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Vote By Mail Integration Ballot Tabulation Upgrade Business Case

King County, Washington

Evaluation Report

May 2, 2007

Prepared by Election Management Solutions, Inc.

Executive Summary

As King County moves forward in conversion to all mail elections (Vote by Mail or VBM), the County has concluded that the current vote tabulation system is inadequate to handle the processes necessary to support VBM in a jurisdiction as large and complex as King County.

The administrators of elections for King County have produced a Business Case to guide the process of selection of a vote tabulation vendor to provide a system that will meet these needs.

Election Management Solutions, Inc. (EMS) was asked to review the Business Case to determine if the process was fairly conducted and if “due diligence” has been performed by King County in evaluation of the proposals submitted by vendors.

In evaluating the Business Case document, we analyzed the goals and objectives stated, the selection process and criteria used, the vendor ratings points assigned and the conclusions and recommendations drawn. We reviewed the source documents submitted by each of the vendors to determine if the information was properly construed by King County and fairly represented in the determinations and recommendations made.

Our findings are:

- Generally the goals and objectives stated are valid and achievable, and when realized will ultimately result in an efficient and effective Vote by Mail implementation;
- The rating criteria used to evaluate the vendor proposals were generally valid, although we do comment on the inclusion and weighting of the criteria for evaluating costs, and including “Institutional knowledge” as part of the criteria;
- The conclusion that neither Sequoia Voting Systems nor Elections Systems and Software met the primary criteria necessary for final consideration is valid.
- The conclusion that Hart InterCivic and Diebold Election Systems qualified for final consideration is valid;

- The evaluation of the two final vendors was fair and reasonable and represents an acceptable level of “due diligence”.
- The security mitigation measures included in the Business Case are appropriate.
- The staff recommendation that King County select Diebold Election Systems as its ballot tabulation vendor is valid and appropriate.

We believe the citizens of King County have been well served by the process used and that the resulting implementation will provide King County voters with an election system in which they can have confidence and pride.

**Vote By Mail Integration Ballot Tabulation Upgrade
Business Case**

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Evaluation of Vote By Mail Integration Ballot Tabulation Upgrade Business Case

King County, Washington

May 2, 2007

Purpose

This evaluation is designed to determine if, in development of a Business Case for selection of a new vote tabulation system, King County conducted a fair and impartial evaluation of the four ballot tabulation system vendors that are certified in the State of Washington, all of whom submitted responses to a Request For Information (RFI) issued by King County.

The ultimate purpose is to determine whether King County performed “due diligence” in its examination of the vendor information and fairly represented that information in the Business Case document; and further whether the conclusions drawn and recommendations made are consistent with the documentation reviewed.

Evaluation Approach

Our assessment includes examination of the source documents of the four vendors, submitted in response to the RFI, to validate or question the process and conclusions represented in the Business Case.

The review includes evaluation of the goals and objectives stated; the selection process and criteria used in that process; the vendor ratings point assignments and weighting; and the conclusions and recommendations drawn from the process.

Evaluation of Goals and Objectives

As King County prepares to move to all mail elections, it faces two major challenges:

- A complete re-design of the processes involved in conducting elections; and
- A current vote tabulation system/process that is inadequate to handle such elections in a secure and efficient manner.

The first of these will be addressed in a separate report. This report will focus on the vote tabulation system and process.

The county has established a number of goals and objectives¹:

1.4 Specific Business Objectives

Implementing an upgraded ballot tabulation system is necessary to support a vote-by-mail elections system and will in turn increase accountability, transparency and security of the entire process. The following business objectives apply towards the primary goal of transitioning to vote-by-mail:

- *Preprocessing of ballots, the ability to run ballots through a scanner before Election Day, to capture ballot image data to facilitate faster tabulation on Election Day.*
- *Improve the ability to report results on all ballots ready for tabulation on Election Day.*
- *Increase the database capacity of the vote tabulation system or mitigate current limitations in order to avoid capacity issues experienced in recent large elections.*
- *Provide planning and management tools specifically designed for complex election administration activities.*
- *Limit ballot movement and human contact throughout the process.*
- *Leverage existing systems and previous investments to minimize risk and increase sustainability.*
- *Simplify election administration in King County for voters, elections staff, and other stakeholders.*

Key among these goals and objectives are the ones relating to preprocessing of ballots, improving the ability to report results on Election Day and leveraging existing systems and previous investments.

These represent administrative and political determinations that effectively establish which of the four Washington State certified vendors can qualify for consideration.

While all of the certified vendors can provide vote tabulation systems that will accurately count the votes on the ballots; these stated objectives require a “pre-processing” system that will allow King County to do much of the work involved in processing ballots, in the days and weeks preceding the election.

¹ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp. 5-6

The objective of improving the ability to report results on Election Day relates to the timeliness of reporting those results within the constraints of Washington law that prohibits early tabulation of any results.

The objective of leveraging existing systems and investments translates into the continued use of previously purchased DRE units.

The transition to all mail elections is non-debatable since the County Council has by ordinance² mandated such a conversion.

The implementation of all mail elections completely alters the conventional processes for conducting elections, and it is within this transformation that these key objectives must be analyzed.

Objective: Preprocessing Ballots

This objective probably has the most significant impact on the selection of a vendor and directly relates to the objective of being able to expedite the vote tabulation and reporting of election results.

In a vote by mail system ballots will begin arriving in the election center within days of being mailed to voters. The elections administration is left with two options: do nothing with these ballots until Election Day; or conduct preliminary inspections of the ballots to assure their readability in the vote tabulation process.

Experience in other jurisdictions that conduct elections by mail indicates that an increased number of ballot cast by mail necessitates an increased level of ballot review to assure that the voter's intent is what gets tabulated. This is necessary because of creative ways that voters mark the ballot that may not result in a tabulator tallying in accordance with the voter's intent.

With the necessity of preprocessing of the ballots a given to assure an accurate count, the question then is how this is to be done.

Many vote by mail jurisdictions use large numbers of temporary election workers to manually review each ballot to assure its readability. These processes have been developed over the years since vote by mail has been used, beginning as early as 1981 in Oregon.

King County's size alone makes this a daunting undertaking which could involve hundreds of workers, plus the training, supervision, space and security aspects that would need to be addressed.

² King County Ordinance 15523 adopted June 19, 2006

Recent advances in technology have provided the means to perform this function via a scanning process that captures the digital image of each ballot, identifies ballots with anomalies that may impact counting; and offers the opportunity to correct those anomalies electronically.

The scanning system records each image ballot and stores it for later tabulation. This is a key component as the previously referenced state law prohibits tabulation until a time certain on Election Day.

