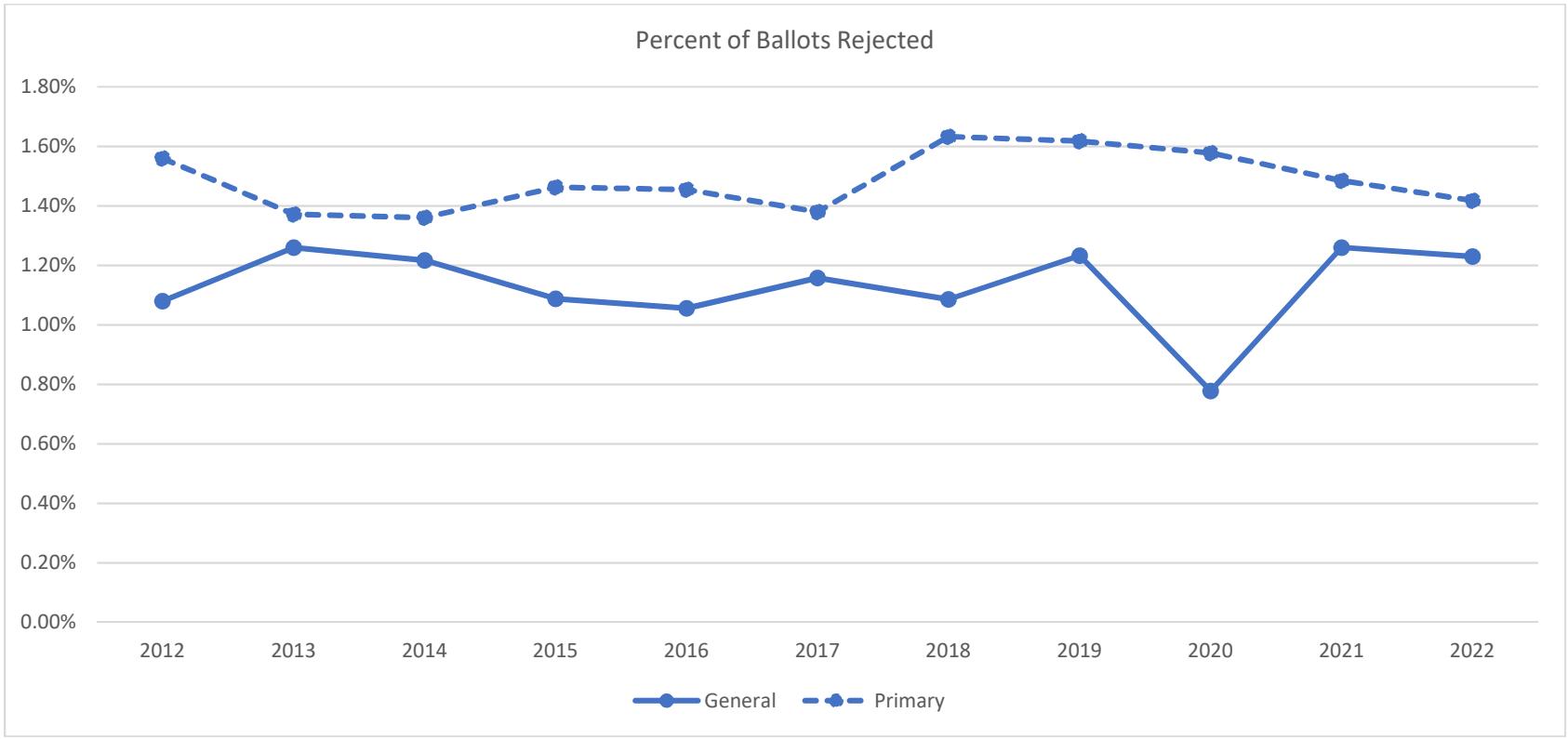
Figure 1: Timing of Ballots Cast across 2020 and 2022 General Election in Washington State



Note: Statewide figures of voter-level ballot data reported. Vertical dashed lines bracket election day in each year.

Source: Source: Ballot Issuances from 2019 to 2022.

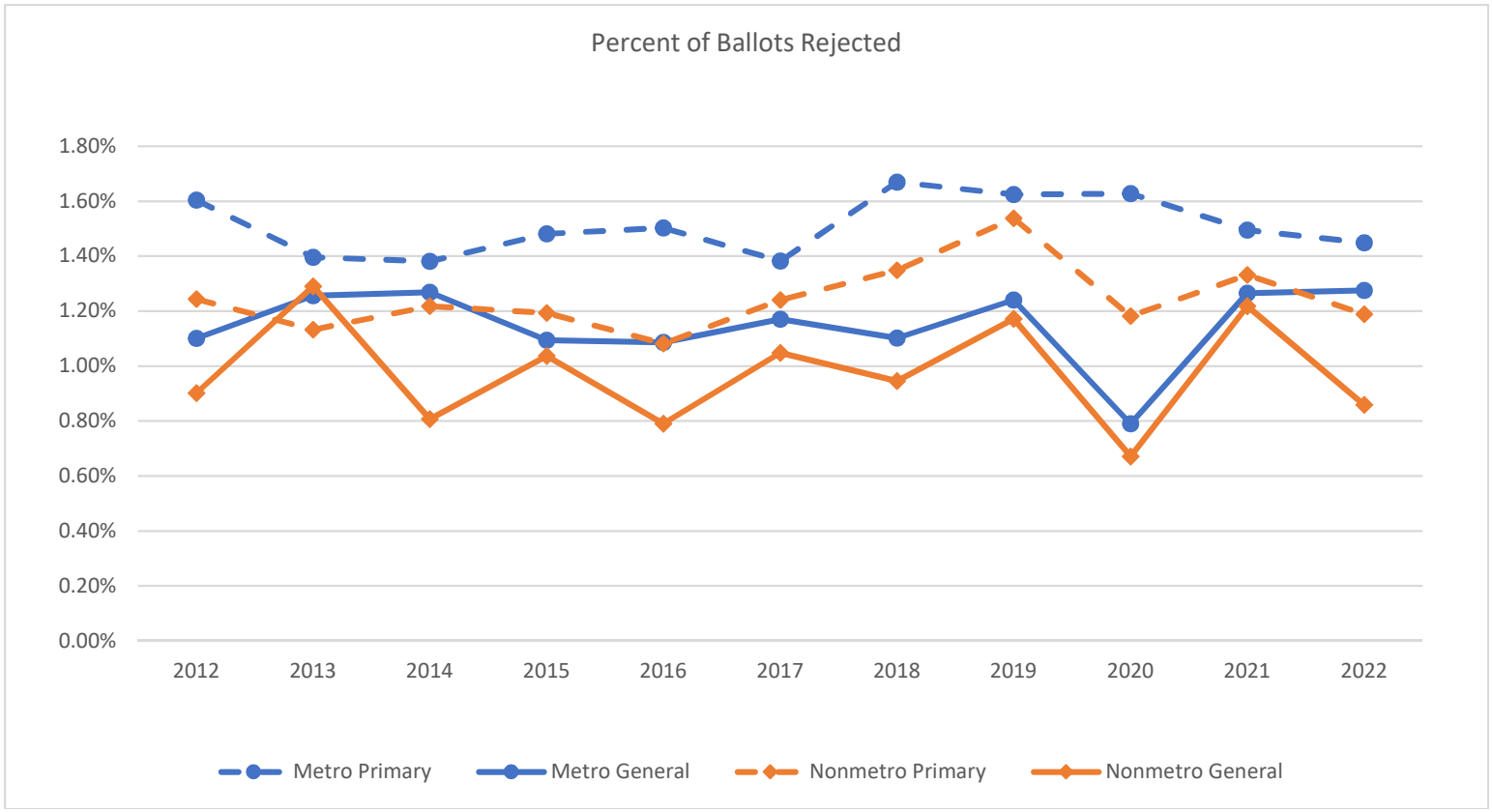
Figure 2: Percentage of Ballots Cast, Rejected across Primary and General Elections in Washington State, 2012-2022



Note: Statewide figures of county-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

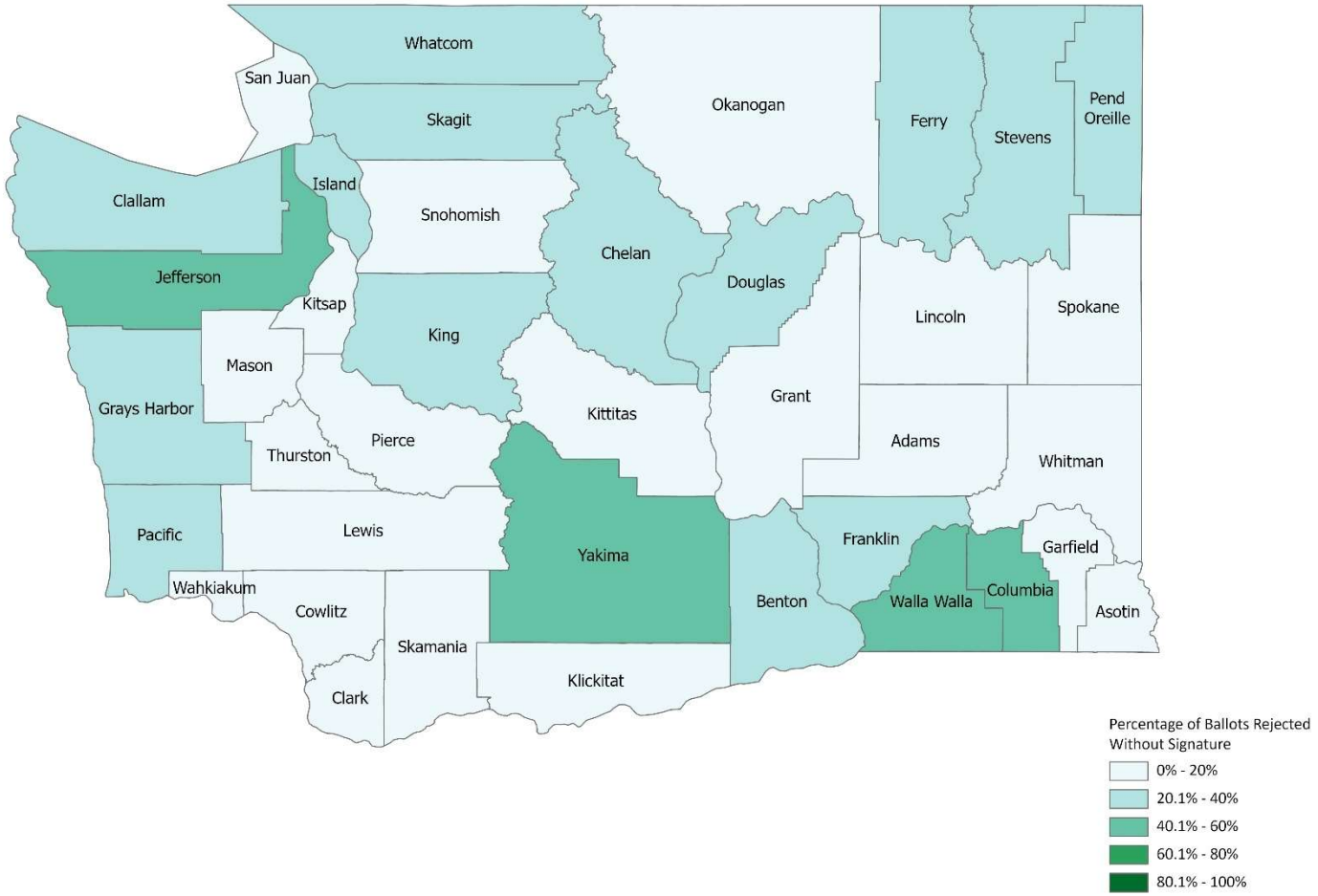
Figure 3: Percent Ballots Cast, Rejected across Primary and General Elections in Washington State by Geography, 2012-2022



Note: Statewide figures of county-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

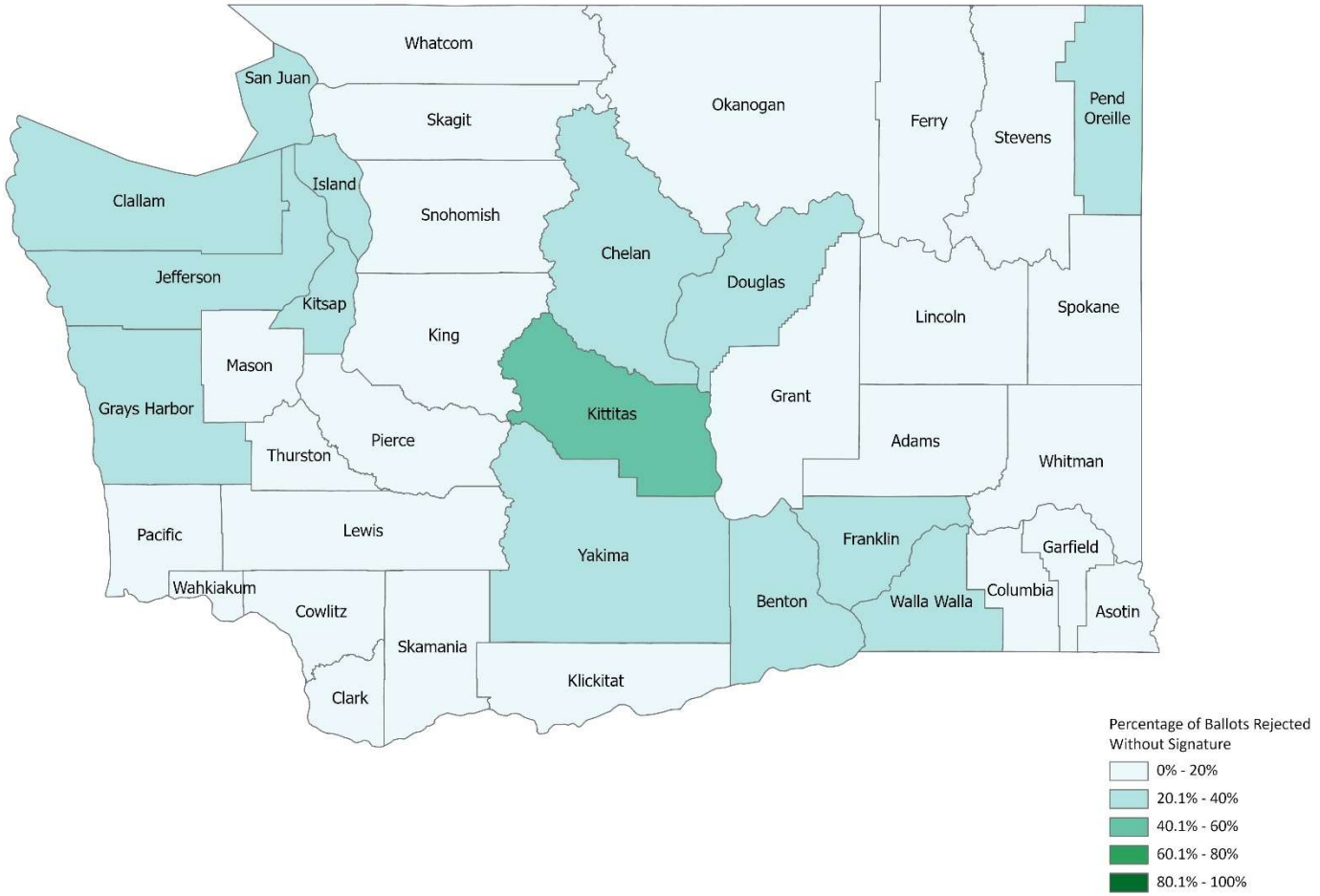
Figure 4: Percentage of Rejected Ballots Returned Without Signature in the 2020 General Election



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

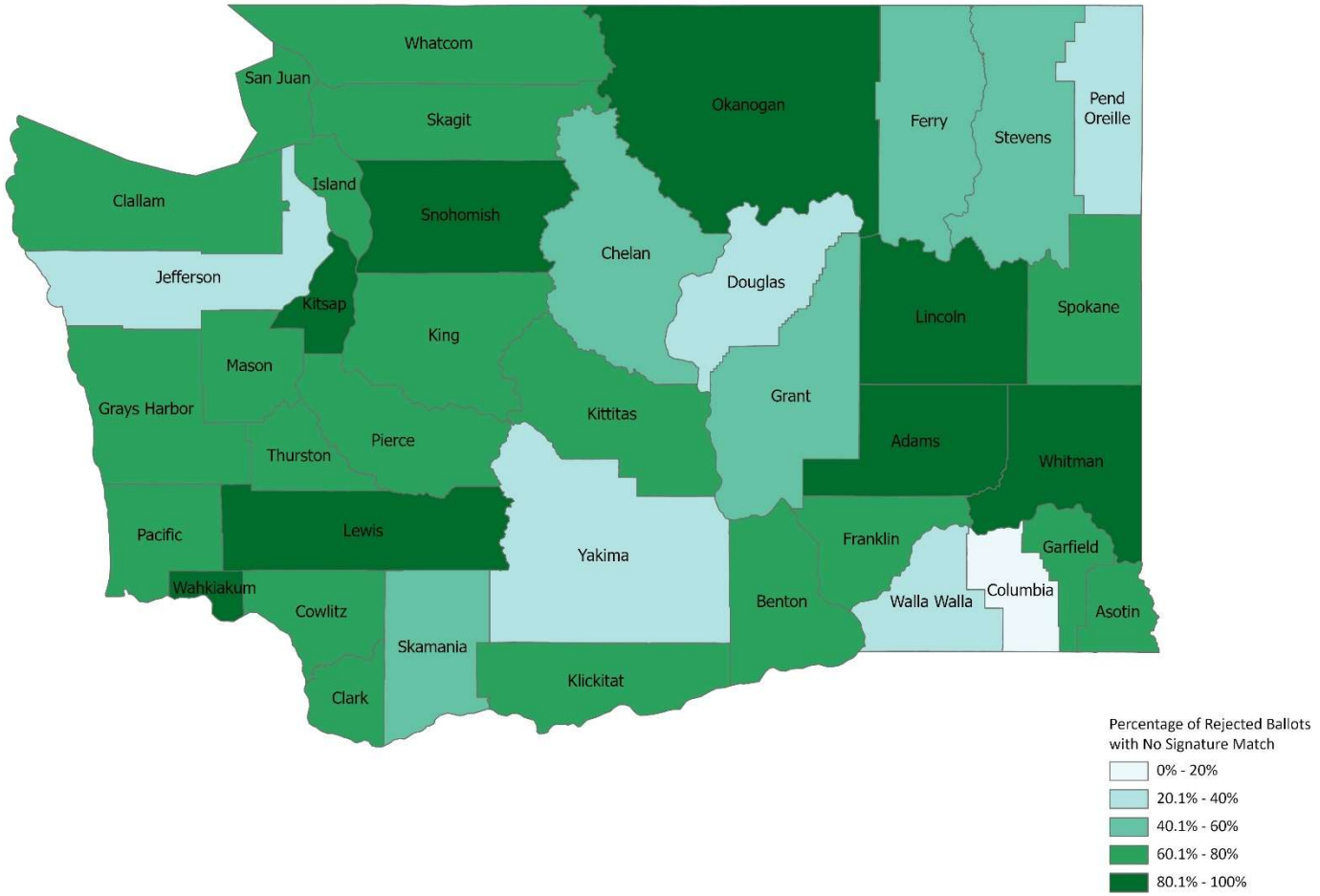
Figure 5: Percentage of Rejected Ballots Returned Without Signature in the 2022 General Election



