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THE YEAR 2000 PROBLEM

FOURTH REPORT

BY THE

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

TOGETHER WITH

ADDITIONAL VIEWS

OCTOBER 26, 1998.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

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LETTER OF TRANSMITTAL

HOUSE OF REPRESENTATIVES,
Washington, DC, October 26, 1998.

Hon. NEWT GINGRICH,
Speaker of the House of Representatives,
Washington, DC.

DEAR MR. SPEAKER: By direction of the Committee on Government Reform and Oversight, I submit herewith the committee's fourth report to the 105th Congress. The committee's report is based on a study conducted by its Subcommittee on Government Management, Information, and Technology.

DAN BURTON,
Chairman.

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105TH CONGRESS, 2d Session | HOUSE OF REPRESENTATIVES | REPORT 105–827

THE YEAR 2000 PROBLEM

OCTOBER 26, 1998.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. BURTON of Indiana, from the Committee on Government Reform and Oversight, submitted the following

FOURTH REPORT

On October 8, 1998, the Committee on Government Reform and Oversight approved and adopted a report entitled, "The Year 2000 Problem." The chairman was directed to transmit a copy to the Speaker of the House.

I. SUMMARY OF OVERSIGHT FINDINGS AND RECOMMENDATIONS

A. INTRODUCTION

The Committee on Government Reform and Oversight (the "committee") has primary legislative and oversight jurisdiction with respect to the "overall economy, efficiency and management of Government operations and activities, including Federal procurement."[1] In addition:

> [T]he Committee on Government Reform and Oversight may at any time conduct investigations of any matter without regard to the provisions . . . conferring jurisdiction over such matter upon another standing committee. The committee's findings and recommendations in any such investigation shall be made available to the other standing committee or committees having jurisdiction over the matter involved.[2]

Pursuant to this authority, the Subcommittee on Government Management, Information, and Technology (the "subcommittee") convened an oversight hearing on April 16, 1996 to examine whether computers throughout the Federal Government, the United

[1] Rules of the House of Representatives, 105th Congress, X, 1(g)(6).
[2] Rules of the House of Representatives, 105th Congress, X, 4(c)(2).

States, and the world would be able to handle the transition from the year 1999 to the year 2000. The subcommittee has continued this investigation throughout the 105th Congress.

The potential problem, known as the Year 2000 problem or Y2K, is simple: In the 1960s, when large computers had very little storage space, programmers saved computer memory by using two digits instead of four digits to represent a calendar year—for example, 1966 became "66." This method functions well until computers confront the year 2000, which will appear as "00." Unless corrected, computers will not know if "00" means the year 1900 or the year 2000. If computers and microchips around the globe are unable to recognize this date, they could generate corrupted data, suffer malfunction, or even shut down entirely.

For Federal computers, this could affect everything from Social Security and Veterans' benefit payments to missile maintenance systems, from the Federal Aviation Administration to the Internal Revenue Service. There are at least 7,000 mission critical computer systems (those systems essential to the performance of important governmental functions) in the executive branch of the Federal Government.

It is now clear that a large number of Federal computer systems simply will not be prepared for January 1, 2000. At the same time, the utilities industry, the financial services industry, the telecommunications industry, vital modes of transportation, and other indispensable industrial sectors are all at risk.

The problem lies not just with software in mainframe computer systems, but with embedded microchips as well. These chips serve as the brains of devices from elevators to security systems to automated manufacturing equipment. There may be as many as 25 billion microchips in use around the world. Seven billion microchips were shipped across the globe in 1997. It is estimated that between 2 and 5 percent of all microchips have the date problem.[3] This sounds like a tiny fraction, but it is a tiny fraction of a huge number. Furthermore, embedded chips by definition are hard to find and hard to test for Year 2000 compliance.

The Year 2000 problem could result in a stunning array of technological failures. Air traffic could be delayed or even grounded; telephone service could be interrupted; breakdowns in the production and distribution of electricity could bring widespread power failures; automatic teller machines might malfunction; traffic lights could stop working; timeclocks at factories might malfunction. Government payments, including checks from the Internal Revenue Service, the Treasury, and the Veterans Benefits Administration, could be interrupted; military technology, including the Global Positioning Satellite System, could malfunction. Closer to home, devices with a timing function, including microwave ovens, personal computers, video cassette recorders, and climate control systems could all falter or even shut down entirely.

Some early failures have already occurred. According to one survey, more than 40 percent of companies in the United States already have encountered Year 2000-related system failures. In 1995,

[3] See "Year 2000 Risks: What are the Consequences of Information Technology Failure?," Mar. 20, 1997 (testimony of Ann Coffou, Giga Group).

for example, computers at the Unum Life Insurance Co. automatically deleted 700 records from a database that tracks the licensing status of brokers when a computer program interpreted some of the "00" expiration dates as 1900. More dramatically, when Phillips Petroleum ran a Year 2000 test on an oil rig in the North Sea, a safety system that detects emissions of deadly hydrogen sulfide gas stopped working. When the Chrysler Corp. turned clocks forward at one of its assembly plants in 1997 to simulate the date change, the security system failed, preventing people from leaving the building. In a similar exercise by NORAD personnel in 1993, the result was total system blackout.[4]

Failures such as these may be the tip of the iceberg. Solving the problem, however, is an expensive process. In 1996, the Gartner Group estimated that the worldwide cost of Year 2000 repairs would reach $600 billion, with half of that going to repairs in the United States, and $30 billion to the Federal Government. The Office of Management and Budget has insisted the Federal cost would be much lower, but has repeatedly raised its own estimate. Beginning with $2.3 billion in 1997, OMB's estimate swelled to $5.4 billion as of August 15, 1998 (although the 24 largest departments and agencies were asking for $6.3 billion at that time). Subcommittee Chairman Stephen Horn has long argued that the executive branch should be prepared for costs to exceed $10 billion. In the private sector, General Motors expects to spend $565 million, Citicorp estimates its costs at $600 million, and MCI at $400 million.

The Federal Government must be sure that the most important systems at the key Federal agencies are revamped before January 1, 2000. Similar action needs to be taken by nations around the globe. By failing to address the Year 2000 problem, the United States could suffer severe disruptions in the delivery of essential governmental and private industry services. It has been suggested that this could even precipitate an economic recession.[5]

B. OVERVIEW OF INVESTIGATION

The subcommittee has worked to build an understanding and awareness of the Year 2000 problem and the remedial actions that must be taken by organizations everywhere. The subcommittee has provided oversight of government and industry efforts by conducting a series of hearings to explore the problem.[6] The subcommittee has also issued report cards grading the progress (or lack of progress) Federal agencies are making toward Year 2000 compliance.[7]

One important objective has been to inspire action by the President. As Chief Executive, the President must play an active leadership role in moving the Nation forward on the Year 2000 problem.

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[4] Fred Kaplan, "Military on Year 2000 Alert," Boston Globe, June 21, 1998.

[5] See, for example, "Year 2000 Recession? 'Prepare for the worst. Hope for the best.'" By Dr. Edward Yardeni, chief economist, Deutsche Morgan Grenfell, New York.

[6] The subcommittee and committee have been joined by many other committees in the House of Representatives. Combined, committees of the House (and their subcommittees) have conducted more than 40 hearings on Y2K. These include the Committees on Agriculture, Appropriations, Banking, Education and the Workforce, Resources, Science, Small Business, Transportation and Infrastructure, Veterans' Affairs, and Ways and Means.

[7] The minority staff did not participate in preparing these report cards.

In July 1997, the chairman and ranking member of the subcommittee, together with the chairwoman and ranking member of the Technology Subcommittee of the House Committee on Science, formally asked the President to use the "bully pulpit," as Theodore Roosevelt called it, to explain the problem to the American people. They also recommended that he appoint a senior administration official as coordinator for the national Year 2000 effort.[8]

The President has still not implemented the first recommendation: to explain the Year 2000 problem to the American people. In July 1998, he addressed some of the members of the National Academy of Sciences. That is preaching to the choir. He has been urged to speak in a "fireside chat" environment, similar to the approach of President Franklin D. Roosevelt in the 1930s. The appointment of a full-time coordinator to pull together the pieces of the administration's effort took place in February 1998, when he designated John Koskinen, a retired Office of Management and Budget official, as Assistant to the President. Mr. Koskinen did not take office until March 1998.[9]

Despite this belated step in the right direction, many Federal agencies are simply not moving quickly enough to be Year 2000 compliant by January 1, 2000. As noted above, the subcommittee has prodded executive branch agencies to action by grading them on their Year 2000 efforts. The grades are based on an analysis of the quarterly reports from the agencies themselves as well as follow-up investigative work by the staff of the subcommittee and the General Accounting Office, the fiscal and program auditors for the legislative branch. Each report card has revealed a disturbing lack of progress within the executive branch. Overall, the administration has received a grade of "F" and "D" in the last two quarters.

The subcommittee has concentrated not just on Federal computer systems and the effect their failure would have on the delivery of services, but also on the leadership role that the Government plays throughout society. For example, the Securities and Exchange Commission and the Federal Communications Commission have important oversight and leadership functions in segments of the private sector. At a higher level, the President can voice priorities for society as a whole. Oversight of this leadership element of the Federal Year 2000 effort is central to the subcommittee's investigation and to this report.

C. COMMITTEE FINDINGS

Based on the investigation and oversight hearings conducted by the Subcommittee on Government Management, Information, and Technology, the committee finds as follows:

1. The Federal Government is not on track to complete necessary Year 2000 preparations before January 1, 2000

The most recent data on Federal executive branch preparations were released for the quarter ending August 15, 1998. There are approximately 7,300 mission critical systems in the executive branch of the Federal Government. As of August 15th, only 50 per-

[8] See Appendix A.

[9] This was part of Executive Order 13073, "Year 2000 Conversion," which was issued on Feb. 4, 1998. See Appendix C.

cent of these systems were Year 2000 compliant. At the current rate of progress, the percentage compliant would climb only to 66 percent by March 1999, the President's deadline to fix noncompliant systems and still have enough time to test and implement the systems.

The committee is deeply concerned that approximately one-third of all Federal mission critical systems will not be compliant by March 1999, only 9 months before January 1, 2000, and only 6 months from the beginning of the Federal Government's new fiscal year on October 1, 1999. This is troubling in part because once these systems are "compliant," they need to be put back into operation, their compliance must be verified by an independent party, and they must be put through a rigorous end-to-end testing process that ensures coordination among multiple systems. Testing and verification can take at least 9 months, and often requires even more time than that.

Several additional factors raise concerns about Federal Year 2000 preparations. One is that the focus has been almost exclusively on mission critical systems. The problem is that mission critical systems are only a small percentage of the total number of Federal computer systems. Many of these secondary systems are important even if not mission critical. It is unwise to ignore their Year 2000 compliance. A second concern is that many agencies are planning to replace rather than repair some of their noncompliant computer systems. This is a high-risk strategy. Experience shows that the Government does not put new computer systems in place on schedule.[10] This time, the executive branch faces a deadline that cannot be extended.

A crucial component of Year 2000 remediation is the exchange of data between organizations. Fixing internal systems simply is not enough. Federal agencies have data exchange partners throughout society—including other Federal agencies, State and local governments, and private and non-profit organizations. These data exchanges must be tested through cooperative effort. Current indications are that the Federal agencies lag badly in this area.

The August 15, 1998 quarterly reports were the primary basis for the subcommittee's September 9, 1998 report card. Overall, the executive branch of the Federal Government earned a 'D.' This was only a modest improvement from the 'F' earned on the June report card. Several specific agency grades were especially troubling. The Department of Justice and the Department of Education each went from a 'D' in June to an 'F' in September. The Department of Defense earned a 'D' and simply is not on track to complete Year 2000 compliance efforts before January 1, 2000. The committee is encouraged, however, by the strong leadership demonstrated recently by Defense Secretary Cohen and Deputy Secretary Hamre. They are making the Year 2000 problem a top priority, and the importance of this kind of executive leadership is the key to success. But,

[10] This is equally true of large computer projects at nongovernmental organizations. One witness before the subcommittee cited statistics showing that about 80 percent of computer projects costing over $5 million fail. See "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript, p. 85 (testimony of Tom McCabe, Sr., chairman, McCabe & Associates).

the leadership must develop an organization that can do the job. Defense has lost several top people from its Year 2000 project.

The Department of Transportation merited a 'D.' The Federal Aviation Administration is part of this grade. The Nation's air traffic could face serious disruptions for an extended period after December 31, 1999 if the FAA's Year 2000 repairs are not done on time. The Department of Health and Human Services earned an 'F' for the second quarter in a row, as did the Department of Energy.

Many people in the Federal Government are working hard on the Year 2000 problem. Progress is being made—but it is not being made fast enough. The Government must be the leader, setting an example for the Nation.

2. Some State and local governments are lagging in Year 2000 repairs and in many cases lack reliable information on their Year 2000 status

While the data on Federal systems reflects a somewhat gloomy picture, at least overall data exist. The same cannot be said for the status of State and local entities. Subcommittee hearings found that there is limited aggregated data for Year 2000 activity at the State and local levels.

From the data that are available, States and cities are at varying degrees of readiness. Many smaller municipalities are stuck in the awareness stage—still trying to understand the problem. Large cities have made more progress in converting their systems but have not fully assessed embedded systems, identified exchange partners, or developed contingency plans. Also, some States and larger cities are concentrating on outreach efforts with institutions (universities, private entities), while many smaller governments are left to struggle on their own.

A July 1998 survey found that about one-third of the States had reported that 50 percent or more of their mission critical computer systems had been assessed, remediated, and tested. This survey was conducted by the National Association of State Information Resource Executives.[11] A survey by Public Technology Inc. and the International City/County Management Association in late 1997 found that approximately 3,200 of 3,673 cities, ranging in population from 2,500 to more than 1 million, were lagging in their Year 2000 efforts.[12]

3. The Year 2000 status of basic infrastructure services, including electricity, telecommunications, and water, is largely unknown

No one knows the overall extent of our Nationwide vulnerability to Year 2000 risks, or the extent of our readiness. No assessment across private and public sectors has been undertaken. The President, through his Council on the Year 2000 Conversion, should conduct a broad assessment of the Nation's Year 2000 readiness, identifying and assessing the risks to the Nation's key economic sectors.

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[11] See "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Aug. 17, 1998, original transcript, p. 21 (testimony of Joel Willemssen, Director, Information Resources Management, Accounting and Information Management Division, U.S. General Accounting Office).

[12] See "The Status of the District of Columbia's Year 2000 Compliance Effort," Oct. 2, 1998, prepared testimony of Jack Brock, U.S. General Accounting Office.

This should include risks posed by international linkages and by the failure of critical infrastructure components.

The President's Council on the Year 2000 Conversion, headed by Assistant to the President John Koskinen, has established over 20 working groups to focus on distinct sectors of society. The working groups are organized according to important sectors: buildings/real estate, consumer products, defense, education, energy, environment, finance/banking, food supply, health care, other industry, information technology, insurance, international, public benefits, science and technology, small business, social service, state and local services, taxes, telecommunications, transportation, and worker protection (human resources).

The President's Council has released very little information about these groups and what they are doing. In any case, they are currently not playing a leadership role in setting out a national strategy for dealing with the most urgent and universal aspect of the problem: power, telecommunications, water, and other essential infrastructure.

Inadequate attention to the Year 2000 problem by electrical utilities is seen as the cause for "potentially major catastrophes," writes a representative of large electrical users.[13] Major industrial power users are "concerned" and "dismayed" that "electrical utilities lag behind other industries" in preparing their computers for the next millennium. The lack of action in the past is most likely to lead to very high costs when the Y2K problem is dealt with on an emergency basis. Public utility commissions in the States must exercise oversight over utilities in their States to ensure that action is taken. The public, State and local governments, Federal department, and agencies, Congress, and private organizations must be kept informed as to how critical sectors are progressing. If progress is not made on a steady basis, this might lead to a last-minute panic in hiring those workers who can make the repairs on time. That unplanned effort will lead to higher human resources costs.

4. Embedded microchips are difficult to find, difficult to test, and can lead to unforeseen failures

Although initially the Year 2000 problem was understood mainly in terms of software-operating systems, databases, and other programs, the vulnerability of embedded chips has been widely publicized. There are between 25 and 40 billion such chips in use around the world. Many of them are hard to access, encased in products or equipment. Some are simply invisible: the owners and operators of the equipment do not know that it depends on embedded chips, or at least do not know which functions depend on the chips.

Organizations addressing the Year 2000 problem generally understand the embedded chip aspect and are working diligently on it. Based on subcommittee hearings and investigation, however, it appears that the sheer number and relative inaccessibility of embedded chips will overwhelm these efforts. The result will be failure—often unforeseen. One witness before the subcommittee, an

[13] John A. Anderson, Electricity Consumers Resource Council, Elcon Report, No. 3, 1998, p. 3.

expert in embedded chips, stated: "Fewer than 10 percent of the enterprises in the world have begun serious embedded systems testing . . . [E]very microprocessor-based embedded system and equipment item must be individually tested to be sure of its Year 2000 status. There is insufficient time and trained resources to assess every microprocessor-based embedded system and equipment item in the United States, much less the world." [14]

The Office of Management and Budget conceded the seriousness of the embedded chip problem when Deputy Director for Management Edward DeSeve observed that "this is the great unknown about the Year 2000 problem . . . At this point, it appears that any large piece of machinery could have an embedded chip problem." [15]

5. Strong leadership from senior management is necessary to address the Year 2000 problem

The key to success is support from senior level management. Awareness of the Year 2000 problem among the technology experts at an organization is meaningless if those experts do not have the backing and direction of senior management. Year 2000 repairs deliver no new benefit to an organization. Management tends to see the repairs as a burden to be delayed for as long as possible. This is in part because of the persistent belief that someone will invent a silver bullet to fix the problem. Unfortunately, there is no silver bullet. Instead, management must bite the bullet—devoting considerable resources to the repair effort. Inevitably, this means taking support away from other projects. Senior management must make hard choices, but the process begins with recognizing there is a problem and, if it is to be solved, organized action must occur in a timely way.

For too long, Federal management has been in denial about the Year 2000 problem. In the Department of Transportation, for example, the Federal Highway Administration first learned of the Year 2000 problem in the late 1980s. That agency began working on repairs. But the fact that other Department of Transportation computers were vulnerable to Year 2000 failure—including such crucial systems as air traffic control at the Federal Aviation Administration—was neither accepted nor acted upon anywhere else in the Department. This denial at the management level continued until 1997, when the Department's Chief Information Officer admitted he had never heard of the Year 2000 problem until late in 1996.[16]

The General Accounting Office emphasized the importance of strong management in the context of the Federal Year 2000 effort at a subcommittee hearing in 1997: "Whether agencies succeed or fail will be largely influenced by the quality of executive leadership and program management. Executive leadership sets the tone; program management makes it happen. It will be imperative for top

[14] "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Sept. 3, 1998, pp. 68–69 (testimony of David Hall, Senior Engineer, CARA Corp.).

[15] DeSeve, "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript p. 10.

[16] "I didn't even know there was such a thing as a year 2000 problem until August (1996) when I became the Acting CIO." Michael Huerta, Associate Deputy Secretary, Acting Chief Information Officer, Department of Transportation, "Will Federal Computers Be Ready for the Year 2000?" Feb. 24, 1997, p. 100.

agency management, including the agency head . . . to not only be fully aware of the importance of this undertaking, but to communicate this awareness and urgency to all agency personnel in such a way that everyone understands why year 2000 compliance is so important." [17]

6. Organizations are dependent on the Year 2000 preparedness of their data exchange partners

The constant exchange of data between all types of organizations makes each organization dependent on the Year 2000 preparedness of its data exchange partners. Federal agencies and State governments use thousands of electronic data exchanges to communicate with each other and other entities. Much work remains to ensure that Federal and State data exchanges will be Year 2000 compliant. As of August 1998, over half of the Federal agencies reported that they have not finished assessing their data exchanges. Furthermore, only two agencies had completely identified and reached agreements with all of their data exchange partners. They were the National Science Foundation and the Nuclear Regulatory Commission.

One witness before the subcommittee illustrated the extraordinary level of connectivity between organizations and therefore the shared nature of the Year 2000 problem by describing a routine international transaction between a buyer and seller: "[Y]ou have two port authorities, maybe a railroad, you have a couple of trucking companies, two banks, an insurance company, warehousing facilities . . ." And then there is the transactional side: "[T]he flow of paper, the purchase orders, the releases, the shipping documents, the money, the customs inspections. All of this is done electronically."[18]

One witness before the subcommittee articulated the importance of data exchanges this way: "Fixing internal systems is but one leg of a multi-legged stool. It is one thing to be able to say that all our systems are millennium ready, it is a whole other thing to be able to say that after their conversion, they still have the ability to talk to one another." [19] This witness, who spoke from the perspective of the health care industry, spoke in disturbing terms about the Year 2000 readiness of data exchanges in that field. "[T]he billing and collection function for services rendered in health care is one of the most complex processes in our industry . . . . I believe there is a very high probability of failures at this billing and reimbursement interface." [20]

7. Data exchanges, testing, and contingency planning have received far too little attention

Based on hearings and analysis of agency quarterly reports, the committee found that many organizations are focusing solely on fix-

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[17] Joel Willemssen, Director, Information Resources Management, Accounting and Information Management Division, U.S. General Accounting Office, "Will Federal Computers Be Ready For The Year 2000?" Feb. 24, 1997, pp. 12–13.

[18] Testimony of Dennis Grabow, president, Millennium Corp., June 22, 1998, original transcript pp. 86–87.

[19] Dr. C. Martin Harris, chief information officer, the Cleveland Clinic Foundation, testifying at "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Sept. 1, 1998, original transcript, p. 87.

[20] Ibid. p. 84.

ing their own computer systems, paying little or no attention to their data exchanges with other organizations, the need to thoroughly test their systems once repairs are completed, and the need for contingency planning even if the repairs are on schedule.

Organizations must ensure that their systems can reliably exchange data with other systems and that they are protected from errors that can be introduced by external systems. To achieve this goal, agencies must perform end-to-end testing for their critical core business processes. The purpose of end-to-end testing is to verify that a defined set of interrelated systems—which collectively support an essential function—work as intended. In the Federal Government, agencies that administer benefits payment programs exchange data with the Department of the Treasury which, in turn, interfaces with various financial institutions to ensure that benefits checks are issued.

In the process of preparing for the year 2000, many systems in the end-to-end chain will have been modified or replaced. This makes testing more complicated but also more important. It makes it more difficult to isolate, identify, and correct problems. Organizations must therefore begin working with their data exchange partners as soon as possible to conduct end-to-end tests.

Business continuity and contingency plans should be formulated to respond to both predictable and unpredictable failures. Predictable failures include systems where renovations are already far behind schedule. Unpredictable or unforeseen failures include systems that fail despite having been on schedule for compliance before January 1, 2000 or even having been certified as Year 2000 compliant. Organizations that develop contingency plans only for systems currently behind schedule are not addressing the need to ensure the continuity of even a minimal level of core business operability in the event of unforeseen failures.

Moreover, contingency plans cannot focus solely on internal systems. Most organizations depend on data provided by business partners, as well as services provided by the public infrastructure (power, telecommunications, transportation, water, et cetera). One weak link anywhere in the chain of critical dependencies can cause major disruptions to business operations. Given these interdependencies, it is imperative that contingency plans be developed for all critical core business processes and supporting systems, regardless of whether these systems are owned by the organization. Further, those program managers responsible for core business processes should take a leading role in developing business continuity and contingency plans because they best understand their business processes and how problems can be resolved.

8. Fear of legal liability has made some organizations reluctant to share the Year 2000 status of their products and internal systems with other businesses and data exchange partners

Although the Year 2000 computer problem is complex and technological, the key to solving it is committed management. Organizations should share information in order to identify obstacles and master solutions as quickly as possible. Sharing information among individuals, workers, and firms is critical to resolving the Year 2000 problem. Sharing information without the fear of lawsuits will

expedite Year 2000 problem resolution by the private and government sectors. A potential barrier to information sharing, however, is the fear that any disclosure of information related to the Year 2000 problem could increase an organization's risk of being sued.[21]

Companies are afraid, for example, that if they disclose the Year 2000 compliance of their own products and there turns out to be errors in this information, they could lose in court. The same applies to disclosure of a company's own administrative Year 2000 progress, as well as the test results of other companies' products. The result is that companies are not holding candid—and crucial—conversations with their suppliers, vendors, and others. Companies must be able to engage in these communications without fear that their statements could be used as an admission of liability in court unless they were made recklessly or with the intent to deceive.

Several Year 2000 lawsuits have already been filed, although none pertains specifically to information disclosure. In one recent example, some owners of the financial software called Quicken, which is made by Intuit Inc. of Cupertino, CA, filed a class action lawsuit against Intuit. The complaint was that Intuit was unfairly forcing customers either to upgrade to Quicken 98 at a cost of $20 to $40 or to experience the consequences of Year 2000 defects in their software.[22] Potential Year 2000 liability claims include fraud, breach of warranty, liability, personal injury, and shareholder actions against company directors for failing to prepare for the Year 2000.

9. Resource problems center around hiring and retaining skilled workers and attaining the needed funding to perform the Year 2000 fixes

The No. 1 challenge faced by those with Year 2000 problems is finding the right people to perform the fix. People with skills to fix Year 2000 problems are found working within the computer and data processing industry. Their skills are in great demand throughout America.

Demand has increased rapidly for high tech workers and this is expected to continue well into the next century. According to the Bureau of Labor Statistics [BLS], there are over 1.2 million computer and data processing services workers today with 2.5 million expected by 2006. Rarely, in history, have we seen such sustained rapid job growth within an industrial sector.

Thus employment in the computer and data processing services industry will increase by over 100 percent between 1996 and 2006. BLS finds that "Computer scientists, computer engineers, and systems analysts are expected to be the three fastest growing occupations through the year 2006. Employment of computing professionals is expected to increase much faster than average as technologies, making for plentiful job openings."

A growing list of high tech service providers are not taking on any more Y2K work as they are already booked up through January 2000. The bottom line is that there will be a Y2K personnel

[21] Some legal experts have contended that disclosure—even of bad news—will not increase an organization's liability.

[22] See "Software Makers Win a Round in Year 2000 Court Fight," the New York Times, Sept. 7, 1998, p. C2.

shortage as we enter the home stretch toward the new millennium. Over 100,000 new high tech workers must be trained each year for new jobs and this does not count replacements—projected to be as many as 60,000—for workers moving up to management position or out.

Starting salaries for computer professionals are among the highest in America. Hardware design and development college graduates accepted offers that averaged $41,237 in 1997. New Ph.D. computer engineers earned $63,367. And men and women with special computer skills and experience may earn $200,000 or more in the private sector. Thus the demand for Year 2000 workers has raised the level of their salaries and benefits. No downturn is projected through at least 2006.

Federal officials have expressed serious concerns about their ability to hire and retain skilled workers to perform the Year 2000 fixes. Many stated that it is difficult to compete with the private sector salaries and benefits.

State and local government witnesses noted that hiring skilled people is more difficult because of private sector competition. Officials from local communities expressed concern because many of the senior level officials such as city council members are still unaware of the magnitude of the problem. As a result, smaller cities have not provided the staff or funding needed to adequately undertake Year 2000 preparations.

A representative from the city of Chicago reported: "We particularly are having trouble finding skilled workers." She went on to note: "We have chosen to privatize almost the whole year 2000 project, for a couple of reasons. One is our attrition is up near 20 percent and we are constantly seeing people turn out of our technology department."[23]

D. COMMITTEE RECOMMENDATIONS

1. The President and the executive branch of the U.S. Government must approach the Year 2000 problem with greater urgency

Executive leadership is the key to rectifying the Year 2000 problem. Senior executive management—in Federal agencies, other levels of government, and for-profit and non-profit organizations throughout society—must make Year 2000 efforts a priority. This involves accepting the responsibility, freeing up the necessary resources, and insisting on a timeline for finishing the job before January 1, 2000. This is especially true for the Federal Government. The Federal Government is uniquely positioned to publicize the Year 2000 crisis as a national priority and to take a leadership role. The President is the elected leader of the Nation. All efforts to combat the Year 2000 problem take their cue from the top.

The current evidence points to considerable Year 2000 failure unless the rate of progress throughout society improves considerably. In too many sectors, there is simply no reliable information about Year 2000 vulnerability. We cannot head into the new millennium unprepared. It is time for the President to declare that the Year

[23] Ms. Beth Boatman, chief information officer, City of Chicago, testifying at "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Sept. 3, 1998, original transcript, p. 57.

2000 problem is a National Priority. If sufficient progress is not made by an intermediate deadline, he may even need to escalate the Year 2000 problem to a National Emergency.

The point of calling for such urgency is not to trigger panic, but in fact to avoid panic. If this problem does not receive the attention it demands during the next 6 to 9 months, and if we allow the date change to approach without knowing our vulnerability, panic will be the inevitable result. The only way to avoid this is to act now. The President must sound the alarm and address to the Nation now in order to avoid panic later.

