
Office of Inspector General

Readiness for the Year 2000

Department of Transportation

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Memorandum

**U.S. Department of
Transportation**

Office of the Secretary
of Transportation

Office of Inspector General

Subject: **ACTION:** Readiness for the Year 2000, DOT
FE-2000-014

Date: November 4, 1999

From: Alexis M. Stefani 
Assistant Inspector General for Auditing

Reply To
Attn Of: JA-20

To: Chief Information Officer, DOT
Federal Aviation Administrator
Commandant, U.S. Coast Guard

On September 30, 1999, at a hearing before the Special Committee on the Year 2000 Technology Problem, United States Senate, we testified on the Department of Transportation's (DOT) Year-2000 readiness for safe and efficient Year-2000 operations. We also commented on the readiness of aviation, maritime, and surface transportation industries. This cover memorandum summarizes our statement; the full testimony is attached.

RESULTS-IN-BRIEF

Overall, DOT has repaired all mission-critical systems used to support critical functions. Most large domestic providers in all transportation modes are making progress and should be ready by December 31, 1999. While DOT has taken an active role in working with international associations in raising Year-2000 awareness, DOT needs more information on the Year-2000 readiness of international aviation and maritime industries.

DOT Systems

DOT has 609 mission-critical systems, 310 of which had Year-2000 problems that had to be repaired. DOT has repaired all mission-critical systems used to support critical functions such as separating aircraft, searching for and rescuing ships, and performing safety inspections. Although it is unlikely that there will be major Year-2000 related system failures in DOT's own systems, there are no absolute guarantees because of the interdependency among computers, both internal and external. Even after Year-2000 repairs, computer programs continue to be upgraded. Therefore, DOT needs to ensure that upgrades to mission-critical

systems do not “undo” the compliance work and must continue testing its contingency plans and prepare itself to activate them.

Domestic Transportation Industry

DOT primarily relies on self-reported data to measure readiness of the domestic transportation industry. However, in response to DOT's surveys on Year-2000 readiness, the industry reported readiness was mixed, with 36 percent for marine facilities, 41 percent for air carriers (all large carriers responded), and over 90 percent for public transit. DOT also relies on survey results that transportation trade associations solicit from their members. These surveys generally covered the larger service providers who are responsible for the majority of transportation services.

Based on survey results, it is our opinion that most large domestic providers in all transportation modes are making good progress and should be Year-2000 ready. However, we were disappointed at the lack of information concerning the readiness of many smaller providers. DOT efforts to get information from small providers and filling the voids remain a major challenge.

- **Aviation.** The Federal Aviation Administration (FAA) surveyed readiness of 3,300 air carriers. While all large carriers responded, over 1,900 smaller carriers did not respond¹. FAA is actively pursuing survey results from the nonresponding carriers. The window of opportunity is still open for FAA to take action on our previous recommendation requiring Year-2000 readiness statements from air carriers.
- **Maritime.** Ship movement is highly computer dependent. However, the Coast Guard has received readiness information from only 43 percent of vessels visiting U.S. ports. The Coast Guard has demonstrated that failure to respond will have consequences. Specifically, on September 9, 1999, the Coast Guard restricted movement of 175 ships based on lack of required Year-2000 paperwork.

The American Association of Port Authorities surveyed the maritime port authorities' Year-2000 readiness, including readiness of 83 U.S. port authorities. Only 33 of the 83 port authorities responded to the survey and indicated that they are making good progress. The Coast Guard also surveyed the readiness of marine facilities located at U.S. ports; 36 percent of these

¹ Since the hearing on September 30, 1999, the Special Committee on the Year 2000 Technology Problem has taken an active role in encouraging the aviation industry to respond to FAA's survey. As of October 27, 1999, only 657 smaller air carriers have not responded to FAA's survey.

facilities responded. More information about ports' readiness, both large and small, is needed.

- Surface. All except four transit operators have responded to DOT's survey. Seventy-three percent reported they were Year-2000 ready; and the remaining operators, including 26 of the top 30, reported that they would be Year-2000 ready by yearend. For freight railroad companies, the seven largest companies reported that they would be Year-2000 ready. However, readiness information concerning over 500 regional and local railroad companies is needed.

International Aviation and Maritime

Over the past year, we raised concerns about Year-2000 readiness in the context of international air travel. As of October 29, 1999, information about some foreign countries' readiness is too sketchy and incomplete for assessment. However, FAA plans to impose flight restrictions on international air travel only if there is a known, verifiable safety problem. We are not persuaded that this approach will be sufficient because FAA is not likely to find any evidence of problems until after December 31, 1999. As to the international maritime industry's readiness, there is limited information available to the public.

RECOMMENDATIONS

We recommend the DOT Chief Information Officer:

1. Ensure Operating Administrations continue testing the contingency plans, including hands-on practice.
2. Ensure, as part of emergency preparedness, that technical expertise is available to quickly determine whether system failures, if any, are genuinely related to the Year-2000 roll-over.

