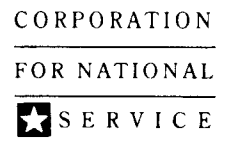

**Office of the Inspector General
Corporation for National Service**

**Assessment of Computer Difficulties Associated
With the Year 2000**

**Report Number 98-20
June 30, 1998**

This report was issued to Corporation management on July 7, 1998. Under the laws and regulations governing audit follow up, the Corporation must make final management decisions on the report's findings and recommendations no later than January 3, 1999, and complete its corrective action by July 7, 1999. Consequently, the reported findings do not necessarily represent the final resolution of the issues presented.

Office of the Inspector General
Corporation for National Service
Assessment of Computer Difficulties
Associated with the Year 2000



The Year 2000 computing crisis is one of the most urgent information problems facing government today. The problem has arisen because, as computer applications were developed, programmers saved space on disk drives by using two digits to represent the year rather than four. As long as the year could be assumed to be of the form 19XX, these codes could be translated back into years (i.e. 1998 is represented as 98). However, as we approach the millennium, this paradigm changes. The Year 2000 is represented by 00. We can no longer assume that a year begins with 19. The result is that date related information will become inaccurate and misleading. Consequently, many computer systems, including those relied on by the Corporation to carry out its operations, must be updated to properly recognize the year 2000.

To assess the impact of the Year 2000 problem at the Corporation, OIG engaged KPMG Peat Marwick to assess the Corporation's efforts to achieve Year 2000 compliance for its information systems. The assessment was performed at the Corporation's headquarters in Washington, D.C. during April and May 1998, in accordance with *Government Auditing Standards*. We have reviewed the report and work papers supporting its conclusions and agree with the findings and recommendations presented.

This report identifies several high risk areas regarding the Corporation's Year 2000 effort. OIG believes that two are of particular importance to the Corporation. First, there is little awareness throughout the Corporation of the Year 2000 problem. The Corporation's Office of Information Technology is leading an effort to remediate the Corporation's systems, however, there are no representatives from other operational units participating in the project. As a result, the Corporation is at risk of not identifying all critical functions and of not focusing its corrective actions on those systems that are most critical to the Corporation's operations.

Second, the Corporation's financial management system, Federal Success, is not Year 2000 compliant. The Corporation currently plans to replace Federal Success with a new financial management system, but this effort is in its early stages and may not be completed in time to avert a Year 2000 failure. As a result, the Corporation may be unable to process or access financial or grant information to pay its vendors and to make some of its grants.

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To address these conditions we are recommending that the Corporation immediately create a Year 2000 Steering Committee to manage the project to its completion. The committee should have representatives from senior management as well as from the Corporation's Operations, Programs, and Finance areas to ensure that all areas of risk at the Corporation have been considered. We also recommend that the Corporation accelerate the implementation of the new financial management system and develop a contingency plan in the event that the system is not operational in time to avert Year 2000 problems.

In its response to this report, the Corporation stated that it agreed with the findings and is taking steps to augment its Year 2000 effort. The Corporation's response is summarized after each finding and included in its entirety as Appendix B.

**Office of the Inspector General
Corporation for National Service**

**Assessment of Computer Difficulties
Associated with the Year 2000**

June 30, 1998

Prepared by:

KPMG Peat Marwick
2300 Clarendon Blvd.
Arlington, VA 22201

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EXECUTIVE SUMMARY

June 30, 1998

Inspector General
Corporation for National Service

At your request, KPMG Peat Marwick LLP (KPMG) has performed procedures to analyze the Corporation for National and Community Service's effort to achieve Year 2000 compliance for its information systems. Our procedures included an evaluation of the Corporation's actions to address Year 2000 compliance of its mission-critical applications and systems as well as its policies and procedures to monitor Year 2000 project milestones.

The results of our procedures indicate that, while the Corporation is working towards achieving Year 2000 goals established by the Office of Information Technology (OIT), we found several high risk concerns. Specifically,

- The Year 2000 effort is being lead by OIT, and does not include representatives from any other operational unit within the Corporation. In addition, a formal Risk Assessment or Business Impact Analysis was not performed by the Year 2000 Project team. Without such a systematic assessment, the Corporation may not have a realistic picture of the scope, nature, and cost of their remediation activities. Additionally, efforts may not be focused in the areas having the greatest potential business impact in the event of a failure.
- The Corporation's financial management system, Federal Success, is not Year 2000 compliant, and no efforts are planned to remediate this application. Instead, the Corporation plans to replace this system with a new financial management system, but that effort is in the early stages. The potential implications of not being able to implement the new financial management system on time are numerous since the Corporation relies on the "Federal Success" system to perform many of it key processes, such as recording financial information, paying vendors and processing grants.
- No contingency plans have been developed for the Corporation's mission-critical applications. The lack of contingency plans increases the risk that the Corporation may not be able to perform mission critical processes, such as paying grants, ensuring employees are paid on time, or paying vendors if some or all of its mission critical applications experience problems due to the Year 2000.

- The Corporation has not created detailed testing plans to test each application, database, computing platform, and operating environment for Year 2000 compliance. In addition, the work of the Year 2000 Project team is not being validated by a Quality Assurance function. If thorough testing is not performed using a defined methodology, there is the risk that applications, databases, computing platforms and operating environments will be validated as Year 2000 compliant, when they are not compliant. By not allowing for the Year 2000 Project team's work to be validated by an independent Quality Assurance function, there is a risk that the Year 2000 Project could be behind schedule without the Year 2000 Project team being aware of it.

Our limited inquiries and documented review made in conjunction with our Year 2000 Study are not intended to, and do not, provide any assurances on whether all of the Year 2000 problems which may exist at the Corporation have been identified, on the adequacy of the Corporation's Year 2000 Project remediation plans, or on whether the Corporation is or will become Year 2000 compliant. Our recommendations are based solely on our experience as information systems auditors rather than on any set of standards established by the American Institute of Certified Public Accountants.

OBJECTIVES, SCOPE, AND METHODOLOGY

The National and Community Service Trust Act of 1993 (which amended the National Community Service Act of 1990) established the Corporation for National and Community Service as a government corporation subject to the requirements of the Government Corporation Control Act, 31 U.S. C 9101 et seq. The Corporation began operations in fiscal year 1994.

We were engaged by the Corporation's Office of the Inspector General to analyze the Corporation's information systems to determine which systems are at risk for the difficulties anticipated with the advent of the Year 2000, and analyze the degree of Corporation management actions to evaluate and correct deficiencies in Corporation information systems in becoming Year 2000 compliant.

Our methodology for this review was based on the generally accepted standards for information technology control issued by the Information System Audit and Control Association (ISACA). Control Objectives for Information and Related Technology (CobiT) were developed to provide generally applicable and acceptable standards for good practices for Information Technology (IT)

control. The standards cover 32 Control Objectives distributed among four domains: Planning and Organization; Acquisition and Implementation; Delivery and Support; and Monitoring.

Our methodology is also consistent with the Chief Information Officer (CIO) Council's best practices guide and the General Accounting Office's (GAO) assessment guide, "Year 2000 Computing Crisis: An Assessment Guide," for federal agencies in achieving Year 2000 compliance. We also relied upon the Office of Management and Budget (OMB) guidelines for smaller executive level agencies to evaluate the status of the Corporation on compliance with reporting requirements. Further, because of the limited amount of Year 2000 criteria for government agencies, the majority of the criteria used in our study was obtained from the GAO's assessment guide.

We performed our work during April and May 1998. Our review of the Corporation's Year 2000 plan focused on the following key categories, with the relevant CobiT criteria included:

- **Awareness** - We determined whether the Corporation has established an appropriate leadership structure, developed an awareness campaign and analyzed its legal and financial responsibilities related to the Year 2000 effort. (CobiT: Planning and Organization; Monitoring)
- **Project Infrastructure** - We reviewed the organization of the project team, the methods used by the Corporation to monitor the project and the reporting structure used to appraise management of the status of the project. In addition, we reviewed the Corporation's budget for the Year 2000 Project to determine the basis for the estimate and the assumptions that may have been included in the estimate. We also reviewed the procedures and the availability of proper tools that are used by the Corporation to manage the Year 2000 Project. (CobiT: Planning and Organization; Monitoring)
- **System Inventory** - We reviewed the methods used by the Corporation to develop an inventory of application and system software including identification of critical data flows. (CobiT: Planning and Organization; Delivery and Support)
- **Risk Assessment** - We determined whether the Corporation has performed a risk assessment for Year 2000 conversion for each system in the system inventory. We also used this list of mission-critical systems to perform our Risk Assessment of the Year 2000 failure sources. (CobiT: Planning and Organization)

- **Methodology** - We determined whether, as part of the Year 2000 Project, the Corporation has developed a Year 2000 Project Strategy that includes testing methods, pilot conversion, and contingency plans. (CobiT: Acquisition and Implementation; Delivery and Support)
- **System Infrastructure** - We determined whether third-party processing entities that the Corporation uses have certified that their products are Year 2000 compliant and that the records of such certification are maintained by the Corporation. In addition, we determined whether the Corporation has procedures in place for change management and whether a quality assurance function has been established to determine whether systems are Year 2000 compliant. In addition, we determined whether the Corporation has established a training plan as part of the overall Year 2000 project plan. (CobiT: Acquisition and Implementation; Delivery and Support)

Our work was conducted in accordance with *Government Auditing Standards* issued by the Comptroller General of the United States. Appendix A contains additional information on our approach and methodology.

Copies of the Year 2000 Study final report prepared by KPMG Peat Marwick were issued by the Office of Inspector General to the Corporation's Senior Management on May 29, 1998. The Corporation's response is summarized after each finding and included as Appendix B.

YEAR 2000 BACKGROUND

The Year 2000 computing crisis is becoming the most urgent information problem facing the government and industry. The Gartner Group estimates that 90 percent of business applications will experience a date-related failure because of the Year 2000. Fully 50 percent of enterprises will be noncompliant by the Year 2000. In addition, they estimate that it will cost between \$300 to \$600 Billion dollars to fix, and that our economy will show a period of lower productivity as valuable computing resources are directed towards fixing the problem.

The Year 2000 problem has arisen because, as applications were being developed over the years, programmers saved space on disc drives by using two digits to represent the year rather than four. Thus, 1998 is represented as 98. More importantly, the year 2000 is represented by 00. The result is that date related information will become inaccurate and misleading.

During their Year 2000 analysis, testing and remediation, organizations must take into consideration the fact that the Year 2000 is also a leap year. Remediated applications and

systems must not only be able to handle the transition from December 31, 1999 to January 1, 2000, but they must also be able to process logically on February 29, 2000.

Many personal computers will also be affected. As many spreadsheets are used to calculate a whole host of financial reporting and budgeting numbers, the impact could be tremendous. Thus, a new organization with state of the art technology could believe it does not have a Year 2000 problem, when it actually does.

What makes Year 2000 troublesome is that it affects not only computers, but also the embedded electronic chips that automate our life. Thus, on January 1, 2000 not only will our computer systems possibly not be working, but also we may be unable to perform the simple tasks we do on a daily basis, such as ride an elevator, make a telephone call or purchase groceries at our local grocery store.

No software tool can eliminate the need for testing Year 2000 fixes when they are made, and testing a complicated software program is time consuming and may prove to be the biggest barrier to completing the effort on time. A government agency that has just begun to fix the problem may not make it in time. In addition to the demand of testing the Year 2000 fixes, there is the issue of finding the necessary talent to fix the problem. As we get closer to the millennium, talent becomes more scarce and thus more expensive.

