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City of Tallahassee

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"Year 2000 Readiness Activities"

Report # 0008   *February 1, 2000*

Summary

All critical systems appeared to function properly on January 1, 2000

Overall, the City of Tallahassee appears to have adequately prepared for and documented its efforts to address the Year 2000 Problem. Up to December 31, 1999, significant efforts were directed toward systems critical to the rollover to January 1, 2000. At this time, it is impossible to declare that no more Year 2000 related problems will arise. Information Systems management indicates that while they are satisfied with remediation efforts to date, it is still possible for date-related problems to surface during the Leap Year rollover (February 28 to February 29, 2000) or when infrequently used programs and reports are used for the first time.

Purpose

This report identifies:

♦ Significant City Year 2000 readiness activities;

♦ Management's response to our "Year 2000 Readiness Review Report," (issued on November 5, 1999);

♦ City leadership and readiness activities up to and during the rollover to January 1, 2000;

♦ Problems that occurred subsequent to the rollover to January 1, 2000; and

♦ Potential problems that may occur during the Year 2000.

Background

The Year 2000 problem was caused by the way dates were stored and used in many computer systems. For years, two digits were used instead of four, i.e., "99" instead of 1999. However, the two-digit date format "00" can be interpreted as both 1900 and 2000, which is what is referred to as the "Year 2000 problem." This two-digit date format has not only been used in information system programs, but in computer chips that are used by a variety of components and equipment, such as elevators, telecommunications equipment, security systems, etc.[1]

Businesses and organizations had to dedicate a great amount of resources to identify the problem, conduct an assessment of their systems and equipment, correct the problem, and test, validate and finally implement the corrective actions to ensure that they were indeed Year 2000 compliant. Information technology that

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[1] U.S. General Accounting Office "Year 2000 Computing Crisis: An Assessment Guide" (GAO/AIMD-10.1.14)

can be affected by the Year 2000 problem includes hardware, software, operating systems, telecommunications, and equipment with embedded chips. According to the General Accounting Office, Year 2000 compliant means that the information technology accurately processes, calculates, and exchanges date/time data from, into, and between the twentieth and twenty-first centuries, including all dates in 1999. In this report, we define Year 2000 readiness activities as those taken to ensure that items are Year 2000 compliant.

Significant City Year 2000 Readiness Activities

Almost every City department utilizes information systems and embedded chip equipment in some manner to run their business operations. There are information systems used for financial management, utility billing, police and fire dispatch, bus operations, electric operations, gas operations, and water utilities. There is equipment with embedded chips ranging from specialized products used in utilities to common office products such as fax machines, printers, time clocks, etc. The City conducted many activities to ensure that all affected systems, products, and equipment were Year 2000 ready.

The City Manager designated the Chief Information Officer to be the City's Year 2000 Coordinator, and in November 1998, the Year 2000 Coordinator requested that department directors provide the necessary information to him so that a City Year 2000 plan could be developed in December 1998. It was the responsibility of each City department to coordinate their Year 2000 readiness activities including awareness, assessments, remediation, testing and validation, and implementation.

Assessment is the first critical stage of the readiness activities. It involves conducting inventories, determining how critical the identified system/product/equipment is to business operations, determining if it could potentially be adversely affected by the rollover to the Year 2000, and then determining if it is actually Year 2000 ready or not. After the assessment has identified those necessary items that are not Year 2000 ready, the remediation method must be determined, i.e., replace or upgrade the item. Table 1 below describes selected Year 2000 readiness remediation activities that have taken place during the past year in the City departments and the significance of the remediation.

