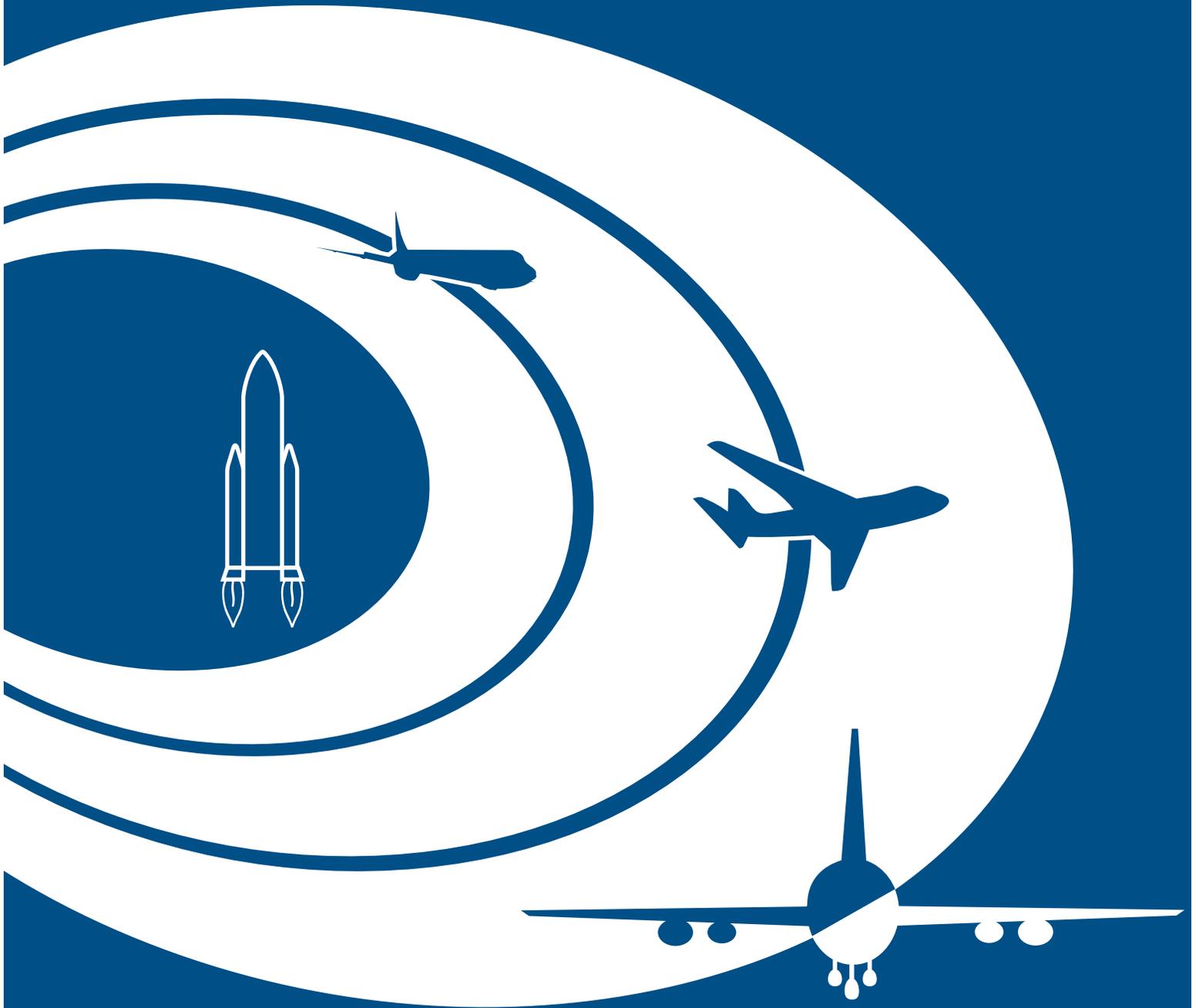
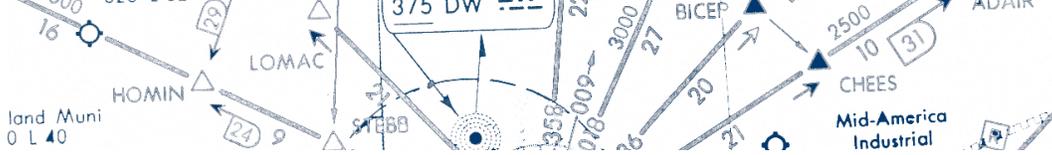


