

*Associate Administrator for
Commercial Space Transportation*

AST STRATEGIC PLAN 2002





ASSOCIATE ADMINISTRATOR FOR
COMMERCIAL SPACE TRANSPORTATION

AST
STRATEGIC PLAN
2002

INTRODUCTION

Commercial space transportation is the means of transporting payloads, such as communications satellites and remote sensing devices, to orbit. This promising U.S. transportation sector has steadily grown in prominence over the course of slightly more than two decades since the launch of Starfire I from White Sands Missile Range, New Mexico in 1989—the first licensed U.S. commercial launch. In recent years, the space launch manifest for the U.S. commercial launch sector has remained steady and in some years outpaced that of the Defense Department. By 2000, according to a study conducted by the Federal Aviation Administration (FAA) Associate Administrator for Commercial Space Transportation (AST), commercial space transportation and enabled industries accounted for nearly \$62 billion in U.S. economic activity.

Our nation's commercial launch vehicle fleet currently consists of a variety of expendable vehicles, which over the course of a few decades, have proven to be both safe and reliable. Recent additions to this fleet include variants of the Evolved Expendable Launch Vehicle (EELV), which offers technological advances and enhanced spacelift capabilities. Eventually, this fleet will also include Reusable Launch Vehicles (RLV), which hold the promise of transporting people to destinations in space and back to earth.

The federal government owns and operates spacelift ranges on both U.S. coasts, which have hosted the vast majority of commercial launch operations in the U.S. Recently, commercial launch sites have become operational in a variety of locations around the U.S. In the future, commercial launch operations will occur from locations such as inland commercial sites and possibly airports.

In recognition of imminent changes and recent developments, which have resulted in enhanced technological sophistication and complexity of commercial launch operations, our nation has committed itself to maintaining a safe and internationally competitive U.S. commercial space transportation industry. As the sole regulatory authority for U.S. commercial space transportation, AST must remain focused on imminent changes that will see this evolving industry stretch farther towards reaching its full potential.

The **AST STRATEGIC PLAN** outlines strategic focus areas, *safety* and *space systems development*, where AST plans to concentrate its resources and energies to ensure that it provides the best service to its customers, meets its mission, achieves its vision, and supports strategic goals established by the FAA and Department of Transportation (DOT).

This plan also outlines strategic support areas, *vehicle system approvals* and *training*, which cut across and support AST strategic focus areas. The objectives and strategies associated with each focus and support area reflect both existing and new approaches intended to either maintain or improve the quality of existing AST products and services, or add new high quality AST products and services to meet industry changes and growth.

In carrying out this strategic plan, AST is dedicated to:

- Keeping public safety and protection of property as its highest priorities,
- Being a proactive and innovative facilitator using novel approaches to help strengthen the U.S. commercial space transportation industry,
- Being a dynamic, challenging, and rewarding work place, and
- Being highly adaptable and responsive to change within the industry, and within the FAA.

EXECUTIVE SUMMARY

The Associate Administrator for Commercial Space Transportation, one of six lines of business in the FAA, regulates the U.S. commercial space transportation industry only to the extent necessary to protect the public. Public safety, protection of property, and industry facilitation are themes captured in AST's mission and vision statements. AST is committed to accomplishing its mission and achieving its vision while upholding FAA values.

This strategic plan describes AST's goals, objectives, and strategies in key focus and support areas. These strategic focus and support areas are essential to the successful execution of AST's mission and realization of AST's vision.

AST's MISSION:

To ensure protection of the public, property, and the national security and foreign policy interests of the United States, in the event of a commercial launch or reentry activity, and to encourage, facilitate, and promote U.S. commercial space transportation.

AST's VISION:

To be recognized and respected as the world's foremost authority on commercial space transportation safety and market assessments.

