

**APPENDIX A  
HISTORY AND STRUCTURE OF THE NTSB**

This appendix provides a brief history of the NTSB and an explanation of the organization's structure. It also discusses the NTSB's recently acquired family assistance responsibility to respond to issues involving victims' family members in the wake of transportation accidents.

**NTSB HISTORY AND STATUTORY AUTHORITY**

During the early years of U.S. aviation, the government did not play a formal role in promoting the safety of civil aircraft (National Research Council, 1998, p. 10). The Air Commerce Act of 1926 was the first federal law in the United States to govern civil aviation.<sup>1</sup> The 1926 act granted broad authority to the secretary of air commerce, under the Department of Commerce, to ensure a high level of safety and to "investigate, record and make public the cause of accidents in civil air navigation."

The Aeronautics Branch issued the first civil aviation safety regulations, including the first standards for licensing of or the certification of aircraft (National Research Council, 1998, p. 10). As transport aircraft became more sophisticated, transcontinental air travel became more commonplace. By the late 1930s, the number of air carrier accidents and the number of fatalities began to capture the public's attention. Interest was particularly heightened by the death of Knute Rockne in 1931, the deaths of Will Rogers and Wiley Post in 1935, and by the crash of the *Hindenberg* in 1937.

Modifications to the Air Commerce Act were made in 1934 and 1937 to strengthen the accident investigation process. The secretary of commerce was specifically authorized to hold public hearings to inquire into the facts and circumstances surrounding aircraft accidents and to make public statements regarding the cause of the accidents. In 1937, the

---

<sup>1</sup>Pub L. No. 69-254, 44 Stat. 568 (1926).

secretary adopted administrative regulations establishing aviation accident investigation procedures (Miller, 1981).<sup>2</sup>

The modern NTSB effectively rose from the wreckage of a 1935 accident that took the life of Senator Bronson M. Cutting of New Mexico. Cutting died in the crash of a TWA DC-2 traveling from Albuquerque to Kansas. Losing one of their own colleagues prompted members of Congress to consider the use of capable investigative personnel who were protected from political influence. The solution was the Civil Aeronautics Act of 1938, which established three agencies to regulate air safety and economics: (1) the Civil Aeronautics Authority to legislate safety and promote economic development of the civil aviation industry; (2) the Administrator of Aviation to implement safety regulations; and (3) the Air Safety Board to investigate accidents. In 1940, the Civil Aeronautics Act was amended to eliminate duplication in the duties of the three agencies.

The 1940 amendment established the Civil Aeronautics Administration (CAA), to be responsible for all safety regulations, and the Civil Aeronautics Board (CAB) to be responsible for all economic regulations and accident investigations. Although technically under the control of the Department of Commerce, the CAB was to conduct its investigations independent of the influence or control of the secretary of commerce.

The Federal Aviation Act of 1958 was the result of a growing number of civil aviation accidents, including a grisly accident over the Grand Canyon involving the midair collision of a TWA Constellation and a United Airlines DC-7. At the same time, GA was experiencing 3,500 to 4,000 accidents per year. The introduction of jet aircraft signaled a major challenge to the civil aviation community which was having difficulty coping with safety matters.

The Federal Aviation Act established the FAA as a separate agency reporting directly to Congress and the president.<sup>3</sup> The FAA's functions were similar to those of the CAA, including the generation and enforcement of the FARs governing every aspect of civil aviation from

---

<sup>2</sup>In this 1981 article, Miller provides a detailed statutory history of aviation accident investigation authority.

<sup>3</sup>Pub. L. No. 85-726, 72 Stat. 731 (1958).

the design and manufacture of an aircraft to its operation. The jurisdiction of the CAB was left essentially unchanged by the 1958 act (McCormick and Papadakis, 1996, pp. 149-151).

The 1958 act laid the statutory framework for the modern NTSB. The CAB was granted the authority to make rules and regulations governing notification and reporting of accidents, obtain assistance as necessary from other government agencies, including the FAA, and determine the facts, conditions, and circumstances and the probable cause of accidents. The CAB was also to make recommendations to the FAA administrator that would prevent similar accidents in the future and to conduct special safety studies pertaining to the prevention of accidents.

The CAB was charged with the responsibility of preserving and examining aircraft parts and property involved in an accident and, in the case of fatal accidents, of ordering autopsies. A provision of the 1958 act allowed the appointment of a special Board of Inquiry, including two members appointed by the president, to investigate accidents "involving substantial questions of public safety in air transportation." Finally, a provision of the act rendered CAB reports relating to an accident or investigation inadmissible as evidence in any suit or action for damages arising out of the accident.