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

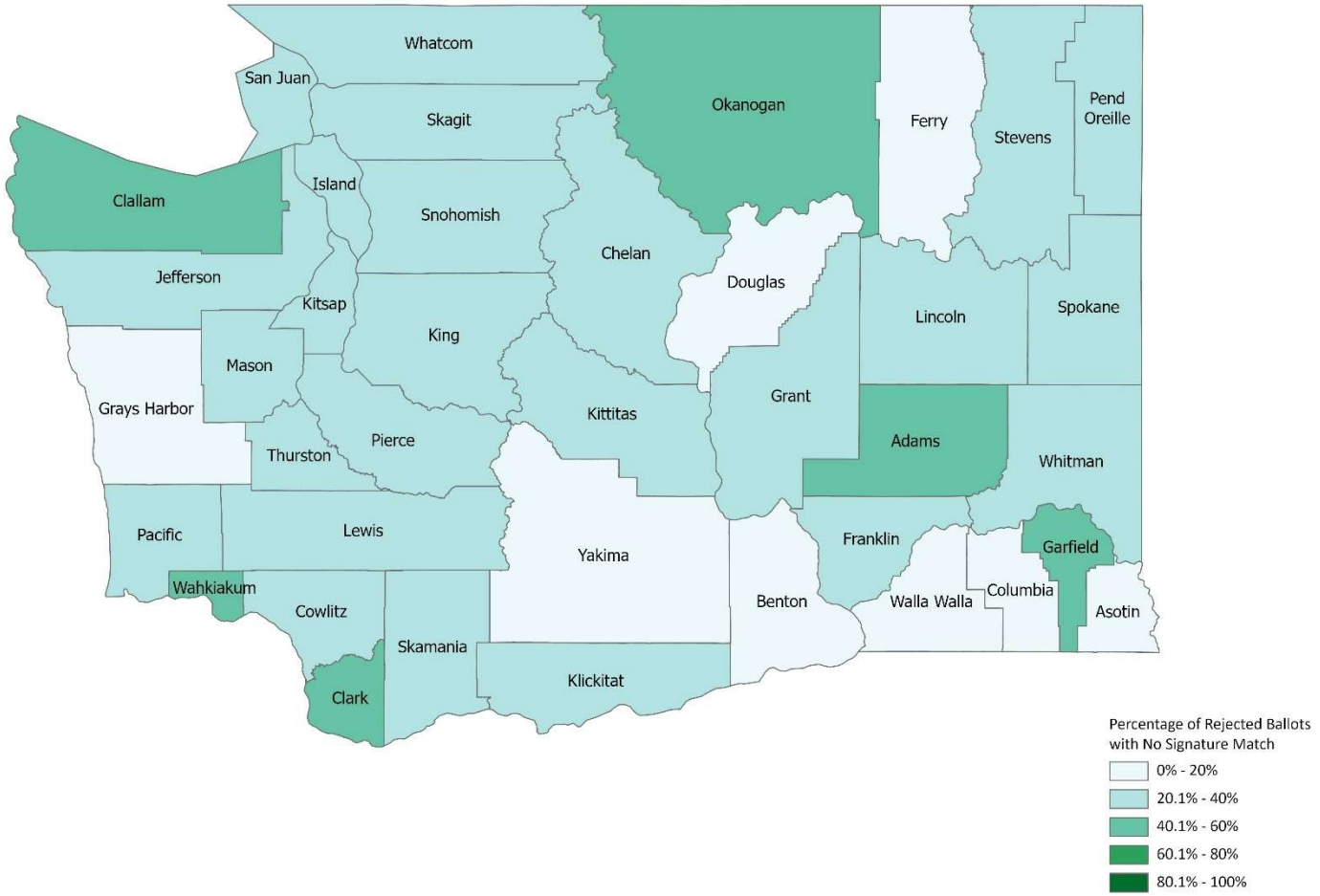
Figure 6: Percentage of Rejected Ballots Returned Without Matched Signature in the 2020 General Election



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

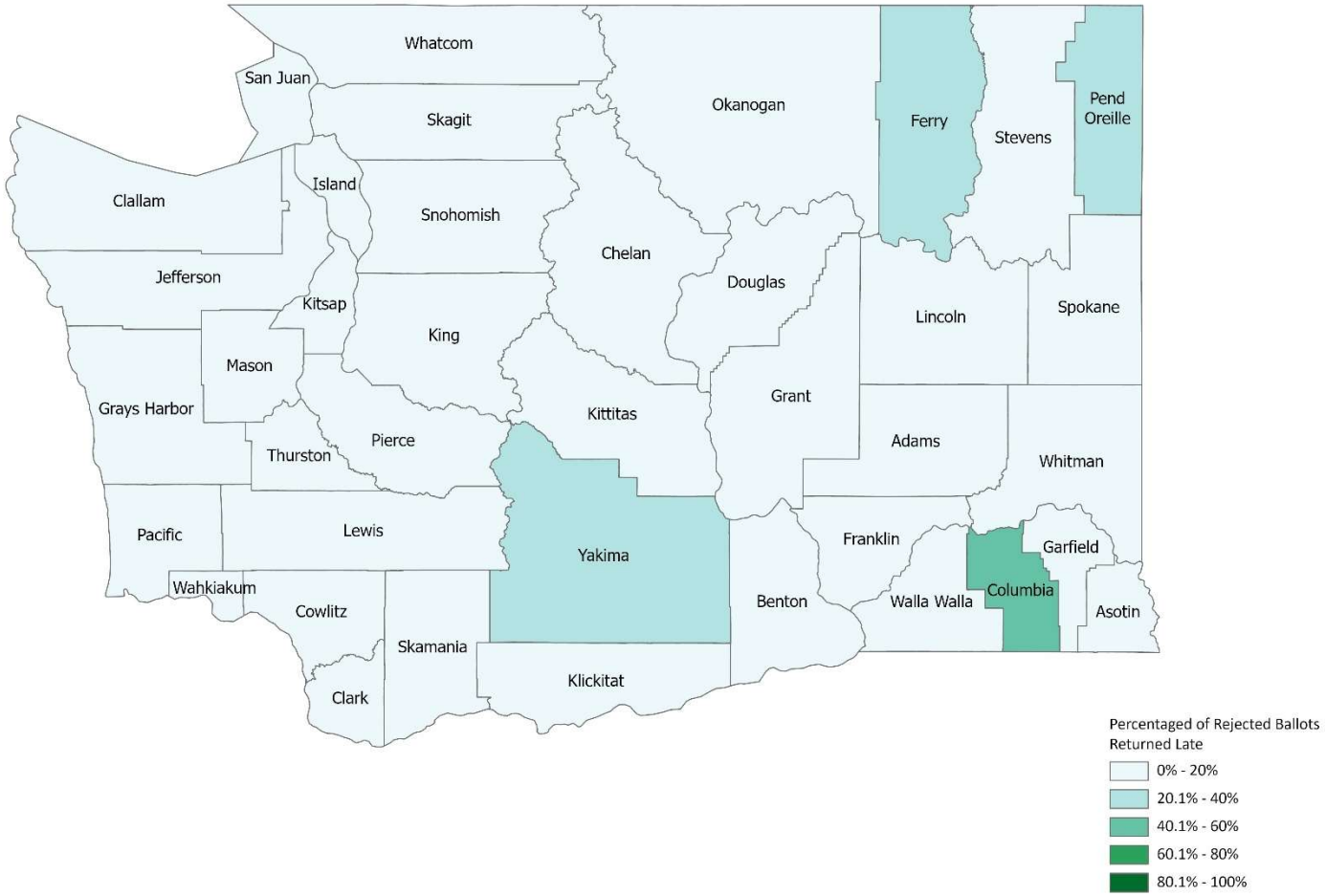
Figure 7: Percentage of Rejected Ballots Returned Without Matched Signature in the 2022 General Election



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

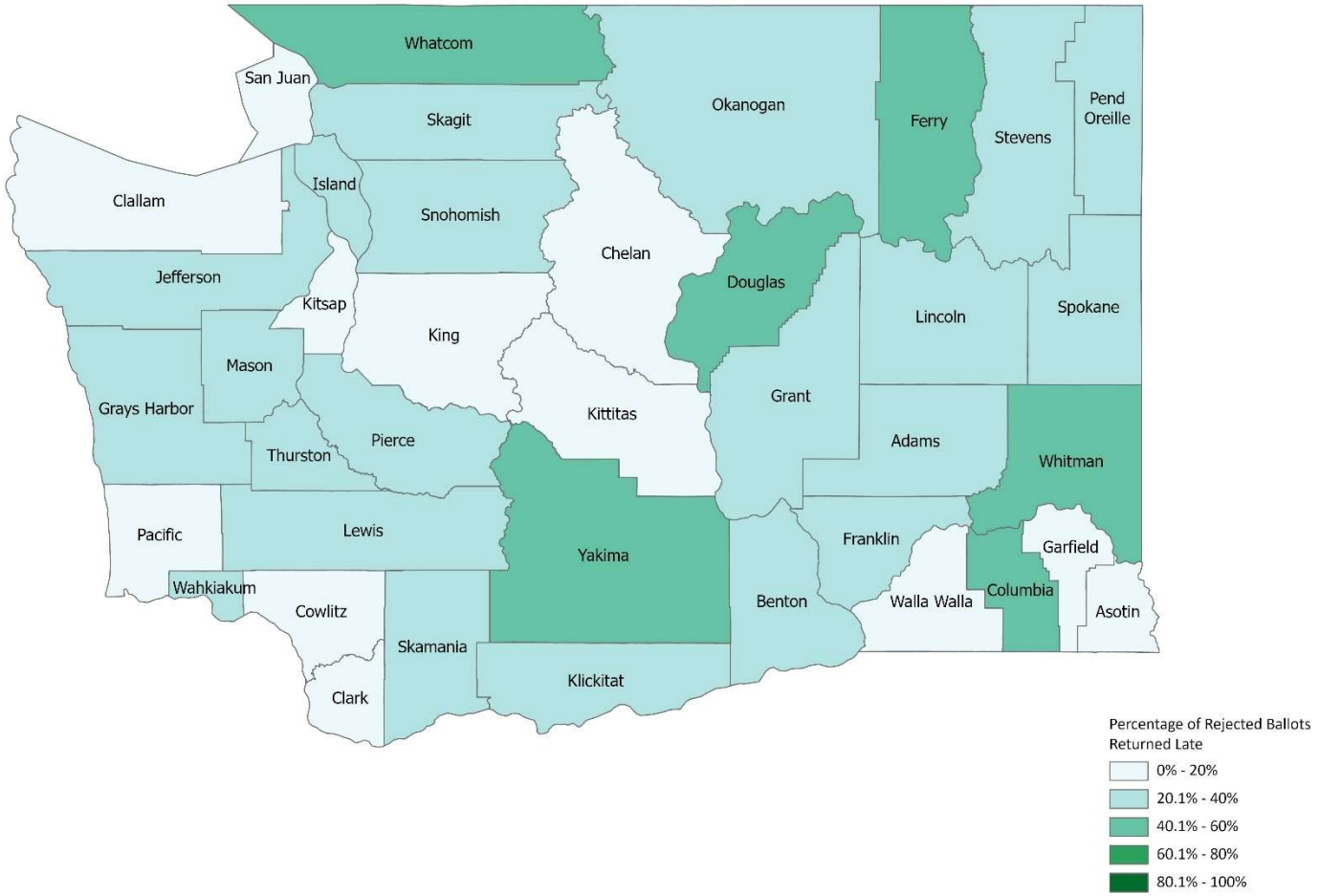
Figure 8: Percentage of Rejected Ballots Returned Arriving Late in the 2020 General Election



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

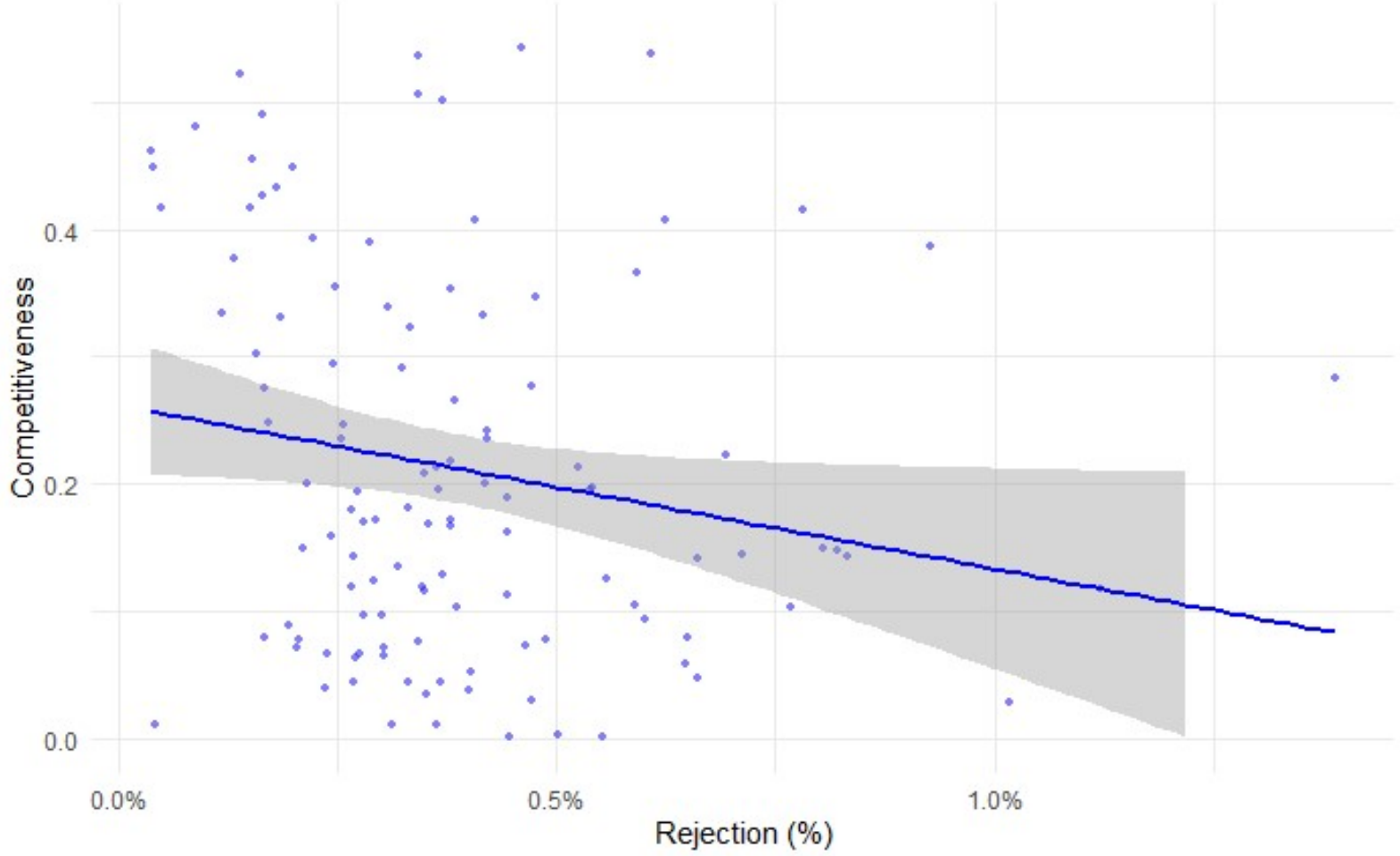
Figure 9: Percentage of Rejected Ballots Returned Arriving Late in the 2022 General Election



Note: County-level ballot data reported.