AST's efforts to meet its mission and achieve its vision are in fulfillment of FAA values. AST is committed to:

- Maintaining a **LEADERSHIP** position in the global commercial space transportation community;
- Positively impacting the lives of **PEOPLE** including members of AST's staff, colleagues throughout the FAA and other government agencies, and its licencees; and
- Maintaining a high degree of **PROFESSIONALISM** in meeting its mission and serving its customers.

AST strategic focus areas are:

SAFETY: *Prevent casualties or injuries to people, or substantial damage to property in the event of a licensed commercial launch or re-entry operation, or licensed commercial launch and/or landing site activity.*

SPACE SYSTEMS DEVELOPMENT: *Facilitate efforts by the U.S. commercial space transportation sector to achieve and maintain a majority share of the world market for commercial launch and reentry services; and sustained growth in the U.S. commercial space transportation industry.*

AST strategic support areas are:

VEHICLE SYSTEM APPROVALS: *Establish processes and standards for granting safety approvals of launch vehicles, reentry vehicles, safety systems, processes, services, or personnel that may be used in conducting a licensed launch or reentry.*

TRAINING: *Elevate and enhance the level of knowledge and proficiency of AST's technical and professional staff to achieve its vision.*

Implementation of this plan will be consistent with strategic goals and objectives of the FAA, and may be impacted by new developments and changes in industry, and other government stakeholders.

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ASSOCIATE ADMINISTRATOR FOR COMMERCIAL SPACE TRANSPORTATION OVERVIEW

The Associate Administrator for Commercial Space Transportation (AST) is one of six lines of business in the Federal Aviation Administration (FAA). AST was established in 1984, as the Office of Commercial Space Transportation (OCST) under the Office of the Secretary of Transportation (OST). In 1995, in a departmental reorganization, OCST was transferred from OST to FAA, becoming AST. AST offices were moved to the FAA headquarters building in 1996.

AST's mission is clearly established by 49 United States Code (U.S.C.) Subtitle IX- Commercial Space Transportation, chapter 701, Commercial Launch Activities, which grants the Department of Transportation the authority to license and regulate commercial space transportation activities in the U.S. FAA/AST acts on behalf of the Secretary of Transportation in carrying out the Department's statutory responsibilities regarding commercial launch and reentry activities.

AST has grown significantly in recent years seeing its budget appropriation increase substantially in FY01. This allowed AST to nearly double its staff size in recognition of the importance of commercial space transportation to our nation's well being, and the safety challenges presented by these fast evolving operations.

AST is comprised of three divisions:

- Space Systems Development (AST-100)
- Licensing and Safety (AST-200)
- Systems Engineering and Training (AST-300)

AST MISSION, VISION, AND VALUE STATEMENTS

AST Mission

To ensure protection of the public, property, and the national security and foreign policy interests of the United States, in the event of a commercial launch or reentry activity, and to encourage, facilitate, and promote U.S. commercial space transportation.

AST Vision

To be recognized and respected as the world's foremost authority on commercial space transportation safety and market assessments.

AST Values

AST's values mirror those of the FAA, which are:

- *Teamwork*
- *Trust*
- *Integrity*
- *Honesty*
- *Involvement*
- *Diversity*
- *Respect*

AST is committed to:

- ***Leadership*** in the global space transportation community;
- ***People*** including its employees, customers, and colleagues in FAA; and
- ***Professionalism*** in meeting its mission and serving its customers.

STRATEGIC FOCUS AREAS

SAFETY

GOAL: *Prevent casualties or injuries to people, or substantial damage to property in the event of a licensed commercial launch or re-entry operation or licensed commercial launch and/or landing site activity.*

SUPPORTS FAA STRATEGIC GOALS: *Safety, Security*

SUPPORTS DOT STRATEGIC GOALS: *Safety, National Security*

Protecting the public from the dangers and risks associated with commercial space launch and reentry activities is the most significant and important service rendered by AST. Accordingly, AST is fully committed and aggressive in its pursuits to ensure that launch and reentry operations are conducted only after the most thorough and effective steps have been taken to protect human life and health, and property. Further, AST is an industry enabler, and thus it carries out its safety responsibility only to the extent necessary to protect the public in the event of a licensed launch or reentry operation. Accordingly, our safety objectives and strategies reflect this commitment and responsibility.