2. Public and private organizations as well as Federal, State, and local governments must all work in partnership to prepare for the Year 2000 date change

America needs a national Year 2000 Conversion strategy. As the year 2000 approaches, anxiety will increase throughout society. One major aggravation to this anxiety, which could cause more problems than the technology failure itself, is lack of information. It is imperative that citizens have as much information as possible. This includes information that can help individuals, families, and organizations prepare for the year 2000. This also includes information on how others are preparing: the Federal Government, State and local governments, telephone companies, utility companies, schools, banks, and so on. It also includes information on all kinds of products, from complex medical equipment to microwave ovens. Making this type of information available will have the double benefit of preparing citizens and pressuring organizations to complete their Year 2000 fixes on time.

Along with Congress, State, and local representatives, the President must work in partnership with private companies and associations to define a Year 2000 action plan and make this information available. In addition to specific action items, a minimal strategy should include goals, objectives, benchmarks, and performance measures. Most Federal departments and agencies have a Year 2000 strategy and are well on their way to satisfying requirements. The private sector has a much broader range of effort. Some have just begun their effort. Others are nearing completion.

At the current time, the most logical mechanism for establishing a Year 2000 strategy to coordinate efforts, share information, and alert citizens to the status of Year 2000 preparations is the President's Council on the Year 2000 Conversion. It is headed by Assistant to the President John Koskinen. As noted above, this Council has already established a number of working groups to focus on particular sectors of society, but these efforts seem to be taking place behind closed doors. Openness is crucial: dissemination of information should be a primary function of these working groups. For example, each of these groups should establish a database of compliant and noncompliant products as well as other information relevant to the sector.

A coordinated, public/private effort, under the leadership of the President, could effectively bring together the key economic sectors to coordinate the Nation's Year 2000 efforts and ensure that all sectors, as well as interdependencies between sectors, are being

adequately addressed, and that the American people are fully informed as the year 2000 approaches.

3. Congress and the President should establish carefully limited Federal liability protection for organizations that share information in order to facilitate Year 2000 repairs

Companies that go out of their way to inform other companies and the public of their Year 2000 status should not be exposed to civil liability for unintentionally inaccurate statements. Limited protection from such liability would facilitate information sharing as the clock ticks toward January 1, 2000. S. 2392, the "Year 2000 Information Disclosure Act," establishes a uniform standard of legal liability to protect those who, in good faith, share information on the Year 2000 problem and solutions to it. This bill passed the Senate on September 28, 1998. The House of Representatives passed the same bill by unanimous consent on October 1, 1998.[24]

The key provision of the bill shields companies that make inaccurate statements on Year 2000 issues from civil liability unless the statements are knowingly false or negligent. The bill also ensures that there is no threat of product defamation from inaccurate Year 2000 statements unless they are knowingly false or negligent. Even well-tested systems can fail, especially in unusual situations.

The bill would not relieve companies of liability for building bad products. It protects sharing of information, but nothing more. The committee believes it would be counterproductive to relieve companies of liability for building bad products, doing sloppy work, or being careless with the truth. But with this legislation, Congress recognized that mistakes can be made, and that it is now more important for organizations to share Year 2000 information than to argue over liability. The real work must begin in earnest as time is short. By taking the liability card off the table, organizations can share crucial information and focus on getting the Year 2000 job done.

4. Year 2000 problem managers should develop goals that are linked to readiness measures

Effective oversight by Congress and the executive branch needs to measure regular progress toward Year 2000 compliance for both public and private sectors. Year 2000 management should develop sector-by-sector goals. These goals should be linked to Year 2000 readiness measures. The measures will provide a basis for determining what is being accomplished.

The Year 2000 problem must not be allowed to spark a national crisis. Good measures of Year 2000 readiness will be both a technological and psychological antidote to panic. For example, the subcommittee has measured how well the Federal Government is meeting the Year 2000 challenge. It has developed a report card for the critical computer systems in the executive branch. Grades are

[24] Although the bill had not become law by the time this report went to press, the President was supportive of the measure and was expected to sign it. Assistant to the President John Koskinen expressed support for the bill, which was based on a White House proposal, when it passed Congress: "No one's ever confronted this kind of issue before," said John Koskinen, chairman of President Clinton's Year 2000 Conversion Council. "People have to be able to compare notes." See "President Sent Bill on Year 2000," Associated Press, Oct. 1, 1998.

determined by the number of Year 2000 compliant systems which are remediated by each agency achieves.

This model should be replicated. Markers or benchmarks must be developed for the broad spectrum of Year 2000 problems across the country. The Year 2000 computer problem will not be resolved unless we approach it systematically. A results-oriented approach to Year 2000 will go a long way to moving the United States constructively into the 21st century.

One of the most difficult jobs in any human organization is to develop these markers, the behavioral standards, benchmarks, the points along the way toward achieving goals. These markers measure performance and are meant to hold people accountable for their performance. A few State and national governments have shown leadership here.[25]

5. Citizens should demand information on Year 2000 readiness from their State and local governments, their utility companies, and other organizations upon which they are dependent

As noted above, there are at least two significant barriers to effective Year 2000 remediation: (1) Management denial—the reluctance of senior management to recognize the Year 2000 problem and make the hard choices necessary to solve it; and (2) fear of legal liability—which can have the effect of stifling the kind of disclosure and exchange of information necessary to solve the problem. These barriers to serious Year 2000 efforts must be broken down. Perhaps the most effective means of doing so is public pressure. Profitmaking organizations respond to pressure from consumers; political institutions respond to pressure from constituents; non-profit organizations respond to their donors and public opinion as well.

Furthermore, the Year 2000 problem raises the specter of widespread panic. There has been talk of customers withdrawing their money out of banks, stockpiling weapons, and taking other steps that could be more dangerous than the technological failure itself. One of the best antidotes to this panic is information. People need to speak directly with their banks, utility companies, and other organizations whose failure would have drastic consequences. They need to assure themselves that the fixes will be made. They need to know—based on direct contact—that there is no reason to panic. They need to know what reasonable steps should be taken to prepare as January 1, 2000 approaches. Some general advice in this area can be found at the end of this report.

The ProFutures Financial Group stated that investors have not been given adequate disclosure of Year 2000 issues by public companies. In addition, the ProFutures Financial Group stated that the Federal Reserve must start releasing the names of banks which are behind in their compliance programs. A consultant with Roma International stated that many vendors, suppliers, customers are either refusing to respond to Year 2000 inquiries or are responding

[25] The States of Oregon and Florida have developed broad policy goals and benchmarks. New Zealand and Australia have also done this. New Zealand, for example, uses results-oriented government for its Central Bank (the equivalent of our Federal Reserve). If the head of the Central Bank does not hold inflation to 2 percent, this person's salary is cut substantially. The message is clear: "produce or live with the consequences."

with vague generalities on the advice of their legal counsels. This consultant was uncertain whether a "safe harbor" bill would improve the situation.

II. Report on the Committee's Oversight Review

A. BACKGROUND

The Year 2000 problem first became apparent in large—and often old—mainframe computer systems. The challenge of preparing these systems for the new century was measured by how many lines of computer code would need to be reviewed and renovated. Generally, organizations scheduled their Year 2000 project around the ultimate goal of having these systems fixed, tested, and implemented by the end of 1999. Slowly, organizations have begun to realize that there are several other aspects of preparing for the date change, including embedded systems, data exchanges, and contingency planning.

Embedded systems—microprocessors embedded in devices ranging from fax machines to elevators to assembly line equipment—are easily overlooked. In part, this is because Year 2000 projects naturally fall to an organization's computer or information technology group, while embedded systems are generally under the care of those in maintenance. Another reason is that embedded systems are hard to locate and hard to test.

Embedded chips are a special case of the Year 2000 problem because of the difficulties of finding them, assessing their compliance, and renovating them. Embedded chips feed data to process control systems, which in turn, feed data to software applications. The embedded chips themselves may fail. The process control logic boards may fail. And, the dependent software may fail. Worse, an embedded chip failure may cause a process control misunderstanding, which in turn may purposefully cause the software application to shut the whole system down.

Although most information technology executives and managers have understood their interdependency on the Year 2000 status of organizations with which they share data, most have also been slow about pursuing this aspect of the problem. One popular solution to the date problem is called "windowing." This is a shortcut that allows organizations to avoid the time consuming and expensive process of changing all two-digit years to four-digit years. Windowing enables the computer to calculate the date by assuming that certain two-digit dates, such as "50" to "99," are from the 1900's, while others, such as "00" to "49," are from the 2000's. The computer would therefore interpret "98" as 1998 and "01" as 2001.

Contingency planning is essential even if an organization has made all of its internal systems and equipment Year 2000 compliant. The date change will inevitably involve unexpected failures. Because there is no way to anticipate all of the consequences, contingency planning is crucial.

Increasingly, organizations are taking into account these different aspects of the Year 2000 problem. This is a major step forward, but time is running short. This report is an attempt to assess the current situation and make effective recommendations for the next year. The committee believes that neither assessment nor the

recommendations can be made without taking into account each aspect of the Year 2000 problem.

B. PROCEEDINGS OF THE SUBCOMMITTEE

1. Proceedings during the 104th Congress (1995–1996)

On April 29, 1996, Chairman Stephen Horn and then Ranking Minority Member Carolyn Maloney sent a joint congressional oversight letter to the heads of each executive department and 10 additional agencies.[26] The letter asked 13 detailed questions intended to ascertain the status of each agency's preparation for the year 2000.

The overall response the subcommittee received was discouraging. Only 9 of the 24 departments and agencies reported that they had a plan for addressing the problem. Five of them had not even designated an official within the organization to be responsible. Seventeen of the departments and agencies lacked any cost estimates. Even those with partial cost estimates could only provide projections for a limited part of the agency. On the positive side, the Social Security Administration had begun its Year 2000 initiatives in 1989 and the Small Business Administration also had more advanced Year 2000 efforts.

Chairman Horn and other members of the subcommittee released their conclusions based on the agency responses at a July 30, 1996 news conference.[27] To underscore their conclusions, each of the 24 departments and agencies received a letter grade based on the subcommittee's assessment of its performance. Four were given "As." Four were given "Fs." Ten were given "Ds." None of the "Ds" had any plan in place for addressing the problem, or available cost estimates. The decision to give each agency a grade was intended to emphasize the responsibility that each individual department or agency must take the problem seriously and quickly become effective in addressing it.

Other major findings resulting from the April 29th oversight letter presented at the news conference included:

1. Major departments were in the initial planning stages of this effort.
2. Even those agencies considered leaders in this effort, such as the Social Security Administration, were not close to completing the inventory and solution stages of the conversion process.
3. Only six agencies had any cost estimates on the monetary resources needed to address the problem.
4. The Department of Defense had not yet completed its inventory of the computer software code in need of conversion.
5. The National Aeronautics and Space Administration (NASA) is one of the most innovative, advanced and computer dependent agencies in the Federal Government, but it had not prepared a plan to solve the problem and did not anticipate having a plan completed until March 1997.

The subcommittee held two hearings on the Year 2000 problem during the 104th Congress. On September 27, 1996, the committee

[26] See Appendix A.
[27] See Appendix B.

issued a report on the problem entitled, "Year 2000 Computer Software Conversion: Summary of Oversight Findings and Recommendations." The findings and recommendations in that report laid the foundation for action by the subcommittee and committee in the 105th Congress.

2. February 24, 1997, Oversight hearing: "Will Federal Government Computers Be Ready for the Year 2000?"

The first Year 2000 hearing of the 105th Congress drew, in part, on agency responses to a January 14, 1997 oversight letter requesting each of the department and agency chief information officers to provide the subcommittee with updated plans and activities on the Year 2000 problem within their jurisdiction.

Chairman Horn opened the hearing with three questions for each major agency: (1) Have you defined the size and scope of the problem? (2) Do you know how and when the fixes will be made? (3) Have you identified mission critical systems and set clear priorities for action? There was grave concern that 12 of the 14 Federal departments planned to implement their solutions in the final 3 months of 1999, leaving no margin for error in such a limited time for testing.

Witnesses included the following agency chief information officers: Ms. Liza McClenaghan, Department of State; Assistant Secretary Emmett Paige, Department of Defense; Ms. Patricia Lattimore, Department of Labor; Mr. John J. Callahan, Department of Health and Human Services; Associate Deputy Secretary Michael Huerta, Department of Transportation; and Mr. Mark D. Catlett, Department of Veterans Affairs. In addition, Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office, testified about GAO's work on the topic.

Mr. Willemssen's testimony focused on GAO's newly-released report: "Year 2000 Computing Crisis: An Assessment Guide." The purpose of the report was to provide a useful framework for agency managers planning and implementing their Year 2000 programs. The Guide set out five phases of a Year 2000 project: awareness, assessment, renovation, validation, and implementation. The assessment phase includes decisions about which systems are mission critical. The renovation phase should involve consideration of interdependencies among systems as well as data exchanges. Mr. Willemssen stressed the importance of the validation—testing—phase, saying: "In many cases, this is going to take agencies at least a year to do, and we generally have set aside the entire calendar year 1999, to address most of this phase."[28]

The General Accounting Office also told the subcommittee of a recent Year 2000 failure. The Defense Logistics Agency in Columbus, OH, devised a 3-year contract beginning on January 1, 1997. The agency's computer system, mistakenly identifying the ending date as January 1, 1900, generated a 97-year delinquency notice.[29]

Ms. McClenaghan testified that the Department of State had accurately defined the Year 2000 problems it faced. She reported that

[28] "Will Federal Computers Be Ready for the Year 2000?" Feb. 24, 1997, p. 10.

[29] Ibid., testimony of Mr. Keith Alan Rhodes, Technical Director, Office of Chief Scientist, U.S. General Accounting Office, p. 25.

57 of the 85 mission-critical systems were not Year 2000 compliant. She estimated the total cost of the Year 2000 problem for the State Department at $135.2 million. The strategy she presented included integrating Year 2000 fixes into a larger plan for modernization of information technology infrastructure.

Assistant Secretary of Defense Emmett Paige testified that the DOD was "far down the road to completing" the assessment phase. He pointed to the Defense Integration Support Tools, or DIST, as a management tool to track essential information regarding DOD systems. He also noted that the DOD was reprogramming resources from all areas for use in solving the Year 2000 problem and asked that Congress reduce the drain on resources by lowering the number of special reporting requirements.

3. March 20, 1997, Oversight Hearing: "Year 2000 Risks: What Are the Consequences of Information Technology Failure?" (held jointly with the House Science Subcommittee on Technology)

The subcommittee's second hearing on the Year 2000 problem in 1997 extended the focus beyond standard computer systems to survey other affected technologies, including embedded microprocessors. Witnesses included: Bruce Hall, Research Director, the Gartner Group; Ann Coffou, Managing Director, Giga Group; Vito Peraino, attorney with Hancock, Rothert & Bunshoft; Harris Miller, President, Information Technology Association of America.

The subcommittee learned that many critical technology systems depend on automated devices that control their operations. These can include security systems for badge readers, surveillance and home security systems, medical devices, factory machinery, and telephone systems. Furthermore, telephone systems, video recorders, bar code readers, automatic teller machines, factory machinery, civilian and military avionics, process control and monitoring equipment, sprinkler systems, and air-conditioning systems could all be at risk. Automated devices such as these malfunction when they encounter situations that their software is not designed to recognize. Sometimes the malfunction means failing to perform properly. Sometimes it means shutting down altogether. Many products contain multiple embedded systems made by multiple manufacturers. Testing these products for year 2000 compliance is difficult and can be expensive.

Bruce Hall was asked to elaborate on the Gartner Group's cost estimate for Federal Year 2000 repairs. He stressed caution in trying to estimate cost, saying that any current estimate would ultimately prove inaccurate because it was necessarily based on inadequate information. He suggested that fixing Federal computers would be like renovating an old house. We are "all weighing in on what we anticipate to be the cost of remodeling this house. [But] we've yet to ascertain the square footage. We've yet to understand even how many rooms there are, or even how extensive the modeling job needs to be to achieve minimum requirements." [30]

Ann Coffou testified on the problems with embedded microchips. She described Year 2000 tests of fax machines and microwave

[30] "Year 2000 Risks: What are the Consequences of Information Technology Failure?" Mar. 20, 1997, p. 38.

ovens that resulted in total shutdown of the machines. She also told of a camera with an automatic dating feature, purchased recently, and for which neither the store nor the manufacturer could attest to its Year 2000 compliance. Ms. Coffou advised that the rule for embedded chips must be guilty until proven innocent. "I recommend for the general public to start putting the pressure on manufacturers. Call and find out. Ask questions."[31]

Vito Peraino covered the potential for Year 2000 liability claims. Referring to the Gartner Group's estimate that Year 2000 repairs would cost $300–$600 billion worldwide, Mr. Peraino observed that never in history has such an expensive problem failed to attract significant legal attention. "I know a litigation catastrophe when I see one. For better or for worse, the Year 2000 problem is a litigation catastrophe waiting to happen."[32]

Harris Miller testified about the Information Technology Association of America's [ITAA] Year 2000 certification program, called ITAA*2000. This was ITAA's response to Chairman Horn's 1996 request for a industry-based "Good Housekeeping Seal of Approval" on Year 2000 repairs. Mr. Miller testified that as of March 1997, 11 organizations had received certification under the program, while a further 18 were under technical evaluation and a total of 189 had requested the questionnaire necessary to become certified. "The focus of the program is on the processes and methods that organizations use to develop Year 2000 compliant software and services . . . [W]e have designed the program to apply to any company, organization, government agency, or any entity involved in a Y2K conversion . . . It provides an independent, third party review of their Y2K processes and methods."[33]

Following the hearing, the chairmen and ranking members of the two subcommittees sent an oversight letter to department and agency heads to determine whether the agencies were assessing their vulnerability to the embedded chip problem.[34] The letter was targeted especially to the various regulatory authorities that already have the power to alert people. The responses to that letter indicated that many agencies were only just beginning to assess the problem of embedded microchips with the Year 2000 problem.

4. July 10, 1997, Oversight Hearing: "Will Federal Government Computers Be Ready for the Year 2000?" (held jointly with the House Science Subcommittee on Technology)

The third hearing on the Year 2000 problem in 1997, was again held jointly with the House Science Subcommittee on Technology. Federal Year 2000 progress was evaluated on the basis of the quarterly progress report provided to Congress by the Office of Management and Budget on June 23, 1997. At this hearing, several subcommittee members called upon executive branch officials to attach far greater urgency to the Year 2000 effort.

Witnesses included Sally Katzen, Administrator, Office of Information and Regulatory Affairs, Office of Management and Budget; Joel Willemssen, Director, Civil Agencies Information Systems, Ac-

[31] Ibid. p. 39.
[32] Ibid. pp. 25, 28.
[33] Ibid. p. 33.
[34] See Appendix A.

counting and Information Management Division, U.S. General Accounting Office; Kathleen Adams, Chair of the Interagency Year 2000 Subcommittee of the Chief Information Officers Council and Assistant Deputy Commissioner for Systems, Social Security Administration; and Joe Thompson, Chief Information Officer, General Services Administration.

At this hearing, the subcommittee focused on the essential elements of preparing for the century date change, including: (1) Are agencies moving fast enough to address the Year 2000 problem? (2) Are the agency timetables realistic and adequate to address the Year 2000 problem? (3) Do the department and agencies have sufficient management processes to monitor their Year 2000 efforts?

Chairman Horn opened the hearing by stressing the importance of high-level executive attention. With a senior official of the Office of Management and Budget as the lead witness, he asked: "Has the President of the United States made this an issue? He is one of the great communicators of this century. We need him to awaken the Nation to this very serious situation." [35]

Chairman Horn asked these questions in the context of the disappointing news reflected in OMB's May 15, 1997 quarterly report (issued on June 23rd), which showed that some agencies with critical responsibilities for providing public services were stuck at the starting gate. As of May 15th, fully 18 out of 24 agencies had yet to finish assessing the vulnerability of their computer systems to the Year 2000 problem. Out of 24 agencies, 10 had yet to complete any testing of software changes. These were discouraging and worrisome statistics.

Joel Willemssen of the General Accounting Office was much less optimistic. He testified that based on the latest information, Federal agencies simply did not have enough time to complete all necessary fixes. He strongly urged agencies to prioritize so that critical systems are fixed in time: "OMB's perspective would seem to imply that there is no cause for alarm. We don't share that view. On the contrary, we believe that OMB and Federal agencies need to increase their level of concern, and move with more urgency to clearly demonstrate that a business-as-usual approach on the Year 2000 issue won't work." [36]

Joe Thompson testified that the General Services Administration was working to raise awareness of the Year 2000 problem throughout the government. He reported that GSA's Federal Supply Service has notified manufacturers and service and equipment providers that all products sold to the Government must be Year 2000 compliant. He also described GSA's database of Year 2000 compliant commercial-off-the-shelf products. Representative Morella, chair of Science's Technology Subcommittee, asked how GSA determines that these products are compliant. Mr. Thompson noted that GSA lacked the resources to carry out the testing itself. "Those items have been tested and verified by the corporations themselves whose records of testing can be obtained from them." [37]

Kathleen Adams testified on the role of her interagency Year 2000 Subcommittee. She reported that they were developing a

[35] "Will Federal Government Computers be Ready for the Year 2000?" July 10, 1997, p. 40.
[36] Ibid. p. 24.
[37] Ibid. p. 104.

database that will contain information regarding whether commercial-off-the-shelf software presently in use in Federal agencies will function properly after January 1, 2000. She stressed that although the efforts such as this database can help, the responsibility for success or failure ultimately lies with the Chief Information Officer of each agency and with the Office of Management and Budget.

Sally Katzen testified that the administration's estimate for the cost of preparing its executive branch computers for the date change had risen from $2.3 billion in February to $2.8 billion in July. Despite this, she insisted that the Government was on track to complete all necessary fixes before January 1, 2000. Her prepared testimony concluded that "the Year 2000 computer problem will be a non-event." Subcommittee member Representative Tom Davis expressed amazement that Ms. Katzen, speaking for OMB and therefore the President of the United States, was taking such a casual approach to the Year 2000 problem. "You have to approach this more cautiously than that, don't you?" Ms. Katzen replied that "we will all breathe a very happy sigh of relief on December 31st 1999."[38]

5. September 15, 1997, news conference on Year 2000 report card

At this news conference, Chairman Horn released his second report card of Federal preparations for the Year 2000 problem. These grades measured the progress that 24 departments and agencies of the Federal Government had made in fixing their Year 2000 problems by August 15, 1997. Mr. Horn made the following statement:

> Averting electronic chaos at the turn of the millennium is going to be labor intensive. Without time and a concerted effort by management, there is no way to avoid a breakdown of unpredictable proportions.
>
> This is the real danger. The Year 2000 problem is a procrastinator's nightmare. Time is marching relentlessly toward the absolute deadline of January 1, 2000. Thousands of Government computer programs must be changed before then. The Administration can not issue an Executive order postponing the coming of the millennium.
>
> These grades are sad. No ex-professor can be happy when handing out 11 Ds and Fs but only one A in a class of 24. Last year agencies could get good grades simply by establishing plans and putting someone in charge of addressing the Year 2000 problem. This year plans are not enough. Action is required for a good grade because at this point, action is required to get the job done on time.
>
> On average, only 14 percent of Federal systems in need of repair have been fixed and tested. Some agencies have not even completed an assessment of their systems to see what repairs they face.
>
> I cannot issue these poor grades without feeling sadness and disappointment. We have been working with these agencies for almost two years now. I see disturbingly little concern among agency management that service to the taxpayers might suffer.

[38] Ibid. pp. 14, 54.

> This casual approach also makes it hard to get a serious estimate of the costs we face. The Office of Management and Budget put the figure at $2.3 billion in February and $2.8 billion in July and now (September 1997) estimates $3.8 billion.
>
> Still, we must not lose hope. It is within the power of every agency listed here to earn an A by next year. But the starting point for such progress is a serious commitment of attention and resources by the head of each agency. Short of such a commitment, we can forget about celebrating on the eve of the new millennium.

6. October 17, 1997, subcommittee meeting in Beverly Hills, CA: "Russia's Year 2000 Problem"

On Friday, October 17, 1997, the subcommittee held a meeting on Russia's Year 2000 problem and its implications for the United States. Former Soviet President Mikhail Gorbachev discussed the Year 2000 problem with Chairman Horn and then Ranking Member Carolyn Maloney. Initially, Mr. Gorbachev had been scheduled to testify before the subcommittee as the sole witness at a hearing.[39] Following the meeting, Mr. Horn addressed the audience gathered at the Beverly Hills City Hall:

> This hearing was to have President Gorbachev testify. We have just met with former President Gorbachev to hear a report on what he has been able to accomplish in Russia by discussing the Year 2000 problem with Prime Minister [Chernomyrdin] of Russia and alerting [Russian leaders] to what this subcommittee has been doing since April of 1996 with the American Government. [Mr. Gorbachev] has assured us that he feels his portion of that job, to alert his own country, is sufficient.
>
> He has various commitments in Los Angeles he has to keep, so except for our 20-minute meeting, he will not be testifying today. I am sorry that he won't, because I think he has made a lot of progress on this subject, but he feels he needs to leave it to the Russian Government now to carry on addressing the Year 2000 problem. . . .
>
> "[W]hat Russia faces, the United States faces, every nation in the world faces, is how do we solve this problem by January 1st 2000? Mr. Gorbachev has been the first former statesman in Europe to take this problem seriously, but he feels he can't go much beyond Russia on this; and I am hopeful other statesmen in Europe will urge their governments to move ahead, just as parts of our Government have done.

7. December 11, 1997, news conference on Year 2000 projections

Executive departments and agencies released their third quarterly Y2K status reports on November 15, 1997. The subcommittee and GAO staffs analyzed these reports. Their analysis provided the

[39] President Gorbachev had earlier requested a meeting with Chairman Horn to learn more about the Year 2000 problem. That meeting was held in Washington, DC, on Apr. 16, 1997. The chairman was accompanied by Subcommittee Staff Director Russell George. President Gorbachev was accompanied by his translator.

basis for Chairman Horn's projected completion dates for each agency. The primary effort was on judging the current pace of each agency. The projections showed that, without an increase in the rate of progress, the Department of Energy and the Department of Labor would not finish Year 2000 conversions until the year 2019; the Department of Defense would finish in 2012; the Department of Transportation in 2010; and the Department of the Treasury in 2004. In opening the news conference, Chairman Horn stated:

> Another year has passed and the latest data show that the current work on the Year 2000 problem in Federal computers is unacceptable and potentially disastrous. Unless agencies make faster progress soon, the Federal Government runs a serious risk of massive electronic breakdown on January 1, 2000.
>
> Year 2000 problems need to be fixed in thousands of Federal computer systems. If Federal computers fail because they cannot understand the year 2000, the distribution of benefit checks could be disrupted, the air traffic control system could become gridlocked, and computerized records could be lost or damaged. At best, we may face a major headache, at worst, an electronic disaster.

In addition to releasing these projections, a letter was sent to then Director of Office of Management and Budget Franklin Raines recommending possible ways to improve progress on the Year 2000 problem.[40] The recommendations included making quarterly reports more accurate; expanding the scope to include mission critical systems being replaced, second-tier systems, and embedded microchips. The Chairman also repeated his call for a full-time coordinator to spearhead the Federal Y2K effort.

8. February 4, 1998, Oversight hearing: "FAA at Risk: Year 2000 Impact on the Air Traffic Control System" (held jointly with the House Science Subcommittee on Technology)

This hearing reviewed the Year 2000 readiness of the Federal Aviation Administration [FAA], with particular emphasis on the Air Traffic Control System. The subcommittees focused on the deficiencies and progress of the FAA in both fixing and testing its computer systems for the Year 2000 problem. The primary purpose of the hearing was to alert the new FAA Administrator to the importance of this problem with the objective of improving the percentage of compliance FAA could achieve in the following 23 months.

Specific issues addressed at the hearing included the FAA's data exchanges and contingency plans. In terms of data exchanges, this included what interface standards the FAA had established for commercial airlines, both domestic and foreign. In terms of contingencies, the subcommittees were interested in what level of flight capacity the FAA could sustain if forced to use a completely manual system.

Witnesses at the hearing included Federal Aviation Administrator Jane Garvey; Department of Transportation Inspector General Ken Mead; Federal Aviation Administration Chief Information

[40] A copy of this letter can be found in Appendix A.

Officer Theron Gray; Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; and Stanley Graham, Senior Management Consultant, Tech-Beamers, Inc.

Representatives of the General Accounting Office and the Department of Transportation Inspector General each reported on studies they had recently conducted on the Year 2000 problem at FAA. Each study found the FAA seriously lacking in several key areas. At its rate of progress during late 1997 and January 1998, the FAA would be unable to finish fixing all of its mission critical systems before January 1, 2000. Further, it appeared that even those systems the FAA would be able to fix would not be thoroughly tested before the new century and the FAA did not have a viable contingency plan for this likelihood.