Currently all large Executive Branch agencies are required to report quarterly to the Office of Management and Budget (OMB) on the status of their Year 2000 effort. The Corporation for National Service is an executive level agency, but is considered a smaller entity. Therefore, OMB requires that the Corporation report the progress of its Year 2000 effort on an annual basis.

OMB recently moved up their Year 2000 implementation deadlines from November 1999 to March 1999, thus putting even more pressure on those agencies to have their applications and systems Year 2000 compliant by FY 1999. Agencies now must complete all code renovations by September 1998 and finish testing their code by January 1999.

DETAILED FINDINGS AND RECOMMENDATIONS

The scope of our Year 2000 Study encompassed six Year 2000 risk areas with a focus on Information Technology (IT) Systems, Products and Facilities. Results in the following pages are classified in accordance with the six Year 2000 risk areas and appear in this sequence:

- Awareness
- Project Infrastructure
- System Inventory
- Risk Assessment
- Methodology
- System Infrastructure

AWARENESS

As with most problems of a pervasive magnitude, awareness on the behalf of those directly affected is the first step in rising to meet the challenge. The Corporation's executive sponsorship and direction across the organization is critical to the Year 2000 project's success. It is critical in directing the Corporation's resources to the most critical operational risks of the Corporation as a whole. It is also critical in assisting different program units in allocating limited resources between remediation efforts which are required, and contingency planning, in the event remediation work is not completed within established timelines. These difficult operational decisions can most effectively be made by active and engaged executive sponsorship at the highest levels within the Corporation. A Year 2000 project, which is conducted through significant delegation to operational units or functional levels within the Corporation, increases the risk that the information necessary to make these decisions is not elevated with sufficient accuracy and timeliness to take corrective action. Helping the executive office and the program's functional units understand the problem and then participate in the process, will ensure entity-wide, process-driven solutions. Being able to relate specific operations back to the enabling applications will be helpful in explaining specific risk for a particular operation.

In conducting our interviews with members of the Corporation's key functional areas, including Year 2000 Project staff, executive management, and Service Center Directors, we found there

was a general lack of awareness at all levels on the Year 2000 problem, particularly on how the Corporation is addressing the issue and the effect it might have on the Corporation's operations. Specific examples that illustrate the overall lack of coordination and awareness across the Corporation include the following:

- The Human Resources (HR) Department is dependent on the Corporation's Payroll and Personnel system located at the National Finance Center (NFC). From our discussions with key personnel in Human Resources, we found that they were not aware of the Corporation's effort to address the Year 2000 and monitor NFC's progress towards the remediation of the Payroll and Human Resources system. Because HR was not aware of the status of the Corporation's Year 2000 plan, it has taken a proactive approach to address this issue by contacting NFC on several occasions to request information on NFC's progress toward the remediation of the Payroll and Human Resources system. During our conversation with HR, we found that HR now receives a bulletin on a regular basis discussing NFC's Year 2000 progress, that NFC promptly responds to their requests for information, and that a Contingency Plan has been developed by NFC for the Payroll and Human Resources system in case it does not meet the Year 2000 deadline.
- In our discussions with several members of the Corporation, including Year 2000 Project staff and Service Center Directors, we found that there was a lack of awareness on the status of the acquisition and implementation of the new financial management package and plans for replacement and/or Year 2000 conversion of the "Federal Success" system. This issue is a growing concern throughout the Corporation, especially for Service Center Directors, since the Federal Success system is critical in the completion of the grant award process. It is possible that if the replacement system for the "Federal Success" is not implemented in time, the Corporation may not be able to process grants.
- As a result of our discussions with Year 2000 Project staff members, we found that there was an overall lack of awareness on the progress of the Corporation's Year 2000 effort. Most of the Project's staff were only aware of the Year 2000 activities under their remediation responsibilities. Further, we found team as of the first week of May that no periodic meetings are held by management with the Year 2000 Project team members and copies of the Corporation's Year 2000 Plan and definition statement had not been distributed to the Year 2000 Project.
- Overall, the Corporation is not aware of legal issues that may arise from both the Year 2000 compliance effort as well as failure to achieve compliance. Per our discussion with the

General Counsel to the Corporation held in May 1998, we found that the Corporation is beginning to address the Year 2000 issue from a legal perspective.

The lack of awareness throughout the Corporation can be mainly attributed to the fact that the Year 2000 remediation effort has been driven solely by the Office of Information Technology (OIT). Since the Corporation has not addressed the Year 2000 problem from an entity-wide perspective, technical and management representatives have not been actively involved in the remediation process, and little effort has been placed to promote awareness throughout the organization of the pervasiveness, and criticality of this issue.

Awareness Conditions and Recommendations

On the following pages we list the following four specific Year 2000 Awareness related findings:

1. A Year 2000 Steering Committee does not exist, nor has a formal Year 2000 reporting mechanism been created to brief Senior Management on the status of the Corporation's Year 2000 effort. See page 9.
2. The Corporation has not taken all the necessary steps regarding the legal implications of the Year 2000 to the Corporation. See page 12.
3. There is a lack of awareness of the Year 2000 problem across the Corporation. See page 16.
4. A formal policy directive or program charter establishing the importance and priority of the Year 2000 remediation effort has not been issued by the Corporation's executive management. See page 19.

Y2K Awareness-1

Risk: Medium

Condition:

As of the first week of May 1998, a Year 2000 Steering Committee did not exist, nor has a formal Year 2000 reporting mechanism been created to routinely brief Senior Management on the status of the Corporation's Year 2000 effort. Currently, the only individuals who are being briefed on a regular basis by the Year 2000 Project leader are the Deputy Chief Financial Officer, and the acting Director of the Office of Information Technology (OIT). The Deputy CFO meets once a week with the Chief Operating Officer, but those discussions can cover any ongoing issue at the Corporation, including the Year 2000 effort.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Establish Year 2000 executive management council

"A committee or a council needs to be established within the agency to continually coordinate with the programmatic and functional area managers on priorities and potential mission impact if certain processes and systems malfunction. A process for quick conflict resolution on priorities between programmatic and functional areas is also needed."

- Identify technical and management points of contact in core business areas

"A year 2000 program should not be viewed as a system development or maintenance effort managed by the information resource management organization, but rather as an enterprise-wide effort requiring the input and cooperation of all organizational units. Thus, it is important that the technical and management staff of the core business areas work closely with the year 2000 project teams in the assessment and testing process."

Cause:

The Corporation's Senior Management has not created a Year 2000 Steering Committee, nor have they mandated that they be briefed in a formal manner regarding the status of the Corporation's Year 2000 Project.

Effect:

The lack of a formal Year 2000 Steering Committee and briefings to the Corporation's Senior Management could result in the following:

- Lack of sufficient executive level sponsorship to mandate and communicate appropriate level of priority and urgency across all of the Corporation's key functional areas;
- Failure of not adopting a entity-wide based solution that addresses all of the Corporation's risks; or
- Project costs overruns and scheduled milestones not being met.

Further, the lack of formal Year 2000 leadership structure and a reporting mechanism to Management could result in Management not being fully cognizant of the status of the Year 2000 Project. Thus, if the plan falls behind schedule, the Corporation's Senior Management would become aware of the plan's status in a crisis stage. At that point, it could be too late to re-direct resources (staffing and funding) to ensure that the plan gets back on schedule. If the Corporation's Senior Management was being briefed regularly, they could assess if the plan is on schedule, and if it has adequate resources to meet the Year 2000 crisis.

Recommendation:

We recommend that the Corporation formalize the structure of its Year 2000 Project by creating a Year 2000 Steering Committee to manage the project from now until its completion. The Committee should be comprised of representatives from Senior Management, Service Center Directors, NCCC representatives, the General Counsel and members of the Corporation's Operations, Programs and Finance areas, as well as each area within the Office of Information Technology. Further, we recommend that meeting schedules be established for the Project Team

to provide progress reports of the Year 2000 Project to the Steering Committee. The Steering Committee should measure the current status of the project against the Project Plan/Schedule and direct the Project Leader to make any necessary adjustments to re-focus the project. The Steering Committee meetings should include, but not be limited to the following:

- Discussion of the progress of the Project and comparison of achieved milestones against projected milestones;
- Procedures for revising milestones due to delays in the Year 2000 Project; and
- Comparison of actual Year 2000 costs to date against the Year 2000 budget.

Minutes should be maintained for each Steering Committee meeting to document the status of the Year 2000 Project, as well as the nature and rationale for all decisions made by the Steering Committee.

Management Response:

The Corporation agrees with the need for a Steering Committee and Senior Management will establish such a committee by July 31, 1998. This committee will oversee the work of the project team and ensure that Year 2000 information is disseminated to both Senior Management and the entire Corporation staff. One of the first tasks of the committee will be to review and approve a project plan and timeline.

KPMG's Comments:

KPMG agrees with the Corporation's response.

Y2K Awareness-2

Risk: Medium

Condition:

The Corporation has not taken all the necessary steps regarding the legal implications of the Year 2000 to the Corporation. Based on our limited inquiry and interview with the General Counsel of the Corporation on May 12, 1998, we noted that it remains unknown what the legal implications for the Year 2000 would be for the Corporation.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Establish year 2000 project teams for business areas and major systems

"Multi-disciplinary project teams consisting of domain experts in relevant functional areas, system and software specialists, operational analysis specialists, and contract specialists need to be established with explicit objectives and time schedules. Access to legal advice is also a necessity."

- Replace selected applications, platforms, database management systems, operating systems, compilers, utilities and other commercial off-the-shelf (COTS) software

"Ensure that replacement products are year 2000 compliant, including their ability to properly handle the leap year adjustments. Direct contract specialist and legal staff to review contracts and warranties."

The General Service Administration's (GSA) "Federal Acquisition Regulations," dated March 12, 1998, requires the agency to have:

39.106 Year 2000 compliance.

When acquiring information technology that will be required to perform date/time processing involving dates subsequent to December 31, 1999, agencies shall ensure that solicitations and contracts--

- (a) (1) Require the information technology to be Year 2000 compliant; or
- (2) Require that non-compliant information technology be upgraded to be Year 2000 compliant prior to the earlier of--
- (i) The earliest date on which the information technology may be required to perform date/time processing involving dates later than December 31, 1999, or
- (ii) December 31, 1999; and
- (b) As appropriate, describe existing information technology that will be used with the information technology to be acquired and identify whether the existing information technology is Year 2000 compliant.

Cause:

The General Counsel to the Corporation started in this position in January 1998, and is only now beginning to address the Year 2000 issue from a legal perspective.

Effect:

The Corporation might not be aware of legal issues that may arise from both the Year 2000 compliance effort as well as failure to achieve compliance. For example, the legal implications of a Year 2000 failure for the scenarios listed below have not been classified yet for the Corporation (note that these scenarios do not constitute a complete listing):

- If the outsourced payroll function processed at NFC is not remediated in time, and employees are not paid;
- If the current outsourced financial management, Federal Success, or the new financial management system the Corporation hopes to install by October 1, 1999, fails and vendors do not get paid;
- If the outsourced grants management system, the Payment Management System (PMS) processed at Health and Human Services is not remediated in time, or the grants module resident in Federal Success fails, and grantees do not get their funding required to support their programs.