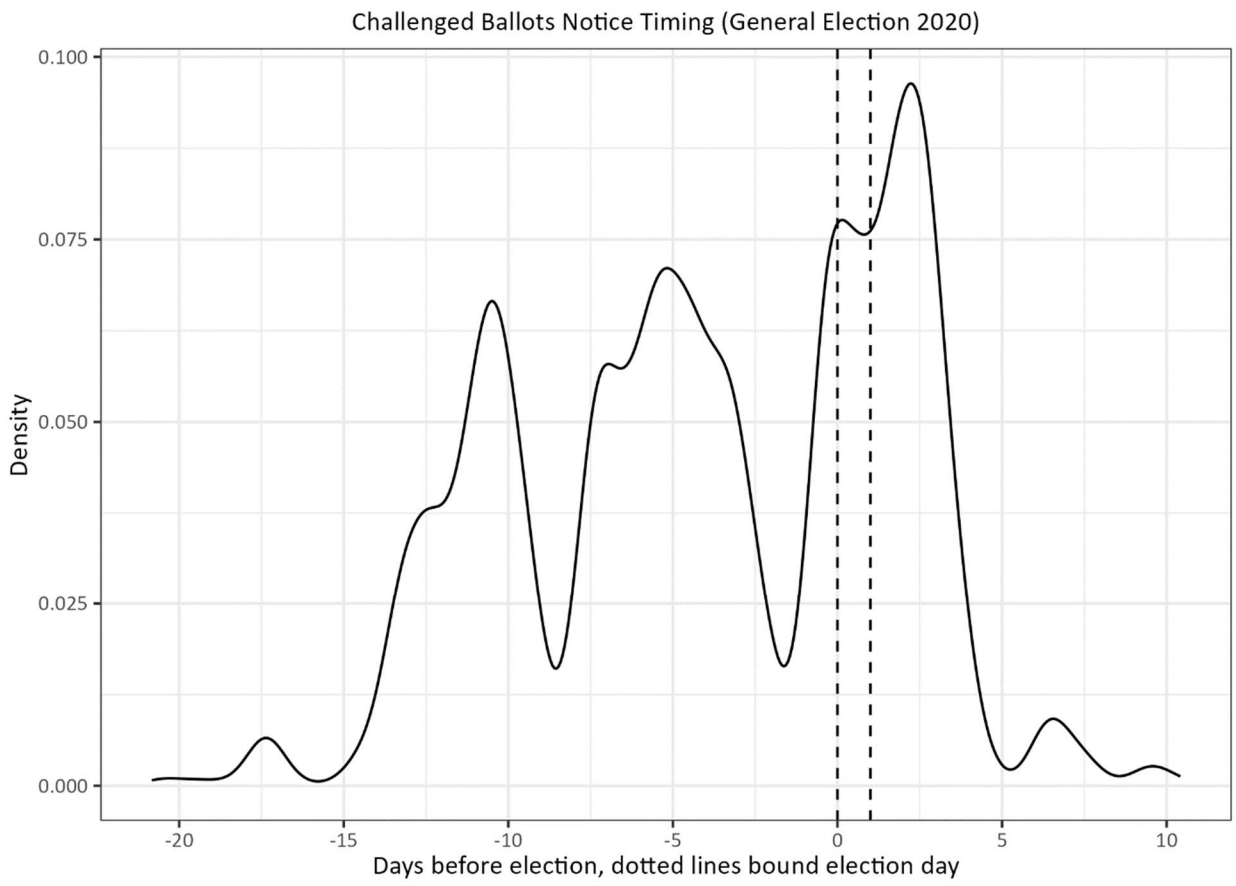
Source: Washington Secretary of State's Elections Data and Statistics (2022)

Figure 10: Ballot Rejection Rates across County Electoral Competitiveness in Presidential General Election Years, 2012 to 2020



Note: County-level ballot data reported. Each dot reflects a county-election year data point for a general election. Two county-year observations with ballot rejection rates near 6 percent were excluded as outliers in the scatterplot.
Source: Washington Secretary of State's Elections Data and Statistics (2022)

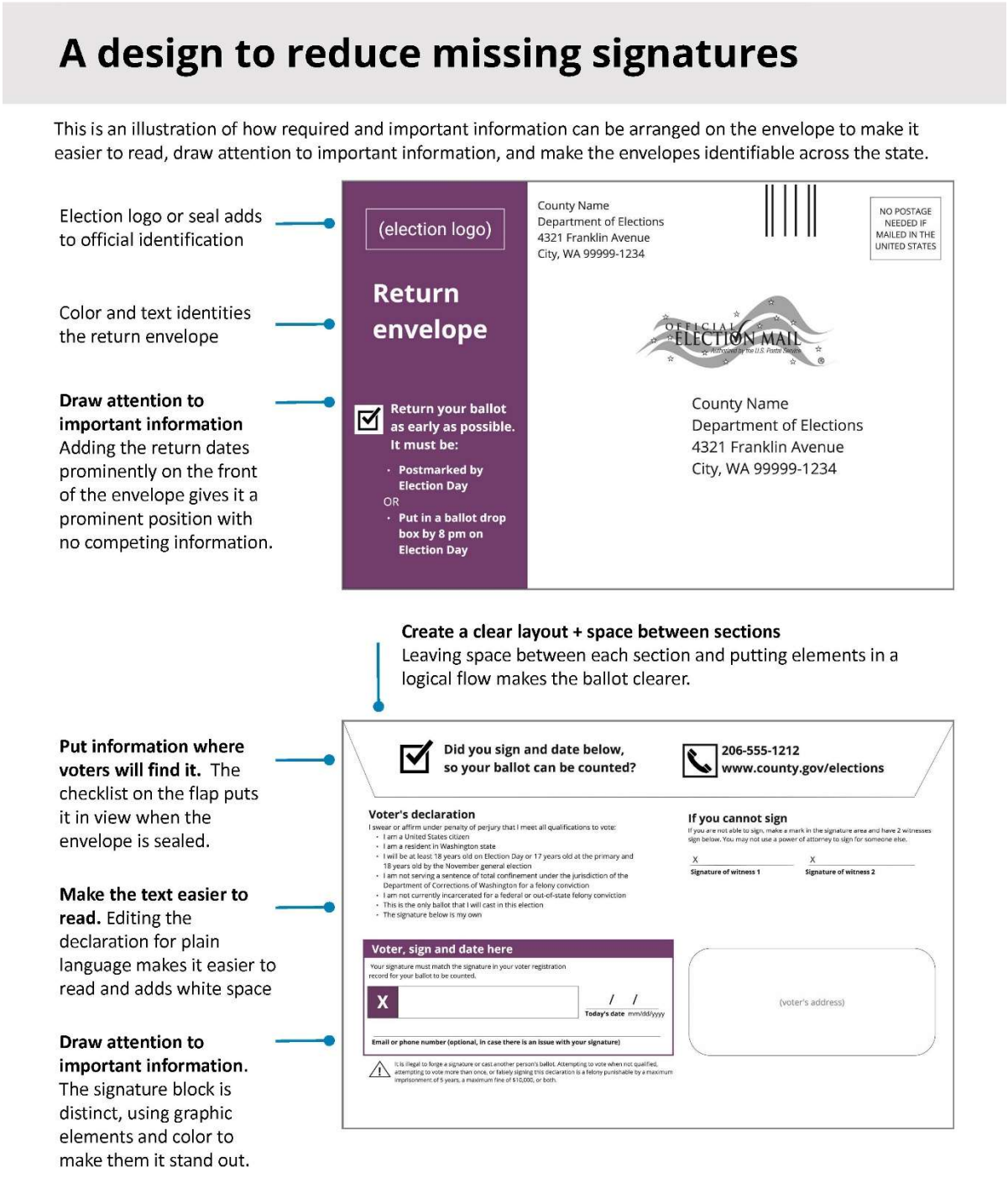
Figure 11: Timing of Challenged Ballot Mailed Notices in the 2020 General Election



Note: Statewide voter-level ballot data reported. Vertical dashed lines bracket election day in each year.

Source: Ballot Rejections and Cures from 2019 to 2022.

Figure 12: Ballot Envelope Design Principles



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APPENDICES

APPENDIX 1: CONVENING OF PROJECT ADVISORY BOARD

The research team engaged the Rejected Ballots Project Advisory Board throughout this period. The primary investigator, Scott Allard, identified a set of potential advisory board members in fall 2022 who are expert in voting and elections administration. Allard narrowed the list to four experts and spoke with each via zoom. Subsequently, each expert was invited to join the advisory board in November 2022. All four invitations were accepted and a formal four-person advisory board was created:

- Michael Hanmer (Professor and Director of the Center for Democracy and Civic Engagement, University of Maryland)
- Martha Kropf (Professor, University of North Carolina – Charlotte)
- Tammy Patrick (Chief Executive Officer for Programs, The Election Center)
- Whitney Quesenbery (Director, Center for Civic Design)

Allard again met individually with each advisory board member over zoom in January 2023 to discuss the project plan and design. A formal two-hour convening with the Rejected Ballots Project Advisory Board took place on Monday, February 27, 2023. The agenda included a review of the voter-level data file linking and management, guidance and feedback on the voter survey instrument and sampling strategy and a review of county-level data findings to date. Allard followed up with each advisory board member individually in March 2023 to provide updates on the survey and voter data components of the project.

A second advisory board meeting took place on Thursday, June 22, 2023, which focused on initial tables and figures presented in this report. Additionally, advisory board members were briefed on project plans for additional analyses. Advisory board members also were briefed on plans for two convenings of county election staff, community-based organizations, and voters planned to be held in July 2023. These convenings will provide an opportunity for key stakeholders to come together to discuss possible design solutions and policy recommendations to improve the voter experience in Washington State.

APPENDIX 2: CORE PROJECT TEAM

Scott W. Allard, Associate Dean for Research & Engagement at the Evans School. A member of the Evans School faculty since 2014, Scott is a political scientist specializing in American politics and social policy. His primary areas of research include urban policy, poverty and inequality, the impact of governmental safety net programs. He maintains extensive scholarly networks across political scientists, sociologists, and economists with expertise in voting behavior. Dr. Allard will work on this team to ensure rigorous methods are used throughout the research and design processes described.

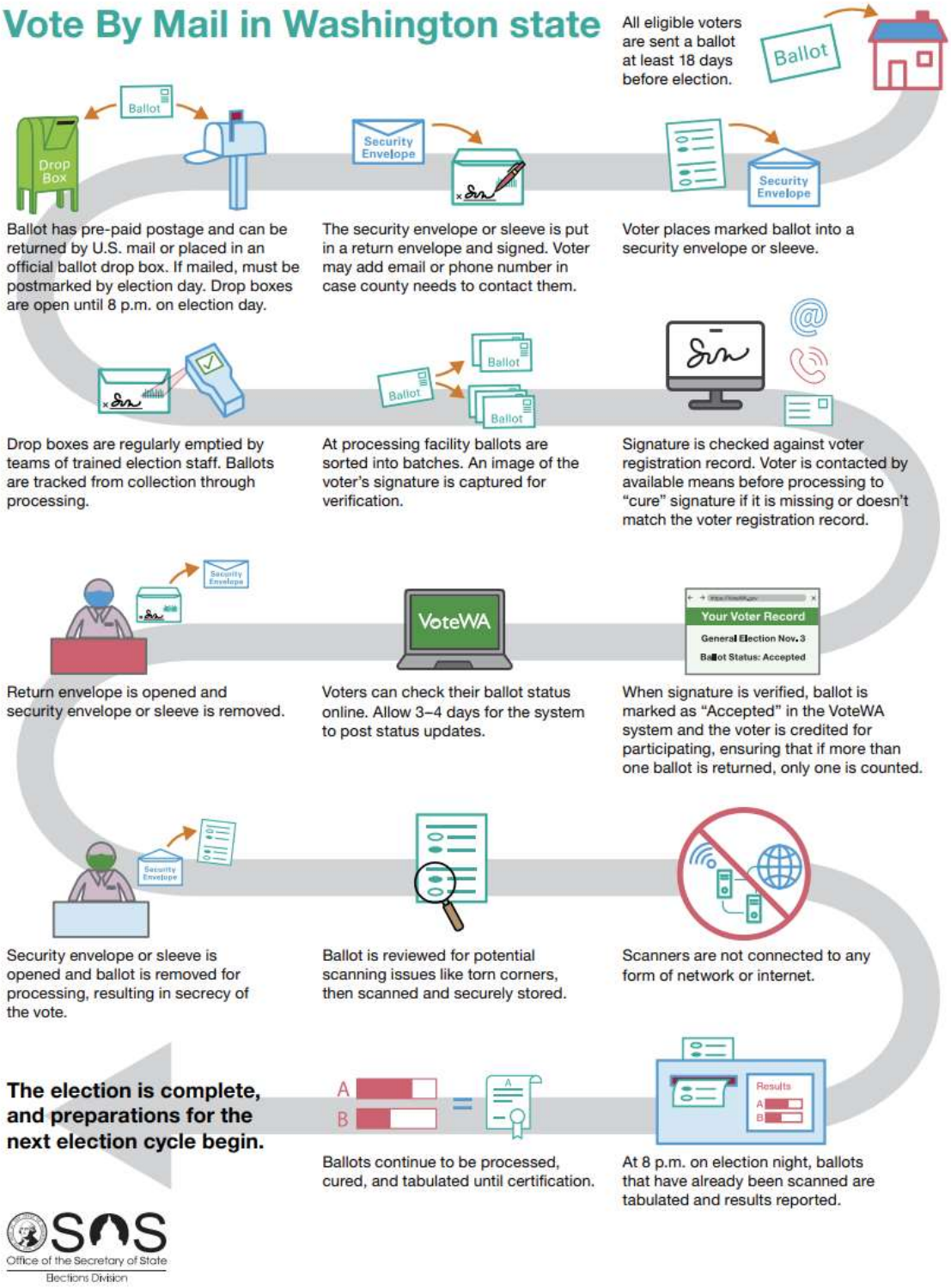
Megan Ming Francis, UW Department of Political Science. Megan is the G. Alan and Barbara Delsman Associate Professor of Political Science and an Associate Professor of Law, Societies, and Justice at the University of Washington. Professor Francis specializes in the study of American politics, with broad interests in criminal punishment, Black political activism, philanthropy, and the post-civil war South. She is the author of the award winning book, Civil Rights and the Making of the Modern American State. During the 2021-22 academic year, she is also a Senior Democracy Fellow at the Ash Center for Democratic Governance and a Racial Justice Fellow at the Carr Center for Human Rights at the Harvard Kennedy School.

Jacob (Jake) M. Grumbach, Goldman School of Public Policy at UC Berkeley (formerly UW Department of Political Science). Jake is an Associate Goldman School of Public Policy at UC Berkeley. Professor Grumbach's research focuses broadly on the political economy of the United States. He is particularly interested in public policy, American federalism, racial capitalism, campaign finance, and statistical methods. His book project, based on his award-winning dissertation, investigates the causes and consequences of the nationalization of state politics since the 1970s. Additional recent projects investigate labor unions, election law, and race and gender in campaign finance. Professor Grumbach teaches courses in statistics for the social sciences and in state and local politics.

Keala Aronowitz, Director of Innovation & Engagement. Responsible for overseeing the Evans School's community and state engagement work, Keala has deep experience in program design and implementation, community engagement, and partnership building. Her practice is rooted in convening conversations that center diverse voices and perspectives, focusing on outcomes that can motivate and guide action in response to public governance challenges.

Calista Jahn, Innovation & Engagement Manager. With a master's degree in public administration, Cali will serve as project manager and support the design and efficient implementation of the research and documentation of results. Her expertise in policy and institutional analysis will enable the project team to address various public governance challenges, including institutionalized racism.

APPENDIX 3: VOTE-BY-MAIL PROCESS, STATE OF WASHINGTON

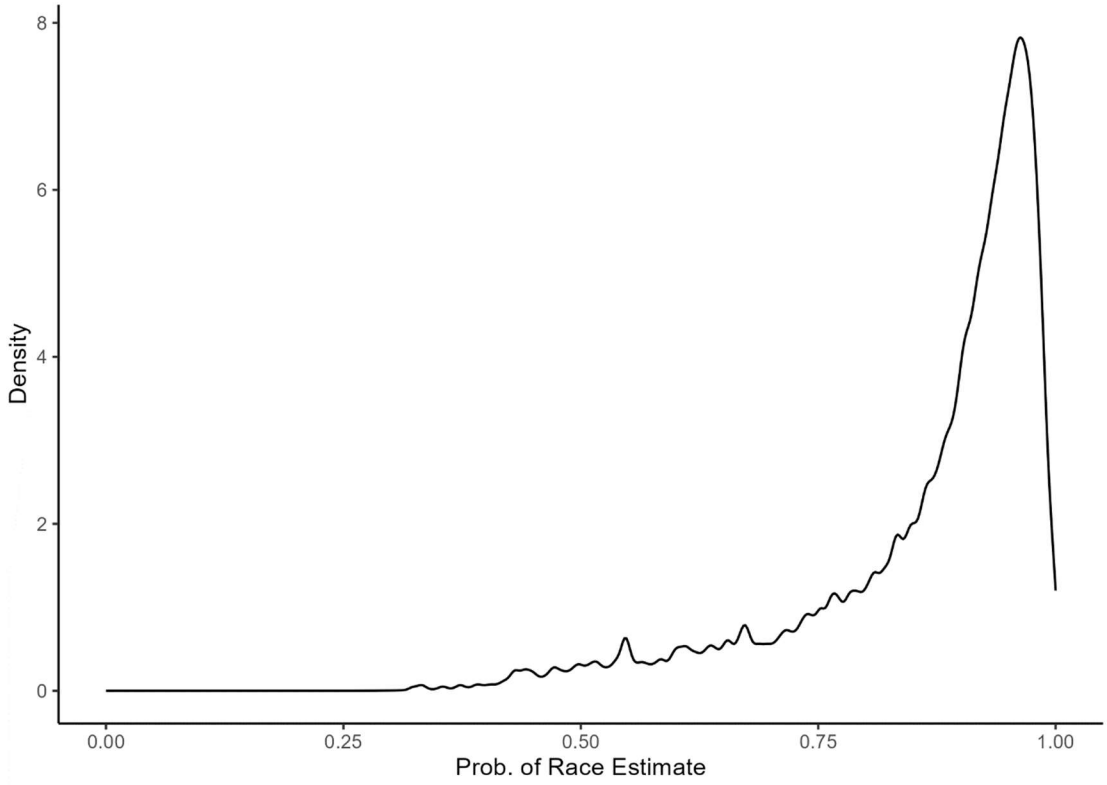


Source: Office of the Secretary of State (2023)

APPENDIX 4: BAYESIAN IMPROVED SURNAME GEOCODING (BISG)

To show how Bayesian Improved Surname Geocoding (BISG) operates, let's use the example of a hypothetical person named Christopher Smith living in a Census Tract in South Seattle. About 71 percent of people with the surname Smith (the most common surname in the United States) are non-Hispanic White, and about 23 percent are non-Hispanic Black, with the remaining 6 percent split across Asian, Latino, and other racial groups. Thus, based on surname alone, we would assume that an individual with the surname Smith has a 71 percent chance of being non-Hispanic White. Because Christopher Smith's South Seattle neighborhood or census tract has more Black than White residents, the algorithm adjusts its probability calculations to that this person has a 60 percent chance of being Non-Hispanic Black, a 38 percent chance of being Non-Hispanic White, a 1 percent chance of being Asian, and a 1 percent chance of being Hispanic.

Predictions of racial identity using BISG can be quite precise. We find that the median of all individuals' best racial predictions is 91.6%. This means that for half of Washington registered voters, we are at least 91.6% percent sure about their racial background. For just 25% of the voters in our dataset, the probability of their most likely race is below 82.7%. This high level of precision for the vast majority of voters is further represented in the figure below. This figure represents the relative frequencies of the highest racial probability for each voter in our dataset. Christopher Smith, the hypothetical voter in the example above, would be represented in the area under the curve at x=0.6, since Christopher's most likely race is Black, and their probability of being Black is 60%.



APPENDIX 5: SURVEY INSTRUMENT

Thank you for participating in this brief survey from the University of Washington Evans School of Public Policy & Governance. We would like to ask you a few questions about your experience returning your ballot in the most recent November 2022 election. The goal of the survey is to help Washington State learn how to better serve voters.

Please note that your answers will remain confidential and will not be provided to any outside parties or organizations. There are no questions about who you voted for. We only are interested in your experience voting in November 2022. Answering honestly will not affect your status as a registered voter or your ability to vote in future elections.

Throughout the survey, please use the NEXT and BACK buttons on the survey page to move around in the survey. Do not use the Forward and Back buttons on your browser.

Please be sure to complete the questions at the end to receive your $10 Tango gift card. This survey should take only about 5 minutes to complete. If you have any questions, please contact the research team at evansepic@uw.edu or (206)-543-2357.

First, we'd like to ask you about your experience voting in 2022.

Q1_VOTE Did you return your ballot in the November 2022 election?
- o Yes, I did personally (1)
- o Yes, someone returned it for me (2)
- o No (3)
- o I don't know or don't remember (4)

Q2_METHOD Which of the following statements most accurately describes where your ballot was returned?
- o Mailed at a post office box within an official U.S. Postal Service location (1)
- o Official post office box, but not at an official U.S. Postal Service location (2)
- o Picked up by the postal worker who delivers mail to my home (3)
- o Drop box used only for ballots (4)
- o Other (please specify) (5) _____
- o I don't know or don't remember (6)

Q3_MOTIV Please select the statement that best applies to why you decided to return your ballot where you did.
- o It was convenient to my work or school (1)
- o It was close to my home (2)
- o It was close or on my way to where I had errands to run (3)
- o It was the only location available to me (4)
- o It was the most secure, safest location (5)
- o Other reason (please specify) (6) _____
- o I don't know or don't remember (7)

Q4_TIME To the best of your memory, when did you drop off or mail in your ballot?
- o On Election Day (1)
- o A few days before Election Day (2)
- o The week before Election Day (3)
- o More than a week before Election Day (4)
- o I don't know or don't remember (5)

Now we'd like to ask you a few questions about communication you may have received from your county elections office after you returned your ballot.