King County has opted to pursue the scanning and electronic inspection of ballots as the preferred option.

Conclusion: Given the volume of ballots to be handled in the large elections conducted by King County, this seems a reasonable decision, although not without risks.

Such a system involves scanning units that are subject to failure, breakdown and security breaches. King County must assure that these risks are addressed in determining the number of scanners purchased and the system and procedural security necessary to safeguard the ballots.

Objective: Improving Election Day results reporting

As previously mentioned all vendors have the ballot tabulation and reporting systems that will accurately count votes and report results. The issue is timeliness.

Given the law restricting when tabulation can begin, systems that do not provide an electronic preprocessing component can only meet the objective to improve the timeliness of reporting of results by providing a greater number of ballot tabulating units.

King County's description of the current system and vision for correcting deficiencies³, addresses this issue describing the increase in vote tally units, up to 40, experienced in recent years to handle centralized vote tally under the current system. Even at this expanded level the combined units only have the capacity to handle 100,000 ballots in a day, according to King County staff. In a vote by mail environment, King County can expect voter turnouts as high as 85% to 87% in a Presidential General Election. This means that approximately 850,000 ballots will need to be counted and reported in a timely manner.

Considering the amount of space and the number of personnel necessary to accommodate enough ballot readers to handle 850,000 ballots in a single day, a system without preprocessing capabilities becomes an impractical option if other alternatives are available.

³ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp. 3-4

Vendors that offer the electronic preprocessing and tabulation indicate that testing shows that 600,000 ballots can be tabulated in less than 3 minutes.⁴ Even accounting for some vendor inflation of claims, this is remarkably different than the 70+ hours of continuous counting time that would be necessary under a system without the electronic preprocessing capabilities.

Conclusion: Given the space, staffing, costs and time required to operate a system that does not offer electronic preprocessing and the nearly instantaneous results in counting available from systems with electronic preprocessing, the County's objective for improving counting and reporting of results seems achievable and justified.

Objective: Leverage existing systems and previous investments to minimize risk and increase sustainability

As previously indicated, this translates to the continued use of already purchased and implemented DREs.

Since King County intends to operate Regional Voting Centers, where voters may vote in person and accessibility for voters with disabilities must be accommodated, the use of existing equipment that will meet these needs appears to be fiscally prudent.

The practical effect of this objective is that vendors, other than the current DRE vendor, must offer replacement of the existing capabilities. To be competitive on a cost basis would essentially mean offering replacement DREs at no cost or providing other offsets to these costs.

While this may appear to benefit the current DRE vendor, all vendors were aware of the current King County status from the beginning of the submission process and should have recognized the implications for cost competitiveness as their proposals were being prepared.

Conclusion: Since the taxpayers of King County already have a significant investment in a system that works well to accommodate the defined need, this objective appears to be responsible and valid.

King County has identified the political risks of continued use of DRE technology⁵ which must be weighed against the costs, efficiency, and administrative implications of replacing this technology.

Other Objectives

While not listed as "Specific Business Objectives"⁶ the issues of schedule and budget are identified in several places in the Business Case document.

⁴ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case p. 37

⁵ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp. 14-15

⁶ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp. 5-6

Schedule

King County's goal is to conduct the April 2008 election by mail with the newly installed processing and tabulating system. This is an aggressive, but achievable schedule, but not without risks.

With a goal of having a production ready system in place by January 1, 2008,⁷ any significant slippage in anticipated dates for vendor certification, necessary approvals, contract completion, equipment delivery, acceptance testing and training could jeopardize the County's ability to conduct the April election with the new system.

Given King County's history in the area of vote by mail conversion, the governmental approval processes, potential for challenges to decisions and variables that may affect certifications, the vagaries involved in contract negotiation; and equipment delivery, installation, testing and training, it would be advisable for an alternative schedule to be developed as a backup plan. The bottom line need is for the County to conduct an election by mail on the new system before the Primary and General elections of 2008.

Budget

References are made in various places in the Business Case document to the HAVA grant of \$1.5 million for the acquisition of a new system. This amount is used as one of the rating criteria⁸ for evaluation of the qualified vendors.

Although it is necessary for government agencies to work within budget limitations, "low bidder" selections are not necessarily the best choices when evaluating systems as important to the public good, and with such serious security requirements, as a vote counting system.

The ability to meet this budgeted amount is rated in the "High Priority" category in the weighting of criteria with a weighted rating of x3⁹.

While this is a political and administrative determination, such a high weighted rating could have resulted in the selection of a vendor which may not provide the highest quality system overall.

Evaluation of Selection Process and Criteria

The elements of the selection process appear to be adequate. The processes outlined¹⁰ with the documentation requested, demonstrations; observation of other jurisdictions using the systems and follow up opportunities for vendor clarification indicates a rigorous attempt at fairness for the two qualified vendors.

⁷ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case p. 9

⁸ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp.23

⁹ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case p. 38

¹⁰ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case p.22

The selection criteria generally are consistent with the goals and objectives set forth in the earlier portions of the document.

The only questionable elements are the *System cost capital/operating* criterion¹¹ which was discussed in the previous section of this report; and the criterion *Institutional knowledge*.

The *Institutional knowledge* criterion, as written, while a logical concern for elections administration, is entirely outside of the control of the vendors being evaluated. The comment “...the more institutional knowledge, the lower the risk for the project and better opportunities for success” is undoubtedly a true statement; however its appropriateness in the selection criteria is subject to question, particularly with a weighting factor of x2. Inclusion of this factor, with its weight, may give the impression that vendors with previous history with King County are given an advantage. If included at all, this element should have been weighted at x1.

¹¹ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case p. 23

Evaluation of Vendor Ratings¹²

General Comment on ratings

In the Vendor Rating section 3.5 several of the comments in the table appear to be comparative in nature. This portion of the evaluation should be on each system independent of any other systems being evaluated. It is necessary to ultimately draw comparisons; however the assigning of points should be done based on each individual system's compliance with the rating criteria. The inclusion of the comparative comments does not invalidate the rating, nor are the comments necessarily inaccurate.

