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Report to Congressional Requesters

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YEAR 2000 COMPUTING CRISIS

Status of Airports' Efforts to Deal With Date Change Problem

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Resources, Community, and
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The Honorable John McCain
Chairman, Committee on Commerce,
Science, and Transportation
United States Senate

The Honorable Slade Gorton
Chairman, Subcommittee on Aviation
Committee on Commerce, Science, and
Transportation
United States Senate

The successful operation of the National Airspace System—the network supporting U.S. aviation operations that includes navigation facilities, airports, equipment, services, and information and rules—is dependent, in part, on the equipment, including computers, that airports use to carry out their operations. This equipment helps provide safe, secure, and efficient aircraft operations and other services to the public; it includes controls for such functions as lighting runways, monitoring access to secured areas, handling baggage, and fueling aircraft. Because the software and hardware components used to control airport equipment may not be able to distinguish between the years 1900 and 2000, this equipment may malfunction when the date changes from 1999 to 2000.

This report responds to your request to examine the status of airports' efforts to prepare for the year 2000 and to help ensure that the equipment supporting the functions needed for the safe and efficient operation of our nation's airports will be ready. Specifically, we agreed to address the following: (1) What is the status of airports' efforts to help ensure that their computers and electronic equipment will function properly on and after January 1, 2000? (2) How will the safety, the security, and the efficiency of the National Airspace System be affected if airports' Year 2000 preparations are not completed in time? and (3) What factors affect the progress of airports' preparations for the year 2000?

The operations we examined in this review include those under the control, in whole or in part, of the nation's airports. They do not include such other critical functions in the nation's air transportation system as the air traffic control system operated by the Federal Aviation Administration (FAA) or the operations and the maintenance of aircraft and other equipment owned or operated by the nation's airlines. Our primary

method of data collection for this report was a questionnaire we mailed to 413 airports owned by local municipalities, states, and regional or independent authorities. This questionnaire focused on airports' preparations to help ensure essential operations continue through and after the year 2000. The questionnaire was based, in part, on a GAO publication describing a structured approach for addressing the Year 2000 date change.[1] To obtain the highest possible response rate, we agreed with your staff that the responses from individual airports would remain confidential. As of December 1998, we obtained responses from 334 airports (81 percent), which represent about 96 percent of the passengers that were served by U.S. airports in 1996. For a full description of our methodology, see appendix I.

Results in Brief

The nation's airports have been making progress in preparing for the year 2000. However, there is substantial variation in the progress they have achieved and the approaches they have been taking. Among the airports responding to our survey, about one-third reported that they would meet the June 30, 1999, date FAA recommended to complete preparations for addressing the Year 2000 date change; another one-third did not report that they would meet this date but had begun contingency planning to help ensure continued operations if equipment malfunctions; and a final one-third did not meet either of these criteria. This final third are mostly small airports, but they include 9 of the nation's 50 largest airports.[2] Also, many airports were not following a comprehensive and structured approach, which is the most effective way to prepare for the year 2000. The airports that responded to our questionnaire have completed, on average, less than half of their repair work.

Officials at airports and FAA agreed that adequate safeguards are in place to ensure the safety and the security of the National Airspace System before and after the Year 2000 date change. However, airports that do not meet FAA's June 1999 recommended preparation date are at increased risk of experiencing some equipment malfunctions. If manual procedures must be substituted for operations normally controlled by automated equipment, an airport's efficiency—its ability to handle its normal number

[1] Year 2000 Computing Crisis: An Assessment Guide (GAO/AIMD-10.1.14, Sept. 1997).

[2] We grouped the airports in our analysis into three categories according to their size, which was based on the number of passengers they served in 1996. "Large" represents the 50 airports that served the largest number of passengers (over 83 percent of the passengers); "medium" represents the 91 airports that served about 15 percent of the passengers; and "small" represents the 272 airports that served about 3 percent of the passengers. In general, large and medium-sized airports are more dependent on automation than small airports (see app. I).

of scheduled flights per day—would decrease and thus cause flight delays. Because of the interdependence among airline flights and airport facilities, delays at one airport could cause delays at other airports and eventually affect the efficiency of the National Airspace System. The severity of these delays would depend to a large extent on the size of the airports and which equipment malfunctions.

FAA, airport, and other aviation industry officials cited several factors that have affected the timeliness of Year 2000 preparations, including an airport's use of contractors, the assistance provided by aviation industry associations, and the activities undertaken by the Congress and by FAA. Contractors have helped some airports prepare for the year 2000 by providing them with the trained personnel they lack. Aviation industry associations have helped increase airports' awareness of the implications of the year 2000 through discussions at seminars and workshops and by identifying airport equipment that might be vulnerable to problems caused by the date change. In October 1998, the Congress passed legislation to encourage the sharing of information about Year 2000 equipment readiness and testing, and FAA established criteria that airports must meet to verify that the equipment used to support the safety and security activities the agency regulates is ready for the year 2000.

Background

Airports are an important component of the National Airspace System (NAS), as they are the entry and exit points to the NAS for most travelers. Although airports differ greatly in size and in the services they provide, most airports provide parking services, security and access control on their grounds, baggage-handling services, aircraft fueling, navigational support (such as runway lighting), and emergency communications throughout the airport and to ground crews. Some airports also provide such additional services as moving sidewalks and subways to connect terminals and computerized monitoring of runway conditions. To help provide these services, airports often rely on computer systems and other equipment with internal microprocessors. Some of these functions—such as baggage handling, controlling access to secured areas, and runway lighting—can also be performed manually and often are performed manually at small airports.

Other key NAS components include U.S. airlines and FAA's air traffic control system, both of which provide many functions at airports. Airlines often provide their own ticketing and check-in systems, jet bridges (movable walkways to connect an aircraft to an airport's gates), and X-ray screening

devices. FAA provides air traffic surveillance, navigation, and communications for aircraft. Although FAA and the airlines both have personnel, facilities, and equipment at airports, the responsibilities of an airport operator do not extend to them. Additionally, such conveniences as restaurants, automatic teller machines, and gift shops are not usually the responsibility of the airport; they are usually operated by contractors who lease space from the airport.

On January 1, 2000, many computers worldwide could malfunction (e.g., produce inaccurate information) or fail simply because the year will change from 1999 to 2000. Such malfunctions or failures could have a costly, widespread impact. The problem comes from how computers and other microprocessors have recorded and computed dates for the past several decades. Typically, they have used two digits to represent the year—such as "98" for 1998—to save electronic storage space and reduce operating costs. In such a format, however, 2000 is indistinguishable from 1900. Nationwide, software and computer experts are concerned that this could cause computers and equipment with internal microprocessors to malfunction in unforeseen ways or to fail completely.

To help airports prepare for the year 2000, FAA and the aviation industry have developed of a list of 22 core functions for airports, such as baggage handling, access control, and aircraft fueling.[3] Each core function includes specific, discrete tasks that, when carried out together, meet an essential operational need of an airport, such as communications, access control, or aircraft fueling. Certain core functions having to do with safety and security are regulated by FAA and therefore must be present at airports, such as providing navigational aids and access control. FAA, however, does not prescribe what equipment, if any, airports must use to perform these regulated core functions. Other core functions, including automated baggage handling, aircraft fueling, and ground support,[4] help airports meet other needs or enhance the passengers' convenience and efficiency. FAA has also recommended that airports either (1) complete the process of ensuring that all their equipment supporting core functions regulated by FAA is Year 2000-compliant or (2) have contingency plans to ensure the continued operation of these functions.

[3]Our questionnaire focused on 14 of these core functions. To minimize the time respondents would need to fill out our questionnaire, we omitted the functions that are neither required by FAA for certification under part 139 (Airport Certification and Operations), part 107 (Airport Security), or part 108 (Airplane Operator Security) of the Federal Aviation Regulations nor deemed "airfield critical." (For a detailed list of core functions, see table I.1 in app. I).

[4]Ground support includes such services as gate assignment and snow and ice control.

To help federal agencies prepare for the year 2000, we have issued Year 2000 Computing Crisis: An Assessment Guide, which discusses the scope of the challenges and offers a structured, step-by-step approach to review and assess an organization's readiness to handle the Year 2000 problem. The guide's general principles are being widely used by entities outside the federal government, and we believe this approach would also help airports better prepare for the year 2000.

However, even if an organization uses a structured approach to prepare for the year 2000, its operations could still face major disruptions. Many organizations will not be able to repair or replace, fully test, and implement all of their essential equipment in time. Furthermore, equipment that an organization considers to be completely repaired, validated, and implemented may encounter unanticipated Year 2000 problems because exhaustive testing of interconnected production systems is not a practical option. Moreover, essential services provided by the public infrastructure (including electricity, water, transportation, and voice and data telecommunications) are also vulnerable to Year 2000-induced equipment failures. To mitigate the risk of equipment failures and their potential impact, organizations must ensure that they have established contingency plans to provide operational continuity and to support their core functions.[5]

Some Airports May Finish Year 2000 Preparations Late and Are Not Following a Structured Approach

Airports are making progress in their efforts to prepare for the year 2000, but their efforts vary considerably. Nearly a third of the airports that responded to our questionnaire reported that they will not complete their preparations for the Year 2000 problem by FAA's recommended date of June 30, 1999, and have no contingency plans in place. Moreover, many airports lack some or all of the chief components of a structured approach to Year 2000 repairs, which is most likely to ensure success.