Table 1
City's Year 2000 Readiness Remediation Activities

Remediation Efforts	Significance of the Remediation
Police and Fire ✔ Upgraded the Computer Aided Dispatch / Report Management System (CAD/RMS) and related servers	Ensure that calls to the police and fire departments could be dispatched appropriately to units throughout the city
Electric Plants and Electric Control Center ✔ Upgraded the main computer operating systems ✔ Replaced memory chips in the main computer hardware ✔ Upgraded the control center's electric monitoring system	Ensure that electricity continued to be generated and transmitted at appropriate levels to all locations
Utility Business Customer Services ✔ Revised computer code in the mainframe application for customer utilities	Ensure that customer utility records are accurate, that service requests are retained and completed,

	and that services can be added for new customers on 1/3/2000
Water Plants and Pumping Systems ✔ Upgraded the water monitoring system Replaced Remote Terminal Units (RTU) with logic controllers that communicate with the water monitoring system	Ensure that the water plants and pump stations could be monitored remotely to control the water flow at appropriate levels
Gas Operations ✔ Upgraded the gas monitoring system	Ensure that the gas transfer stations could be monitored remotely to control the gas flow at appropriate levels
Aviation Operations ✔ Upgraded the security control system	Ensure that access points in the airport are operating securely
General Departments (including Information Systems Services) ✔ Upgraded the BIOS (Basic Input/Output system) chip on all older computers ✔ Replaced those computers where the BIOS could not be upgraded ✔ Revised computer code in the financial mainframe applications ✔ Replaced the human resource management system ✔ Upgraded mainframe and server operating systems that provide the backbone for the City's computer systems ✔ Upgraded the telephone switches in the telephone system	Ensure that City employees could continue to provide business services to the citizens Ensure that the City's financial and employee records are accurate and that employees can perform their normal work functions on 1/3/2000

Other regulatory agencies have also been monitoring various service areas in the City, including the Federal Aviation Administration, North American Electric Reliability Council (NERC), Florida Public Service Commission, and the Florida Year 2000 Task Force.

Management's Response to Readiness Report

In the Year 2000 Readiness Review Report submitted to the City Manager on November 5, 1999, we identified two areas that needed improvement during preparations for the Year 2000: documentation and leadership. Below, we have described each issue and noted the corrective actions taken by management up to December 31, 1999.

Documentation

Issue: At the time our previous report was issued, there was not complete and comprehensive documentation available to support management's assertions that all areas of the City had taken appropriate measures to address Year 2000-related problems, including assessing risk, remediation, testing and validation, implementation, and contingency planning.

Corrective Actions: Before the report was issued, the Year 2000 Coordinator actively resumed his efforts to collect, organize and review Year 2000 documentation from all areas in the City. In addition, the City Auditor's Office and the Year 2000 Coordinator met

weekly through the end of calendar year 1999 reviewing submitted documentation, monitoring the status, and attempting to identify any areas in the City that may have been missed.   By December 20, 1999, documentation to support the Year 2000 readiness activities for all applicable departments in the City appeared to be complete**.**

Leadership

Issue: While the City had planned to assign an Incident Commander and activate the Emergency Management Services Team to prepare for the rollover, no one person nor committee had been assigned at the time of our previous report.

Corrective Actions:.   In November, management assigned the responsibility to coordinate the City's Year 2000 rollover readiness activities to the Emergency Services Coordinator via the Safety and Neighborhood Services Area. The coordination of these efforts was effective, and the City was adequately prepared for the Year 2000 rollover. Some of the activities that occurred are listed below by department:

Emergency Services

- Held weekly meetings during December with the Emergency Services Team members and key contacts from affected City departments, including Information Systems Services, Utilities, Communications, Fire, Police, and Auditing.

- Developed a New Year 2000 Incident Action Plan, which included objectives and tasks for the Emergency Operations Center, staffing, and planned sequence of events.

- Conducted a final briefing on December 29, 1999, which was attended by City Emergency Services Team members,

Assistant City Managers, key contacts from City service areas, representatives from American Red Cross and Florida Department of Law Enforcement, and City Auditor's Office.

- Activated the Emergency Operations Command Center at 7 AM on December 31, 1999, and staffed it at various levels through the day. Monitored the effects of the Year 2000 rollover in various countries, staffed a "Rumor Control Hotline" for citizens, communicated with contacts from City departments, and monitored and evaluated the effects of Year 2000 rollover in Tallahassee.