All agreed that the question is not one of safety. The airlines, the pilots, and the tower controllers will not allow a plane to take off unless they are absolutely sure it is safe to do so. The airline industry default condition is: "when in doubt, ground it." But this leaves unanswered a serious question about capacity: If failures occur, what flight capacity will FAA be able to support, and for how long will the airline industry be forced to operate at reduced capacity?

The General Accounting Office testified that the Federal Aviation Administration has lagged in making its computer systems ready for the year 2000. Without an increased rate of progress, the FAA would not be ready for the new century. The agency has been severely behind schedule in completing basic awareness activities, a critical first phase in an effective Year 2000 program. For example, FAA appointed its initial program manager for Year 2000 issues only 6 months before this hearing, and its overall Year 2000 strategy was not yet final.

The FAA also did not know the extent of its Year 2000 problem because it had not yet completed assessing the Year 2000 vulnerability of its computers. The potential consequences include degraded safety, grounded or delayed flights, higher airline costs, and customer inconvenience. Delays in completing awareness and assessment activities also leave FAA little time for critical renovation, validation, and implementation efforts—the final three phases in an effective Year 2000 program. With 2 years left, FAA was quickly running out of time, making contingency planning for continuity of operations even more critical. FAA estimates that the entire program will cost $246 million, although the agency lacks the information it needs to develop reliable cost estimates.

9. March 4, 1998, news conference on Year 2000 report card

Chairman Horn released his third report card, assigning new grades to Federal departments and agencies on their Year 2000 efforts. For the first time, a governmentwide grade was also issued: it was a 'D−.' The following statement was made by the Chairman:

> As almost everyone now knows, [the Year 2000 problem] refers to the use of two digits rather than four to represent the year in computer date functions. When the "00" of the year 2000 rolls around, computer systems and embedded microchips that are not prepared to recognize the new mil-

lennium will become very confused. A range of possible computer failures and shutdowns could result.

Our focus is on the Year 2000 problem of the Executive branch of the Federal Government. Over the past several weeks, we have received the very latest information on where the largest Federal departments and agencies stand in fixing this problem. These data reveal a troubling portrait. We have analyzed these data and have summarized the result as a report card agency by agency. This follows on report cards issued by the Subcommittee on Government Management, Information, and Technology in the summer of 1996 and again last September (1997). We are shortening the grading periods as the deadline approaches.

For the first time, we are issuing a governmentwide grade along with grades for individual agencies. As you can see, most are grades you would not want to take home to your parents. But the key point of this exercise has always been to focus high-level attention on this problem. On that score, there is a slight ray of hope coming through the dark El Nino clouds above.

When we first issued grades, the criteria focused almost exclusively on whether the leaders at each agency had a clue about this problem. The grades last fall took account of whether an agency was making progress on actually fixing the problem.

This time, the focus is shifting to the broader perspective: how is the Government doing overall? It is increasingly clear that a large number of Federal computer systems simply will not be prepared for the date change on December 31, 1999. The goal now is to make certain that the most important systems at the most important agencies can function in the new century.

The need for governmentwide focus is easily illustrated. First, look at the Department of Defense. It has one third of all the mission-critical computer systems in the entire Federal Government. You do not have to think very hard about the function of many of those Defense systems to agree that failure is intolerable. Added to this is the disturbing fact that Department of Defense has just suffered an exodus of its entire staff leadership on the Year 2000 problem. It is time for people outside Defense—as well as inside —to start sweating about this.

In a second illustration, consider the Financial Management Service, which is part of the Department of the Treasury. Most Federal agencies have their checks issued through the Financial Management Service. When Treasury's Financial Management Service is lagging behind, all the hard work to be Year 2000 compliant at Social Security (SSA) or the Small Business Administration (SBA) is for naught. SSA's and SBA's checks cannot be processed in a timely way unless the Financial Management Service completes its Year 2000 work.

The Year 2000 problem, then, is a governmentwide problem that demands a governmentwide strategy. That strat-

egy must set clear priorities and begin focusing intense attention, expertise and resources on the most critical systems. The one ray of hope I see now is that President Clinton recently signed an Executive Order recognizing the urgency of the problem and establishing a task force to address it. The task force will be headed by Assistant to the President John Koskinen, the respected former Deputy Director for Management at the Office of Management and Budget.

Even John Koskinen's skills, however, do not change the fact that the Executive branch is still on the edge of failure. There are almost 8,000 mission-critical computer systems in the Executive branch. At the current rate of progress, only 63 percent of those systems will be ready for January 1, 2000 when the clocks roll over less than 667 days from now. We need a centralized approach. We need to prioritize. We need to coordinate. We need to do all of those stages very soon.

Over the past two years, our subcommittee has worked to create an awareness that this is a serious, urgent problem. I believe we are succeeding in that effort. Now we will focus our attention on the need for a coordinated and effectively implemented strategy.

Phase one of this effort—defining the problem—took almost two years. Phase two—solving the problem—must be completed in less than 22 months. We have a long way to go and a short time to get there.

10. March 18, 1998, Oversight hearing: "Governmentwide Year 2000 Issues and the Department of the Treasury" (held jointly with the House Science Subcommittee on Technology)

At this hearing, the subcommittee reviewed the governmentwide Year 2000 effort with a particular focus on the Department of the Treasury and on agencies within the Treasury Department that perform crucial governmentwide functions.

The witnesses were: John Koskinen, Assistant to the President and Chair, President's Council on Year 2000 Conversion; Gene Dodaro, Assistant Comptroller General, U.S. General Accounting Office; Michael P. Harden, President, Century Technology Services, Inc.; Constance E. Craig, Assistant Commissioner, Information Resources, Financial Management Service; Jim Flyzik, Acting Chief Information Officer; Arthur A. Gross, Associate Commissioner for Modernization and Chief Information Officer, Internal Revenue Service; and Denis Schindel, Deputy Assistant Inspector General for Audit, Department of the Treasury.

On the governmentwide level, the General Accounting Office completed a study of Year 2000 issues and made recommendations at this hearing. The subcommittee also took this opportunity to welcome Assistant to the President John Koskinen to the Year 2000 effort as the Chair of the President's Council on Year 2000 Conversion. Mr. Koskinen had previously served at Deputy Director for Management at the Office of Management and Budget. "I can't think of a better person for the Administration to bring in at this time," said Representative Tom Davis, who added: "I think it's

a huge task ahead of you . . . there are some agency heads who give [the Year 2000 problem] lip service but still don't seem to get the enormity of this problem."[41]

Chairman Horn urged Mr. Koskinen to put the laggard agencies on a weekly reporting schedule. "There needs to be a real interaction with your office knowing what the agencies are doing." Chairman Horn noted that too much slippage had already occurred when agencies report on a quarterly basis: "When we looked at the last quarterly reports, some people had done absolutely nothing. . . . Something is needed to keep them on track and to let you know what kind of progress [they are making]. There's nothing like a weekly report to shape people up, I can assure you, having run a fairly large organization."[42]

At the departmental level, the Department of the Treasury reported 327 mission-critical systems. As of February 15, 1998, only 22 percent of these mission-critical systems were renovated. Continuing at its previous rate of progress, Treasury would renovate only 38 percent more of its mission-critical systems before the deadline, leaving 40 percent or 130 mission-critical systems noncompliant by January 1, 2000. This is unacceptable for any Federal department and especially for Treasury, which plays such a critical role in Federal finance.

The subcommittee also focused on the Internal Revenue Service and the Financial Management Service. IRS takes the money in and FMS sends the money out. Both had serious questions of readiness. The Financial Management Service reported 62 mission-critical systems. As of February 15, 1998, only 16 percent of these mission-critical systems were finished. FMS did not complete implementation of any fixed and tested mission-critical systems in the last 3 months. FMS issues all the non-Defense checks for the entire Federal Government. Social Security will deliver its address tapes on time, but if the systems at FMS are not done, then the 48.3 million monthly checks will not be processed.

The Internal Revenue Service reported 123 mission-critical systems. As of February 15, 1998, only 14 percent of these mission-critical systems were finished. Besides the Year 2000 problem, the IRS has three additional computer challenges occurring simultaneously. IRS is consolidating mainframes from 10 Service Centers into 2 Computing Centers. IRS is replacing its input and remittance systems with a new system that is scheduled to be installed in all 10 Service Centers before the end of 1999. And, of course, the IRS must make the refunds for individuals who have had too much deducted from their payroll checks and input the changes to reflect any tax law revisions in time to handle tax season in the year 2000. This confluence of challenges raised serious questions about whether the IRS would be able to prepare for the year 2000 in time. In its 1998 reform of the Internal Revenue Service, Congress stressed that appropriate time must be made available for becoming Year 2000 compliant.

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[41] "Joint Hearing on the Oversight of the Government's Year 2000 Efforts," Mar. 18, 1998, original transcript, p. 20.

[42] Ibid. pp. 50–51.

11. June 2, 1998, news conference on Year 2000 report card

Chairman Horn released his fourth card grading Federal departments and agencies on their Y2K efforts. Each of the Government's 24 largest departments and agencies received a grade primarily on the basis of when its mission-critical computer systems would become Year-2000 compliant. Four additional criteria were used in grading: contingency planning, telecommunication systems, embedded microchips, and external data exchanges. The following statement was made by the Chairman:

> About two weeks ago, a single communications satellite spun out of control. For the next couple of days, 90 percent of all pagers in the United States were useless, many television stations had nothing to broadcast, several news wires failed, and gasoline stations, banks, and retail stores that use small satellite dishes found themselves in the dark. All this resulted from the failure of just one satellite. It was a timely reminder of what is really at stake in the smooth functioning of technology—a tiny hint of what the Year 2000 could bring. With Federal Y2K efforts cast in this urgent light, we turn to the latest data on Federal preparations.
>
> Overall, the Federal Government earned an "F." Underlying this dismal grade is a disturbing slow-down in the Government's rate of progress. For the quarter ending February 15, the Government brought mission-critical systems into compliance at a rate of 9.4 percent; for the quarter that ended May 15, the rate of progress slowed to 5.4 percent. This would be discouraging in any context. Less than a year before the President's March 1999 deadline for Y2K repairs, a reduction in productivity is deeply troubling. This trend must be reversed.
>
> Specific agency grades raise further concerns. The Department of Defense earned a "D" and is still not on track to complete Y2K compliance efforts until two years after the date change. The Department of Transportation merited an "F." This grade includes the Federal Aviation Administration, which provides crucial services to the flying public. Without dramatic improvements, the Nation's air traffic could face serious disruptions for an extended period after December 31, 1999. The Department of Health and Human Services also earned an "F." The Medicare program, among others, depends on the smooth functioning of its computer systems.
>
> At the other end of the curve, the Social Security Administration (SSA) is a model for all agencies. SSA earned an "A+" this quarter by achieving 92 percent compliance and by paying close attention to two secondary areas: contingency planning and external data exchanges. SSA also deserves credit for actively assisting other agencies in their Year 2000 efforts. We are counting on more of this coordination and teamwork over the next 18 months.
>
> I noted last quarter that SSA's outstanding performance may be for naught: Social Security checks are actually

issued by the Treasury Department's Financial Management Service (FMS). This is a potential bottleneck of dramatic proportions. The Treasury Department earned a "C" this quarter, held back by a dismal performance by FMS. Despite urgent calls for progress in March, FMS's accomplishments over the last three months have been far from reassuring. We must have action on this urgent problem.

With January 1, 2000 a year and a half away, we must not panic. The President and his administration must set priorities if the conversion is to be successful. We must not become discouraged by the work that still remains. This is the time to focus, to redouble our efforts, and to move forward aggressively.

As we have urged before, the President must use the bully pulpit and inform the people of this Nation. Now is the time for the President to designate the Year 2000 problem as a national priority.

According to the June report card, of the 7,336 mission critical systems in government, 2,766 are not expected to be converted in time for the March 1999 milestone. That is unacceptable.

12. June 10, 1998, Oversight hearing: "Status Update on the Year 2000 Problem"

This hearing involved broad oversight of Federal Y2K efforts based on the May 15th quarterly reports. Four departments particularly behind in their efforts were selected as witnesses for this hearing: Defense, Education, Energy, and Health and Human Services.

Witnesses included Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; John Callahan, Assistant Secretary, Management and Budget, Department of Health and Human Services; Marshall Smith, Acting Deputy Secretary, Department of Education; William A. Curtis, Special Assistant for Year 2000, Department of Defense; and Howard E. Lewis Jr., Acting Chief Information Officer, Department of Energy.

Chairman Horn opened the hearing by noting the crucial importance of the departments and agencies developing contingency plans, assessing the effectiveness of the telecommunications systems, identifying the various embedded systems, and reviewing the external data exchanges. Regarding these last two, Mr. Horn remarked: "Embedded systems are the sleeping giant in the Year 2000 problem. Tiny little computer chips embedded in control devices are everywhere in industry throughout the world. They can stop an automobile assembly line, a chemical plant, or an electric utility grid . . . External data exchanges are also crucial. Most systems pass data from computer to computer. Consider a simple bank check which may go through dozens of computer systems."

At the March 18th hearing on Year 2000, Joel Willemssen of GAO and Assistant to the President John Koskinen agreed that not all mission-critical systems will be done in time. Two months later, the rate of progress had not improved. As of May 15, 1998, only 39 percent of all Federal mission-critical systems were Year 2000

compliant. At the current rate of progress, over 3,000 mission-critical systems would not be done by the President's deadline of March 1999.

Worse, some systems that are completed on time would still fail, either because the testing was not rigorous enough or because of corruption from data exchanges with other noncompliant systems. The Federal Government must be prepared with contingency plans to maintain core business activities even for systems believed to be compliant.

The first question to each Department at this hearing was basically the same: "Why are you behind?" The second was: "What do you need to improve your rate of progress?" The intent of the subcommittee was to help agencies become compliant.

The General Accounting Office discussed the results of the most recent reports submitted to the Office of Management and Budget on the Federal Government's slow progress in achieving Year 2000 compliance. Mr. Willemssen raised serious concerns about the high number of noncompliant systems that Federal agencies plan to replace rather than repair. "[G]iven the Federal Government's track record on replacement systems, of not being able to often deliver those systems when promised, these replacement efforts generally should be viewed as high risk." Mr. Willemssen also emphasized the issue of testing. "[A]gencies are going to need a significant amount of time for end-to-end testing of multiple systems that have individually been deemed Year 2000 compliant. . . . Without such testing, systems individually deemed as compliant may not work as expected when linked with other systems."[43]

13. June 22, 1998, hearing: "Year 2000: Biggest Problems and Proposed Solutions"

At this hearing, the subcommittee solicited the views of recognized experts in the field. With less than 18 months remaining, the emphasis was to discuss the top priority problems and possible solutions. The focus was on managerial and practical solutions rather than on a technical or theoretical exploration.

The scope of the Year 2000 problem is both global and local—from international trade to the embedded chip in your fax machine. This is a challenge that confronts everyone from the Federal Government to local water districts; from multinational corporations to Mom-and-Pop businesses. The scope of the problem is also cross-functional—from agriculture to medicine. There are problems in government, finance, manufacturing, distribution, and services. There are problems in wholesale, retail, and the infrastructure. The question at this hearing was what role Congress could play in moving Year 2000 efforts forward.

The witnesses included: Edward DeSeve, Deputy Director for Management, Office of Management and Budget, accompanied by Bruce McConnell, Chief of Information Policy and Technology, Office of Information and Regulatory Affairs; Dr. Rona Stillman, Chief Scientist for Computers and Telecommunications, General Accounting Office, accompanied by Joel Willemssen, Director, Civil

[43] "Status Update on the Year 2000 Problem," June 10, 1998, original transcript p. 13 (testimony of Joel Willemssen, Director, Information Resources Management, Accounting and Information Management Division, U.S. General Accounting Office).

Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; Dennis Grabow, President, Millennium Corp.; Dan Steinberg, Synthesis: Law & Technology; Alan Simpson, President, ComLinks.Com; Bruce Webster, Chief Technical Officer, Object Systems Group and Washington DC Y2K Group; and Tom McCabe, Chairman, McCabe & Associates.

The General Accounting Office testified that the executive branch of the Federal Government is extremely vulnerable to Year 2000 problems because of its widespread dependence on computer systems to process financial transactions, deliver vital services, maintain national security, and carry out many of its basic administrative operations. This challenge is made even more difficult by the age and poor documentation of some of the Government's existing systems and its lackluster record in modernizing them. As of May 1998, Federal agencies reported that only about 40 percent of their mission critical computer systems were prepared for the Year 2000. Unless progress improves dramatically, a substantial number of mission critical systems will not be Year 2000 compliant in time.

Mr. DeSeve informed the subcommittee that those agencies still behind schedule would begin reporting on a monthly rather than a quarterly basis.[44] Dennis Grabow stressed the importance of testing, including end-to-end testing of linked systems. The General Accounting Office emphasized the importance of independent verification.

14. August 13, 1998, field hearing (New York, NY): "Oversight of the Year 2000 Problem: Lessons to Be Learned from State and Local Experiences"

This was the first in a series of six subcommittee field hearings on the Year 2000 problem at the State and local level. Witnesses included Mr. Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; Mr. Joseph Lhota, Deputy Mayor for Operations, city of New York; Mr. Gary Davis, Project Director, Office of Technology, State of New York; Mr. Peter Sullivan, Year 2000 Program Director, State of Connecticut; Mr. Douglas Wipperman, Director of Data Processing, Nassau County, NY; Mr. Charles Adrion, Director, Year 2000 Project Office, Westchester County, NY; Mr. Arthur Thomas, Senior Vice President of Global Operations, Merrill Lynch (representing the Securities Industry Association); Mr. George Thomas, Senior Vice President and Director of Information, New York Clearing House; and Mr. Robert Hedlund, Director, Technology Services, Consolidated Edison Co., of New York.

Representative Maloney noted at the hearing: "Evidence to date strongly suggests that our city will face a serious disruption if we do not fix the millennium bug by the Year 2000." She also noted that "the interdependence of computer systems requires that nearly all computer systems be Year 2000 compliant . . . [I]f a fixed Fed-

[44] "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript, p. 9.

eral Government [computer] interfaces with a noncompliant State computer, both computers will fail."[45]

Mr. Willemssen alerted the subcommittee to a July 1998 survey of the States Year 2000 readiness. It was conducted by the National Association of State Information Resource Executives. Willemssen also cited a survey of State food stamp programs conducted by the Food and Nutrition Service of the Department of Agriculture. The chief focus of GAO's testimony was the problem of data exchanges:

> Federal agencies reported that their mission-critical systems had almost half a million data exchanges with other Federal agencies, States, local governments, and the private sector. To successfully remediate exchanges is a very complex, time-consuming process. To successfully remediate their data exchanges, federal agencies and the states must (1) assess information systems to identify data exchanges that are not Year 2000 compliant; (2) contact exchange partners and reach agreement on the date format to be used in the exchange; (3) determine if data bridges and filters are needed and, if so, reach agreement on their development; (4) develop and test such bridges and filters, (5) test and implement new exchange formats; and (6) develop contingency plans and procedures for data exchanges.[46]

Deputy Mayor Lhota testified as the individual responsible for New York City's Year 2000 efforts. New York has 706 computer systems, of which 287 were compliant and 419 were in need of repair. As of August 1998, costs had reached $319 million. As for contingency planning, the Mayor's Office of Emergency Management is working in coordination with utilities—such as gas and electric—and with telephone companies and hospitals, to prepare for January 1, 2000.

The New York State government was represented by Gary Davis, Year 2000 Project Manager, Office of Technology. He testified that in April 1996, Governor Pataki established the Year 2000 Date Change Initiative to facilitate New York State's millennium compliance efforts. The State expects to spend $250 million on Y2K efforts. The Office of Technology tracks compliance progress on a quarterly basis. Mr. Davis stated that "we have been working with our Department of Public Service to address utility preparedness, including electricity, gas, water, and telecommunications. The department has completed a general assessment and met with the State's major utilities. The utilities have reported that they understand the scope of the problem, have implemented a compliance plan, allocated resources, and are on schedule to be compliant." Mr. Davis also struck a cautious note: "While New York State has accomplished a great deal, there is still a substantial amount of work to be done over the next 16 months."[47]

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[45] "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Aug. 13, 1998, original transcript p. 7.

[46] Prepared testimony of U.S. General Accounting Office.

[47] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 13, 1998, original transcript, p. 32.

Mr. Charles Adrion, Director, Year 2000 Project Office, Westchester County, NY, testified that Westchester County anticipates no staff shortage problems. But he also testified that "both within the municipalities and business organizations in Westchester County there has been less of an inclination to even discuss the problem of cooperation, and particularly status, where we are with our implementations, because of advice given by legal counsel."[48]

Mr. Arthur Thomas, Senior Vice President of Global Operations, Merrill Lynch, representing the Securities Industry Association, testified that "the Y2K effort represents the largest-ever business and technology undertaking of the financial industry at a cost of somewhere between $4 billion and $6 billion."[49] Despite the size of the task, however, Mr. Thomas expressed confidence at the state of preparations in the financial sector. He noted the industry's early start on Year 2000 repairs. He also reported on the successful "test test" conducted over the summer of 1998, showing that efforts to date have been effective.

Mr. George Thomas, Senior Vice President and Director of Information, New York Clearing House, testified that the financial sector is too dependent on electric power and other basic support systems to make contingency plans for their failure. Contingency plans "rely on mission-critical support systems that are so integral to payment system operations that without them, not only the banking industry but also business in general may be severely impaired."[50]

Mr. Robert Hedlund, Director, Technology Services, Consolidated Edison Co. of New York, testified that automated supervisory controls are embedded in production and distribution systems of electricity, gas, and steam. Technology specifically vulnerable to the Year 2000 problem includes servers, routers, and switchers. Mr. Hedlund reported that Con Edison was communicating with supplies of critical products and services as well as neighboring utilities with which Con Edison is interconnected. Mr. Hedlund also testified that he knows of no Federal oversight taking place right now.[51]

15. August 17, 1998, Field Hearing (Mesquite-suburb of Dallas, Texas): "Oversight of the Year 2000 Problem: Lessons to Be Learned from State and Local Experiences"

The subcommittee's series of field hearings continued in the district of subcommittee Vice Chairman Pete Sessions. Mesquite is located in Dallas County and is a suburb of the city of Dallas. Representative Kevin Brady, who represents the 8th district of Texas, including Houston, joined the panel for the hearing.

Witnesses included Mr. Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; Shannon Porterfield, Year 2000 Project, Director, State of Texas; Judith Shaw, Assistant Director, Information Services, city of Dallas, TX; Ron Lewis, Assistant City Manager, city of Lubbock, TX; Michelle Brand, Purchasing

[48] Ibid. p. 76.
[49] Ibid. p. 85.
[50] Ibid. p. 96.
[51] Ibid. pp. 102, 112.

and Telecommunications Coordinator, city of Mesquite, TX; and Eric Schmitt, Communications Support Manager, Texas Utilities.

Representative Sessions stressed at the beginning of the hearing the issue of legal liability. The issue of Year 2000 liability arises for "an incredibly wide variety of products and software, including vendors of hardware or software to their purchasers, service providers to their customers, banks to their depositors and borrowers, insurance providers to their insured, airlines to their passengers, corporations to their shareholders, and stockbrokers to their accounts."[52] Representative sessions observed the importance of congressional action in this area.

Shannon Porterfield noted she would be unable to report on the Year 2000 status of data exchanges at Texas State agencies until October. She testified that the State of Texas is particularly vulnerable to embedded chip failure in correctional institutions. The State of Texas planned to organize a national conference for "correctional embedded systems coordinators."[53] In terms of municipalities in Texas, Ms. Porterfield observed that city governments seem to be modestly ahead of county governments in preparing for the Year 2000 problem.

Judith Shaw testified that the city of Dallas planned to complete its Year 2000 repairs by December 1998. But she noted: "There are things that we do not have control over . . . and that's dealing with the vendors. I think if there is a scary part to us, that's it."[54] Ms. Shaw reported that Dallas expects to spend approximately $3 million on its Year 2000 repairs. Representative Brady noted that this figure appeared considerably lower than other cities and organization of similar size. Ms. Shaw attributed the low cost to starting Year 2000 fixes early and repairing rather than replacing equipment. "We have encouraged our department not to use the Year 2000 as an excuse to trade out computers."[55] She also told the subcommittee that Dallas has been able to retain its technical personnel by giving them bonuses at the end of each quarter.[56]

Ron Lewis, Assistant City Manager, city of Lubbock, TX, noted that Lubbock owns and operates an electric utility company. Mr. Lewis asserted that this responsibility had inspired a very "businesslike" approach to the Year 2000 problem. This approach included "incorporating the Year 2000 problem into an emergency scenario."[57] Calling it a Year 2000 drill, Mr. Lewis described how a small group of experts was developing, in strict secrecy, scenarios based on potential Year 2000 related failures. For the sake of realism, no department was aware of the scenario that the control group was creating, and the drill was to be scheduled at night. "This drill will give our elected officials and citizens the opportunity to see how well we perform under simulated circumstances . . . I believe the most important aspect when preparing for the

[52] "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Aug. 17, 1998, original transcript, pp. 12–13.
[53] Ibid. original transcript, p. 70 (testimony of Judith Shaw, Assistant Director, Information Services, city of Dallas, TX).
[54] Ibid. p. 30.
[55] Ibid. p. 47.
[56] Ibid. p. 79.
[57] Ibid. p. 37.

Year 2000 problem is providing open and honest communication with our citizens and employees on a regular basis."[58]

Michelle Brand testified that the city of Mesquite does not have a full-time employee dedicated to the Year 2000 problem. Further, Mesquite had hired no consultants to work on the problem, although that step was under active consideration at least for help with assessing the compliance of radio equipment. "It's been extremely difficult to devote staff time to such a large inventory of equipment."[59]

Eric Schmitt, Communications Support Manager, Texas Utilities, addressed efforts to prepare hardware and software not supported by the IT organization: "These systems include items that have traditionally been procured, developed, and maintained by individual business unit organizations. Typically heavily dependent on microprocessor based technology; these systems cover a variety of products such as power plant control and monitoring systems, gas and electrical distribution networks, and our transmission system. Also being addressed by this project are protective devices, security systems, building facilities (elevators, HVAC & lighting) and business unit. . . . We have tested a number of systems, and so far have found very few instances where a system functionally was affected."[60]

After listening to the testimony, Mr. Willemssen, U.S. General Accounting Office observed: "I haven't heard water and waste water mentioned too much here. As it pertains to embedded chips, that would be one area that I'd be particularly interested in focusing on if I were in the shoes of the individuals here."[61]

16. August 19, 1998, field hearing (New Orleans, LA): "Oversight of the Year 2000 Problem: Lessons To Be Learned from State and Local Experiences"

The third subcommittee field hearing was held in New Orleans. In opening the hearing, Chairman Horn made a renewed plea for presidential attention to this matter: "The President needs to make more speeches to alert the Nation." In addition to raising awareness of the problem, the President can calm fears about it. There are "scare mongers trying to make money off [the Year 2000 problem and] we need to head that off."[62]

Witnesses included Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; Edgar McManus, Project Director, Year 2000 Readiness Project, USDA National Finance Center; Renea Austin, Division of Administration, State of Louisiana, accompanied by, Ms. Chris LaBlanc, Project Manager, Louisiana Year 2000 Coordination Project; Mike Walker, Director, Information Services, city of Baton Rouge; Mary Beth Tatar, First Vice President, Louisiana Parish Government Association; Theresa Comeaux Vice President of Regulatory Compliance, Century Solutions/Blue Cross & Blue Shield.

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[58] Ibid. pp. 38–39.
[59] Ibid. p. 45.
[60] Ibid. pp. 95–96.
[61] Ibid. p. 71.
[62] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 19, 1998, original transcript, p. 3.

Edgar McManus, Project Director, Year 2000 Readiness Project, USDA National Finance Center, testified that the Finance Center is in an excellent position to be compliant by January 1, 2000. He attributed the success to strong support and leadership from top management. "I can assure you that this project is our number one priority, as evidenced by the fact that [National Finance Center Director John R.] Ortego made the unpopular move of putting all agency requests for system modifications on hold pending completion of the Y2K code renovation effort. . . . This proved invaluable in helping us meet our self-imposed deadline of June 30, 1998, to have all mission critical production code renovated, user tested, and returned to production."[63]

Ms. Chris LaBlanc, Project Manager, Louisiana Year 2000 Coordination Project, testified that the Governor of Louisiana has set July 1, 1999 as the deadline for completion of all Year 2000 work. This deadline was set by Executive order in January 1998. Ms. LaBlanc also described the Louisiana Year 2000 Coordination Project. This entity was established "to coordinate the planning, administration support, progress monitoring and communication for the Year 2000 work effort at the State level."[64] The Coordination Project convenes monthly Task Force meetings to share information on best practices and communicate with the State's business partners.

Marlin Gusman, Chief Administrative Officer for the city of New Orleans, testified that the city's two most important systems handle financial management and payroll. The financial management system became Year 2000 compliant in September 1997; the payroll system is scheduled for implementation in February 1999. Mr. Gusman was accompanied by Earl Kilbride, Administrator of Management and Information Systems, who testified that New Orleans has no Year 2000 contingency plans and does not intend to make any.