We recommend the FAA Administrator:

3. Direct system owners to adequately assess modifications to Year-2000 compliant systems.
4. Provide adequate training on non-radar procedures to the controller workforce. This training is necessary since FAA's contingency plan relies on non-radar procedures. Both FAA and its unions need to develop a contingency plan acceptable to, and agreeable by, all parties.

5. Obtain information on all certified air carriers that did not respond to FAA's survey, and require Year-2000 readiness statements from air carriers.
6. In conjunction with the International Civil Aviation Organization (ICAO), continue working with ICAO member countries, that did not respond to the ICAO survey or did not provide sufficient information, to obtain Year-2000 readiness information.
7. Reconsider the planned approach, that is, to only impose flight restrictions when there are known, verifiable safety problems, when a foreign country does not provide sufficient information about its Year-2000 readiness for independent assessment. This is needed because foreign countries are not likely to provide verifiable evidence of safety problems until after December 31, 1999.

We recommend the U.S. Coast Guard Commandant:

8. Issue policy or quickly deliver DOT's policy on systems modifications to the system owners.
9. Direct the nonresponding marine facility and vessel owners to answer the Year-2000 questionnaire specified in the temporary regulations.
10. Consider expanding the scope of port exercises to include contingencies for port operations.
11. Continue working closely with international organizations to obtain more information on the international maritime industry, especially for port readiness.

ACTION REQUIRED

Please provide written comments within 15 days, to include specific actions taken or planned for each recommendation and estimated completion dates.

We appreciate the courtesies and cooperation of DOT representatives. If we can answer questions or be of further assistance, please call me at (202) 366-1964, or John Meche at (202) 366-1496.

Attachment

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**ATTACHMENT
(24 pages)**

Before the Special Committee on the Year 2000 Technology Problem

United States Senate

For Release on Delivery
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**Readiness for the Year 2000
Transportation Sector--Domestic and International
Department of Transportation**

**Statement of
The Honorable Kenneth M. Mead
Inspector General
U.S. Department of Transportation**



Mr. Chairman, Vice Chairman, and Members of the Committee:

We appreciate the opportunity to testify today on the Department of Transportation's (DOT) Year-2000 readiness for safe and efficient operations. We also will comment on the readiness of the aviation, maritime, and surface transportation industries. Our testimony addresses these areas:

- Status and issues concerning DOT's readiness,
- Status and issues concerning aviation, maritime, and surface transportation industries' readiness,
- Status and issues concerning international aviation and maritime readiness.

Overall, DOT has fixed all mission-critical systems used to support critical functions such as separating aircraft, searching for and rescuing ships, and performing safety inspections. DOT has responded positively and promptly to nearly all of our recommendations. Our validation work has consistently received the support of top DOT and agency management.

Although it is unlikely that there will be major Year-2000 related system failures in DOT's own systems, we know there are no absolute guarantees because of the interdependency among computers, both internal and external. Therefore, DOT needs to continue testing its contingency plans and be prepared to activate them.

While DOT has first hand knowledge about its own systems, it primarily relies on industry self-reporting to assess industry readiness. We agree with the Committee that there is an inherent concern with self-reported data because it tends to represent the proactive and well-prepared organizations' work, and obviously cannot be counted on to represent non-responding organizations or organizations whose Year-2000 readiness data are sketchy or incomplete. Getting information from non-responding organizations and filling the voids will remain a major challenge for the rest of this year.

Based on survey results, our sense about industry readiness is that most large domestic providers in all transportation modes are making good progress and should be ready in time. Since large providers handle the majority of transportation services, Year-2000 related failures or disruptions are likely to be isolated local events in the U.S., provided that external interfaces such as power grids and fuel lines operate satisfactorily.

We are disappointed at the lack of information concerning the readiness of many smaller providers. This information void needs to be filled, particularly for those in aviation, maritime, and railroad transportation modes.

We also share the Committee's concern about international readiness. Over the past year, we raised concerns about Year-2000 readiness in the context of international air travel. With only 93 days to go, there is little time left to obtain credible information about Year-2000 readiness in the international arena. A major issue now facing FAA is what action, if any, it will take when a foreign country does not provide sufficient information for independent assessment.

DOT Systems: DOT had 609 mission-critical systems, 310 of which had Year 2000 problems that had to be fixed. These include 152 aviation-related, 87 maritime-related, and 34 surface transportation-related systems. With strong congressional oversight, leadership by the Secretary and Deputy Secretary of Transportation, modal administrators, and hard work on the part of DOT employees, DOT has fixed all 310 mission-critical systems. With the repair work done, DOT now is focusing on safeguarding compliant systems and finalizing business continuity and contingency plans.

Upgrades continue to be made to Year-2000 compliant systems after they were installed at field sites. For example, after Year-2000 fixes, FAA modified the Oceanic Automation System software to achieve a better data transfer. Coast Guard also modified the Vessel Traffic System, which is used to direct ship movement at major domestic ports, to fix software glitches. DOT must exercise extreme caution to ensure these upgrades do not "undo" the compliance work. DOT is putting plans in place to ensure this does not happen.