In addition, the Corporation should find out what their legal rights are in the event that a service they rely on fails because of a Year 2000 failure. If the Corporation does not obtain legal representation from their vendors that their products are Year 2000 compliant, it will be more difficult for the Corporation to pursue legal action against those vendors.

Recommendation:

A host of legal issues may arise from both the Year 2000 compliance effort, as well as failure to achieve compliance. The Corporation's Steering Committee and Project Team should take all necessary steps to ensure the Project Plan has considered the impact of current and potential legal implications related to the Year 2000 Project. Specifically, the following points should be considered:

- A procedure should exist to carefully document Year 2000 remediation efforts to provide an audit trail which adequately demonstrates due diligence on the part of the Corporation to resolve its Year 2000 issues in a reasonable manner;
- A procedure should exist to identify all contracts and third-party vendor relationships;
- Legal counsel should review the language of all Year 2000 correspondence by the Corporation with parties to contracts, third-party vendors, suppliers, and regulators;
- Legal counsel should review all correspondence with parties to contracts, third-party vendors, suppliers, policyholders and regulators requesting Year 2000 disclosures;
- Once appropriate language has been crafted, correspondence should be sent to all parties to contracts, third-party vendors, and suppliers, to request certification of their Year 2000 compliance;
- A procedure should exist to track all incoming and outgoing Year 2000 correspondence to ensure completeness; and
- Existing agreements and contracts with third-party vendors and suppliers should be reviewed by legal counsel, to ensure they contain requirements to commit the vendor, supplier, or other service provider, to maintain or update software to be Year 2000 compliant.

Management Response:

The Corporation agrees that its Year 2000 project should take into account the legal implications of the Year 2000 problems, and has begun efforts to identify both the legal issues and appropriate steps to address those issues. The General Counsel has assigned overall responsibility for Year 2000-related legal matters to a member of the Office of General Counsel staff and requested an analysis of the rights and liabilities that could arise for the Corporation from Year 2000-related system failures. This analysis, which will be completed in July 1998, will examine the impact of disruptions of the Corporation's operations, and the operations of the Corporation's contractors, suppliers, and those organizations that receive Corporation-funded assistance. The analysis will also address the general steps that the Corporation should take to mitigate the potential liabilities identified and to preserve the Corporation's rights against outside parties (including, to the extent appropriate, the steps suggested in the draft audit report). General Counsel will be represented on the Corporation's Steering Committee.

KPMG's Comments:

KPMG agrees with the Corporation's response.

Y2K Awareness-3

Risk: Low

Condition:

There is a lack of awareness of the Year 2000 problem across the Corporation. In conducting our interviews with members of the Corporation's key operational areas, including Year 2000 Project staff, executive management, and Service Center Directors, we found that there was a lack of awareness at all levels on the Year 2000 problem, particularly on how the Corporation is addressing the issue and the effect it might have on the key processes across the organization.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Conduct a year 2000 awareness campaign

"A year 2000 awareness campaign is an important first step to raise the awareness of executive management and line staff about the potential impact of the year 2000 problem on the agency's operations."

- Define the year 2000 problem and its potential impact on the enterprise

"Developing and publishing a high-level assessment of the year 2000 issue provides executive management and staff with a high-level overview of the potential impact of the year 2000 problem on the enterprise."

- Develop and document a high-level year 2000 strategy which addresses

"A high-level year 2000 strategy provides the agency's executive management with a roadmap for achieving year 2000 compliance. The strategy should discuss key year 2000 issues, including the program's management structure, program metrics and reporting requirements, the mix of enterprise-wide solutions, and provide initial cost and schedule estimates."

Cause:

The Corporation has not adopted an enterprise-wide, process driven approach towards the remediation of the Year 2000 issue. The current remediation strategy has placed the responsibility for corrective action solely on the Office of Information Technology (OIT) rather than driving the project from an enterprise-perspective.

Effect:

Managing the Year 2000 project exclusively from the information technology perspective could result in the omission of certain items requiring remediation, inadequate prioritization of efforts, or inconsistent remediation. Understanding the relationship of the Corporation's key functions with the technical environment is a prerequisite for assessing the risk, cost and time horizon surrounding the Year 2000 problem. A lack of a comprehensive awareness campaign may result in management not understanding the implications of the Year 2000 problem, and failing to give the issue sufficient priority and resources.

Recommendation:

As with most problems of a pervasive magnitude, awareness on the behalf of those directly affected is the first step in rising to meet the challenge. Assisting the Corporation's executive management and key functional area management to understand the problem, and then participate in the process, will ensure entity-driven solutions. OIT has already taken an initial step to address awareness across the organization by developing a Year 2000 web page on the Corporation's Intranet. For the Corporation to successfully lead a comprehensive awareness effort, we recommend the following:

- The Year 2000 Steering Committee, Project Team, and the Corporation's key functional area management should understand the benefits of an entity-wide Year 2000 awareness effort, and should launch a campaign to promote awareness and share information. The Corporation's executive level sponsorship is key for a successful awareness campaign. Components of an awareness campaign could involve publishing the Corporation's Year 2000 problem definition statement, issuing organizational newsletters discussing progress of the Corporation's Year 2000 Project, and performing site visits.
- The Year 2000 awareness campaign should be a product of the Year 2000 Project Team and have representation from the Corporation's key functional areas, including Operations, Programs and Finance, as well as management representatives from the

Service Centers and NCCC Campuses. A successful awareness program should focus on operational issues for the entire Corporation, not just the IT aspects of the problem.

- The Year 2000 awareness campaign should contain examples of potential failures, based on systems and processes specific to the various key functional areas, to illustrate the impact of not correcting the Corporation's Year 2000 potential points of failure.
- The Year 2000 awareness campaign should contain a high-level Year 2000 transformation strategy that includes sufficient detail to address all major related issues. It should contain at least the following: project sponsorship, project oversight, resources that will be used, need for additional hardware or software, the Year 2000 budget, project management and reporting, methodology, estimated completion dates for each application and each phase, and testing and quality assurance plans.

Management Response:

The Corporation agrees with the need for greater awareness of the Year 2000 problem. One of the responsibilities of the Steering Committee will be to determine the best vehicle to increase awareness throughout the Corporation. Currently the Year 2000 project team is using the Corporation's Intranet to provide Year 2000 information to the Corporation at large. The project team will better publicize across the Corporation the fact that the Intranet contains the latest information on the Corporation's Year 2000 activities.

KPMG's Comments:

KPMG agrees with the Corporation's response.

Y2K Awareness-4

Risk: Low

Condition:

A formal policy directive or program charter establishing the importance and priority of the Year 2000 remediation effort has not been issued by the Corporation's executive management.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Obtain and formalize executive management support through issuance of year 2000 policy directive year 2000 program charter

"The management support for the agency's year 2000 strategy should be formalized by the issuance of a year 2000 policy directive, and/or year 2000 program charter. Without such support, information resource managers may not be able to mobilize adequate resources to implement the strategy and to interact with other organizations and interfaced data sources."

Cause:

The Corporation has not adopted an enterprise-wide, process based approach towards the remediation of the Year 2000 issue. The Corporation's current remediation strategy has placed the responsibility for corrective action solely on the Office of Information Technology (OIT) rather than driving the project from an enterprise-perspective.

Effect:

Executive sponsorship and direction across the Corporation is critical to the Year 2000 project's success. It is critical in directing the resources of the Corporation to the most critical processes of the organization as a whole. It is also critical in assisting OIT and functional units in allocating limited resources between remediation efforts, which are required, and contingency planning in the event remediation work is not completed within established timelines. These difficult entity-wide/operational decisions can most effectively be made by active and engaged executive sponsorship at the highest levels within the Corporation. A Year 2000 project which is

conducted through significant delegation to OIT, increases the risk that the information necessary to make these decisions is not elevated with sufficient accuracy and timeliness to take corrective action.

Lack of sufficient senior level sponsorship and direction, could result in the Year 2000 project not receiving the necessary level of priority and urgency. Without sufficient senior management support, Year 2000 efforts and the acquisition of required resources might be difficult.

Recommendation:

We recommend that the Corporation's executive management support be formalized through the issuance of a policy directive, or program charter, that establishes the importance and priority of the Year 2000 remediation effort to the Corporation. To ensure that the most critical remediation needs will be given priority, attention and resources, the Corporation should solidify active and effective project sponsorship at the highest level of the organization.

To increase the likelihood that the project retains its focus and urgency, we encourage the Corporation's Senior Management to take active participation and oversight roles of the Year 2000 project.

Management Response:

The Corporation agrees with this finding. As noted in the response to recommendation 1, the project plan approved by the Steering Committee will include appropriate action steps communicating the importance and priority of the Corporation's Year 2000 effort.

KPMG's Comments:

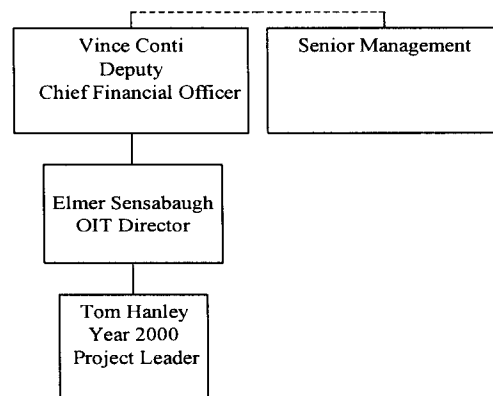
KPMG agrees with the Corporation's response

PROJECT INFRASTRUCTURE

A critical success factor of any project can often be attributed to the right composition of skill sets and project-management capabilities of those responsible for managing the Year 2000 Project Plan. The Corporation's Year 2000 project will be one of the largest and most complex tasks ever undertaken. The solution requires resource management, scheduling, costing, and vendor relationship management skills, all exercised across a variety of platforms and technologies.

The Corporation for National Service Year 2000 Project Management Infrastructure consists of members of the Office of Information Technology (OIT) and the Deputy Chief Financial Officer (CFO). The active Project Leader is Tom Hanley, Network Team Leader, who is responsible for the overall direction and daily operations of the project. He reports directly to the OIT's Acting Director, Elmer Sensabaugh and the Deputy Chief Financial Officer, Vince Conti, who are in turn responsible for providing Senior Corporation Management oversight to the project. The following table depicts current Project Management Infrastructure:

The Corporation's Year 2000 Project Oversight



The management and oversight of the Corporation's Year 2000 effort is loosely defined. The Project Leader briefs the Corporation's OIT Acting Director and Deputy CFO on those matters that are of importance to the project. Overall, Corporation management oversight and direction is provided by the Deputy CFO. The Deputy CFO is in charge of approving major project decisions and any modifications to the Office of Information Technology's budget for Year 2000 transformation initiatives. Organizational standards for reporting project status/milestones to

senior Corporation management, including the Chief Executive Officer, have not been defined. Consequently, project status reporting to the Corporation's senior management is not performed on a consistent basis. Further, a Year 2000 Committee is not in place at the Corporation to provide direction to the project and facilitate an entity-wide based, process-driven solution.

Without the appropriate project infrastructure in place, such as a Steering Committee with the Corporation's executive management sponsorship to focus direction and communicate objectives, a cross-organizational Project Team, and a Project Leader to manage the day-to-day aspects of the Project Plan, the likelihood of the Corporation successfully becoming Year 2000 compliant is diminished. Assisting the Corporation's executive office and the program units to understand the problem, and provide a mechanism for management to participate in the remediation process, will ensure entity-wide, process-driven solutions and a more accurate depiction of the Corporation's risks in addressing the Year 2000 problem.