FAA OFFICE OF SYSTEM SAFETY (ASY)



ASY FY2002-07 STRATEGIC PLAN

**PROVIDING TOOLS AND EXPERTISE FOR
AEROSPACE SYSTEM SAFETY ANALYSIS**

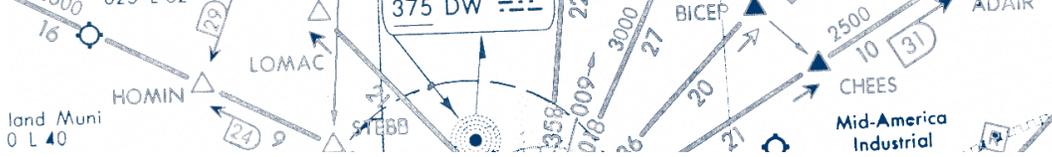


Foreword

The Office of System Safety (ASY) mission and vision, priorities, operating environment, and available resources are directly influenced by the FAA Strategic Plan. The ASY Strategic Plan describes the strategic direction that ASY plans to take over the next 5 years. It specifies the ASY mission and vision, the goals, and the strategies ASY will undertake to achieve them over the next 5 years. The appendix to the plan provides a description of the future environment ASY anticipates it will be working in and the focus of its activities in that environment.

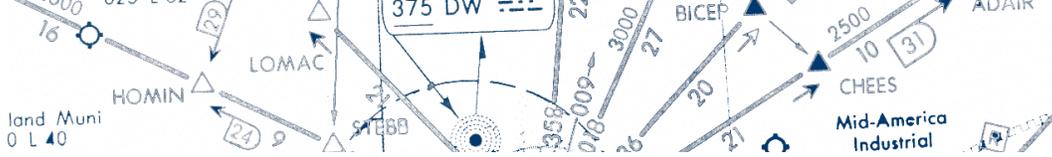
This plan does not discuss individual milestones. These are detailed in a separate document, the "ASY Performance Plan," in which ASY activities related to Government Performance and Results Act (GPRA) goals are outlined.

The events of September 11, 2001, have altered ASY's strategic planning context. In addition to performing routine responsibilities, the agency must maintain the ability to react quickly to catastrophic events. As a result, the process of planning must become more flexible than it has been in the past.



Contents

Mission and Vision	1
Strategy Drivers, Priorities	2
Strategy Drivers	2
Priorities	3
Strategic Goals	4
ASY Strategic Goals	4
Achieving Strategic Goals	6
Appendix	7
The Future	7
Future Activity Focus	11



Mission and Vision

The Federal Aviation Administration (FAA) specifies in its mission and vision the desire to provide and promote a "safe, secure, and global aerospace system that contributes to national security" as well as the "safest, most efficient global aerospace system in the world."