It is impossible to guarantee that there will be no system failures. Therefore, having workable contingency plans should be an area of focus. For FAA, air traffic controllers need refresher training on non-radar procedures, all key labor unions should be participating in contingency planning, and more hands-on testing of contingency plans should be accomplished. The controllers' union has been participating in this effort; although invited, the major union representing system maintenance employees has not.

Domestic Transportation Industry: DOT has adopted a dual approach to ensure the private sector's Year-2000 readiness. In areas where DOT has regulatory responsibilities, it has done independent readiness surveys. The response rates were mixed, ranging from 36 percent for marine facilities, to 41 percent for air carriers (all large carriers responded), to over 90 percent for public transit. The Federal Transit Administration (FTA) took the commendable step of requiring transit operators to provide support for their Year-2000 readiness, and this accounts for the high response rate in the transit area.

In March 1999, we stated that our confidence level with respect to the entire aviation industry, particularly small carriers and suppliers, would be stronger if

certification of Year-2000 readiness was required of them. FAA chose not to do this, and at this late stage, is now trying to obtain some assurance that smaller providers are ready for the Year 2000.

DOT also relies on transportation trade association surveys of their members' readiness. These associations generally represent the larger service providers that are responsible for the majority of transportation services. However, information concerning the status of smaller service providers is limited because they frequently do not belong to trade associations conducting surveys of their members' readiness.

- Aviation: Based on associations' reporting, the airports handling about 90 percent of passenger enplanements will be ready by the end of the year. Air carriers handling about 95 percent of passenger and cargo services reported they should be ready as of September 30, 1999. However, more information about smaller airport/air carrier operators is needed. As part of its regulatory role, FAA surveyed the readiness of about 500 airports' safety systems and 3,300 air carriers. FAA received information from all airports it surveyed. While all large carriers responded, over 1,900 smaller carriers did not respond. It still is not too late for FAA to take action on our recommendation and require Year-2000 readiness statements from the air carriers.
- Maritime: Ships rely on computer systems for communication, navigation and ship movement. The U.S. Coast Guard (Coast Guard) requested shipping companies to provide information about their Year-2000 readiness. The response rate of 43 percent was not sufficient. However, Coast Guard has demonstrated that failure to respond will have consequences. On September 9, 1999, Coast Guard took 175 actions against ship movements based on lack of required Year-2000 paperwork. Coast Guard is to be commended for this action. It is prepared to restrict high-risk vessels from moving into, or from, U.S. ports when transitioning to the new millennium.

Port operations, such as crane movement and cargo transfers, are highly automated. There are over 300 U.S. ports, of which about 100 are managed by port authorities. The American Association of Port Authorities--an association of port authorities in North and South America--surveyed its members' readiness, including 83 U.S. port authorities. Thirty-three U.S. port authorities reported they are making good progress. However, there was insufficient information as to when their work will be completed and how much traffic they handle for U.S. maritime commerce. The remaining 50 U.S. port authorities did not respond. Coast Guard also surveyed readiness of marine facilities located at U.S. ports. The response rate was 36 percent. More information about ports' readiness, both large and small, is needed.

Coast Guard, port authorities, and shipping companies have been conducting joint port exercises. To mitigate the unknown about ports' readiness, the scope of future port exercises should be expanded to cover contingencies for not only ship movement but also port operations supporting cargo movement.

- Surface: Both railroad and transit operators rely on computers to dispatch and operate trains. FTA surveyed over 500 transit operators. All but four operators (all in Puerto Rico) responded, 73 percent of which reported being ready, and the rest reported they would be ready in time. All commuter railroad companies provided responses to FTA's survey. Amtrak (the National intercity passenger railroad), which was not included in the FTA survey, recently reported its mission-critical systems are Year-2000 ready.

There are about 550 freight railroad companies in the U.S. The Association of American Railroads surveyed the seven large companies. The Federal Railroad Administration (FRA) also surveyed four of the largest companies and plans to release the results in early October. Information about regional and local freight railroad companies is needed.

International Aviation and Maritime: DOT has taken an active role working with international associations in raising Year-2000 awareness and assessing international aviation and maritime readiness. As examples, FAA helped the International Civil Aviation Organization (ICAO) prepare its members for business continuity and contingency planning, and Coast Guard took a lead role in helping the International Maritime Organization (IMO) prepare its members to do Year-2000 risk assessments and contingency planning. The international maritime industry accounts for over 90 percent of U.S. overseas trade. The only association survey was by the International Association of Ports and Harbors. It surveyed 224 members and received 110 responses, but did not make the results public.

Since March 1999, DOT has established an interagency committee with the Departments of Defense and State to evaluate foreign countries' aviation Year-2000 readiness and make recommendations on international air travel. However, significant challenges still exist with international air travel. First, 34 of the 185 ICAO member countries have not responded to the ICAO survey as of September 23, 1999. Most of these countries are in Africa and Asia. Secondly, numerous other countries that responded to the survey did not provide sufficient information to allow for adequate Year-2000 readiness assessments. According to the DOT/Defense/State interagency committee, 28 of the 89 countries most frequently visited by U.S. carriers fall into this category.

