October 26, 2007

PROJECT OVERVIEW:

ANALYZE ALASKA DIVISION OF ELECTIONS' TECHNOLOGIES, SYSTEMS, AND PROCEDURES TO COUNT AND TABULATE BALLOTS BY OPTICAL SCANNING AND TOUCHSCREEN SYTEMS.  DEVELOP PROJECT PLAN TO ADDRESS VULNERABILITIES.

 The University of Alaska has been asked to review the current systems and determine if there are security problems that could jeopardize the results of elections. Ten years ago Alaska became the first state in the nation to use optical scanning on a statewide basis. It is appropriate to review whether the technology and the procedures and practices used in Alaska are secure and still constitute "best practice" in vote processing.

Recent studies conducted by the University of California and Florida State University to compare a variety of vote tabulation systems, including one similar to Alaska's, have concluded that significant problems exist with all of the systems they tested. They concluded that several of the systems could be certified by the state with certain procedural protections, highlighting the importance of the business practices that are utilized with technology.

After consultation with the evaluation teams from University of California and Florida State University, we propose the following phased project to identify and address issues that may impact the integrity of Alaska's election process:

**Phase 1a:**  Overview-level evaluation of recent studies relative to existing Alaska systems, technologies and procedures
  Inclusions:
  - A brief review of studies and tests that have been undertaken that might be relevant to Alaska's situation.
  - A summary of the University of California's and Florida State University's tests and conclusions, analyzing the recommendations that were made and are applicable to Alaska's optical scanning technology.
  - Research and assess improvements made by Premier (formerly Diebold) based on California and Florida studies and their applicability to our systems
  - Assessment of existing Alaska systems and equipment and ability to upgrade security functionality
  - Research other states that are conducting similar research.  Determine potential points of collaboration, partnership and leverage
  - General evaluation of Alaska's election policies, processes and procedures
  - Provide repository for public input via Division of Elections website. Use this input to guide suggested approach for interactive public input/response in Phase 2. Ensure that both UAA and Division of Elections have record of public input.   Provide automated response message that thanks public for input as follows (or as otherwise agreed): "Thank you for your interest in the Election Security Project being conducted by the University of Alaska at the request of Lieutenant Governor Parnell and the Division of Elections.  We value your suggestions, ideas and questions.  During the initial phase of this project, comments are being collected that may be studied in future phases. Phase 1 will consist of an overview-level evaluation of recent studies relative to existing Alaska voting systems, technologies and procedures that will

give the Division of Elections a high-level vulnerability assessment and preliminary recommendations for implementation prior to the 2008 elections. During a later phase of the project, we will also provide a more interactive mechanism to answer questions and field suggestions."

Exclusions:
- Detailed analysis, hands-on operational and technical evaluation of systems.
- Detailed study of Alaska's election policies, processes and procedures
- Direct responses to public input.

Deliverables: High-level vulnerability assessment and preliminary recommendations. Proposed statement of work for Phase 2 detailed analysis and recommendations.
Timeframe: September 18-November 30, 2007
Cost: $50,000

**Phase 1b:** Additional overview evaluation of security related issues for touch-screen voting systems
Inclusions
- Evaluation of existing studies of security issues for touch screen systems and implications for Alaska
Exclusions
- Evaluation of usability issues for touch screen systems including ease of use, training, set-up, removal, quality, transportation, etc.

Deliverables: Extension of high-level vulnerability assessment of touch-screen systems. Proposed statement of work for Phase 2 detailed analysis and recommendations to include touch-screen systems.
Timeframe: September 18-December 15, 2007
Cost: $10,000

**Total Phase 1 (a &b) : $60,000**

Movement to the next phase dependent on agreement between the State of Alaska Division of Elections and the University of Alaska Anchorage.

**Phase 2:** Detailed Analysis, Validation and Prioritized Recommendations

- A series of test runs of Alaska's technology with attempts to corrupt the results with existing policies and procedures in place.
- Evaluation of processes for functionality testing, logic and accuracy testing, system security, pre-election and post-election auditing.
- Evaluation and recommendations of data transmittal to GEMS computer to avoid introduction of viruses and long-time delays in election returns.
- An analysis of the process and procedure requirements, to evaluate effectiveness against tampering (technologies, systems and procedures).
- Evaluation of procedures for transportation of election materials and equipment to provide sufficient time for set-up prior to the election while maintaining necessary security of the equipment.

- Evaluate methods to protect system from malicious insiders seeking to affect election outcome
- Suggestions for changes to processes and procedures to increase the security of the elections.
- Evaluation of any security related issues associated with touch-screen voting units

Deliverable:  Project Plan to address prioritized list of technology, systems and procedural vulnerabilities phased to meet 2008 election process timeline
Timeframe (est):  January – End March  2008
Cost :  To be determined based on Phase 1 recommendation.  Cost could include funding for hands-on systems and technology evaluation as well as detailed process, system, personnel and procedural analysis and recommendations.

Movement to the next phase dependent on agreement between the State of Alaska Division of Elections and the University of Alaska Anchorage.

**Phase 3**:  Execution of Phased Project Deliverables

- Develop and test prototype systems and processes in partnership with users
- Oversee implementation of key technology, system, process, training, documentation, etc.  recommendations phased with 2008 election process timeline
- Audit completion of key deliverables and procedures to ensure conformance

Deliverables:  Completion of key deliverables as defined and agreed in project plan.
Timeframe:  March 31, 2008+ (deliverables completion phased with 2008 election process timeline)
Cost:  TBD based on project scope defined in Phase 2.

Movement to the next phase dependent on agreement between the State of Alaska Division of Elections and the University of Alaska Anchorage.

**Phase 4** (optional):  Live audit of systems and procedures during election
- Audit systems and election process in real-time
- Test for and identify additional gaps and issues
- Propose future corrective action

Deliverables:  Collaborate with Division of Elections to conduct real-time analysis and assessment of actual system and procedure use during election.  "Post Mortem" analysis to determine lessons-learned and identify opportunities for additional corrective action.
Timeframe:  November 2008-January 2009
Cost:  TBD

Movement to the next phase dependent on agreement between the State of Alaska Division of Elections and the University of Alaska Anchorage.

Over the course of the three- to four-phase project, the project leader and participants will interact and confer with relevant state and regional election officials, as well as industry and academic experts in voting system security and voting system vendors.   Each phase of the project will

provide a written report on findings and recommendations. Minor modifications of the phases may be necessary dependent on findings from the previous phase. All final reports will be made available to the public through the Division of Elections website and other agreed public forums (e.g. University of Alaska library, Division of Elections offices, etc.). The Alaska State Division of Elections will make the final determination of what information will be made public in order to safeguard the election process and systems from criminal activity and to protect confidential vendor information. All work will be done in consultation with the Lieutenant Governor's office as needed.