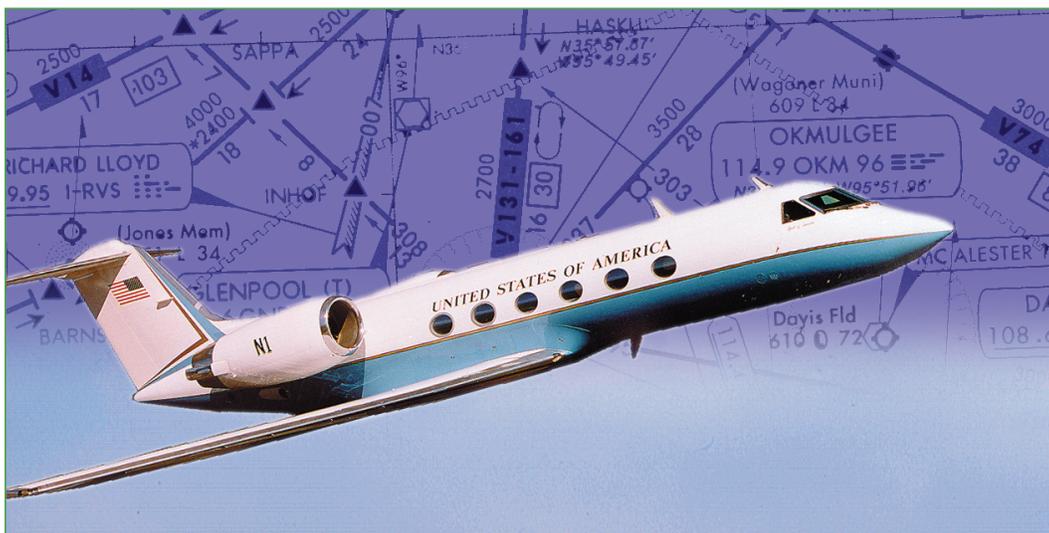
ASY's mission and vision reflect this desire. They also reflect the needs of FAA business units, other government agencies, and the aerospace community.

Mission

Provide leadership in developing, distributing, and applying system safety analytical tools and processes for identifying and resolving safety issues by the international aerospace community.

Vision

Maintain international leadership in developing, disseminating, and applying methods for identifying and resolving aerospace system safety issues.





Strategy Drivers, Priorities

ASY has developed its Strategic Plan with a horizon of 5 years. During this time, there is a strong likelihood that the aviation industry will continue to reshape itself.

Strategy Drivers

Over the next few years, FAA will have to adapt to changing needs in a variety of areas. ASY must remain flexible in working with FAA Lines of Business (LOBs) to ensure that information, information technologies, and analytical techniques appropriate to identifying and resolving resultant issues are adapted or developed, made available, and used by the LOBs. Specifically, ASY must take into account the following:

- ASY has achieved a measure of success in building a system safety culture within FAA, which is leading to a much wider adoption of system safety analytical methods across LOBs. As adoption of these methods spreads, increasing demand will be placed on ASY to provide direct system safety analytical support to the LOBs.
- The aviation community will continue its demand for improved data and information, related to both safety and security. This demand will provide an incentive for the Global Aviation Information Network (GAIN) to continue to evolve toward providing a more robust mechanism for sharing safety data, analysis, and information. In conjunction with this trend, the National Aviation Safety Data Analysis Center (NASDAC) will continue to pursue GAIN objectives by adapting promising information technologies. Together, these trends will open a window of opportunity for ASY to increase the pace at which data-driven methods, particularly system safety monitoring and risk assessment and management, will be used for safety decision-making within FAA and the aerospace community.
- A dramatic increase is likely in the amount of data and information in the aviation industry; in particular, this increase should occur as airlines implement Flight Operational Quality Assurance (FOQA) and Aviation Safety Action Programs (ASAP). Such growth will fuel a trend toward a greater analytical focus on operational data and a lesser focus on accident/incident data. GAIN and NASDAC will take advantage of the resulting opportunity to provide technological leadership in these analytical endeavors and, where sought by customers, to develop, implement, and deploy customer-specific systems based on data and information of specific interest to the customer.
- In addition, GAIN and NASDAC may have a near-term opportunity to provide particularly

useful leadership and guidance to government agencies that may be in dire need of effective data integration services to support security concerns arising from terrorist threats. These services could include applying safety performance monitoring and issue identification technologies to security issue identification and threat detection.

- As increases in computer processing speed and storage lead to an increase in the complexity of the questions that computers will help answer ASY's analytical models could improve dramatically. ASY will be challenged to keep up with this rapidly evolving technological capability by developing



more sophisticated and effective data models and analytical techniques that take advantage of the technology and deliver more useful information for safety decision-making.