Mike Walker, Director, Information Services, city of Baton Rouge, testified that the 911 system depends on the city's mainframe computers. "When a 911 call comes into our center, we get an address verification, telephone numbers which feed into our computer-aided dispatching system that dispatches our fire, police, and emergency medical teams." Baton Rouge plans to have its mainframe computers fixed by the end of 1998, but has yet to assess the embedded chip problem: "we still have a lot of question marks around, such as traffic signals, fire truck operations, 911 operations and things of that nature." He also testified that Baton Rouge has made no contingency plans for the Year 2000 problem.[65]

Mr. Walker also discussed testing the Year 2000 status of equipment on their fire trucks. To their dismay, it turned out that the water pumps, the mechanisms operating their ladders, and a variety of other equipment on the trucks all depend on embedded chips. The result is that Baton Rouge will need to conduct expensive and difficult testing in order to know whether the firetrucks will be ready for the year 2000. This is a fine illustration of how the Y2K problem can arise where you least expect it. Further, as

[63] Ibid. pp. 21–22.
[64] Ibid. p. 28.
[65] Ibid. pp. 89–90.

Baton Rouge reported on its findings, representatives from the city of New Orleans admitted they had never thought to test their fire trucks. This illustrates yet another crucial point: the value of sharing information. It is essential at every level—Federal, State, local, non-profit, and private-sector.

Mary Beth Tatar, First Vice President, Louisiana Parish Government Association, testified that parishes (counties) in Louisiana have not fully taken account of the Y2K problem. "I'm finding that Parish Government doesn't realize that there are three problems, they addressed only the first one, the software problem. They're really not looking at the hardware with embedded chips, and they're really not looking at the connectivity as a whole."[66]

17. September 1, 1998, field hearing (Lakewood-suburb of Cleveland, OH): "Oversight of the Year 2000 Problem: Lessons To Be Learned from State and Local Experiences"

This hearing took place in the Cleveland area, in the district of subcommittee Ranking Member Dennis Kucinich. In addition to exploring the status of State and local government Y2K efforts, the focus was on utilities, health care, and the financial sector. Witnesses included Mr. Donald Mason, Commissioner, Public Utilities Commission of Ohio; Mr. Stanley Kozlowski, Year 2000 Manager, Cuyahoga County Information Services Center; Mr. John Gill, Senior Vice President, FirstEnergy Corp.; Dr. C. Martin Harris, Chief Information Officer, the Cleveland Clinic Foundation; Mr. Kevin Blakely, Executive Vice President for Risk Management, Key Corp; Mr. Fred Kowitz Director, Ameritech Corp.; Mr. Jeffrey Nicolet, Year 2000 and Contingency Planning Practice Manager, Romac International.

On the issue of data sharing, Mr. Ronald Vidmar, Deputy Director, Computer Services Division, Ohio Department of Administrative Services, testified that "the web sites from all States and from the Federal Government are one of the major tools, in my opinion, in helping us to share in good information from others."[67]

Witnesses expressed concerns about the Year 2000 readiness of health care payment systems, which are highly dependent upon electronic transfers between multiple parties. Witnesses at the hearing also were concerned about the Year 2000 readiness of medical devices health care practitioners use to gather data to make treatment decisions.

Dr. C. Martin Harris, Chief Information Officer of the Cleveland Clinic Foundation, noted concern about data exchanges in the health care industry. "[T]he billing and collection function for services rendered in health care is one of the most complex processes in our industry. . . . I believe there is a very high probability of failures at this billing and reimbursement interface." Further, "fixing internal systems is but one leg of a multi-legged stool. It is one thing to be able to say that all our systems are millennium ready, it is a whole other thing to be able to say that after their conversion, they still have the ability to talk to one another."[68]

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[66] Ibid. pp. 52–53.

[67] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 1, 1998, original transcript, p. 19.

[68] Ibid. pp. 84, 87.

Dr. Harris noted that while the Cleveland Clinic is using its best efforts to inventory and identify medical equipment which is most critical in the patient care process, "it is impossible to make a final determination of compliance without well organized and definitive information from medical equipment manufactures." Dr. Harris suggested the creation of a mandatory national reporting program with consistent reporting standards. This system would greatly enhance the quality of provider equipment repair programs while minimizing risks to patients. If the Cleveland Clinic was unable to get adequate feedback from a medical equipment manufacturer, they would not use that piece of equipment. The hope of the Cleveland Clinic is to know what to do with 90 percent of the equipment and carry out an alternative program for the remaining 10 percent.

According to Jeffrey Nicolet, "[t]he health care industry is a mixed bag and appears to be at great risk." He warned that "[s]ome organizations act like the proverbial deer caught in the headlights of an oncoming truck. They do not seem to realize that even the smallest steps in the right direction could literally save their business. They continue to under staff, under fund, and under prioritize the Year 2000 project." [69]

It was pointed out that the Food and Drug Administration has established a voluntary site, however, only approximately 30 to 40 percent of the equipment is listed on the site. According to Joel Willemssen, the General Accounting Office is in the process of preparing a report on the Year 2000 readiness of biomedical devices. Mr. Willemssen noted that the best database of biomedical devices and Year 2000 compliance is maintained by the Department of Veterans Affairs. This database is not publicly available. The VA received a greater response rate on the compliance of biomedical devices, than the FDA, because the VA is a major customer of biomedical devices.

Mr. Donald Mason of the Public Utilities Commission of Ohio discussed the importance of information sharing among organizations—even competitors, and making sure that data exchanges work properly. Among utilities and other essential services, "the driving force is not only becoming Y2K compliant themselves, but sharing that information [because] they have to serve their customer on January 1 and the only way they can do that is by making sure that those people they do business with are Y2K compliant." [70]

18. September 2, 1998, field hearing (Indianapolis, IN): "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences"

This hearing was held in the district of Representative Dan Burton, Chairman of the committee. Chairman Burton was committed to bringing the subcommittee to Indiana to focus on original ideas, industry solutions, national perspectives brought to Indiana, and to hear from State and local organizations. The subcommittee was joined in Indianapolis by Representative Mark Souder, who rep-

[69] Ibid. pp. 102–103.
[70] Ibid. p. 52.

resents the fourth district of Indiana and is a member of the committee.

Witnesses included Steve Forbes, Chairman and Chief Executive Officer, Forbes Magazine; Indianapolis Mayor Stephen Goldsmith; Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; Carlton Curry, Chairman, City-County Council Y2K Subcommittee, city of Indianapolis and Marion County; Laura Larimer, Director of Information Technology, State of Indiana; Jerry Smith, President, Sion Group; J. Gregory Garrison, Attorney and Host of the Greg Garrison Show, WIBC Radio.

Jerry Smith, President of Sion Group, testified on his experience as a participant in the Year 2000 effort at Purdue University. He reported on his success with the use of the windowing approach to solving the Year 2000 problem.[71] Mr. Willemssen addressed the data exchange issue in the context of windowing. "[T]he partners in the exchange have to know how they are exchanging data. They should have written agreements on how they are exchanging data, they should test those agreements to make sure it works like they think it is going to work. That is a very time-consuming exercise."[72]

Steve Forbes approached the Year 2000 problem from a national perspective. He suggested the United States can be a leader on this issue by encouraging open debate and discussions about problems and solutions. Other nations will look to America to help solve their problems. But there has been a management and leadership problem on the part of the administration, said Mr. Forbes.

He focused his testimony on the Year 2000 liability issue, asserting that lawyers are preparing massive lawsuits as Y2K problems arise. They are behaving like "trial lawyer sharks smelling blood in the water." It is essential that remedial legislation be passed to provide safe harbors for businesses to address the problem in advance. Proposed legislation would allow companies and individuals acting in good faith not to be subject to frivolous lawsuits.

Internally such proposals would allow a free exchange of information. Externally information could be exchanged between suppliers and customers. Antitrust laws should not prevent companies from working together to exchange information to get industry-wide solutions. Mr. Forbes argued those companies, small and large, that are trying in good faith to solve this problem should have protection from liability. Information must be shared with the private sector—especially small businesses—about experiences and what they have been able to do in terms of trial runs and working with each other.

Indianapolis Mayor Steve Goldsmith was concerned with the Y2K problems that can affect Indianapolis, including the prison system and the traffic lights. Indianapolis will spend $15 to $20 million to ensure that basic services are working. Indianapolis could raise the awareness of smaller cities and counties during

[71] Windowing is a Year 2000 technique that avoids converting technology from the two-digit year to the four-digit year. Generally, the first two digits of a calendar year (the century) are determined by the value of the two-digit year field. If the year is less than 50, for example, the century is assumed to be 20; if it is 50 or higher, it is assumed to be 19.

[72] "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Sept. 2, 1998, original transcript, p. 88.

statewide meetings by addressing the scope of the level of activity in Indianapolis.[73]

No matter how well a given organization fixes its own system, if it has not dealt with data exchange all best efforts may be for naught. There are hundreds of thousands of data exchanges in Federal, State and local governments and with the private sector. Each of these exchanges need to be inventoried and assessed. Agreements need to be reached with partners and those agreements tested. Agreements with partners on data exchange and the testing of those exchanges is the more difficult issue.[74]

19. September 3, 1998, field hearing (Palatine-suburb of Chicago, IL): "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences"

This hearing was held near Chicago in the district of Representative Phil Crane. Mr. Crane joined the panel for the hearing.

Although there was a wide range of witnesses, there was a particular focus on the embedded chip issue. Witnesses included Joel Willemssen, Director, Civil Agencies Information Systems, Accounting and Information Management Division, U.S. General Accounting Office; Mr. William Vetter, Manager, Bureau of Communication and Computer Services, State of Illinois, accompanied by Randy von Liski, Manager, Information Management Services; Ms. Beth Boatman, Chief Information Officer, city of Chicago; Mr. Michael Cassady, Acting Village Manager, Village of Palatine; Mr. Dave Hall, Embedded Systems Expert, Cara Corp.; Mr. Craig Lang, Senior Vice President, Technology Development, Chicago Transit Authority; Mr. Alan Ho, Y2K Manager, Information Services, Commonwealth Edison Utility Co.; Dr. Galen Crow, Director, Information Systems Technology, Illinois State University; Dr. Wendy Wintersteen, Director, Agriculture and Natural Resources Extension, Iowa State University.

Randy von Liski, Manager of Information Management Services for the State of Illinois, noted one of the difficulties in assessing and repairing embedded chips: "[Y]ou could have two devices that are side-by-side, same manufacturer, same model, that would potentially have different chips and could in fact have different results."[75]

Another witness, David Hall, was an expert in embedded systems from the Cara Corporation. He reported that "fewer than ten percent of the enterprises in the world have begun serious embedded systems testing. . . . [E]very microprocessor-based embedded system and equipment item must be individually tested to be sure of its Year 2000 status. There is insufficient time and trained resources to assess every microprocessor-based embedded system and equipment item in the United States, much less the world." He also raised concerns about the embedded chips in the health care industry. "T]he health care industry has been very late in getting started

[73] Ibid. p. 37.

[74] Ibid. testimony of Joel Willemssen, Director, Information Resources Management, Accounting and Information Management Division, U.S. General Accounting Office, pp. 43–44.

[75] "Oversight of the Year 2000 Problem: Lessons to be Learned from State and Local Experiences," Sept. 3, 1998, written testimony of Randy von Liski.

. . . there are some systems that are life-sustaining that have run into problems."[76]

Beth Boatman, Chief Information Officer for city of Chicago, stated that embedded chips are a top priority for their Y2K project: "What we have decided is that we need to go out and touch every [embedded chip] and what we are right now doing is marshaling the manpower to go out and do that."

Dr. Wendy Wintersteen, Director, Agriculture and Natural Resources Extension, Iowa State University, testified in dramatic terms about vulnerability in the agricultural sector. "In Iowa, we have 14 million hogs in confined environmentally maintained houses. In Minnesota, they have 44 million turkeys in the same types of situations. . . . The important fact to understand here is that when we lose ventilation systems in these houses, we can have animals die in six hours." Further: "Power interruptions on a cold winter's day could lead to severe problems and animal loss, particularly for poultry and livestock producers."[77]

Dr. Wintersteen informed the subcommittee that computers and other electronic control systems are used for feed preparation of livestock, maintaining records about fertilizer, seed and chemicals and other inputs related to agriculture. Grain stored in the United States is also controlled by systems that could have Y2K problems. In addition to these vulnerabilities, technology failure could affect the marketing of commodities and the records of these transactions. She concluded that the "possibility exists of significant disruptions in the marketing channel and related business transactions and day-to-day recordkeeping."[78]

20. September 9, 1998, news conference on Year 2000 report card

In releasing a new set of grades based on the August 15, 1998 quarterly reports from Federal departments and agencies, subcommittee Chairman Horn made the following statement:

> We are here to offer a new assessment of Federal efforts to combat the Year 2000 technology problem. The grades released today take into account the latest data from the Executive departments and the major independent agencies. These data report on the quarter ending August 15, 1998.
>
> Overall, the Executive branch of the Federal Government has earned a "D." This is an improvement from the "F" earned on the June report card. We should be cautious, however, about using the word "improvement" in the context of a "D" grade. As a former professor, I have seen students flunk out of college by earning too many "Ds." This is not a grade you take home to your parents; and it is definitely not a grade to take back to the voters and taxpayers.
>
> Underlying this "D" is deep concern that the Federal Government will be unable to fix a substantial number of systems before January 1, 2000. Based on current projec-

[76] Ibid. pp. 68–69, 94.
[77] Ibid. p. 90.
[78] Ibid. p. 91.

tions, more than one-third of the Government's mission critical systems will not be ready on time. Also, many agencies are planning to replace rather than repair some of their non-compliant computer systems. This is a high-risk strategy. When was the last time you heard of the Government putting a new computer system in place on schedule? This time, the Executive branch faces a deadline that cannot be extended. There is no room for the usual slippage. There is no margin for error.

The cost of the Federal Y2K effort continues to rise. The 24 departments and agencies listed on this report card each submitted a cost estimate, and the total of those estimates is now $6.3 billion. I note that this is almost $1 billion more than the estimate released by the Office of Management and Budget last week. And both staff at OMB and the subcommittee did read the same documents. OMB claims that the total cost to the Government will be $5.4 billion. But the General Accounting Office has carefully calculated the total of all specific agency estimates to be $6.3 billion. OMB has yet to offer a satisfactory explanation for the $1 billion discrepancy.

Several specific agency grades are especially discouraging. The Department of Justice and the Department of Education have each gone from a "D" in June to an "F" now. The Department of Defense earned a "D" and simply is not on track to complete Y2K compliance efforts before January 1, 2000. We are encouraged, however, by the strong leadership demonstrated recently by Defense Secretary Cohen and Deputy Secretary Hamre. They are making Y2K a top priority, and the importance of this kind of leadership cannot be overstated.

The Department of Transportation merited a "D." The Federal Aviation Administration (FAA) is part of this grade. I noted three months ago that the Nation's air traffic could face serious disruptions for an extended period after December 31, 1999 unless there are dramatic improvements in FAA's Y2K effort. I have great faith in FAA Administrator Jane Garvey, but faith is not enough when it comes to grading progress on the Year 2000 problem. Unfortunately, this is just as true today. The Department of Health and Human Services earned an "F" for the second quarter in a row, as did the Department of Energy.

It is important to look beyond Federal agencies and their internal computer systems. State and local governments as well as private and large non-profit organizations must also be prepared for the date change on January 1, 2000. The Subcommittee on Government Management, Information, and Technology has just completed a series of six field hearings around the country on the Year 2000 problem. After hearings in New York, Dallas, New Orleans, Cleveland, Indianapolis, and Chicago, it is clear that the news in our towns, cities, and States is not much better than it is here in Washington.

We found in our field hearings that while some organizations are on the right track, many have concerns about identifying and repairing embedded systems located in such critical equipment as nuclear plants, water and sewer processing systems, and even traffic signals. There are approximately 25 billion embedded chips in use throughout the world and as many as 50 million of them depend on date calculations.

The delivery of basic services—from utilities to public safety—is a major issue, and this raises an obvious question: What is the Executive branch doing to facilitate repairs in this area? Where do we stand? The Federal Government must reach out to the State, local, and private entities that have responsibility for the delivery of basic services.

Many people in the Federal Government are working hard on the Year 2000 problem. Progress is being madebut it is not being made fast enough. We need to redouble our efforts and we need to make more progress faster if the Executive branch and the Nation are going to be ready for a smooth transition into the new millennium.

21. September 24, 1998, Oversight hearing: "Year 2000: Issues Facing the Consumer" (held jointly with the House Science Subcommittee on Technology)

This hearing was convened to consider the Year 2000 status of consumer products and services. The subcommittees hoped that information uncovered at this hearing would help consumers make informed decisions as January 1, 2000 approached.

Witnesses included: Robert Holleyman, Chief Executive Officer, Business Software Alliance; Gary J. Beach, Publisher, CIO Magazine; Paloma O'Riley, Executive Director, the Cassandra Project; Dr. Michael S. Hyatt, Author, "The Millennium Bug: How to Survive the Coming Chaos" and Gary Shapiro, President, Consumer Electronics Manufacturing Association.

At the hearing, subcommittee Chairman Horn stated: "while great strides have been made in raising awareness and inspiring action, still more has to be done by the Executive branch." The President needs to work the Year 2000 problem into other speeches he makes around the country, said Mr. Horn. The Year 2000 problem "is a global Management problem that will only be successfully resolved by effective management and the active involvement of citizens in nearly every country."[79]

The importance of Executive leadership was emphasized by several of the panelists as well. It was cited as a crucial element in preparing consumers for the possible ramifications of the century date change. Paloma O'Riley argued that ". . . by being silent or equivocal, the administration is hampering essential grassroots efforts . . . [I]nformation given to the public will not cause a panic, but the continued lack of solid factual information of rumors and misstatements and a clear lack of leadership will."[80] Mr. Hyatt

[79] "Year 2000: Issues Facing the Consumer," Sept. 24, 1998, original transcript, pp. 8–9.
[80] Ibid. pp. 40–41.

quoted a verse in the Bible to make the same point: "if a trumpet sounds an uncertain sound, then how shall the people prepare themselves for battle?"[81]

There are a variety of consumer products that need to be checked for Year 2000 compliance, including software applications on personal computers. Problems with personal computers are more likely to cause inconvenience than significant harm.[82] A more significant concern lies in embedded chips.

Gary Shapiro discussed traditional consumer electronic products. Most products do not suffer Year 2000 vulnerability and in fact do not even have a date function. A small percentage of these products-mainly those over 10 years old-may be affected. The problems normally are easily fixed simply by resetting the product, such as TV sets, VCR's, camcorders. "[I]f you take the over 1 billion products that are in American homes, we estimate that there may be some impact for some very old products. But based on the information from our members, it will be a relatively small impact."[83]

Witnesses also discussed actions consumers can take to prepare themselves for the century date change. Robert Holleyman suggested that consumers ask questions. Owners of personal computers, for example, need to determine how old the computer is, what is the likelihood of a problem with the software or hardware, and then find solutions available through businesses. Gary Shapiro suggested that the best way for consumers to find out if their products have a Year 2000 issue is to contact the manufacturer to try to get the information.

Paloma O'Riley and Michael Hyatt discussed potential preparations consumers can take to prepare for disruption of services in January 2000. Paloma O'Riley noted that "people across the U.S. and Canada are now taking steps to prepare for potential worse case Y2K scenarios. They are making reasoned and appropriate decisions as how they may best take precautions."[84] She recommended that citizens should be developing contingency plans of their own by talking to their neighbors, learning among them who may be vulnerable, and together attempting to create a safety net for those who may need it.

Michael Hyatt expressed that consumers ultimately have very little influence over whether the organizations they depend upon get their systems repaired in time, but that, ". . . this does not mean that they have to become victims, but it does mean that we must become proactive, take the initiative to make contingency plans, and engage in a little old fashion emergency preparedness."[85] He describes this as life continuity plans. He states, "they must determine how they continue to meet their own needs and those of their loved ones in the face of possible disruption of basic services . . . especially as it relates to food, water, shelter, and especially heat."[86]

Each of these panelists also conveyed that information is essential to solving the Year 2000 problem and recommended to the com-

[81] Ibid. p. 78.
[82] Ibid. p. 19.
[83] Ibid. p. 28.
[84] Ibid. p. 40.
[85] Ibid. p. 47.
[86] Ibid. p. 48.

mittee that legislation is needed to facilitate information disclosure. Mr. Holleyman stated that the Year 2000 liability issue is a problem, ". . . but it is a problem for which there are solutions. And the solution is information."[87]

Gary Shapiro believed that if Congress moved quickly to provide limited liability protection legislation, then it would encourage manufacturers to share all information and thus it would be quite helpful to the industry as well as to the consumer. He added that ". . . we think everyone would be a little more comfortable if there weren't all these lawyers hovering around, ready to file lawsuits."[88] Mr. Beach concurred: "I believe the bills are a step in the right direction, but I would encourage more action."[89]

22. September 29, 1998, Oversight hearing: "Aviation Year 2000: Will We Get There In Time?" (held jointly with the Committee on Transportation and Infrastructure and the House Science Subcommittee on Technology)

This hearing focused on the Year 2000 preparations of the aviation industry. Experts with experience across the government and private industry addressed what specific actions industry officials have implemented to ensure compliance by the year 2000.

Witnesses included Jane F. Garvey, Administrator, Federal Aviation Administration; Jack Kelly, Administrator, National Weather Service, Department of Commerce; Carol Hallett, Chief Executive Officer, Air Transit Association; Bruce Webster, Co-Chair, Washington, DC Y2K Group; David Sullivan, Zonar Corp.; Richard C. Cullerton, Metropolitan Washington Airports Authority [MWAA]; Walt Coleman, President, Regional Airline Association; and Dwight Greenley, Wichita Airport.

One of the most frequently asked questions on the Year 2000 problem is whether it will be safe to fly on January 1, 2000. The aviation industry faces numerous issues related to the readiness of navigational systems, airline maintenance, reservation systems, and airport security, among others. Airlines depend heavily on computer systems for almost all aspects of their operations including flight planning and routing, crew scheduling, capacity planning, pricing, ticketing, and billing. The day to day operations of a major air carrier require hundreds of individual systems to work in concert so that the airlines and airports can deliver quality service to their customers. The systems vary from large mainframes handling millions of transactions involving flight operations and reservations, to simple personal computers handling staff planning for small airports with just a few gates.

The joint committees heard first from former Congressman William F. Clinger, Jr., who served as chairman of the Government Reform and Oversight Committee in the 104th Congress. Mr. Clinger testified as a private citizen but also as a board member of the Aviation Safety Alliance, a non-profit group of aviation professionals. Mr. Clinger set the tone for the hearing by observing: "Of the many critical issues before the aviation industry, and there-

[87] Ibid. pp. 21–22.
[88] Ibid. p. 29.
[89] Ibid. p. 60.

fore the traveling public, none has more far-reaching implications than those associated with the Year 2000 problem."[90]

Administrator Jane Garvey assured the joint committees that the FAA had made considerable progress on Year 2000 repairs since the February 4, 1998 hearing. "I have given my commitment to the American public, and now commit to you, their representatives, that aviation safety will not be compromised on January 1, 2000."[91] She noted that by September 30, 1998 (the OMB deadline for renovations), the agency would complete renovation of 99 percent of its mission critical systems. Administrator Garvey emphasized that the FAA was "on schedule to have the majority of [its] systems compliant [by] March 31, 1999 [and full compliance] by the end of June 1999."[92]

Administrator Garvey also addressed the issues of regional and international air travel. She was concerned that many smaller airports lack the resources to conduct the necessary Year 2000 work. She believed that the FAA was working hard to raise international awareness of the Year 2000 problem, particularly through the International Civil Aviation Organization [ICAO]. The FAA cosponsored a resolution that would require ICAO to develop and publish international Year 2000 assessment criteria as well as status information. In response to a question from Representative Constance Morella, Chair of the Science Subcommittee on Technology, Ms. Garvey stated that the FAA has the authority, if necessary, to suspend flights to international destinations if those destinations are not fully Year 2000 compliant. The FAA is closely monitoring the compliance of foreign airports and will make safety judgments as the year 2000 approaches.

John Kelly testified on the Year 2000 efforts of the National Weather Service [NWS]. He observed that the Weather Service has more than 170 data exchanges with other Federal agencies, private meteorological firms, research institutions, and other nations. Many of these data exchanges involve thousands of hourly weather observations that are put into complex mathematical weather models. The data in these models is not, itself, Year 2000 sensitive, but the data exchanges could be. "Aviation operations at all U.S. airports are heavily dependent on these hourly and special surface weather observations, as well as airport terminal forecasts produced by NWS."[93]

Speaking on behalf of the Washington, DC Y2K Group, Bruce Webster pleaded that the Clinton administration must make the Year 2000 problem the No. 1 priority for the next 16 months, even ahead of Social Security and education reform. Mr. Webster raised concern over polls that suggest two-thirds of Americans know little about the Year 2000 problem. He also asserted that "there has been a profound lack of leadership from the Administration" on the Year 2000 problem.

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[90] "Year 2000: Will We Get There on Time?" Sept. 29, 1998, written statement of former Congressman William F. Clinger, Jr., p. 1.

[91] "Year 2000: Will We Get There on Time?" Sept. 29, 1998, written statement of Jane F. Garvey, Federal Aviation Administrator, p. 1.

[92] Ibid. pp. 2–3.

[93] "Year 2000: Will We Get There on Time?" Sept. 29, 1998, written statement of John J. Kelly, Jr., Assistant Administrator for Weather Services, National Oceanic and Atmospheric Administration, U.S. Department of Commerce, p. 2.

Mr. Sullivan informed the joint committees of a specific technological approach to preparing computers for the year 2000. This approach involves in effect postponing the Year 2000 problem by changing the value for the two digit years that exist now, rather than going through the effort of changing those two-digit years to four-digit years. Mr. Sullivan argued that this approach is in fact much safer than the conversion to the four-digit year because such a massive conversion will inevitably involve numerous unintended mistakes. "The current plan requires changing hundreds of billions of lines of old, reliable program code into new, improved, untested code. Based on computer industry statistics, hundreds of millions of errors will be made in this process, and a large percentage of these errors will not be repaired before these new programs must be put in service to handle Y2K."[94]

Richard C. Cullerton of the Metropolitan Washington Airports Authority described contingency capabilities at the Ronald Reagan Washington National Airport and Dulles International Airport. In terms of temporary power generation, Washington National is more advanced than Dulles and could operate indefinitely at 80 percent of normal electrical usage indefinitely. Dulles could only generate enough power to operate at "a very diminished level of services." Mr. Cullerton pointed out, however, that functions such as airfield lighting are deemed "critical load" and would continue even in the event of a power outage.

23. October 2, 1998, Oversight hearing: "The Status of the District of Columbia's Year 2000 Compliance Effort" (held jointly with the Subcommittee on the District of Columbia and the House Science Subcommittee on Technology)

The subcommittee held a joint hearing on the preparations for the year 2000 in the District of Columbia. Witnesses included Jack Brock, Director, Accounting and Information Management Issues, General Accounting Office; Constance B. Newman, Vice-Chairman, DC Financial Responsibility and Management Assistance Authority; Camille Barnett, Chief Management Officer, District of Columbia; and Suzanne Peck, Chief Technology Officer, District of Columbia.

C. THE FEDERAL LEVEL

1. The Federal Year 2000 problem

The Federal Government is confronting the Year 2000 problem on two levels. The first is the Federal effort to prepare its own technology for January 1, 2000. The second is the Federal effort to play a leadership role in the United States and throughout the world. The subcommittee has conducted extensive oversight of Federal efforts in each of these areas. This section of the report will address first the various aspects of Federal Year 2000 repairs, and second the Federal leadership role.

[94] "Year 2000: Will We Get There on Time?" Sept. 29, 1998, written statement of David E. Sullivan, President, Zonar Corp., p. 2.

a. Mission critical systems

The subcommittee first raised concerns about the Federal Government's computer systems in the spring of 1996. Although a few agencies, most notably the Social Security Administration, were aware of the problem and already at work on it, most were oblivious to the Year 2000 problem. The Year 2000 problem has been closely associated with the kind of large, customized, mainframe computer systems used in Federal agencies such as the Internal Revenue Service, the Social Security Administration, and the Federal Aviation Administration. Similar systems are in use in institutions throughout the country.

Appearing before the House Appropriations Subcommittee on Treasury, Postal Service and General Government on March 11, 1997, the Director of the Office of Management and Budget responded to subcommittee concerns by committing to furnish Congress with a quarterly report on Federal progress toward correcting the Year 2000 computer problem.[95] As the year 2000 approached, subcommittee Chairman Horn called on the Executive branch to switch to monthly or even weekly reporting. Beginning in the summer of 1998, the Office of Management and Budget finally required monthly reports from lagging agencies.