Another critical component of having a successful Project Infrastructure resides on the availability of Year 2000 resources throughout the completion of the Year 2000 project. As the Corporation approaches the Year 2000, the demand for human resources will increase while the supply of qualified information technology individuals will decrease, thus placing an increase need for competitive salaries, bonuses, and proper budget estimation.

The Year 2000 Project Team is comprised of Corporation employees as well as contractors. We found that, although turnover is low for internal personnel resources, the Office of Information Technology (OIT) has recently experienced the loss of two of its critical contracted resources. These resources were crucial in the Year 2000 assessment of the Corporation's functional applications and hardware. In addition, we learned that one Help Desk employee, two members of the Year 2000 Project Team and the Client Support Team Leader have recently resigned. OIT is aware of the need to retain critical information technology resources and currently is in the process of re-evaluating their contract with their main contractor, R.O.W. Science.

The Corporation has not created a formal Year 2000 Project budget. The OIT's Acting Director and the Year 2000 Project Leader performed an estimate of the additional human resources needed for completion of the Year 2000 effort. This estimate was included in the Corporation's OIT budget for the fiscal year. The Year 2000 Project's costs are currently not being tracked and measured against an established plan or specific systems completion milestones.

Project Infrastructure Conditions and Recommendations

On the following pages we list the following two specific Year 2000 Project Infrastructure related findings:

1. The Office of Information Technology (OIT) has recently experienced the loss of two of its critical contracted resources. These resources were crucial in the Year 2000 assessment of the Corporation's functional applications and hardware. See page 24.
2. The Project's costs are not being tracked and measured against the established plan or expected milestones. See page 26.

Y2K Project Infrastructure-1

Risk: Low-Medium

Condition:

The Year 2000 Project Team is comprised of Corporation employees as well as contractors. We found that, although turnover is low for internal personnel resources, the Office of Information Technology (OIT) has recently experienced the loss of two of its critical contracted resources. These resources were crucial in the Year 2000 assessment of the Corporation's functional applications and hardware. In addition, we discovered that one Help Desk employee, two members of the Year 2000 Project Team and the Client Support Team Leader have recently resigned.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

Establish Year 2000 program management structure:

- appoint a Year 2000 program manager and establish a Year 2000 program team
- identify technical and management representatives from each core functional area

"The agency's Year 2000 program--headed by a program manager--should be adequately staffed to ensure the successful completion of the assessment phase. In addition to technical skills, the program staff should be able to track the cost and schedule for individual Year 2000 projects, and to coordinate the agency's Year 2000 activities with other organizations."

Cause:

A significant amount of the members of the OIT Department are contracted resources from R.O.W. Science.

Effect:

As we get closer to the Year 2000, the talent that can address the Corporation's Year 2000 problem becomes more valuable, and thus expensive. OIT currently is supported by one contracting organization, R.O.W. Science, and members of that contracting organization are active participants in the Corporation's Year 2000 Project. If OIT suddenly lost these contractors, the Corporation might face the risk of not having the necessary resources to finish the Year 2000 Project.

Recommendation:

OIT is aware of the need to retain critical information technology resources and currently is in the process of re-evaluating their contract with the R.O.W. Science. To ensure the retention of resources dedicated to the Year 2000 Project through completion of the project, we encourage the Corporation to consider reviewing the contract with R.O.W. Science in order to verify whether it guarantees the continuity of support. Further, OIT should re-evaluate whether current resources are sufficient for addressing the Year 2000 issue, especially if the decrease of information technology resources impedes members of the Year 2000 Project Team from full-time dedication to the project.

Management Response:

The Corporation acknowledges this problem. OIT has begun taking steps to resolve the issues related to the retention of resources. OIT is in the final stage of issuing two new contracts; one to replace the existing ROW Sciences contract and another to provide specific help addressing Year 2000 issues.

KPMG's Comments:

KPMG agrees with the Corporation's response.

Y2K Project Infrastructure-2

Risk: Low

Condition:

The Year 2000 remediation costs have not been included as a separate line item in the Office of Information Technology's budget. Hence, the Project's costs are not being tracked and measured against the established plan or expected milestones.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Ensure that necessary enterprise-wide program management policies and procedures are in place, including configuration management quality assurance risk management project scheduling and tracking metrics budgeting.

"Agencies may consider establishing an enterprise-level competency center to train staff and to foster the use of proven industry system development and program management practices."

- Monitor year 2000 projects, and ensure that projects follow required policies and procedures for configuration management, project scheduling and tracking, and metrics.

"Agencies may consider subjecting their year 2000 program to an independent verification and validation effort. This verification and validation may be performed by the agency's quality assurance staff complemented by internal auditors."

Cause:

Year 2000 remediation costs are not tracked, or compared to the estimated costs included in OIT's budget and the Year 2000 Project Plan.

Effect:

When project cost are not properly tracked, the Corporation's executive management might not be aware of project costs overruns, or the necessity to allocate additional resources to the Year 2000 remediation effort.

Recommendation:

While funding Year 2000 remediation expenses may not present a financial challenge for the Corporation, a Year 2000 budget should be developed as part of the Project Plan to ensure project costs are tracked and can be measured against an established plan. The development of a Year 2000 budget will also help the Corporation in meeting budget-reporting requirements established by OMB. A way to facilitate this procedure is by establishing a separate line item for the Year 2000 Project in the Information Technology's budget. The Year 2000 budget should include the following:

- Direct labor costs or full-time equivalents
- Overhead, if applicable
- Travel
- Contracted resources dedicated to the Year 2000 Project
- Assessment and conversion tools
- Hardware/software upgrades
- Consulting fees, if applicable
- Training

Management Response:

On June 11, 1998, a budget line item was established within the Office of Information Technology's (OIT) budget. The sole purpose of this separate purpose code is to track the Corporation's Year 2000 obligations. Establishing a separate purpose code will allow the Corporation and OIT to track Year 2000 obligations to a level of detail consistent with departmental budgets.

KPMG's Comments:

KPMG agrees with the Corporation's response.

SYSTEM INVENTORY

To ensure the completeness of Year 2000 compliance across the Corporation, and to facilitate a critical priority assessment of applications, computing platforms, equipment and business processes, a detailed inventory of all potential sources of Year 2000 failures is necessary. One of the largest risks associated with the Year 2000 is not having a complete systems and environment inventory and not relating this information to pertinent programs' functions. The inventory ensures all systems will be inspected and assessed. If an application program is missed, and invalid data is introduced into the system, the results can be disastrous and the operational decisions of the Corporation may be then based on invalid data.

The Office of Information Technology (OIT) has developed a detailed inventory listing of the Corporation's software applications, operating systems, hardware, and outsourced systems. Participation and validation of the completeness of inventory items from other of the Corporation's executive management, program units, Service Centers, regional offices, and so forth, has not been obtained. Inventory items have been divided by the OIT between hardware, software and systems. *Hardware inventory* was obtained using a series of approaches including:

- physically counting units in the Headquarters' server room, LAN closets, the regional service centers, and state offices;
- requesting inventory information from the Service Centers and regional offices;
- verifying procurement records; and
- verifying billing records requested from Gateway 2000.

The *software inventory* was obtained using the Express Meter monitoring software, LANAuditor inventory software, and WinInstall. The final software inventory was based on OIT's list of supported software. It was determined by the Year 2000 team that software not included in the list will not be supported by the OIT and therefore, would eventually be replaced by end-users to alternative software products supported by OIT.

In summary, the Corporation's *system inventory* for the Year 2000 includes all systems that do not fall under the hardware and software category. For example, outsourced systems, environmental systems, in-house Oracle-based applications are items that fall into this category. The systems inventory also includes non-traditional computing platforms located at the

Corporation's headquarters, including the phone switch system, fax machines, the computer room climate control, among others. However, upon discussions with Service Center Directors, we found that an inventory of non-traditional computing platforms and devices at the Service Centers and remote offices has not been performed and consequently is not included in the Year 2000 Project.

The Office of Information Technology (OIT) has a memorandum of understanding with the AmeriCorp National Civilian Community Core (NCCC) for internal support and supervision of AmeriCorps NCCC's field and headquarters automation requirements. This memorandum states that the NCCC will manage its own automated resources. Since NCCC does not fall directly under the OIT's control, it has not been included in the Corporation's Year 2000 Project Plan. Thus, NCCC's applications, like the Project Management Information System (PMIS), operating systems, hardware, and non-traditional computer platforms and devices with embedded date-aware micro-processors have not been inventoried and assessed for Year 2000 compliance. In addition, NCCC offices were not given guidance on the Year 2000 compliance requirements.

System Inventory Conditions and Recommendations

On the following pages we list one specific Year 2000 System Inventory related finding:

1. A detailed inventory of potential failure points including non-traditional computing platforms and devices with embedded date-aware micro-processors has not yet been fully conducted. See page 30.

Y2K System Inventory-1

Risk: Medium

Condition:

Based on discussions with the Year 2000 Project Manager, we understand that the Corporation placed the responsibility of identifying potential Year 2000 failure points which include applications, operating systems, hardware, and service providers to the OIT. Participation from other areas within the Corporation was not obtained for identifying, prioritizing and approving Year 2000 failure sources. We understand that a more detailed inventory of potential failure points including non-traditional computing platforms and devices with embedded date-aware micro-processors has not yet been fully conducted.

Upon further conversations with Service Center Directors, we found that an inventory of non-traditional computing platforms and devices such as elevators, phone systems, physical security systems, heating/air conditioning units, faxes etc. which may require remediation efforts, has not been performed for the Service Centers and remote sites and has not been included under the Corporation's Year 2000 plan.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Conduct an enterprise-wide inventory of information systems for each business area

"An enterprise-wide inventory of information systems and their components provides the necessary foundation for year 2000 program planning. A thorough inventory ensures that all systems are identified and linked to a specific business area or process, and that all enterprise-wide, cross-boundary systems are considered."

- Use inventory data to develop a comprehensive automated system portfolio and identify, for each system
 - links to core business areas or processes
 - platforms, languages, and database management systems
 - operating system software and utilities
 - telecommunications
 - internal and external interfaces
 - owners
 - the availability and adequacy of source code and associated documentation

Cause:

The Corporation placed the responsibility of developing its Year 2000 Project inventory to the OIT, whereas OIT single handily addressed the issue without involvement from other functional units. Further, an entity-wide risk and business impact assessment was not performed to prioritize inventory items.

Effect:

OIT has dedicated significant amount of effort in developing a comprehensive Year 2000 inventory and ensuring that the Corporation's mission-critical applications and hardware are Year 2000 compliant. However, the success of this effort is dependent on the fact that critical inventory items have not been overlooked, and necessary equipment is operational to enable employees to do their work. Example of potential effects of not addressing non-traditional platforms and devices with embedded date-aware microprocessor at the Service Centers, and remote sites, include the following:

- employees may not be able to get into their building because the time sensitive locks on the building are not working;
- employees may not be able talk to their grantees or AmeriCorps members because their phone system was not assessed for the Year 2000, and thus shut down on January 1, 2000; or
- employees may not be able to fax out critical documents to their grantees or AmeriCorps members in other remote sites, because the micro-processor in their faxes shut down due to date dependencies.

