

Review of Year 2000 Project
Report 98-22, September 24, 1998

This report presents the results of the Office of Inspector General's (OIG) monitoring review of the Railroad Retirement Board's (RRB) Year 2000 project. This is the second of two reviews, and involves ongoing monitoring of the RRB's progress in implementing its Year 2000 project plan.

Background

The RRB Year 2000 project, administered by the Bureau of Information Services (BIS), involves the conversion of all mainframe and personal computer (PC) application systems. The conversion provides for the use of a full four-digit year designation rather than the two-digit year designation currently used. The project also involves ensuring the proprietary system software packages and building services systems, including telecommunications and electronic commerce, are compliant (Year 2000 ready).

The RRB has identified 165 mainframe and 83 PC systems requiring conversion. Additionally, 10 mainframe and nine PC systems will either be retired or replaced. The RRB's goal is to convert all mission critical mainframe (those directly related to paying benefits to the railroad public) and all PC systems by December 31, 1998. The remaining non-mission critical mainframe systems are scheduled to be converted by the end of calendar year 1999.

The conversion of mainframe systems includes coding changes and unit testing prior to implementation. The RRB will also conduct fully integrated future date testing during calendar year 1999. The RRB is currently developing test plans for this phase of the project.

The OIG's prior review of the RRB's Year 2000 project plan (Audit Report No. 98-06, dated January 30, 1998) indicated that project management was administered and controlled adequately. Also, the RRB's inventory rating of mission critical and non-mission critical systems was reasonable. The OIG noted, however, that BIS project management reports were incomplete and BIS did not fully account for project management hours. The BIS has taken action to implement the OIG's recommendations regarding these weaknesses.

Scope and Methodology

The objective of the OIG monitoring is to ensure the RRB's Year 2000 project management continues to be adequately administered, controlled, and completed timely. The scope for this report is limited to the Year 2000 project status through August 31, 1998. Additional reports will be released as the project continues.

To accomplish the objective, we:

--reviewed Year 2000 project reports for mainframe, PC, proprietary system software, building services systems, and data exchanges with outside parties;

--reviewed staffing allocations and project hours;

--reviewed costs reported for fiscal year 1997;

--reviewed unit test plans, procedures, and test results for approximately 20 of 30 RRB mainframe systems which were judgmentally selected by the OIG,

--participated in planning meetings for the fully integrated future date testing to be conducted in 1999; and

--interviewed RRB personnel.

The review was performed in accordance with generally accepted government auditing standards appropriate for the objective described above. The field work was performed at the RRB headquarters office in Chicago, Illinois from January 1998 through September 1998.

Results of Review

This review showed that the RRB's Year 2000 project management continues to be administered and controlled adequately. As of August 31, 1998, the RRB has remained on schedule for completing mainframe and PC conversions. Additionally, progress continues on ensuring that the proprietary system software, building services systems, and data exchanges with outside parties are compliant.

The OIG noted, however, that project costs reported for fiscal year 1997 were understated and project hours continued to show discrepancies. The OIG advised BIS, and corrective action is being taken. The details of our review are discussed below.

Systems' Conversion Status

In fiscal year 1997, the RRB began extensive work to convert mainframe and PC systems for the Year 2000. The BIS has the responsibility of converting the mainframe systems, while the individual user bureaus/offices are converting the PC systems. Both the BIS and user bureaus/offices share the responsibility for contacting and resolving data exchange issues with outside parties, and unit testing prior to implementation. Each month, the BIS reports the conversion status of both mainframe and PC systems to the Automated Data Processing Steering Committee and the Board Members.

Throughout fiscal years 1997 and 1998, the RRB has remained on schedule for completing these conversions, and has exceeded that schedule for both mainframe and PC systems in the last few months. As of August 31, 1998, 57 percent of all systems have

been reported as complete, and the percentage of completed mission critical systems is 66 percent.

The following tables and the attached graphs further show the status of these conversions as of August 31, 1998.

MAINFRAME SYSTEMS						
STATUS*	BOTH		MISSION CRITICAL		NON-MISSION CRITICAL	
	Number	Percent	Number	Percent	Number	Percent
Completed	85	49%	55	62%	30	35%
Work In Progress	68	39%	33	37%	35	41%
Not Started	22	12%	1	1%	21	24%
TOTAL	175	100%	89	100%	86	100%

*Includes the ten systems being replaced or retired.

PERSONAL COMPUTER SYSTEMS						
STATUS*	BOTH		MISSION CRITICAL		NON-MISSION CRITICAL	
	Number	Percent	Number	Percent	Number	Percent
Completed	67	73%	27	77%	40	70%
Not Completed	25	27%	8	23%	17	30%
TOTAL	92	100%	35	100%	57	100%

* Includes the nine systems being replaced or retired.

Unit Testing

Testing prior to implementation includes:

--regression testing which involves selective retesting to detect faults introduced during system modifications,

--integration testing of systems that share data files or other interfaces based upon current date test data to ensure those systems continue to work together as intended, and

--future date testing in a stand-alone environment to ensure each system is capable of processing dates into the Year 2000.

The OIG judgmentally selected 30 RRB mainframe systems for review of Year 2000 conversion test plans, procedures and test results. To date, the OIG has reviewed this test documentation or observed on-line testing performed by BIS and/or users for approximately 20 of these systems. Testing consisted mainly of comparisons between

parallel runs of production and Year 2000-converted programs for completeness, accuracy, and functionality. No instances of inaccurate Year 2000 processing were noted.

Proprietary System Software Compliance

The BIS has identified 49 proprietary system software packages from 22 different vendors requiring conversion. The BIS contacted each vendor in 1996 to determine their ability to process four-digit fields throughout their products. Each vendor has responded to this request.

As of June 24, 1998, the BIS has reported:

- 28 system software packages as compliant, fully tested and operational,
- 13 are compliant per the vendor, but await testing by BIS staff for compatibility, and
- eight require replacement or upgrades.

Building Services Systems

The RRB's Bureau of Supply and Service (BSS) is responsible for ensuring Year 2000 compliance for the 68 building services systems, including 57 field location phone systems. However, BIS is responsible for the data center access control system. BSS has contacted vendors for 53 of the 68 systems. As of June 26, 1998, they have reported:

- 49 building services systems are certified compliant,
- two are pending compliancy certifications from the vendors (Data Center and Building Access Control Systems),
- two require replacement or upgrade (Electronic Commerce and the Headquarters' phone system), and
- 15 field location telephone systems are still being evaluated to determine whether they are compliant, or require replacement/upgrade.

Project Hours and Cost

The RRB reported \$2,077,787 as actual obligations for the Year 2000 project in fiscal year 1997. This amount includes personnel costs of \$1,973,345. The OIG calculations of fiscal year 1997 personnel costs revealed that the costs were understated by at least \$793,000. These costs were understated because the RRB used an average base salary for computer programmers that was substantially less than the actual salaries paid, and supervisory costs were not included.

Additionally, the OIG's prior audit report of the Year 2000 project plan (Report No. 98-06) showed discrepancies in staff hours reported to the BIS project management system. While the BIS implemented the OIG's recommendation to require time reporting on a weekly basis, our follow-up review showed discrepancies continued to exist. Although the OIG is unable to determine whether any of the unreported time was spent on the Year 2000 project, incomplete reporting may contribute to inaccurate Year 2000 project costs.

Because of the continued discrepancies, the OIG issued a management information memorandum to the BIS in June 1998. The BIS agreed to include estimated supervisory costs and increase the base salary for future reports. Additionally, they will begin using payroll information to assist in supervisory reviews of project management data.