Many Airports Will Not Complete Preparations by the Recommended Date

The Office Of Management and Budget (OMB) has set milestones of September 1998, January 1999, and March 1999, respectively, for federal agencies to complete renovating, testing, and implementing their systems. FAA has announced it will complete its preparations by June 30, 1999, and has recommended the same date to airports as the deadline for either (1) completing the process of ensuring that all their equipment supporting the core functions related to safety is Year 2000 ready or (2) implementing contingency plans to ensure the continuation of these functions.

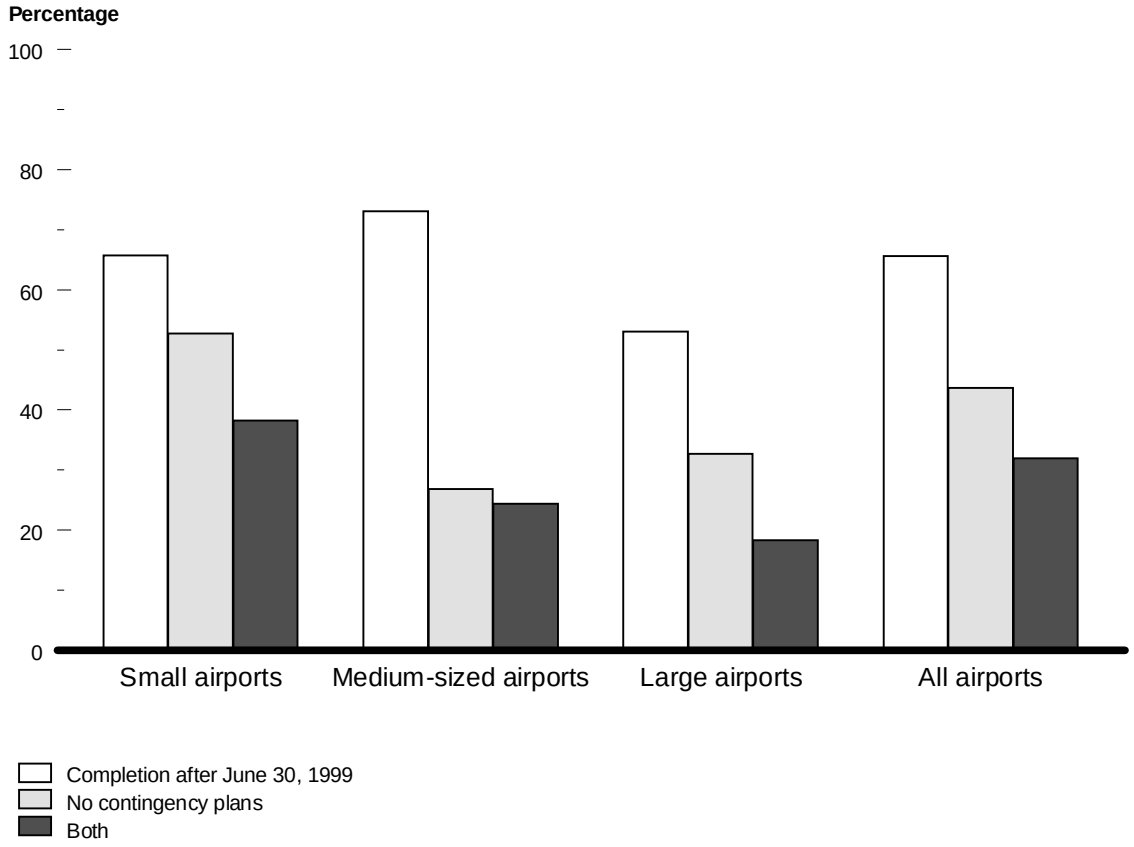
[5]For a complete discussion of continuity and contingency planning, see GAO's Year 2000 Computing Crisis: Business Continuity and Contingency Planning (GAO/AIMD-10.1.19, Aug. 1998).

Fewer than 15 percent of the responding airports indicated that they intended to meet OMB's March date for completing preparations. Slightly more than a third (but nearly half of the large airports) expected to meet FAA's June 1999 recommended date. An additional 32 percent indicated they had not yet determined their completion date.

We asked the airports whether they had developed contingency plans for each of the 14 core functions in the event that the Year 2000 date change caused equipment malfunctions. Just over half of the airports reported contingency plans for at least one core function. In general, large airports have contingency plans for more functions than small airports. However, a substantial number of the airports (about a third of the large airports, about a quarter of the medium-sized airports, and half of the small airports) reported they had no contingency plans, did not know of such plans for any of their core functions, or did not respond.

Many of the airports (32 percent) indicated that they would not meet FAA's deadline and also reported that they did not have any contingency plans. These include 9 large airports, 19 medium-sized airports, and 79 small airports (see fig. 1).

Figure 1: Estimated Percentage of Airports Not Prepared by June 1999 and Having No Contingency Plans



Source: GAO's survey of U.S. airports.

Many Airports Lack Key Elements of a Structured Approach to the Year 2000 Problem

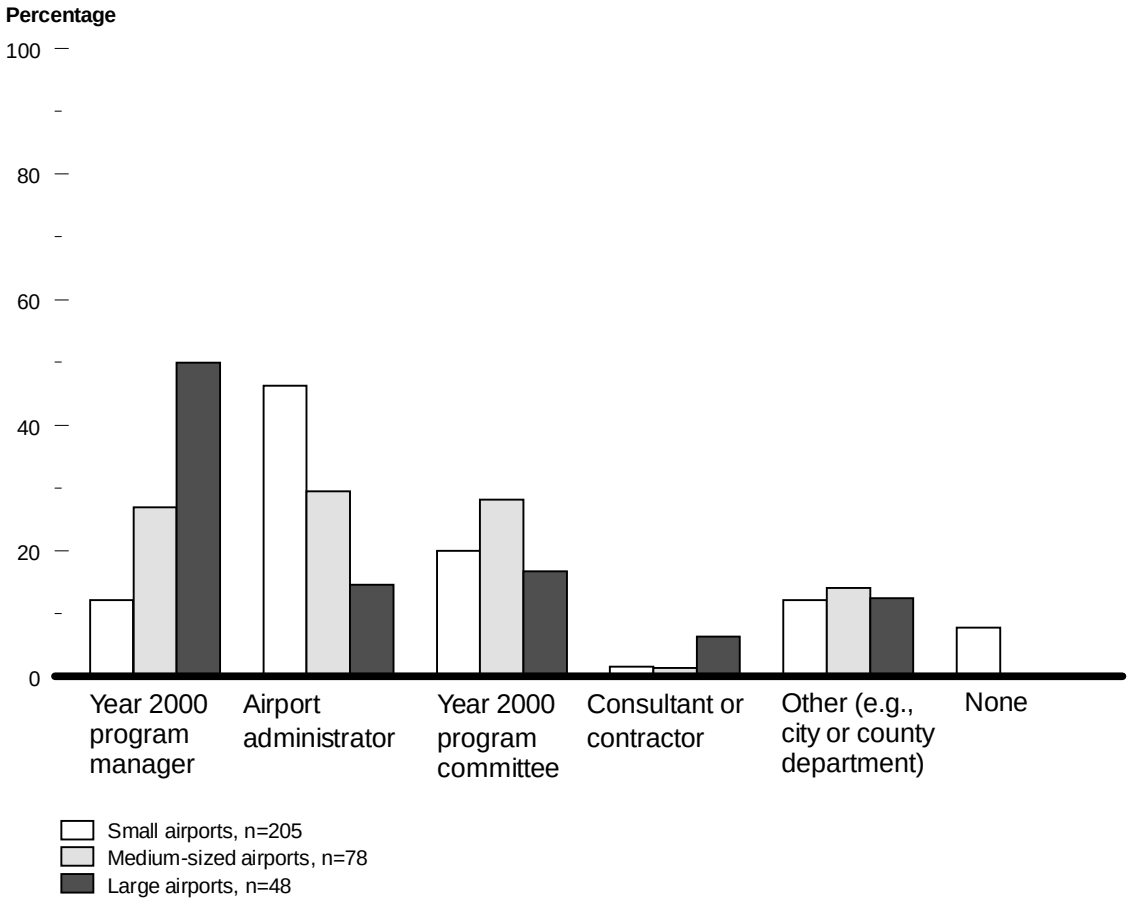
We asked respondents to our questionnaire about a number of elements considered important to developing a structured approach to managing the Year 2000 problem. These included program oversight; program plans; program-tracking mechanisms; inventories of systems, equipment, and data exchanges; efforts to determine how to fix systems; and the status of renovation efforts, testing and validation plans, and contingency plans. We did not validate the information the airports reported. Most airports reported that their Year 2000 programs were in place, with defined management responsibilities and tracking mechanisms and inventories of

potentially affected equipment already complete or in process. However, most airports had not yet determined how to renovate all their equipment. The large airports typically reported following a more structured approach than the small ones. As noted earlier, the large and medium-sized airports are generally more dependent on automation than the small airports.

Program Oversight

A central program office with the authority to manage and coordinate Year 2000 activities is a key element to a successful program. Because of the interdependencies among an airport's computers, equipment, applications, and databases, the date change problem requires centrally developed and integrated renovation plans, validation standards and tests, and resource allocations. Nearly all airports reported that a specific person or group had oversight responsibility for Year 2000 preparations. The large airports were more likely than the medium-sized or small airports to have appointed a Year 2000 program manager rather than adding this responsibility to the airport administrator's other responsibilities. Only 16 airports, all of them small airports, reported having no person or group with specific oversight responsibility in this area (see fig. 2).