System Security

		Hart Evaluation	Diebold Evaluation
System Security	<p>The highest rating (8-10) is for systems that best provide for security in each of the security layers employed in King County. Specifically regarding technical security, systems with the highest rating will provide for security of data, two factor authentication for access to data, the application and the server. Finally the highest rating is reserved for systems that provide the ability to detect if the application or data have been altered in an unauthorized way and to backup the application and data for restoration in the event of a disaster.</p> <p>A system shall receive a moderate rating (5-7) if it does not have one of the features outlined above.</p> <p>A system shall receive a low rating (0-4) if it does not have two or more of the features outlined above.</p>	<p>Uses two-factor authentication for database access through hart application.</p> <p>Does not use for server logon but county can configure with Windows.</p> <p>Does not encrypt database.</p> <p>Uses hash code checking automatically to ensure database has not been changed.</p> <p>Application is not automatically checked as being the same as the certified version, but county can run manual hash code check.</p> <p>Back ups are not easy since databases are kept separate.</p> <p style="text-align: right;">SCORE: 7</p>	<p>Database is encrypted preventing individuals from changing the database.</p> <p>SmartCard required for specific functions within CTS application (including commit (i.e. tabulating) function.)</p> <p>Two factor authentication can be configured through Windows for log-on and application launch.</p> <p>Application checks certificate on launch to verify application is same as authorized.</p> <p>Backup of database is easy with all workstations networked.</p> <p>There is no automatic way to check if database has changed as with Hart, but County can run manual hash code check.</p> <p style="text-align: right;">SCORE: 7</p>

The comment in the Hart column "Does not encrypt database" may not be appropriate since encryption is not a criterion. It is fair to include under Diebold that this system does use encryption. Supplemental information on System Security¹³ included later in the document is relevant in clarifying the rating given each system in this section.

Ratings are appropriate based on the ratings criteria. (*Note: See additional security analysis in later section on Security Mitigation*)

¹² DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp. 29-37

¹³ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp. 40-41

System Cost Capital

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
System Cost Capital	<p>A system shall be rated (10) if the vendor price quote is 10% or more below the \$1.5 million budget</p> <p>A system shall be rated (9) if the vendor price quote is 5% or more below the \$1.5 million budget.</p> <p>A system shall be rated (8) if the vendor price quote is equal to or below the \$1.5 million budget.</p> <p>Systems shall be rated with the following points based on the percentage above the \$1.5 million budget:</p> <p>7 points 10% or less above \$1.5 million 6 points 20% or less above \$1.5 million 5 points 30% or less above \$1.5 million 4 points 40% or less above \$1.5 million 3 points 50% or less above \$1.5 million 2 points 60% or less above \$1.5 million 1 point 70% or less above \$1.5 million 0 points 80% less or more above \$1.5 million</p>	<p>The Hart quote is for \$3,195,101.44, which is greater than 80% above the budget.</p> <p style="text-align: right;">SCORE: 0</p>	<p>The Diebold quote is for \$1,687,512 which is greater than 10% above the budget and less than 20%..</p> <p style="text-align: right;">SCORE: 6</p>

The Hart proposal is significantly higher than the established budget criteria primarily because of the need to include replacement DREs. The interpretation of RCW 29A.12.005¹⁴ referenced earlier in the document appears to preclude Hart from proposing an interfacing solution that would allow King to continue to use existing DREs, an option that would have made the proposal far more competitive in this category.

“RCW 29A.12.005 defines a voting system as “(1) The total combination of mechanical, electromechanical, or electronic equipment including but not limited to, the software, firmware, and documentation required to program, control, and support the equipment.” Voting system vendors certify their system as a whole, meaning that King County must employ the entire system, as opposed to different components from different vendors.”

Earlier comments in this report raise the issue of the weighting factor of this criterion. Because the two cost proposals are so far apart, a revision of the rating system would have little impact on the overall result.

Ratings for this category are appropriate based on the ratings criteria.

¹⁴ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case p. 20

System Cost Operating

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
System Cost Operating	<p>The system vendor with the lowest yearly software and hardware maintenance costs shall be rated a 10 and the other vendor shall rated according to the following schedule:</p> <p>9 points if the cost is up to 10% more 8 points if the cost is up to 20% more 7 points if the cost is up to 30% more 6 points if the cost is up to 40% more 5 points if the cost is up to 50% more 4 points if the cost is up to 60% more 3 points if the cost is up to 70% more 2 points if the cost is up to 80% more 1 point if the cost is up to 90% more 0 points if the cost is up to 100% more</p>	<p>The total yearly software and hardware maintenance costs are \$292,620. This cost is 70% more.</p> <p style="text-align: right;">SCORE: 3</p>	<p>The total yearly software and hardware maintenance costs are \$176,926.78.</p> <p style="text-align: right;">SCORE: 10</p>

Ratings for this category are appropriate based on the ratings criteria.

System Integration with DIMS

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
System Integration With DIMS	<p>Systems that integrate easy and seamless with DIMS shall receive the highest rating (8-10).</p> <p>A system that requires a cumbersome or difficult integration with DIMS shall receive a moderate rating (5-7).</p> <p>A system that requires redundant data entry because of integration problems or the sharing of data with DIMS is excessively time consuming shall receive a low rating (0-4).</p>	<p>Based on Clark County visit this is not seen as entirely seamless and easy. The demonstration also did not go as well as expected.</p> <p>Both vendors use file export as integration method. Both equally easy for DIMS to tabulation system. Hart does not have a way to transfer from tabulation system to DIMS.</p> <p style="text-align: right;">SCORE: 6</p>	<p>System currently integrates and is working to expectations.</p> <p>System uses file export as integration method. Both systems equally easy for DIMS to tabulation system.</p> <p style="text-align: right;">SCORE: 9</p>

Ratings for this category are appropriate based on the ratings criteria.

Impact on VBM Transition Schedule, Factor 1 Certification

Criteria	Rating Guide	Hart Evaluation	Diebold Evaluation
Impact on VBM Transition Schedule, factor 1 certification.	<p>The highest rating (8-10) is reserved for system that is certified and available now for the April 2008 Special Election.</p> <p>A system shall be moderately rated (5-7) if certification is eminent with little risk the certification could impact the April 2008 Special Election.</p> <p>A system shall receive a low rating (0-4) if certification is only in process and moderate risk is associated with certification being obtained to allow implementation for the April 2008 Special Election.</p>	<p>Hart is currently certified and available immediately.</p> <p>SCORE: 10</p>	<p>Diebold is currently in the certification process (only vendor in the process). Certification is expected in time for timely implementation</p> <p>SCORE: 4</p>

The issue of certification is probably the highest risk area of the entire project, as discussed earlier in this report. A case may be able to be made that the rating for Diebold should be further down the 0-4 scale.

Impact on VBM Transition Schedule, Factor 2 Totality of Change

Criteria	Rating Guide	Hart Evaluation	Diebold Evaluation
Impact on VBM Transition Schedule, factor 2 totality of change.	<p>The highest rating (8-10) is reserved for system that requires the least amount of change and minimizes risk.</p> <p>A system shall be moderately rated (5-7) if moderate change is required resulting in a moderate risk for impacting the project schedule.</p> <p>A system shall receive a low rating (0-4) if significant or complete change is required resulting in a high risk to the project schedule</p>	<p>This would be a complete system change Would be required to replace all DREs/AVUs. Would require complete re-training of staff on the DREs/AVUs. Would require completely new procedures and training for all parts of the ballot building and tabulation process, including software. Would require more acceptance testing because it would encompass more equipment.</p> <p>SCORE: 3</p>	<p>No changing to the AVUs or training for them. System would only require new procedures for the scanning and resolution of ballots, ballot building software would remain the same.</p> <p>SCORE: 8</p>

Ratings for this category are appropriate based on the ratings criteria.