Since September of 1997, the subcommittee has issued four report cards on the basis of the quarterly reports. Although these reports cards have increasingly taken into account factors such as contingency planning, data exchanges, and embedded systems, the primary issue reported on and the primary basis for the grades has been the status of repairs of mission critical computer systems.

There are approximately 7,300 mission critical systems in the executive branch of the Federal Government. As of August 15, 1998, 50 percent of these systems were Year 2000 compliant. At the current rate of progress, the percentage compliant would climb only to 66 percent by March 31, 1999. This date is the President's deadline for fixing noncompliant systems.

It is of deep concern that about one-third of all Federal mission critical systems will not be compliant by March 1999, only 9 months before January 1, 2000, and only 6 months from the beginning of the Federal Government's new fiscal year on October 1, 1999. This is troubling in part because even once these systems are "compliant," they need to be independently verified, implemented (returned to operation), and then put through a rigorous end-to-end testing process involving all related systems. Testing and verification can take at least 9 months, and often requires even more time than that.

A further concern is that virtually all data on Federal Year 2000 status are self-reported. Questions have been raised about the reliability of these data. On June 5, 1998, the Defense Department's Inspector General published a highly critical audit of Defense's Year 2000 remediation. The purpose of the audit was to "determine whether the year 2000 certification process is adequate to ensure that mission critical technology systems will continue to operate properly after the year 2000" and to evaluate "the year 2000 certifi-

[95] The first quarterly report was transmitted to Congress on June 23, 1997. It was based on data provided to OMB by all major departments and agencies on May 15, 1997.

cation process" through a random sample of systems already certified as compliant by the individual managers in charge.[96]

The audit uncovered two separate but related problems in DoD implementation of the Management Plan. First, many systems were certified as compliant when in fact no adequate justification for such assertions existed. The Inspector General estimated that only 109 of the 430 systems reported as compliant by November 1997 were in fact adequately validated according to the five-phase process.

These inconsistencies were in turn traceable to a second problem: the vagueness and ambiguity of definitions and procedures outlined by the first version of the "DoD Year 2000 Management Plan." Much was left to the individual discretion of officials on the spot. Also, the "oversight requirements or processes" for the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence were not clearly defined. This unfortunately has led to many dubious reports of positive progress to the OMB and Congress in the past, although the specificity and rigor of reporting requirements and the visibility of the Secretary of Defense in the whole process have been improving.

This ambiguity extends even to the central concepts and terms utilized in the Year 2000 remediation community, including statements given to Department of Defense project managers by the relevant private vendors. For instance, it has been hard in practice to determine precisely what is meant by the terms "certification" and "compliance." As General Accounting Office representative Alan Rhodes recently argued: "What I would say is that the data that are out there are suspect. The numbers that are presented are not uniform. [The General Accounting Office is] having trouble finding clear definitions. . . . You say tomato, I say tomato. There's a great deal of people who say four things you can hear from a vendor. One you probably will never hear, and that is certified Y2K compliant. . . . Second point would be just Y2K compliant. That's going to come to you from the General Counsel. And it will be a large document, and I promise you won't understand it when you're done. Third thing's Y2K ready. I have no idea what that means. The fourth one is, we don't foresee a problem; and if you have one, call us."[97]

In addition, there has been much uncertainty about the criteria for naming a system "mission critical."[98] As the Year 2000 program has proceeded, many mission critical systems have disappeared from the central database not because of successful completion of the five managerial phases and final certification, but because they were re-identified as "non-critical" to Defense's "core capabilities." Thus, an agency's "progress" may be predicated on a reshuffling of cards rather than timely completion of Year 2000 technical objectives.

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[96] Department of Defense, Office of the Inspector General, Audit Report 98–147, p. i.

[97] Comments at a roundtable on the Year 2000 problem sponsored by the Center for Strategic and International Studies, June 2, 1998, transcript, pp. 9–10.

[98] Department of Defense, Office of the Inspector General, Audit Report 98–147, pp. 11–12.

b. Testing

Testing is a major aspect of the Year 2000 problem. According to many experts, testing is also the hardest, most expensive, and most time-consuming aspect of fixing the problem.[99] The concern is that many Federal agencies will not have sufficient time to thoroughly test their systems. Evidence so far suggests that this is a major problem. The General Accounting Office described the state of Federal testing as "one of the more alarming problems we have come across."[100]

Agencies need a significant amount of time for essential end-to-end testing of multiple systems that have individually been deemed Year 2000 compliant. Such end-to-end testing seeks to ensure that systems collectively supporting a core business function operate as intended. Without such testing, systems individually deemed as compliant may not work as expected when linked together with other systems in an operational environment. These systems include not only those owned and managed by the organization, but also any external systems with which they interface.

For example, the Federal Aviation Administration's Enhanced Traffic Management System monitors flight plans nationwide, controlling high-traffic situations and alerting airlines and airports to bring in more staff during times of extra traffic. Since it must exchange data with airlines' flight planning systems in order to accomplish this, end-to-end testing is essential, and would include systems for all entities involved, as well as their supporting telecommunications.

It is particularly important that the testing process involve verification by an outside source, called Independent Validation and Verification. The General Accounting Office has voiced the concern that most of the data available on the Year 2000 status of Federal agencies is self reported. It is crucial that these data are subjected to independent review. GAO points to two known instances of inaccurate reporting. The Inspector General at the Department of Defense found that the Department had no adequate basis for reporting about 320 Year 2000 compliant mission critical systems in November 1997. And in May 1998, the Department of Agriculture reported as Year 2000 compliant 15 replacement systems that were still in the planning stages.[101]

c. Embedded chips

Only a small percentage of embedded chips keep track of the year (many operate on a 24-hour clock or on a 7 day week, ignoring longer measures of time), and many of those that do are Year 2000 compliant. Nevertheless, there are billions of embedded chips in operation throughout the world and in the Federal Government and

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[99] One witness before the subcommittee articulated the importance of testing this way: "[S]ince there is currently no requirement for an objective measurement of date testing or reporting, the answer to the question about where we stand on remediation today is that nobody knows. This is quite unacceptable and, I might add, very, very dangerous." He went on to say that testing is "between 50 and 70 percent of the total conversion effort." Tom McCabe, Sr., chairman, McCabe & Associates, testifying at "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript pp. 46, 48.

[100] "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript p. 19 (testimony of Joel Willemssen).

[101] Ibid.

they all need to be tested for Year 2000 compliance. It is extremely difficult to identify and to locate all of the embedded chips in any given system or piece of equipment. Even once located, it is difficult to test the chips for compliance.

The problem is exacerbated by the fact that identical pieces of equipment—two fax machines made by the same manufacturer, for example—will often use different embedded chips. This is because manufacturers frequently switch chip suppliers based on the best available price. Sometimes suppliers will use chips that keep track of the date even though the piece of equipment does not need that particular function. This means that organizations cannot eliminate potential Year 2000 failures simply by asking whether a particular system or piece of equipment relies on a date function. The chip may fail even if its date function is unused in a particular piece of equipment.

The Department of Defense is especially susceptible to the embedded chip problem. The Office of Management and Budget conceded the seriousness of the embedded chip problem when Deputy Director for Management Edward DeSeve observed that "this is the great unknown about the Year 2000 problem. . . . At this point, it appears that any large piece of machinery could have an embedded chip problem."[102] Defense has focused on fixing "Commercial-Off-the-Shelf" embedded chips. Since creating chips from scratch is prohibitively expensive, many Defense weapons and systems have traditionally relied on these cheap and readily available mass-produced chips. Some generic chips are suspected of having time functions that might effect operations even though the system does not utilize date fields in everyday operations. Thus, the absence of direct date functions in a communications network or weapons system is not necessarily an accurate indicator of future success in weathering the change to year 2000.

Deputy Secretary of Defense John Hamre graphically defined the risks while briefing Senate Armed Services Committee on June 4, 1998. In his remarks, Secretary Hamre stated: "The failure of an embedded microchip in a discrete, localized computer or machine, such as a wristwatch or the air-conditioning system in a building, can be merely inconvenient. However, failure of a microchip in a critical, large, or dangerous piece of machinery—loss of air pressure in an F–15 or a submerged submarine—can be devastating and even life-threatening."

The Chief Information Officers Council has created interagency working groups in areas such as biomedical devices and laboratory equipment, commercial products, and telecommunications. Each interagency working group, chaired by a key program agency, is tasked with raising awareness across government and working with manufacturers to assure that products are fixed. Each group is contacting vendors on behalf of the entire Federal Government, performing tests to verify the compliance of products, and sharing information through electronic databases.[103]

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[102] Ibid. p. 10. Edward DeSeve is Deputy Director for Management at the Office of Management and Budget.

[103] See the list of these and other web sites in Additional Views of Hon. Stephen Horn.

d. Data exchanges

As computers play an ever-increasing role in our society, exchanging data electronically has become a common method of transferring information among Federal, State, and local governments, as well as nongovernmental organizations throughout society. The Social Security Administration exchanges data files with the States to determine the eligibility of disabled persons for disability benefits. The National Highway Traffic Safety Administration provides States with information needed for driver registrations. As computer systems are converted to process Year 2000 dates, the associated data exchanges must also be made Year 2000 compliant. If the data exchanges are not Year 2000 compliant, data will not be exchanged or invalid data could cause the receiving computer systems to malfunction or to produce inaccurate computations.

Federal agencies have more than 10,000 data exchanges with each other, foreign governments, State and local governments, and private entities.[104] The subcommittee was informed by the Office of Management and Budget that the executive branch is working closely with the National Association of State Information Resource Executives as well as the National Governors' Association. OMB has directed Federal agencies to report on their inventory of data exchanges, State by State, and to ensure that they are all Year 2000 compliant by March 1999.[105]

For example, agencies that administer key Federal benefits payment programs, such as the Department of Veterans Affairs, exchange data with the Department of the Treasury which, in turn, interfaces with various financial institutions to ensure that benefits checks are issued. In addition, Department of Defense systems interface with thousands of systems belonging to foreign military sales customers, private contractors, other Federal agencies, and international organizations such as the North Atlantic Treaty Organization.

e. Cost

The cost of the Federal Y2K effort continues to rise. The 24 departments and agencies listed on this report card each submitted a cost estimate, and the total of those estimates is now $6.3 billion. This is almost $1 billion more than the $5.4 billion estimate released by the Office of Management and Budget.

The subcommittee and committee strongly believe that Federal agencies are responsible for conducting Y2K efforts without delay. In terms of funding, that means primarily reprogramming the resources necessary to fund all Y2K projects. If reprogramming is insufficient, the committee expects Federal agencies, through the Office of Management and Budget, to request all necessary additional funding through the appropriations process. The committee considers the Year 2000 problem a top priority. The Speaker of the House of Representatives has repeatedly stressed to executive branch officials that they have full congressional support for reprogramming,

[104] Testimony of Edward DeSeve, Deputy Director for Management, Office of Management and Budget, at subcommittee hearing "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript p. 9.

[105] Ibid. pp. 9–10.

additional appropriations, or whatever else they need to get the job done.

On July 10, 1997, subcommittee Chairman Horn had the following exchange with Sally Katzen, then Administrator, Office of Information and Regulatory Affairs, OMB: "I gather . . . you feel you have sufficient authority from the Congress in order to deal with the use of resources at the right place at the right time. And if you don't, you're going to ask us for it?" Ms. Katzen replied, "Absolutely." [106]

f. Personnel

The subcommittee heard testimony that raised serious concerns about the ability of the Federal Government to retain and to afford the technological talent necessary to carry out Year 2000 repairs. "I believe that we are going to see an exodus of Government programming talent into the private sector," predicted one witness.[107] He went on to say, "I don't believe that I can overstate the challenge that the Federal Government will face over the next two years to actually find and maintain the staff it needs to fix its problem." [108]

OMB Deputy Director for Management Edward DeSeve testified that the Department of Defense has created a number of department-wide Y2K teams that move from one problem to the next, regardless of organizational boundaries. Further, these teams will be made available to domestic agencies if DOD eventually has surplus technical capacity.[109] Similarly, FAA Administrator Jane Garvey noted that her agency would make available five or six technical experts to help small airports with limited resources to prepare for the Year 2000 problem.[110] John Callahan, Assistant Secretary, Management and Budget, Department of Health and Human Services, urged: "I think governmentwide, as . . . each day passes, it certainly would make good common sense inside the government for there to be some sharing of critical computer personnel." [111]

Obtaining and retaining adequate and skilled staff for the Year 2000 challenge has been an increasing concern. Representatives of agencies and departments have described problems that they or their contractors have encountered in obtaining or retaining information technology personnel. However, no governmentwide strategy has existed to address recruiting and retaining information technology personnel with the appropriate skills for Year 2000-related work.

On April 30, Assistant to the President Koskinen stated that the President's Council on the Year 2000 Conversion would be working with several agencies, including the Office of Personnel Management [OPM], to examine options for ensuring an adequate number of qualified people to perform Year 2000 work. On March 30, the

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[106] July 10, 1997, p. 41.

[107] Testimony of Dr. Michael Harden, president, Century Technology Services, joint hearing on the Oversight of the Government's Year 2000 Efforts, Mar. 18, 1998, original transcript p. 46.

[108] Ibid. pp. 47–48.

[109] Testimony of Edward DeSeve, June 22, 1998, original transcript p. 70.

[110] "Year 2000: Will We Get There on Time?" Sept. 29, 1998, Jane F. Garvey, Federal Aviation Administrator.

[111] "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript, p. 96.

OPM issued a memorandum that the Year 2000 problem was an "unusual circumstance" and agencies grant waivers to allow them to rehire retired Federal personnel on a temporary basis without financial penalty to the retiree involved. The memorandum also advised that agency heads could make exceptions to the biweekly limitation on premium pay if a determination was made that an emergency involving a direct threat to life or property exists. In addition, the Council has formed a Year 2000 workforce issues working group chaired by the Deputy Secretary of Labor.

g. Contingency planning

The General Accounting Office has found that contingency planning by Federal agencies has been inadequate. "Without [contingency] plans, when unpredicted failures occur, agencies will not have well-defined responses and may not have enough time to develop and test alternatives. Because Federal agencies depend on data provided by their business partners and services provided by the public infrastructure [including] voice and data telecommunications, it's imperative that contingency plans be developed for all systems supporting critical core business processes, regardless of whether these systems are owned by the agency." [112]

In March 1998, OMB clarified its contingency plan instructions, stating that plans should be developed for all core business functions. Further, on April 28, 1998, OMB asked agencies to describe their processes and activities for developing contingency plans. Although these are positive steps, much work on contingency planning remains to be completed.

2. The Federal leadership role

In addition to preparing its own technology for the year 2000, the Federal Government must play a leadership role, both within the United States and internationally. This would be appropriate for any wide-spread problem, but is particularly so in light of the fact that technology is highly interdependent and the United States relies on technology more than any country in the world. Furthermore, the Year 2000 problem has the potential to cause excessive anxiety and even panic in people who fear the worst. As noted earlier in the report, this kind of fear is allayed by access to information and confidence in elected leadership. For these reasons, the subcommittee has repeatedly called on the President of the United States as well as the departments and agencies of the executive branch to take a strong leadership role in addressing the Year 2000 problem.

The importance of Federal leadership has also been stressed repeatedly at subcommittee hearings. Subcommittee Ranking Member Dennis Kucinich stated that the Federal Government, in particular, must take a leadership role. "It's not enough that the Federal Government fix its own systems, the Government must also facilitate private sector conversion."[113] One witness asserted that "[w]e need a broad public acknowledgment of the nature, scope, and difficulty of the Year 2000 problem, starting with President

[112] Ibid. p. 18.

[113] "Oversight of the Government's Year 2000 Efforts," Mar. 18, 1998, original transcript p. 15.

Clinton and followed by other leaders in the Administration, in Congress, in the military industry, and elsewhere."[114]

At the subcommittee's joint hearing on July 10, 1997, Chairman Horn told Sally Katzen, then Administrator of the Office of Information and Regulatory Affairs at the Office of Management and Budget, that the Year 2000 problem is worthy of Presidential attention. Chairman Horn asked: "Have you or the Director of OMB recommended to the President that he speak in this area in a radio address or by other means of communication?" Sally Katzen replied that they had not.[115] She also argued against the idea of a governmentwide coordinator or "Y2K Czar," saying "[t]his is not an area, in particular with the Year 2000 issue, where a silver bullet or a dose of medicine administered at a centralized point is going to solve the problem."[116] Fortunately, the White House eventually changed its position and the President appointed a coordinator, Assistant to the President John Koskinen, who chairs the President's Council on the Year 2000 Conversion. This action was taken on February 4, 1998.[117]

But establishing the President's Council on the Year 2000 Conversion was not, by itself, enough. There are further steps the President and his administration should take. For example, the General Accounting Office testified before the subcommittee on prioritization within the Federal Government: "We have recommended the [President's] Council [on the Year 2000 Conversion] Chairman [John Koskinen] establish governmentwide and agency-specific priorities based on criteria such as adverse health and safety impacts, national defense, adverse financial impact and economic repercussions. The Chairman disagreed with this recommendation, stating that agencies have already established priorities."[118]

In terms of international leadership, trade is especially vulnerable to the Year 2000 problem because it is highly dependent on technology. Every import and export transaction involves a number of sequential steps and several companies, including transportation companies, ports, freight forwarders, banks, warehouses, and government agencies. All these entities rely on information technology systems and embedded systems. Furthermore, it is actually impossible to test the systems until January 1, 2000, due to the sheer number of discrete technologies and enterprises that make up a foreign trade transaction. One witness put the international picture in dramatic terms: "[W]e come to the conclusion that foreign trade, unfortunately, is going to decline very rapidly and very quickly as we move into next year."[119]

In addition to trade, the same civilian and military mission critical systems at risk of failure in the United States—such as command and control systems in the defense context—are also at risk of failure in other nations. The global nature of this problem may

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[114] "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript, p. 40 (testimony of Bruce F. Webster, Director, Washington, DC Year 2000 Group).

[115] "Will Federal Government Computers be Ready for the Year 2000?" July 10, 1997, p. 40.

[116] Ibid. p. 47.

[117] See Appendix C.

[118] June 10, 1998, original transcript 14.

[119] "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript, p. 24 (testimony of Dennis Grabow, president, Millennium Corp.).

become increasingly apparent in telecommunications networks. This is an area of vulnerability that has so far received very little attention. It illustrates both the expanding nature of the problem and the difficulty in coming to a detailed understanding of the specific consequences we face. All nations, especially those with nuclear arsenals and other sophisticated satellite and weapons systems, must understand the potential impact of the Year 2000 problem.

OMB Deputy Director for Management Edward DeSeve testified on the international outreach effort at the subcommittee's June 22nd hearing.[120] He also noted that the President raised the Year 2000 problem at the G–8, and that the executive branch is working with the United Nations,[121] the World Bank, the International Monetary Fund, and other organizations.[122] These steps are just the beginning of effective leadership. The President needs to take a more visible role, especially with our own residents.

The Federal Government also needs to exert leadership through effective management. The executive branch Year 2000 effort unfortunately is indicative of the general state of executive branch management problems. Federal managers often lack the basics—strategic plans, missions, goals, objectives, benchmarks, performance measures for outcomes and results, and most important the will to use the tools that must be available to management if it is to succeed. Dealing with the Year 2000 problem is a very good example of the lack of management capabilities available to the President.

There is a great need to resolve long-standing financial management problems that plague the Federal Government. Billions of dollars of taxpayers money are being lost each year to fraud, waste, abuse, and mismanagement in hundreds of programs. One of the root causes of this loss is poor financial management systems and practices that are obsolete and ineffective and do not provide complete, consistent, reliable, and timely information to congressional decisionmakers, the President, and senior department and agency management. Financial losses can be identified and significantly reduced by improved management. So can the loss of effective and timely administration of program resources. Parallels with the Y2K compliance effort are clear.

Congress enacted a series of laws designed to ensure that agency management problems were fixed. In fact, the Chief Financial Officers Act of 1990, as expanded by the Government Management Reform Act of 1994 and amended by the Federal Financial Management Improvement Act of 1996, provided the most sweeping reform of Federal financial management in over 40 years. However, agencies have yet to implement these laws fully. And now with the Y2K crisis, all citizens are at risk because of these long term management failures. Congress needs to provide the incentive to get it right.

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[120] Ibid. pp. 56–57.

[121] See Appendix A for correspondence between Subcommittee Chairman Horn and U.N. Secretary General Annan.

[122] "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript, pp. 80–81.

On March 31, 1998, the General Accounting Office released its audit report on the financial status of the Federal Government. This report provided, for the first time, a concise accounting for the myriad problems faced by the Federal Government. The first-ever Governmentwide financial audit and balance sheet demonstrated that there are serious problems with financial management in the majority of Federal agencies.

GAO's audit report provided a synopsis of the significant financial systems weaknesses, problems with fundamental recordkeeping, incomplete documentation, and weak internal controls, including computer controls, that prevent the Federal Government from accurately reporting a large portion of its assets, liabilities, and costs. According to the GAO, these problems "affect the [Federal] government's ability to accurately measure the full cost and financial performance of programs and effectively and efficiently manage its operations."

The subcommittee held a hearing on April 1, 1998, to examine the results of the Governmentwide audit and then held a series of hearings examining the results of the audits of the Internal Revenue Service, Department of Defense, Social Security Administration, and Health Care Financing Administration. Oversight by the subcommittee and efforts by others are having an effect. On May 26, 1998, the President issued a memorandum to the heads of executive departments and agencies directing the Office of Management and Budget and the heads of certain agencies to take steps to resolve issues preventing a clean opinion.

Congress must continue to take steps to rid the Federal Government of pervasive financial management problems. Not only do these problems preclude an audit opinion, they undermine the confidence of the American people. The Federal Government needs to manage the funds entrusted to it efficiently and effectively. To do otherwise is a violation of the trust citizens and taxpayers place in their government. These problems are severe and we cannot allow them to persist.

The Year 2000 problem has served to highlight poor management in the Federal Government. With rare exceptions over the last 77 years, management has been de-emphasized relative to budget within President's Bureau of the Budget and its successor, the Office of Management and Budget.

Management's third class status is no secret. Today, experts agree that the "M" in OMB has been in steady decline and now barely exists. Presidential advisory groups have recommended strengthening management within the Executive Office of the President. Two Congressional Research senior specialists noted that "whether by intention or neglect, recent Presidents have, arguably, been ineffective managers, and the negative results have been cumulative." [123]

As the Year 2000 problem has illustrated, the "M"—management must be put back into the Presidency. The solution is to give management a powerful profile within the Executive Office of the President. Legislation would create an Office of Management on equal

[123] "Creating an Office of Management," May 12, 1998, joint statement of Harold C. Relyea and Virginia A. McMurtry, Specialists in American National Government, Congressional Research Service.

footing with the Office of Budget. There is little debate over whether the executive branch of the Federal Government needs better management. There is virtually universal agreement that it does. The question is how to bring about substantial, enduring improvements. Rather than focus solely on today's particular set of problems, we would be wise to prepare for the long term. We must look to the larger picture of organizational structure.

There are two basic alternatives for management in the Federal Government: to leave general management responsibilities in the Office of Management and Budget, where they currently reside, or to move general management responsibilities to a new Office of Management in the Executive Office of the President with a Director reporting to the President. OMB would become the Office of Budget with its Director continuing to report to the President.

This is not a question of theory; it is a question of practicality. Certainly it is within the power of the President and the Director of the Office of Management and Budget to bring about serious management improvements within the present structure. They are free to treat management as a top priority. But, knowing that in practice management is not always made a top priority, we must set a structure that endures.

When President Nixon put a stress on the "M"—Management—component and renamed the Bureau of the Budget the Office of Management and Budget, the presumption was: "At last the management needs of the Executive Branch will get attention. With budget clout, those in Cabinet departments and independent agencies will improve their orientation so the clients—the taxpayers—will have better service. The presumption was wrong. Senior civil servants and political appointees in the 1970s, 1980s, and the early 1990s kept saying "it is not working." Experts have repeatedly argued that budget deficit pressures and management of a $5–$6 trillion national debt have driven out management issues.

The Federal Government is the largest, most complex organization in the world. Federal management is not practiced well. Management has always been the third-cousin behind politics, programs, and budgets. By the time these have been addressed there is little left for effective organizational structure and strategic plans, personnel development, cost accounting, financial management, integrated computer systems, and results-oriented program administration. For generations there have been myriad complaints about the symptoms of poor management, even some recognition that poor management is a major cause of program failure, but management itself has not improved.

Although there are lessons to be learned from the private sector, nobody is suggesting that the Federal Government should be run like a commercial corporation. It is different. Politics, programs and budgets are the big kids on the block. However, management must be improved; it is the vehicle for effectively and efficiently implementing the big issues. Management does not and should not drive politics, but neither can it be ignored.

There are few places in the Federal Government where staff is dedicated to improving management. A tiny, tiny piece of OMB focus is management but it is overwhelmed with the budget burden and unfortunately is regularly ignored because short term policy

and budgeting issues drive out longer term management initiatives.

Historically Federal management has received little attention. The Bureau of the Budget was created in 1921. Virtually no attention was given to management in the early years. Accounts agree that, during 1921 to 1939, BOB conducted no organization or management studies. Over the years the BOB/OMB has assumed responsibility for various management functions—administrative, intergovernmental, personnel utilization, procurement, paperwork/information, statistical, regulatory, financial, among others. Since the 1950s, when performance budgeting was first used in the Federal Government, the BOB/OMB has been required by successive administrations to adopt and adapt to a variety of changing of arrangements for planning and budgeting.

The only solution that has not been tried is splitting Budget and Management into separate offices. The notion that only the clout of the budget can force management reforms has proven false. The empirical evidence proves just the opposite. In the Federal Government, budget does not help management; budget drives out management. Legislation is needed to create a separate Office of Management and to transfer to it all existing management responsibilities such as the Government Performance and Results Act and Year 2000 computer problems. The bulk of OMB is unaffected except for a name change to Office of Budget and Office of Management.

Presidents deserve better. As Chief Executive, the President needs to have a small group of experts on management that can work with members of the Cabinet and other senior officials in an administration to improve management capability.

D. THE STATE AND LOCAL LEVEL

1. The State and local government Year 2000 problem

The Year 2000 problem has broad ramifications at the State and local level. State, county, and city governments must prepare their own technology. In many ways this is a problem even more challenging than that faced by the Federal Government. State and local governments deal with a vast array of equipment that depends on embedded chips, for example. This equipment includes everything from fire trucks and paramedic equipment to railroad crossing signals to traffic lights to police radios and 911 equipment. Furthermore, the critical public safety functions of local government must not lapse even temporarily as the date changes. This means these governments have to do careful and comprehensive contingency planning.

This section of the report divides the State and local level into two broad areas: the efforts of governments to prepare their own technology, and the basic infrastructure services that these governments oversee and in some cases operate. The first area is organized according to the level of government (State, county, city); the second area is organized according to four basic services: electricity, sewage, telecommunications, and water.

As noted above, the subcommittee held a series of six field hearings to examine the State and local aspects of the Year 2000 prob-

lem. The first was held on August 13, 1998, in New York, New York. The last was held on September 3, 1998, in a suburb of Chicago, IL. In between, the subcommittee stopped for hearings in a suburb of Dallas, TX; New Orleans, LA; a suburb of Cleveland, OH; and Indianapolis, IN. These geographically diverse areas offer an important sample of Year 2000 preparations at the State and local government level across the United States.

a. State governments

The subcommittee heard testimony from a total of seven State governments. There was great variation among these States in terms of the extent of their Year 2000 challenges, the level of preparation achieved so far, the costs involved, and-perhaps most important—the data available.

Mr. Peter Sullivan testified on behalf of the State of Connecticut. He is the director of the Year 2000 Program within the Connecticut Department of Information Technology. This department was created by statute in July 1997. Connecticut reported that 69 percent of its 800 mission-critical systems require remediation, upgrade, or replacement. The State reported completing 35 percent of its conversion efforts and 20 percent of its testing efforts. Connecticut has adopted a completion goal of March 1999. In April 1998, Connecticut budgeted $95 million for the Year 2000 effort. According to current reporting, "agencies have completed 35 percent of their conversion efforts and 20 percent of their testing efforts overall." [124]

Mr. William Vetter, Manager, Bureau of Communication and Computer Services, State of Illinois, noted that many Illinois agencies "began to address the Y2K challenge several years ago, even in the 1980s." [125] The State's target completion date for Year 2000 repairs is January 1, 1999.

Laura Larimer, Director of Information Technology for the State of Indiana, reported that Indiana agencies are divided into those that have used central contractors for their Year 2000 assessment and remediation and those that have not. Although Indiana did not report on its current status, it reported that agencies using the central contractors are on track to complete analysis, remediation, and testing of custom software by June 1999.

Ms. Larimer also reported that two significant agencies that did not use the central contractors, the Department of Transportation and the Department of Workforce Development, are progressing in accordance to plan. She did not provide current status or anticipated completion dates. Indiana also reported that, with the exception of medical devices (which were 18 percent complete), it has completed the inventory of hardware, software, telecommunications equipment, and facility processors. Indiana expects to have all vendor compliance information by November, 1998.