In 1966, President Lyndon Johnson created a twelfth cabinet department, the DOT, and the FAA was made part of it. The responsibilities of the CAB were reduced to include only the economics of civil air transportation, including route structures, fares, and airline mergers. At the same time, a partially independent NTSB, composed of five presidential appointees, was created out of the structure of the CAB's Bureau of Safety and given responsibility for accident investigations for all modes of transportation. Initially, the NTSB fell under the oversight of the DOT, but after only a few years, concerns about undue influence and administrative interference from the Executive Branch on the supposedly independent NTSB finally led to passage of the ISBA in 1974.

The ISBA provides for a five-member Board appointed by the president, by and with the advice and consent of the Senate. No more

than three members may be appointed from the same political party and at least three members are to be appointed on the basis of technical qualification, professional, and demonstrated knowledge in accident reconstruction, safety engineering, human factors, transportation safety, or transportation regulation. The term of office for each member is five years, or the length of time remaining in a term when a vacancy occurs. Separately, the president designates a chairman of the board, also with the advice and consent of the Senate, and a vice chairman, each for a two-year term. The chairman serves as the chief executive and administrative officer of the board.<sup>4</sup>

The basic statutory authority for the Safety Board's operations derives from 49 USC §1131. The NTSB is responsible for the "investigation, determination of facts, conditions, and circumstances and the cause or probable cause" of all accidents involving (1) civil aircraft, (2) rail accidents that involve a passenger train or in which there is a fatality or substantial property damage, (3) pipeline accidents in which there is a fatality or substantial property damage, (4) highway accidents selected in cooperation with state authorities, and (5) marine accidents occurring on the navigable waters or territorial seas of the United States (in conjunction with the Coast Guard).

A Safety Board investigation has priority over any other by another department, agency, or instrumentality of the U.S. government.<sup>5</sup> This

---

<sup>4</sup>49 USC §1111.

<sup>5</sup>NTSB regulations provide that nothing shall impair the authority of other federal agencies to conduct investigations of an accident or incident or to obtain information directly from the parties involved or from other witnesses (49 CFR §831.5). The NTSB's priority over investigations by other departments or agencies was a significant issue in the investigation of the July 1996 crash of TWA Flight 800. In that instance, the Federal Bureau of Investigation (FBI) asserted its primacy based upon initial suspicions that the crash was the result of criminal or terrorist activity. The working relationship between the NTSB and the FBI has been the subject of an ongoing review by the Subcommittee on Administrative Oversight and the Courts of the Senate Judiciary Committee. That Subcommittee, chaired by Senator Charles Grassley (R-IA), conducted a lengthy hearing on the actions of the FBI in the TWA Flight 800 investigation on May 10, 1999. The issue of accident scene priorities was also discussed in testimony concerning the reauthorization of the NTSB delivered by NTSB Chairman Jim Hall before

includes priority over criminal investigations as well as the discovery process attendant to civil litigation brought against any federal agency that may have been directly involved in an accident. The Safety Board is responsible for arranging appropriate participation by other departments, agencies, or instrumentalities in the investigation. However, those departments or agencies may not participate in the decision of the Safety Board about the probable cause of the accident.

The NTSB is authorized to make safety recommendations to federal, state, and local agencies and private organizations to reduce the likelihood of recurrence of transportation accidents.<sup>6</sup> It may initiate and conduct safety studies and special investigations on matters relating to safety in transportation, assess techniques and methods of accident investigation, and evaluate the effectiveness of transportation safety consciousness and efficacy in preventing accidents of other government agencies. The Safety Board also evaluates the adequacy of safeguards and procedures concerning the transportation of hazardous materials.<sup>7</sup>

After the NTSB submits a recommendation about a transportation safety matter to the secretary of transportation, the secretary has 90 days in which to provide a formal written response to each recommendation. The response must indicate whether the DOT intends to adopt the recommendation, in whole or in part, or reject it. The response must either provide a timetable for completing the procedures called for in the recommendation or a detailed explanation of the reasons for the DOT's refusal to adopt it. The secretary of transportation must report to Congress every year on the DOT's actions regarding each proposed NTSB recommendation.