Space on Printed Ballot

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Space on Printed Ballot	<p>A system shall be rated high (8-10) if it provides flexible ballot building and a relative large ballot size.</p> <p>A system that has either inflexible ballot building or a relatively small ballot size shall be rated moderately (5-7).</p> <p>A system that has both inflexible ballot building and a relatively small ballot size shall be rated low (0-4)</p>	<p>Can accommodate large format ballots (11" x 17") but the ballot building system is not flexible.</p> <p>SCORE: 7</p>	<p>Ballot building is more flexible but can not accommodate quite as large a ballot format.</p> <p>SCORE: 8</p>

An argument can be made that both systems should have received a 7 in this category based on the criteria. It is difficult to determine because of the use of the unspecific phrases "relatively large" and "relatively small" in referring to ballot size.

Machine Sorting Process

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Machine Sorting Process	<p>A system shall be rated the high (8-10) if it has the ability to both electronically and physically sort ballots.</p> <p>A system shall be rated moderate (5-7) if it can sort in only one way, either electronically or physically.</p> <p>A system shall be rated low (0-4) if it can not sort at all.</p>	<p>Can only sort electronically, no physical sorting of the ballots.</p> <p>SCORE: 5</p>	<p>Scanners can sort with two different out-stack trays. Which ballot goes to which trays is completely controllable. Ballots can also be sorted electronically.</p> <p>SCORE: 9</p>

The Hart score of 5 could have been a 6 or 7 depending upon the weight given to electronic sorting as the single option versus physical sorting. .

Institutional Knowledge

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Institutional Knowledge	<p>A system shall be rated the high (8-10) if the county and vendor each have a great degree of institutional knowledge and the vendor has a high degree of knowledge of Washington state election law.</p> <p>A system shall be rated the moderate (5-7) if the county and vendor each have a moderate degree of institutional knowledge and the vendor has a moderate degree of knowledge of Washington state election law.</p> <p>A system shall be rated the low (0-4) if the county and vendor each have a low degree of institutional knowledge and the vendor has a low degree of knowledge of Washington state election law.</p>	<p>Strong familiarity with WA state, used in 20 counties in WA and works with Secretary of State.</p> <p>This would be starting over of building a relationship and business practice for King County.</p> <p>Requires retraining and learning a new system.</p> <p style="text-align: right;">SCORE: 6</p>	<p>Many staff are knowledgeable with the system.</p> <p>Vendor has extensive knowledge of both county & state. County has extensive knowledge of vendor systems.</p> <p style="text-align: right;">SCORE: 8</p>

A previous comment in this report questions the validity of this criterion and the weight assigned. However, given the way the criterion is written, the assigned scores appear valid.

Demonstrated Capacity to Serve a Large and Complex Jurisdiction

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Demonstrated capacity to serve a large and complex Jurisdiction	<p>A system shall be rated high (8-10) if it has been used extensively in other large complex jurisdictions and the vendor has significant experience with other large complex jurisdictions.</p> <p>A system shall be rated moderate (5-7) if it has been used only moderately in other large complex jurisdictions and the vendor has only moderate experience with other large complex jurisdictions.</p> <p>A system shall be rated low (0-4) if it has been used at all or only on a limited basis in other large complex jurisdictions and the vendor has little or no experience with other large complex jurisdictions.</p>	<p>Not many large jurisdictions with the number of VBM ballots in King County and the complexity of the ballot in King County.</p> <p style="text-align: right;">SCORE: 7</p>	<p>Vendor has experience with many large jurisdictions but the scanners are new equipment in the United States and not tested in other jurisdictions.</p> <p style="text-align: right;">SCORE: 7</p>

Ratings for this category are appropriate based on the ratings criteria.

Customer Service

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Customer Service	<p>A vendor shall be rated high (8-10) if it has demonstrated quality customer service, proved availability and other jurisdictions have rated the vendor as excellent.</p> <p>A vendor shall be rated moderate (5-7) if it has demonstrated average customer service, limited availability and other jurisdictions have rated the vendor as adequate.</p> <p>A vendor shall be rated low (0-4) if it has demonstrated poor customer service, unavailability and other jurisdictions have rated the vendor as poor.</p>	<p>Elections side has good reputation in Washington – some concern with the customer service experienced by the King County Recording office.</p> <p style="text-align: right;">SCORE: 8</p>	<p>Difficult past history with customer service – improving customer focus.</p> <p style="text-align: right;">SCORE: 5</p>

This is a subjective, but important category. The comment in the Diebold rating “*improving customer focus*” may not be appropriate as the criteria references demonstrated service.

Ratings for this category are appropriate based on the ratings criteria.

Data Availability for Report Writing

Criteria	Rating Guide	Hart Evaluation	Diebold Evaluation
Data Availability for report writing	<p>A system shall be rated high (8-10) if it provides report writing capability in an easy and quality way through one of the three methods outlined in the explanation of the criteria.</p> <p>A system shall be rated moderate (5-7) if it provides report writing capability through one of the three methods outlined in the explanation of the criteria but the process is burdensome or difficult</p> <p>A system shall be rated low (0-4) if no report writing capability is provided or it is provided through one of the three methods outlined in the explanation of the criteria but it is excessively difficult or time consuming.</p>	<p>Hart provides the capability to do reporting through their Fusion and InFusion applications.</p> <p>The data elements that are needed require a series of exports and are not performed easily.</p> <p>The ability to report results data by batch does not exist unless a very burdensome process with memory cards is employed. This would limit the ability to conduct audits of the central count environment by batches of ballots.</p> <p style="text-align: right;">SCORE: 4</p>	<p>Diebold promises a data export routine in next version that will provide all data that we can import into our own database application to do reporting from. This is required because in next version the data will be encrypted.</p> <p>Some reports would be limited to canned reports from the system limiting flexibility.</p> <p style="text-align: right;">SCORE: 7</p>

King County should be concerned about the lack of report writing capability of both systems. Hart’s system has obvious limitations and Diebold “promises” an expanded capability. Historically, canned report libraries from vendors have proven inadequate. A case for a lower (perhaps 5) rating could be made for Diebold.