- Maintained communications between the Emergency Operations Command Center, key City services, and key local and state agencies, including the State of Florida Emergency Operations Center, the Florida Department of Law Enforcement, and the American Red Cross. See Figure 1 on the next page.
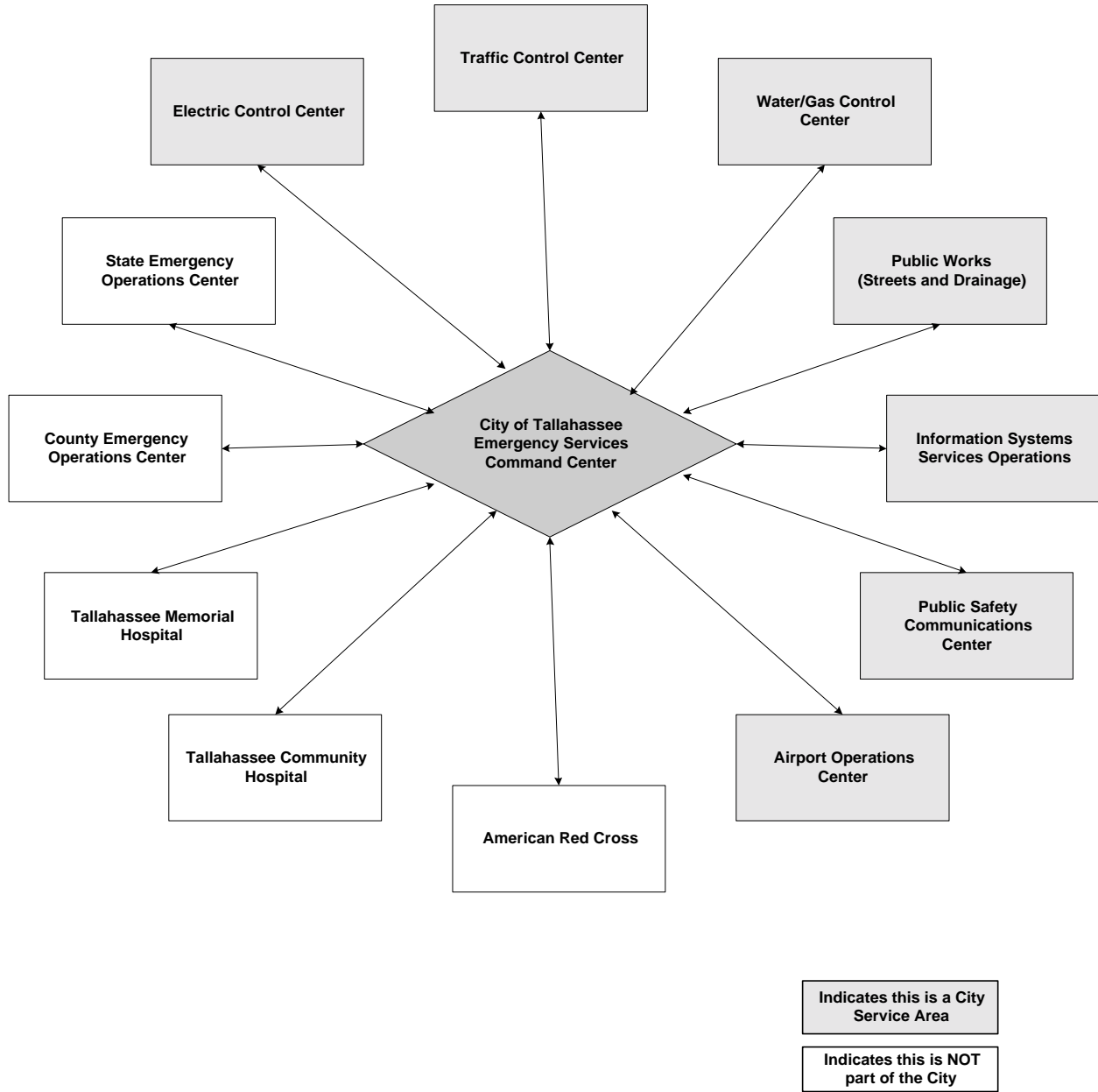
Communications

- Transmitted news releases from the Communications Department to the public regarding City's actions and plans via newspapers, City television station, and mail inserts in utility bills.

- Facilitated access to City departments for area reporters.