As pointed out in the Deputy Secretary's statement, the whole Year-2000 phenomenon is characterized by uncertainty as to its effects. This is especially true if Year-2000 readiness on the part of a foreign country is unknown, sketchy, or known to be inadequate. As we understand the approach FAA plans to take, flight restrictions will only be imposed if there is a known, verifiable safety problem. Where there are significant uncertainties about a foreign country's Year-2000 readiness, we are not persuaded this approach will be sufficient because FAA is not likely to have verified evidence of problems until after December 31, 1999.

Status and Issues Concerning DOT

As of September 30, 1999, DOT has fixed all 310 of its mission-critical systems that had Year-2000 problems. We verified, on a sample basis, that documentation supported system implementation, validation problems had been resolved, independent verification and validation was performed for critical systems, data exchange issues were resolved, vendor-supported systems were compliant, acceptance testing was performed, and affected databases had been addressed. With the repair work done, DOT now is focusing on safeguarding compliant systems, finalizing business continuity and contingency plans, and preparing for unexpected emergencies.

Modifications to Year-2000 Compliant Systems

Upgrades continue to be made to Year-2000 compliant systems after they have been installed. For example, FAA modified the Oceanic Automation System software, after being made Year-2000 compliant, to achieve better data transfer between the Oceanic and Host computers. In June 1999, the Coast Guard also made changes to its Vessel Traffic System, which is used to direct ship movement at major domestic ports, to fix software glitches.

DOT has issued policy on modifications to Year-2000 compliant systems. This policy advises, when a Year-2000 compliant system is modified, that stringent management controls should be applied to include testing for Year-2000 compliance. FAA issued its own guidance requiring the monitoring of changes made to Year-2000 compliant systems. FAA's policy requires, when a Year-2000 compliant system is modified, that the system owner assess the modification to determine if it affects Year-2000 compliance. If the assessment identifies problems, the system owners need to revalidate and re-certify the system. During

our on-site review of 10 FAA systems, we found 3 systems were modified subsequent to the Year-2000 modification without support to show the changes did not "undo" the compliance work. FAA is working on strengthening controls over system modifications and will now place a moratorium on changes to the National Airspace System from November 1999 to January 2000, and February to March 2000.

Coast Guard's Chief Information Office did not issue separate guidance. However, we found Coast Guard system owners were not aware of the DOT guidance requiring comprehensive testing when Year-2000 compliant systems are modified. We were told Coast Guard system modifications were being reviewed to ensure Year-2000 compliance.

Business Continuity and Contingency Plans

No matter how extensive the review efforts, there are no guarantees that all Year-2000 glitches have been found in internal systems, or external systems such as network service providers. Each Operating Administration has developed a business continuity and contingency plan for its critical missions such as air traffic control, maritime search and rescue, and vessel traffic movement. DOT continues to refine and test its contingency plans.

FAA developed a business continuity and contingency plan to ensure continued air traffic operations in the unlikely event of major Year-2000 related system failures. The plan is composed of two parts--FAA's existing contingency procedures and a newly developed Business Resumption Process. We found improvements are needed concerning non-radar procedures training, union participation, and testing.

The air traffic control systems contain six core processes--automation, surveillance, communications, navigation, traffic flow management, and

infrastructure, such as public utilities. All core processes are supported by automated systems subject to potential Year-2000 failures. Major system failures in automation and surveillance areas would have the most significant impact on air traffic control operations.

In the unlikely event of major Year-2000 related system failures in either automation or surveillance areas, FAA plans to rely on non-radar procedures to direct air traffic. According to FAA, non-radar procedures are rarely used to support normal traffic operations, let alone high traffic volume. Representatives of the National Air Traffic Controllers Association (NATCA) have expressed concern that its members are not proficiently trained to use non-radar procedures on a large-scale basis.

FAA's Business Resumption Process calls for each system failure, regardless of type or impact, to be resolved quickly. FAA established a business resumption team that is responsible for determining causes of system failures, the severity of failures, and the actions to restore operations. Union participation in development of this plan is important to FAA's success. NATCA is now participating. Although Professional Airways System Specialist (PASS)--a major union representing employees responsible for maintaining air traffic control systems--has been invited to participate in this important effort, it has not yet played a significant role. In the event of Year-2000 related system failures, these union members will have to restore the systems.

FAA, with the assistance of contractors, recently conducted a small-scale contingency planning exercise. Preliminary results indicate the exercise went well. However, this exercise provided no hands-on practice for controllers. FAA is in process of preparing a lessons-learned document to incorporate the

information learned to be used for a larger-scale exercise. FAA should use these opportunities to test the use of non-radar procedures.

The Coast Guard is in the process of completing and testing contingency plans for over 600 facilities nationwide. To date, contingency exercises have been useful and informative.