When a ballot envelope is returned and not signed, or the signature on the envelope does not match the signature in your voter record, your ballot is temporarily challenged.

In these instances, county election offices will send a letter or notice inviting you to correct, fix, or "cure" the signature discrepancy leading to the temporary challenge of your ballot.

Q5_FORM Did you receive a letter in the mail from your county elections office inviting you to correct or “cure” the signature on your ballot?

- o Yes (1)
- o No (2)
- o I don't know or don't remember (3)

Q5_REJECTF Do you recall if this letter explained why your ballot was temporarily challenged?

- o Envelope was not signed (1)
- o Signature on envelope did not match signature on file (2)
- o I signed the wrong envelope (3)
- o I don't know or don't remember (4)

Q5_RESPONDF Did you respond to this letter inviting you to correct or “cure” your signature?

- o Yes (1)
- o No (2)
- o I don't know or don't remember (3)

Q5_NONRESPF Do you recall why you didn’t respond to this letter? (CHECK ALL THAT APPLY)

- ○ I did not have time (1)
- ○ I did not think my vote would matter after the election (2)
- ○ I thought my ballot would be too late to be counted (3)
- ○ I knew the election results (4)
- ○ The process was confusing (5)
- ○ I don't know or don't remember (6)

Q5_RESPONDFT About how long did it take you to respond to this letter to correct or “cure” the signature on your ballot?

- o I responded immediately (1)
- o I responded within 3 days (2)
- o I responded after 3 days (3)
- o I don't know or don't remember (4)

Q5_LANGF If you completed your ballot in a language other than English, did you receive the letter to correct or “cure” your ballot in that same language?

- o Yes (1)
- o No (2)
- o Some parts of the form were in the same language as my ballot, some were not (3)
- o I don't know or don't remember (4)
- o Not applicable (5)

Q6_CALL Did you receive a phone call from your county elections office or some other organization inviting you to correct or “cure” the signature on your ballot?

- o Yes (1)
- o No (2)
- o I don't know or don't remember (3)

Q6_ REJECTC Did the caller indicate why your ballot was temporarily challenged?

- o Envelope was not signed (1)
- o Signature on envelope did not match signature on file (2)
- o I signed the wrong envelope (3)
- o I don't know or don't remember (4)

Q6_RESPONDC Did the phone call help you to correct or “cure” your signature on your ballot?

- o Yes (1)
- o No (2)
- o I don't know or don't remember (3)

Q6_NONRESPF Do you recall why you were unable to correct or “cure” your ballot after the phone call? (CHECK ALL THAT APPLY)

- o I did not have time (1)
- o I did not think that my vote would matter after the election (2)
- o I thought that my ballot would be too late to be counted (3)
- o I knew the election results (4)
- o The process was confusing (5)
- o I did not trust the phone caller (6)
- o I don't know or don't remember (7)

Thank you for your answers. We'd like to gather your contact information, so we can process your $10 Tango Gift Card.

Q7_LAST Please enter your last name below:
LAST NAME: _____

Q7_FIRST Please enter your first name below:
FIRST NAME: _____

Q7_MID Please enter your middle name below:
MIDDLE NAME: _____

Q8_PHONE Please enter your phone number, including area code:
Please enter: _____

Q9_RESADD Please enter your residential address in Washington State:

Q9_ST
Street number and name: _____

Q9_ST2
Apartment or box number: _____
Q9_CITY
City or town: _____

Q9_ZIP
ZIP code: _____

Q10_ADD Does your mailing address in Washington differ from your residential address?

- o Yes (1)
- o No (2)

Q10_MAILADD Please enter your mailing address in Washington State:

Q10_ST
Street number and name: _____

Q10_ST2
Apartment or box number: _____

Q10_CITY
City or town: _____

Q10_ZIP
ZIP code: _____

Q11_EMAIL Please enter your email address. This is for study purposes only and will be used to share study results. This will not be shared with outside parties.

Q12_PREF Would you prefer your $10 Tango Gift Card be sent by mail or e-mail?

- o Mail (1)
- o E-mail (2)

Q13_BIRTH Before we process your $10 Tango Gift Card, please tell us a little about yourself, so we know we reached a representative sample of voters. Please enter your Month and Year of Birth.

Month Year

Please Select: (1) ▼ January (1 ... December (12) ▼ 1900 (1 ... 2023 (124)

Q14_HISP Are you of Hispanic, Latino, or Spanish origin?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q14_RACE Racial identity (please select all that apply):

- o White (1)
- o Black or African American (2)
- o American Indian or Alaska Native (3)
- o Asian (4)
- o Pacific Islander (5)
- o Other (please specific race or origin) (6) _____
- o Prefer Not to Respond (7)

Q15_GENDER Gender identity (please select all that apply):

- o Woman (1)
- o Man (2)
- o Transgender (3)
- o Non-binary/Non-conforming (4)
- o Prefer Not to Respond (5)

Finally, we'd like to ask you a few questions about any physical, mental, or emotional conditions you may have.

Q16_DEAF Are you deaf or have serious difficulty hearing?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q16_BLIND Are you blind or have serious difficulty seeing even when wearing glasses?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q16_COG Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q16_PHYS Do you have serious difficulty walking or climbing stairs?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q16_HLTH Do you have difficulty dressing or bathing?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q16_ERRANDS Because of a physical, mental, or emotional condition, do you have serious difficulty doing errands alone such as visiting a doctor's office or shopping?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q16_HOUSE Do you have a long-term health problem or impairment that limits the kind of work, housework, or other activities you are able to do?

- o No (1)
- o Yes (2)
- o Prefer Not to Respond (3)

Q17_INTERVIEW Please indicate if you are willing to be contacted to participate in a short follow-up interview over the phone or Zoom. These interviews will invite you to provide more information about your experience voting in Washington State. Interview participants will receive a $50 Gift Card and the interview will last 30 to 60 minutes.

- o Yes (1)
- o No (2)

Sources: Adona and Gronke (2018), American Community Survey (2020), Committee of Seventy (2020); MIT Election Data and Science Lab (2022), Schur and Kruse (2020).

APPENDIX 6: VOTER SURVEY DEMOGRAPHICS

Question	N	Percent
Age		
18-25	34	30.6
26-45	51	45.9
46-65	19	17.1
66 or older	7	6.3
Are you of Hispanic, Latino, or Spanish origin?		
No	81	73.0
Yes	25	22.5
Prefer not to respond	5	4.5
What is your racial identity?*		
American Indian or Alaska Native	6	4.9
Asian	18	14.8
Black or African American	7	5.7
Pacific Islander	1	1.0
White	67	54.9
Prefer Not to Respond	11	9.0
Other	12	10.0
What is your gender identity?		
Man	46	41.4
Nonbinary / Non-conforming	2	1.8
Woman	54	48.6
Prefer Not to Respond	9	8.1

Note: A sample of all voters whose ballots were rejected in November 2022 due to signature challenges were invited to participate in the survey. Of the 3,000 voters invited, a total of 111 voters responded to the survey.

Source: Washington State Ballots Project Voter Survey (2023)

APPENDIX 7: IN-DEPTH INTERVIEW QUESTION GUIDE

Begin with a few basic questions about voting:

Why is the act of voting important to you?

Do you vote in most elections?

To understand experience mailing, delivering, or depositing your ballot in the November 2022 election:

Do you recall when you completed and submitted your ballot?

Where did you mail or deposit your ballot?

Have you experienced difficulties completing your ballot?

To understand the communication received from your county or local election office regarding your ballot's challenged status in November 2022:

Is this the first time you have had a ballot returned due to signature challenges or a missing signature?

Did you cure your ballot?

How easy was the process to cure your ballot?

To understand impressions of voting materials:

Do you recall if the directions for completing the election ballot are easy to understand?

Do you feel like timelines are clearly communicated within your ballot materials such as drop off deadlines and locations?

Do you feel your ballot is secure once it is submitted through either drop in boxes/mail/in person?

APPENDIX 8: IN-DEPTH INTERVIEW PARTICIPANT DEMOGRAPHICS

	Percent	N
Age		
18-25	27.8	5
26-45	50	9
46-65	22.2	4
66 or older	0	0
Are you of Hispanic, Latino, or Spanish origin?		
No	55.6	10
Yes	38.9	7
Prefer not to respond	5.5	1
Self-reported racial identity?		
American Indian or Alaska Native	0	0
Asian	5.5	1
Black or African American	11.1	2
Pacific Islander	0	0
White	55.5	10
Prefer Not to Respond	16.7	3
Other	11.1	2
What is your gender identity?		
Man	44.4	8
Nonbinary / Non-conforming	5.5	1
Woman	38.9	7
Prefer Not to Respond	11.1	2

Note: Of 111 valid responses to our voter survey, 53 respondents were identified and contacted to participate in a 30-minute interview about their voting experience in Washington state. In total, 18 voters participated in this project through interviews.

Source: Washington State Ballots Project Voter Survey (2023)

APPENDIX 9: INTERVIEW GUIDE FOR IN-DEPTH INTERVIEWS WITH COUNTY ELECTION STAFF

How many full time or part time permanent staff does your elections team have, and how many seasonal staff do you bring on during an election period?

Does your county currently use a sorter to electronically capture the signature on the return envelope that then can be used for signature verification?

IF NO:
If you had the resources to purchase and maintain a sorter, would your county be likely to acquire one?

- Yes
- No

Which of the following 3 realities of ballot processing would a sorter most impact in your county?

- Accuracy of signature verification
- Staff time
- Security of election

Who performed signature verification for your county in the most recent Primary? (check all that apply)

- Seasonal Staff
- Permanent Election Staff
- Permanent Staff from other parts of the Auditor's Office or County
- Canvassing Board Members
- Other – _____

What training(s) does your signature verification staff take? (check all that apply)

- OSOS sponsored signature verification training (formerly provided by WSP)
- Implicit bias training
- Other -- _____

How soon after identifying a signature challenge will you contact a voter that has a challenged signature? (Check all that apply)

- Right away
- Before election day if the ballot is returned before election day
- Three days before certification
- Other -- _____

How do you typically reach out to voters with challenged ballots? (Check all that apply)

- Mailed letter
- Phone call
- Email
- Other -- _____

Will your canvassing board perform their own signature verification on the challenged envelope signatures before rejecting or will they act on a recommendation from staff?

- Perform signature verification
- Act on recommendation

Have you made any modifications to your envelopes to improve a voter's likelihood of providing a verifiable signature?

Do you identify and flag signatures that should be updated during your signature verification process? If so, how?

Does your office perform any outreach to obtain updated signatures from registered voters? Please describe.

Have you done any educational activity to inform voters about the importance of their ballot signature matching what is on file?

What, if any, materials will you translate and provide to voters in languages other than English to help with the signature verification and challenge curing processes? (i.e. ballots, cure letters, envelopes and instructions)

If you are translating materials into languages other than English, how are you determining the languages to provide?

Could you describe the members and activities of your county's advisory committee (either individually or across counties) that consults on elections access for voters with disabilities?

Are there community, advocacy, or citizen groups in your county that reach out to voters that need to cure their ballot or for voter education? Describe.

Is there anything else you wish to share about best practices in your county or where your county needs support to improve the rate of rejected ballots?

APPENDIX 10: DISCUSSION OF ELECTION ADMINISTRATION PRIORITIES FROM PROJECT CONVENINGS

Emerging from the workshops as top priorities were the following:

- Voter education that covers process, deadlines, and signatures
    - Groups noted the need for education about the voting process, deadlines, signature requirements, and curing procedures. Some of the smaller groups of notes could also be categorized as voter education, though for specific issues.
- Communication between voters and election office
    - Participants across groups noted the need to establish multiple points of contact with voters. These points include having access to email addresses and phone numbers for 1:1 communication as well as in-person outreach events and social media.
- Developing and sustaining relationships with organizations
    - Collaboration with community organizations, like the League of Women Voters, are instrumental in distributing and reaching voters across the state. Participants also mentioned the importance of civic education in high school classes.
- Voter Responsibility
    - There was also a theme for voter education and outreach, but this theme included a list of things that they felt voters should know and be able to do correctly, taking some responsibility for their own ballot. In the discussion, some expressed frustration that the information they provided did not ensure that ballots were successfully accepted.
- Innovation and Alternatives
    - Includes ideas about structural and procedural changes. Participants proposed alternative methods for collecting signatures, envelope design, ID verification, and scanning ballots as ideas on their mind.

Recommended approaches to solve the challenges elections systems face include:

- Signature Maintenance: Using signatures from past accepted ballots, investing in technical improvements to increase Department of Licensing signature quality, and partnering with other agencies to gather multiple voter signatures can help ensure access to high-quality signatures and decrease signature mismatches. Sending preemptive signature update letters to voters, comparing signatures to previously accepted ballot signatures, and instructing voters to emulate license signatures on their ballot can help address high rejection rates and provide clarity to voters.
- Elections Communications re: Language and Literacy: Utilizing design experts, increasing access to translators, implementing minimum state standards for language accessibility, and instituting state-lead voter education efforts can mitigate these issues. Expanding access to translated election information, creating more accessible ballot language, and ensuring that voting materials are culturally relevant can contribute to a more participatory electorate.
- Voter Education Programs and Materials: Promoting the Future Voter Program, implementing a statewide voter information campaign, and building relationships between election offices and trusted community organizations can build an informed electorate armed with accurate information. Elevating counties' best practices, working to clarify inaccessible voting language,

and investing in educational outreach, such as at the Department of Licensing when registering to vote can help combat voter apathy and election misinformation.

- Signature and County Staff Training: Updating the SOS signature training, implementing multiple layers of review before accepting/rejecting a ballot, and expanding the accessibility of signature training can support county election staff.
- Alternatives to Signatures and Innovative Practices: To support as much participation and inclusion as possible, counties and the state can work to standardize ballot design, modernize the voter notification process, and explore alternatives to signature verification. Any new practices need to remain safe and reliable, be within legal bounds (which may need some change as well) and be equitable for all demographic groups.
- Improving County Resources: Each Washington county's elections manager stylizes elections requirements based on resource availability and knowledge. When different counties have access to different technology and staff, inequities are created that cause different and sometimes discouraging voter experiences that do not meet modern voting expectations.

Further elaboration of these ideas and additional recommendations are reflected in the recommendations section of this report.

APPENDIX 11: BALLOTS CAST AND REJECTED IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2012 TO 2022

	Number of Ballots Cast		Number of Ballots Rejected		Percent of Ballots Cast that are Rejected	
Year	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2012	1,458,357	3,207,602	22,754	34,647	1.6%	1.1%
2013	848,737	1,794,914	11,645	22,618	1.4%	1.3%
2014	1,239,593	2,150,776	16,864	26,161	1.4%	1.2%
2015	597,037	1,545,145	8,731	16,809	1.5%	1.1%
2016	1,452,283	3,401,591	21,129	35,927	1.5%	1.1%
2017	1,042,335	1,601,152	14,380	18,533	1.4%	1.2%
2018	1,782,911	3,171,933	29,112	34,428	1.6%	1.1%
2019	1,196,162	2,060,929	19,351	25,406	1.6%	1.2%
2020	2,553,672	4,158,350	40,299	32,334	1.6%	0.8%
2021	1,314,332	1,921,286	19,509	24,213	1.5%	1.3%
2022	1,970,363	3,108,271	27,935	38,237	1.4%	1.2%
Total, 2012-2022	15,455,782	28,121,949	231,709	309,313	1.5%	1.1%

Note: Statewide figures of county-level ballot data reported. Reported percentages rounded to the nearest tenth of a percent.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 12: BALLOTS CAST AND REJECTED IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2020 TO 2022

Year	Number of Ballots Cast		Number of Ballots Rejected		Percent of BallotS Cast that are Rejected	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2020	2,728,339	4,466,315	39,067	31,414	1.4%	0.7%
2021	1,424,932	2,057,186	19,238	23,800	1.4%	1.2%
2022	2,082,500	3,261,100	27,630	37,227	1.3%	1.1%
Totals 2020-2022	6,235,771	9,784,601	85,935	92,441	1.4%	0.9%

Note: Statewide figures of voter-level ballot data reported. Reported percentages rounded to the nearest tenth of a percent.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

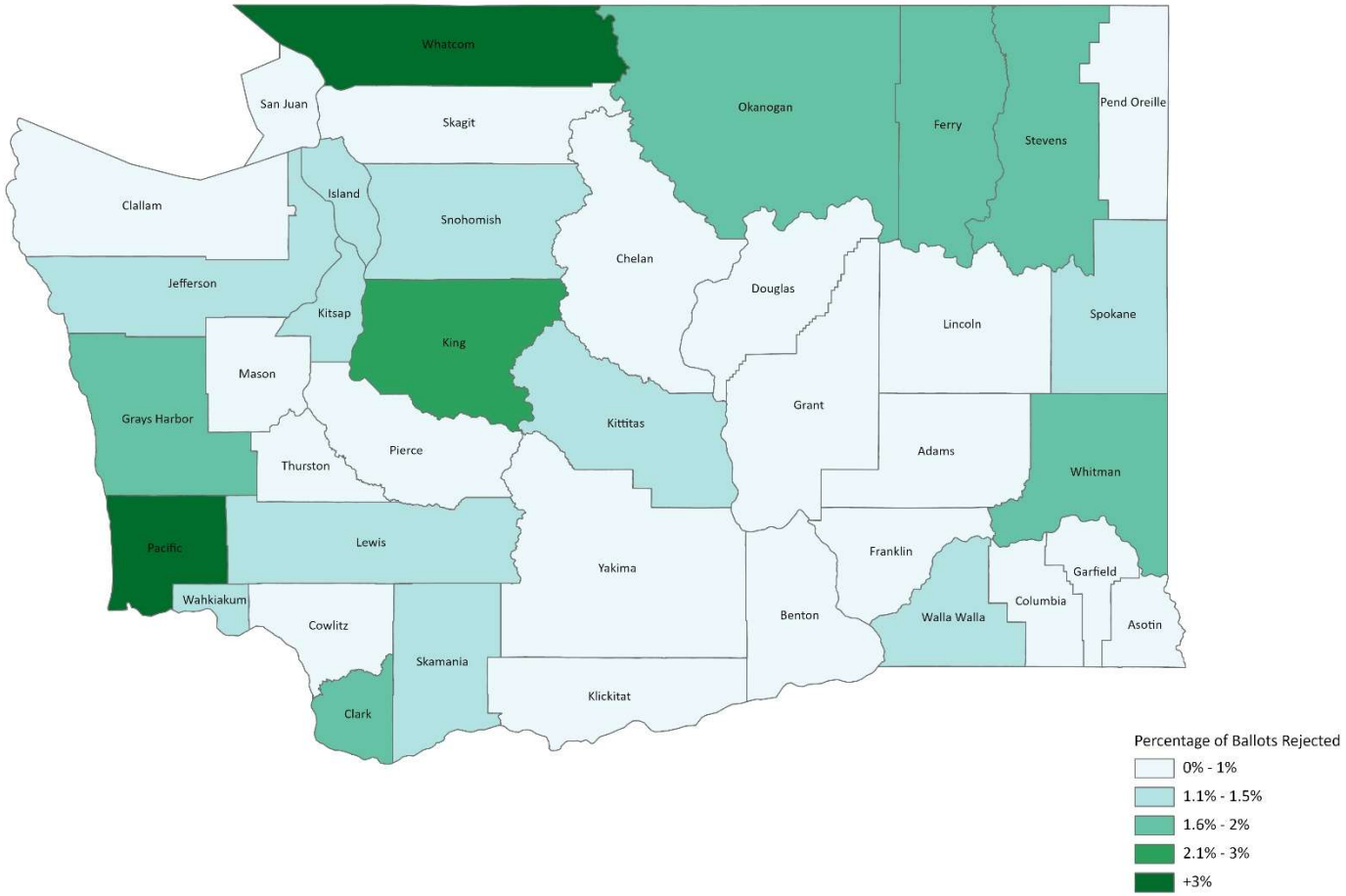
APPENDIX 13: VOTER SURVEY RESPONSES - BALLOT RETURN METHODS

Online Survey Question	N	Percent
Which of the following statements most accurately describes where your ballot was returned?		
Drop box used only for ballots	52	51.5
Mailed at a post office box within an official U.S. Postal Service location	29	28.7
Mailed at a post office box, but not at an official U.S. Postal Service location	2	2.0
Picked up by a postal worker who delivers mail to my home	15	14.9
I don't know or I don't remember	3	3.0
Please select the statement that best applies to why you decided to return your ballot where you did.		
It was convenient to my work or school	14	13.9
It was close to my home	51	50.5
It was close or on my way to where I had errands to run	16	15.8
It was the only location available to me	3	3.0
It was the most secure, safest location	13	12.9
Another reason	1	1.0
I don't know or I don't remember	3	3.0
To the best of your memory, when did you drop off or mail in your ballot?		
A few days before Election Day	41	40.6
More than a week before Election Day	20	19.8
On Election Day	20	19.8
The week before Election Day	13	12.9
I don't know or I don't remember	7	6.9

Note: Only a sample of all voters whose ballots were rejected in November 2022 due to signature challenges were invited to participate in the survey. Of the 3,000 voters invited, a total of 111 voters responded to the survey.