Other Affected City Departments

- Implemented "Leave Procedures" throughout all applicable departments that provide City services regarding work schedules and personal leave. Some employees were scheduled to work over New Year's Eve or the weekend following, while most employees were on-call in case they were needed.

FIGURE 1
Emergency Management Services Team
Communication Plan for New Year 2000

Source: Re-creation of the Emergency Management Team Communication Plan for New Year 2000, 12/28/99.

City Leadership and Readiness Activities at Rollover

As the clock rolled from 1999 into the Year 2000, City staff began reviewing critical systems by:

- Monitoring electric plants generation and transmission, water flow, and gas flow;

- Testing City telecommunications equipment including telephone switches, voicemail, and faxes;

- Testing the mainframe and network operating systems;

- Testing and ensuring that on-line transactions, batch processes, and other daily business uses could be performed in the Financial Management System and the Customer Information System;

- Monitoring the traffic system; and

- Testing and ensuring that other key information systems were working properly.

In addition, the City Auditor's Office observed the communication between the service areas and the Emergency Management Services Operations Center during the rollover, and then followed up with key service area contacts to identify all Year 2000 related and non-Year 2000 related problems and verify their resolutions.

Identified Problems Subsequent to Rollover

No major Year 2000 rollover problems have been identified and reported as of January 10, 2000. Only a few minor problems caused by the Year 2000 occurred, including:

- One mainframe report printed the year as 1900.

- One of the mainframe query tools did not function due to a faulty vendor upgrade.

- One mainframe system displayed the due date year on their printed forms as "10" prior to January 1, 2000. This system corrected itself after the rollover and accurately displayed the due date as "00." This was due to a faulty vendor upgrade.

- One system displayed the birth date incorrectly due to a faulty vendor upgrade.

- One system would not print at all. This was indirectly associated with the Year 2000, because the case numbering format was changed to reflect the year 2000. This was caused by a faulty vendor upgrade.

Each of these minor problems was corrected within a short time period and imposed only a minimal impact to the City operations.

Potential Problems in Year 2000

While the rollover from December 31, 1999, to January 1, 2000, was the major concern of most businesses and organizations, there were also other dates that were of concern in 1999, including April 1, 1999, September 9, 1999, and the first day of the Fiscal Year 2000 (10/1/99 for the City). In the Year 2000, there is also a concern that problems will arise due to Leap Year on February 29.

The City's Chief Information Services Officer (CISO) recognizes that this date can potentially cause a problem in any system that was not fixed to include the Leap Year. Due to the method in which the City's staff remediated their systems, the CISO is not expecting any problems. Remediations were made to many of the City's purchased systems by vendors, and then tested by the vendor and the City. Until the actual rollover from February 28 to February 29, 2000, the City will not know for sure that each system functions adequately.

There also may be other problems identified throughout the year as infrequently used programs and reports are used for the first time. The CISO and staff are aware of this possibility and plan to respond accordingly.

Methodology

Between November 5, 1999, and January 7, 2000, we performed the following procedures:

♦   To identify significant City Year 2000 readiness activities, we: 1) interviewed key service area contacts, including Information Systems Services, Police, Fire, Public Works, Electric Operations, Gas Operations, and Water Utilities; 2) examined supporting documentation; and 3) observed testing of a limited number of applications, including the Police Computer Aided Dispatch/Report Management System and the Purdom Electric Plant Distributed Control System.

♦   To follow-up on "Year 2000 Readiness Review Report," (issued on November 5, 1999), we met regularly with the Year 2000 Coordinator to review supporting documentation and attended emergency management services meetings.

♦   To identify City leadership and readiness activities up to and during the rollover to January 1, 2000, we attended emergency management services meetings and interviewed key management personnel.

♦   To identify problems that occurred subsequent to January 1, 2000, and potential problems that could occur during the Year 2000, we interviewed key service department staff and researched information technology industry publications.

This audit was conducted in accordance with generally accepted government auditing standards.

Copies of this report may be obtained by telephone (850 / 891-8397), by FAX (850 / 891-0912), by mail or in person (City Auditor, 300 S. Adams Street, Mail Box A-22, Tallahassee, FL 32301-1731), or by e-mail (dooleym@mail.ci.tlh.fl.us).

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