Maintenance and Serviceability

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Maintenance and Serviceability	<p>A system shall be rated high (8-10) if it has a low frequency rate, and cost for maintenance and maintenance can be performed easily on the equipment.</p> <p>A system shall be rated moderate (5-7) if it has a moderate frequency rate, and cost for maintenance and maintenance is not necessarily easily performed on the equipment.</p> <p>A system shall be rated low (0-4) if it has a high frequency rate, and cost for maintenance and maintenance is not performed easily on the equipment.</p>	<p>Off the shelf product, vendor does not support hardware, closed paper path.</p> <p>In response to written questions about “the time frame in which regular maintenance takes place,” Hart responded that the recommended Kodak scanners “should be maintained according to the manufacturer’s instructions.”</p> <p>Research indicates that some internal parts of the scanners need to be cleaned after 8 hours of use.</p>	<p>Ability to perform most maintenance in house; open paper path with easily accessible consumables.</p> <p>Consumable (pickup separator pads and feed wheels, etc.) are inexpensive.</p> <p>Diebold documentation indicates that there are 12 feed wheels on the scanners and that they are easily replaced when worn. Documentation further indicates that preventative maintenance occur every 40,000 ballots processed.</p> <p>Given the scanning rates provided by Diebold the highest number of ballots (11”) that could be scanned in a day is approximately 28,000. At this rate preventative maintenance would need to occur every day and half or two days.</p>
		SCORE: 6	SCORE: 8

This is an important element and while Hart’s response and approach merits a low rating, Diebold’s rating is based on the vendor’s own documentation which may prove optimistic in a real world environment.

Ratings for this category are appropriate based on the ratings criteria.

Ballot Printing Process

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Ballot Printing Process	<p>A system shall be rated high (8-10) if the ballot design and printing processes are smooth, easy to perform and flexible in regards to the elements for consideration outlined in the explanation of the criteria.</p> <p>A system shall be rated moderate (5-7) if the ballot design and printing processes are not necessarily smooth or easy to perform and inflexible in regards to the elements for consideration outlined in the explanation of the criteria.</p> <p>A system shall be rated low (0-4) if the ballot design and printing processes are difficult to perform and not flexible in regards to the elements for consideration outlined in the explanation of the criteria.</p>	<p>The ballot printing process based on the visit to Clark County and conference call with Orange County CA is not necessarily smooth, easy and flexible.</p> <p>Some processes are time and labor intensive.</p> <p>Has good feature of using table of English/Chinese translations for use on a global basis.</p> <p>A ballot is printed for each voter which is time consuming and creates very large files. It is also significant that a new ballot printer and contract would be required with this system.</p> <p>Specific issues related to ballot building include: no display of fold lines on ballot during build process, inability to change font sizes for different contest on the ballot, can only use predetermined column layout designs, and color on the ballot can only be dropped in by the printer in advance of ballot printing.</p> <p style="text-align: right;">SCORE: 4</p>	<p>Integrates nicely with DIMS; has configuration and ballot layout flexibility. Some aspects of completing Chinese language ballot are difficult.</p> <p>Ballot build is a much easier process with GEMS requiring fewer steps and less time. Staff in Clark County that has experience with both systems strongly prefers the GEMS solution for ballot building. No change of printing vendor required.</p> <p style="text-align: right;">SCORE: 8</p>

While we do not have the benefit of having participated in the visits/conversations with other jurisdictions, the documentation of both vendors bears out the conclusions expressed.

Ratings for this category are appropriate based on the ratings criteria.

Practical Tabulation Speed

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Practical Tabulation Speed	<p>A system shall be rated high (8-10) if the practical tabulation speed allows for all the ballots available for tabulation on election day are able to be processed and tabulated with fewer than 20 scanners and with little or no operational risks.</p> <p>A system shall be rated moderate (5-7) if the practical tabulation speed allows for a majority of the ballots available for tabulation on election day are able to be processed and tabulated with fewer than 20 scanners and with little or no operational risks.</p> <p>A system shall be rated low (0-4) if the practical tabulation speed allows for only a minority of the ballots available for tabulation on election day to be processed and tabulated and increasing the practical tabulation speed would result in more than 20 scanners or an increased operational risk.</p>	<p>Hart's system exceeds this requirement with a combination of preprocessing and higher speed scanners.</p> <p style="text-align: right;">SCORE: 9</p>	<p>Diebold's system exceeds this requirement with a combination of preprocessing and higher speed scanners.</p> <p style="text-align: right;">SCORE: 9</p>

Ratings for this category are appropriate based on the ratings criteria.

Physical Space Requirements

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Physical space Requirements	<p>A system shall be rated high (8-10) if reasonable space requirements necessary for the elements outlined in the criteria, the system allows flexibility in terms of the proximity of various components in a transparent manner and the system will fit in the less square footage than the current system.</p> <p>A system shall be rated moderate (5-7) if large space requirements are necessary for the elements outlined in the criteria, the system is inflexible in terms of the proximity of various components in a transparent manner, and the system will fit in the same square footage as the current system.</p> <p>A system shall be rated low (0-4) if excessive space requirements are necessary for the elements outlined in the criteria, the system is not flexible in terms of the proximity of various components in a transparent manner and the system will not fit in square footage than the current system.</p>	<p>Two work stations must be attached to each scanner and the data for resolving ballots can not be shared with other work stations.</p> <p style="text-align: right;">SCORE: 8</p>	<p>Scanner is essentially also a PC so only a monitor and key board are required.</p> <p style="text-align: right;">SCORE: 8</p>

Ratings for this category are appropriate based on the ratings criteria.

Image Processing Time

		Hart	Diebold
Criteria	Rating Guide	Evaluation	Evaluation
Image processing time	<p>A system shall be rated high (8-10) if it can tabulate images from 600,000 8.5"x 11" ballots under 10 minutes.</p> <p>A system shall be rated moderate (5-7) if it can tabulate images from 600,000 8.5"x 11" ballots in 10-20 minutes.</p> <p>A system shall be rated low (0-4) if it takes longer than 20 minutes to tabulate 600,000 8.5"x 11" ballot images.</p>	<p>Hart Testing indicates that the total time for all 600,000 Ballots on 10 Mobile Ballot Boxes (MBB) was less then 1 minute and 30 seconds.</p> <p>Each MBB took approximately 8 seconds to tabulate by Tally.</p> <p style="text-align: right;">SCORE: 10</p>	<p>Diebold testing of the software indicates that 6 million ballots were processed in under 25 minutes.</p> <p>This would equate to 600,000 ballots being tabulated in 2.5 minutes.</p> <p style="text-align: right;">SCORE: 10</p>

Ratings for this category are appropriate based on the ratings criteria.