Recommendation:

To increase the likelihood that the remediation efforts address a comprehensive inventory of software and hardware requiring remediation, we recommend that the Project Team, in concert with each Service Centers and remote sites, inventory all non-traditional computing platforms and devices with embedded date-sensitive micro-processors, such as, but not limited to the following:

- Network components, such as hubs, routers, switches and modem banks
- Voice and data communication switching systems
 - PBX (private branch exchange)
 - Voice mail
 - Automated response (menu based) telephone system
- Physical security systems
- Environmental control systems
 - Heating, ventilation and air conditioning
 - Lighting
 - Sprinklers

Once the inventory has been performed, the Corporation must determine where the responsibility for addressing this issue is going to reside, either the Service Centers or OIT. Appropriate actions to make this equipment Year 2000 compliant should then be performed. Remediation efforts could involve contacting equipment and service vendors or/and lessors like the General Service Administration (GSA), and requiring Year 2000 compliance certification statements. These certifications will bolster any of the Corporation's legal claims that might result from Year 2000 issues from products that have been certified as Year 2000 compliant by the vendor, but fail on January 1, 2000.

Further, we recommend that the completeness of the Year 2000 Project Plan inventory be validated by the Corporation's Year 2000 Steering Committee, which should include members of each functional area.

Management Response:

The need to identify all potential failures at all Corporation locations is a valid one. At this time, the Corporation is adding resources that can assist in this process. The detailed inventory of the

networks at each Service Center was conducted during the Office of Information Technology's recent visit to each Service Center. All State Offices' computer equipment has been standardized to minimize support problems and has been assessed for compliance. The Year 2000 project team has been working with the NCCC Technical Coordinator on the assessment of their network equipment. The additional resources will be used primarily to research other Year 2000 impacted elements not yet noted by the project team, these elements would include PBX systems, physical security and environmental controls at Corporation remote locations.

KPMG's Comments:

KPMG agrees with the Corporation's response.

RISK ASSESSMENT

A formal Risk Assessment ensures that each item in the inventory is evaluated to determine its priority for conversion and interdependencies. The primary purpose of the Risk Assessment is to gather information to determine the size of the Year 2000 problem. Industry best practices regarding the Year 2000 hold that Corporation should first size the impact of the Year 2000, and then follow that up with a more detailed analysis of each system to further identify Year 2000 costs and exposure.

Prioritization of Year 2000 items addressed under the Corporation's Year 2000 Project was performed during a series of brainstorming sessions between the Year 2000 Project leader, the acting Chief of the Office of Information Technology, and the Deputy Chief Financial Officer, key members of the Year 2000 Project team. The Year 2000 Project plan was developed without the use of a formal risk assessment or business impact analysis. The Project team was responsible for determining which applications, systems and hardware are mission-critical, mission-essential, mission-impaired, and non-mission critical. The assignment of criticality of the Corporation's applications, systems and hardware was based on the Project team's understanding of those items deemed critical to the Corporation's continued operations. The plan did not involve other user groups, for example grant management operations, within the Corporation, outside of selected members of the Project team. While the Corporation's major systems (Federal Success, Payroll, Payment Management System) are included in the Project plan, an assessment of the potential organizational and program operations impact of the Year 2000 was not incorporated when the Project plan was devised. Without such a systematic assessment, the Corporation may not have a realistic picture of the scope, nature and cost of their remediation activities.

Risk Assessment Conditions and Recommendations

On the following pages we list the following three specific Year 2000 Risk Assessment related findings:

1. A formal risk assessment and business impact analysis has not been performed by the Corporation to establish the criticality and priority of each element that needs to be addressed as a part of the Year 2000 effort. See page 36.

2. The Corporation is at a significant risk of not being able to have the new financial management system fully operational by October 1, 1999. See page 38.

3. Since NCCC does not fall directly under the OIT's supervision, it has not been included in the Corporation's Year 2000 Project Plan. See page 42.

Y2K Risk Assessment-1

Risk: High

Condition:

A formal risk assessment and business impact analysis has not been performed by the Corporation to establish the criticality and priority of each element that needs to be addressed as a part of the Year 2000 effort. The responsibility of the Year 2000 project has been delegated to the Office of Information Technology. Hence, OIT's effort on determining the criticality and priority of issues has been based on their understanding of the Corporation and the systems, hardware and software needed to be addressed by the Year 2000 Project plan.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Focus on core business areas and processes and develop a Year 2000 assessment document
"Information systems are not created equal. Systems supporting mission-critical business processes are clearly more important than systems supporting mission support functions--usually administrative--although these are necessary functions. A focus on core business areas and process's is essential to the task of assessing the impact of the Year 2000 problem on the enterprise and for establishing the priorities for the Year 2000 program."
- Assess the severity of an impact of potential Year 2000-induced failures
"An assessment of the severity of the Year 2000 failure needs to be done for each core business area and associated processes."

Cause:

An enterprise-wide, process-based approach towards the remediation of the Year 2000 issue has not been adopted by the Corporation. The current remediation strategy has placed the responsibility for corrective action solely on OIT, rather than driving the project from an enterprise-perspective. Thus, OIT's effort on determining the criticality and priority of issues has been based on their understanding of the Corporation's systems, hardware and software. A formal risk and business impact analysis involving members from the Corporation's functional units and the Corporation's executive management has not been performed.

Effect:

Without such a systematic assessment, the Corporation may not have a realistic picture of the scope, nature and cost of their remediation activities. Additionally, efforts may not be focused in the areas having the greatest potential business impact in the event of a failure. Failure to adequately assess and prioritize potential Year 2000 failure points, take remedial action in the most critical areas, and thoroughly test all critical systems, significantly increases the risk that the Corporation may experience excessive difficulties and errors when processing data for dates later than December 31, 1999.

Recommendation:

We recommend that the Corporation perform a business impact assessment of a Year 2000 failure. This assessment would address how the Corporation would respond to critical operations being unavailable or operating ineffectively. In addressing its Year 2000 issue, this assessment would enable the Corporation's executive leadership to make informed and timely decisions regarding appropriate allocation of resources. This business impact assessment will also provide valuable information in establishing contingency plans in the event such critical IT resources are not remediated with adequate timeliness.

Management Response:

The Corporation agrees with the need to perform an impact assessment for mission critical systems. The project team, together with project's oversight management, has conducted an assessment of the Corporation's systems. This assessment determined which systems were mission critical. A formal business impact analysis was not performed. The Corporation is reviewing the need for additional resources in the project. The business impact of elements of the Year 2000 effort will be considered by the Steering Committee. The Corporation has identified the mission critical systems and made them priority areas for the project and work to remedy deficiencies will continue as planned. Business continuity planning in the event of any Year 2000-related disruption will be discussed with the Steering Committee and a contingency plan will be prepared by the project team.

KPMG's Comments:

KPMG agrees with the Corporation's response.

Y2K Risk Assessment-2

Risk: High

Condition:

The Corporation plans to replace the financial management system, "Federal Success" that is processed at the Department of Transportation, with a new financial management package. Federal Success is one of the Corporation's mission-critical systems, if not the *most* critical, since it is used to process financial management information and grants that have been awarded. The new financial system needs to be fully operational before October 1, 1999, when Fiscal Year 2000 begins.

The Corporation's requirements definition and implementation schedule have been developed, an inter-agency agreement has been formalized for a franchising strategy with the Department of Commerce, and selection is down to four packages. This places the Corporation at a significant risk of not being able to have the new system fully operational by October 1, 1999. Further, the "Federal Success" system might encounter Year 2000 problems in advance of the October 1, 1999 deadline. The Corporation's Year 2000 Project Plan does not include the Federal Success system, other than noting it will be replaced. Therefore, mitigation of Year 2000 problems for the Federal Success system have not been addressed, e.g. there is no contingency plan for "Federal Success."

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Prioritize system conversions and replacements

"An agency must determine priorities for system conversion and replacement by ranking based on key factors, such as business impact and the anticipated failure date. An agency also needs to identify applications, databases, archives, and interfaces that cannot be converted because of resources and time constraints."

Cause:

The Corporation's management is assuming that the new financial management package will be purchased, installed, and fully operational before October 1, 1999. Therefore, the Year 2000 impact on the Federal Success system has not been assessed and included under the Corporation's Year 2000 Project Plan.

Price Waterhouse developed the new financial management system's requirements and an implementation schedule that has a duration of little over a year. The Corporation will commence implementation procedures when a Project Leader is hired.

Effect:

The potential implications of not being able to implement the new financial management system on time are numerous since the Corporation relies on the "Federal Success" system to perform many of its key processes, such as recording financial information, paying vendors, and processing grants. The criticality of the impact on the Corporation may increase if the Federal Success system is not Year 2000 compliant before the October 1, 1999 deadline. Based on discussions with management, Service Center Directors and Year 2000 Project Team members, we discovered some of the potential impacts if the new financial management system is not implemented on-time and the "Federal Success" system is not Year 2000 compliant before the October 1, 1999 deadline:

- DVSA grant recipients will not be paid, because the Corporation will not be able to process grants data;
- Service Centers may be forced to short fund grants and perform a significant amount of manual procedures throughout 1999 because the new financial system has not been implemented and the "Federal Success" system grants module is unable to process annual grants, beginning from February 1999 and falling into the Year 2000. Here is an estimate of the number of grants processed annually, based on FY98 statistics provided by the Corporation's Service Center Directors:

Service Center	Number of grants processed annually	Funding for grants
Atlantic	1,700	\$100,000,000
Central	338	\$36,000,000
South	497	\$33,842,000
Southwestern	400	\$30,000,000
Pacific	280-300	\$25 - \$28,000,000

- Vendors will not be paid, because payments cannot be processed in either of the systems;
- The Corporation may be unable to process and access any financial or grant information;
- The Corporation may be unable to utilize financial or grant historical data residing on the “Federal Success” system, because the system and data are not Year 2000 compliant; or
- The Corporation may be unable to run the two systems on a parallel mode during the implementation of the new financial management package, because the “Federal Success” system is not Year 2000 compliant.

While all these potential impacts could have significant implications for the Corporation, the highest risk resides on not being able to service the Corporation’s customers. It is critical for the Corporation to be able to process grants and issue payments to its customers and vendors.

Recommendation:

We recommend that the Corporation give high priority to the implementation of the new financial management system and that all the necessary resources are allocated to the completion of this project before March 1999. Specifically, we recommend that the Corporation:

- Accelerate the implementation processes of the new financial management system;
- Evaluate whether the “Federal Success” system will be affected by the Year 2000 issue before the October 1, 1999 deadline, and if so, include the system under the Corporation’s Year 2000 Project Plan, and perform the necessary procedures to make the system Year 2000 compliant;
- Evaluate the implications of running the new financial management and “Federal Success” system in a parallel mode if the “Federal Success” system is not Year 2000 compliant; and
- Prepare a Contingency Plan in the event that the new financial management system is not implemented on time and Year 2000 remediation efforts have not been completed for the “Federal Success” system.

Management Response:

The Corporation's current financial management system is considered to be mission critical and the replacement of it is a high priority. A task force is working on implementation issues, a requirement analysis has been performed, a franchising arrangement has been planned, and new product evaluations are underway. Once all options have been analyzed, accelerated implementation is planned. Additionally, we recognize the need for a contingency plan and we are actively exploring options for cross-servicing with other agencies.

KPMG's Comments:

KPMG agrees with the Corporation in that it should consider the replacement of the financial management system as high priority and develop a contingency plan. We recommend that the Corporation continue to give high priority to the implementation of the new financial management system and that all the necessary resources are allocated to the completion of this project before March 1999. We also recommend that the Corporation provide special attention to the following:

- Accelerate the implementation of the new financial management system or the selection of an alternative financial system that is already Year 2000 compliant; and
- Evaluate the implications of running the new financial management and "Federal Success" system in a parallel mode if the "Federal Success" system is not Year 2000 compliant.