Figure 2: Person or Group Who Oversees the Airports' Year 2000 Efforts

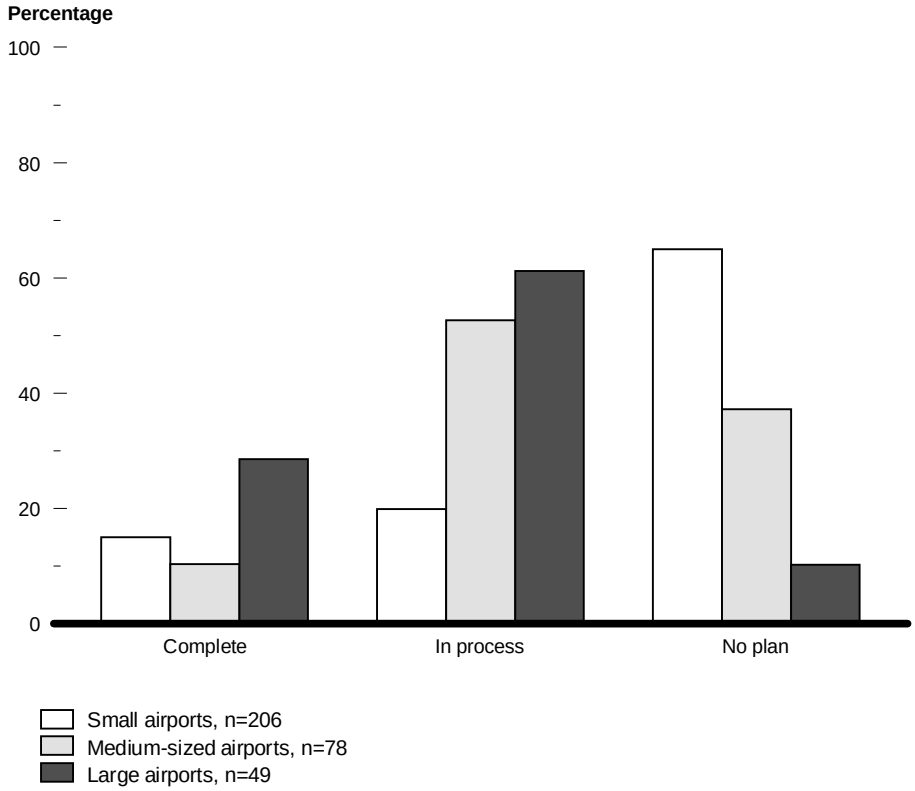


Source: GAO's survey of U.S. airports.

Program Plan

A Year 2000 program plan should include, among other things, schedules for all tasks and phases of the Year 2000 program, an assessment and a selection of repair options, an assignment of conversion or replacement projects to Year 2000 project teams, a risk assessment of the systems' and the equipment's vulnerabilities to the year 2000, and contingency plans. Of the airports we surveyed, only 16 percent reported completing their Year 2000 plans. A third were in the process of completing these plans, and about half (about two-thirds of them small airports) reported not having a written plan at all (see fig. 3).

Figure 3: Degree of Completion of the Airports' Year 2000 Plans



Source: GAO's survey of U.S. airports.

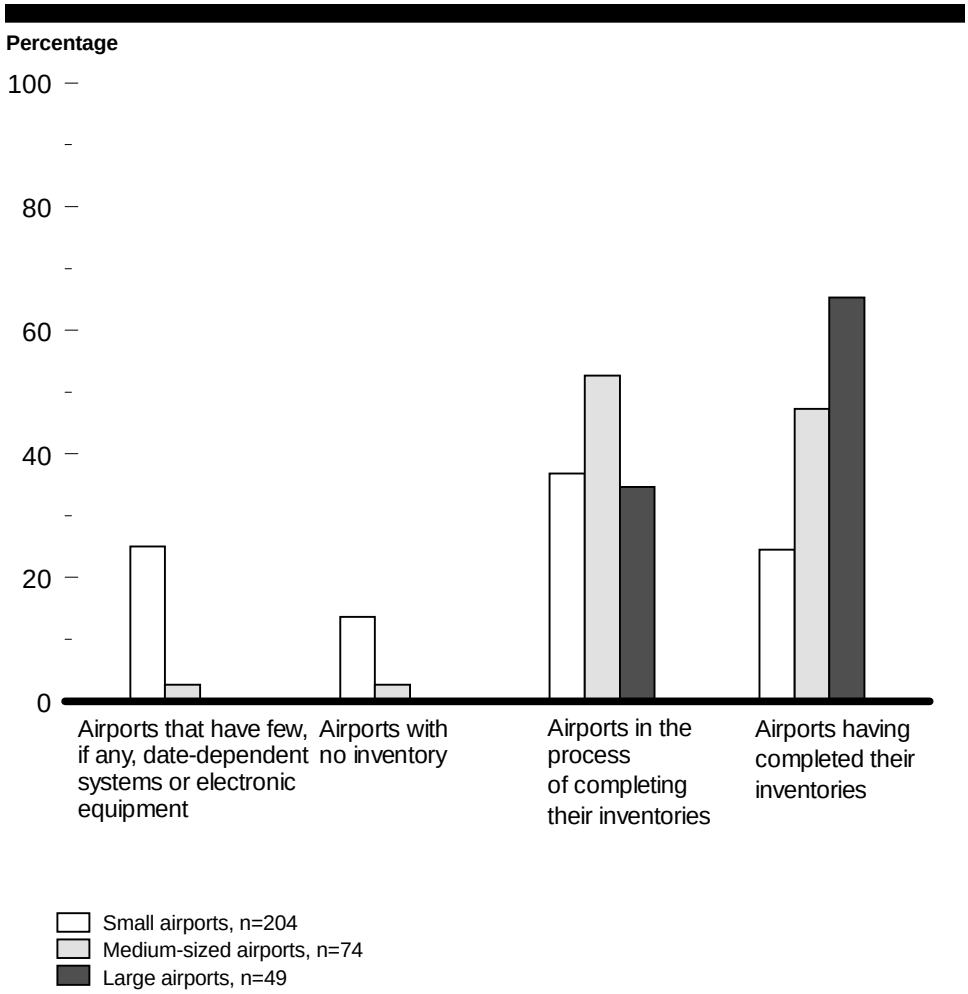
Tracking Mechanisms

Two-thirds of airports actively track the progress of their Year 2000 activities—though tracking was more common at the large airports than at the small ones. Ninety-four percent of the large airports, 81 percent of the medium-sized airports, and 55 percent of the small airports reported that they had tracking mechanisms.

Inventories

A comprehensive inventory of systems and electronic equipment provides the necessary foundation for Year 2000 program planning and helps to ensure that all the equipment is identified. Nearly all the airports indicated that they had already developed or were in the process of developing an inventory of their systems and electronic equipment (see fig. 4).

Figure 4: Status of Airports' Year 2000 Computer and Equipment Inventories



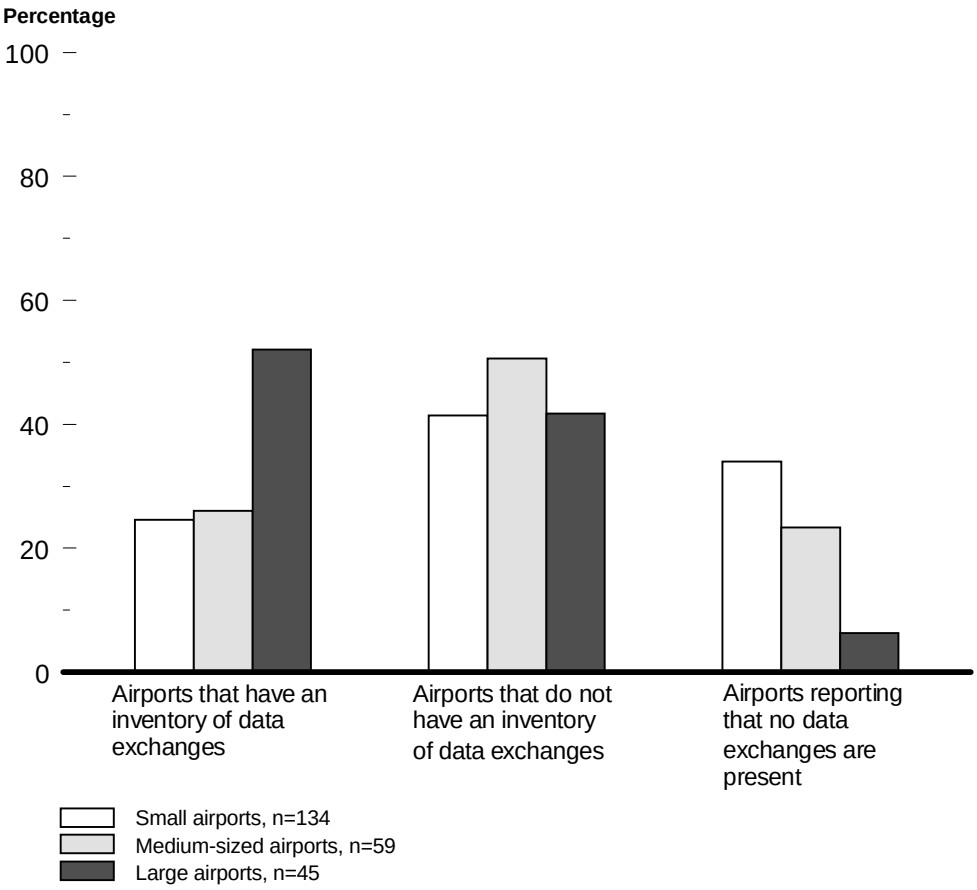
Source: GAO's survey of U.S. airports.