The first licensed commercial launch occurred, successfully, in 1989. Since then there have been no fatalities or injuries to the public in association with a licensed launch. AST's safety strategies are intended to keep the safety record of the commercial space launch sector unblemished, while continuing to improve the overall quality of our safety program. Additionally, in light of the terrorist attacks of September 11, 2001, AST intends to increase its efforts to ensure that appropriate security measures are in place at licensed spaceports in order to protect the public and property.

Objectives:

1. Appropriately reduce the probability of a launch or re-entry accident.
2. Appropriately reduce the probability of a mishap, other than an accident, involving a malfunction of any vehicle flight safety system during a licensed launch or reentry, or the failure of a licensee's safety organization, design or operations.
3. Appropriately reduce the probability of a ground activity, associated with a licensed launch or reentry activity, resulting in a fatality or serious injury to any person not associated with the licensed activity, or substantial damage to property not associated with the licensed activity.

4. Appropriately reduce the probability of mishaps or events that could result in a fatality or serious injury to personnel associated with a licensed launch or reentry activity, or substantial damage to a payload, launch vehicle, launch support facility, or government property located on a launch site.

Strategies:

- Conduct thorough, comprehensive examinations of launch vehicle safety critical systems and operations prior to issuance of a license.
- Monitor compliance with terms and conditions of launch and reentry licenses prior to, during, and after launch or reentry events.
- Perform safety inspections of vehicle systems and operations at launch and reentry events.
- Monitor testing of, and approve new flight safety systems and components.
- Expand and retain in-house expertise in range safety operations, systems engineering, and vehicle safety critical systems and components.
- Partner with federal agencies such as DoD, and NASA, to conduct safety verifications in support of AST's licensing process.
- Develop new regulatory requirements, as necessary, to keep pace with industry developments.
- Assess and evaluate security practices and vulnerabilities at spaceports.

Proposed Accomplishments and Milestones:

- Issue a supplemental Notice of Proposed Rulemaking for Licensing and Safety Requirements for Launch, which will include common safety requirements for all U.S. commercial launches. January 2002
- Finalize agreement with the Air Force to conduct coordinated reviews of launch operator requests for relief from common launch safety requirements. FY 2002
- Partner with the Air Force to amend Air Force Instruction 10-1211 to include AST compliance monitors in the launch readiness review and launch count processes for licensed launches from the Eastern (Cape Canaveral Air Force Station, Florida) and Western (Vandenberg Air Force Bases, California) ranges. FY 2002
- Partner with the Air Force to amend Air Force Instruction 10-1215 to establish guidance regarding coordination of launch base and range changes that impact FAA/AST range baseline assessments. FY 2002
- Publish an Advisory Circular for Flight Testing of RLVs. FY 2002
- Complete initial phase of a spaceport security study. FY 2002

Key Near Term Projects:

- Transition To Shared Responsibilities (See Appendix C)
- Space Transportation Vehicle Safety (See Appendix C)

SPACE SYSTEMS DEVELOPMENT

GOAL: *Facilitate efforts by the U.S. commercial space transportation sector to achieve and maintain a majority share of the world market for commercial launch and reentry services; and sustained growth in the U.S. commercial space transportation industry.*

SUPPORTS FAA STRATEGIC GOAL: *System Efficiency*

SUPPORTS DOT STRATEGIC GOALS: *Mobility, Economic Growth, Human & Natural Environment*

Public safety is unquestionably AST's primary focus; nevertheless, we are firmly committed to ensuring that commercial space transportation in the U.S. continues to evolve into a major, internationally competitive, mode of transportation. Further, a healthy, viable commercial space transportation industry is an important contributor to the overall economic, national security, environmental, and foreign policy interests of the United States.