---

the Aviation Subcommittee of the House Committee on Transportation and Infrastructure on May 6, 1999. In that testimony, Chairman Hall indicated that interagency coordination between a safety investigation and a criminal investigation can be a complicated matter. He articulated the Board's belief that there is a significant need for a restatement of congressional intention in this area because of the increasing likelihood that other agencies will be on the scene and operating in competition with the work of the NTSB. (See also "Heed the Lessons of the Flight 800 Mess," May 17, 1999.)

<sup>6</sup>49 USC §1116.

<sup>7</sup>49 CFR §800.3(a).

The NTSB may conduct public hearings as part of the investigative process, with testimony administered under oath. The Safety Board also has the power to subpoena necessary witnesses and evidence. The NTSB may enforce such subpoenas by bringing a civil action in federal district court; the court may punish a failure to obey an order to comply with an NTSB subpoena as contempt of court.<sup>8</sup>

Civil actions may be brought in district court to enforce the provisions of the authorizing statute that allow the inspection and testing of aircraft and the conduct of autopsies. Civil penalties of no more than \$1,000 may be imposed for violation of those civil aviation investigation provisions. Any person who knowingly and without authority removes, conceals, or withholds a part of a civil aircraft involved in an accident or property on the aircraft at the time of the accident can be fined under the provisions of Title 18 of the U.S. Code, imprisoned for no more than 10 years, or both.<sup>9</sup>

The Safety Board is also granted additional powers to procure the services of experts or consultants without regard to most government contracting requirements; to procure the services, equipment, personnel, or facilities of other government agencies; to accept voluntary and uncompensated services; to accept gifts of money and other property; to appoint advisory committees composed of qualified private citizens and officials of the federal, state, and local government; and to contract with nonprofit entities to carry out studies related to the duties and powers of the Safety Board.<sup>10</sup>

In conducting aviation accident investigations, the NTSB is authorized to enter property where an accident has occurred or where the wreckage is located and to do "anything necessary" to conduct the investigation.<sup>11</sup> The ISBA contains provisions that authorize the Safety Board to compel the production of witnesses and evidence, examine and test physical evidence (including the aircraft and any component part), inspect records and facilities, and order autopsies. The Safety Board is

---

<sup>8</sup>49 USC §1113(a).

<sup>9</sup>49 USC §1155.

<sup>10</sup>49 USC §1113(b).

<sup>11</sup>49 USC §1134(a)(1).

granted the exclusive authority and discretion to decide how testing will be conducted, including decisions about the type of test, who will conduct it, and who may witness the test.<sup>12</sup> Consistent with the needs of the investigation, examinations or tests are to be carried out to the maximum extent feasible, to preserve evidence related to the accident.

#### **ORGANIZATION OF THE NTSB**

The NTSB is a small government agency by any standard. As shown in Figure A.1, the Safety Board's organization is composed of the following principal components:

**Office of the Managing Director.** The managing director assists the chairman in the discharge of his functions as executive and administrative head of the Safety Board. The managing director coordinates and directs the activities of the staff, is responsible for the day-to-day operation of the Safety Board, and recommends and develops plans to achieve the Safety Board's program activities. Human resources and facilities also fall within the purview of the managing director's office.

**Office of Government, Public, and Family Affairs.** This office releases current, accurate information concerning the work, programs, and objectives of the NTSB to the public; Congress; other federal, state, and local government agencies; the transportation industry; and the news media. This includes the dissemination of information about the conduct and status of major commercial aviation accident investigations. The Office of Family Affairs, established following the enactment of the Aviation Disaster Family Assistance Act of 1996, is discussed later in this appendix.

**Office of Safety Recommendations and Accomplishments.** Since 1968, the NTSB has issued approximately 11,000 safety recommendations concerning all modes of transportation to more than 1,300 recipients in government, industry, and associations (National Transportation Safety

---

<sup>12</sup>49 USC §1134 (d). Challenges to the exercise of the Board's discretion as to how its investigations would be carried out resulted in an amendment to the Board's authorizing legislation in the Independent Safety Board Act Amendments of 1990, Pub. L. No. 101641, 104 Stat. 4654, amending 49 USC app.1903(b)(2).

Board, July 1998). The Office of Safety Recommendations and Accomplishments is responsible for implementing these recommendations and for maintaining a database designed to track all transactions and activities related to each NTSB recommendation. Within the NTSB, recommendations that result in the correction of problems that cause accidents are considered to be the Safety Board's most important work product. The agency contends that innumerable lives have been saved because of Safety Board recommendations.