Data Exchanges

Some electronic systems that support an airport's core functions exchange data with other systems not directly under that airport's control. For example, according to some officials, some information systems exchange personnel information with local government offices, and others exchange information on gate and baggage locations with the airlines' flight information systems. Airports must address data exchange issues, including notifying outside entities with whom they exchange information about any changes to their computers to address the Year 2000 problem. They must also develop verification processes for incoming external data

and develop procedures to handle invalid data for airports' progress in this area (see fig. 5).

Figure 5: Percentage of the Airports That Have a Comprehensive List of Data Exchanges



Source: GAO's survey of U.S. airports.

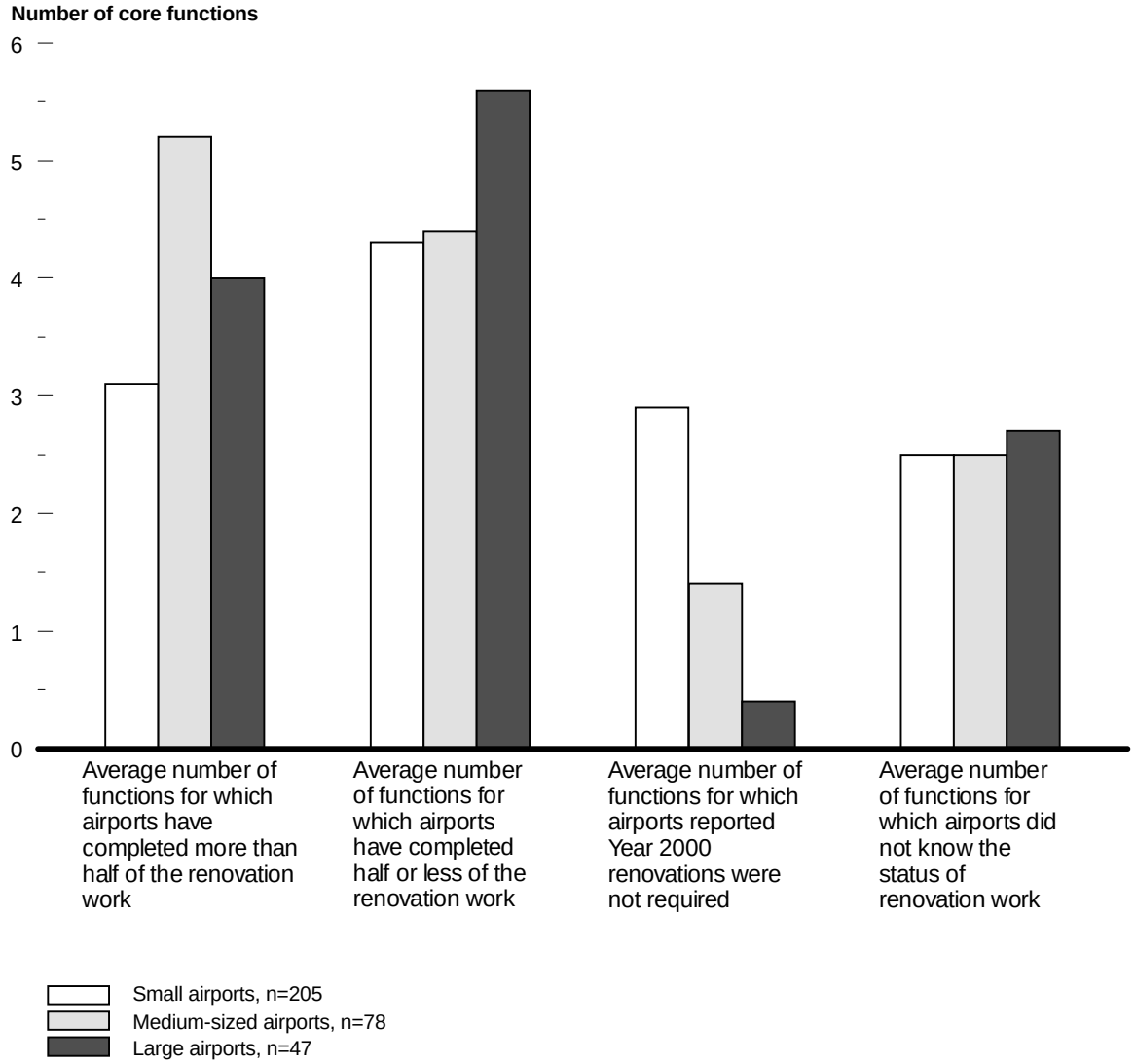
Prioritizing and Determining Renovation Plans

Organizations should review their inventory to identify mission-critical systems, determine how to best renovate them (either through repair, replacement, or retirement), schedule renovation activities, and test the new systems. Of 262 airports reporting on whether they had assessed their inventories to identify mission-critical systems, over two-thirds said they had. Of these, fewer than 40 percent of the airports reported that they had determined how they will renovate all of their affected systems.

Status of Renovation

We asked the airports how far they had progressed in renovating the systems associated with each of the 14 core functions. The airports reported that, on average, they had completed more than half of the work on about four core functions and half or less of the work on the remaining functions. The airports reported the least progress in the areas of environmental systems and airport services (e.g., elevators and moving sidewalks) and the most progress in such areas as administration and weather systems (see fig. 6).

Figure 6: Status of the Airports' Renovation Work on Core Functions



Source: GAO's survey of U.S. airports.

Testing and Validation

Testing and validating all repaired systems and equipment are important steps to help ensure that these components perform as expected. Over half of the airports reported that, rather than perform tests themselves, they will rely on the manufacturers' certifications to document that the majority of their systems and electronic equipment are ready for the year 2000. This

was true for about 36 percent of the large airports, about 60 percent of the medium-sized airports, and slightly over half of the small airports. Almost a third of the large and over half of the medium-sized airports reported that they had already received such certification for their equipment.

Airport Officials State That Year 2000 Malfunctions Are Unlikely to Affect Safety and Security but Could Compromise an Airport's Efficiency

To continue operations, FAA requires that airports meet certain safety and security standards. Airport officials do not expect core functions to be compromised by Year 2000 problems because they can resort to manual backup procedures. However, manual procedures could seriously reduce an airport's efficiency, thus causing delays that could ripple through the NAS. Given the short time remaining for airports to complete their Year 2000 preparations, it appears likely that some critical equipment will fail or malfunction, the efficiency of some airports will be degraded, and delays resulting from less efficient backup procedures or the closures of some airports for safety and security reasons could reduce the efficiency of the NAS.

Safety and Security Are Not Expected to Be Compromised, but Reliable Backup Procedures Must Be Available

Under Federal Aviation Regulations, airports are required to provide a number of safety-and security-related functions, such as access control, fuel services, runway lighting and monitoring, and emergency communications. FAA does not specify how these functions are to be provided; an airport may use any method, system, or procedure to provide them. If an airport is unable to provide any of these safety and security functions, FAA requires it to suspend or restrict operations. (For a complete list of FAA's required safety and security functions, see app. I.)

Airport officials reported that their airport's safety and security functions are unlikely to be affected by year 2000-induced systems malfunctions because their airport could resort to manual backup procedures. For example, if an access control system were to malfunction, FAA officials said an airport would be permitted to post guards to control key access points. Similarly, if runway lighting systems were to malfunction, airport officials reported that they could operate the runway lights manually or restrict landings to daylight hours and divert any aircraft arriving after dark to other airports.

Such contingency plans, however, will need to be fully developed and tested to help ensure that safety or security is not degraded. For example, some airport officials indicated that their contingency plans for Year 2000 malfunctions with their baggage-handling and access control equipment involve substituting manual procedures. Such contingency plans could

require hiring additional airport personnel and performing background checks. In addition, employees performing unfamiliar tasks to compensate for the malfunction of automated equipment would have to be trained to minimize the possibility of human errors affecting airport safety or security. Some airport officials were concerned about having the human resources they might need to respond to equipment malfunctions. Citing the "tight local labor market," they expressed concerns about their ability to obtain qualified personnel and adequately train them in time to manually perform procedures to replace any automated equipment that might malfunction.

Equipment Malfunctions Could Disrupt the NAS

Airport officials we interviewed stated that substituting manual backup procedures for automated equipment could slow down their airport's operations. For example, according to officials at one large airport, if the computer that controls their runways' lights malfunctioned, turning the lights on manually would be a time- and labor-intensive process because the manual controls are located on the airfield and are quite far apart. Additionally, because so much of the non-safety-related equipment at large airports facilitates moving people quickly, malfunctions of key systems (including baggage-handling systems, interterminal subways and moving sidewalks, and automated fuel distribution systems)—while not likely to affect safety—could dramatically delay an airport's operations. Furthermore, delays at one airport could disrupt schedules at connecting airports as well, eventually reducing the efficiency of the entire NAS. To the extent that these delays are confined to small airports, the effect on the NAS may not be severe. However, Year 2000 problems at just a small number of the nation's largest airports could prove very disruptive.

Given the significant number of airports in our survey that reported they did not expect to meet FAA's recommended June 30, 1999, preparation date and had not completed contingency plans, it is possible that critical equipment at some airports will malfunction and disrupt the performance of some core functions. Should this situation occur, FAA and airport officials agree that they will suspend or restrict operations rather than potentially compromise an airport's safety or security. However, significant delays at some airports could reduce the efficiency of the entire NAS.