Y2K Risk Assessment-3

Risk: Low-Medium

Condition:

The Office of Information Technology (OIT) has a memorandum of understanding (MOU) with the AmeriCorp National Civilian Community Corps (NCCC) for internal support and supervision of AmeriCorps NCCC's field and headquarters automation requirements. This memorandum states that the NCCC will manage its own automated resources. Since NCCC does not fall directly under the OIT's control, it has not been included in the Corporation's Year 2000 Project Plan. Thus, the NCCC's applications, like the Project Management Information System (PMIS), operating systems, hardware, and non-traditional computer platforms and devices with embedded date-aware micro-processors have not been fully assessed for Year 2000 compliance.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Focus on core business areas and processes and develop a Year 2000 assessment document

"Information systems are not created equal. Systems supporting mission-critical business processes are clearly more important than systems supporting mission support functions--usually administrative--although these are necessary functions. A focus on core business areas and processes is essential to the task of assessing the impact of the Year 2000 problem on the enterprise and for establishing the priorities for the Year 2000 program."

Cause:

An enterprise-wide, process-based approach towards the remediation of the Year 2000 issue has not been adopted by the Corporation. The current remediation strategy has placed the responsibility for corrective action solely on the Office of Information Technology (OIT) rather than driving the project from an enterprise-perspective. Hence, the NCCC was not included in the Corporation's Year 2000 Project Plan since it addresses the systems and hardware that are supported by the Office of Information Technology (OIT).

Further, only one individual supports all of the automated systems within NCCC, and thus has been unable to fully assess the Year 2000 problem for the systems he supports.

Effect:

If NCCC automated systems and non-traditional computer platforms are not remediated in time for the Year 2000, the end users of NCCC automated systems and facilities might be unable to perform their job functions.

Recommendation:

We recommend that the Corporation incorporate the NCCC under its Year 2000 Project Plan. Remediation costs for the NCCC should be included and monitored in the Year 2000 Project's budget.

Management Response:

The NCCC networks and platforms, with one exception discussed below, have been included in the Year 2000 effort since the inception of the Year 2000 project team. The NCCC locations have been listed under the mission essential section of the project team's hardware priority list. At this time, these locations need to be renovated due to the required changes at both the server and workstation levels. Equipment has been obtained and implementation has begun for the major changes that are required for the administrative networks at each campus. However, the changes required to maintain the classroom networks has not been funded by the NCCC and may require the decommissioning of these networks during fiscal year 1999. If funding can be located, the classrooms will be addressed.

KPMG's Comments:

KPMG agrees that OIT has included under the Corporation's Year 2000 inventory the NCCC's administrative network which is part of the Corporation's WAN. However, in our discussions with the Year 2000 Project Leader, OIT Acting Director and NCCC's Central Region Director of MIS, we found that the OIT has been acting in an advisory role on Year 2000 issues for the NCCC. We also have determined that a detailed inventory of all software and equipment that may be affected by the Year 2000 at the NCCC, has not been performed or included under the Corporation's Year 2000 Project Plan.

METHODOLOGY

To manage a project with the magnitude of Year 2000, developing an appropriate, effective methodology will play a significant role in the overall success of the Corporation's effort in Year 2000 compliance project. In previous sections of this report, we have discussed the need for structure and planning, and the importance of inventory and risk assessment to the success of the Year 2000 Project. A methodology is as important to the success of the plan, because it is the road map to follow on the path to Year 2000 compliance. Important components of the Corporation's Year 2000 methodology should include an overall strategy, contingency plans and testing plans.

As discussed above, a risk assessment was not performed, and thus, there is a risk that the overall methodology in place for Year 2000 remediation may not reflect a realistic picture of the scope, nature and cost of remediation activities. The Year 2000 remediation efforts began early this year (1998). At that time the Corporation was not following a formalized remediation methodology. However, the Year 2000 Project leader recently developed two documents outlining the definition of the Year 2000 problem, strategy and methodology for the Year 2000 problem. Those documents, The Year 2000 Project and Year 2000 Compliance Definition, were dated April 21, 1998. The Year 2000 Project document "represents an effort to codify the general strategy" for the Year 2000 effort. This document breaks the Year 2000 effort down under three categories:

Assessment

- Inventory
- Research
- Global Evaluation

Renovation

- Planning
- Testing
- System evaluation
- Renovation
- Decommission

Validation

- Standards
- Documentation

However, we found during our interviews with the Project team members that neither of these documents have been distributed to the Year 2000 team.

Moreover, contingency plans have not been developed for the Corporation's mission-critical applications. This is due to the fact that the Year 2000 Project team estimates that the Corporation's applications, systems and hardware will be remediated before the Office of Management and Budget's (OMB) March 1999 deadline. Further, the Corporation is relying on the federal government to provide a government-wide alternative for the Payroll System and Payment Management System processed at the National Finance Center and Health and Human Services, respectively, if these outsourced systems do not meet Year 2000 compliance at the turn of the century. Having reasonable contingency plans available may serve to minimize the effect of failures occurring throughout the Year 2000 Project. Contingency planning is essential for Year 2000 risk management, since it involves the preparation and implementation of alternate processes in the event that the Corporation's mission critical processes, for example grants management, are affected by Year 2000 failures.

A Year 2000 test bed in OIT is being used to test the compliance of applications with Year 2000 requirements. Year 2000 testing procedures are being performed by the Year 2000 Project team on an informal basis. In some instances we found that only one date was used for testing applications. For example, in our review of the Corporation's testing documentation we found that when the Microsoft Suite of applications (Word, Excel, PowerPoint, and Access) was tested in the test bed, the only date used in the process was February 5, 2000. High level Year 2000 compliance requirements have been developed, but members of the Year 2000 Project team who have certified applications as compliant, have not seen those requirements. Consequently, the Corporation Year 2000 requirements are not being consistently tested or validated, but continue being certified by the OIT team as being in compliance. In addition, it appears that these requirements have only recently been documented (April 1998), but applications have been validated by the Project team prior to that date. Prior to assigning an item as validated, best practices for system development mandate thorough testing of all aspects of the work.

The work of the Year 2000 Project team is not being reviewed by a Quality Assurance function. Program, system and acceptance testing should be performed to identify errors, and ensure that required processing results are obtained. If thorough testing is not performed using a defined methodology, there is the risk that the applications, databases, computing platforms and operating environments will be validated as Year 2000 compliant, when they might not be in fact be compliant. Quality Assurance is an important component of a best practice Year 2000 methodology. The value of a QA review is not only to allow for an independent review and verification of compliance with testing standards, but also to assist the Project team and the

Corporation in determining if the Year 2000 effort is meeting the Corporation's Year 2000 requirements.

Methodology Conditions and Recommendations

On the following pages we list the following two specific Year 2000 Methodology related findings:

1. The Corporation has not created detailed testing plans to test each application, database, computing platform and operating environment for Year 2000 compliance. A Quality Assurance function is not in place to validate the work of the Year 2000 Project team. See page 47.
2. The Corporation has not developed Year 2000 Contingency plans for the systems that support its mission critical processes. See page 51.

Y2K Methodology-1

Risk: High

Condition:

The Corporation has not created detailed testing plans to test each application, database, computing platform and operating environment for Year 2000 compliance. In addition, a Quality Assurance function is not in place to validate the work of the Year 2000 Project team. Currently, application, system or hardware being tested is not being reviewed and validated as Year 2000 compliant by an independent body outside of the Year 2000 Project team.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Develop validation strategies and testing plans for all converted or replaced systems and their components. Identify and acquire automated test tools and develop test scripts.

"The testing and validation of the converted or replaced systems will require a phased approach. Regardless of the selected validation and testing strategy, the scope of testing and validation will require careful planning and use of automated tools, including test case analyzers and test data libraries."

- Perform unit, integration, and system testing

"Using a phased approach, perform unit, integration, and system testing. Use selected testing techniques to ensure that the converted or replaced systems and accompanying components are functionally correct and Year 2000 compliant. The testing should include regression, performance, stress, and forward and backward time testing."

The Information Systems Audit and Control Foundation's (ISACA) Control Objectives for Information and Related Technology (CobiT) requires:

- Reports of Quality Assurance Reviews

"Reports of quality assurance reviews should be prepared and submitted to management of user departments and the information services function."

Cause:

According to OIT, because the Year 2000 effort was started late, the Year 2000 Project team was unable to formally document their testing requirements, or create policies and procedures mandating that the work of the Year 2000 Project team be reviewed from a Quality Assurance perspective.

Effect:

As with all systems development, one of the most important factors for success is a thorough testing of all aspects of the work. Program, system and acceptance testing needs to be performed to identify errors and, more importantly, to ensure that required processing results are obtained. If thorough testing is not performed using a defined methodology, there is the risk that applications, databases, computing platforms and operating environments will be validated as Year 2000 compliant, but in fact are unable to operate successfully in normal pre-Year 2000 or/and post Year-2000 conditions. Testing plans that include testing for one date in the Year 2000 should not be considered adequate for validating that an item is Year 2000 compliant.

The work of the Year 2000 Project team is not being validated by an independent body. This could allow for non-compliant applications, systems or hardware to be introduced into the production environment, which could fail on January 1, 2000. In addition, by not allowing for the Year 2000 Project Team member's work to be verified by a Quality Assurance function, there is a risk that the Year 2000 Plan could be behind schedule without the Year 2000 Project team being aware of it.

Recommendation:

The Project Team and key functional areas should develop adequate test plans for each application, database, computing platform and operating environment in use throughout the organization. Test plans should include user acceptance testing and signoff by each key functional area prior to the Project Team authorizing the remediated object to be placed into a production environment.

- Test plans should include the following:
 - Adequate testing of various dates, such as the following:
 - September 9, 1999,
 - January 1, 2000,
 - February 29, 2000, and
 - Dates with years beyond 2000;
 - A requirement that all Year 2000 testing be conducted in a fully isolated environment with no risk of data or program migration into the production environment;
 - A requirement that the testing environment reflect the processing cycles and any special processing requirements as in the current production environment
- Inventory items claimed, or thought to be Year 2000 compliant should be tested in the same manner as non-compliant items based on the level of criticality designated in the Year 2000 Project Plan.

The Project Plan should ensure an objective and consistent method for determining Year 2000 compliance has been developed and adopted by the organization. Specifically, the Project Plan should ensure the following:

- Responsibilities for defining Year 2000 compliance requirements have been identified and are delegated at a sufficient level of authority;
- Determination of Year 2000 compliance should not rely solely on information provided by individuals responsible for selecting, maintaining or developing applications;
- Each application, database, computing platform and operating environment is scheduled for Year 2000 testing, regardless of whether changes are made;
- All new applications, hardware and development in-process should be subject to the same Year 2000 scrutiny; and
- Company-wide date format standards should be established.

Management Response:

The Office of Information Technology (OIT) has been using third party testing software that itself provides a detailed scenario of how testing of hardware platforms is conducted. Additionally, detailed descriptions of the application testing methodology used by the project

team for commercial off-the-shelf applications can be found in the OIT document *A07.03 - Compliance List - Software*. Business application testing has been approached on a system-by-system basis. A Quality Assurance function, while valuable, cannot be funded with the budgetary resources available to the project. The Corporation is actively pursuing other avenues for independent evaluation of validations and/or repairs documented by the project team.