Louisiana did not report any Year 2000 status information. Renea Austin, Division of Administration, State of Louisiana, who was accompanied by Ms. Chris LaBlanc, Project Manager, Louisiana Year 2000 Coordination Project State, noted that Louisiana

[124] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 13, 1998, original transcript, p. 37.

[125] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 3, 1998, original transcript, p. 23.

agencies were asked to submit remediation status reports in June 1998. Also, the State plans to coordinate with colleges and universities around that State to provide a downlink for this broadcast and distribute videotapes for those unable to attend.

Mr. Ronald Vidmar, Deputy Director, Computer Services Division, Ohio Department of Administrative Services: "The State of Ohio began assessing this problem in early 1996. . . . We determined that from a funding standpoint, we had a $61 million problem. . . . To date, we have not increased that amount."[126] Mr. Vidmar reported that Ohio agencies were approximately 60 percent complete at the end of August 1998, according to self reporting. "[I]deally we would have all of our agencies through remediation by the end of this year. I honestly do not believe that will be possible."[127]

Ohio is not having a problem keeping technology personnel on the payroll: "[T]oday we have found that our retention rate is very high, we have lost probably less than 10 percent as far as the State government is concerned. . . . Now that is today. I will be equally concerned three months from now because I agree that at some point this pool is likely to dry up."[128]

Mr. Gary Davis, Project Director, Office of Technology, testified for the State of New York. He observed that Governor Pataki had recognized the problem early on and the "Year 2000 Date Change Initiative" was established in April 1996. The State decided to prioritize early in the project, identifying 40 "top priority" systems "that have a direct impact on public health, safety, and welfare."[129] Systems in this category include child welfare, criminal history, inmate population, and tax processing.

As of the August 13, 1998 hearing, New York State had 6 of its top 40 systems Year 2000 compliant; the remainder were scheduled to be competed by January 1999. New York also reported that 19 percent of its 900 data exchanges were compliant. The State put its cost estimate at $250 million. "We have implemented numerous strategies to recruit, retain, and compensate staff."[130] Mr. Davis also noted that his State is actively participating in Federal-State Year 2000 coordination meetings and working with other State and local governments on the issue.

Texas reported that it believes that most mission-critical systems will be ready for the Year 2000. All coding changes are targeted to be completed by December 31, 1998. All agencies with embedded systems are supposed to report to the Texas Year 2000 Project Office in October 1998.

In October 1997, Pennsylvania hosted the first State-Federal Chief Information Officers' Summit. Participants at this summit made significant decisions on how to proceed in the Year 2000 challenge, including: (1) to use a four-digit year standard for data exchanges between States and Federal agencies; (2) to establish a national policy group, co-chaired by the Office of Information and

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[126] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 1, 1998, original transcript, p. 18.
[127] Ibid. pp. 45–46.
[128] Ibid. p. 60.
[129] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 13, 1998, original transcript, p. 27.
[130] Ibid. p. 29.

Regulatory Affairs in the Office of Management and Budget and the president of the National Association of State Information Resource Executives; and (3) to create a joint State/Federal technical group, co-chaired by the chair of the Federal Chief Information Officers' Council Year 2000 Committee and the chair of the National Association of State Information Resource Executives' Subcommittee on the Year 2000.[131]

Despite this positive effort, the ability of State governments to prepare for the year 2000 remains in doubt. As January 1, 2000 approaches, time for thorough testing will run short for States trying to do too much at the last minute. Costs will rise, and the technical expertise necessary to implement and test sophisticated systems will be increasingly scarce. "Texas, Missouri, California, and a number of others have already cited the fact that they are unable to attract and retain the resources that they need to fix their problems."[132]

b. County governments

The subcommittee took testimony from four county governments. They were generally less prepared than the State governments. For example, the 1st Vice President of the Police Jury Association of Louisiana reported that many of Louisiana's smaller rural parishes (Louisiana's equivalent of counties) have not addressed the Year 2000 problem and some have not even realized that they may have a problem. This was a disturbing revelation. The county level is crucial since many basic services, including public safety, police protection, welfare administration, and utilities, are provided by this level of government.

Cuyahoga County of Ohio reported that, as of July 30, 1998, its implementation phase (which includes coding and testing) was 53 percent complete and 3 weeks behind schedule. The county estimated its Year 2000 costs at approximately $9.8 million.

Nassau County, NY was represented by Douglas Wipperman, Director of Data Processing for the county. He reported that the County discovered the problem early on and decided to approach it through full remediation of expanding to the four-digit year rather than through windowing. "Many of the consultants approached us suggesting that [windowing] was the way to go, but what happens is, we are left holding the bag after they are gone."[133]

Nassau's mainframe applications are expected to be Year 2000 compliant by December 1998. However, Nassau County did not report on an expected completion date for its mini-computer and PC applications. Nassau County expects its Year 2000 costs to be between $28 and $35 million. Mr. Wipperman informed the subcommittee that Nassau used the Year 2000 problem as an opportunity to replace some aging systems.

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[131] See "Year 2000 Computing Crisis: Potential for Widespread Disruption Calls for Strong Leadership and Partnerships," U.S. General Accounting Office Report to Congress, GAO/AIMD–98–85, p. 17.

[132] "Joint Hearing on the Oversight of the Government's Year 2000 Efforts," Mar. 18, 1998, original transcript p. 47 (testimony of Dr. Michael Harden, president, Century Technology Services).

[133] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 13, 1998, original transcript, pp. 53–54.

Westchester County, NY reported that 71 percent of its Year 2000 project would be completed by the end of 1998 and that all applications would be complete by September 1999. The County has budgeted $15.75 million for its Year 2000 efforts. The county is using the windowing technique to prepare for 2000. Westchester was represented by Mr. Charles Adrion, Director of the county's Year 2000 Project Office. He told the subcommittee that the county executive required every department to assign a Year 2000 coordinator.

Mr. Adrion also testified that "[a]t present, there is no reason to believe that staff shortage will affect our ability to complete [preparations] on time." [134] He did, however, express concern over legal liability, saying fear of liability has led to a decline in cooperation between public and private organizations. "[W]e highly recommend consideration by Congress of legislation which would hold harmless local governments for problems both of our own creation and those outside our control." [135] Mr. Adrion was pessimistic about his county's ability to finish all Year 2000 preparations on time.[136]

c. City governments

City governments expressed more concerns about both funding and hiring and retaining qualified personnel to deal with the Year 2000 problem. Several of the cities hoped to get some funding assistance from the Federal Government.[137]

The Mayor of Baton Rouge, LA announced a "call for action" to enhance local government and community awareness of the Year 2000 problem. Coinciding with this announcement, Baton Rouge has hosted governmental and community Year 2000 seminars. Baton Rouge reported to the subcommittee on the Year 2000 readiness of 130 hardware and software items. Of these, about one third were scheduled to be replaced or repaired. Many of these items were scheduled to be implemented by the first quarter of 1999, however, several items had no implementation date.

Baton Rouge, LA stated that the initial process of identifying what devices have embedded systems is cumbersome and that a central repository of equipment and devices would be useful. Also, Mike Walker, Director of Information Services for the city of Baton Rouge, testified: "It has been extremely difficult for us to recruit new employees." [138]

Ms. Beth Boatman, Chief Information Officer for the city of Chicago, reported that their Year 2000 Project had been active since late 1996 and that the city is aiming to complete mission critical systems remediation during the first quarter of 1999.[139] She reported two major concerns: personnel and embedded chips. "We

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[134] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 13, 1998, original transcript, p. 46.

[135] Ibid. p. 47.

[136] Ibid. p. 72 ("I have managed a number of projects over the years, and it's unusual that . . . our projects finish on time").

[137] New York City's deputy mayor, for example, stated that Federal aid to State and local governments to help pay for Year 2000 work would allow them to continue to provide current, new, or expanded services.

[138] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 19, 1998, original transcript, p. 105.

[139] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 3, 1998, original transcript, p. 29.

particularly are having trouble finding skilled workers. * * * We have chosen to privatize almost the whole year 2000 project, for a couple of reasons. One is our attrition is up near 20 percent and we are constantly seeing people turn out of our technology department."[140] Regarding embedded chips, Ms. Boatman asserted that her "biggest concern right now is probably the embedded systems piece."[141]

Indianapolis, IN reported that the third quarter of 1998 marked the beginning of its intensive renovation and concurrent testing phases. Specific status information or completion dates were not provided. Indianapolis reported that it expects its Year 2000 costs to be about $13 million. Indianapolis also stated that the Congress can assist municipalities by directing grant funds toward a more timely replacement of some outdated Year 2000 noncompliant hardware.

Lubbock, TX plans to distribute a Year 2000 newsletter to its recreation and senior centers, libraries, and municipal facilities. Lubbock also plans to distribute a bilingual insert in its city-owned utility company's October utility bills. Lubbock reported that it was planning a Year 2000 "drill" for an unannounced night in September 1998. As part of this drill, Lubbock was designing scenarios of possible items that may fail due to the Year 2000 as well as "normal" scenarios (such as inclement weather) that may occur on December 31, 1999. This is an excellent approach to testing and the committee hopes other entities will emulate it.

New Orleans, LA reported that its computer infrastructure had been updated and its biggest applications completed. The remaining Year 2000 work (including the completion of its mission-critical Human Resources System) is scheduled to be completed in the first quarter of 1999.

New York City reported that as of August 4, 1998, 287 of its 706 priority systems were in the process of being tested and certified as Year 2000 compliant. Work was continuing on the remaining 419 systems, but no projected completion date was provided. Mr. Joseph Lhota, Deputy Mayor for Operations, reported that New York has spent or appropriated $319 million for Year 2000 repairs already, and "unfortunately that number will only go up."[142]

Mr. Lhota indicated that New York has an ambitious approach to the Year 2000 problem: "Generically, anything that goes wrong in New York is always blamed on the Mayor, so it's important that he make sure we know what's going [throughout the City]."[143] In terms of a technical workforce, New York City implemented a technology training and mentoring program. New York City reported that it has trained over 300 people in this fashion. Also encouraging is that the New York sewer system is not vulnerable to the Year 2000 problem.[144]

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[140] Ibid. p. 57.
[141] Ibid. p. 41.
[142] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Aug. 13, 1998, original transcript, p. 19.
[143] Ibid. pp. 21–22.
[144] Ibid. p. 82.

2. Basic infrastructure: electricity, telecommunications, water

"Frankly, we as a nation do not know where we stand on key infrastructure areas like power, water, and telecom . . . There's a lot of talk but when you get beneath that talk there is no underlying data." [145]

a. Electricity

The importance of electricity is almost too obvious to merit discussion. Without power, the Year 2000 readiness of virtually all technology will be a moot point. But as a society, we rely on electricity for much more than computers. One witness before the subcommittee discussed the importance of power in the context of agriculture. "In Iowa, we have 14 million hogs in confined environmentally maintained houses. In Minnesota, they have 44 million turkeys in the same types of situations. . . . The important fact to understand here is that when we lose ventilation systems in these houses, we can have animals die in six hours." And: "Power interruptions on a cold winter's day could lead to severe problems and animal loss, particularly for poultry and livestock producers." [146]

Unfortunately, experts are raising grave concerns about the preparedness of the power industry. The production and distribution of power rely to a great extent on embedded technology. Furthermore, the "power grid" is highly interconnected. Failure in one region of the country could precipitate failures elsewhere. "[I]t's very likely that we will have brownouts in this country, and possibly some intermittent blackouts . . . only because if you look at the entire grid it's . . . basically an end-to-end system that has to be tested. There are 6,000 power plants out there that all have to be remediated; and unfortunately, as we look at the work from our analysis, we don't see that [remediation and testing] is being done in every case." [147]

The Consolidated Edison Co. of New York reported that its critical systems were either renovated or in the process of being renovated, with an expected completion date in the fourth quarter of 1999. Other systems of lesser importance are expected to be completed by June 1999. The Consolidated Edison Co. of New York also reported that it is researching the embedded systems in its control systems components to determine if they are Year 2000 compliant. The company reported that it has not identified any fatal flaws that would have a catastrophic effect on its operations. Renovation of these embedded systems is expected to be completed by mid-1999.

The Texas Utilities Co. reported that more than 90 percent of inventory and assessment activities are complete and 25 percent of its testing. The utility company reported it is examining 291 soft-

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[145] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 2, 1998, original transcript, p. 126 (testimony of Joel Willemssen, Director, Information Resources Management, Accounting and Information Management Division, U.S. General Accounting Office).

[146] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 3, 1998, original transcript, p. 90 (testimony of Dr. Wendy Wintersteen, director, Agriculture and Natural Resources Extension, Iowa State University; see also Dr. Wintersteen's prepared testimony, p. 1).

[147] "Year 2000: Biggest Problems and Proposed Solutions," June 22, 1998, original transcript p. 23 (testimony of Dennis Grabow).

ware products and approximately 300 client-server applications. Additionally, the company reported that its Year 2000 project was on schedule and that 25 percent of the inventoried applications are compliant. Software conversion and testing was in progress and would continue through 1998 with full integrated testing and implementation in 1999. Assessment of its information technology infrastructure was scheduled for completion by the end of the summer and work was scheduled to be complete by the end of the year. Inventory of the utility companies embedded systems (about 11,000) has been in progress since last year and conversion is expected to be mostly completed by the end of 1998, with some work extending into 1999. The Texas Utilities Co. reported an expected Year 2000 cost between $28 and $31 million.

FirstEnergy reported that it was nearing the completion of a full-scale inventory and assessment of all computer hardware, software, and embedded systems and is identifying which systems need to be renovated and which need to be replaced. This phase of FirstEnergy's Year 2000 project is expected to be completed by the end of 1998. In particular, the FirstEnergy is (1) assessing its power generation function, which was projected to be completed in the fall, (2) evaluating its nuclear power plants, and (3) assessing its fossil plants (its largest ones are currently undergoing an inventory). FirstEnergy expects to complete Year 2000 remediation by the first quarter of 1999 and testing by the third quarter of 1999. Mr. John Gill, Senior Vice President, FirstEnergy Corp., observed that "power generation is probably the most complicated area to assess because of the number and complexity of the systems." [148]

b. Telecommunications

With almost half of the world's computer capacity and 60 percent of its Internet assets, the United States is the world's most advanced—and most dependent—producer and user of information and telecommunications technologies. Such technologies have helped fuel the growth of the U.S. economy and have enabled major improvements in the Nation's infrastructure. The Year 2000 readiness of these telecommunications technologies is therefore of great concern.

The telecommunications infrastructure is comprised of the public telecommunications network, the Internet, and the millions of computer systems for government, defense, commercial, and personal use. The telecommunications network includes communications and information transmissions via a complex web of interconnected networks operated by local and long-distance telephone carriers, cellular networks, and satellite services. Significant portions of the Internet rely on services provided by the public telecommunications networks.

The array of reliable telecommunications services is made possible by a complex web of highly interconnected networks supported by switches and other telecommunications devices. Along with national and local carriers and service providers, important links in the chain include the equipment manufacturers and sup-

[148] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 1, 1998, original transcript, p. 75.

pliers and customers. The key is connectivity: all of the pieces must work together.

All telecommunications network components—including switches, routers, PBXs, and Internet servers—must be assessed and tested to ensure compliance with the Year 2000 computer problems. The potential problems are further compounded by the global nature of today's telecommunications systems, which rely on seamless connections among widely scattered and widely diverse networks.

Telecommunications systems are critical to the operations of nearly every public and private sector organization including financial services and brokerage institutions; health, safety, and emergency services; transportation; utilities; and manufacturing and small business. Disruption in the service provided by the public telecommunications network can affect millions of users and cause massive financial losses.

The Federal Government depends heavily on the telecommunications infrastructure. Many agencies, including those in the Department of the Treasury and Department of Health and Human Services [HHS], rely on both their private networks and on the public telecommunications network to conduct mission-critical business. An electronic Medicare payment, for example, may traverse several networks: those operated by HHS, computer systems and networks at the Department of the Treasury, and the Federal Reserve's Fedwire electronic funds transfer system.

Businesses and financial institutions rely heavily on telecommunications networks to participate in the global payments system, to exchange information with trading partners and regulatory agencies, and to manage their internal control systems and sophisticated computer equipment.

Year 2000 failure in the telecommunications infrastructure would bring potentially disastrous consequences. Financial institutions would be unable to process financial transactions and trades. Major disruption in the service provided by the public telecommunications network can affect millions of users and cause massive financial losses. The cost of disruptions and outages caused by noncompliant computer or telecommunications systems was discussed in a recent study of the potential impact of Year 2000-related foreign exchange settlement failures. According to the study, the market costs of a single major bank's inability to settle its trades could reach $3.3 billion in a single week. Other basic services are also vulnerable. Air traffic control communications systems would fail; some consumer credit card transactions would fail; and 911 emergency service transmissions could not be processed.

Most major carriers expect to achieve Year 2000 compliance of their network services by December 1998. Most major carriers also plan to be fully compliant, including support services and systems, by mid-1999. At a June 1998, House Ways and Means subcommittee hearing, the General Accounting Office testified that it will be a "massive challenge" to bring the telecommunications industry into compliance on time. With less than 19 months remaining, the GAO was concerned that no one currently had an overall assessment of the degree of year 2000 risk in the telecommunications infrastructure. There may not be time to ready all systems, but there

is time to concentrate on the most important ones affecting health, safety, national defense and economic concerns.

Ameritech reported that it will come close, though not quite achieve, its goal of having its mission critical systems ready by January 1, 1999. As of the end of the second quarter, 1998, Ameritech had remediated over 80 percent of Ameritech-owned code and certified and deployed over one half of its applications. In addition, Ameritech reported that, by the end of the second quarter of 1998, it had tested and completed the deployment of Year 2000 upgrades in over 50 percent of its network switches requiring upgrades. Assessments of Ameritech's facilities and product management is on-going (and expected to be completed during the third quarter of 1998).[149]

Ameritech is participating in the Year 2000 Telco Forum Interoperability Testing. This testing, which was due to start in July 1998, will cover a broad cross-section of services, from voice to high speed data circuits to complex 911 emergency services. It will use a laboratory to simulate peak traffic loads and analyze actual network performance. Ameritech also reported that it is participating with the Alliance for Telecommunications Industry Solutions [ATIS] which is planning additional nations, and possibly international, interoperability testing of the telecommunications network.

c. Water

To power and telecommunications, a third essential service must be added: the water supply. Water is essential for not only for human consumption, but for sanitation as well. A failure in the water supply could very quickly lead to dangerous conditions, including a lack of potable water and sewage backups.

Water and sewer companies rely on computers as well as equipment operated by embedded chips for a wide range of functions. These include electronic pressure recorders, generators, collection systems monitoring, flow monitoring, mobile equipment, meter reading, and routing. They also include laboratory analysis, industrial compliance determinations, and geographic information systems.[150] If their technology fails, a variety of malfunctions could result.

The Public Utilities Co. of Ohio sounded an optimistic note when testifying before the subcommittee. "I would say every utility in Ohio, primarily due to I think the initial Federal efforts but then obviously subsequent State efforts, have gone through the process of awareness and assessment. They have all inventoried, they have all gone fairly well through remediation and testing." [151]

David Hall, an embedded chip expert and Senior Engineer, CARA Corporation, reported on his discouraging observations of Year 2000 preparations at water treatment plants: "Every municipality I have worked with said that their wastewater treatment and wastewater flow is the most critical item, bar none, even elec-

[149] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 1, 1998 (see testimony of Mr. Fred Kowitz Director, Ameritech Corp.).

[150] This list is derived largely from the Association of Metropolitan Sewerage Agencies.

[151] Ibid. p. 74 (testimony of Mr. Donald Mason, commissioner, Public Utilities Commission of Ohio).

tricity. And I have yet to see anybody from a national level or even a state level start looking or trying to get everybody together to determine whether the water and the wastewater flow and the other things can come together." [152] The General Accounting Office made a similar observation: "[T]here is increasing evidence of a great number of embedded chips in water and wastewater systems that must be dealt with quickly." [153]

III. Conclusions

Based on the findings of the subcommittee's investigation, the Year 2000 problem requires one of the most massive and coordinated repair efforts in human history. An enormous amount of progress has been made, but at least as much remains to be done and, unlike virtually every other major challenge, the Year 2000 problem presents an absolute deadline. Both because of the enormity of the challenge and because of the extraordinary potential for fear and panic, this problem calls for strong leadership. The committee hopes that the President of the United States, as well as executive leadership in organizations throughout the country and the world, will rise to this challenge in the months to come.

[Additional information may be found in the appendix.]

[152] "Oversight of the Year 2000 Problem: Lessons To Be Learned From State and Local Experiences," Sept. 3, 1998, pp. 188–189.

[153] Ibid. p. 120 (testimony of Joel Willemssen).

APPENDIXES

APPENDIX A. CORRESPONDENCE

1. April 29, 1996 Oversight Letter from Subcommittee Chairman Stephen Horn and then Ranking Member Carolyn Maloney to Major Federal Departments and Agencies Asking for Details of Year 2000 Awareness and Planning.
2. March 26, 1997 Oversight Letter from Subcommittee Chairman Stephen Horn, then Ranking Member Carolyn Maloney, and Science Subcommittee on Technology Chair Constance Morella and Ranking Member Bart Gordon to Major Federal Departments and Agencies Asking for Awareness, Planning, and Oversight of Embedded Chip Problem.
3. May 22, 1997 Letter from Subcommittee Chairman Horn to U.N. Secretary General Kofi Annan; together with September 18, 1997 response.
4. July 16, 1997 Letter from Subcommittee Chairman Stephen Horn, then Ranking Member Carolyn Maloney, and Science Subcommittee on Technology Chair Constance Morella and Ranking Member Bart Gordon to President Clinton.
5. December 11, 1997 Letter from Subcommittee Chairman Stephen Horn to Office of Management and Budget Director Franklin Raines on Agency Year 2000 Quarterly Reports.

[The information referred to follows:]

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ONE HUNDRED FOURTH CONGRESS

Congress of the United States
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BERNARD SANDERS, VERMONT
INDEPENDENT

MAJORITY—(202) 225-5074
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April 29, 1996

Dear

Pursuant to its responsibilities under Article I of the U.S. Constitution and Rules X and XI of the Rules of the U.S. House of Representatives, the Government Reform and Oversight Committee's Subcommittee on Government Management, Information and Technology is conducting an inquiry into the ability of the Federal Government's information technology systems to properly process year date fields on January 1, 2000. This year 2000 problem results from the computer software limitations that use only two digit fields to recognize the year. Consequently, many computer programs will fail to recognize the change in century and misread "00" or the year 2000, as 1900.

The Subcommittee on Government Management, Information and Technology conducted a hearing on this issue on April 16, 1996. All witnesses underscored to the subcommittee the importance of the Federal Government and other computer users to address this issue in an urgent and decisive manner. One witness, representing the Gartner Group, estimated the worldwide conversion cost to be up to $600 billion. He projected that the cost to the Federal Government alone could be $30 billion.

To assist us with our inquiry, we request the following information:

1. Has your agency begun an effort to ensure that your information systems are year 2000 compliant? If so, when did the effort begin? What steps are they taking to ensure compliance?

2. Has your agency represented on the Interagency Working Group on the Year 2000?

3. Have you performed a risk assessment of the vulnerability of your programs and applications to the year 2000 problem? If one is planned, but has not been completed, indicate when it is expected to be completed and how it is being performed. If it has been completed, please furnish a copy.

4. Have you evaluated the vulnerability of your agency's systems and applications to

external organizations, such as states or other entities, that fail to modify their own systems for the year 2000 problem? If one is planned, but has not been completed, indicate when it is expected to be completed and how it is being performed. If such an analysis has been completed, please furnish a copy

5. Have you developed a plan for the year 2000 problem? If one is planned, but has not been completed, indicate when it is expected to be completed and how it is being developed. If it has been completed, please furnish a copy.

6. Does your year 2000 plan, if completed, contain specific timetables and milestones? What performance indicators are you using for determing whether your computer programs and applications are year 2000 compliant?

7. Do you have contingency plans for your year 2000 project if your agency is unable to complete your year 2000 plan as scheduled? When would you make a decision to implement the plans? If available, provide a copy of the plan.

8. Do you have an inventory of the major computer programs, platforms and languages for your agency? If so, please provide the inventory to the subcommittee.

a. Does that inventory identify the users for each application?

b. Does the inventory include the total number of lines of programming code at your agency and the number of lines required to be changed?

c. Does the inventory provide an assessment of the likelihood that the application or program may be affected by the year 2000 problem?

9. Have you developed a prioritization of which systems need to be fixed in order to avoid an adverse impact on the public? Have you prioritized your applications and determined which ones can be set aside if all cannot by modified by 2000? Please provide a list of those major applications that have been designated secondary and the activity with which they are used.

10. Who at your agency is your project manager?

a Who has overall responsibility for the year 2000 issue?

b. Who has day-to-day responsibility?

c. What other responsibilities does the day-to-day manager perform?

11. Provide an organization chart for your year 2000 project, indicating the reporting arrangements for personnel, including names, titles and grade levels. (Where appropriate, include the activities of constituent components of your agency.)

12. When was the last time you received a status report on the year 2000 project? Please provide a copy of the most recent report.

13. What resources are being devoted or do you project will be devoted the year 2000 issue?

a. What are your cost estimates, by fiscal year? What are the components of those cost estimates?

b. Have you made or anticipate making any new needs requests for your year 2000 project, as opposed to providing for it through reprogramming existing budget? If so, what is the request?

c. How many man years do you estimate will be devoted to the year 2000?

d. What is your estimate of your cost per line of code for your year 2000 project?

e. Do you have any acquisition plans for this project? If so, and what is the status of your plans?

f. What proportion of the year 2000 work will be dose in-house, and how much will be out-sourced?

g. Have vendors already been engaged? If so, please identify them. What is the scope and dollar value of their contract?

Your full and complete responses to these questions will be very helpful to the subcommittee. Please supply all requested information by the close of business, Friday, May 24, 1996. In addition, please notify the committee of a point of contact at your department for your response by Monday, May 6, 1996. If you have any questions regarding this matter, please contact Mark Uncapher, Professional Staff Member and Counsel, or David McMillen, Professional Staff Member.

Sincerely,

Stephen Horn, Chairman
Subcommittee on Government Management,
Information and Technology

Carolyn Maloney, Ranking Member
Subcommittee on Government Management,
Information and Technology

Congress of the United States
House of Representatives
Washington, DC 20515

March 26, 1997

Dear

Pursuant to their responsibilities under Article I of the U.S. Constitution and Rules X and XI of the Rules of the U.S. House of Representatives, the Committee on Government Reform and Oversight's Subcommittee on Government Management, Information and Technology and the Committee on Science's Subcommittee on Technology are conducting a continuing inquiry into the ability of information technology systems to properly process year date fields on January 1, 2000. This "Year 2000" problem results from program software that uses only two digit fields to recognize the year. Consequently, many computer programs and embedded microchips will fail to recognize the change in century and misread "00" or the year 2000 as 1900.

Our two subcommittees conducted a joint hearing on March 20, 1997 on the risks and potential consequences connected with the Year 2000 technology problem. Several of our witnesses underscored their concerns about the potentially serious health and safety consequences associated with the failure of electronic devices containing embedded microchips. Many of these devices, performing date-based computations, may malfunction in the year 2000. Consumers need to be better informed about potential problems with products containing these embedded microchips. To assist the subcommittees in their oversight responsibilities, answer the following questions:

1. Does your agency have a plan for assessing the Year 2000 vulnerability of microchips in electronic devices subject to regulation by your agency, in use by your agency, or that might be purchased by your agency?

2. If a plan exists, provide a copy to the subcommittees. If no plan exists, is such an assessment under way, and when do you expect it to be completed?

3. Have officials of your agency communicated with private industry about the potential consequences of the Year 2000 technology problem associated with electronic devices containing embedded microchips? If not, why not?

4. Who within your agency has designated responsibility for addressing the risks associated with possible malfunctions of electronic devices containing embedded microchips?

Your full and complete responses to these questions will be very helpful to the subcommittees. Please supply all requested information by the close of business, Friday, April 25, 1997 to B-373 Rayburn House Office Building. If you have any questions regarding this matter, please contact Mark Uncapher, counsel, or John Hynes at the Subcommittee on Government Management, Information and Technology at 202-225-5147.

Sincerely,

Stephen Horn, Chairman
Subcommittee on Government Management, Information and Technology

Constance Morella, Chairman
Subcommittee on Technology

Carolyn Maloney, Ranking Member
Subcommittee on Government Management, Information and Technology

Bart Gordon, Ranking Member
Subcommittee on Technology

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ONE HUNDRED FIFTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

2157 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6143

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BERNARD SANDERS, VERMONT
INDEPENDENT

May 22, 1997

His Excellency Kofi Annan
Secretary General of the
United Nations
New York, New York 10017

Dear Mr. Secretary General:

I chair the Subcommittee on Government Management, Information and Technology, which has oversight of technology issues confronting the United States Government. One of the most pressing matters currently before the subcommittee is the year 2000 date conversion problem -- a matter with global implications.