Emergency Preparedness

DOT has taken an active role in preparing for emergency responses to unexpected disruptions of transportation services during the millenium rollover. DOT used its Crisis Management Center (CMC) to conduct exercises such as activating the CMC during two sensitive date periods (The 99th day of the year 1999 and 9/9/99), and conducted contingency exercises at the senior management level to test its response capabilities based on specified Year-2000 failure scenarios. These exercises provided training for people who will monitor and report on the operational status of critical facilities during the transition to the next millenium. The exercises also have resulted in valuable “lessons learned” regarding responsibility assignment, contingency plans, and resource allocation. One critical success factor for emergency response is to have the technical expertise to quickly determine differences among non-Year-2000 related operational failures, genuine Year-2000 failures, or other problems masqueraded as Year-2000 failures. Only then can DOT respond appropriately.

Actions Needed for DOT Year-2000 Readiness

- To ensure Year-2000 complaint systems remain compliant, FAA needs to continue working with its system owners to adequately assess modifications to Year-2000 compliant systems. The Coast Guard needs to issue its own policy

or quickly deliver the Department's policy to its system owners. The Coast Guard also should consider a moratorium on system modifications, similar to the policy issued by FAA, to ensure that compliance is maintained.

- FAA needs to provide adequate non-radar procedures training to the controller workforce. This training is necessary since FAA's contingency plan relies on non-radar procedures in the event of major loss of surveillance and automation capabilities. Both FAA and its unions need to develop a plan acceptable to, and agreeable by, all parties. DOT Operating Administrations need to continue testing of the contingency plan, including hands-on practice, and resolve any deficiencies that are found.
- As part of its emergency preparedness, DOT needs to ensure technical expertise is available to quickly determine whether system failures, if any, are genuinely related to the Year-2000 roll-over and take actions accordingly.

Status and Issues Concerning Domestic Industry

To ensure the transportation industry's Year-2000 readiness, DOT has adopted a dual approach. In areas where DOT has regulatory responsibilities, it has done independent readiness surveys. The response rate percentages were mixed, ranging from 36 percent for marine facilities, to 41 percent for air carriers (all large carriers responded), to over 90 percent for public transit. FTA took a commendable step of requiring transit operators to provide assurances of their Year-2000 readiness, which accounts for the high response rate in the transit area. In our March testimony before the House subcommittees, we recommended that our confidence level with respect to the entire aviation industry, particularly small carriers and suppliers, would be stronger if certification of Year-2000 compliance

was required of them. FAA chose not to do this, and at this late stage, is now trying to obtain some assurance that smaller providers are ready for the Year 2000.

DOT also relies on transportation trade associations' surveys of their members. These associations generally represent larger service providers that are responsible for the majority of transportation services. However, information concerning the status of smaller service providers is limited because they frequently do not belong to trade associations conducting surveys of their members.

Associations' Survey of Aviation Readiness

Under the direction of the President's Council on Year 2000 Conversion, an FAA-Industry Year-2000 Steering Committee was formed to coordinate industry-wide progress reporting. Major airport associations include the American Association of Airport Executives (AAAE) and Airports Council International-North America (ACI-NA). AAAE and ACI-NA surveyed their member airports.

Major air carrier associations in the FAA-Industry Year-2000 Steering Committee include the Air Transport Association (ATA) representing major carriers, Regional Airline Association (RAA) representing regional air carriers, and the National Air Carrier Association (NACA) representing charter and small airlines. ATA, RAA, and NACA surveyed their member carriers.

Table 1 and 2 on the next page show the break down between member and non-member airports and U.S. carriers. Table 1 shows the 728 member airports account for 14 percent of U.S. public airports. Table 2 shows the 101 member carriers account for 3 percent of the 3,343 U.S. air carriers.

Table 1
U.S. Airport Trade Membership

<u>Public Airport Type</u>	<u>Number of Airports</u>
Member Airports	
Large Hubs	27
Medium Hubs	45
Small Hubs	77

Total Hub Airports	149
Non-hub & General Aviation	579

Total Member Airports (14%)	728
Non-member Airports (86%)	4,624

Total Public Airports	5,352
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Table 2
U.S. Air Carrier Trade Membership

<u>U.S. Air Carriers</u>	<u>Number of Air Carriers</u>
Member Airlines	
ATA carriers	23
RAA carriers	71
NACA carriers	7

Total Member Air Carriers (3%)	101
Non-member Air Carriers (97%)	3,242

Total Air Carriers	3,343
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Based on the AAAE/ACI-NA status report to the Steering Committee, and FAA's status report for submission to ICAO, the most current status is that airports handling about 90 percent of U.S. passenger enplanements reported they should be ready by December 31, 1999. However, there are two issues concerning airports:

- Of the 579 non-hub and general aviation airports, only 107 reported completion of Year-2000 work as of March 15, 1999. More current information is needed.
- Other than getting a letter from FAA alerting them to Year-2000 problems, the 4,624 public airports not associated with AAAE/ACI-NA were not surveyed by either FAA or the trade associations. Year-2000 readiness of these smaller airports still needs to be reported.