These trends and opportunities are described in the Appendix.

Priorities

The FAA Strategic Plan includes the goal of achieving an 80 percent reduction in fatal air carrier accidents in the 10 years ending in 2007 and calls for action in three areas: accident prevention, safety information sharing and analysis, and certification and surveillance. The FAA Strategic Plan also includes the goal of increasing system efficiency and reducing delays. It identifies three additional focus areas: Free Flight, National Airspace System (NAS) Modernization, and System Integration.

Based on these areas of concentration and the strategy drivers just discussed, ASY's 5-year priorities will be as follows:

- Establish the FAA as an international leader in developing, disseminating, and applying methods to identify and resolve aerospace system safety issues.
- Increase the level of commitment among senior FAA management to apply system safety analytical techniques for identifying and resolving aerospace safety issues.
- Increase FAA's skills in and use of system safety analytical methods.



Strategic Goals

ASY has defined the following goals and implementing actions for the next 5 years to respond to its strategy drivers and priorities.

ASY Strategic Goals

Develop methods for identifying the individual and combined hazards that cause aerospace accidents.

Implementing Actions:

- Identify and implement opportunities for adapting or developing system safety tools for detecting and monitoring risk. Disseminate these tools to the FAA, U.S. Department of Transportation (DOT), other government agencies, international organizations, and the aerospace community through existing ASY institutions.
- Identify and encourage support of aviation safety centers of excellence to serve as the primary source for developing methodologies related to aerospace accident hazard identification and risk assessment.
- Leverage current and future research and development efforts inside and outside the FAA to develop more effective system safety tools and processes.
- Review and enhance the development and evaluation of ASY system safety tools to

minimize unnecessary duplication and to capture the full spectrum of analytical interests.

Enhance decision-making at all levels through system safety planning and analysis.

Implementing Actions:

- Seek opportunities with FAA Executive Leadership to identify effective means for implementing system safety analyses. Emphasize operational safety, performance monitoring, and risk management at the agency level.
- Work closely with FAA LOBs to apply system safety methodologies, and to provide advice on the application of these methodologies.
- Perform system safety analyses for the FAA and other customers, and expand customer understanding of, and ability to apply, system safety analysis.
- Identify appropriate training and certification programs to help others develop their expertise to perform system safety analyses.

Promote and facilitate the collection and sharing of safety and security data and information within the FAA and with the aerospace community and public.

Implementing Actions:

- Identify, or encourage the creation of, an aviation community organization to become the focal point for routine GAIN program operations.
- Monitor and support GAIN-type activities in other government agencies, and in other industries, to ensure maximum sharing of information and to minimize duplication.
- Seek opportunities to expand the use of system safety tools among government agencies and international organizations, and in the aerospace community.
- Begin implementing the next generation of NASDAC to expand both the customer base and the richness of current data, safety information, and analytical capabilities.
- Develop and maintain data standards and data management procedures for providing safety data analysis services to FAA offices, international organizations, the aerospace community, and the public.



Achieving Strategic Goals

ASY will undertake the following steps to support achievement of its strategic goals.

- Create and maintain a model work environment that provides all employees the opportunity to develop their potential and contribute to the organization; supports and encourages contributions by all employees; eliminates discrimination and harassment; and reflects the Nation's diversity.
- Strive to ensure diverse representation at all levels of the ASY workforce: staff, management, and executive.
- Develop and maintain effective communication within the FAA and aerospace community to achieve stakeholder alignment.
- Provide needed tools and training to ASY staff to support their accomplishment of strategic goals.
- Develop and implement both short- and long-term resource plans consistent with ASY goals and strategies, including leveraging resources from other organizations.
- Implement a top-to-bottom performance management system within ASY.
- Review the ASY Strategic Plan regularly, monitor ASY strategic achievements, and modify ASY activity and plans as needed.





Appendix

The Future

In developing its plan, ASY has considered potential future changes in four areas—aerospace technology; people and organizations; information technology; and data, information sharing, and analysis.