Weighted Ratings

Weighted Ratings of the Vendors Meeting the Mandatory Criteria

Criteria	Un-weighted Rating			Weighted Rating	
	Hart	Diebold	Weighting	Hart	Diebold
High Priority					
System Security	7	7	x3	21	21
System Cost Capital	0	6	x3	0	18
System Cost Operating	3	10	x3	9	30
System Integration With DIMS	6	9	x3	18	27
Impact on VBM, Transition Schedule, factor 1 certification.	10	4	x3	30	12
Impact on VBM Transition Schedule, factor 2 totality of change.	3	8	x3	9	24
Space on Printed Ballot	7	8	x3	21	24
Medium Priority					
Machine Sorting Process	5	9	x2	10	18
Institutional Knowledge	6	8	x2	12	16
Demonstrated capacity to serve a large and complex jurisdiction	7	7	x2	14	14
Customer Service	8	5	x2	16	10
Data Availability for report writing	4	7	x2	8	14
Maintenance and Serviceability	6	8	x2	12	16
Low Priority					
Ballot Printing Process	4	8	x1	4	8
Practical Tabulation Speed	9	9	x1	9	9
Physical Space Requirements	8	8	x1	8	8
Image processing time	10	10	x1	10	10
Total				211	279

In previous sections of this report, we have raised questions about some ratings and the weighting given to them, and have suggested adjustments that could have been made.

If all questionable areas were adjusted as suggested, the overall rating totals would have been closer, but would not have changed the fact that Diebold received the highest weighted point total. The revised weighted ratings would total 198 for Hart and 244 for Diebold; a difference of 46 points compared to the existing ratings of 211 for Hart and 279 for Diebold; a difference of 68 points. Expressed as percentages, in the original weighted point totals Hart received 43% of the total points awarded and Diebold received 57%. Revised ratings would have resulted in Hart receiving 45% and Diebold 55% of total points awarded, a negligible change not affecting the ultimate outcome.

Documents Reviewed for Evaluation of Vendor Ratings

Hart

PowerPoint Presentation – March 1, 2007
Securing the eSlate Electronic Voting System, Application Security Implementation
Kodak i800 Series Scanners Image Processing Guide – User’s Guide
Response to RFI, August 10, 2005
Letter Response to Request for Additional Information, January 12, 2007
Letter Response to Request for Additional Information, January 13, 2007

Diebold

Response to RFI, August 10, 2005
Letter Response to Request for Additional Information, January 12, 2007
GEMS/DIMS Print Services; Product Integrations, Features and Benefits, March 9, 2006
Central Count Tally System PowerPoint Presentation, February 16, 2007

Security Mitigation

Security considerations must involve two components:

- Security features available in the infrastructure itself;
- Procedures for taking advantage of the features available and for mitigating any security weaknesses in the infrastructure.

Since this Business Case is specific to the acquisition of new infrastructure, that is where our analysis is focused. Security procedures will be contained in the Election Division’s updated procedures manual and security plan according to King County staff.

King County needs to address infrastructure security in two areas:

- The direct recording electronic (DRE) devices proposed for use in the Regional Voting Centers;
- The ballot scanning and vote tabulation equipment used in the central count environment.

We address each of these issues separately.

DRE Security

In the Business Case, King County recognizes the ongoing controversy surrounding the use of DREs:

“The majority of concerns surround the potential risk of hacking and altering vote totals by individuals, vendors or elections administrators. These concerns and views have been growing and circulating among policy makers and the academic community for the last 4 years and are intertwined with the Help America Vote Act (HAVA) and the 2000 and 2004 presidential elections.”¹⁵

¹⁵ DES REAL Vote By Mail Integration-Ballot Tabulation Upgrade Recommendation Business Case, p. 15

The Business Case correctly identifies the reduction in the use of DREs from the current 600 units to a much lesser number based on five to ten units per Regional Voting Center as a reduction in security concern. Although the specific number of Regional Voting Centers has not yet been determined, it is clear that the number of DRE units in operation will be significantly reduced.

Additionally, the Business Case identifies the reduced number of personnel with access to the units and improved training of these personnel as mitigation measures:

“These regional voting centers will be closely managed and will involve far fewer employees than are typically deployed on Election Day. Employees at regional voting centers will undergo much more extensive equipment and procedure training prior to each election.”¹⁶

DRE Security Conclusions

The studies and reports citing security breaches for DREs have a common element; in that access to the units is required.

Reducing the number of units used, as well as the number of personnel with access to the available units is a positive from a security perspective.

Obviously these remaining units must be available to the public; and access control and oversight is largely a procedural issue. As previously mentioned, a separate manual addresses procedural issues and DRE access control is a component in that document.

While a reduction in units and personnel reduce the risks, King County must assure that the number of oversight personnel in the Regional Voting Centers is sufficient to adequately control and monitor those accessing the units.

Ballot Scanning and Vote Tabulation

King County has made security the highest priority element in the evaluation of the vendors:

“System security is paramount to the actual and perceived integrity of the election system. King County Elections employs a security plan that relies on many components to ensure the security and integrity of elections. These components include: open and transparent election environment, physical and personal security, legal and procedural security, and technical systems security.”¹⁷

In addressing the technological security level that a successful vendor must provide in the scanning and tabulating systems, the County identified several specific components: ¹⁸

¹⁶ DES REAL Vote By Mail Integration-Ballot Tabulation Upgrade Recommendation Business Case, p. 15

¹⁷ DES REAL Vote By Mail Integration-Ballot Tabulation Upgrade Recommendation Business Case, p. 23

¹⁸ DES REAL Vote By Mail Integration-Ballot Tabulation Upgrade Recommendation Business Case, p. 23

- Tabulation and image data stored in the database must be protected from both intentional and accidental modification. This involves several layers of security.
- Access to the server must be controlled and restricted to an extremely limited number of individuals.
- Access to the tabulation database/application must be similarly limited. It is highly desirable that both the server and the application use two factor authentications (e.g. smart card, finger printer reader, token, etc.) to control access. The system must be configurable such that two individuals may gain access to the tabulation application.
- Access to menus, commands, or any other means of initiating actual tabulation of results prior to 8 p.m. on election night should be protected; ensuring only limited individuals (preferably more than one) can initiate tabulation. It is highly desired that this also include two-factor authentication.
- The data in the database must be protected such that even with access to the tabulation application, data can not be altered, thus eliminating any ability to change election results.
- The ability to assign a digital signature, hash code, or certificate to both the application and the database is required to provide the ability to authenticate that the application is the same as that certified, and that data has not been changed from some previous specified time.
- The tabulation system must provide the ability to access and audit any and all modifications to the system and database including ballot building activities.
- The system and/or tabulation application and database must be able to be backed up and restored to protect the application and data from loss from any circumstance – foreseen and unforeseen.

