# **Supplemental Appendix**

# Supplemental Appendix A

Ballot Scanner Codes, Categorization, and Observation Counts

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **Scanner Event Codes** | **Count** | **Average Duration (seconds)** | **Standard Deviation (seconds)** | **Maximum Duration (seconds)** |
| **Event Type** | No Error | No Error | 379455 | 2.87 | 0.53 | 11 |
| Machine Error | Ballot Jam. Please check the paper path. | 267 | 242.00 | 629.09 | 4782 |
| System Error - Contact Election Official. | 8 | 11.88 | 0.64 | 13 |
| Ballot Jam. Please remove ballot and re-insert. | 69 | 8.51 | 4.34 | 13 |
| Ballot Could Not Be Read. Please remove your ballot and re-insert the opposite end first. | 4167 | 2.79 | 0.66 | 10 |
| Error scanning ballot. Please remove your ballot and re-insert the opposite end first. Ensure all stubs are removed from the ballot. | 1655 | 2.16 | 0.64 | 11 |
| Shutdown initiated | 5 | 833.6 | 566.72 | 1771 |
| Ballot too short Please remove ballot. | 17 | 1.71 | 0.69 | 3 |
| Voting Machine Not Programmed For Your Ballot | 236 | 2.38 | 0.68 | 8 |
| Marking Error | Voter Rejected Overvoted Ballot | 2132 | 27.99 | 31.79 | 594 |
| Voter Accepted Overvoted Ballot | 3099 | 23.85 | 33.70 | 741 |
| Voter Rejected Blank Ballot | 636 | 31.07 | 58.02 | 570 |
| Voter Accepted Blank Ballot | 1896 | 20.00 | 44.61 | 826 |
| Automatically rejected Ballot with Unreadable mark | 9849 | 2.74 | 0.65 | 10 |
| HMI Error | Ballot was not inserted far enough. Please remove your ballot and re-insert it completely. | 664 | 8.87 | 3.52 | 11 |
| Ballot was removed during scanning. Please re-insert the ballot completely. | 1653 | 1.89 | 1.49 | 11 |
| Multiple ballots were detected. Please remove ballots and insert them one ballot at a time. Ensure your ballot is not folded or damaged. | 2666 | 1.22 | 0.42 | 3 |

Supplemental Appendix B

Processed DS200 Log File Data Using BOOTH Voting Package

|  |  |  |
| --- | --- | --- |
| **Duration (mm:ss)** | **Scan Type** | **Ballot Cast Status** |
| 00:04 | No Error | Successful |
| 02:30 | Ballot Jam. Please check the paper path. | Jam |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:02 | No Error | Successful |
| 00:05 | Voter Accepted Blank Ballot | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:07 | Voter Accepted Overvoted Ballot | Successful |
| 00:04 | No Error | Successful |
| 00:02 | No Error | Successful |
| 00:02 | No Error | Successful |
| 00:02 | No Error | Successful |
| 00:02 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:02 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:03 | No Error | Successful |
| 00:02 | No Error | Successful |

# Supplemental Appendix C

Sample Ballot from the 2018 Rhode Island Midterm elections





Supplemental Appendix D

Sample Set of Final Data Formatted

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Event Description** | **Pages** | **Sheets** | **Office Questions** | **State Questions** | **Local Questions** | **Bilingual** | **Total Questions** | **Candidate Select** | **Total Select** | **Total Words** | **Error String** | **Binary Error** |
| Ballot was not inserted far enough. Please remove your ballot and re-insert it completely. | 2 | 1 | 12 | 3 | 3 | 0 | 18 | 15 | 21 | 729 | HMI | 1 |
| No Error | 2 | 1 | 12 | 3 | 3 | 0 | 18 | 15 | 21 | 729 | No | 0 |
| No Error | 2 | 1 | 12 | 3 | 3 | 0 | 18 | 15 | 21 | 729 | No | 0 |
| No Error | 2 | 1 | 12 | 3 | 3 | 0 | 18 | 15 | 21 | 729 | No | 0 |
| No Error | 2 | 1 | 12 | 3 | 3 | 0 | 18 | 15 | 21 | 729 | No | 0 |
| Ballot was removed during scanning. Please re-insert the ballot completely. | 2 | 1 | 12 | 3 | 3 | 0 | 18 | 15 | 21 | 729 | HMI | 1 |
| Multiple ballots were detected. Please remove ballots and insert them one ballot at a time. Ensure your ballot is not folded or damaged. | 2 | 1 | 12 | 3 | 3 | 0 | 18 | 15 | 21 | 729 | HMI | 1 |