In recognition of the important role commercial space transportation plays in maintaining our country's global leadership role, AST endeavors to facilitate development of commercial space transportation technologies and capabilities, which benefit industry, contribute to the quality of life of our citizens, and support our national security and foreign policy interests.

Objectives:

1. Assist industry to steadily increase the number of licensed launches from launch sites in the United States.
2. Facilitate development of spaceports.
3. Facilitate industry's development of technologies that will result in cheaper access to space.
4. Maximize commercial space transportation operational flexibility in the U.S.
5. Ensure that United States Government launch property and services are made available to U.S. commercial space transportation private sector and state agencies.
6. Ensure that U.S. commercial space transportation activities are consistent with the National Environmental Policy Act (NEPA).

Strategies:

- Partner with industry to provide studies and forecasts on commercial space transportation related markets and trends.
- Support and conduct research initiatives favorable to the development and success of non-federal launch sites.
- Support policies that favor U.S. international competitiveness.
- Facilitate formulation of public-private partnerships resulting in transference of technology for next generation space vehicles and spaceports.
- Oversee the conduct of environmental assessments of commercial launch activities.
- Mitigate the impacts of commercial space transportation in the national airspace system.
- Meet with other FAA lines of business, and other agencies on a regular basis to discuss issues relevant to commercial space transportation integration into the National Airspace System.
- Facilitate industry interchange by conducting annual forecast conferences.
- Monitor space related contracts let by the Defense Department and NASA for commercial content.
- Develop information products to aid the public in gaining knowledge and understanding of commercial space launch activities.

Proposed Accomplishments and Milestones:

- Finalize a Memorandum of Agreement with the Department of Commerce and the Air Force to conduct a process to collect and consider spacelift range commercial requirements. November 2001
- Finalize a Memorandum of Agreement with Kennedy Space Center on spaceport technology research. December 2001
- Conduct annual Commercial Space Transportation Forecast Conference. February 2002
- Publish a Commercial Space Transportation Market Forecast Report. May 2002
- Complete a study on the impacts of commercial space transportation in the National Airspace System. May 2002
- Develop a tutorial on the AST environmental review process and publish on the AST web site. FY 2002

Key Near Term Project:

- Space and Air Traffic Management System (See Appendix C)

STRATEGIC SUPPORT AREAS

VEHICLE SYSTEM APPROVALS

GOAL: *Establish processes and standards for granting safety approvals of launch vehicles, reentry vehicles, safety systems, processes, services, or personnel that may be used in conducting a licensed launch or reentry.*

In the mid-1990's AST began consultations with a number of potential licensees seeking to develop and operate vehicles employing aircraft like components and capabilities, and on-board flight crews. These proposals included provisions to carry passengers and operate from a variety of locations, including existing airports.

The prospects of blending the traditional launch vehicle operational paradigm with that of the traditional aircraft operational paradigm, for the purpose of conducting a launch or reentry, yields an altogether new commercial space vehicle operational paradigm that presents a unique challenge to AST, and the FAA as a whole. In response to this challenge, AST seeks to enhance its licensing process by addressing systems that are integral to these new operations.

Objectives:

1. Establish a process for review and approval of safety critical systems for expendable and reusable launch vehicles, and associated operations.
2. Establish and promulgate standards or guidelines governing human flight safety, vehicle operations and maintenance, vehicle safety systems, and safety personnel qualifications.
3. Ensure that all safety requirements and standards have been met.
4. Issue safety approvals.

Strategies:

- Consult with industry to identify new developments, particularly those that may involve aircraft-like capabilities and systems.
- Partner with other FAA lines of business to create a corporate process to conduct safety reviews and issue approvals for all phases of vehicle development.
- Conduct research that will support development of vehicle system and component performance standards.