As you may be aware, in the 1960s and 1970s, computer memory was very expensive. In an attempt to conserve space, and accordingly reduce costs, computer programmers used shorthand to describe the year. They used the last two digits to denote the year, hence "1966" became "66". The rationale for this was cost savings, as well as the expectation that when the use of two digits might pose a problem, that is the year 2000, the software programs then in use would have been replaced. Or so they thought. In fact, in approximately 30 months, when the year 2000 arrives, there exists the risk of massive computer failure due to the year 2000 computer software date problem.

The Government Management subcommittee first held hearings on this issue in the Spring of 1996. At that time, we learned of the enormity of the problem. Expert witnesses testified that the potential cost to the U.S. Government to correct the problem was $30 billion; the cost for the nation overall: $300 billion; and the cost worldwide: $600 billion. While these estimates have been revised downward somewhat, there is no doubt that the cost to address this matter is enormous.

Assessment of the magnitude of the problem is well along in the United States; however, it was recently highlighted for me that that is not the case in most of the rest of the world. Last month, I was asked by former President Mikhail Gorbachev to meet with him to discuss the year 2000 problem. At this meeting Mr. Gorbachev expressed his concern that Russia was doing very little to solve the problem. His description of the lack of attention being paid to the issue

caused me great concern. As we are in the last few years of the 1990s, it is horrifying that nations are not working on this problem when certain parts of the U.S. Government have been working on this issue since 1989 and still have not completed the job of correcting the problem.

Mr. Secretary General, it is imperative that the potential for disruption which the year 2000 problem poses receive attention at the highest levels. As many nations are not focusing on the matter, it is important to note that the interdependency of computers leaves nations which are addressing the problem susceptible to reintroduction of the software date problem. In addition, some of the activities which are at risk of failing run the gamut of day-to-day life: elevators, air controller guidance systems, and military command and control systems, just to name a few. There also exists the problem of failing computer chips which are embedded in other consumer products.

May I suggest that the United Nations add the year 2000 problem to the matters it considers this year. Given the immovable deadline -- December 31, 1999 -- for identifying mission critical systems which cannot be allowed to fail, it is imperative that this issue receive your body's immediate attention. Please let me know how I may assist you in this regard. You may reach me at (202) 225-6676, or you may have a member of your staff contact J. Russell George, staff director and counsel of the subcommittee at (202) 225-5147.

Thank you for your attention to this matter.

Sincerely yours,

Stephen Horn

Stephen Horn, Chairman
Subcommittee on Government Management,
Information, and Technology

THE SECRETARY-GENERAL

18 September 1997

Dear Mr. Chairman,

I am writing in reply to your letter of 22 May 1997 concerning the year 2000 computer date conversion problem. You will recall that my Executive Assistant, Mr. Shashi Tharoor, wrote to you on 2 July indicating that we were conducting consultations on the matter within the United Nations. I am now in a position to provide a fuller reply.

You suggested in your letter that the United Nations might be an appropriate forum for considering the problem, given its global implications. I agree that this is a matter of potential concern to all Member States and therefore forwarded your letter to the Chairman of the Ad hoc Open-Ended Working Group on Informatics, which was established by the Economic and Social Council (ECOSOC). As the matter is now on the agenda of the Working Group and has been discussed in a number of meetings, you may wish to pursue it further with Ambassador Bill Richardson, Permanent Representative of the United States to the United Nations.

The Honourable Stephen Horn
Chairman
Subcommittee on Government Management,
Information and Technology
Congress of the United States
Washington, DC

Regarding the United Nations' own computer systems, the Secretariat has engaged a contractor to assess the magnitude of the problem and make recommendations on steps that may need to be taken. Relevant information gathered from that assessment will be shared with all the Permanent Missions to the United Nations, who in turn may find it useful to convey it to their respective capitals. It will also be shared with the Information Systems Coordination Committee of the Administrative Committee on Coordination, which is examining the problem as it applies to the rest of the United Nations system of agencies, funds and programmes.

Allow me to conclude by expressing my appreciation for your having drawn this matter to my attention. Please rest assured that the United Nations stands ready to assist in any way it can.

Yours sincerely,

Kofi A. Annan

Congress of the United States
House of Representatives
Washington, DC 20515

July 16, 1997

The Honorable William Jefferson Clinton
The President
1600 Pennsylvania Avenue, N.W.
Washington, D.C. 20500

Dear Mr. President:

We are writing to request your assistance in addressing the Year 2000 computer problem. If left unaddressed, the Year 2000 problem could become the single biggest challenge facing the global information technology industry since the advent of the computer.

During the 104th and 105th Congresses, we have worked to inform Federal agencies and the private sector of the looming crisis from the Year 2000 computer problem. Through legislation, an on-going series of Congressional hearings, and letters to agencies, we have worked to raise the Nation's awareness and promoted public and private sector initiatives to encourage our Nation's businesses and Federal, State, and local governments to take immediate corrective measures.

Congress alone, however, cannot solve the Year 2000 problem. To date, many Federal agencies have not, in our estimation, taken all the necessary steps to avert the pending crisis.

Specifically, we are concerned:

- That the government-wide estimate of $2.8 billion (increased from the January 1997 estimate of $2.3 billion) to correct the Year 2000 problem is understated, will continue to rise, and that a date for a final cost-estimate has yet to be set;

- That the Federal Government agency timetables and milestones submitted in the report are optimistic and, in most cases, provides little or no margin for delay in an agency's implementation plan;

- That agencies have underestimated the time for the validation of converted systems;

- That there may not be enough accountability in the current system to monitor and successfully implement Federal Government Year 2000 efforts; and

- That additional attention government-wide should be given to other date sensitive systems, such as those which have an embedded computer chip.

Letter to President William Jefferson Clinton
Year 2000 Computer Problem
July 16, 1997
Page Two

We need your help.

We are asking you to use the power of your Office and suggest the following actions:

1. Spur the government and the private sector in the United States and abroad to address the Year 2000 problem using the Presidential "bully pulpit";

2. Issue an Executive Order or directive to Federal agencies to give highest priority to correcting the problem; and

3. Designate within the Executive Office of the President, a senior Administration official with the oversight for directing Federal efforts and encouraging private sector initiatives to fix the problem.

Thank you for your attention to this important issue. We look forward to working with you to ensure that January 1, 2000 will not be remembered as the day the Federal Government's computers shut down.

Respectfully yours,

Constance A. Morella
Chairwoman
Subcommittee on Technology
Committee on Science

Stephen Horn
Chairman
Subcommittee on Government Management, Information and Technology
Committee on Government Reform and Oversight

Bart Gordon
Ranking Member
Subcommittee on Technology
Committee on Science

Carolyn B. Maloney
Ranking Member
Subcommittee on Government Management, Information and Technology
Committee on Government Reform and Oversight

[redacted]

ONE HUNDRED FIFTH CONGRESS

Congress of the United States

House of Representatives

COMMITTEE ON GOVERNMENT REFORM AND OVERSIGHT

2157 RAYBURN HOUSE OFFICE BUILDING

WASHINGTON, DC 20515–6143

[redacted]

December 11, 1997

The Honorable Franklin D. Raines, Director
Office of Management and Budget
Old Executive Office Building
Washington, D.C. 20500

Dear Mr. Raines:

I thank you and the Office of Management and Budget (OMB) for its efforts in monitoring the Year 2000 computer problem. Our collaborative relationship has been quite effective.

The Subcommittee on Government Management, Information, and Technology held its first hearing on the Year 2000 problem on April 16, 1996. At that point, there were 1,355 days remaining. Now there are 750.

In the past 18 months, more Executive Branch personnel have become convinced that there is a real problem. Agencies have begun to assess, renovate, validate, and implement mission-critical systems. This progress was made possible by hard work throughout the Federal Government. Unfortunately, at the current rate of progress, most Federal systems will not be able to handle the date change by January 1, 2000.

Today, only 750 days remain before the unmovable deadline of January 1, 2000. It is time to pick up the pace and raise the standards. We have concentrated, and properly so, on "mission-critical" systems. Now we must expand our scope to include the next tier of systems. We have accepted misleading reports, sloppy and incoherent data, and overly optimistic schedules. Now, with the Chief Information Officers in place, OMB needs to require agency plans and reports that are more comprehensive and more reliable.

To be effective, the Year 2000 quarterly progress reports beginning February 15, 1998 should be expanded to include the following:

1. Workload data are required for all mission-critical systems. Currently OMB quarterly reports only contain progress percentages for those mission-critical systems Being Repaired. Agency reports should reflect the total workload including progress percentages for mission-critical systems Being Replaced. The State Department has 30 mission-critical systems that are Being Replaced. It has only 12 mission-critical systems Being Repaired. Only the 12 Being Repaired are tracked by percentage completed. The larger workload of replacing 30 mission-critical systems is not tracked and no end-dates are provided.

2. Mission-critical systems must be consistently defined. Agency reports should have a consistent base. The Department of Defense (DOD), for example, continues to drop systems from its base of mission-critical systems. In August DOD reported 267 fewer systems than in May. In November it reported 552 fewer systems than in August. The total of 819 systems that have disappeared from view have not been fixed, simply re-categorized.

3. Workload data are required for all systems. Agency reports should include all three tiers of systems, for example: mission-critical, business-critical, and business-important. The Department of Defense reports a total of 25,054 systems of which only 3,143 are mission-critical. We have no reporting on the remaining 21,911 systems -- any one of which could bring down a computer mainframe or network and the mission-critical systems which run on it. We have no visibility into the second tier of perhaps nine thousand systems, which are not mission-critical but are business-critical. Are those in DOD going to return to the First World War era with adding machines and typewriters? What of the billions of dollars we have spent on improving managerial productivity in the military; is this third tier to be ignored?

4. Reports should include embedded chips. Reports should reflect all work efforts that include embedded-chips. The General Services Administration (GSA) is doing it right and other agencies should be directed to follow suit. GSA is reporting on embedded-chips. This is real work that must be accomplished and is not visible in the current progress reports.

5. Audit of Year 2000 data and reports. Reports should have verifiable data. The Administrator of General Services has asked the GSA Inspector General to act as an independent verifier of agency data and reports.

6. Workload required for contingency plans. If an agency can not meet the January 1, 2000 deadline it must develop a contingency plan and include the anticipated workload in its resource plans, schedules, and reports.

7. Transition Plan. The New York Stock Exchange has requested one extra holiday to ensure that all old transactions have cleared before they start processing any transactions for the new century. The simplest thing for most agencies is to shut everything down and bring systems up one at a time over the course of hours and days. Transition plans and resources need visibility.

Agencies and OMB may wish to expand this list.

If the Government is going to be prepared for the Year 2000, we must also clearly signal that OMB and Congress take this matter very seriously. The following shortcomings in existing Year 2000 quarterly progress reports must be rectified:

1. Tables within an agency report should add up. For example, the Commerce Department reported 100% assessment, however, its number of mission-critical systems is 83 systems less than the sum of the four OMB assessment categories (Already Compliant, Being Replaced, Being Repaired, and Being Retired). Hence, it is difficult to trust the reported percentages for Validation and Implementation.

2. Report requirements should be completed by all agencies. The Environmental Protection Agency (EPA), for example, failed to report scheduled end-dates for all phases in its August 15 report.

In EPA's November 15 report it again failed to report any scheduled end-dates. If basic requirements like end-dates are not provided, how can OMB assure compliance?

3. Agency reports must be statements of fact not intention. Health and Human Services (HHS) has been reporting 100% assessment for two quarters. However, assessment is not really complete: "approximately 53% of external Medicare systems have been assessed." For its operating divisions, HHS expects to finish its telecommunications inventory on December 15, 1997. And, for the FDA, HHS is still planning "to develop a telecommunications inventory." It is no surprise that in this quarter HHS found 78 more mission-critical systems and re-categorized 25 for a net gain of 53.

4. Reports must be reliable indicators of work accomplished. The Justice Department quarterly report looks fine until you compare it with previous quarterly reports. Justice's percentage of fixed mission-critical systems dropped dramatically from 8% in May to 0% in August and then mysteriously rose back up to 6% in November.

5. Reporting categories must be well defined and consistently used by all agencies. The Energy Department moved 7 completed systems from the Being Repaired category to the Already Compliant category. However, most other agencies follow OMB's instructions and leave fixed systems in the Being Repaired category. Some agencies do it one way; some another.

6. Agency reports should reflect realistic schedules. The Department of Transportation (DOT) omitted the Federal Aviation Administration's "245 mission-critical systems which have not yet been fully assessed." Once assessed, it is probable that the FAA will add 153 more systems to the Being Repaired category. This will more than double DOT's current 149 mission-critical systems Being Repaired.

7. Agency reports should reflect whether systems believed compliant have been tested. For example, the Office of Personnel Management admits that its mission-critical systems categorized as Already Compliant have not been certified Year 2000 compliant. How many "systems believed to be Year 2000 compliant" have been actually tested?

A crash effort in the last few months before January 1, 2000 will not suffice. Rigorous efforts are needed to protect the American people. Our subcommittee staff would be pleased to aid in this review by OMB and the Chief Information Officers' Council.

Given this current report, I repeat what I have recommended on several occasions: the President -- or you as the Director of the Office of Management and Budget -- need to appoint a full-time coordinator to spearhead this effort so the job is done before January 1, 2000.

Sincerely yours,

Steve

Stephen Horn, Chairman
Subcommittee on Government Management,
Information and Technology

APPENDIX B. SUBCOMMITTEE REPORT CARDS

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1. July 1996 Report Card Based on Responses to April 29, 1996 Oversight Letter.
2. September 1997 Report Card Based on August 15, 1997 Quarterly Reports.
3. December 1997 Projections Based on November 15, 1997 Quarterly Reports.
4. March 1998 Report Card Based on February 15, 1997 Quarterly Reports.
5. June 1998 Report Card Based on May 15, 1998 Quarterly Reports.
6. September 1998 Report Card Based on August 15, 1998 Quarterly Reports.

[The information referred to follows:]

YEAR 2000 *AGENCY PREPAREDNESS*

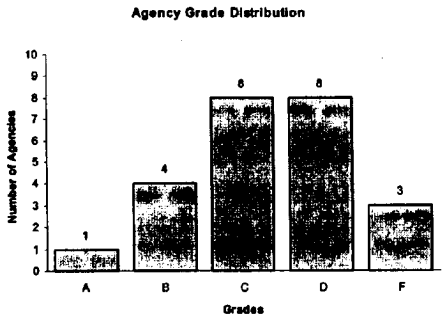
	Grades	Does the agency have a Year 2000 plan?	Is there a Year 2000 Program Manager?	Does the agency have any cost estimates for Year 2000 solution?	Did the agency respond to the questions?
International Aid	A	✓	✓	*	✓
Personnel (OPM)	A	✓	✓	✓	✓
Small Business	A	✓	✓	✓	✓
Social Security	A	✓	✓	✓	✓
Education	B	✓	✓	✓	✓
Nuclear Regulatory	B	✓	✓		✓
State	B	✓	✓	✓	✓
Defense	C		✓	✓	✓
Treasury	C	✓	✓		✓
Science Foundation	C	✓			✓
Agriculture	D		✓		✓
Commerce	D		✓		✓

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

YEAR 2000 *AGENCY PREPAREDNESS*

	Grades	Does the agency have a Year 2000 plan?	Is there a Year 2000 Program Manager?	Does the agency have any cost estimates for Year 2000 solution?	Did the agency respond to the questions?
Environmental Protection	D		✓		✓
General Services	D		✓		✓
Health and Human Services	D		✓		✓
Housing (HUD)	D		✓		✓
Interior	D		✓		✓
Justice	D		✓		✓
NASA	D		✓		✓
Veterans Affairs	D		✓		✓
FEMA	F				✓
Labor	F				✓
Energy	F				
Transportation	F				

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology



Please sign your Report Card and have your Departmental Secretary or Agency Director sign to designate awareness of your progress this grading period:

Department or Agency Chief Information Officer

Department Secretary or Agency Director

YEAR 2000 PROGRESS

REPORT CARD

YEAR 2000 PROGRESS

for

Mission Critical Systems of Federal Departments and Agencies

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

September 15, 1997

YEAR 2000 PROGRESS

Mission Critical Systems of Federal Departments and Agencies

	96	97	98	99	2000 Final Exam
SSA Social Security Administration	A	A-			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
GSA General Services Administration ★	D	B			
NSF National Science Foundation ★	C	B			
SBA Small Business Administration	A	B			
HHS Department of Health and Human Services ★	D	B-			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
EPA Environmental Protection Agency ★	D	C			
FEMA Federal Emergency Management Agency ★	F	C			
HUD Department of Housing and Urban Development ★	D	C			
Interior Department of the Interior ★	D	C			
Labor Department of Labor ★	F	C			
State Department of State	B	C			
VA Department of Veterans Affairs ★	D	C			
DOD Department of Defense	C	C-			

	96	97	98	99	2000 Final Exam
Commerce Department of Commerce	D	D			
DOE Department of Energy ★	F	D			
Justice Department of Justice	D	D			
NRC Nuclear Regulatory Commission	B	D			
OPM Office of Personnel Management	A	D			
Agriculture Department of Agriculture	D	D-			
NASA National Aeronautics and Space Administration	D	D-			
Treasury Department of the Treasury	C	D-			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
AID Agency for International Development	A	F			
DOT Department of Transportation	F	F			
Education Department of Education	B	F			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
State Governments State Governments	?	?			
Local Governments Local Governments	?	?			

★ - Improved from last grading period

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

September 16, 1997
Subcommittee Home Page on the Internet : http://www.house.gov/reform/gmit.htm

YEAR 2000 PROGRESS Mission Critical Systems of Federal Departments and Agencies

	ASSESSMENT COMPLETED YES / NO	RENOVATION COMPLETED PERCENTAGE	TESTING COMPLETED PERCENTAGE	ANY IMPLEMENTATION YES / NO	GRADE
SSA Social Security Administration	YES	78%	67%	YES	A-
GSA General Services Administration	YES	36%	28%	YES	B
NSF National Science Foundation	YES	33%	28%	NO	B
SBA Small Business Administration	YES	36%	36%	YES	B
HHS Department of Health and Human Services	YES	28%	10%	YES	B-
EPA Environmental Protection Agency	NO	33%	28%	YES	C
FEMA Federal Emergency Management Agency	NO	36%	36%	YES	C
HUD Department of Housing and Urban Development	YES	9%	2%	YES	C
Interior Department of the Interior	YES	43%	0%	NO	C
Labor Department of Labor	YES	15%	11%	YES	C
State Department of State	YES	28%	0%	NO	C
VA Department of Veterans Affairs	NO	51%	28%	YES	C
DOD Department of Defense	NO	40%	34%	YES	C-
Commerce Department of Commerce	NO	18%	6%	YES	D
DOE Department of Energy	NO	10%	10%	YES	D
Justice Department of Justice	YES	1%	1%	NO	D
NRC Nuclear Regulatory Commission	YES	0%	0%	NO	D
OPM Office of Personnel Management	YES	3%	0%	NO	D
Agriculture Department of Agriculture	NO	5%	4%	YES	D-
NASA National Aeronautics and Space Administration	NO	5%	7%	YES	D-
Treasury Department of the Treasury	NO	6%	5%	YES	D-
AID Agency for International Development	NO	N/A	N/A	N/A	F
DOT Department of Transportation	NO	0%	0%	NO	F
Education Department of Education	NO	0%	0%	NO	F

NOTES

The grades are based on percentages reported by departments and agencies for four categories : ASSESSMENT, RENOVATION, TESTING, and IMPLEMENTATION.

The departments and agencies are responsible for the accuracy and sufficiency of percentages reported.

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

September 15, 1997
Subcommittee Home Page on the Internet : http://www.house.gov/reform/gmit.htm

YEAR 2000 PROGRESS Mission Critical Systems ONLY of Federal Departments and Agencies

NOVEMBER 15, 1997	ASSESSMENT COMPLETED PERCENTAGE	RENOVATION COMPLETED PERCENTAGE	TESTING COMPLETED PERCENTAGE	ANY IMPLEMENTATION PERCENTAGE	ESTIMATED COMPLETION
SSA Social Security Administration	100%	80%	74%	80%	1999
NSF National Science Foundation	100%	50%	42%	0%	1999
SBA Small Business Administration	100%	63%	60%	59%	1999
EPA Environmental Protection Agency	100%	50%	40%	40%	1999
Interior Department of the Interior	98%	41%	37%	29%	1999
VA Department of Veterans Affairs	90%	61%	38%	25%	1999
NRC Nuclear Regulatory Commission	100%	25%	25%	25%	1999
HUD Department of Housing and Urban Development	100%	45%	27%	22%	1999*
State Department of State	100%	25%	25%	0%	1999*
Commerce Department of Commerce	100%	30%	23%	22%	1999*
FEMA Federal Emergency Management Agency	100%	29%	29%	21%	2000
NASA National Aeronautics and Space Administration	100%	14%	11%	11%	2000
AID Agency for International Development	95%	8%	8%	8%	2000
Education Department of Education	100%	20%	0%	0%	2000
HHS Department of Health and Human Services	100%	35%	20%	15%	2001
Justice Department of Justice	100%	18%	11%	6%	2001
GSA General Services Administration	100%	25%	18%	17%	2002
Treasury Department of the Treasury	80%	44%	8%	8%	2004
Agriculture Department of Agriculture	100%	12%	6%	7%	2005
OPM Office of Personnel Management	100%	9%	0%	0%	2010
DOT Department of Transportation	80%	9%	5%	2%	2010
DOD Department of Defense	93%	44%	16%	2%	2012
Labor Department of Labor	100%	16%	12%	7%	2019
DOE Department of Energy	100%	13%	11%	4%	2019

NOTES

The estimated completion dates are based on current agency reported progress rates.
The departments and agencies are responsible for the accuracy and consistency of percentages reported.

* Warning: projections may be overly optimistic.

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

November 15, 1997
Subcommittee Home Page on the Internet : http://www.house.gov/reform/gmit.htm

YEAR 2000 PROGRESS

REPORT CARD

YEAR 2000 PROGRESS

for

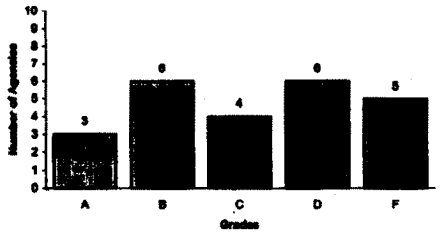
Federal Departments and Agencies

Overall Grade is D-

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

March 4, 1999

Agency Grade Distribution



Please sign your Report Card and have your Departmental Secretary or Agency Director sign to designate awareness of your progress this grading period:

Department or Agency Chief Information Officer

Department Secretary or Agency Director

YEAR 2000 PROGRESS

Mission Critical and Other Y2K Systems of the largest Federal Departments and Agencies

	97	98	99	2000 Past Due
SSA Social Security Administration	A-	A		
NSF National Science Foundation	B	A		
VA Department of Veterans Affairs	C	A		
[illegible]				
Agriculture Department of Agriculture	D-	B		
Commerce Department of Commerce	D	B		
EPA Environmental Protection Agency	C	B		
HUD Dept of Housing and Urban Development	C	B		
OPM Office of Personnel Management	D	B		
SBA Small Business Administration	B	B		
[illegible]				
GSA General Services Administration	B	C		
Interior Department of the Interior	C	C-		
Justice Department of Justice	D	C-		
NRC Nuclear Regulatory Commission	D	C-		

	97	98	99	2000 Past Due
HHS Dept of Health and Human Services	B-	D		
NASA National Aeronautics and Space Admin	D-	D		
Treasury Department of the Treasury	D-	D		
AID Agency for International Development	F	D-		
DOE Department of Energy	D	D-		
FEMA Federal Emergency Management Agency	C	D-		
[illegible]				
Education Department of Education	F	F		
DOD Department of Defense	C-	F		
DOT Department of Transportation	F	F		
Labor Department of Labor	C	F		
State Department of State	C	F		
[illegible]				
Administration Overall Federal Departments and Agencies		D-		
[illegible]				

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

Issued March 4, 1999 based on agency data from February 15, 1999
Subcommittee Home Page on the Internet : http://www.house.gov/reform/gmit/hhr

YEAR 2000 PROGRESS

REPORT CARD

YEAR 2000 PROGRESS

for

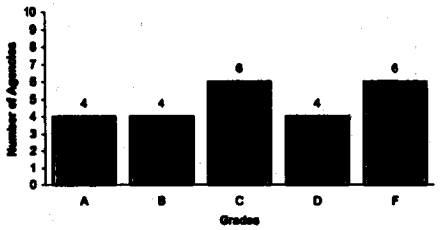
Federal Departments and Agencies

Overall Grade is F

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

June 2, 1999

Agency Grade Distribution



Please sign your Report Card and have your Departmental Secretary or Agency Director sign to designate awareness of your progress this grading period:

Department or Agency Chief Information Officer

Department Secretary or Agency Director

YEAR 2000 PROGRESS

Mission Critical and Additional Y2K Criteria of the largest Federal Departments and Agencies

	97 Sept 15	98 Feb 15	98 May 15	2000 Final Exam
SSA Social Security Administration	A-	A	A+	
GSA General Services Administration	B	C	A-	
FEMA Federal Emergency Management Agency	C	D-	A-	
NSF National Science Foundation	B	A	A-	
[illegible]				
Commerce Department of Commerce	D	B	B	
SBA Small Business Administration	B	B	B	
NASA National Aeronautics and Space Admin	D-	D	B	
NRC Nuclear Regulatory Commission	D	C-	B	
[illegible]				
Treasury (paid back by FMS) Department of the Treasury	D-	D	C	
HUD Dept of Housing and Urban Development	C	B	C	
Labor Department of Labor	C	F	C	
VA Department of Veterans Affairs	C	A	C	
OPM Office of Personnel Management	D	B	C-	
Interior Department of the Interior	C	C-	C-	

	97 Sept 15	98 Feb 15	98 May 15	2000 Final Exam
Agriculture Department of Agriculture	D-	B	D	
DOD Department of Defense	C-	F	D	
Justice Department of Justice	D	C-	D	
Education Department of Education	F	F	D	
[illegible]				
EPA Environmental Protection Agency	C	B	F	
State Department of State	C	F	F	
HHS Dept of Health and Human Services	B-	D	F	
DOE Department of Energy	D	D-	F	
DOT Department of Transportation	F	F	F	
AID Agency for International Development	F	D-	F	
[illegible]				
Administration Overall Federal Departments and Agencies		D-	F	

Prepared for Subcommittee Chairman Stephen Horn, Government Management, Information, and Technology. Issued June 2, 1998 based on agency data from May 15, 1998.
Subcommittee Home Page on the Internet : http://www.house.gov/reform/gmit.htm

YEAR 2000 PROGRESS

Federal Departments and Agencies

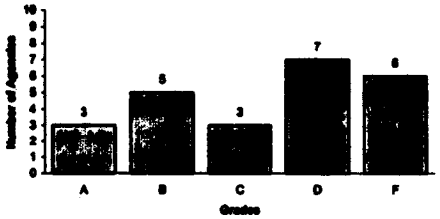
AGENCY SELF-REPORTED DATA FOR LAST 3 MONTHS MAY 15, 1998	MISSION-CRITICAL SYSTEMS			ADDITIONAL CRITERIA				
	TOTAL SYSTEMS Count	ESTIMATED YEAR DONE	DONE by March 1999 Percent	CONTINGENCY PLANS	TELECOM-MUNICATION SYSTEMS	EMBEDDED SYSTEMS	EXTERNAL DATA EXCHANGE	GRADE
SSA Social Security Administration	306	1999	100%	+	0	0	+	A+
GSA General Services Administration	58	1999	100%	-	0	0	0	A-
FEMA Federal Emergency Mgmt Agency	47	1999	100%	0	0	0	-	A-
NSF National Science Foundation	21	1999	90%	+	+	0	+	A-
Commerce Department of Commerce	472	1999	100%	-	-	-	0	B
SBA Small Business Administration	42	1999	100%	-	0	-	-	B
NASA National Aeronautics and Space Admin	158	1999	75%	+	+	+	+	B
NRC Nuclear Regulatory Commission	7	1999	71%	+	+	0	+	B
Treasury Department of the Treasury	323	1999	89%	0	0	-	+	C
HUD Dept of Housing and Urban Development	63	1999	78%	-	0	-	-	C
Labor Department of Labor	61	1999	74%	0	-	-	0	C
VA Department of Veterans Affairs	11	2000	64%	0	0	+	+	C
OPM Office of Personnel Management	118	2000	61%	0	-	-	0	C-
Interior Department of the Interior	91	2001	55%	-	0	0	0	C-
Agriculture Department of Agriculture	1080	2000	58%	-	-	-	0	D
DOD Department of Defense	2803	2002	46%	0	0	0	0	D
Justice Department of Justice	197	2000	39%	+	-	-	-	D
Education Department of Education	14	2002	29%	0	+	0	0	D
EPA Environmental Protection Agency	61	2006	69%	-	-	0	0	F
State Department of State	64	2005	50%	0	+	+	0	F
HHS Dept of Health and Human Services	289	2003	44%	0	-	-	+	F
DOE Department of Energy	411	2004	44%	-	-	-	+	F
DOT Department of Transportation	630	2004	35%	-	-	-	-	F
AID Agency for International Development	7	2019	17%	-	0	0	0	F
TOTAL All Departments and Agencies	7336		55%	F	D	F	C	F

NOTES: All progress, calculations, and estimates are based on agency self-reported data.
The estimated percentage of Mission-Critical Systems done by March 1999 OMB deadline are based on current agency reported progress rates.
Additional Criteria are rated "plus" if the agency is on schedule for that issue; rated "negative" if the agency is significantly behind; or 0 for neutral.