As previously mentioned, a significant portion of security mitigation is procedural, however our focus here is to examine the infrastructure of the selected vendor to determine that the features are present to support procedures that control access and prevent and/or identify data manipulation.

In the point ratings for security, Diebold received only a 7 out of 10 rating, as did Hart:

Criteria	Rating Guide	Hart Evaluation	Diebold Evaluation
System Security	<p>The highest rating (8-10) is for systems that best provide for security in each of the security layers employed in King County. Specifically regarding technical security, systems with the highest rating will provide for security of data, two factor authentication for access to data, the application and the server. Finally the highest rating is reserved for systems that provide the ability to detect if the application or data have been altered in an unauthorized way and to backup the application and data for restoration in the event of a disaster.</p> <p>A system shall receive a moderate rating (5-7) if it does not have one of the features outlined above.</p> <p>A system shall receive a low rating (0-4) if it does not have two or more of the features outlined above.</p>	<p>Uses two-factor authentication for database access through hart application.</p> <p>Does not use for server logon but county can configure with Windows.</p> <p>Does not encrypt database.</p> <p>Uses hash code checking automatically to ensure database has not been changed.</p> <p>Application is not automatically checked as being the same as the certified version, but county can run manual hash code check.</p> <p>Back ups are not easy since databases are kept separate.</p> <p style="text-align: right;">SCORE: 7</p>	<p>Database is encrypted preventing individuals from changing the database.</p> <p>SmartCard required for specific functions within CTS application (including commit (i.e. tabulating) function.)</p> <p>Two factor authentication can be configured through Windows for log-on and application launch.</p> <p>Application checks certificate on launch to verify application is same as authorized.</p> <p>Backup of database is easy with all workstations networked.</p> <p>There is no automatic way to check if database has changed as with Hart, but County can run manual hash code check.</p> <p style="text-align: right;">SCORE: 7</p>

In a later section of the document, King County identifies a weakness in the point assignment scheme with this explanation:

“The ratings are a result the way the rating guide was structured and not a reflection on the system. The guide instructed that if only one of the security features was missing a moderate rating was to be assigned and if two of the features were missing a low rating was assigned. This rating system inadvertently gives the appearance that theses tabulation solutions are insecure, when in fact each of these systems have distinct security advantages.”¹⁹

We concur that the quantitative approach to the System Security evaluation is inadequate and a more qualitative approach is needed to accurately assess the vendor conformance with the requirements. This is provided in the Business Case section titled Detailed Security Features which evaluates the vendors on the specific security requirements stated earlier.

¹⁹ DES REAL Vote By Mail Integration-Ballot Tabulation Upgrade Recommendation Business Case, p. 40

Detailed Security Features

Security Feature	Hart's System Ability	Diebold's System Ability
Tabulation and image data stored in the database must be protected from both intentional and accidental modification.	Database protected from third party tools by the database engine and user access rights in the Hart application	Database is encrypted and access is protected by user rights in the CTS application.
Access to the server must be controlled and restricted to an extremely limited number of individuals using two-factor authentication.	Accomplished through Windows tools. Tally also requires use of eSlate Cryptographic Module (eCM) Key	Accomplished through Windows tools
Access to the tabulation database must be limited using two factor authentication.	eCM Key and protected from user access by application.	Accomplished through use of Windows tools and the database is encrypted
Access to the application must be limited using two factor authentication.	Requires use of eCM key	Accomplished through use of Windows tools
Access to menus, commands, or any other means of initiating actual tabulation of results, from scanned images, prior to 8:00 p.m. on election night should be protected, ensuring only limited individuals (preferably more than one) can initiate tabulation. It is highly desired that this also include two factor authentication.	User rights and system configuration can be set for different functions	Uses smart card to kick off the Commit process
The data in the database must be protected such that even with access to the tabulation application, data can not be altered, thus eliminating any ability to change election results.	eCM Key and protected from user access by application.	Accomplished through use of Windows tools and the database is encrypted
The ability to assign a digital signature, hash code, or certificate to both the application and the database is required to provide the ability to authenticate that the application is the same as that certified, and that data has not been changed from some previous specified time.	Hash codes the database. No certification or hash code of application although user can hash code separately.	Applies certificate to application and checks every time application is launched. Does not hash code database (which is encrypted) but database is separate file that can be hash coded by user.
The tabulation system must provide the ability to access and audit any and all modifications to the system and database including ballot building activities.	Yes	Yes
The system and/or tabulation application and database must be able to be backed up and restored to protect the application and data from loss from any circumstance – foreseen and unforeseen.	Cumbersome backups – scanner/resolution stations are not networked requiring that each be backed up separately	Scanner/resolution stations are networked and can be configured to share data allowing data from all to be backed up in a single process.

Ballot Scanning and Vote Tabulation Conclusions

The implementation of Vote by Mail as the primary method of voting in King County will result in a much larger proportion of the ballots cast to be counted in the central count environment. This in itself is a positive from a security aspect because the central count environment is amenable to access restrictions, environmental controls and physical security measures that are impossible to achieve in the polling place voting environment.

The security criteria detailed in the Business Case focus on the key security points, related to the vote tabulation equipment, which are controllable in the central count environment:

- Access
- Data protection
- Auditing
- Backup and restoration

Not addressed in this document are the physical attributes of the facility in which the equipment will be housed that relate to other security issues such as external intrusion, protection against malicious software, data corruption, physical security and protection from natural acts that may cause power disruptions or surges. According to King County staff, these issues will be detailed in the updated security plan.

We conclude that the criteria specified are appropriate to solicit voting tabulation system vendor responses and, if met, will provide an acceptable level of security for the scanning and vote tabulation system.

In evaluating whether the vendor selected, Diebold Election Systems, meets the criteria we have only the vendor's written presentation and documentation to consider.

An evaluation of the system security representations in the documentation provided by Diebold indicates that King County has correctly captured the system's capabilities, as described by the vendor, and has correctly concluded that the system selected meets the security requirements criteria.

Worthy of particular note are the encryption of the database; the application of certificate to the application and verification check at each launch of the application; and the ability to hash code the database.

King County additionally notes that certification of the Diebold System by the Elections Assistance Commission, under the 2005 Voluntary Voting System Guidelines (VVSG), effective in 2007; provides additional security testing by the federally authorized independent testing authorities (ITAs).²⁰

We find this to be a positive, however we note that the proposed system has not yet been certified, so it is unknown whether it meets the improved security testing requirements of the new standards.