The most frequent recipient of NTSB recommendations is the DOT, and its modal administrations, such as the FAA, the Federal Railroad

### NTSB Headquarters Operations

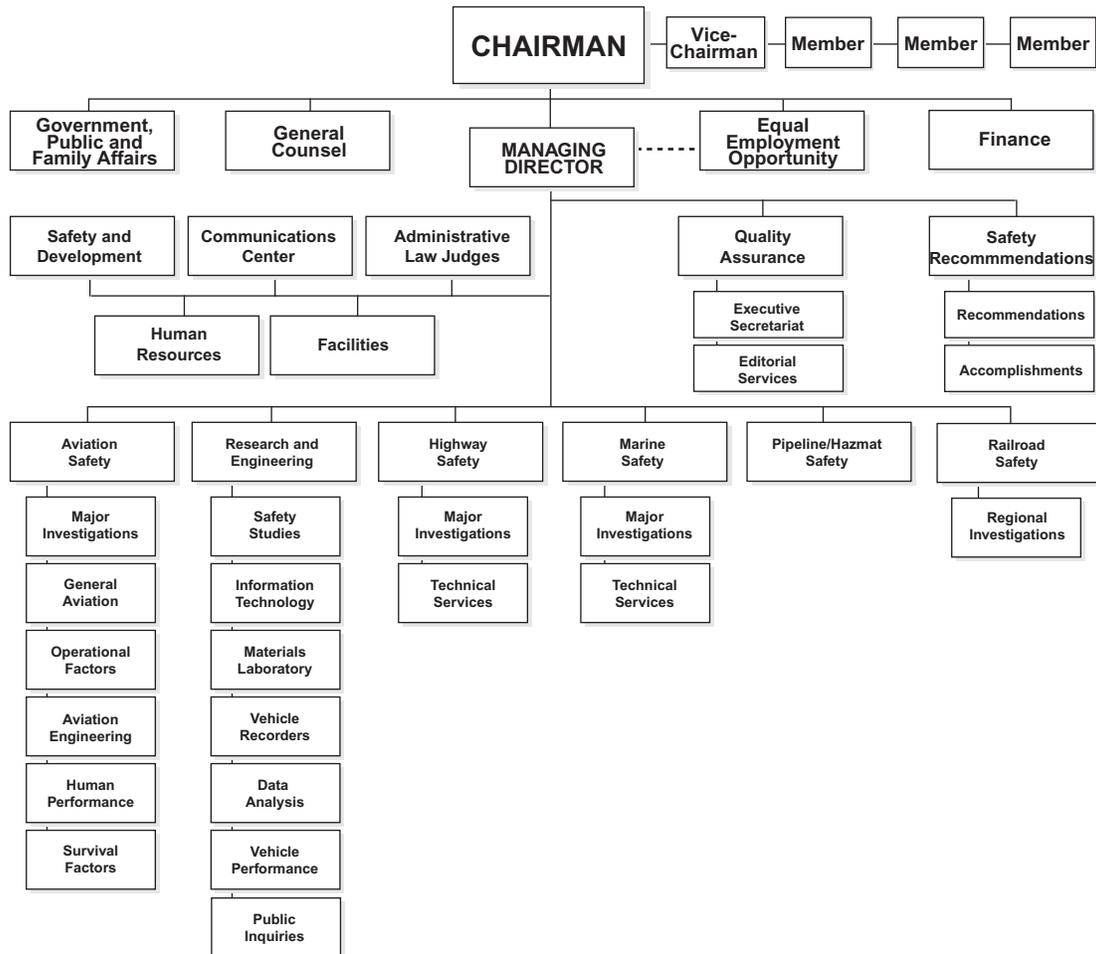


Figure A.1--NTSB Organizational Chart

Administration (FRA), or the Coast Guard. In the United States, each transportation industry operates in a different regulatory environment. In aviation, an industry that is heavily regulated by the FAA, most NTSB recommendations are directed to the FAA. The highest percentage of NTSB recommendations have addressed aviation safety: According to NTSB statistics, 83.87 percent of these recommendations are accepted.