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

Issued June 2, 1998 based on agency data as of May 15, 1998
Internet : http://www.house.gov/reform/gmit.htm

Agency Grade Distribution



Federal Department and Agency Grades

For August 15, 1998

Please sign your Report Card and have your
Secretary or Agency head sign
to designate awareness of your progress this grading period:

Department or Agency Chief Information Officer

Department Secretary or Agency Head

YEAR 2000 PROGRESS

REPORT CARD

YEAR 2000 PROGRESS

for

Federal Departments and Agencies

Overall Grade is D

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

September 9, 1998

YEAR 2000 PROGRESS REPORT CARD

	97 Aug 15	98 Feb 15	98 May 15	98 Aug 15	2000 Final Exam
SSA Social Security Administration	A-	A	A+	A	
NSF National Science Foundation	B	A	A-	A	
SBA Small Business Administration	B	B	B	A	
GSA General Services Administration	B	C	A-	B+	
Commerce Department of Commerce	D	B	B	B	
EPA Environmental Protection Agency	C	B	F	B	
VA Department of Veterans Affairs	C	A	C	B-	
FEMA Federal Emergency Management Agency	C	D-	A-	B-	
NASA National Aeronautics and Space Admin	D-	D	B	C+	
Agriculture Department of Agriculture	D-	B	D	C	
HUD Dept of Housing and Urban Development	C	B	C	C	
Treasury Department of the Treasury	D-	D	C	D+	
DOT Department of Transportation	F	F	F	D	

	97 Aug 15	98 Feb 15	98 May 15	98 Aug 15	2000 Final Exam
OPM Office of Personnel Management	D	B	C-	D	
DOD Department of Defense	C-	F	D	D	
Labor Department of Labor	C	F	C	D	
Interior Department of the Interior	C	C-	C-	D	
NRC Nuclear Regulatory Commission	D	C-	B	D	
HHS Dept of Health and Human Services	B-	D	F	F	
DOE Department of Energy	D	D-	F	F	
State Department of State	C	F	F	F	
Justice Department of Justice	D	C-	D	F	
Education Department of Education	F	F	D	F	
AID Agency for International Development	F	D-	F	F	
Administration Overall Federal Departments and Agencies		D-	F	D	

Prepared for Subcommittee Chairman Stephen Horn, Subcommittee on Government Management, Information, and Technology. Issued September 8, 1999 based on agency data from August 15, 1999. Subcommittee Home Page on the Internet: http://www.house.gov/reform/gmit

YEAR 2000 PROGRESS

Federal Departments and Agencies

AGENCY SELF-REPORTED DATA FOR LAST 3 MONTHS	MISSION-CRITICAL SYSTEMS				ADDITIONAL CRITERIA				
August 15, 1998	Total Systems	Systems Compliant as of	*Estimated Compliant by March 1999	*Estimated Year 100% Compliant	Contingency Plans	Telecom-munication Systems	Embedded Systems	External Data Exchange	GRADE
SSA Social Security Administration	306	93%	99%	1999	+	IP	IP	IP	A
NSF National Science Foundation	17	82%	100%	1999	+	IP	-	+	A
SBA Small Business Administration	42	74%	96%	1999	IP	IP	-	IP	A
GSA General Services Administration	58	78%	91%	1999	+	IP	IP	+	B+
Commerce Department of Commerce	455	76%	100%	1999	IP	-	-	+	B
EPA Environmental Protection Agency	58	79%	92%	1999	-	IP	-	-	B
VA Department of Veterans Affairs	319	61%	88%	1999	-	+	IP	+	B-
FEMA Federal Emergency Mgmt Agency	49	69%	82%	1999	+	IP	+	+	B-
NASA National Aeronautics and Space Admin	158	63%	74%	2000	IP	+	+	+	C+
Agriculture Department of Agriculture	647	63%	89%	1999	IP	-	-	IP	C
HUD Dept of Housing and Urban Development	62	60%	78%	1999	+	IP	IP	-	C
Treasury Department of the Treasury	323	48%	61%	2000	IP	IP	IP	IP	D+
DOT Department of Transportation	616	46%	70%	1999	IP	-	-	-	D
OPM Office of Personnel Management	111	45%	65%	2000	IP	IP	IP	IP	D
DOD Department of Defense	2965	42%	54%	2001	IP	IP	-	IP	D
Labor Department of Labor	51	39%	52%	2001	+	IP	-	+	D
Interior Department of the Interior	91	32%	37%	2005	0	IP	-	IP	D
NRC Nuclear Regulatory Commission	7	29%	43%	2001	+	+	IP	+	D
HHS Dept of Health and Human Services	298	41%	48%	2002	IP	IP	-	IP	F
DOE Department of Energy	411	29%	47%	2002	-	-	IP	-	F
State Department of State	89	30%	37%	2027	IP	-	+	IP	F
Justice Department of Justice	207	31%	31%	2030+	IP	-	-	-	F
Education Department of Education	14	29%	29%	2030+	IP	IP	-	IP	F
AID Agency for International Development	7	14%	16%	2023	-	IP	IP	IP	F
TOTAL All Departments and Agencies	7343	59%	66%						D

*All progress, calculations, and estimates are based on Subcommittee staff's analysis of agency self-reported data.
The estimated percentage of mission-critical systems done by March 1999 OMB deadline is a subcommittee estimate based on agency's rate of progress.
Additional Criteria are rated "plus" if the agency is nearing completion or completed the task; rated "negative" if the agency is significantly behind; or "IP" if the task is in progress.

Prepared for Subcommittee Chairman Stephen Horn
Subcommittee on Government Management, Information, and Technology

Issued September 9, 1998 based on agency data as of August 15, 1998
Internet : http://www.house.gov/reform/gmit

APPENDIX C. EXECUTIVE ORDER 13073, "YEAR 2000 CONVERSION," ISSUED FEBRUARY 4, 1998

[The information referred to follows:]

White House Briefing Room

February 4, 1998

EXECUTIVE ORDER

Message Creation Date was at 4-FEB-1998 12:50:00

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release February 4, 1998

EXECUTIVE ORDER

- - - - - - -

YEAR 2000 CONVERSION

The American people expect reliable service from their Government and deserve the confidence that critical government functions dependent on electronic systems will be performed accurately and in a timely manner. Because of a design feature in many electronic systems, a large number of activities in the public and private sectors could be at risk beginning in the year 2000. Some computer systems and other electronic devices will misinterpret the year "00" as 1900, rather than 2000. Unless appropriate action is taken, this flaw, known as the "Y2K problem," can cause systems that support those functions to compute erroneously or simply not run. Minimizing the Y2K problem will require a major technological and managerial effort, and it is critical that the United States Government do its part in addressing this challenge.

Accordingly, by the authority vested in me as President by the Constitution and the laws of the United States of America, it is hereby ordered as follows:

Section 1. Policy. (a) It shall be the policy of the executive branch that agencies shall:

(1) assure that no critical Federal program experiences disruption because of the Y2K problem;

(2) assist and cooperate with State, local, and tribal governments to address the Y2K problem where those governments depend on Federal information or information technology or the Federal Government is dependent on those governments to perform critical missions;

(3) cooperate with the private sector operators of critical national and local systems, including the banking and financial system, the telecommunications system, the public health system, the transportation system, and the electric power generation system, in addressing the Y2K problem; and

(4) communicate with their foreign counterparts to raise awareness of and generate cooperative international arrangements to address the Y2K problem.

(b) As used in this order, "agency" and "agencies" refer to Federal agencies that are not in the judicial or legislative branches.

Sec. 2. Year 2000 Conversion Council. There is hereby established the President's Council on Year 2000 Conversion (the "Council").

more

(OVER)

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(a) The Council shall be led by a Chair who shall be an Assistant to the President, and it shall be composed of one representative from each of the executive departments and from such other Federal agencies as may be determined by the Chair of the Council (the "Chair").

(b) The Chair shall appoint a Vice Chair and assign other responsibilities for operations of the council as he or she deems necessary.

(c) The Chair shall oversee the activities of agencies to assure that their systems operate smoothly through the year 2000, act as chief spokesperson on this issue for the executive branch in national and international fora, provide policy coordination of executive branch activities with State, local, and tribal governments on the Y2K problem, and promote appropriate Federal roles with respect to private sector activities in this area.

(d) The Chair and the Director of the Office of Management and Budget shall report jointly at least quarterly to me on the progress of agencies in addressing the Y2K problem.

(e) The Chair shall identify such resources from agencies as the Chair deems necessary for the implementation of the policies set out in this order, consistent with applicable law.

Sec. 3. Responsibilities of Agency Heads. (a) The head of each agency shall:

(1) assure that efforts to address the Y2K problem receive the highest priority attention in the agency and that the policies established in this order are carried out; and

(2) cooperate to the fullest extent with the Chair by making available such information, support, and assistance, including personnel, as the Chair may request to support the accomplishment of the tasks assigned herein, consistent with applicable law.

(b) The heads of executive departments and the agencies designated by the Chair under section 2(a) of this order shall identify a responsible official to represent the head of the executive department or agency on the Council with sufficient authority and experience to commit agency resources to address the Y2K problem.

Sec. 4. Responsibilities of Interagency and Executive Office Councils. Interagency councils and councils within the Executive Office of the President, including the President's Management Council, the Chief Information Officers Council, the Chief Financial Officers Council, the President's Council on Integrity and Efficiency, the Executive Council on Integrity and Efficiency, the National Science and Technology Council, the National Performance Review, the National Economic Council, the Domestic Policy Council, and the National Security Council shall provide assistance and support to the Chair upon the Chair's request.

Sec. 5. Judicial Review. This Executive order is intended only to improve the internal management of the executive branch and does not create any right or benefit, substantive or pro-cedural, enforceable at law or equity by a party against the United States, its agencies, or instrumentalities, its officers or employees, or any other person.

WILLIAM J. CLINTON

THE WHITE HOUSE,
February 4, 1998.

# # #

Back to summary page

To comment on this service: *feedback@www.whitehouse.gov*

APPENDIX D. PRACTICAL SUGGESTIONS FOR CONCERNED CITIZENS

Business owners would be well advised to listen to the advice of the Building Owners and Managers Association International (BOMA).[1] BOMA has recommended a Plan with 8 elements.[2] BOMA has also provided its members with an "Embedded Systems Priority List." Over 70 priority listed systems are subdivided into the following categories:

- Environmental (Chiller, Boiler)
- Water (Cooling, Heating)
- Power (Generator, electrical plant)
- Other Utilities (Sewer)
- Telecommunications (phone, rooftop antenna)
- Lighting
- Elevator/Escalator
- Fire Control
- Security
- Parking
- Internal Administrative Equipment (cash register, copy machine)
- Miscellaneous (vending machine)

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[1] Building Owners and Managers Association (BOMA) International, 1201 New York Avenue, NW, Suite 300, Washington, DC 20005. BOMA's website is: http://www.boma.org.

[2] The eight steps are: (1) Educate Senior Educate Senior Management; (2) Designate a Year 2000 Manager; (3) Inventory Systems; (4) Contact Suppliers; (5) Prioritize Problems; (6) Anticipate Contingencies; (7) Identify Solutions; (8) Test the Solutions.

Families and Individuals
Year 2000 Check Lists*

Does you or your family have a Year 2000 Problem?

You do if you or your family

Use a computer, fax machine, telephone, cell phone, cash register, time clock, elevator?

Have a bank or brokerage account?

Make monthly mortgage or rent payments?

Have any automated burglar or fire alarms, sprinkler system or lighting system?

Use a vending machine, medical device, microwave oven, or automatic teller machine?

Use credit or debit cards?

Have a cooling, heating, irrigation, or purification system?

Make regular Social Security and retirement payments?

Live or work in a building with an elevator?

Have a toilet that flushes?

Communication Check List

	Contact Manufacturer	Contact Service Provider
a. Telephones	X	X
b. Answering machine	X	
c. Pager	X	X
d. Television	X	
e. Cable service		X
f. Radio	X	
g. Email	X	X
h. Fax	X	X
i. Other		

Financial Check List

a. Automatic deposits – make early deposits
b. Automatic payments – secure advance payments
c. Bills – pay bills for Jan/Feb before 12/21/99
d. Mortgage or rent payment - pay Jan/Feb before 12/21/99
e. Debit cards
f. Mutual fund and brokerage accounts
g. Bank accounts
h. Credit cards
i. Insurance policies

Medical and Health Check List

a. Stock a basic first aid kit. A first aid manual can be picked up at your local American Red Cross headquarters.
b. Schedule regular medical – doctor and dental - exams well before December 1999.
c. Collect "hard" copies of key medical and prescription records - shots, tests, prescribed medication, x-rays, medication history etc.
d. Required medication should be prescribed by your physician and filled at your local pharmacy well in advance of December 1999.
e. Don't schedule elective surgery just before or after the key dates.
f. Enroll in an advanced first aid with CPR course. Learn how to tell the difference between a life threatening or non-life threatening condition.
g. If you or anyone you knows is dependent on a medical device, it is important to contact the manufacturer and get their assurance that the device will function safely. Ask your physician to recommend alternatives if the device fails. FEMA recommends that anyone using an electrically powered life support device register with their local Emergency Management office.
h. Frail elderly as well as those with handicaps and critical medical problems must make special emergency plans with care givers.
i. Check all prescriptions and medical treatment instructions immediately after key dates for errors.

Power Check List

	Contact Manufacturer	Contact Service Provider
a. Temperature control system	X	
b. Electricity		X
c. Gas		X
d. Oil		X
e. Furnace	X	X
f. Air Conditioning	X	X
g. Kitchen Appliances	X	
h. Personal Appliances	X	
i. Electronic Equipment	X	
j. Car/Truck	X	X

Home Safety Check List

a. Buy or check batteries for fire and carbon monoxide detectors
b. Educate family about dangers of candles, matches, fireplaces, chafing dishes, space heaters, and other light or heat sources.
c. Keep an A-B-C fire extinguisher nearby.
d. Practice home fire drills
e. Fire arms or other weapons should be handled by only trained and/or licensed persons
f. Place valuables that are not critical in bank lock box
g. Make sure security systems are Y2K compliant and if electricity fails have backup system in place
h. Electronic locks should be convertible to powerless "safe" mode
i. Key cards or code locks will not function without power. Develop game plan in case of power failure.

Transportation Check List

a. Car/truck/van/motorcycle – check with dealer and manufacturer for software and embedded chip Y2K compliance
b. Public Transportation – develop alternative transportation plans in case of power or other failures.
c. Airplane – check with airlines and news coverage of Air Traffic Control System
d. Train – Trains will be affected by the same problems as public transportation and airlines
e. Rail crossings – Beware!! Some microprocessor in gates and signal controls have failed Y2K tests.
f. Traffic Lights – Beware!! Most traffic systems are microprocessor controlled. Lights may not be working or could malfunction. Be especially wary of traffic control gates.

Water, Sewer, Septic, and Refuse Check List

a. Water, sewer and refuge collection providers should certify that they are Y2K compliant. Local officials can be contacted to verify that they are becoming compliant.
b. Normally active people should drink 2 quarts of water each day.
c. Emergency drinking water supplies are available in most apartments and homes – water heater - 20 gallons, water bed - up to 400 gallons, plumbing (open highest faucet and drain from lowest faucet), ice cubes, and toilet tank (treat before use).
d. Waste water and sewage systems are highly automated and depend on embedded microchips. Failures are expected.

Computer System Check List

a. Know what kind of electronic operating systems, software applications, data bases, and hardware you have.
b. Determine which of your electronic operating systems, software applications, data bases, and hardware are affected and how you will make them ready for the Year 2000 with a budget spelling out the cost of the fixes.

Additional Things to do:

- Request a copy of your credit report record from each of the credit bureaus and order another one in early 2000. Compare the copies and have errors corrected.
  - Equifax (800) 685-1111
  - Experian (800) 682-7654
  - TransUnion (800) 916-8800
- Request a copy from the Social Security Administration of your "Personal Earnings and Benefits Statement" Form SSA-7004. Call (800) 772-1213 or visit their Web site www.ssa.gov
- Repair or replace your computer systems
- Insist that others -- business and government - with whom you are dependent repair or replace their systems and noncompliant microchips

Disclaimer

The information above is offered as a general guide and should not be substituted for legal, medical, or other professional advice or services.

Sources for additional information: Paloma O'Riley, "Individual Preparation for Y2K," The Cassandra Project, http://millennia-bcs.com/prep.htm; A Call for Action, Report of Task Force Year 2000, February 1998, Minister of Public Works and Government Services, Canada, 1998, call 1-800-456-7735; "The Year 2000 problem Is it your problem, too?" Consumer Reports, August 1998, pages 56 and 57; and Michael P. Harden, Millennium Minefields, Century Technology Services, 1313 Dolley Madison Blvd., Suite 203, McLean, VA 22101.

APPENDIX E. COMMITTEE FINDINGS AND RECOMMENDATIONS

Findings:

1. The Federal Government is not on track to complete necessary Year 2000 preparations before January 1, 2000.
2. Some State and local governments are lagging in Year 2000 repairs and in many cases lack reliable information on their Year 2000 status.
3. The Year 2000 status of basic infrastructure services, including electricity, telecommunications, and water, is largely unknown.
4. Embedded microchips are difficult to find, difficult to test, and can lead to unforeseen failures.
5. Strong leadership from senior management is necessary to address the Year 2000 problem.
6. Organizations are dependent on the Year 2000 preparedness of their data exchange partners.
7. Data exchanges, testing, and contingency planning have received far too little attention.
8. Fear of legal liability has made some organizations reluctant to share the Year 2000 status of their products and internal systems with other businesses and data exchange partners.
9. Resource problems center around hiring and retaining skilled workers and attaining the needed funding to perform the Year 2000 fixes.

Recommendations:

1. The President and the Executive Branch of the United States Government must approach the Year 2000 problem with greater urgency.
2. Public and private organizations as well as Federal, State, and local governments must all work in partnership to prepare for the date change.
3. Congress and the President should establish Federal liability protection for organizations that share information in order to facilitate Year 2000 repairs.
4. Year 2000 problem managers should develop goals that are linked to readiness measures.
5. Citizens should demand information on Year 2000 readiness from their State and local governments, their utility companies, and other organizations upon which they are dependent.

ADDITIONAL VIEWS OF HON. STEPHEN HORN

As this report highlights, information is essential to solving the Year 2000 problem. Senior management must have all the information necessary for understanding the significance of the problem and for allocating resources to address it. Technical staff must have access to information in order to avoid duplicating research into Year 2000 compliance that others have already done and to keep abreast of the best solutions available. Furthermore, organizations must coordinate closely with all data exchange partners. The essence of this coordination is sharing information.

The web sites listed below reflect the central role that the Internet is playing in the Year 2000 problem. These are Federal sites only, but through them people with access to the Internet can locate a vast range of private as well as public sites.

Congressional Year 2000 Web Sites:

Government Reform and Oversight Committee, Subcommittee on Government Management, Information, and Technology: **http://www.house.gov/reform/gmit/y2k.**

House Majority Leader Richard Armey: **http://freedom.gov/y2k.**

Representative Pete Sessions: **http://www.house.gov/sessions/Y2K.**

House Small Business Committee: **http://www.house.gov/smbiz/leg/y2k.**

House Science Committee: **http://www.house.gov/science/y2k.**

House Banking Committee: **http://www.house.gov/banking/year2000.**

The General Accounting Office: **http://www.gao.gov/y2kr.**

United States Senate Special Committee on the Year 2000 Technology Problem: **http://www.senate.gov/~y2k.**

Executive Branch Year 2000 Sites:

President's Council on the Year 2000 Conversion: **www.y2k.gov.**

Chief Information Officers Council Committee on Year 2000 Information Directory (this site is a clearinghouse for information on the Year 2000 problem, with links to sites on best practices, contingency planning, testing, commercial off-the-shelf product databases, and many others): **www.itpolicy.gsa.gov/mks/yr2000/cioy2k.**

The Federal Year 2000 Commercial Off-the-shelf (COTS) Product Database: **y2k.policyworks.gov.**

The Small Business Administration: **www.sba.gov/y2k.**

The Food and Drug Administration, including a database on the Year 2000 status of biomedical equipment: **www.fda.gov/cdrh/yr2000/year2000.**

STEVE HORN.

ADDITIONAL VIEWS OF HON. HENRY A. WAXMAN, HON. DENNIS J. KUCINICH, HON. TOM LANTOS, HON. ROBERT E. WISE, JR., HON. MAJOR R. OWENS, HON. EDOLPHUS TOWNS, HON. PAUL E. KANJORSKI, HON. GARY A. CONDIT, HON. CAROLYN B. MALONEY, HON. THOMAS M. BARRETT, HON. ELEANOR HOLMES NORTON, HON. ELIJAH E. CUMMINGS, HON. ROD R. BLAGOJEVICH, HON. DANNY K. DAVIS, HON. JOHN F. TIERNEY, HON. THOMAS H. ALLEN, AND HON. HAROLD E. FORD, JR.

The Subcommittee on Government Management, Information, and Technology has held a series of oversight and legislative hearings related to the Year 2000 ("Y2K") computer problem and its impacts on the government and the private sector. These hearings were reviewed in the report approved by the full Committee on October 8, 1998. The report found that the federal government was lagging in its efforts to prepare for the Year 2000, and that, if not fixed, the Y2K problem presents the risk of interruption of key government services. The report also indicated that state and local governments and the private sector face significant challenges from the Y2K problem.

While we support the findings of the report approved on October 8, we submit these views to provide additional information that was not included in the report.

ADMINISTRATION PROGRESS

While we agree with the findings of the report that more progress needs to be made, President Clinton and Vice President Gore have demonstrated significant leadership on these issues, and are making substantial efforts to ensure that the federal government does not experience significant disruption due to the Y2K problem.

In February 1998, President Clinton named John Koskinen, a respected former OMB official, to head the White House Y2K Council. Under Mr. Koskinen's leadership, the Y2K Council is actively engaged in many activities to increase awareness of the problem in and beyond the federal government. For example, the Council has created 35 working groups to address Y2K activities in key economic sectors. Through these working groups, and via other avenues, the Y2K Council and executive agencies are reaching out to private sector organizations, state and local governments, and key international institutions.

The President made a major speech about the Year 2000 problem before the National Academy of Sciences in July 1998. This speech highlighted the risk of the problem and the need to focus on solutions. The majority report described this speech as merely "preaching to the choir," implying that the speech was directed at and heard by only the scientific community. This is not the case. The

speech was directed at the American people and received significant coverage in the popular print and electronic media.

The President, through the Y2K Council, continues to educate and inform the public about the Y2K problem. The Council, working with over 100 private-sector organizations, has declared October 19–23, 1998, to be National Y2K Action Week. The core focus of the week will be hundreds of educational events hosted by federal government field offices, including the Small Business Administration, the Department of Commerce, the Department of Agriculture, the Social Security Administration, and the Department of Transportation. The events will focus on assisting managers of small- and medium-sized businesses to assess and remediate Y2K problems.

The Administration is also working closely with agencies that appear to be having compliance problems. On June 19, 1998, OMB directed all so-called "Tier 1" agencies (agencies showing insufficient evidence of adequate progress), as well as "Tier 2" agencies (agencies that have demonstrated progress, but still have significant concerns), to provide monthly plans and progress reports to OMB. Mr. Koskinen is actively engaged in planning activities of Tier 1 agencies, and on September 2, 1998, Vice President Gore met with senior officials in the seven Tier 1 agencies to stress the importance of the Y2K problem.

Although the staff report focused on the government agencies that are not performing well, many agencies are ahead of schedule. Chairman Horn's August 15 report card identified eight Federal agencies that received grades of B or better for their progress on Y2K conversion.[1] The report also found that 20 of 24 agencies were making progress toward solving external data exchange problems, and 12 of 24 were focusing on embedded systems. OMB's 6th Quarterly Report on Progress on Year 2000 Conversion as of August 15, 1998, highlighted the progress made by the federal government:

- Of the governments 7,343 mission critical systems, 3,692, or 50%, are now Y2K compliant, up from 40% in May.
- Of the remaining 3,651 mission critical systems, 2,910 are being repaired, 650 are being replaced, and 91 are being retired.
- Only two agencies—AID and HHS—are working toward dates that are beyond the Government-wide milestones (renovation by September 1998, validation by January 1999, and verification by March 1999) for the completion of Y2K work. Several agencies, including Justice, Treasury, GSA, OPM, the Small Business Administration, and the Social Security Administration, are ahead of schedule.
- Agencies are also taking steps to assess embedded chips and to assess the status of non-mission critical systems.

Y2K AND CONSUMER ISSUES

The federal government has been the focus of the Committee's Y2K oversight hearings for the last two years. As a result, the Committee has held only one hearing on consumer issues, on Sep-

[1] The Social Security Administration, the National Science Foundation, the Small Business Administration, the General Services Administration, the Department of Commerce, the Environmental Protection Agency, the Department of Veterans Affairs, and the Federal Emergency Management Agency.

tember 23, 1998. Although the witness list for that hearing included authors, software publishers, and organizations that sell products to consumers, it did not contain representatives from any organization that actually represents consumers. Despite this lack of attention, consumers will be affected by numerous aspects of the Y2K problem, and Congress must address these issues.

The Committee report correctly notes that a lack of information is a serious problem and indicates that the lack of information complicates efforts to solve Y2K problems, and may cause panic on the part of individuals, making minor problems even worse. The report also recommends that consumers should demand information from state and local governments, utilities, and other organizations. However, the report does not address the issue of whether utilities, software developers, and producers of electronic equipment will provide the public with the required information voluntarily.

To date, consumers have been provided with minimal information. For example, most software companies are not sending out program upgrades to all their customers. Instead, they are posting notices of Y2K problems, and providing solutions for these problems, via their web sites. Only those consumers that have the time and knowledge to actively seek out information via the Internet or other purposes have been able to obtain any sort of information. Even federal government agencies have had little success obtaining information. For example, when the FDA sent letters to manufacturers requesting information on the Y2K compliance status of medical equipment, they received answers from less than one-half of these companies. There is presently no provision of law which would require that manufacturers inform consumers of potential problems. Providing accurate and timely information about their products is the responsibility of the businesses that sell them. If these organizations will not accept this responsibility, Congress must ensure that consumers receive adequate information about Y2K problems.

CONGRESS MUST PROVIDE ADEQUATE Y2K FUNDING IN TIMELY FASHION

The majority report indicates the federal government did not begin fixing Y2K problems on their computers in a timely fashion. However, Congress shares responsibility for this lack of action because Congress was slow in approving funds for agencies to address Y2K problems.

At the Administration's request, the House Treasury, Postal, and General Government Appropriations Bill (H.R. 4104) initially included $2.25 billion, and the House Defense Appropriations Bill (H.R. 4103) initially included $1.6 billion in emergency spending to assist the federal government in its efforts to make all computer systems Y2K compliant. Unfortunately, because of disputes over offsets, opposition from Republican members of the House of Representatives caused this funding to be cut before the legislation reached the House floor. Although it appears that this critical Y2K funding may be included in the final omnibus appropriations bill that is expected to be signed by the President, this funding has not yet been approved. This delay and uncertainty has complicated ef-

forts by senior management to address Y2K problems within their agencies and departments.

Just as federal government agencies have a responsibility to fix Y2K problems, Congress must meet its responsibility to provide adequate funding for these agencies.

H.R. 4756, "THE YEAR 2000 PREPAREDNESS ACT"

On October 13, 1998, the House of Representatives passed H.R. 4756, "The Year 2000 Preparedness Act." This legislation contains two key provisions, originally contained in legislation sponsored by Rep. James A. Barcia, that will help consumers and small businesses.

The legislation directs the Department of Commerce to develop a consumer awareness program to help inform consumers of the implications of, and solutions to, Y2K-related problems. This program will include the development of self-assessment checklists, resource lists, Y2K-approved products, and a series of public awareness announcements. The legislation also directs the Small Business Administration and the National Institute of Standards and Technology to develop a similar Y2K outreach program for small- and medium-sized businesses. While these provisions will not solve Y2K problems for all consumers and small businesses, they represent the first step taken by Congress to protect these key constituencies.

At the time these additional views were filed, it was not clear if the Senate would pass this legislation.

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