

## Sierra Permits Automation System Report No. 92-04 -- Report Summary

Kristi Nelson, Senior Management Auditor  
Harriet M. Richardson, Senior Management Auditor  
Catherine Cornwall, Management Auditor Intern

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### Major Findings

- ▶ [Finding](#) *The permits system was installed and operated without a detailed implementation plan, annual work programs, or a post-implementation review.*
- ▶ [Finding](#) *The training, documentation, and system support provided to permits users was inadequate and insufficient.*
- ▶ [Finding](#) *BALD had not established a systematic data quality control program to ensure the validity of permits data, and the situs database had not been maintained and updated as planned.*
- ▶ [Finding](#) *BALD had not effectively implemented on-line or report writing software to meet operational and management reporting needs.*
- ▶ [Finding](#) *BALD had not developed or applied criteria to objectively assess need or allocate system hardware.*
- ▶ [Finding](#) *The system was underutilized by other county agencies due to minimal documentation, training, and reporting capabilities, unreliable remote connections and data quality.*

## INTRODUCTION AND BACKGROUND

The management audit of the Sierra PERMITS automation system was approved by the Council in the 1991 Auditor's Office Work Program. The audit was prompted by Council concerns regarding the quality of BALD management and budget information available during the 1991 budget process, and difficulties in obtaining land development data for the East Sammamish Community Planning Area "Pipeline Study" in 1989.

The Sierra PERMITS automation system, a modified "off-the-shelf" automated permit information and land development management system, was funded in the 1987 County budget. The system was approved as part of a comprehensive effort to streamline and improve accountability for the management of the County's land development and building permit processes. The PERMITS system purchased was designed to operate from a Hewlett-Packard mainframe computer with users entering and accessing data on-line from either terminals or personal computers.

The PERMITS software provided a tracking component for permit activities or land development projects which could be linked with a property database the situs file. The situs file describes characteristics of individual parcels and contains Assessor's data and other geographic or special purpose data such as census tracts, community planning areas, sewer local service areas, etc. The situs database contains approximately 500,000 parcels.

The initial system acquisition costs were approximately \$650,000 for hardware and software. In late 1990 BALD secured Council approval of a new 5-year lease/purchase agreement for replacement and expansion of the central processing unit and other enhancements at a net cost of \$1,045,329 through 1995.

In 1990 an estimated 47,500 permit activities were recorded on the system. In mid-1991 BALD reported 400 system users in BALD and Environmental Division sections and other County agencies linked to the system, I.E., the Environmental Health, Surface Water Management, and Comprehensive Planning Divisions.

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## OBJECTIVES

The audit's objectives were to evaluate the effectiveness of the automated permit processing system in achieving benefits projected during system development, funding and acquisition phases; to review the current system's operational effectiveness (specifically management reporting) and recommend needed changes; and to identify potential EDP audit topics.

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## GENERAL CONCLUSIONS

The general audit conclusions were that cost-saving and staffing benefits projected to result from the automated system could not be demonstrated. System development and implementation had failed to complete key steps which would have resulted in a system better matched with operational needs. Improvements in training, documentation, user support, data quality and report generation were needed to improve the system's effectiveness in serving BALD and other County agencies reliant on system information.

## MAJOR FINDINGS AND RECOMMENDATIONS

### Finding 1. ***The PERMITS system was installed and operated without a detailed implementation plan, annual work programs, or a post-implementation review.***

Although preliminary, summary level implementation plans were prepared during the feasibility and RFP phases of system development, detailed implementation plans were not subsequently used to guide and communicate the implementation process or provide accountability to BALD in County management. As a result, Automation Services staff were described as spending time "putting out fires" and did not complete all phases initially proposed, or work toward established objectives. Because a post-implementation review was not conducted to determine the effectiveness of the system elements, operational deficiencies were not identified and used as a basis for system enhancements.

*The audit recommended* \*that: BALD establish direction and accountability for Automation Services by requiring an annual work program and overall system implementation plan for unimplemented features and future enhancements. The post-implementation review should be conducted to identify unmet user needs and identify needed enhancements. The Council may wish to authorize an audit focusing on system controls.

### Finding 2. ***The training, documentation, and system support provided to PERMITS users was inadequate and insufficient.***

- ▶ A survey of more than 150 BALD staff in the Subdivision and Commercial/Multi-Family Sections revealed the following deficiencies:
- ▶ Minimal training had occurred since the initial system implementation: 26% of respondents received no formal training; many staff reported being trained only by training from co-workers or self-training.
- ▶ System documentation available was either outdated or nonexistent: 40% reported having no user manuals or other reference materials; 42% reported documentation available was outdated or inadequate.
- ▶ The PERMITS system users' group met infrequently, system information was not communicated to users, and system operational assistance was insufficient: 80% reported receiving no notification of system changes; 37% reported inadequate access to support staff.