Source: Washington State Ballots Project Voter Survey (2023)

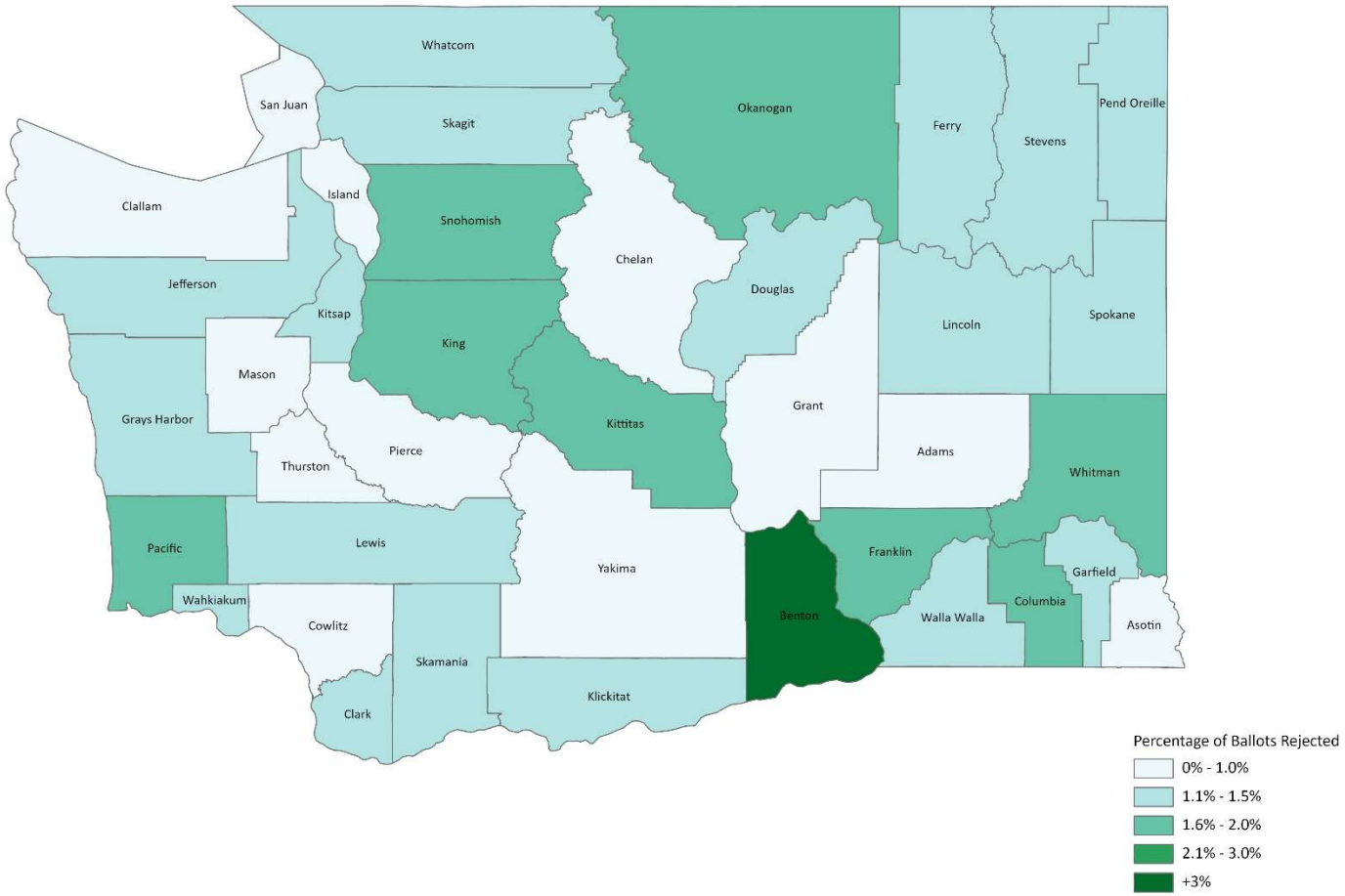
APPENDIX 14: PERCENTAGE OF BALLOTS REJECTED IN 2012 PRIMARY ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

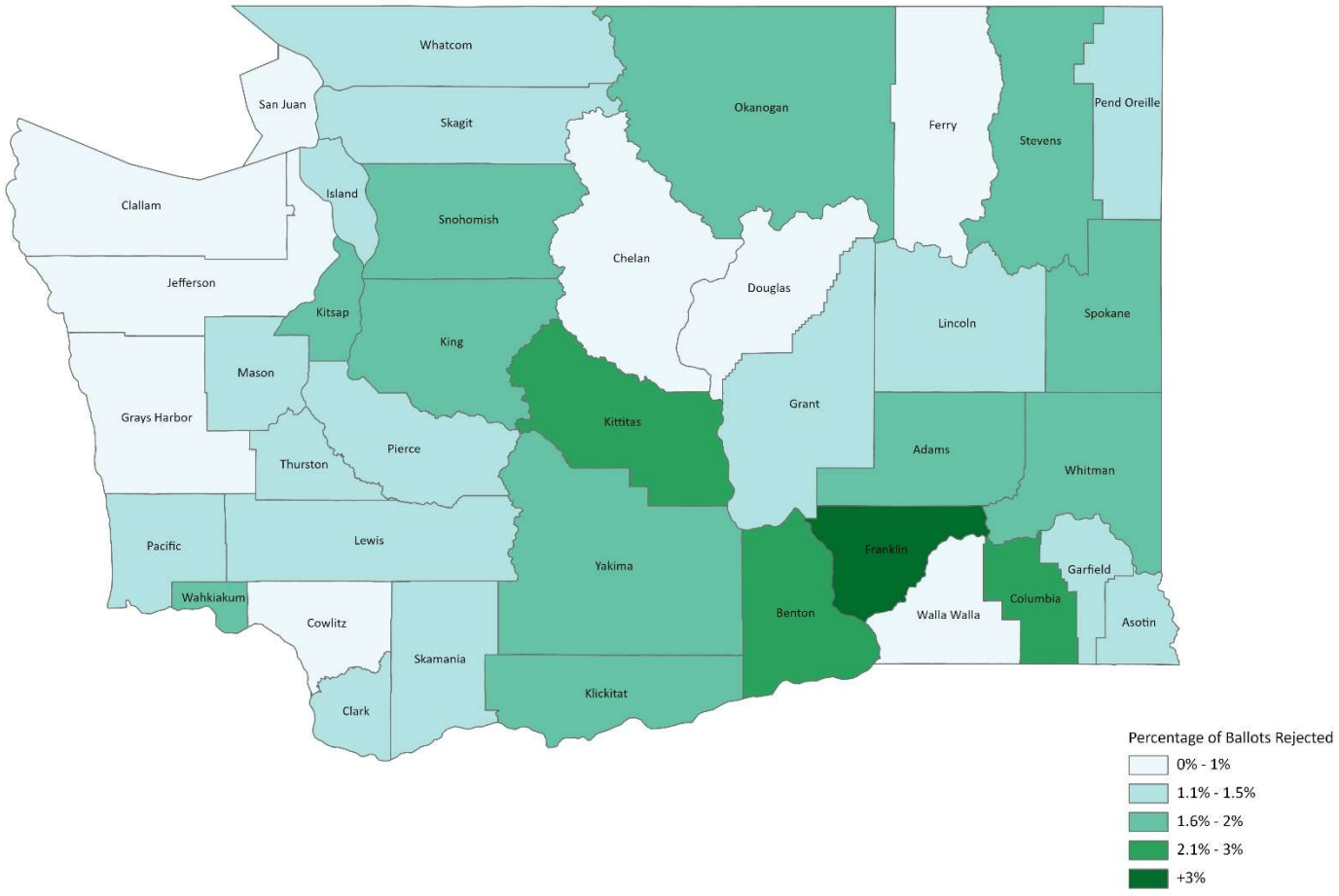
APPENDIX 15: PERCENTAGE OF BALLOTS REJECTED IN 2016 PRIMARY ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

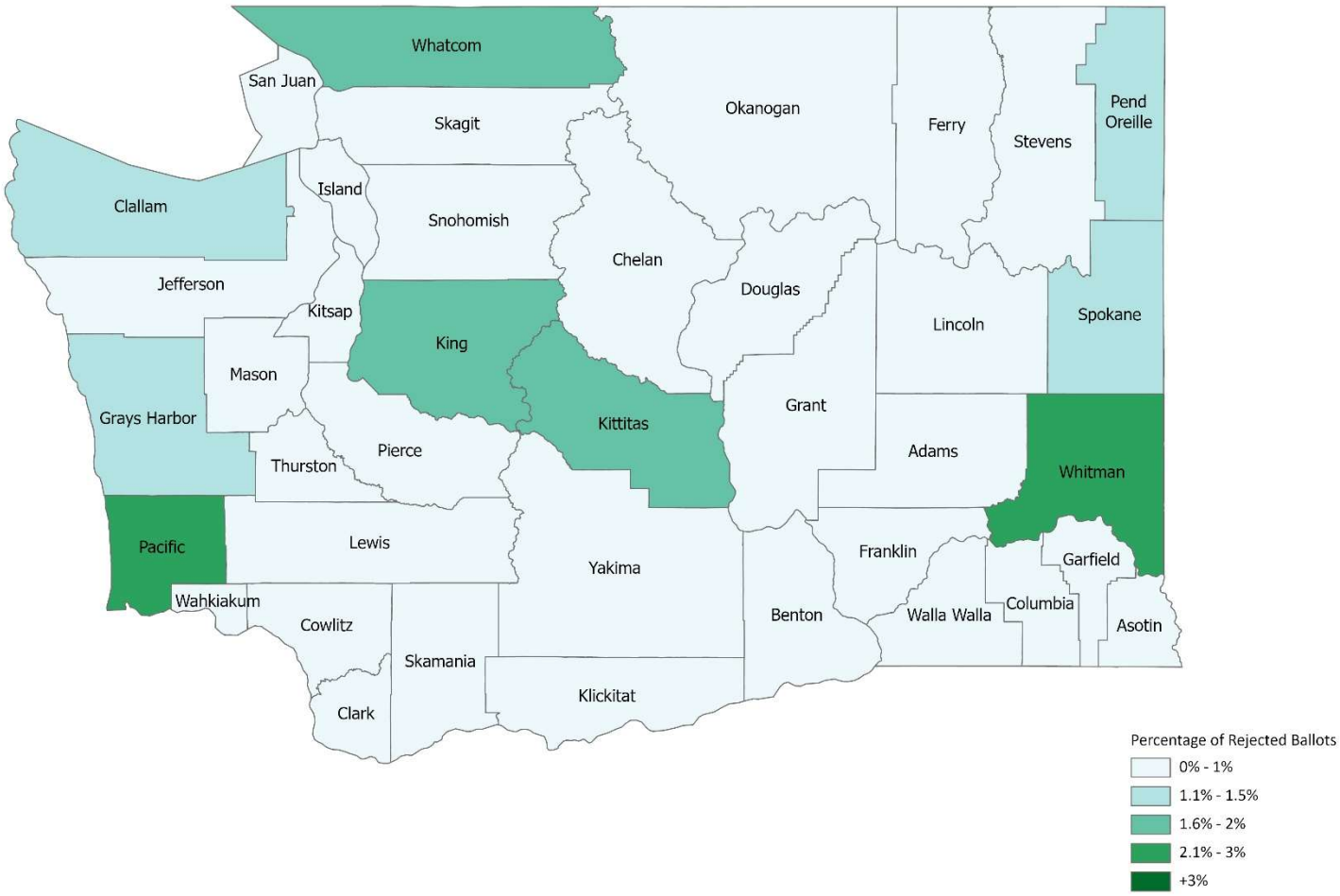
APPENDIX 16: PERCENTAGE OF BALLOTS REJECTED IN 2020 PRIMARY ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

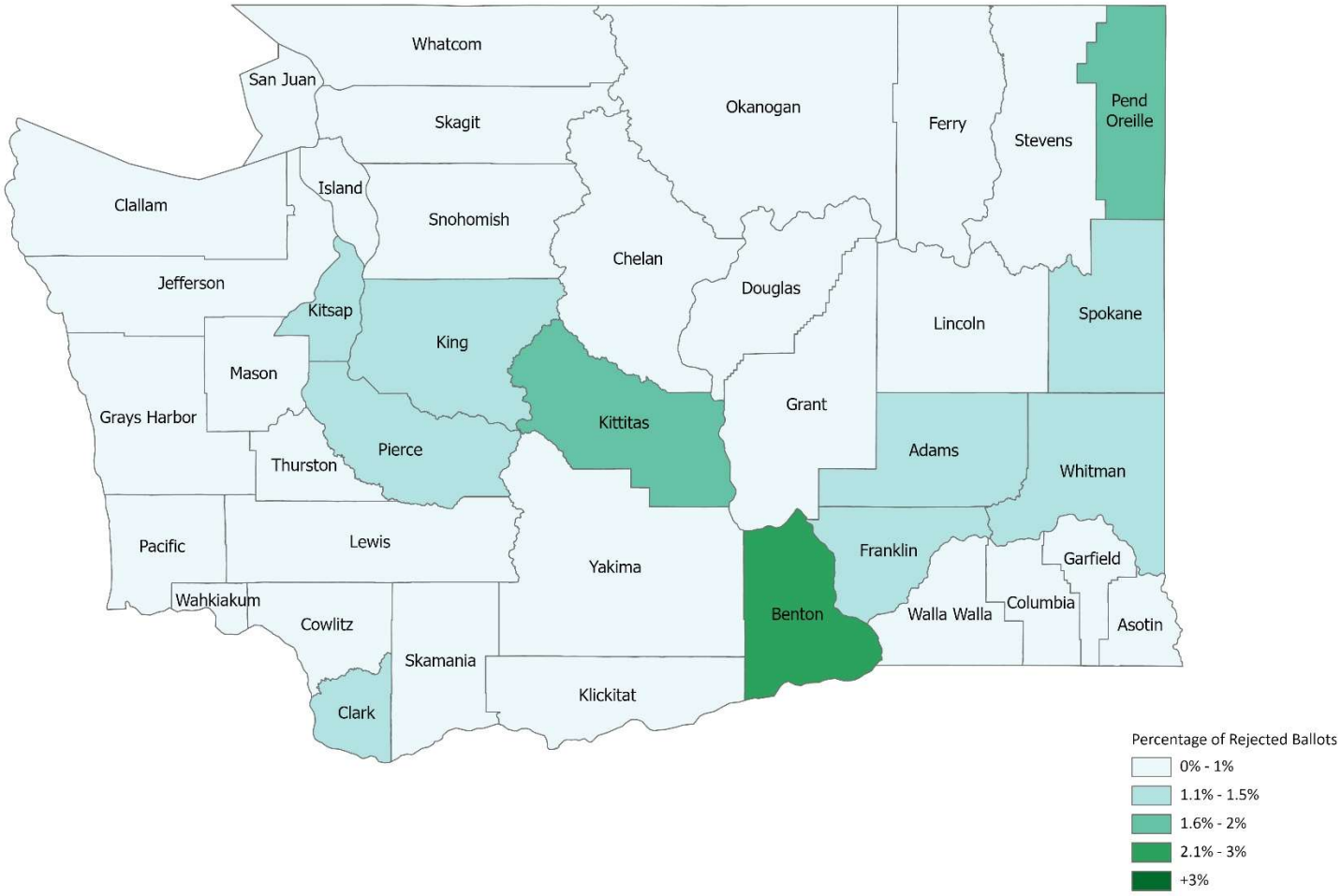
APPENDIX 17: PERCENTAGE OF BALLOTS REJECTED IN 2012 GENERAL ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