KPMG's Comments:

KPMG agrees with the Corporation that a Quality Assurance function or an independent evaluation of Year 2000 testing results is necessary. We recommend that the Corporation allocate the necessary resources to perform an independent review and validation of the Year 2000 test plans and test results. We also recommend that an independent review and validation of test results be performed for all inventory items that have been already classified as Year 2000 compliant.

Y2K Methodology- 2

Risk: High

Condition:

The Corporation has not developed Year 2000 Contingency plans for the systems that support its mission critical processes. The Corporation has classified the following systems as mission critical:

- Federal Success system processed at the Department of Transportation;
- Payroll system processed at the National Finance Center (NFC);
- Payment Management System (PMS) processed at Health and Human Services (HHS);
- Vista Management System (VMS) processed in-house;
- Grants Management System (GM1) processed in-house;
- SPAN system processed in-house; and
- GARP system processed in-house.

The “Federal Success” system is scheduled to be replaced by a new Year 2000 compliant financial management package, but that system has not been purchased yet.

Criteria:

The GAO’s “Year 2000 Computing Crisis: An Assessment Guide” dated September 1997 states that an agency should:

- Initiate the development of contingency plans for mission-critical systems
“Agencies should initiate the development of realistic contingency plans--including the development of manual and contract procedures--to ensure the continuity of core business processes.”
- Implement contingency plans as necessary
“Implement contingency plans to ensure support for business functions and processes that may be interrupted by the failure to achieve Year 2000 compliance of a specific mission-critical system.”

The Information Systems Audit and Control Foundation's (ISACA) Control Objectives for Information and Related Technology (CobiT) requires:

- "The Year 2000 plan is likely to enable the organization to continue its regular business activities uninterrupted, after the Year 2000"

The OMB's "Memorandum for the Heads of Selected Agencies" dated March 9, 1998 requires an agency to provide:

- A description of any risk management efforts. Include a discussion of verification of fixes, documentation of processes, and contingency planning.

Cause:

The Corporation has not deemed necessary developing Contingency Plans for the systems that support its mission critical processes.

Effect:

Contingency planning is essential to Year 2000 risk management, since it involves the preparation and implementation of alternate processes in the event that the Corporation's mission critical processes are affected by Year 2000 failures. The Corporation should take into account the following:

- Some or all of the outsourced systems might not meet the Year 2000 deadline;
- Some inventory items might not be accounted for in the Year 2000 Project plan, and therefore, might not be Year 2000 compliant at the turn of the century;
- Implementation of the new financial management package might not be fully performed before fiscal year 2000 begins;
- In-house systems might not be remediated on time; and
- Systems, like Federal Success, might be affected by the Year 2000 well before the turn of the century.

The lack of Contingency Plans increases the risk that the Corporation may not be able to perform some of its mission critical processes, and meet client demands. Per our discussion with several of the Corporation's management, we discovered potential impacts if some of the mission-critical systems do not meet the Year 2000 deadline:

- Grant recipients not being able to receive funds, because a payment draw down cannot be performed by the Payment Management System or grants not being properly processed in the Federal Success System;
- Corporation employees not getting paid on time because the Payroll system is not Year 2000 compliant;
- Service Centers being forced to short fund grants and perform a significant amount of manual procedures throughout 1999 because the Federal Success system is unable to process annual grants beginning from February 1999 and falling into the Year 2000; or
- VISTA's volunteers not being able to receive their stipends because the VISTA Management system is not Year 2000 compliant.

Recommendation:

We recommend that the Corporation prepare contingency plans for the systems that they deem to be mission critical, systems that are to be replaced and systems that will encounter Year 2000 problems in advance of the actual turn of the century. Failing to evaluate possible alternatives because of reliance on government-wide solutions and in-house Year 2000 compliance is a potential risk. The Corporation should also determine the adequacy of contingency plans for third-party processed applications prepared by the corresponding government agency (ex. HHS and NFC). Further, we recommend the following:

- A contingency plan should be developed, documented and tested by each key functional area, with the assistance of the Year 2000 Project Team, for mission critical and significant applications in the event that Year 2000 compliance requirements are not met.
- As part of the contingency plan development, trigger dates should be established for each mission critical and significant application to determine when to implement.

Management Response:

The Corporation has begun developing contingency plans for its mission critical systems. As part of the activities of the new financial management system task force, a contingency plan is being developed in the event that the system is not replaced in time. The National Finance Center and HHS's Payment Management System are two mission critical systems residing at other agencies that are both being reengineered to address Year 2000 problems and the host organizations have the obligation for establishing contingency plans that will ensure the Corporation's continued processing into the next millennium. The Corporation's Oracle

developed mission critical systems (VISTA Management System and SPAN) have both been deemed compliant. The tools used to create these systems and the actual code of these systems have been tested and are compliant. The Corporation has yet to assess two other application systems, Grant Application Review Process (GARP) system and the Grants Management System. Both of these systems are the next applications to be reviewed and tested. The contingency planning for financial management systems includes a review of cross-servicing options for grants processing as well.

KPMG's Comments:

KPMG agrees with the Corporation's response.

SYSTEM INFRASTRUCTURE

While the Year 2000 problem presents significant challenges to all organizations, benefits accrue to those entities which implement a successful system infrastructure for modifications or replacement of existing applications. The key component of System Infrastructure is Configuration Management.

Configuration Management is important because the Corporation must have an effective process in place to manage the many Year 2000 changes that will be made to ensure compliance. Configuration management pertains to modifications to the Corporation's applications, not only for Year 2000 compliance, but also changes requested by the end users of the Corporation's systems. Therefore, strong program change controls must be in place to manage version control and system testing, as well as to ensure there is an appropriate segregation of duties between development, test and installation. Change control procedures have not been developed by the Corporation. Change control procedures should be developed to ensure that changes to existing applications are performed under controlled conditions and reflect compliance with Year 2000 standards. In addition, there should be procedures in place to prevent changes to date field structures and logic after programs have been made Year 2000 compliant.

A critical factor to the success of the Corporation's Year 2000 remediation effort is Year 2000 compliance of the third-party entities responsible for processing the Corporation's systems. Vendor Management pertains to the oversight that the Corporation will have to supply to monitor the Year 2000 remediation activities of their outsourced applications. Management must ensure that all third party providers' services are identified and that the technical and organizational interfaces are documented. Most of the Corporation's mission critical systems have been outsourced to other government agencies, including the following:

- Federal Success, at the Department of Transportation;
- Payment Management System, at Health and Human Services;
- Payroll and Human Resources system, at the National Finance Center; and
- Electronic Certification System, at the Department of Treasury.

We noted that the Corporation's outsourced systems are processed by other government agencies, but the inter-agency agreements do not specify requirements to commit the service provider to maintain or update the systems to be Year 2000 compliant. Upon our discussions

with the Year 2000 Project Leader, we found that the Corporation's strategy for Year 2000 remediation of out-sourced systems is limited to informal inquiries on their Year 2000 efforts. Consequently, there is a potential for these third-party processed applications not to be Year 2000 compliant on time, and the Corporation's regular services to be disrupted.

System Infrastructure Conditions and Recommendations

On the following pages we list one specific Year 2000 System Infrastructure related finding:

1. Change control procedures have not been developed by the Corporation to control the change management process, nor have they established Year 2000 change control standards. See page 57.

Y2K System Infrastructure-1

Risk: Medium

Condition:

Change control procedures have not been developed by the Corporation to control the change management process, nor have they established Year 2000 change control standards.

Criteria:

The GAO's "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997 states that an agency should:

- Document code and system changes

"Implement and use configuration management procedures to ensure that all changes to information systems and their components are properly documented and managed."

- Communicate changes to information systems to all internal and external users

"Communicate changes to the agency's information systems and components, and specifically all changes to date formats for data exchanged with other systems or external organizations. Document changes through the configuration management process."

The GAO's Federal Information System Control Audit Manual (FISCAM), dated April 1997, states that:

- CC-2.1, Changes are controlled as programs progress through testing to final approval.

Cause:

Management has not implemented a formal change management methodology.

Effect:

A lack of formal procedures for change management could result in unauthorized and potentially incorrect or non-Year 2000 compliant changes being implemented to the production environment.

Recommendation:

Year 2000 modifications will require the Corporation to make many application changes and upgrades of existing versions to achieve compliance. Therefore, strong program change controls

must be in place to manage version control and system testing, as well as to ensure there is an appropriate segregation of duties between development, test and installation. In order to adequately manage the many changes that will have to be made related to Year 2000 remediation, the Corporation's Project Team should develop effective change management controls which ensure the following:

- All modifications made to application source code are documented;
- Application software is tested by the development team before being moved to a production environment;
- Appropriate version control procedures are observed;
- User acceptance testing is performed, documented and appropriate signoff is obtained; and
- A proper segregation of duties exists between development, test and installation.

Management Response:

The Oracle based systems that have been deemed mission critical at the Corporation are currently and have always been subjected to a formal change control process. This process has transformed over time and has evolved into a system that is based upon Oracle's Designer 2000 product. A Systems Development Review team has been formed which meets weekly to discuss all modifications that have been requested. The systems Development Review team is comprised of a number of users, managers and technical staff. The process also includes version tracking within Designer 2000 and testing of all changes by both developers and users. Once a change is accepted it is put into a queue to be placed in production when the Systems Development Review team approves a new release of the system. The installation of new code into the production system has been separated from development activities and is accomplished by the Oracle Database Administrator. The Corporation will review its change control procedures and determine if changes are needed.

KPMG's Comments:

KPMG agrees with the Corporation that it should review its current change control procedures to determine how Year 2000 modifications should be monitored. However, we further recommend that the Corporation ensure that Year 2000 remediation modifications consistently follow the Corporation's change control standards. Year 2000 requirements should also be included in existing change control standards to avoid non-Year 2000 compliant changes being introduced into the production environment.

APPENDIX A - APPROACH AND METHODOLOGY

KPMG gained an understanding of the Corporation's Year 2000 Project through review of documentation and interviews with the Corporation's management at Headquarters, Office of Information Technology (OIT) staff and Service Center Directors. To determine Year 2000 compliance at the Corporation, KPMG performed the following steps included in our detailed work plan:

- Evaluated the list of the Corporation's mission-critical applications and systems;
- Evaluated the Corporation's relationship with third-party contractors and suppliers;
- Evaluated the Corporation's sub-contract management techniques;
- Reviewed the Corporation's policies and procedures to monitor Year 2000 project milestones achievements (budget and timeline);
- Used the Office of Management and Budget (OMB) guidelines for smaller executive level agencies to evaluate the status of the Corporation on compliance with reporting requirements; and
- Applied the GAO's Assessment Guide, "Year 2000 Computing Crisis: An Assessment Guide" dated September 1997, for relevant criteria in analyzing the Corporation's Year 2000 Project Plan.

Our methodology for this review was based on the Information System Audit and Control Association's (ISACA) internationally recognized Control Objectives for Information and Related Technology (CobiT) standards. CobiT was developed by ISACA to provide generally applicable and acceptable standards (32 Control Objectives distributed among four domains: Planning and Organization; Acquisition and Implementation; Delivery and Support; and Monitoring) for good practices for Information Technology (IT) control. In recent years, it has become increasingly evident to regulators, lawmakers, users and service providers that there is a need for a reference framework for security and control in IT. Management needs a framework of generally accepted IT security and control practices to benchmark its existing and planned IT environment. Users of IT services need to be assured through accreditation and audit of IT services provided by internal or third parties, that adequate security and control exists. Finally,

auditors need a standard framework to use when assessing IT security. CobiT satisfies all three parties.