Recommendations made by the NTSB are derived from three main sources:

- First, the most visible and sweeping are those recommendations that result from investigations of major aviation accidents. For example, the NTSB has issued 24 recommendations relating to the rudder system on the Boeing 737 stemming from the 1994 crash of USAir Flight 427 outside Pittsburgh and the 1991 crash of United Airlines Flight 585 in Colorado Springs. Recommendations are not delayed pending an investigation's completion and the Final Report's issuance--recommendations can be, and often are, issued at any time during an investigation when it becomes clear to investigators that a safety problem merits immediate attention.
- The second source of recommendations are those proposed by NTSB field investigators, who investigate more than 2,000 civil aviation accidents per year, most involving GA aircraft. In some instances, these recommendations have broad national application; in others, the recommendations focus on a mechanical problem with a particular aircraft or airport facility.
- The third source of safety recommendations are those derived from NTSB safety studies conducted in all transportation modes. These recommendations often have national implications because they are based on many accidents occurring over a long period of time.

In 1990, the NTSB adopted a formal program to highlight certain transportation safety issues that required the highest visibility and the strongest follow-up activity. The program is known as the "Most Wanted" Safety Recommendations Program.

A transportation safety issue is considered for placement on the "Most Wanted" list if it will enhance safety on a national transportation system level. Issues on the list have a high level of public visibility or interest, they are associated with previous loss of life or substantial property loss, and they pose a high risk for future losses. Only recommendations that can be implemented in a reasonable period of time are considered for the list.

The issues placed on the "Most Wanted" list are highly publicized with press conferences and media releases; media interviews with Safety Board members and senior staff; testimony at congressional, state, and local legislative hearings; speeches to trade and industry groups; submission of rulemaking comments; and NTSB participation in seminars and conferences. The Safety Board attempts to keep the number of items on the "Most Wanted" list small so as not to dilute the impact of the program. Only the Safety Board acting at an open meeting can place issues on the list, or remove them. NTSB staff members report semiannually on the progress of issues on the list and make recommendations to the Safety Board concerning the addition or removal of items.

**Office of the General Counsel.** The Office of the General Counsel provides legal advice and assistance to the Safety Board and its staff; prepares Safety Board rules, opinions, and orders; and represents the Safety Board in civil actions to which the Safety Board is a party or in which the Safety Board is interested. The Office of General Counsel advises and assists the Safety Board and its personnel in the fulfillment of the Safety Board's statutory responsibilities, representing the Safety Board in legal proceedings as necessary.

Principal among the matters in which the Office of General Counsel advises and assists the Safety Board is the investigation of civil aviation accidents in the United States and significant accidents in the other modes of transportation, and the study and issue of safety recommendations aimed at preventing future accidents. Additionally, the Office of General Counsel serves as legal advisor to the Safety Board in its capacity as the appellate authority for certain disciplinary actions

taken with regard to the certificates of airmen, mechanics, and mariners.

**Office of Aviation Safety.** The responsibilities of the OAS are discussed throughout this report. The OAS investigates all major commercial aviation accidents, and is the focus of much of the research conducted for this study. OAS investigators and specialists investigate the factual circumstances of every major crash (both on site and afterward at NTSB headquarters), prepare the final reports for submission to the Safety Board (including a recommendation as to the probable cause[s] of an accident), initiate safety recommendations to prevent future accidents, and participate in the investigation of accidents that occur in foreign countries that involve U.S. registered or U.S. manufactured aircraft.

In addition, the OAS encompasses the regional offices and field offices that are responsible for investigating GA accidents. The NTSB maintains six regional offices located in Miami; Chicago; Arlington, Texas; Seattle; Los Angeles; and Newark, New Jersey. Four of the regions have smaller field offices. Regional and field office personnel constitute about half the total OAS staff. Because the NTSB is required by statute to investigate every civil aviation accident, more than 2,000 GA accident investigations are conducted each year.

**Office of Research and Engineering.** The ORE is composed of six divisions: Safety Studies, Information Technology, Materials Laboratory, Vehicle Recorders, Analysis and Data, and Vehicle Performance. This office provides technical support to all NTSB investigative offices, including the OAS.

The safety studies program is a very important part of the Safety Board's functions. A safety study is a research project on a transportation safety issue of national significance. In selecting subjects for safety studies, the Safety Board considers a subject's potential for reducing accident losses and for improving the effectiveness of other government transportation safety programs. Data to support a safety study may be collected from a review of existing NTSB accident reports, generated from a new set of investigations conducted specifically to support the study, or assembled from a

literature review on a particular subject. Once a safety study is completed, its findings and recommendations are presented to the Safety Board at a public meeting.

Another part of the NTSB's mandate is to maintain the official U.S. census of aviation accidents. For this purpose, the ORE maintains the NTSB's aviation accident database, which includes records of all accidents from 1962 to present.

