

Cost Estimate for Hand Counting 2% of the Precincts in the U.S.

Hand counts of significant numbers of ballots were conducted in Washington State and Nevada after the 2004 General Election. Estimated costs of a 2% audit of federal contests are based primarily on the costs of those recent, extensive hand counts.

Information Sources

Information for the manual recount of the gubernatorial election in Washington State was obtained from the Secretary of State's office.

- ◆ The total number of ballots cast is found at <http://vote.wa.gov/general/status.aspx>
- ◆ The type of machine used by each county is found at <http://www.secstate.wa.gov/elections/votingsystems.aspx>
- ◆ The cost of the manual recount for each Washington county was obtained by Ellen Theisen from the Secretary of State's office in an Acrobat file, which is available on request (email to ellen@votersunite.org).

Information for the manual count of voter-verified paper records in Nevada was obtained by Ellen Theisen in a telephone call to the office of Larry Lomax, Registrar of Voters of Clark County, Nevada.

Cost per Ballot for Punch Card Ballots

Twelve counties in Washington State conducted the 2004 General Election using punch card ballots. The total cost of the manual recount to counties using punch card ballots was \$131,537, and 605,804 ballots were counted. The cost to count the single contest was \$0.22 per ballot.

Cost per Ballot for Optical Scan Ballots

Twenty-seven counties in Washington State conducted the 2004 General Election using optical scan ballots. The total cost of the manual recount to counties using optical scan ballots was \$771,256, and 2,159,831 ballots were counted. The cost to count the single contest was \$0.36 per ballot.

Note that Snohomish and Yakima Counties used electronic voting systems for election day voting and optical scan ballots for absentee voting. Only the optical scan ballots were manually counted, and only the optical scan ballots are included in the total number of ballots referenced above.

Cost per Ballot for Voter-Verified Paper Records

A portion of the voter-verified paper records produced by the Sequoia Veri-Vote electronic voting machines were manually counted in Clark County, Nevada after the 2004 General Election. The count took 320 person-hours at \$15 per hour, for a total cost of \$4,800; and 1,268 ballots were counted.

There were 21 contests on the ballots. The cost to count all 21 contests was \$3.79 per ballot. Assuming the cost per ballot for counting one contest to be the total cost per ballot divided by the number of contests on the ballot, the cost to count a single contest would be \$0.18 per ballot.

Additional Considerations

Cost differences between types of paper ballots. While it appears that the cost of counting optical scan ballots is higher than the cost of counting punch cards, the discrepancy is more likely attributable to the variance in county size. Trend lines on charts of the per-ballot costs per county, for both optical scan and punch cards, show that, in general, the cost per ballot decreases as the size of the county increases.

The average size of punch card counties in Washington State is 50,484, and the average size of optical scan counties is 79,994 – 58% higher. Since the cost per ballot for optical scan counties is 63% higher than the cost per ballot for punch card counties, it is reasonable to assume that the variance depends more on the size of the county than on the type of ballot. The average cost to count a single race across all counties was \$0.33 per ballot.

Cost differences between Washington State and Nevada recounts. The costs reported by Washington State include additional expenses such as staff time, attorney's fees, training, facilities rental, setup, and materials. However, the costs reported by Clark County, Nevada include only the compensation paid to the people hired to count the ballots. Since the actual cost of conducting an audit might include some additional expenses, the actual cost per ballot for auditing voter-verified paper records produced by electronic voting machines can be assumed to be somewhat higher than the \$0.18 cost per ballot calculation based only on the pay to counters.

Conversely, some of the additional expenses incurred by Washington counties are unlikely to apply in a routine audit of 2% of the precincts, for example, attorney's fees, and facilities rental. So the actual cost per ballot for auditing punch-card and optical-scan machines can be assumed to be somewhat lower than the \$0.33 cost per ballot reported by Washington for the gubernatorial recount.

Fiscal notes prepared by state legislature. ESSB 5395, enacted in Washington State in April, 2005 requires an audit of 4% of the voter-verified ballots after each election. The Fiscal Note accompanying the bill estimates \$2500 per election for auditing three contests on each of 40 machines in Snohomish County. In the 2004 General Election, an average of 102 ballots were cast on each machine in Snohomish County. The total for 40 machines would be approximately 4000 ballots. This would be a cost of \$0.63 per ballot, or \$0.21 per ballot to count a single contest.¹

¹ <http://www.ofm.wa.gov/fns/LegSearch.asp?BillNumber=5395&SessionNumber=59>.

See page 12 of the fiscal note for the final version.

Conclusion

The table that follows shows the actual costs of manual counts in Washington State and Nevada after the 2004 General Election. Following that information are the estimated costs of auditing 2% of the federal contests in all states, based on those actual costs and the additional considerations noted above.

In each case, the total costs per election are estimated to be less than two million dollars.

The fourth row shows the high estimate of the cost in presidential election years, assuming the cost per ballot is the average cost across all counties in Washington State, and assuming two contests (President and Representative) are counted in 2/3 of the precincts and three contests (President, Senator, and Representative) are counted in the other 1/3.

The fifth row shows the low estimate, assuming a cost per ballot slightly higher than the cost in Nevada, and assuming two contests in 2/3 of the precincts and three contests in the other 1/3.

The last two rows show the estimated costs to audit federal contests in non-presidential election years.

Ballot Type	# Ballots	Cost per ballot	# Contests	Total Cost
Actual costs for hand counts conducted after the 2004 General Election				
Punch Card (2004 WA)	605,804	\$0.22	1	\$131,537
Optical Scan (2004 WA)	2,159,831	\$0.36	1	\$771,256
VVPAT (2004 NV)	1,268	\$0.18	21	\$4,800
Estimates for counting 2 or 3 contests on 2% of 125 million ballots in presidential election years:				
High estimate	2,500,000	\$0.33	2.33	\$1,922,250
Low estimate	2,500,000	\$0.20	2.33	\$1,165,000
Estimates for counting 1 or 2 contests on 2% of 125 million ballots in non-presidential years:				
High estimate	2,500,000	\$0.33	1.33	\$1,097,250
Low estimate	2,500,000	\$0.20	1.33	\$665,000