For air carriers, the most current status indicated major carriers handling about 95 percent of U.S. passenger and cargo services reported they should be Year-2000 ready by September 30, 1999. While ATA and NACA reported when their members plan to complete Year-2000 work, RAA had not yet provided such information.

FAA's Survey of Airports and Carriers

In June 1998, FAA sent a letter to over 5,300 public airport operators to alert them to Year-2000 computer problems. Of these, under the Federal Aviation Regulation, about 500 airports are required to be certified by FAA for safe operations, adequate airport security, and adequate screening of passengers, baggage, and cargo. Automated systems often are used to meet these objectives.

- Airport Safety Systems: In October 1998, FAA sent a letter to 563 public airport certificate holders indicating FAA was going to conduct on-site visits or telephone interviews of Year-2000 readiness of systems used to ensure safe airport operations, such as runway lighting. FAA performed on-site reviews at the top 150 airports and conducted telephone interviews with the remaining 413 airport operators.

As of September 23, 1999, survey results showed 83 percent of airport safety systems are Year-2000 compliant. The remaining systems are still being evaluated. In November 1999, FAA plans to issue warning letters to airport operators, who failed to provide the readiness assurance by October 15, 1999, that FAA will consider appropriate actions on January 1, 2000, including emergency certificate suspension or issuance of a Notice to Airmen restricting airport operations.

FAA also has proposed a rulemaking requirement for airports to perform a one-time readiness test of systems critical to airfield safety and efficiency, such as airport lighting and emergency services. These tests would be performed within the first few hours on January 1, 2000 to confirm that the Year 2000 rollover had no impact on these critical systems. FAA is analyzing suggestions and plans to finalize the requirement by early October 1999.

- Airport Security Systems: In 1998, FAA collected information from 459 certified airport operators relating to Year-2000 readiness of computer systems used to support airport security, such as access systems. As of September 23, 1999, 51 airport operators still are working on their security systems to become Year-2000 compliant.

In recent years, FAA has sponsored development of three advanced security systems to enhance airport security, including two explosive detection systems and one trace detection equipment. One of the explosive detection systems had to be upgraded to become Year-2000 compliant. According to FAA, all detective explosive systems requiring a Year 2000 upgrade are compliant.

In April 1999, FAA sent a questionnaire to all 3,343 certified air carriers requesting information about their systems and components that may be affected by Year-2000 computer problems. Submission of the information is voluntary. As of September 23, 1999, all large carriers had reported. However, FAA received an overall response rate of only 41 percent.

Table 3
 FAA's Survey of U.S. Air Carriers' Year-2000 Readiness

Carrier Category	Surveyed	Responded	Response Rate
Large	10	10	100%
Medium	205	97	47%
Small	3,128	1,255	40%
Total	3,343	1,362	41%

The 100 percent response rate from large carriers confirmed the general observation that they are managing the Year-2000 preparation well. The large carriers provide about 95 percent of U.S. passenger service. Status of many medium and small carriers still needs to be reported.

FAA is in process of compiling the data it received. FAA has not yet determined how to report the survey results, but plans to provide specific guidance to its inspectors for follow-up review. FAA will concentrate its activities on air carriers not responding to the survey, air carriers that submitted inconsistent data, or air carriers identified as having significant Year-2000 problems. With 93 days left to go, obtaining Year-2000 readiness assurance from the non-responding certificate holders will be a very challenging plan to accomplish.

Coast Guard's Survey of Vessels and Marine Facilities

Coast Guard established temporary regulations to require U.S. owners and operators of marine facilities and vessels to report Year-2000 readiness information based on the Year-2000 questionnaire issued by the International Maritime Organization (IMO). The survey results were due to the Coast Guard by August 20, 1999. As of September 23, less than 50 percent of the marine facilities and vessel owners had responded.

- Vessels: Vessels rely on computer systems for communications, navigation, and ship movement. The Coast Guard controls how, when, and where the

commercial vessel can move in the ports. For example, the Coast Guard can direct that the movement of the commercial vessel be under control of tugboats or be restricted to daylight hours. For the 33,000 vessels which visited U.S. ports in the past 2 years, Coast Guard received a 43 percent response rate. However, Coast Guard has demonstrated that failure to respond will have consequences. On September 9, 1999, the Coast Guard took 175 actions against ship movements based on vessel or ship operators not submitting required Year-2000 paperwork to the Coast Guard. Coast Guard is to be commended for this action. It is prepared to restrict high-risk vessels from moving into, or from, U.S. ports when transitioning to the new millenium.

- Marine facilities: Marine facility equipment, such as cranes for loading/unloading cargo, are highly automated. The Coast Guard surveyed over 5,000 facilities and received only a 36 percent response rate (see table 4). This information will assist the Coast Guard's Captains of the Port assessments of potential Year-2000 related malfunctions of equipment and systems.