King County should review the certification testing documentation, when available, for strict conformance to the VVSG. Particular attention should be paid to any variations from the standards in Section 7, Security Requirements; and relevant parts of Section 2, Functional Requirements; Section 4, Hardware Requirements; and, Section 5, Software Requirements.²¹

²⁰ DES REAL Vote By Mail Integration-Ballot Tabulation Upgrade Recommendation Business Case, p. 39

²¹ http://eac.gov/VVSG%20Volume_I.pdf

These tests conducted by the ITAs will far exceed any testing King County could do and the documentation will prove instructive as it will either corroborate or conflict with the vendor documentation upon which King County is relying in this decision.

Evaluation of Vendor Recommendation and Justification

This section fairly represents the results of the rating process and adds additional security information about the two systems considered for implementation.

The ultimate conclusion of the Business Case is a recommendation that King County select Diebold Election Systems as the vendor for an upgraded ballot tabulation system.

Conclusion: Our evaluation of the Business Case and selection process used by King County supports the recommendation for selection of Diebold Election Systems and concludes that the Business Case is appropriately detailed and that sufficient “due diligence” has been exercised by the County in arriving at this conclusion.

Our one hesitation is the uncertainty of the timing of the Federal and State certification of the Diebold system. While this risk has been identified by King County staff and assessed to be only moderate in scope, the entire implementation schedule, including a very tight delivery and acceptance testing timeframe, depends on a certification process with no delays at either level, which is beyond the County’s control. Any significant delay will render unachievable the goal of conducting the April 2008 Election on this system, as a vote by mail election.

Appendix A

Evaluation of Offered Systems Determined to not be Qualified for Final Consideration

ELECTION SYSTEMS AND SOFTWARE (ES&S)

King County determined that ES&S does not meet the primary requirements to be considered. The County describes the following deficiencies:²²

- No Direct Recording Electronic device certified in the State of Washington or in the certification process;
- The AutoMARK does not provide the efficiencies required by King County for use in its Regional Voting Centers;
- ES&S does not meet the technical requirements of handling the volume and complexity of King County's elections.

A review of the ES&S response to the King County Request for Information (RFI) reveals the following:

1. The ES&S RFI response does not include any information regarding availability of a DRE voting system.

Comment:

The use of DREs as the preferred mechanism for collecting votes in the Regional Voting Centers and as a method for meeting requirements for voters with disabilities is a political and administrative decision. King County has opted for this method because of the size and complexity of elections in the County and the difficulty and risks associated with providing optical scan ballots to each Regional Voting Center with as many as 5,196 ballot styles as were used in the 2006 Primary Election.²³ Also, King County has identified risks associated with the administration and security of a process that requires large quantities of paper ballots for servicing the Regional Voting Centers.

King County has also recognized and identified the political risks associated with the use of DREs;²⁴ however after analyzing these risks the County has determined that the benefits provided by DREs over paper based optical scan ballots in the Regional Voting Centers offsets any perceived security risks.

2. A product overview in the above referenced RFI response explains the operation of the AutoMARK Voter Assist Terminal. This device prints a voter's electronically entered voting responses on a pre-printed blank ballot which can then be counted via the M650 Ballot Tabulator.

Comment: See comment on item 1.

²² DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case pp. 27-28

²³ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case p 25

²⁴ DES/REALS Vote By Mail Integration – Ballot Tabulation Upgrade Recommendation Business Case 1.15 Opposing Arguments and Responses, pp. 14-15

3. A product overview in the RFI response Model 650 Central Ballot Counter provides the following description of the central count unit being proposed for King County:

Ideal for Large Jurisdictions

The **Model 650** is ideal for large jurisdictions with a high number of precincts and multiple ballot types per voter. It supports up to:

- 1640 precincts
- 30 parties
- 300 candidates per contest
- 500 contests
- 30 districts per precinct

Comment:

Since King County has 2,555 precincts, the Model 650 ballot tabulator proposed by ES&S does not, by ES&S’ documentation, meet the requirements of the County.

Also, with the key goal of effectively using the pre-election window to process ballots, the M650 tabulator does not meet the requirements for scanning without tabulating. The votes are tabulated in real time on the M650, and while ES&S offers that results can be saved to a zip disk until Election Day,²⁵ this does not appear to meet the State requirements that votes may not be tabulated until after 8:00 pm on Election Day.

Another factor that weighs against ES&S is the actual throughput of ballot reading. ES&S documentation²⁶ indicates a ballot throughput of 275 to 325 ballots per minute, however the documentation also indicates that “*throughput for jurisdictions can range from approximately 35% to 60% of the rated speed...*” which effectively reduces the net throughput to a level that could be as low as 96 to 114 ballots per minute which would be inadequate for King County’s timely tabulating and reporting of the election results. (Note: These reduced numbers are closer to what is being realized by other jurisdictions using the M650 tabulator.)

Conclusion:

King County performed “due diligence” in reviewing the RFI response submitted by ES&S and is justified in concluding that ES&S failed to meet the primary criteria necessary for further consideration.

Documents used for evaluation:

*Enhancing the King County Election Process - Election Systems and Software Response to RFI
January 12, 2007*

King County Vote By Mail Integration – Ballot Tabulation Upgrade Recommended Business Case

²⁵ES&S RFI Response, Section I, Questions and Answers, item 32

²⁶ ES&S RFI Response, Section I, Questions and Answers, item 30

Evaluation of Offered Systems Determined to not be Qualified for Final Consideration

SEQUOIA VOTING SYSTEMS

King County determined that Sequoia Voting Systems does not meet the primary requirements to be considered. The County describes the following deficiencies:

- The system does not provide for the preprocessing of ballots as they are received.

A review of the Sequoia Voting Systems documentation submitted in response to the King County Request for Information (RFI) reveals the following:

Comment:

The preprocessing of ballots in the several days or weeks prior to Election Day as they return in a vote by mail environment, is the centerpiece to King County's strategy for ballot processing and tally.

Sequoia proposes the 400C central count ballot reader as its solution. Throughout the documentation references to "tabulation" are associated with the reader. There are no indications that Sequoia offers a non-tabulating preprocessing option.

Conclusion:

King County performed "due diligence" in reviewing the RFI response submitted by Sequoia Voting Systems and is justified in concluding that Sequoia failed to meet the primary criteria necessary for further consideration.

Documents used for evaluation

Sequoia Voting Systems, Inc. Response to RFI, August 10, 2005

Technical Information on Tabulation

Sequoia Election Management Solutions Brochure

Sequoia Electronic Counting Solutions Brochure

Sequoia Equal Access Ballot Solutions Brochure

Sequoia VeriVote Brochure

King County Questions and Answers January 5, 2007

Sequoia Corporate Brochure