Aerospace Technology

Although new aircraft may be developed during the next 5 years, they will not depart significantly from current designs or technology. The role of information technology and software, however, and the increasing reliance on them in all aspects and areas of aviation, will expand. As a result, larger amounts of data will be accumulated and ASY will have the opportunity to identify the sources of more potential safety risks.

A significant focus on cockpit entry redesign and other security-related aircraft design issues will continue. This effort may detract from energies that might otherwise be focused on new aircraft development. In addition, some shift may occur, at least in the near term, toward greater emphasis on smaller, regional aircraft development rather than on larger aircraft.

Commercial space technology will experience dramatic growth and technology changes.

Air traffic technology will evolve toward a satellite-based system, or possibly an automatic dependent surveillance-broadcast (ADS-B) system. Combined with the creation of the Air Traffic Performance Based Organization (PBO), significant changes could occur in air traffic practices and procedures.

During the next 5 years, the FAA will adapt to changing needs in a variety of areas. As a result, ASY must remain flexible in working with FAA Lines of Business to ensure that information, information technologies, and analytical techniques appropriate to identifying and resolving these new issues are adapted/developed, made available, and used by the LOBs.

People and Organizations

Consolidation in the airline industry and a shift toward more regional operations seem likely. While previous forecasts indicated that air traffic would continue its high rate of increase over the period of the plan, this trend is far less certain now. On the public side, some consolidation may take place among the civil aeronautical authorities in the European Union countries.

Within the FAA, the PBO will be organized and begin operations, and will probably establish its own safety assurance and promotions function. If the PBO's and the FAA's existing safety quality assurance organizations—Flight Standards Service (AFS), Aircraft Certification Service (AIR), etc.—seek to enhance the degree to which system safety approaches are used in decision-making, there could be a significant increase in demand for ASY to provide direct system safety analytical support to these organizations.

A large percentage of existing FAA employees will retire, posing both a potential challenge to and an opportunity for the FAA and ASY. If labor and system safety analytical skills are significantly depleted, ASY will be challenged to find effective means to rebuild this lost expertise.

GAIN will continue to evolve toward providing a more robust safety data and information sharing infrastructure. NASDAC also will continue to pursue GAIN objectives by adapting promising information technologies. Demand for improved data and information on human factors as a contributor to aviation accidents and incidents, especially those related to security incidents, will continue to grow. Such trends give ASY an opportunity to increase the pace at which data-driven methods, particularly system safety monitoring and risk assessment and management, will be used for safety decision-making. Among the challenges that GAIN faces will be to remain relevant to an airline industry that is now focused almost exclusively on regaining the public's confidence in flying. NASDAC could aid GAIN by applying safety performance monitoring and issue identification technologies to security issue identification or threat detection.

The private sector will continue to develop new information distribution systems. In addition, one or more government entities, such as the International Civil Aviation Organization (ICAO), will undertake GAIN-type activities. In addition to GAIN, existing ASY stakeholders, both public and private, may begin building their own NASDAC-type information and analysis systems. NASDAC has the capability to provide technological leadership by making the NASDAC Advanced Data Architecture available to these groups. Also, NASDAC has implemented leading edge, commercially available, data management software to transform NASDAC data importation into a totally automated process, which has improved the quality and consistency of safety data used for analysis. This implementation has also provided the means to efficiently integrate suitable data sets. Thus, NASDAC may have a near-term opportunity to provide particularly useful leadership and guidance to government agencies that may be in need of effective data integration services to support security concerns arising from the terrorist threat.

In general, there will be a closer interface among government personnel, the aviation community, and the public. This interface will include both general and customer-specific delivery of safety information, advice, and promotions. To the extent this trend occurs among FAA organizations other than ASY, it is likely that the need for ASY to serve as a premier safety information presenter for FAA will diminish. Safety education is an integral part of an effective overall system safety strategy, however, and must be provided by responsible entities, including ASY.