*The audit recommended* that: BALD provide a comprehensive training program of introductory and refresher classes on relevant system features to ensure each user has a common understanding of the system's operation. BALD should distribute current documentation materials, including descriptions of custom King County features and a data dictionary, to all system users. BALD should actively expand the users' group process, designate and train

additional system leads in operating sections, and review and determine Automation Services staffing requirements through task time logs.

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**Finding 3. *BALD had not established a systematic data quality control program to ensure the validity of PERMITS data, and the situs database had not been maintained and updated as planned.***

Significant percentages of BALD staff surveyed questioned the reliability of system data (57% reported not incomplete, 40% reported not current, 35% reported not inconsistent, 32% reported not inaccurate). The reported problems indicated a need to objectively determine the validity of system data.

Survey respondents and other County staff reported that the PERMITS situs data was also incomplete or inaccurate. Updating for some assessment data and other special purpose district information has not occurred since 1988. Only half (11) of the 21 data types initially recommended for inclusion were subsequently entered. Those not entered included park and recreation districts, critical water supply and groundwater management areas, retention/detention facilities, and on-site system failures.

*The audit recommended that:* BALD determine the validity of system data through initial sampling, and establish data quality goals and an on-going monitoring program through error and exception reports. Designated data entry staff and mandatory data entry fields should also be considered.

*The audit also recommended that:* BALD develop a custom computer program to ensure timely transfer and update of Assessor's data to the situs database, establish a Situs Maintenance and Data Quality Committee with representatives from other County user agencies including Assessments, and Systems Services to establish goals, and recommend appropriate responsibilities for updating and funding the situs files.

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**Finding 4. *BALD had not effectively implemented on-line or report writing software to meet operational and management reporting needs.***

Despite the availability of on-line reports and the expenditure of \$50,000 for additional report writing software, the lack of system reports was a primary focus of user criticisms. Few reports were generated by Automation Services and a survey of unit supervisors and section leads indicated that only 3 had access to the on-line report menu.

BALD staff and other agency users cited numerous reports which would enhance management and productivity. However lack of training, equipment, documentation and access limited ability

to generate reports without Automation Services assistance.

*The audit recommended that:* BALD provide effective reporting capability by facilitating the use of on-line PERMITS reports, training and equipping unit/sections leads to use reporting software, and improve Automation Services production of non-routine and standardized reports.

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**Finding 5. *BALD had not developed or applied criteria to objectively assess need or allocate system hardware.***

BALD's administrative practice made staff individually responsible for entering data related to their work activities into the PERMITS system. Given budgetary constraints, this practice resulted in competition for system equipment, frustration and minimal system usage in units with limited equipment availability. Moreover BALD management had not developed or applied procedures or formal criteria for objectively determining need and allocating equipment.

*The audit recommended that* BALD: improve the effectiveness of hardware distribution by establishing an allocation process based on usage information to document need and criteria to allocate equipment purchased. Evaluating lower cost clone hardware and portable field units such as scanners was also recommended.

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**Finding 6. *The system was underutilized by other county agencies due to minimal documentation, training, and reporting capabilities, unreliable remote connections and data quality.***

The automated system was developed, justified, funded and purchased through the efforts of an interdepartmental committee. On-line PERMITS workstations are remotely located in the Environmental Division (Public Health), the Surface Water Management Division (Public Works) and the Comprehensive Planning Section (Parks, Planning and Resources), and the agencies are assessed annual user fees.

Although the type of system use and frequency varied considerably among the agencies, common problems were reported which generally validated the deficiencies cited by BALD staff surveyed. We also noted that the inter-agency focus which characterized the systems' development had diminished.

*The audit recommended that* BALD and the management of the respective user agencies implement the following:

- ▶ Provide up-to-date training, improved data quality and documentation (including agency-specific references), and evaluate the costs/benefits of budgeting designated PERMITS analyst

time in all user agencies. Participation in the Situs Maintenance and Data Quality Committee is discussed under DATA QUALITY.

- ▶ SWM and BALD should review the costs/benefits of adding drainage information to the situs file and improve the availability of information required by BALD staff to comply with the new Drainage Manual.

- ▶ Environmental Health and BALD should ensure that the Division has the capability to independently produce needed management reports, develop a joint work plan for system development, and a support protocol to provide prompt troubleshooting response.

- ▶ BALD and the Planning Division should provide adequate system data quality, documentation and reporting capabilities to allow planning staff to accomplish mandated data analysis and reporting functions.

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*Updated: 10/25/06*