- Partner with NASA to establish guidance for human flight safety.
- Examine existing aviation regulations and standards for possible applications to RLV flight safety systems.
- Expand in house systems engineering expertise to examine and approve a full range of technology applications employed in new vehicle concepts.
- Conduct surveillance/inspections to verify that vehicle safety requirements and standards are met.

Proposed Accomplishments and Milestones:

- Complete initial phase of study on RLV Operations and Maintenance. FY 2002
- Finalize and publish the FAA and Industry Guide to RLV Operations Safety Approval. FY 2002
- Complete initial phase of a study to examine risks to RLV passengers and on-board flight crews. FY 2002

TRAINING

GOAL: *Elevate and enhance the level of knowledge and proficiency of AST's technical and professional staff to achieve its vision.*

Training is essential in AST's pursuit to become the world's foremost authority on commercial space transportation safety and market assessments. Our values and commitments, coupled with our vision and areas of strategic focus, dictate that we further incorporate quality and rigorous training into our culture. Our objectives and strategies are intended to create proactive responses to the industry we serve.

Objective:

Administer a training program consistent with AST mission needs.

Strategies:

- Develop in-house courses on launch vehicle systems and operations, which are not available through outside sources.
- Partner with other FAA organizations, federal agencies, and academia to create a full range of technical and professional course offerings to suit the mission needs of each AST division.
- Maintain an up-to-date, complete catalog of technical and professional course offerings for AST employees.
- Procure training services from other government agencies such as NASA and the Air Force.
- Obtain third party oversight, insight, and certification of our training program.

Proposed Accomplishments and Milestones:

- Publish the AST Training Course Catalog. January 2002
- All safety and systems engineers hired prior to the end of the 1st quarter FY 02 complete AST Inspector Training Program including on the job training assignments. May 2002
- Create three (3) new in-house training courses. FY 2002
- Draft an agreement with NASA for a hands-on training experience for AST technical staff. FY 2002

APPENDIX A

U.S. SPACE TRANSPORTATION INDUSTRY OVERVIEW

Expendable Launch Vehicles

U.S. expendable launch vehicles (ELVs) are derived from 1960s intercontinental ballistic missile designs that used high performance engines and lightweight structures in order to maximize payload and range. Current ELVs can be categorized as small-, medium-, and heavy-lift vehicles. Examples of these vehicles include the Pegasus, Atlas IIA, and the Delta IV, respectively. This assortment of launch vehicles satisfies most near-term U.S. national and commercial needs.

Currently there is excess capacity in the global market for launch vehicle services. Excess capacity is expected to grow over the next few years as Europe transitions to a new generation of larger Ariane launch vehicles, Russia and Japan add new vehicles to their fleets, and the U.S. introduces variants of the Evolved Expendable Launch Vehicle.

In the U.S., licensed expendable launch vehicle operators include Boeing (Delta), Lockheed-Martin (Atlas), Orbital (Pegasus, Taurus), and Sea-Launch.

Reusable Launch Vehicles

The U.S. and other countries have sought to design and develop reusable launch vehicles (RLVs) for several decades. Currently the Space Shuttle (U.S.) and the Soyuz (Russia) are the only inhabitable, operational RLV and reentry vehicle, respectively, in the world. The development of next generation RLVs is driven by the desire to reduce launch costs. Many studies have shown that reductions in launch costs will enable the emergence and development of new space missions and business. During the mid-1990s, several small companies began development of commercial RLVs based on the expected demand for launches of communication and remote sensing satellites to non-geosynchronous (NGSO) orbits. In addition, re-supply services to the International Space Station, and space tourism offer opportunities for RLV operators. While market forecasts have changed in recent years, the commitment of many of these small entrepreneurial companies to provide low cost access to space remains strong.