Assistance to Airports' Year 2000 Programs Is Available From External Sources

Airport managers and other members of the aviation industry identified a number of potential sources of assistance to airports confronting the Year 2000 challenge. First, contractors with appropriate expertise can provide the trained personnel that an airport might lack and might be able to repair equipment faster than that airport's staff. Second, aviation industry associations have helped to inform airports about Year 2000 issues. Third, legislation recently passed by the Congress can be expected to encourage information sharing. Finally, FAA has helped airports by providing procedures for documenting their Year 2000 readiness.

The Use of Contractors Can Improve Airports' Readiness

Many airport officials commented that the use of contractors had significantly assisted their progress in completing Year 2000 preparations. Officials at large airports, in particular, acknowledged the importance of contractors. Because most airports routinely contract out certain services and maintenance rather than have their own staff perform that work, they lack the trained personnel in-house to conduct Year 2000 repairs, particularly those that require special expertise, such as testing internal microprocessors and replacing those that are date-dependent. Some aviation consulting firms that specialize in Year 2000 problems have developed databases that provide information on the Year 2000 status of equipment that is used at many airports. Additionally, some airports are working to develop global Year 2000 solutions that could be tested at a single airport, allowing subsequent airports with the same equipment to then install and implement that equipment without repeating the testing procedures. In responding to our survey, about a fifth of the small airports, almost two-fifths of the medium-sized airports, and three-fourths of the large airports indicated that they have either hired or intend to hire contractors.

Aviation Industry Associations Have Been Assisting Airports' Year 2000 Efforts

Aviation industry associations have been working to help ensure airports will be prepared to operate through and beyond the year 2000. Officials at some of these associations say that while their organizations do not have the technical expertise to assist airports in actual Year 2000 testing or repairs, they have helped keep their members informed. The Airports Council International—North America (ACI-NA) and the American Association of Airport Executives (AAAE), both of which represent domestic airport operators, regularly include information on the Year 2000 problem in their newsletters and correspondence with members, discuss Year 2000 issues at workshops and conferences, and have been involved in seminars focused on the year 2000. ACI-NA recently sponsored a workshop

to give airport officials a forum for sharing best practices on how to prepare for the year 2000 and plans to hold additional workshops to encourage information sharing.

The Air Transport Association of America (ATA), a group representing domestic air carriers, has taken a more active role in its efforts to help ensure airports are prepared to operate through and beyond the year 2000. In addition to such awareness activities as those just mentioned, ATA has contracted with a management consulting firm to inventory equipment at 158 domestic airports. ATA is interested in gathering information on the status of the equipment that could affect air carriers' ability to operate and in raising awareness among airport officials about the extent to which the Year 2000 problem could affect their operations. Additionally, ATA has provided materials to airports to help them conduct their inventories.

Federal Legislation Has Assisted Airports in Preparing for the Year 2000

Officials from airports, an aviation trade group, and FAA all expressed concerns that a reluctance to share information about equipment and its components was impeding progress toward Year 2000 readiness. They said many parties involved in preparations for the year 2000 feared being held liable for equipment malfunctions if information they provided about the problem—including the status of equipment and its components, or tests and repair procedures involving such equipment—turned out to be inaccurate. In response to these and other similar concerns expressed in many business sectors, in October 1998 the Congress passed legislation to encourage the sharing of Year 2000-readiness information and to address the potential for legal liability associated with the disclosure and the exchange of this information.[6] The law also states that sharing Year 2000 information does not violate antitrust laws. Airport officials we spoke with when this legislation was pending before the Congress said sharing information on manufacturers' certification and Year 2000 status would eliminate much repetitive testing by airports. Some airport officials, however, were less optimistic about the usefulness of this law. They speculated that such a law might foster carelessness and increase the amount of inaccurate information in circulation, thereby impeding airports' Year 2000 efforts.

In addition, the Congress, at FAA's request, has authorized Airport Improvement Program (AIP) funds to be used in fiscal year 1999 for Year 2000 assessment and related testing. A provision in the Fiscal Year 1999

[6]The Year 2000 Information and Readiness Disclosure Act (P.L. 105-271) was enacted on October 19, 1998.

Omnibus Appropriations Act[7] permits these funds to be used to assess and test all equipment owned by an airport regardless of the equipment's eligibility under this program. FAA expects that up to $100 million in such funds could be used under this provision.

FAA Is Helping Airports Prepare for the Year 2000

To maintain the continued operation of the NAS, several offices within FAA are collaborating to help ensure airports are adequately prepared for the year 2000. In FAA's Office of the Administrator, the Year 2000 program staff is focusing primarily on FAA itself, preparing air traffic control equipment and FAA's internal computer systems for the date change. The Year 2000 program office intends to plan for any disruptions that could occur if the nation's airports are not prepared for potential delays caused by Year 2000-related equipment malfunctions.

Two other offices—Airport Safety and Standards and Civil Aviation Security—are working specifically with airports. FAA's Office of Airport Safety and Standards, which oversees airports' federally mandated safety-related operations, has provided airports with a framework for renovating their equipment. Additionally, the Associate Administrator for Airports distributed to the nation's public airports a list of commonly used airport equipment that may be vulnerable to Year 2000 problems. The list is partly based in part on ATA's and ACI-NA's assessments of airports and categorizes the equipment by functional area, such as communications, financial systems, and passenger services (see app. I).

The Associate Administrator for Airports has also set criteria for verifying the Year 2000 readiness of airports' equipment that is used to meet FAA's safety and security requirements and has established a national team to monitor the airports' progress in preparing this equipment for the date change. According to this office, team members will monitor the airports' progress through site visits, telephone calls, and correspondence. For all equipment used to meet FAA's requirements, airports must demonstrate they have at least one of the following:

- a manufacturer's certification that the equipment does not contain any computers or microprocessors,
- a written description of the testing performed to determine that the equipment is Year 2000 ready,
- documentation that replacement hardware or software is Year 2000 ready, or

[7]P.L. 105-277.

- a written description of contingency plans for the equipment in question.

Last spring, the Office of Airports also formed a Year 2000 Airfield Working Group to help ensure airports will be prepared to operate into the next century. Members of this group include representatives from FAA's offices of the Administrator, Airport Safety and Standards, and Civil Aviation Security; the Airport Consultants Council; ACI-NA; ATA; AAAE; the National Association of State Aviation Officials; the National Business Aviation Association; and the Regional Airline Association. This working group meets regularly and is focusing on providing airports with such information as manufacturers' certifications, lessons learned, and testing methods and is considering the possibility of building a database containing data on manufacturers' certifications. Such a database could reduce the amount of work airports have to do, because instead of contacting each individual manufacturer, airport officials could consult a single source.

FAA has also formed an Aviation Industry Year 2000 Steering Committee to (1) serve as the focal point to promote the exchange of information on the status of Year 2000 preparations with industry representatives and (2) identify and facilitate the effective resolution of Year 2000 issues that could affect the safety, the security, and the efficiency of the NAS. Industry members of this steering committee include AAAE, ACI-NA, the Regional Airlines Association, the Aerospace Industries Association, and the General Aviation Manufacturers' Association.

FAA's Office of Civil Aviation Security, which regulates airports' federally mandated security-related functions, surveyed the nation's 81 largest airports to determine the Year 2000 status of their security equipment.[8] According to agency officials, the airports reported no significant problems. Although not all airports reported that their security equipment is currently Year 2000 ready, they said that it would be ready on or before January 1, 2000. Officials at the Office of Civil Aviation Security have also contacted the manufacturers of the security equipment that is frequently used by many airports to inquire about that equipment's Year 2000 status. An official in this office told us that the manufacturers they contacted reported that most of the equipment in question would not have date-related problems. Facilities and equipment eligible for purchase with AIP funds may be repaired, if needed, with AIP funds. These include safety and security facilities, as well as lighting systems and other airport

[8]The airports themselves are responsible for relatively few security-related functions; most security functions are carried out by the airlines.

systems. Funds from passenger facility charges may be used for all AIP-eligible repairs, as well as an expanded range of airport terminal facilities, such as baggage-handling systems.

Conclusions

Because the problems confronting airports as they prepare for the year 2000 are complex and airports' preparations are still in process, it is not clear at this time (1) which airports could suffer equipment malfunctions on and after January 1, 2000, and (2) whether any malfunctions could decrease airports' efficiency or create escalating delays throughout the NAS. But some airports have reported that they are using an ad hoc approach to prepare their equipment for the year 2000, and some have reported that they will not complete their Year 2000 preparations by FAA's recommended date of June 30, 1999, and that they currently lack contingency plans. These airports are at higher risk of suffering equipment malfunctions related to the year 2000 date change, which could lead to decreased efficiency of their operations. Because of the interdependence among airline flights and airport facilities, decreased efficiency and delays at one airport could cause delays at other airports and eventually impede the flow of air traffic throughout the nation, especially if those delays occur at airports that serve as hubs.

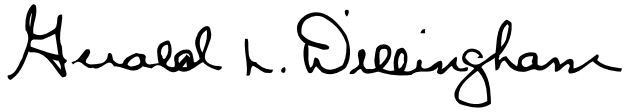
Agency Comments and Our Evaluation

We provided FAA with a draft of this report for review and comment. We met with FAA officials, including the Director of the Year 2000 Program Office in the Office of the Administrator and representatives of the Office of Airport Safety and Standards and the Office of Civil Aviation Security Operations, and received their comments on a draft of this report. They did not dispute the report's findings, but they pointed out that the status of airports' preparations for the year 2000 is rapidly evolving and that data collected in the fall of 1998 may, therefore, not fully portray their current situation. FAA also suggested that we more explicitly indicate that not all of the systems supporting the functions included in our survey of airports, such as heating and ventilation and moving sidewalks, are regulated by FAA. We have incorporated this comment and others from FAA as appropriate.