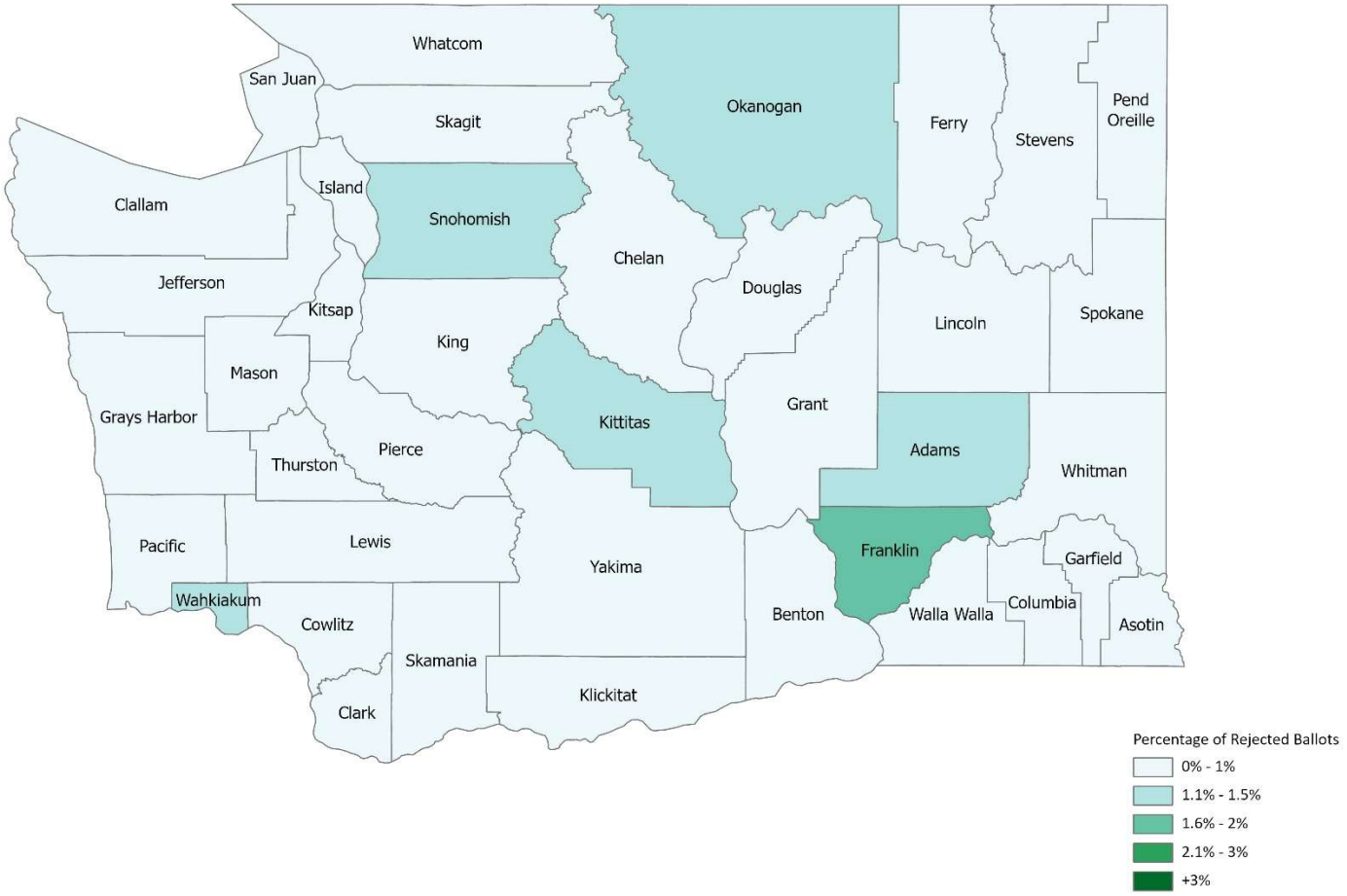
APPENDIX 18: PERCENTAGE OF BALLOTS REJECTED IN 2016 GENERAL ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 19: PERCENTAGE OF BALLOTS REJECTED IN 2020 GENERAL ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 20: COUNTIES WITH THE LOWEST AND HIGHEST PERCENTAGES OF REJECTED BALLOTS IN GENERAL ELECTIONS IN WASHINGTON STATE, 2012 TO 2020

	General Election Year		
	2012	**2016**	**2020**
Five Counties with Highest Ballot Rejection Rates	Pacific (2.2%)	Benton (2.8%)	Franklin (1.6%)
	Whitman (2.0%)	Pend Oreille (1.9%)	Okanogan (1.3%)
	Whatcom (1.7%)	Kittitas (1.6%)	Adams (1.2%)
	King (1.6%)	Whitman (1.3%)	Kittitas (1.2%)
	Kittitas (1.5%)	Pierce (1.3%)	Wahkiakum (1.1%)
Average County Ballot Rejection Rate	**1.1%**	**1.1%**	**0.8%**
Five Counties with Lowest Ballot Rejection Rates	Garfield (0.1%)	Columbia (0.2%)	Columbia (0.1%)
	Wahkiakum (0.1%)	Ferry (0.2%)	Pend Oreille (0.3%)
	Lincoln (0.1%)	San Juan (0.3%)	San Juan (0.3%)
	Columbia (0.3%)	Stevens (0.4%)	Ferry (0.3%)
	Benton (0.3%)	Cowlitz (0.4%)	Jefferson (0.3%)

Note: County-level ballot data reported. Numbers in parentheses are percentages of all ballots cast that were rejected.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 21: REASONS BALLOTS REJECTED IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2017 TO 2022

Total Number of Ballots

	No Signature		No Signature Match		Arrived Late		Total Rejected	
Year	Primary	General	Primary	General	Primary	General	Primary	General
2017	2,175	3,372	3,535	5,811	7,447	8,824	14,380	18,533
2018	2,890	4,696	7,932	17,673	17,167	9,379	29,112	34,428
2019	2,153	2,928	4,015	7,340	12,552	14,337	19,351	25,406
2020	5,912	4,679	12,056	23,823	21,679	2,373	40,299	32,334
2021	2,655	3,306	5,018	7,446	11,482	12,943	19,509	24,213
2022	2,892	5,023	10,072	23,755	14,574	8,358	27,935	38,237

Note: Statewide figures of county-level ballot data reported.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 22: REASONS BALLOTS REJECTED IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2020 TO 2022

	Percent of All Ballots Cast Rejected Because . . .					
	No Signature		No Signature Match		Arrived Late	
Year	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2020	0.2%	0.1%	0.4%	0.5%	0.8%	0.1%
2021	0.2%	0.2%	0.4%	0.4%	0.8%	0.6%
2022	0.1%	0.2%	0.5%	0.7%	0.7%	0.3%

Note: Statewide figures of voter-level ballot data reported.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

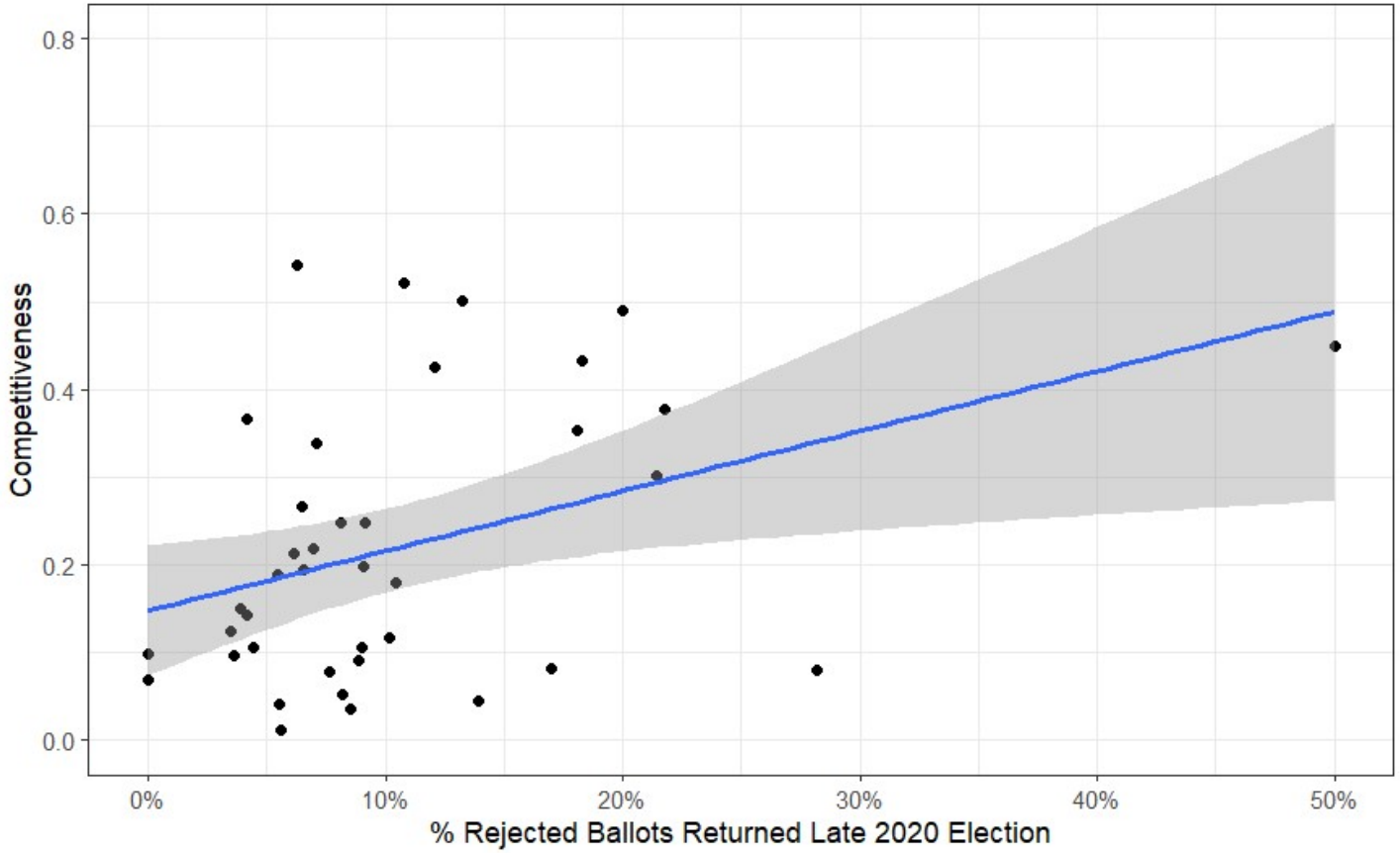
APPENDIX 23: REASONS BALLOTS REJECTED IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2020 TO 2022

	Percent of Rejected Ballots					
	No Signature		No Signature Match		Arrived Late	
Year	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2020	15.1%	15.3%	30.6%	75.5%	53.9%	7.9%
2020	13.8%	13.9%	26.0%	31.3%	59.8%	54.4%
2021	10.5%	13.4%	36.4%	63.7%	52.7%	22.4%
2022						

Note: Statewide figures of voter-level ballot data reported.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

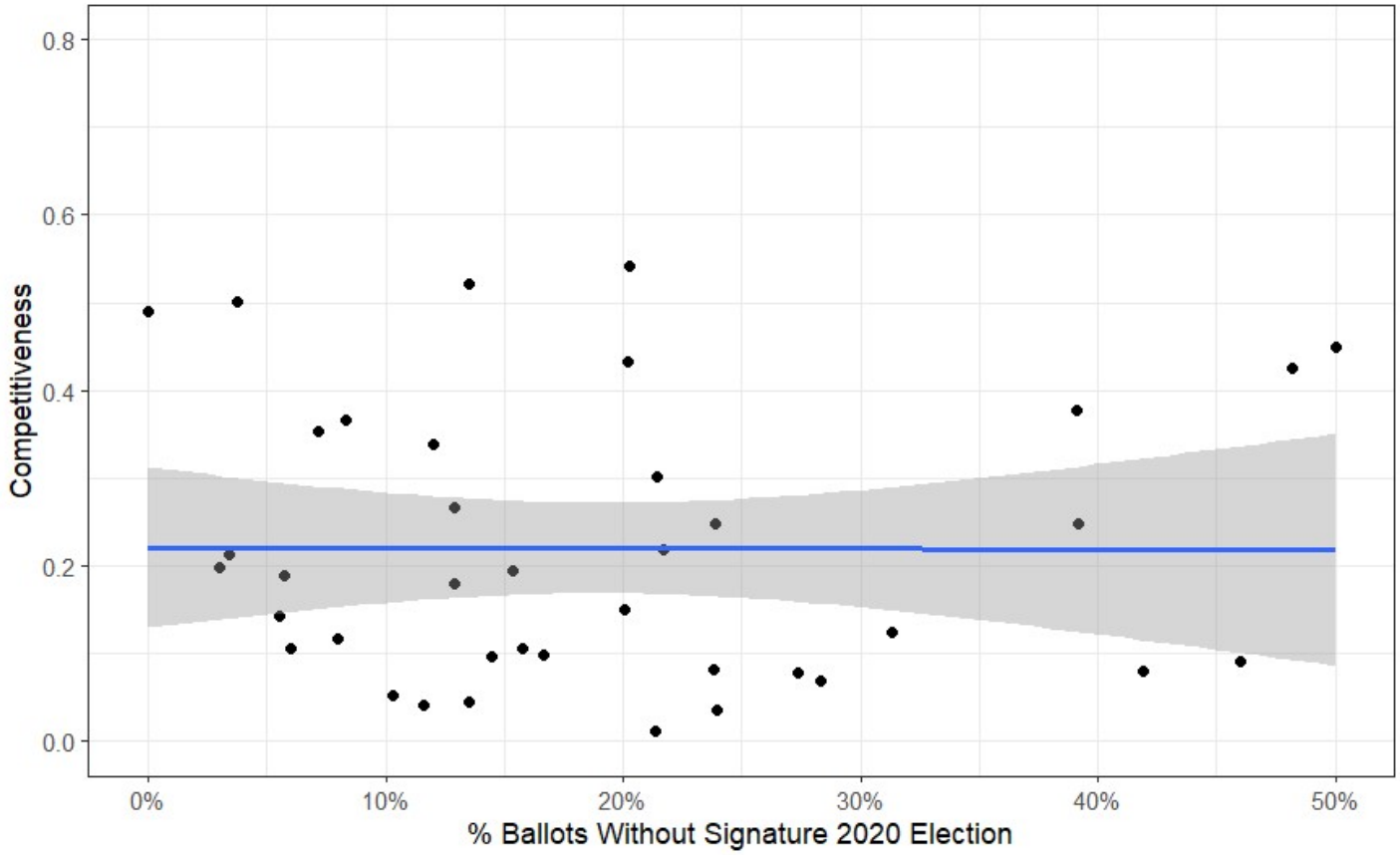
APPENDIX 24: COMPARING PERCENT BALLOTS ARRIVING LATE ACROSS COUNTY ELECTORAL COMPETITIVENESS IN 2020 GENERAL ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported. Each dot reflects a county-election year data point for a general election.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

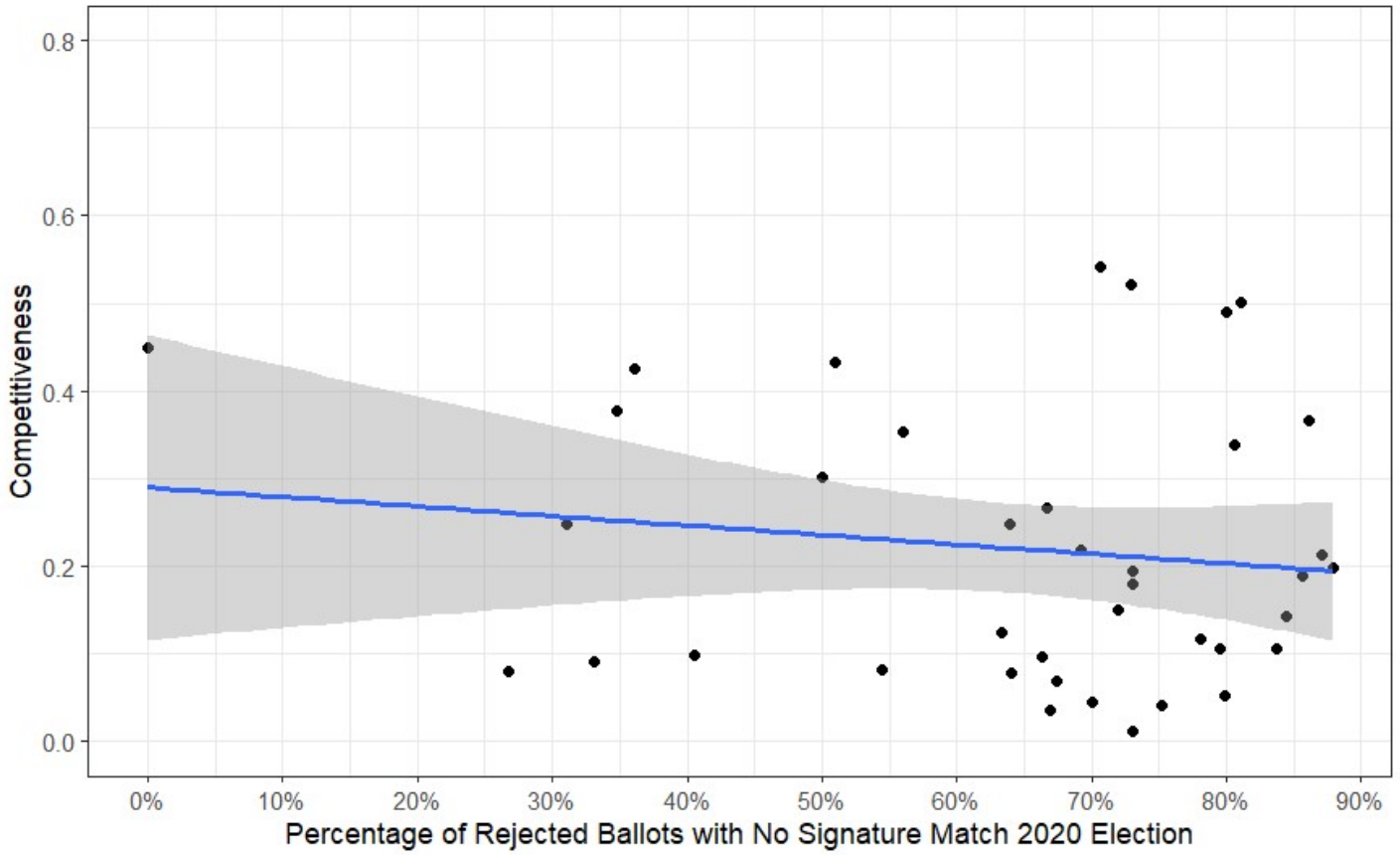
APPENDIX 25: COMPARING PERCENT BALLOTS REJECTED FOR NO SIGNATURE ACROSS COUNTY ELECTORAL COMPETITIVENESS IN 2020 GENERAL ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported. Each dot reflects a county-election year data point for a general election.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 26: COMPARING PERCENT BALLOTS REJECTED FOR MISMATCHED SIGNATURE ACROSS COUNTY ELECTORAL COMPETITIVENESS IN 2020 GENERAL ELECTION IN WASHINGTON STATE



Note: County-level ballot data reported. Each dot reflects a county-election year data point for a general election.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 27: DEMOGRAPHIC CHARACTERISTICS OF VOTERS CASTING BALLOTS AND WITH REJECTED BALLOTS IN 2020 AND 2022 GENERAL ELECTIONS IN WASHINGTON STATE

	2020 General Election				2022 General Election			
	Total Ballots Cast	% of All Ballots Cast	Total Number Ballots Rejected	% of All Rejected Ballots	Total Ballots Cast	% of All Ballots Cast	Total Number Ballots Rejected	% of All Rejected Ballots
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Imputed Race and Ethnicity								
Black	144,144	3.7%	1,220	4.6%	99,803	3.5%	1,252	4.0%
Hispanic	268,751	7.0%	3,073	11.7%	158,711	5.6%	2,371	7.6%
Asian	248,595	6.5%	2,741	10.4%	162,268	5.7%	2,876	9.2%
White	3,186,934	82.8%	19,328	73.3%	2,418,832	85.2%	24,615	79.1%
Gender								
Female	2,283,309	52.0%	13,229	43.5%	1,659,279	51.9%	16,812	46.6%
Male	2,082,188	47.7%	17,207	56.5%	1,535,975	48.1%	19,273	53.4%
Age								
18 to 25	475,657	10.6%	10,000	31.8%	222,642	6.8%	9,498	25.5%
26 to 45	1,489,504	33.3%	14,114	44.9%	931,979	28.6%	15,834	42.5%
46 to 65	1,483,559	33.2%	5,579	17.8%	1,134,382	34.8%	8,830	23.7%
66 or older	1,017,595	22.8%	1,721	5.5%	972,094	29.8%	3,064	8.2%
County Geography								
Metropolitan	3,563,221	89.0%	24,560	90.3%	2,646,146	88.4%	30,022	91.9%
Non-metropolitan	438,900	11.0%	2,626	9.7%	347,312	11.6%	2,654	8.1%
Total	4,466,315	--	31,414	--	3,261,100	--	37,227	--

Note: Statewide figures of voter-level ballot data reported. Reported column percentages rounded to the nearest tenth of a percent. This table omits voters where data limitations prevented imputation of race or ethnicity. Due to sample sizes, this table does not report gender categories in the administrative data of "other" or "not listed."