Our review of the Corporation's Year 2000 plan focused on the following key categories, with the relevant CobiT criteria included:

- **Awareness** - We determined whether the Corporation has established an appropriate leadership structure, developed an awareness campaign and analyzed its legal and financial responsibilities related to the Year 2000 effort. (CobiT: Planning and Organization; Monitoring)
- **Project Infrastructure** - We reviewed the organization of the project team, the methods used by the Corporation to monitor the project and the reporting structure used to appraise management of the status of the project. In addition, we reviewed the Corporation's budget for the Year 2000 Project to determine the basis for the estimate and the assumptions that may have been included in the estimate. We also reviewed the procedures and the availability of proper tools that are used by the Corporation to manage the Year 2000 Project. (CobiT: Planning and Organization; Monitoring)
- **System Inventory** - We reviewed the methods used by the Corporation to develop an inventory of application and system software including identification of critical data flows. (CobiT: Planning and Organization; Delivery and Support)
- **Risk Assessment** - We determined whether the Corporation has performed a risk assessment for Year 2000 conversion for each system in the system inventory. We also used this list of mission-critical systems to perform our Risk Assessment of the Year 2000 failure sources. (CobiT: Planning and Organization)
- **Methodology** - We determined whether, as part of the Year 2000 Project, the Corporation has developed a Year 2000 Project Strategy that includes testing methods, pilot conversion, and contingency plans. (CobiT: Acquisition and Implementation; Delivery and Support)
- **System Infrastructure** - We determined whether third-party processing entities that the Corporation uses have certified that their products are Year 2000 compliant and that the records of such certification are maintained by the Corporation. In addition, we determined whether the Corporation has procedures in place for change management and whether a quality assurance function has been established to determine whether systems are Year 2000

compliant. In addition, we determined whether the Corporation has established a training plan as part of the overall Year 2000 project plan. (CobiT: Acquisition and Implementation; Delivery and Support)

Our approach for this Year 2000 engagement was based on two primary procedures: interviewing key personnel at the Corporation to discuss their role within the Year 2000 Project and validating the results of our work by interviewing, testing and analyzing the Year 2000 effort.

APPENDIX B – MANAGEMENT’S COMMENTS

CORPORATION
FOR NATIONAL
 SERVICE

July 1, 1998

Ms. Luise Jordan
Inspector General
Corporation for National Service
1201 New York Avenue, NW
Washington, DC 20525

Dear Ms. Jordan:

Enclosed is the Corporation's response to the OIG Report 98-20, Assessment of Computer Difficulties Associated with the Year 2000. We thank you for the opportunity to comment on the draft report and we assure you that the Corporation takes its responsibility for preparing for the Year 2000 seriously. We agree with the findings of the report and are taking steps to augment our effort. These steps are outlined in our specific responses.

Also, we are planning to recruit and hire a Chief Information Officer to oversee information management and technology for the Corporation. Recruitment of an individual with the appropriate skills and background will be done as expeditiously as possible and will result in considerably improved management. The CIO will also oversee Year 2000 implementation.

Sincerely,



Wendy Zenker
Chief Operating Officer

Enclosure



Awareness Conditions and Recommendations

1. A Year 2000 Steering Committee does not exist, nor has a formal Year 2000 reporting mechanism been created to brief Senior Management on the Status of the Corporation's Year 2000 effort.

The Corporation agrees with the need for a Steering Committee and Senior Management will establish such a committee by July 31, 1998. This committee will oversee the work of the project team and ensure that Year 2000 information is disseminated to both Senior Management and the entire Corporation staff. One of the first tasks of the committee will be to review and approve a project plan and timeline.

2. The Corporation has not taken all the necessary steps regarding the legal implications of the Year 2000 to the Corporation.

The Corporation agrees that its Year 2000 project should take into account the legal implications of the Year 2000 problems, and has begun efforts to identify both the legal issues and appropriate steps to address those issues. The General Counsel has assigned overall responsibility for Year 2000-related legal matters to a member of the Office of General Counsel staff and requested an analysis of the rights and liabilities that could arise for the Corporation from Year 2000-related system failures. This analysis, which will be completed in July 1998, will examine the impact of disruptions of the Corporation's operations, and the operations of the Corporation's contractors, suppliers, and those organizations that receive Corporation-funded assistance. The analysis will also address the general steps that the Corporation should take to mitigate the potential liabilities identified and to preserve the Corporation's rights against outside parties (including, to the extent appropriate, the steps suggested in the draft audit report). General Counsel will be represented on the Corporation's Steering Committee.

1. There is a lack of awareness of the Year 2000 problem across the Corporation.

The Corporation agrees with the need for greater awareness of the Year 2000 problem. One of the responsibilities of the Steering Committee will be to determine the best vehicle to increase awareness throughout the Corporation. Currently the Year 2000 project team is using the Corporation's Intranet to provide Year 2000 information to the Corporation at large. The project team will better publicize across the Corporation the fact that the Intranet contains the latest information on the Corporation's Year 2000 activities.

2. A formal policy directive or program charter establishing the importance and priority of the Year 2000 remediation effort has not been issued by the Corporation's executive management.

The Corporation agrees with this finding. As noted in the response to recommendation 1, the project plan approved by the Steering Committee will include appropriate action steps communicating the importance and priority of the Corporation's Year 2000 effort.

Project Infrastructure Conditions and Recommendations

1. The Office of Information Technology (OIT) has recently experienced the loss of two of its critical contracted resources. These resources were crucial in the Year 2000 assessment of the Corporation's functional applications and hardware.

The Corporation acknowledges this problem. OIT has begun taking steps to resolve the issues related to the retention of resources. OIT is in the final stage of issuing two new contracts; one to replace the existing ROW Sciences contract and another to provide specific help addressing Year 2000 issues.

2. The Project's costs are not being tracked and measured against the established plan or expected milestones.

On June 11, 1998, a budget line item was established within the Office of Information Technology's (OIT) budget. The sole purpose of this separate purpose code is to track the Corporation's Year 2000 obligations. Establishing a separate purpose code will allow the Corporation and OIT to track Year 2000 obligations to a level of detail consistent with departmental budgets.

System Inventory Conditions and Recommendations

1. A detailed inventory of potential failure points including non-traditional computing platforms and devices with embedded date-aware micro-processors has not yet been fully conducted.

The need to identify all potential failures at all Corporation locations is a valid one. At this time, the Corporation is adding resources that can assist in this process. The detailed inventory of the networks at each Service Center was conducted during the Office of Information Technology's recent visit to each Service Center. All State Offices' computer equipment has been standardized to minimize support problems and has been assessed for compliance. The Year 2000 project team has been working with the NCCC Technical Coordinator on the assessment of their network equipment. The additional resources will be used primarily to research other Year 2000 impacted elements not yet noted by the project team, these elements would include PBX systems, physical security and environmental controls at Corporation remote locations.

Risk Assessment Conditions and Recommendations

1. A formal risk assessment and business impact analysis has not been performed by the Corporation to establish the criticality and priority of each element that needs to be addressed as a part of the Year 2000 effort.

The Corporation agrees with the need to perform an impact assessment for mission critical systems. The project team, together with project's oversight management, has conducted an assessment of the Corporation's systems. This assessment determined which systems were mission critical. A formal business impact analysis was not performed. The Corporation is reviewing the need for additional resources in the project. The business impact of elements of the Year 2000 effort will be considered by the Steering Committee. The Corporation has identified the mission critical systems and made them priority areas for the project and work to remedy deficiencies will continue as planned. Business continuity planning in the event of any Year 2000-related disruption will be discussed with the Steering Committee and a contingency plan will be prepared by the project team.

2. The Corporation is at a significant risk of not being able to have the new financial management system fully operational by October 1, 1999.

The Corporation's current financial management system is considered to be mission critical and the replacement of it is a high priority. A task force is working on implementation issues, a requirement analysis has been performed, a franchising arrangement has been planned, and new product evaluations are underway. Once all options have been analyzed, accelerated implementation is planned. Additionally, we recognize the need for a contingency plan and we are actively exploring options for cross-servicing with other agencies.

3. Since NCCC does not fall directly under the OIT's supervision, it has not been included in the Corporation's Year 2000 Project Plan.

The NCCC networks and platforms, with one exception discussed below, have been included in the Year 2000 effort since the inception of the Year 2000 project team. The NCCC locations have been listed under the mission essential section of the project team's hardware priority list. At this time, these locations need to be renovated due to the required changes at both the server and workstation levels. Equipment has been obtained and implementation has begun for the major changes that are required for the administrative networks at each campus. However, the changes required to maintain the classroom networks has not been funded by the NCCC and may require the

decommissioning of these networks during fiscal year 1999. If funding can be located, the classrooms will be addressed.

Methodology Conditions and Recommendations

1. The Corporation has not created detailed testing plans to test each application, database, computing platform and operating environment for Year 2000 compliance. A Quality Assurance function is not in place to validate the work of the Year 2000 Project team.

The Office of Information Technology (OIT) has been using third party testing software that itself provides a detailed scenario of how testing of hardware platforms is conducted. Additionally, detailed descriptions of the application testing methodology used by the project team for commercial off-the-shelf applications can be found in the OIT document *A07.03 - Compliance List - Software*. Business application testing has been approached on a system-by-system basis. A Quality Assurance function, while valuable, cannot be funded with the budgetary resources available to the project. The Corporation is actively pursuing other avenues for independent evaluation of validations and/or repairs documented by the project team.

2. The Corporation has not developed Year 2000 Contingency plans for the systems that support its mission critical processes.

The Corporation has begun developing contingency plans for its mission critical systems. As part of the activities of the new financial management system task force, a contingency plan is being developed in the event that the system is not replaced in time. The National Finance Center and HHS's Payment Management System are two mission critical systems residing at other agencies that are both being reengineered to address Year 2000 problems and the host organizations have the obligation for establishing contingency plans that will ensure the Corporation's continued processing into the next millennium. The Corporation's Oracle developed mission critical systems (VISTA Management System and SPAN) have both been deemed compliant. The tools used to create these systems and the actual code of these systems have been tested and are compliant. The Corporation has yet to assess two other application systems, Grant Application Review Process (GARP) system and the Grants Management System. Both of these systems are the next applications to be reviewed and tested. The contingency planning for financial management systems includes a review of cross-servicing options for grants processing as well.

System Infrastructure Conditions and Recommendations

1. Change control procedures have not been developed by the Corporation to control the change management process, nor have they established Year 2000 change control standards.

The Oracle based systems that have been deemed mission critical at the Corporation are currently and have always been subjected to a formal change control process. This process has transformed over time and has evolved into a system that is based upon Oracle's Designer 2000 product. A Systems Development Review team has been formed which meets weekly to discuss all modifications that have been requested. The systems Development Review team is comprised of a number of users, managers and technical staff. The process also includes version tracking within Designer 2000 and testing of all changes by both developers and users. Once a change is accepted it is put into a queue to be placed in production when the Systems Development Review team approves a new release of the system. The installation of new code into the production system has been separated from development activities and is accomplished by the Oracle Database Administrator. The Corporation will review its change control procedures and determine if changes are needed.