We performed our work between July 1998 and December 1998 in accordance with generally accepted government auditing standards. Appendix I contains details of the scope and methodology or our review.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. At that time, we will provide copies of the report to the Secretary of Transportation; the Administrator, FAA; appropriate congressional committees; and other interested parties. We will also make copies available to others upon request.

Please contact me at (202) 512-2834 if you or your staff have any questions about this report. Major contributors to this report are listed in appendix III.



Gerald L. Dillingham
Associate Director,
Transportation Issues

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Abbreviations

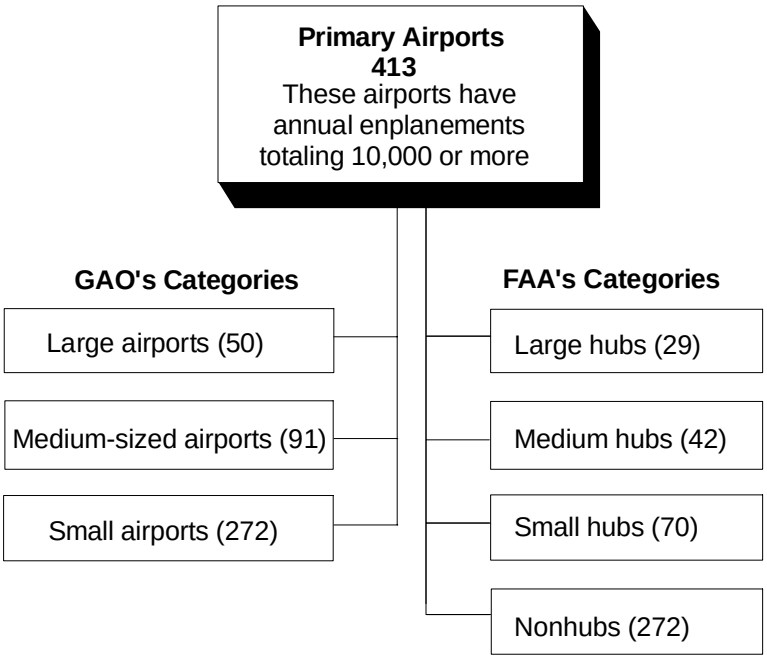
AAAE	American Association of Airport Executives
ACI-NA	Airports Council International-North America
AIP	Airport Improvement Program
ATA	Air Transport Association of America
FAA	Federal Aviation Administration
GAO	General Accounting Office
NAS	National Airspace System
OMB	Office of Management and Budget

Scope and Methodology

We surveyed by mail the 413 airports in the United States and territories that FAA considers primary commercial service airports, that is, those with annual enplanements (the number of passengers boarding commercial aircraft) totalling 10,000 or more. As of December 1998 we obtained responses from 334 airports (81 percent), which represents about 96 percent of the passengers served by all 413 airports. The practical difficulties of conducting any survey may introduce unwanted variability in the results. These include differences in how questions are interpreted, errors in entering data, and the types of airports that did not respond. We included steps in both data collection and data analysis to minimize this unwanted variability. We pretested questionnaires with airport officials, reviewed answers during follow-up visits and telephone interviews, double-keyed and verified all data during entry, and validated all analyses with a second analyst.

FAA subdivides commercial service airports into four categories on the basis of annual enplanements: large hubs, medium hubs, small hubs, and nonhubs. The numbers of airports in these categories are 29, 42, 70, and 272, respectively (see fig. I.1). To facilitate comparisons among airports responding to our survey, we modified FAA's categories by assigning airports to one of three classes—large, medium, or small—based on the number of enplanements in 1996. We split FAA's medium hub category by designating 21 of its airports as large and 21 as medium. Consequently, our large category contains the 50 airports with the greatest number of enplanements in 1996; the medium category contains 91 airports; and the small category contains the same 272 airports as FAA's nonhub category.

Figure I.1: FAA's Categories of Primary Commerical Service Airports Compared With Size Categories Used in This Analysis



Core Functions at Airports

Although FAA has designated 22 core functions for airports to consider in preparing for the year 2000, to minimize the time respondents would need to fill out our questionnaire, we omitted the functions that are neither required by FAA for certification under part 139 (Airport Operations), part 107 (Airport Security), part 108 (Airport Operator Security) of Federal Aviation Regulations, nor deemed "airfield critical." As a result, the following functions were not included in our questionnaire: cargo handling, information technology, flight and baggage information display computers and equipment, financial computers and equipment, jet bridge operations and maintenance, noise abatement, and passenger services (see table I.1). In addition, we combined two closely related functions, access control and security and public safety, into one. Although FAA does not deem parking a critical function, we included it as the fourteenth function because airport officials told us that revenues from parking facilities constitute their primary source of revenue.

Table I.1: FAA's List of Airports' Core Functions to Prepare for the Year 2000 (i.e., FAA's Y2K Airfield System List)

FUNCTIONAL AREA	SYSTEM NAME	Part 139	Part 107/108	AIRFIELD CRITICAL
Access Control	Airport Access Control System	X	X	X
	Badging System		X	X
	CCTV		X	X
	Airport Id Systems		X	
Administration	Time & Attendance(Police and Fire)	X		
Airport Services	Digital Camera / Digital Recording Systems		X	X
	Elevators			
	Escalators			
	Moving Sidewalks			
	Airfield/Terminal Capacity Simulation Programs			
	Airport Design System(CADD)			
	Sign Making Computer System			
Baggage Handling Systems	Bag Match scanning system		X	
	Baggage Scale			
	In-bound Baggage System			
	Mail Scale			
	Outbound Baggage System			
	X-ray system		X	
	Automated bag tag system		X	
	PPBM Profiling System		X	
	Cargo Handling Systems			
	Cargo Tracking System			

Information Technology Systems	Common LAN Support			
(Infrastructure, Hardware,Software)	Fiber-optic comm equipment			
	Local Area Network			
	Network comm equipment			
	Shared Tenant Services Network			
Communications	ARINC			
	Automated Intercom System			
	Automated Paging System	X	X	X
	Automated Voice Flight Information System			
	CCTV		X	
	Communications Systems	X		X
	Crash Net	X		X
	Radio System	X	X	X
	Emergency Notification System	X		X
	Radio System	X	X	X
	Emergency Call Back System	X	X	
	Emergency Audio Paging System	X		
	Fire Dispatch	X		X
	Ground to air communications			X
	Ground to ground communications			X
	Airport phone service	X		X
	Long distance phone service			
	PBX / Key Systems			
	Phone Emergency Recording System	X		X
	Portable Radio Recharging System	X		X
	Phone/voice-mail system			

	Radio recorder			
	Scanner			
Environmental Systems	Boiler Room Control System			
	Chemical Feed Controllers			
	Chiller Systems			
	CO Monitoring System			
	Exterior Lighting Control			
	Fire Extinguisher Maintenance System(non-airfield)	X		
	HVAC Control System			
	Interior Lighting System			
	Terminal Lighting System			X
	Runway Temp./Condition Monitoring System	X		X
Facilities Maintenance	Security Alarm System		X	
	AGT People Mover Controllers			
	Airfield Lighting Control System	X		X
	Back-Up Generator System	X		X
	Electronic Metering System			
	Environmental Monitoring System			
	Fire Alarm System(non-airfield)			
	HVAC System			
	Power Generation System			
	Power Monitoring System			
	Traffic Light Control System			
	Water Meter Reading System			
	Work Order Management System	X		X

	Landscape Irrigation System			
	Lock/Key Inventory System			X
FIDS/BIDS	Electronic Signs Interface (Ticket counter)			
	Baggage Information systems			
	Internal/Airline Specific FIDS			
	MUFIDS System			
	Old IDS FIDS System			
	CUTE Systems			
Financial Systems	Accounting/Payroll Systems			
	Automatic Banking/ Fund Transfer System			
	Automatic Clearing House software			
	Check Writer Software			
	Data System			
	Point of Sale Monitoring Systems			
	Procurement Control Systems			
	Properties Management Systems			
Fuel Services	Aircraft Fuel Distribution System	X		X
	Fuel Tank Monitoring System			
	Refueling Equipment	X		X
	Fuel Storage/ Distribution leak Detection System			
	Vehicle Fuel Management System	X		X
Ground Support / Ramp Services	Catering systems			

	Aircraft De-Icing Systems			X
	Equipment Asset Management System			
	Flight information systems			
	Gate Assignment Software			X
	Ground Equipment Tracking System			
	Snow & Ice Control Equipment	X		X
	Vehicle (Fleet) Management System			
Jet bridge operations / Maintenance	Jet Bridge			
	Programmable Logic Controller			
Navigational Aids	Visual Glide Slopes(VASI, PAPI,etc)	X		X
(not federally owned or controlled)	Light Lanes(MALS,MALSR,etc)	X		X
	Glide Slope	X		X
	Localizer	X		X
	Marker Beacons	X		X
	Rotating Beacons	X		X
	DME	X		X
	SDF	X		X
	Test Equipment	X		
	NDB	X		X
Noise Abatement	Digital Complaint Recording System			
	Noise Montioring System			
Operations	Airfield Condition Reporting/ NOTAMS Systems	X		X