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

APPENDIX 28: DEMOGRAPHIC CHARACTERISTICS OF VOTERS CASTING BALLOTS AND WITH REJECTED BALLOTS IN 2020 AND 2022 PRIMARY ELECTIONS IN WASHINGTON STATE

	2020 Primary Election				2022 Primary Election			
	Total Ballots Cast	% of All Ballots Cast	Total Number Ballots Rejected	% of All Rejected Ballots	Total Ballots Cast	% of All Ballots Cast	Total Number Ballots Rejected	% of All Rejected Ballots
Imputed Race and Ethnicity								
Black	85,822	3.6%	1,315	4.0%	61,857	3.4%	797	3.4%
Hispanic	129,203	5.4%	2,510	7.6%	89,522	4.9%	1,446	6.1%
Asian	127,145	5.3%	2,408	7.3%	88,350	4.8%	1,619	6.8%
White	2,039,658	85.6%	26,894	81.2%	1,594,103	87.0%	19,808	83.7%
Gender								
Female	1,424,116	53.0%	18,541	48.5%	1,072,775	52.4%	13,027	48.3%
Male	1,262,556	47.0%	19,710	51.5%	975,546	47.6%	13,956	51.7%
Age								
18 to 25	202,678	7.4%	6,844	17.5%	111,332	5.3%	4,617	16.7%
26 to 45	748,427	27.4%	15,502	39.7%	465,120	22.3%	9,643	34.9%
46 to 65	964,901	35.4%	11,980	30.7%	718,808	34.5%	8,812	31.9%
66 or older	812,333	29.8%	4,741	12.1%	787,240	37.8%	4,558	16.5%
County Geography								
Metropolitan	2,206,427	88.3%	31,499	90.8%	1,690,690	87.4%	22,260	89.2%
Non-metropolitan	292,363	11.7%	3,176	9.2%	243,478	12.6%	2,697	10.8%
Total	2,728,339	--	39,067	--	2,082,500	--	27,630	--

Note: Statewide figures of voter-level ballot data reported. Reported column percentages rounded to the nearest tenth of a percent. This table omits voters where data limitations prevented imputation of race or ethnicity. Due to sample sizes, this table does not report gender categories in the administrative data of "other" or "not listed."

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

APPENDIX 29: REASONS BALLOTS ARE REJECTED IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE BY GEOGRAPHY, 2017 TO 2022 (COUNTY-LEVEL DATA)

Metropolitan Counties

Percent of Rejected Ballots

Year	No Signature		No Signature Match		Arrived Late	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2017	14.7%	17.8%	24.7%	39.1%	52.3%	48.1%
2018	9.2%	13.0%	27.5%	61.1%	59.4%	27.7%
2019	10.3%	10.8%	21.0%	36.4%	65.5%	57.6%
2020	14.5%	14.8%	29.5%	74.2%	54.5%	7.7%
2021	13.3%	13.3%	25.8%	30.9%	59.1%	53.7%
2022	9.7%	12.5%	36.4%	63.3%	52.6%	21.6%

Nonmetropolitan Counties

Percent of Rejected Ballots

Year	No Signature		No Signature Match		Arrived Late	
	Primary (1)	General (2)	Primary (3)	General (4)	Primary (5)	General (6)
2017	23.2%	22.1%	24.3%	31.6%	47.9%	43.4%
2018	17.0%	19.6%	24.9%	50.8%	54.6%	22.5%
2019	21.3%	17.9%	18.2%	31.4%	56.7%	46.4%
2020	16.5%	16.7%	34.7%	71.7%	45.8%	7.1%
2021	17.7%	16.4%	23.9%	29.4%	55.5%	51.5%
2022	16.0%	20.4%	32.7%	47.6%	48.7%	25.2%

Note: County-level ballot data reported. Percentage of ballots rejected reflects the number of ballots rejected divided by the total number of ballots rejected and accepted. Other statuses for ballots cast are not included in the denominator.

Source: Washington Secretary of State's Elections Data and Statistics (2022)

APPENDIX 30: PERCENTAGE OF REJECTED BALLOTS WITH NO SIGNATURE IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2020 TO 2022

	Percent of Rejected Ballots					
	2020		2021		2022	
	Primary	General	Primary	General	Primary	General
Black	14.4%	14.0%	13.1%	13.1%	9.5%	13.1%
Hispanic	12.1%	14.7%	13.4%	13.4%	9.8%	13.4%
Asian	14.7%	12.3%	10.8%	11.2%	7.5%	10.4%
White	14.2%	14.5%	13.7%	13.3%	10.5%	13.3%
Female	13.6%	13.6%	12.8%	12.4%	9.6%	12.2%
Male	16.4%	16.5%	14.6%	15.1%	11.2%	14.7%
18 to 25	9.6%	10.1%	8.3%	7.4%	4.9%	6.8%
26 to 45	13.4%	13.8%	11.0%	11.6%	8.2%	11.1%
46 to 65	16.7%	23.1%	14.7%	15.9%	11.5%	18.9%
66 or older	24.2%	31.8%	21.2%	21.2%	18.8%	30.7%
Metropolitan	13.7%	13.8%	12.9%	12.6%	9.4%	12.2%
Non-metropolitan	16.8%	17.0%	18.1%	16.7%	16.2%	21.4%

Note: Statewide figures of voter-level ballot data reported. Differences in ballot rejection rates for all in-group comparisons within a given election are statistically distinct from zero at the .10 level, ***except for*** the following pairs: Black/Asian, Asian/White, Black/White in Primary 2020; Black/Hispanic, Hispanic/White, Black/White in General 2020; Black/Hispanic, Hispanic/White, Black/White in Primary 2021; Hispanic/White in General 2021; Black/Hispanic in Primary 2022; Black/Hispanic/Asian/White in General 2022.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

APPENDIX 31: PERCENTAGE OF REJECTED BALLOTS WITH SIGNATURE MISMATCH IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2020 TO 2022

	Percent of Rejected Ballots					
	2020		2021		2022	
	Primary	General	Primary	General	Primary	General
Black	32.0%	77.3%	26.1%	35.6%	38.9%	64.7%
Hispanic	33.4%	76.7%	31.7%	33.2%	40.7%	64.8%
Asian	35.9%	80.3%	35.6%	39.5%	40.4%	70.5%
White	30.7%	75.7%	25.1%	31.3%	36.5%	63.1%
Female	28.2%	75.6%	22.4%	28.5%	33.6%	61.7%
Male	32.7%	75.5%	28.8%	33.6%	38.7%	65.2%
18 to 25	52.5%	82.0%	54.6%	56.2%	66.5%	75.8%
26 to 45	35.0%	78.0%	32.1%	36.7%	42.3%	67.7%
46 to 65	19.5%	64.8%	16.9%	21.7%	24.6%	52.3%
66 or older	12.6%	51.0%	10.6%	14.2%	16.2%	38.2%
Metropolitan	31.1%	77.1%	26.6%	32.7%	37.7%	65.4%
Non-metropolitan	35.8%	75.5%	24.6%	30.3%	33.6%	51.4%

Note: Statewide figures of voter-level ballot data reported. Differences in ballot rejection rates for all in-group comparisons within a given election are statistically distinct from zero at the .10 level, ***except for*** the following pairs: Black/Hispanic in Primary 2020; Black/Hispanic and Hispanic/White in General 2020; Black/White in Primary 2021; Black/Hispanic in General 2021; Black/Hispanic and Hispanic/Asian in Primary 2022; Black/Hispanic in General 2022; Metro/Nonmetro in Primary 2021; Female/Male in General 2020.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

APPENDIX 32: PERCENTAGE OF REJECTED BALLOTS ARRIVING LATE IN PRIMARY AND GENERAL ELECTIONS IN WASHINGTON STATE, 2020 TO 2022

	Percent of Rejected Ballots Cast					
	2020		2021		2022	
	Primary	General	Primary	General	Primary	General
Black	53.1%	7.2%	60.2%	50.8%	51.3%	21.9%
Hispanic	54.1%	7.2%	54.6%	53.0%	49.3%	21.2%
Asian	48.6%	5.9%	53.2%	48.4%	51.6%	18.5%
White	54.6%	8.4%	60.8%	54.9%	52.6%	23.1%
Female	57.7%	9.3%	64.3%	58.6%	56.4%	25.7%
Male	50.4%	6.8%	56.2%	50.8%	49.7%	19.6%
18 to 25	37.4%	6.8%	36.7%	35.7%	28.1%	16.8%
26 to 45	51.2%	7.0%	56.6%	51.3%	49.1%	20.9%
46 to 65	63.4%	10.4%	68.0%	62.1%	63.6%	28.4%
66 or older	62.2%	13.4%	67.4%	63.8%	64.4%	30.0%
Metropolitan	54.6%	7.6%	60.1%	54.2%	52.4%	21.9%
Non-metropolitan	47.1%	7.1%	56.6%	52.5%	50.1%	26.8%

Note: Statewide figures of voter-level ballot data reported. Differences in ballot rejection rates for all in-group comparisons within a given election are statistically distinct from zero at the .10 level, ***except for*** the following pairs: Black/Hispanic/White in Primary 2020; Black/Hispanic in General 2020; Hispanic/Asian and Black/White in Primary 2021; Black/Hispanic, Black/Asian, and Hispanic/White in General 2021; Black/Hispanic/Asian/White in Primary 2022; Black/Hispanic in General 2022; 46-65/66+ in Primary 2020; 25 and below/26-45 in General 2020; 46-65/66+ in Primary 2021; 46-65/66+ in Primary 2022; 46-65/66+ in General 2022; Metro/Nonmetro in General 2020.

Source: Ballot Issuances from 2019 to 2022; Ballot Rejections and Cures from 2019 to 2022.

APPENDIX 33: VOTER SURVEY RESPONSE -- SIGNATURE CHALLENGE NOTICES AND EFFORT TO CURE REJECTED BALLOT

Online Survey Question	Percent	N
Did you receive a letter in the mail from your county elections office inviting you to correct or "cure" the signature on your ballot?		
No	31.5	35
Yes	62.2	69
I don't know or I don't remember	6.3	7
If "Yes" to prior question) Do you recall if this letter explained why your ballot was temporarily challenged?		
Envelope was not signed	13.0	9
Signature on envelope did not match signature on file	79.7	55
I don't know or I don't remember	7.3	5
(If "Yes" to Receiving Letter) Did you respond to this letter inviting you to correct or "cure" your signature?		
No	43.5	30
Yes	44.9	31
I don't know or I don't remember	11.6	8
(If "Yes" to Responding to Letter) About how long did it take you to respond to this letter to correct or "cure" the signature on your ballot?		
Within Three Days	72.4	21
After Three Days	27.6	8
Do you recall why you didn't respond to this letter? (CHECK ALL THAT APPLY)*		
I did not have time	30.2	13
I did not think my vote would matter	20.9	9
I knew the election results	14.0	6
I thought my ballot would be too late	14.0	6
The process was confusing	16.3	7
I don't know or I don't remember	4.7	2

Note: A sample of all voters whose ballots were rejected in November 2022 due to signature challenges were invited to participate in the survey. Of the 3,000 voters invited, a total of 111 voters responded to the survey.

Source: Washington State Ballots Project Voter Survey (2023)

APPENDIX 34: BALLOT CURING IN THE 2020 AND 2022 GENERAL ELECTIONS IN WASHINGTON STATE

	Percent of Voters			
	With Curable Ballots	With Curable Ballots that are Cured	With Curable Ballots, Cured with Notice	With Curable Ballots that Are Not Cured
Imputed Race and Ethnicity				
Black	4.0%	3.7%	3.7%	4.4%
Hispanic	8.5%	7.6%	7.7%	9.8%
Asian	8.4%	7.2%	7.6%	10.2%
White	79.2%	81.5%	81.0%	75.7%
Gender				
Female	45.5%	46.8%	46.6%	43.7%
Male	54.5%	53.2%	53.4%	56.3%
Gender x Imputed Race and Ethnicity				
Female				
Black	4.0%	3.7%	3.8%	4.5%
Hispanic	9.0%	8.2%	8.2%	10.4%
Asian	9.1%	7.7%	8.3%	11.2%
White	77.9%	80.4%	79.7%	73.9%
Male				
Black	3.8%	3.6%	3.6%	4.2%
Hispanic	8.1%	7.2%	7.3%	9.4%
Asian	7.6%	6.5%	6.9%	9.2%
White	80.4%	82.6%	82.2%	77.3%
Age				
18 to 25	24.2%	20.3%	21.1%	29.7%
26 to 45	42.9%	41.9%	41.0%	44.4%
46 to 65	23.0%	25.5%	25.8%	19.6%
66 or older	9.8%	12.4%	12.1%	6.3%
County Geography				
Metropolitan	89.9%	89.0%	88.6%	91.3%
Non-metropolitan	10.1%	11.0%	11.4%	8.7%
N	134,874	78,799	60,521	56,075

Note: Statewide figures of voter-level ballot data reported. Reported column percentages rounded to the nearest tenth of a percent.

Source: Ballot Issuances from 2019 to 2022; Ballot Issuances for General Election 2022; Rejections and Cures for General Election 2022.

APPENDIX 35: CURED BALLOT RATES IN 2020 AND 2022 GENERAL ELECTIONS IN WASHINGTON STATE BY IMPUTED RACE AND ETHNICITY, GENDER, AGE, AND GEOGRAPHY

	Percent of Ballots			
	Cured	Cured with Notice	Not Cured	N
Imputed Race and Ethnicity				
Black	55.1%	45.4%	44.9%	4,388
Hispanic	53.3%	43.8%	46.7%	9,403
Asian	50.7%	43.9%	49.3%	9,372
White	61.1%	49.5%	38.9%	88,049
Gender				
Female	60.2%	46.1%	39.8%	53,324
Male	57.1%	44.1%	42.9%	64,152
Gender x Imputed Race and Ethnicity				
Female				
Black	56.6%	46.3%	43.4%	1,985
Hispanic	55.4%	45.4%	44.6%	4,396
Asian	51.9%	45.2%	48.1%	4,474
White	63.2%	50.9%	36.8%	38,137
Male				
Black	54.2%	44.8%	45.8%	2,266
Hispanic	51.5%	42.4%	48.5%	4,785
Asian	49.5%	42.7%	50.5%	4,532
White	59.6%	48.5%	40.4%	47,613
Age				
18 to 25	49.0%	39.0%	51.0%	29,801
26 to 45	57.0%	42.9%	43.0%	50,460
46 to 65	64.6%	50.3%	35.4%	28,516
66 or older	73.5%	55.2%	26.5%	12,055
County Geography				
Metropolitan	58.8%	48.4%	41.2%	107,653
Non-metropolitan	64.8%	55.7%	35.2%	11,038

Note: Statewide figures of voter-level ballot data reported. Reported row percentages rounded to the nearest tenth of a percent.

Source: Ballot Issuances from 2019 to 2022; Ballot Issuances for General Election 2022; Rejections and Cures for General Election 2022.

APPENDIX 36: DEMOGRAPHIC CHARACTERISTICS OF VOTERS RECEIVING SIGNATURE UPDATE REQUESTS FOLLOWING THE 2022 GENERAL ELECTIONS

	Total Ballots Cast	% of All Ballots Cast	Total Number of Curable Ballots	% of All Curable Ballots	Total Number of Requests Sent	% of All Requests Sent
Imputed Race and Ethnicity						
Black	99,803	3.5%	2,013	3.6%	1,016	3.5%
Hispanic	158,711	5.6%	3,730	6.7%	1,620	5.6%
Asian	162,268	5.7%	4,351	7.9%	2,616	9.1%
White	2,418,832	85.2%	45,174	81.7%	23,448	81.7%
Gender						
Female	1,659,279	51.9%	26,845	45.6%	15,888	48.3%
Male	1,535,975	48.1%	32,086	54.4%	17,028	51.7%
Age						
18 to 25	222,642	6.8%	13,953	21.7%	4,961	14.7%
26 to 45	931,979	28.6%	26,627	41.4%	13,677	40.5%
46 to 65	1,134,382	34.8%	16,232	25.2%	10,025	29.7%
66 or older	972,094	29.8%	7,503	11.7%	5,071	15.0%
County Geography						
Metropolitan	2,646,146	88.4%	54,529	91.5%	29,036	95.4%
Non-metropolitan	347,312	11.6%	5,077	8.5%	1,397	4.6%
Total	3,261,100	--	64,315	--	34,119	--

Note: Statewide figures of voter-level ballot data reported. Reported column percentages rounded to the nearest tenth of a percent.