ORE operates a materials laboratory in the NTSB headquarters building in Washington, D.C. The laboratory is staffed by engineers and physical science technicians who perform failure analysis studies on a wide variety of materials and components involved in both aviation and surface transportation accidents. Materials laboratory personnel also support general and major aviation accident investigations in the field as on-site consultants or group chairs, and they have on many occasions assisted foreign governments with accident investigations. Most materials analyses are completed within 60 days but their duration depends on the resources and priorities available at the time of the request. In complex investigations, these analyses may take considerably longer than 60 days.

Another critical investigative responsibility assigned to ORE is the handling of the CVR and FDR recovered from downed aircraft. These two data sources generate intense public interest after an accident. Normally, Safety Board staff are directly involved in recovering the recorders for accidents that occur in the United States. Analysis of the CVR extends well beyond transcription of the cockpit conversations. The NTSB's Engineering Services Laboratory is equipped to perform spectral analyses that support a comprehensive evaluation of all of the data obtained from the CVR. Provisions of the ISBA and NTSB regulations strictly control the discovery and use of CVR data and other similar material in civil litigation.<sup>13</sup> The Vehicle Performance Division performs similar detailed analyses on FDRs, usually in conjunction with members of the FDR investigative group assigned to a major aviation accident.

---

<sup>13</sup>49 USC §1154 and 49 CFR §821.1 et seq.

**Surface Transportation Modes.** The NTSB's mandate extends to the investigation of significant accidents in other modes of transportation including rail, highway, marine, and pipeline. These investigations, including the determination of probable cause and the development of related safety recommendations, are conducted through the individual Offices of Railroad Safety, Highway Safety, Marine Safety, and Pipeline and Hazardous Materials Safety. Investigative procedures and processes for these modes are similar to those for aviation. Approximately 50 percent of the NTSB's budget and about half of the agency's personnel are committed to these modal offices.

**FAMILY ASSISTANCE AND THE OFFICE OF FAMILY AFFAIRS**

The Aviation Disaster Family Assistance Act of 1996 mandated that federal agencies engaged in disaster response coordinate their resources to better meet the needs of aviation disaster victims and their families. The NTSB was designated by the U.S. president as the lead federal agency for coordinating federal government assets at the scene of a transportation accident and the liaison between airlines and families.

Beginning in fiscal year 1997, the Safety Board was singled out to coordinate all federal assistance (including the Federal Emergency Management Agency, and the Departments of Transportation, State, Health and Human Services, Justice, and Defense) to the survivors and families of victims of catastrophic transportation accidents. Each accident presents a unique set of circumstances and requirements for meeting the needs of families. The Safety Board has developed a Federal Family Assistance Plan for Aviation Disasters to use in responding to such accidents. In addition, Congress directed domestic airlines to submit plans for providing family/survivor assistance to the Safety Board. In 1997, Congress passed the Foreign Air Carrier Family Support Act, requiring foreign air carriers to develop and file family assistance plans and fulfill the same family support requirements as domestic airlines. These plans are subject to review by the NTSB.

In creating an Office of Family Affairs, the Safety Board has sought to maintain a distinct separation between the family/survivor

assistance program and the Safety Board's technical accident investigative staff. This approach is consistent with the legislated prohibition against the participation of family members or claimants in the investigative process (Hall, September 28, 1998; May 6, 1999). To date, the Safety Board's Family Affairs staff has accomplished the following:

- Responded to the ComAir accident in Monroe County, Michigan; the Korean Air Lines accident in Guam; the Swissair accident in Halifax, Canada, and most recently, the American Airlines accident in Little Rock, Arkansas.
- Signed memoranda of understanding with several federal agencies.
- Provided families/survivors with information and updates on the status of the Safety Board's investigations.
- Established a 24-hour Communications Center to provide timely information to families and survivors.

The NTSB is responsible for coordinating the integration of federal and other resources to support the efforts of local and state governments and airlines so that they can meet the needs of aviation disaster victims and their families. The NTSB also helps make federal resources available to local authorities and the airlines. The NTSB also helps state and local authorities and airlines deal with major aviation disasters by providing for family counseling, victim identification and forensic services, communication with foreign governments, and translation services.

Increased governmental support for the families of victims of aviation disasters is no longer just a U.S. initiative. In September 1998, representatives of more than 160 nations attending the ICAO assembly adopted a resolution that will lead to guidance and standards for all nations to address the needs of aviation disaster victims and their families.