	FAR Part 139 Status Monitoring System	X		X
	Ice Alert System	X		X
	Radio/Communications System	X		X
	Runway Friction Test Devices			X
	Weather Information System			X
Parking	CCTV Security Camera System			
	Parking Analysis and Reporting System			
	Parking Lot Emergency Call System			
	Parking Revenue Control System			
	Parked Vehicle Inventory System			
Passenger Services	Automated Announcement system			
	Back Office Operations			
	Bag tag automated system			
	Baggage Tracking system			
	Boarding system			
	Cargo support systems			
	Computer Based Training			
	Credit Card Scanning			
	Curb side check in system			
	Flight Information Systems			
	Passport Readers			
	Talking Bus			
	Ticketing systems			
	X-ray machine (check in)		X	X
	Ground Transportation Information Kiosks			

	Talking Bus Information System			
Ramp Operations / Control	FAA Systems Interface			
	Gate control/ scheduling systems		X	X
	Local Tower System			X
Security/ Public Safety	Aircraft Rescue and Firefighting Truck	X		X
	Command Center Vehicle			X
	Crime Records Information System			
	FATS (Fire Arms Training System)			
	Fire Simulator Training System	X		
	Firehouse Control Software	X		X
	Global personnel records			
	Hazardous Materials Response Unit			X
	Heart Monitor			
	Incident Command Center Vehicle & Equipment			X
	Loronics Digital Camera System			
	National Fire Codes System			
	Police IT System			
	Police Station Video System			
	Portable Xray System		X	
	Public Safety LAN			
	Ambulance/EMS Equipment			X
	Emergency Response Autodialers	X		XX
	Firearms Training System			
	Police Station Workstations			

	Telephone System	X		
	911 Services Console	X		
	ARFF Fire Fighting Training Records System	X		
Weather Systems / Services	Weather Information System(AWOS,)	X		X
	Weather update teletype			X

Notes:

1) This list does not represent all Airport systems that could be affected by Y2K and is provided only as an aid to help airport owner/operators review their individual airport system.

2) The "X" in the "part 139" column indicates systems that could have an impact on the airport's certificate if they became non functional on January 1, 2000.

3) The "X" in the "part 107/108" column indicates systems that could have an impact on aircraft operations if they became non functional on January 1, 2000.

4) The "X" in the "Airfield Critical" column indicates systems that could have an impact on aircraft operations if they became non functional on January 1, 2000.

Survey of Airports' Administrators on Preparation for the Year 2000

U.S. General Accounting Office
Survey of Airport Administrators Regarding Conversion of Systems and Electronic Equipment to the Year 2000

INTRODUCTION

The Senate Committee on Commerce, Science and Transportation has asked the U.S. General Accounting Office to conduct a review of airports' efforts to prepare their systems and electronic equipment for the Year 2000 date-change. The Congress is interested in the status of these efforts at the nation's airports and to determine assistance they might need.

As part of this review, we are surveying the nation's 413 busiest commercial airports regarding their Year 2000 conversion efforts. We are requesting that you complete a questionnaire. The questionnaire asks for information about your airport's efforts to have its systems prepared for the Year 2000 date-change, and also asks questions about each core area of operation (for example, runway lighting, fueling systems, and parking).

Your responses will be kept confidential and will not be used in any way to identify your airport. They will be combined with those of other respondents and summarized in our report to the Congress.

We will supplement the questionnaires with visits to a number of airports. We will contact you if your airport is selected for a visit.

INSTRUCTIONS

Please provide a response which represents your airport's Year 2000 experience and operations for those functions the airport is responsible, unless specified otherwise. In addition, throughout the questionnaire, we will be using the phrase:

systems and electronic equipment which include systems, software, hardware, and devices with embedded chips, etc. These items could range from communication devices such as walkie-talkies to mainframe computers.

Please return your completed questionnaire by fax or mail within 10 business days of receipt.

We recognize that there are great demands on your time; however, your cooperation is critical to our ability to provide comprehensive information to the Congress about your airport.

When you complete your questionnaire, please fax or mail it to:

FAX #: 1-888-250-1634

Attn: Heather Halliwell
U.S. General Accounting Office
441 G St., NW - Room 2T23
Washington, DC 20548

If you have any questions, please call Heather Halliwell at 202-512-9840 or e-mail her at halliwellh.rced@gao.gov.

Thank you for your help.

PROGRAM MANAGEMENT

1. Who oversees and coordinates your airport's Year 2000 conversion efforts? (CHECK ONE)

   1. [ ] Airport Administrator/Airport Executive Director
   2. [ ] Year 2000 Program Manager other than Airport Administrator/Manager
   3. [ ] Year 2000 Committee (or Task Force)
   4. [ ] Consultant(s)/Contractors
   5. [ ] Other (PLEASE SPECIFY) _____
   6. [ ] Do not have a person or group to oversee and coordinate this airport's Year 2000 conversion efforts

ID:_____

2. In addition to the airport manager or airport executive, please provide the name of the person or the group chair who oversees and coordinates your airport's Year 2000 conversion efforts -- his/her title, the name of the airport, his/her phone number and his/here-mail address.

   [ ] **Not applicable** -- no single individual oversees or coordinates Year 2000 efforts (GO TO QUESTION 5)

   Name: _____

   Title: _____

   Airport: _____

   Phone #: _____

   E-Mail: _____

3. Does this person report directly to the airport administrator/executive director? (CHECK ONE)

   1. [ ] Yes

   2. [ ] No

   3. [ ] Not applicable-- he/she is the airport administrator/executive director

4. About what percent of this person's time is spent on your airport's Year 2000 conversion efforts? (ENTER PERCENTAGE)

   _____ %

   [ ] Don't know

5. When did your airport begin the process of preparing its systems and electronic equipment for the Year 2000 program? (ENTER DATE)

   _____
   Month/Year

6. Does the person or group who oversees your airport's Year 2000 efforts have a mechanism for tracking the progress of systems and electronic equipment (e.g., systems, software, hardware, devices with embedded chips, etc.) as they are changed to Year 2000? (CHECK ONE)

   1. [ ] Yes -- > Please briefly describe how you are tracking the progress.

   2. [ ] No

   3. [ ] Don't know

EFFECTS OF YEAR 2000 DATE CHANGE ON AIRPORT

7. About what portion, if any, of your airport's systems and electronic equipment (e.g., systems, software, hardware, and devices with embedded chips) are vulnerable to the Year 2000 date-change? (CHECK ONE)

   1. [ ] None or almost none

   2. [ ] Less than half

   3. [ ] About half

   4. [ ] More than half

   5. [ ] All or almost all

   6. [ ] Don't know

ID:_____

INVENTORY OF SYSTEMS AND ELECTRONIC EQUIPMENT

8. Has your airport developed or is it in the process of developing an inventory (or portfolio) of its systems and electronic equipment (e.g., systems, software, hardware, or devices with embedded chips)? (CHECK ONE)

   1. [ ] Yes, developed or is in process of developing (CONTINUE)

   2. [ ] No, not developed--> (GO TO QUESTION 15)

   3. [ ] Not applicable -- have few, if any, date-dependent systems or electronic equipment (GO TO QUESTION 15)

9. Which of the following best describes your airport's inventory? (CHECK ONE)

   1. [ ] List of systems and electronic equipment, <u>including</u> components and subcomponents

   2. [ ] List of systems and electronic equipment, <u>not including</u> components and subcomponents

   3. [ ] List of information systems only

   4. [ ] Other (PLEASE SPECIFY)

   _____

10. Does your inventory include all or only date-dependent airport systems and electronic equipment? (CHECK ONE)

    1. [ ] All systems and electronic equipment

    2. [ ] Only date-dependent systems and electronic equipment

    3. [ ] Don't know

11. To what extent has your airport completed an inventory of its systems and electronic equipment? (CHECK ONE)

    1. [ ] Just started

    2. [ ] About 1/4 completed

    3. [ ] About 1/2 completed

    4. [ ] About 3/4 completed

    5. [ ] Completed

    6. [ ] Don't know

12. When did your airport complete/does it plan to complete the inventory? (ENTER MONTH/YEAR)

    _____
    Month/Year

13. Has your airport assessed all inventory items to determine which systems and electronic equipment are essential to operations and which are less critical? (CHECK ONE)

    1. [ ] Yes (CONTINUE)

    2. [ ] No (GO TO QUESTION 15)

14. Of the systems and electronic equipment in your airport's inventory that are essential to operations, about what percent have been assessed to determine what remedial action is needed? (ENTER PERCENTAGE)

    _____ %

MANUFACTURER (VENDOR) CERTIFICATION OF AIRPORT'S SYSTEMS

15. Of the vulnerable systems and electronic equipment in your airport inventory (your response to Question 7), for about what percent did/will your airport rely on manufacturers to certify Year 2000 date-dependent systems? (ENTER PERCENTAGE; IF NONE, ENTER '0')

    _____ % (IF '0', GO TO QUESTION 18)

16. Of the systems and electronic equipment for which your airport relied/will rely on manufacturers to certify (your response to Question 15), about what percent have been certified by the manufacturer as being able to operate properly on and after the Year 2000? (ENTER PERCENTAGE; IF NONE, ENTER '0')

    _____ % (IF '0', GO TO QUESTION 18)

17. For the items that have been certified by the manufacturer as being able to operate properly on and after the Year 2000, have you requested the manufacturer's test results supporting this certification? (CHECK ONE)

    1. [ ] Yes, for all
    2. [ ] Yes, for some
    3. [ ] No

18. Consider the systems and electronic equipment for which your airport will not obtain manufacturer's certification.

    For about what percent of these will(1) your airport do its own testing/certification, (2) others, that is non-vendors (FAA, ATA, AAAE, ACI, etc.)-- test or certify, (3) your airport share testing/certification with others, and (4) will not be tested at all? (ENTER PERCENTAGE; IF NONE, ENTER '0')

Airport only will test/certify	_____ %
Others-- non vendors-- only (FAA, ATA, AAAE, ACI etc.) will test/certify	_____ %
Shared testing (airport and others (non-vendors)	_____ %
Will not be tested/ certified	_____ %
Total	**100%**

YEAR 2000 PLAN

19. Does your airport currently have a written plan for addressing the conversion to Year 2000? A plan would include priorities, costs, and a schedule for renovating systems (by repairing, replacing, or retiring equipment). (CHECK ONE)

    1. [ ] Yes, just started
    2. [ ] Yes, about 1/4 completed
    3. [ ] Yes, about 1/2 completed
    4. [ ] Yes, about 3/4 completed
    5. [ ] Yes, completed
    6. [ ] No, do not have written plan

ID:_____

20. What are your airport's goals for completing each of the following major Year 2000 activities? (ENTER MONTH/YEAR)

    a. Assessment of inventory items (systems and electronic equipment) to determine if they should be renovated, replaced, retired, or left alone.