Table 4
Coast Guard's Survey of
U.S. Marine Facilities' Year-2000 Readiness

<u>Port Zones</u>	<u>Total Facilities</u>	<u>Facilities Responded</u>	<u>Response Rate</u>
West Coast	461	201	44%
East Coast	1241	479	39%
Gulf Coast	1639	707	43%
Great Lakes	269	132	49%
River Ways	539	179	33%
Off-Shore	956	127	13%
Total	<u>5105</u>	<u>1825</u>	36%

Associations' Survey of Port Authorities

Ports provide critical infrastructure (e.g., power, security, intermodal connections to rail) enabling efficient cargo shipment. There are 326 U.S. public ports, with port authorities established at about 100 larger ports. The American Association of Port Authorities (AAPA)--representing port authorities in the United States, Canada, the Caribbean and Latin America--surveyed its members' readiness, including 83 U.S. port authorities.

Table 5
U.S. Ports Trade Membership

<u>U.S. Ports</u>	<u>Number</u>
AAPA U.S. Member Ports	83*
Non-AAPA Ports	243

Total U.S. Ports	326

*AAPA members include port authorities which could be responsible for more than one port.

Only 33 of the 83 U.S. port authorities responded to AAPA's August 1999 survey. These 33 reported 81 percent completion of Year-2000 preparation work. However, the survey did not ask the important question of whether the port expects to be ready by December 31, 1999. There also is no indication about the volume of maritime traffic handled by these 33 port authorities since AAPA did not require the respondents to identify themselves. More information about domestic ports' readiness, both large and small, is needed. Coast Guard has been working with port authorities and shipping companies in conducting port exercises. These exercises have been successful in testing contingency for ship movement in case of breakdowns of communications or ship operating systems. However, contingency for port operations, such as port infrastructure or connection with other transportation modes (e.g., trucking, rail) has not been

included. Expanding the scope of future port exercises could help mitigate the unknowns of port readiness.

Survey of Transit Readiness

FTA assists in developing improved mass transportation systems for cities and communities nationwide. FTA provides financial, technical, and planning assistance to about 550 public transit authorities. FTA required these grant recipients to report their Year-2000 readiness. All but four (all in Puerto Rico) responded to FTA's request--403 (73 percent) grantees reported being compliant, and 143 grantees reported they should be ready by December 31. FTA is following up with the four grantees. FTA's analysis of the top 30 grantees, handling 75 percent of transit ridership, showed 4 were reported compliant and 26 should be ready by the end of the year.

Survey of Rail Readiness

The seven major freight railroads were surveyed by the Association of American Railroads (AAR) in September 1999. These railroads, accounting for 91 percent of U.S. freight revenue and 71 percent of miles operated, reported they should be ready by September 30, 1999. The other 541 railroads, made up of regional and local freight railroads, have not been surveyed regarding their Year-2000 readiness.

In response to safety issues that arose as a result of computer problems with a recent railroad merger, the Federal Railroad Administration hired a contractor to perform a Year-2000 Preliminary Readiness Review for four of the seven largest freight railroads. The results are expected in early October 1999.

There are 15 commuter rail companies in the U.S. All are FTA grant recipients, and responded to FTA's survey. Amtrak, the national intercity passenger rail company, recently reported its mission-critical systems as being compliant.

Actions Needed for Continued Industry Outreach

The following actions are needed to ensure the transportation industry's readiness:

- FAA needs to take action to obtain information on nearly 2,000 carriers that did not respond. It still is not too late for FAA to take action on our recommendations and require Year-2000 readiness statements from air carriers.
- Coast Guard needs to direct the non-responding marine facility and vessel owners to answer the Year-2000 questionnaire specified in the temporary regulations.
- Coast Guard needs to consider expanding the scope of port exercises to include contingencies for port operations.

Status and Issues Concerning International Aviation and Maritime

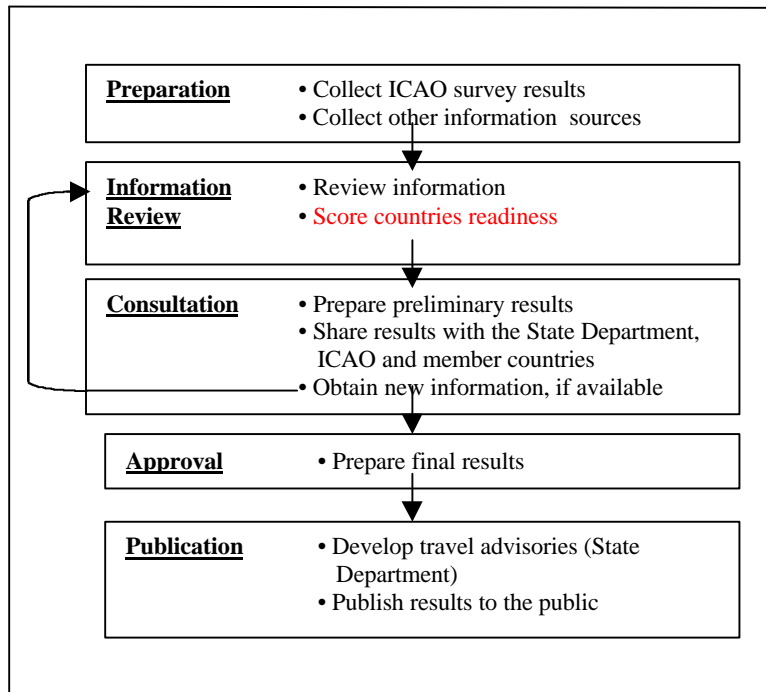
DOT has taken an active role working with international associations in assessing international aviation and maritime readiness. As examples, FAA helped the International Civil Aviation Organization (ICAO) prepare its members for business continuity and contingency planning, and the Coast Guard took a lead role in helping the International Maritime Organization (IMO) prepare its members to perform Year-2000 risk assessments and contingency planning. DOT also established an interagency committee with the Departments of Defense and State to evaluate foreign countries' aviation Year-2000 readiness and make recommendations on safety of international air travel.