Source: Ballot Issuances from 2019 to 2022; Rejections and Cures for General Election 2022; Signature Update Requests for General Election 2022

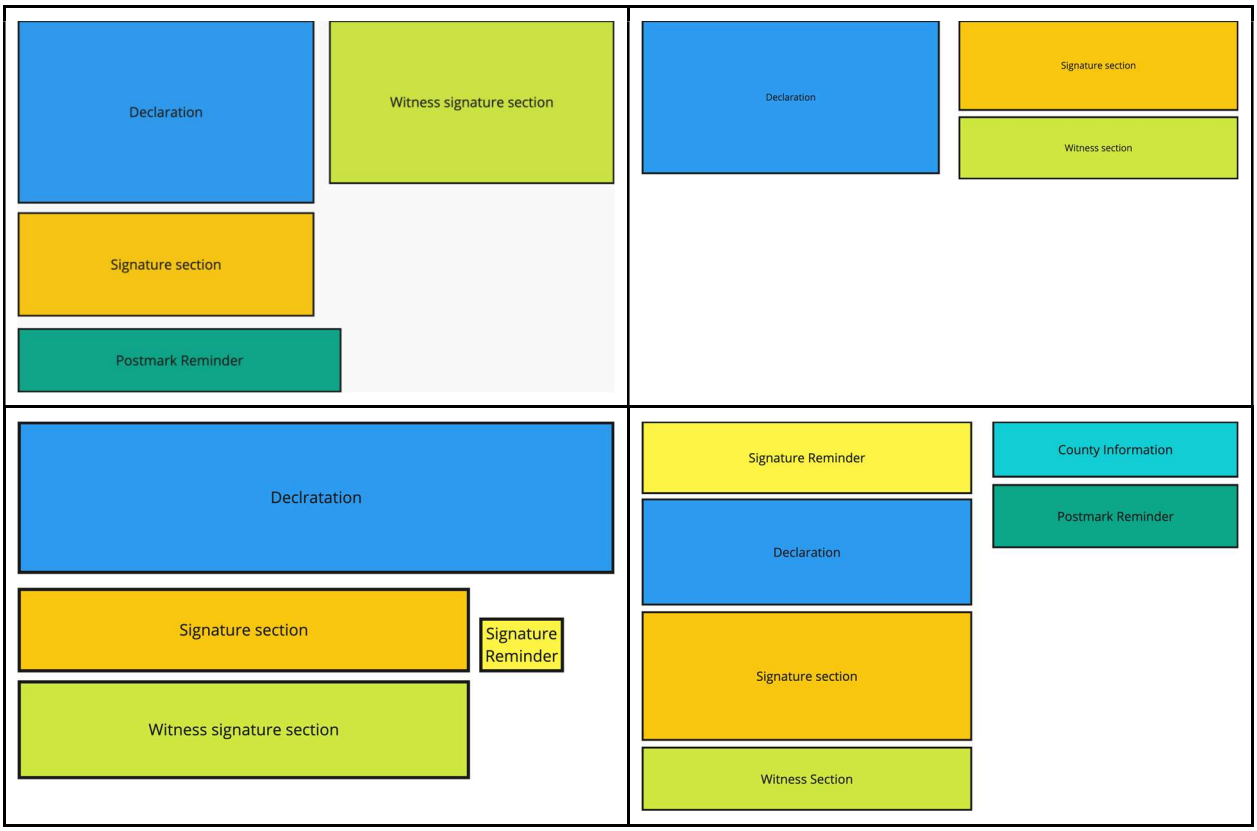
APPENDIX 37: BALLOT ENVELOPE DESIGN STUDY

In this appendix, the project team presents more detailed analysis of ballot envelope designs across the 15 Washington State counties with the lowest ballot rejection rates in the 2022 general election (Franklin, Ferry, Clallam, Greys Harbor, Pacific, Whatcom, Chelan, Pend Oreille, Pierce, Skagit, Cowlitz, Thurston, Island, Asotin, and Klickitat).

Analysis of Layouts

We identified a total of 8 distinct layout types, each characterized by varying degrees of difference. In most cases, these layouts feature a two-column structure. As shown below, the left column contains the declaration, signature, and witness sections, stacked one above the other. The right column contains postmark reminders and/or county information. However, there are a few exceptions. In Thurston County, the declaration takes up the entirety of the left column, leaving the signature and witness section on the right column. In Cowlitz County, the layout is on a single column (declaration, signature, and witness section). In Pacific County, the declaration and signature reminder are on the right while the signature section and witness sections are on the left.

Declarations are the dominant element in all layout types. If included, the signature reminders tend to be positioned in the left column, above the declaration. Postmark reminders, if included, are more commonly found floating within the right column.




Signature Reminder
County information
Declaration
Signature section
Witness signature section
Signature reminder
Declaration
Witness section
Signature section
Postmark Reminder
Signature Reminder
Signature section
Declaration
Witness section
Declaration
Signature section
Witness section
Declratation
Postmark Reminder
Signature Reminder
Signature section
Witness section
Signature Reminder
Declaration
Postmark reminder
Signature section
Witness section

Declarations

In our analysis, we identified 3 declaration formats: block paragraph text, bulleted lists, and wide text. As shown below, block text paragraphs and bulleted lists appear at nearly the same rate in the 15 envelopes, while wide text is less common. Regardless of the format, declarations consistently occupy the largest portion of any layout and typically serve as the initial focal point for readers. Declarations are presented in a single column arrangement, stacked above the signature and witness section except for one case.

County	Block Paragraph	Bulleted	Wide
Franklin	■		
Ferry	■		
Clallam	■		
Greys Harbor		■	
Pacific		■	
Whatcom	■		
Chelan	■		
Pend Oreille			■
Pierce		■	
Skagit		■	
Cowlitz			■
Thurston	■		
Island		■	
Asotin	■		
Klickitat	■		

Declaration Formats

Block paragraph text **Voter's Declaration** I do solemnly swear or affirm under penalty of perjury that I am: A United States citizen; A Washington state resident that meets the requirements for voting mandated by state law; At least 18 years old on election day, or 17 years old at the primary and 18 years old by the day of the November general election; Voting only once in this election and not voting in any other United States jurisdiction; Not serving a sentence of total confinement under the jurisdiction of the Department of Corrections for a Washington felony conviction or currently incarcerated for a federal or out-of-state felony conviction; Not disqualified from voting due to a court order; and Aware it is illegal to forge a signature or cast another person's ballot and that attempting to vote when not qualified, attempting to vote more than once, or falsely signing this declaration is a felony punishable by a maximum imprisonment of five years, a maximum fine of $10,000, or both.	The block text is the most common declaration format. This declaration format sits above the signature and witness sections and takes up a large portion of space within a layout design. The block paragraph text condenses a significant amount of information into a single compact section. It's useful when accompanied by a header and draws a clear distinction from the sections around it. However, as it's the initial focal point for readers, its size, word count, and use of legal language poses readability challenges, leading many to skip it. Also, because of its size and proximity to the signature section, date, and witness section, it tends to bury important information under anything that comes after.
Bulleted List **Voter's Declaration** I do solemnly swear or affirm under penalty of perjury that I am: • A United States citizen; • A Washington state resident that meets the requirements for voting mandated by state law; • At least 18 years old on election day, or 17 years old at the primary and 18 years old by the day of the November general election; • Voting only once in this election and not voting in any other United States jurisdiction; • Not serving a sentence of total confinement under the jurisdiction of the Department of Corrections for a Washington felony conviction or currently incarcerated for a federal or out-of-state felony conviction; • Not disqualified from voting due to a court order; and • Aware it is illegal to forge a signature or cast another person's ballot and that attempting to vote when not qualified, attempting to vote more than once, or falsely signing this declaration is a felony punishable by a maximum imprisonment of five years, a maximum fine of $10,000, or both.	The bulleted list breaks the declaration to 6-7 bullet points. They're usually accompanied by a header and a signature reminder. Bulleted lists take up the most space within their respective layout and are usually stacked on top of a boxed signature and witness section, except in Pacific County. In Pacific County, the declaration and signature section are in separate column. Bulleted lists are helpful because they break down a lot of information into 6-7 key points. Bulleted lists are less overwhelming to the eye. Another benefit to the bulleted list is that since it's not as busy as a block paragraph, there's room for a signature reminder, which most envelopes with this format include.

Readability Analysis

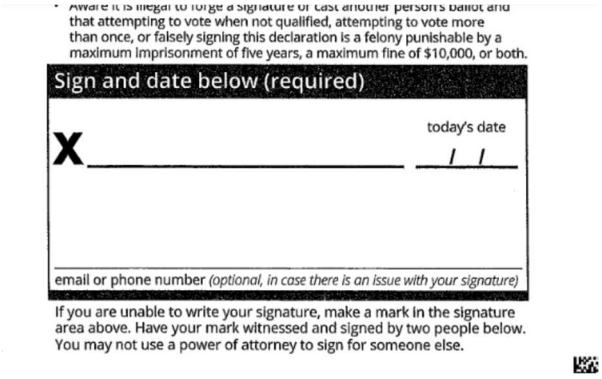
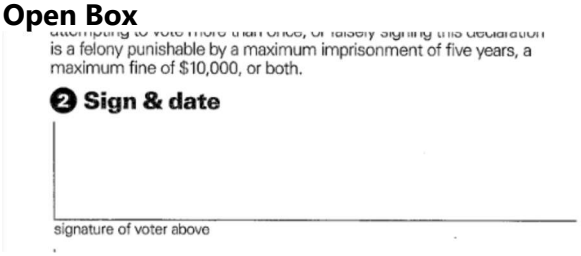
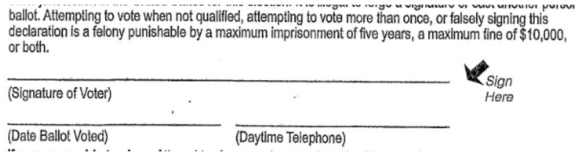
Original text **Difficulty: Post-Graduate**	**Original text with bullets** **Difficulty: High School**
I do solemnly swear or affirm under penalty of perjury that I am: A United States citizen; A Washington State resident that meets the requirements for voting mandated by state law; At least 18 years old on Election Day, or 17 years old at the primary and 18 years old by the day of the November general election; Voting only once in this election and not voting in any other United States jurisdiction; Not serving a sentence of total confinement under the jurisdiction of the Department of Corrections for a Washington felony conviction or currently incarcerated for a federal or out-of-state felony conviction; Not disqualified from voting due to a court order; and Aware it is illegal to forge a signature or cast another person's ballot and that attempting to vote when not qualified, attempting to vote more than once, or falsely signing this declaration is a felony punishable by a maximum imprisonment of five years, a maximum fine of $10,000, or both.	I do solemnly swear or affirm under penalty of perjury that I am: ● A United States citizen ● A Washington State resident that meets the requirements for voting mandated by state law ● At least 18 years old on Election Day, or 17 years old at the primary and 18 years old by the day of the November general election ● Voting only once in this election and not voting in any other United States jurisdiction ● Not serving a sentence of total confinement under the jurisdiction of the Department of Corrections for a Washington felony conviction or currently incarcerated for a federal or out-of-state felony conviction ● Not disqualified from voting due to a court order ● Aware it is illegal to forge a signature or cast another person's ballot and that attempting to vote when not qualified, attempting to vote more than once, or falsely signing this declaration is a felony punishable by a maximum imprisonment of five years, a maximum fine of $10,000, or both.
Simplified (continued) **Difficulty: 11th Grade**	**Simplified (continued)** **Difficulty: 6th Grade**
I swear or affirm under penalty of perjury that I meet all qualifications to vote: ● I am a United States citizen ● I am a resident in Washington state ● I will be at least 18 years old on Election Day or 17 years old at the primary and 18 years old by the November general election ● I am not serving a sentence of total confinement under the jurisdiction of the Department of Corrections of Washington for a felony conviction ● I am not currently incarcerated for a federal or out-of-state felony conviction ● This is the only ballot that I will cast in this election ● The signature below is my own	I swear or affirm under penalty of perjury that: ● I am a United States citizen. ● I meet all other qualifications to vote. ● I am not serving a sentence of total confinement under the jurisdiction of the Department of Corrections for a felony conviction. ● I am not currently incarcerated for a federal or out-of-state felony conviction. ● This is the only ballot that I will cast in this election. ● The signature below is my own.

Signature Section

We identified 3 types of signature sections: boxed, open box, line. As shown below, boxed and open boxed formats appear at an almost equal rate among the 15 envelopes, while the line format is less common. Signature sections usually appear in between the declaration and the witness section, although there are a few exceptions. In Pacific County, the signature section, in line format, appears to the left of the declaration. In Thurston County, the signature section, in open box format, appears to the right of the declaration.

County	Boxed	Open Box	Line
Franklin		■	
Ferry			■
Clallam	■		
Greys Harbor	■		
Pacific			■
Whatcom		■	
Chelan		■	
Pend Oreille		■	
Pierce	■		
Skagit	■		
Cowlitz	■		
Thurston		■	
Island	■		
Asotin			■
Klickitat			■

Types of signature sections

Boxed 	The boxed signature format features clear boundaries between the signature line and the rest of the form. In most cases, this boxed format is positioned beneath the declaration and includes the date and phone number field within it. These boxes are typically accompanied by a header. This format emphasizes the signature by establishing distinct boundaries within the overall layout.
Open Box 	The open box format features an unbounded space, lacking clearly defined borders. The "L" shaped signature line is positioned beneath a floating header labeled, "Sign & Date", resulting in a semi-enclosed space. The open box signature appears as frequently as the boxed format.
Line 	The line format is characterized by a single line running across the signature section. Typically, there is a brief explanatory text positioned just below the line. In some instances line format include a signature reminder in the form of a small black arrow accompanied by the text "Sign Here" The line format appears 4 times among the envelopes, with 3 of these layouts being duplicates of each other. This suggests that they originate from a single source. While most signature lines are positioned below the declarations, 1 unique layout features the signature section on the left and the declaration on the right.

Witness Section

We identified 2 types of witness signature section formats: Open box and line. As shown below, the line format appears much more frequently than the open box format. These sections appear under the signature section with one exception, Franklin County. The witness section for Franklin County appears to the right of the declaration and signature section. While there are only 2 design formats for the witness section, the text for the section varies as shown on the next page.

County	Open box	Line
Franklin	■	
Ferry		■
Clallam		■
Greys Harbor		■
Pacific		■
Whatcom	■	
Chelan	■	
Pend Oreille	■	
Pierce	■	
Skagit		■
Cowlitz		■
Thurston		■
Island		■
Asotin		■
Klickitat		■

Witness section text

If you are unable to sign: Attempt to sign or make a mark on the Signature line in the presence of two witnesses. The two witnesses should sign below. Power of Attorney cannot be used to sign for someone else.	**If you cannot sign** Si no puede firmar **Make a mark in the "signature of voter" area at left in the presence of two witnesses. Have the witnesses sign below. POA may not sign for voter.** Intente hacer una marca en el área que dice "firma del votante" a su izquierda en presencia de dos testigos. Los testigos deberán firmar abajo. La firma notarial / de poder no es válida.
If you cannot sign, make your mark in the "Signature of Voter" area above. Have your mark witnessed by two people. The witnesses will sign below. *You may not use a power of attorney to sign for someone else.*	A power of attorney is **NOT** acceptable. **If you are unable to sign, make a mark or use a signature stamp to make a mark in the area above.** Your mark or signature stamp **must** be witnessed and signed below by two people.
If you are unable to write your signature, make a mark in the signature area above. Have two witnesses sign below. Power of attorney cannot be used to sign for someone else.	**If you are unable to sign, make a mark in the signature area above.** Your mark must be witnessed and signed by two people below. A power of attorney or signature stamp is **NOT** acceptable.
If the voter is unable to sign his/her name, he/she must mark an "x" and have it Witnessed by 2 people. You may not use a power of attorney to sign for someone else.	If you are not able to sign, make a mark in the signature area above. Have your mark witnessed and signed by two people. *POA may not sign for voter.*
If you are unable to sign The voter may make a mark, witnessed by two other people, if the voter is unable to write their signature. A power of attorney cannot be used to sign a ballot for someone else.	**If you cannot sign** make a mark and have two witnesses sign below. Power of Attorney cannot be used to sign for someone else.
If you can't sign, make a mark and have two witnesses sign below.	If you are unable to write your signature, make a mark in the signature area above. Have your mark witnessed and signed by two people below. You may not use a power of attorney to sign for someone else.

Witness section formats

Open Box If you are not able to sign, make a mark in the signature area above. Have your mark witnessed and signed by two people. *POA may not sign for voter.* witness 1 signature above witness 2 signature above	The open box format features two lines that form an "L" shape. There's usually text above it, creating an open box like design.
Line **If you are unable to sign:** Attempt to sign or make a mark on the Signature line in the presence of two witnesses. The two witnesses should sign below. Power of Attorney cannot be used to sign for someone else. Witness #1 Witness #2	The line format is characterized by horizontal lines with the text "Witness #" underneath. This is the most common witness signature section format.

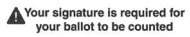
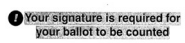
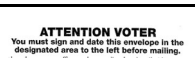
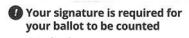
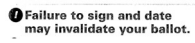
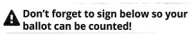
Postmark Reminders

Postmark reminders appear in various forms throughout the 15 envelopes. Franklin County's postmark reminder stands out from the other counties because it includes the specific date for election day.

County	Postmark reminder	Postmark reminder with specific date	Visual (if present on envelope)
Franklin	■	■	❸ **Postmark or deposit your ballot by 8PM on Election Day.** Su boleta debe ser enviada y sellada por el correo postal o depositada en una urna electoral antes de las 8PM del Día de las Elecciones. **Election Day:** November 8, 2022 **Día de las Elecciones:** 8 de noviembre de 2022
Ferry			
Clallam	■		**Return your ballot early!** Your ballot must be postmarked by Election Day or returned to a ballot drop box by 8 p.m. Election Day.
Greys Harbor			
Pacific			
Whatcom	■		**To be counted, return your ballot in:** • a ballot drop box by 8:00 pm Election Day • the mail, postmarked by Election Day
Chelan	■		❸ **Postmark or deposit your ballot by 8pm on election day.**
Pend Oreille			
Pierce	■		• Postmark or drop off your ballot by 8 p.m. Election Day. • Your ballot won't count if you don't sign this envelope.
Skagit			
Cowlitz			
Thurston			
Island	■		**Ballots bearing late USPS postmarks cannot be counted.** Ballot drop boxes close at 8 p.m. on Election Day.
Asotin			
Klickitat			

Signature reminders

Signature reminders vary in design and text. While most signature reminders appear above the declaration, the most consistent reminder appears as a black arrow with text next to the horizontal signature line. Given their similarities in layout, we believe that this layout originates from a single source. As shown in *Table 11,* signature reminders appear in 9 envelopes in the 15 envelopes.

County	Signature reminder	Visual (if present on envelope)
Franklin		
Ferry	■	
Clallam	■	
Greys Harbor	■	
Pacific	■	
Whatcom	■	
Chelan	■	
Pend Oreille		
Pierce		
Skagit		
Cowlitz		
Thurston		
Island	■	
Asotin	■	
Klickitat	■