Information Technology

Dramatic changes will occur in the human-computer interface (e.g., voice recognition and control versus keyboard; wireless data transfer and voice communications). Coupled with these changes, information technology advances in general (processing speed, storage capabilities, etc.) will lead to an increase in the complexity in the questions computers can answer—analytical models will improve dramatically. Thus, what we do as humans versus what computers do for us will shift toward more computer activity—jobs will change. ASY will be challenged to keep up with this rapidly evolving technological capability by developing more sophisticated and effective data models and analytical techniques that take advantage of the technology and deliver more useful information for safety decision-making.

A continuing evolution will move data away from hard copy media toward electronic media. Electronic reporting for all data sources will increase. This shift may result in short-run difficulties, specifically in acquiring reliable data as we learn how to structure data forms and ensure confidentiality. The shift, however, should contribute to a much richer and higher quality set of safety data for analysis. It is not likely that a much richer data set will become available early in this planning period—at least not because of this shift.

Data, Information Sharing, and Analysis

A dramatic increase in the amount of data and information in the aviation industry could occur, especially as FOQA and ASAP data systems are implemented and brought on line across the industry. To the extent that this increase actually occurs, there will probably be a significant demand for new analytical tools to apply to it. ASY is especially well placed to take the lead in developing and sharing such tools across the industry.

With fewer airlines, data standard setting should become easier potentially increasing the amount of information sharing. (To the extent this occurs, GAIN activities will increase and GAIN-type organizations will begin to flourish.)

A shift in analytical focus will move away from accident/incident data to operational data. As a result, the safety analytical value of existing FAA data will decline with respect to other sources. Also, NASDAC will shift toward becoming a model laboratory using its advanced data management and integration capabilities as a basis for adapting, developing, and evaluating analytic tools and processes capable of monitoring the aviation system for safety or security issues.

Future Activity Focus

ASY will focus its activities in the following directions to respond effectively to this anticipated future:

1. Develop, evaluate, and disseminate system safety tools, processes, and techniques to actively support analysis of aerospace safety issues.
2. Disseminate system safety tools and processes through the maturing GAIN, enhancements to NASDAC, and system safety analysis and training efforts.
3. Adapt and apply tools and processes directly to FAA aerospace safety and security issues as part of a broader strategy for improving the analytic capabilities of FAA organizations. Encourage FAA LOBs to hire system safety experts with experience and skills commensurate with the private sector, and to use external support resources.
4. Develop, and support others' development of, information sharing activities and processes that assist in identifying and resolving aerospace safety and security issues.
5. Implement the next generation of NASDAC, and expand both the reach and richness of its data management, safety information, and analytical capabilities. NASDAC will (a) increase the set of data sources it uses to disseminate integrated safety information; (b) significantly improve Internet access to this information; and (c) adapt/develop and disseminate powerful automated tools for analysis of safety and security information.

To support its focus in these directions, ASY will take the following into account:

1. ASY will seek to increase the private sector involvement and responsibility for organizing the GAIN activity. This effort will permit more ASY focus to be placed on developing and disseminating safety analyses, tools, and processes, including the information sources needed to conduct GAIN work.

2. The Aviation Safety Hotline should be housed in an FAA location that possesses the technical and operational expertise to interpret and respond to incoming reports. ASY's expertise in these areas has been reduced during the past decade. As a result, ASY may no longer be an ideal location for the hotline. Currently, no obvious alternative in the FAA exists to serve all LOBs. ASY will therefore form a working group to determine whether an alternative to ASY for the location of the hotline is feasible.
3. The Unsatisfactory Condition Reporting (UCR) Program will be transferred to the Air Traffic PBO.
4. During FY2002, the FAA, the National Aeronautics and Space Administration (NASA), and the aviation community will develop a program plan to define the future of the Aviation Safety Reporting System (ASRS) program. NASA has completed a program review to establish a baseline for the current condition of ASRS. ASY anticipates that a fundamental change in the relationship between NASA and the FAA concerning the ASRS program will be forthcoming as a result.