    _____
    Month/Year

    [ ] Have not determined

    b. Repair or replacement of inventory items.

    _____
    Month/Year

    [ ] Have not determined

    c. Testing of repaired or replaced components of inventory items to determine if they will operate properly on and after the Year 2000.

    _____
    Month/Year

    [ ] Have not determined

    d. Implementation of all repaired or replaced inventory items

    _____
    Month/Year

    [ ] Have not determined

21. Has your airport developed a budget for your Year 2000 program? (CHECK ONE)

    1. [ ] Yes -->What will be your airport's estimate of the total cost of the Year 2000 program? (Please include salaries, equipment, etc.) (ENTER DOLLAR AMOUNT)

       $ _____

    2. [ ] No

    3. [ ] Don't know

CONSULTANTS/CONTRACTORS

22. Is your airport planning to hire/has your airport hired any consultants or contractors to assist your airport in its Year 2000 conversion efforts? (CHECK ONE)

    1. [ ] Plan to hire consultants/contractors, but not yet in-process

    2. [ ] In process of hiring consultants/contractors

    3. [ ] Currently have Year 2000 consultants/contractors on board

    4. [ ] Entity (state government, local government, etc) with management responsibilities for airport is hiring consultants/contractors

    5. [ ] Do not plan to hire either consultants or contractors (GO TO QUESTION 24)

ID:_____

23. What part of the work related to your airport's Year 2000 conversion efforts will be performed by these consultants/contractors? (CHECK ONE)

    1. [ ] Will handle entire Year 2000 efforts
    2. [ ] Will perform only selected tasks or segments of Year 2000 effort (e.g., conduct inventory, prepare written plan, etc.)
    3. [ ] Will provide only advice and guidance

ELECTRONIC TRANSFERS OF INFORMATION

24. Does your airport have a comprehensive list of all circumstances in which information is electronically transferred (often called data exchanges)-- this would include information transfers both within and outside of the airport? (CHECK ONE)

    1. [ ] Yes (CONTINUE)
    2. [ ] No, do not have list of data exchanges (GO TO QUESTION 26)
    3. [ ] Not applicable-- do not have any data exchanges (GO TO QUESTION 26)

25. About how many, if any, of these transfers have been assessed to determine if they will function properly on and after January 1, 2000? (CHECK ONE)

    1. [ ] All
    2. [ ] Some
    3. [ ] None

COORDINATION

26. With what entities, if any, has your airport conferred regarding the effects of their potential failures on airport operations in the Year 2000? (CHECK ALL THAT APPLY)

    1. [ ] Airlines
    2. [ ] FAA
    3. [ ] Hospitals
    4. [ ] Parking vendors
    5. [ ] Transportation companies
    6. [ ] Utility/power companies
    7. [ ] Water and sewer companies
    8. [ ] Other airport tenants
    9. [ ] Other(s) (PLEASE SPECIFY)

       _____

    10. [ ] Has not conferred with other entities

AIRPORT EXPERIENCE CONVERTING TO YEAR 2000

27. Overall, how much concern, if any, will your airport have in its efforts to repair, replace, or certify all of its date-dependent systems and electronic equipment by the Year 2000? (CHECK ONE

    1. [ ] Little or no concern
    2. [ ] Some concern
    3. [ ] Moderate concern
    4. [ ] Great concern
    5. [ ] Very great concern

ID:_____

28. Listed below are some factors that could affect whether or not your airport will be able to repair, replace, or certify its date-dependent systems and electronic equipment by the Year 2000.

How much concern, if any, will your airport have for each of the following factors in its efforts to certify, replace, or repair all its date-dependent systems and electronic equipment by the Year 2000? (CHECK ONE FOR EACH FACTOR).

FACTORS	Little or No concern	Some concern	Moderate Concern	Great Concern	Very great Concern
1. Ability of airport tenants to convert their date-dependent systems and electronic equipment					
2. Ability of connecting airports to convert their date-dependent systems and electronic equipment					
3. Ability to obtain certification of systems and equipment from vendors					
4.. Ability to validate or verify systems and equipment					
5. Availability of clearinghouse that provides information on certification of manufactured electronic equipment					
6. Availability of external consultants					
7. Availability of funding					
8. Availability of trained information technology personnel among airport staff					
9. Level of assistance on Year 2000 efforts from FAA					
10. Level of coordination of Year 2000 efforts with airlines					
11. Level of coordination of Year 2000 efforts with FAA					
12. Level of sharing of information about Year 2000 efforts among airports					
13. Loss or interruption of scheduled service					
14. Speed of procurement process					
15. Support of airport management for Year 2000 efforts					
16. Other (1) factor (Please specify): _____					
17. Other (2) factor (Please specify): _____					

ID:_____

28. Listed below are some factors that could affect whether or not your airport will be able to repair, replace, or certify its date-dependent systems and electronic equipment by the Year 2000.

How much concern, if any, will your airport have for each of the following factors in its efforts to certify, replace, or repair all its date-dependent systems and electronic equipment by the Year 2000? (CHECK ONE FOR EACH FACTOR).

FACTORS	Little or No concern	Some concern	Moderate Concern	Great Concern	Very great Concern
1. Ability of airport tenants to convert their date-dependent systems and electronic equipment					
2. Ability of connecting airports to convert their date-dependent systems and electronic equipment					
3. Ability to obtain certification of systems and equipment from vendors					
4.. Ability to validate or verify systems and equipment					
5. Availability of clearinghouse that provides information on certification of manufactured electronic equipment					
6. Availability of external consultants					
7. Availability of funding					
8. Availability of trained information technology personnel among airport staff					
9. Level of assistance on Year 2000 efforts from FAA					
10. Level of coordination of Year 2000 efforts with airlines					
11. Level of coordination of Year 2000 efforts with FAA					
12. Level of sharing of information about Year 2000 efforts among airports					
13. Loss or interruption of scheduled service					
14. Speed of procurement process					
15. Support of airport management for Year 2000 efforts					
16. Other (1) factor (Please specify): _____					
17. Other (2) factor (Please specify): _____					

ID:_____

SYSTEMS AND ELECTRONIC EQUIPMENT IN CORE AIRPORT FUNCTIONS

29. For each of the core airport functions (as identified by FAA and other entities) listed below, please answer each of the questions across the top of the table (columns A through D).

CORE AIRPORT FUNCTION	A Who will convert or replace the systems and electronic equipment for the Year 2000 date-change in this core function?	B What portion of the systems and electronic equipment has your airport already certified, converted, replaced, or decided to leave alone for the Year 2000 date-change?	C Does your airport have any contingency plans in place to respond to the loss of systems and electronic equipment, including the Year 2000 problem?	D How would the failure of date-dependent systems and electronic equipment affect the safety and efficiency of your airport operations on and after the year 2000?
1. Access Control/ Airport Security	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
2. Administration	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
3. Airport Services (e.g., cameras, elevators, moving sidewalks, etc.)	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably , but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
4. Baggage Handling	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know

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5. Communications	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
6. Environmental Systems (i.e., Interior lighting, HVAC control, chiller systems, etc.)	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
7. Facilities Maintenance (e. g., airfield lighting,security alarm, power generation, etc)	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
8. Fuel Services	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know

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9. Ground Support/Ramp Services (e.g., snow and ice control equipment, gate assignment, etc.)	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
10. Navigational Aids (e.g., visual glide slopes, runway lights, etc.)	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don' t know
11. Operations (e.g., ice alert, airfield condition, etc.)	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
12. Parking	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know

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13. Ramp Operations/ Control (e.g., FAA interface, gate control, etc.)	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know
14. Weather Systems/ Services	1. [ ] Airport shares with other entity 2. [ ] Airport only 3. [ ] Airline only 4. [ ] Contractor or subcontractor only 5. [ ] Other entity only (e.g.government agencies, etc.)	1. [ ] None or almost none 2. [ ] Less than half 3. [ ] About half 4. [ ] More than half 5. [ ] All or almost all 6. [ ] Not applicable-- Do not have systems that need date change 7. [ ] Don't know	1. [ ] Yes 2. [ ] No 3. [ ] Don't know	1. [ ] Could function acceptably for a long time 2. [ ] Could function acceptably, but for a short time 3. [ ] Could function for a long time, but not acceptably 4 [ ] Could not function at all 5. [ ] Don't know

COMMENTS

30. Please provide below, or on the back of this page, any information that you believe the Congress should consider about Year 2000 activities at airports, any comments that you have about your airport's Year 2000 activities, or any comments related to your responses to this questionnaire.

Thank you very much for your help! ID:_____

Major Contributors to This Report

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Design Methodology and Technical Assistance Group	Luann Moy
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