International Aviation

In March 1999, we recommended that FAA develop a policy as to whether U.S. carriers will be allowed to fly to countries that are not known to be Year-2000 compliant. FAA has since developed the International Year-2000 Civil Aviation Readiness Information Review process. DOT is leading an interagency committee, with the Department of Defense and the State Department, to evaluate the Year-2000 readiness for flying to foreign countries.

DOT's interagency committee developed a comprehensive process which places emphases on collecting information from multiple sources, having representatives from multiple agencies review the information, sharing evaluation results (scoring) with all related parties, and giving countries the opportunity to enhance Year-2000 readiness through the consultation process described in the table below.

Table 6
Interagency Committee Review Process



ICAO Survey on Year-2000 Status

ICAO surveyed its 185 member countries to identify Year-2000 issues and readiness. DOT's interagency committee plans to rely on ICAO's survey as a key information source for evaluating the international aviation community's readiness for the Year 2000. Survey results were due from ICAO member countries by July 1, 1999. ICAO planned to issue a report summarizing members' status by the end of July 1999. Significant uncertainties still exist regarding foreign countries' readiness and how DOT and FAA evaluate safety of international air travel. First, 34 of the 185 member countries have not responded to the ICAO survey as of September 23, 1999. About one million passengers were flown between the United States and the 34 countries in 1998. These countries are located in the regions specified in Table 7.

Table 7
ICAO Member Survey

ICAO Member Countries	Number of Countries	Countries Not Responding	Regions
89 Countries (accounting for 97 percent of international passengers)	89	4	Caribbean & Central America (1) Asia & Pacific (2) Former Soviet Union (1)
Other ICAO Countries	96	30	Asia & Pacific (12) Middle East (3) Africa (9) Europe (1) Former Soviet Union (5)
Total	185	34	

The interagency committee planned to issue its first review results for the 89 countries (accounting for 97 percent of U.S. international travel passengers) by September 30, 1999. However, based on preliminary review results, the committee concluded that 28 of the 89 countries most frequently visited by U.S.

carriers did not provide sufficient information to allow for adequate Year-2000 readiness assessment. These countries are in the Caribbean and Central America (14), South America (5), Asia and Pacific (4), former Soviet Union (3), Africa (1), and Europe (1).

With only 93 days left to go, providing timely and quality information to the traveling public remains a challenge to DOT and FAA. As pointed out by the Deputy Secretary, the whole Year-2000 phenomenon is characterized by uncertainty as to its effects. This is especially true if Year-2000 readiness on the part of foreign countries is unknown, sketchy, or known to be inadequate. As we understand the approach FAA plans to take, flight restrictions will only be imposed if there is a known, verifiable safety problem. Where there are significant uncertainties about a foreign country's Year-2000 readiness, we are not persuaded this approach will be sufficient because FAA is not likely to have verified evidence of problems until after December 31, 1999. A major issue now facing FAA is what action, if any, it will take when a foreign country does not provide sufficient information for independent assessment.

International Maritime

The international maritime industry accounts for over 90 percent of U.S. overseas trade. The Coast Guard has done a commendable job reaching out to the international maritime industry making them aware of the Year-2000 problem. For example, as a result of the IMO meeting coordinated by the Coast Guard in March 1999, IMO Circular 2121 was issued to all its members. The circular contains a Year-2000 readiness questionnaire recommended by the Coast Guard for assessing Year-2000 related risks associated with vessels and port facilities.

Notwithstanding the Coast Guards outreach efforts, the Year-2000 readiness of foreign ports is largely unknown. In February 1999, the International Association of Ports and Harbors (IAPH) conducted a Year 2000 survey with its 224 harbor authority members and received 110 responses. The results for individual ports were not made public.

Actions for International Year 2000 Readiness

- ICAO needs to continue working with its member countries to obtain information from the 34 countries that did not report on their Year-2000 readiness.
- FAA should reconsider its planned approach--i.e., only imposing flight restrictions when there are known, verifiable safety problems--where a foreign country does not provide sufficient information about its Year-2000 readiness for independent assessment.
- The Coast Guard should continue working closely with international organizations to obtain more information on the international maritime industry, especially for port readiness.

Mr. Chairman and Vice Chairman, this concludes our statement. I would be pleased to answer any questions.