In addition to the commercial industry's endeavors to develop a low cost next generation RLV, the U.S. Government, until recently, funded test bed vehicles and other programs such as NASA's X-33 and X-34 programs, in support of advancing space transportation concepts. Some of these X-Programs (i.e. X-33 and X-34) were cancelled in the beginning of 2001 and the Government's focus has shifted to NASA's Space Launch Initiative (SLI).

Spaceports

Since the 1950s, the U.S. Government has built, operated, and maintained a space launch infrastructure for launching satellites into space. Much of the demand for use of these launch sites has traditionally come from U.S. military and civil government agencies. In 1984, Congress passed what is commonly referred to as the "Commercial Space Launch Act" (CSLA), which granted the Secretary of Transportation the authority to facilitate commercial launch companies in their endeavors to gain access to U.S. Government owned launch property and services. The CSLA has done much to foster the commercial launch business in the last decade.

Today, in addition to the U.S. government owned launch ranges, there are licensed commercial launch site operators in California, Florida, Virginia, and Alaska. Additionally, there are a number of other nonfederal (i.e. private, local government, state government) entities seeking to develop and operate spaceports in various locations throughout the U.S.

APPENDIX B

GOVERNMENT STAKEHOLDERS IN COMMERCIAL SPACE TRANSPORTATION

The FAA, in exercising its authority to regulate the commercial space transportation industry, is an example of one federal government agency that has considerable influence on the industry. In addition to the FAA, there are several other government entities that influence and affect the industry. This section provides a brief overview of the roles these federal government agencies and organizations play relative to the industry, and some major activities they are undertaking that impact the commercial space sector.

The White House

The White House sets national space policy. Current national policies for space transportation, and space in general, give recognition to the very important role the commercial space sector plays in achieving U.S. national security, scientific, technical, economic, environmental, and foreign policy goals. There have been a number of White House led efforts in recent years to foster and bring about full implementation of these policies.

The White House led Interagency Working Group on the Future Use and Management of the U.S. Space Launch Bases and Ranges established a national strategy, which in the near term, expands the federal-state-industry partnership to enable more direct involvement of commercial space sector users, including spaceports. Further, the White House is interested in eliminating constraints, and enabling a transition path dictated by market forces, which will determine the most feasible strategy for the far term.

The National Security Council (NSC) Policy Coordinating Committee (PCC) provides a day to day forum for interagency coordination of national security policy issues including space. The PCC is focused, in part, on space transportation strategies for the future. As this strategy evolves, the PCC will identify issues needing additional national policy guidance assuming existing policies do not require significant revisions.

The Presidential Commission on the Future of the U.S. Aerospace Industry will examine the U.S. aerospace industrial base and make recommendations on situations, which if left unattended, could weaken the U.S. aerospace industry. Several distinguished appointees make up this very influential commission that will chart a course for ensuring U.S. leadership in space, increasing U.S. aerospace access to the global economy, removing barriers to public/private cooperation, and continuing reform of government/industry practices.

The U.S. Air Force

The Air Force owns and operates spacelift ranges at Cape Canaveral Air Force Station in Florida, and Vandenberg Air Force Base in California. These two ranges have served as the primary launch locations of a vast majority of commercial launches. The operational efficiency and capabilities of these ranges are major factors that contribute to the ability of U.S. commercial launch operators to compete in the international marketplace. The Air Force is now in the midst of a major modernization and range improvement program, which is intended to bring about streamlined range operations and significant cost savings for range operations.

The Air Force is also undertaking initiatives to partner with other federal agencies, such as the FAA and NASA, to meet desired outcomes of interagency recommendations associated with range safety and advanced technology. Other initiatives are also being undertaken by the Air Force that will incorporate commercial requirements into Department of Defense formal processes to generate requirements for range improvements and modernization.

Department of Commerce

The Office of Space Commercialization is the principal organization for the coordination of space-related issues, programs, and initiatives within the Department of Commerce (DOC). The goal of the Office is to foster an economic and policy environment that ensures the growth and international competitiveness of the U.S. commercial space industry.

The Office accomplishes this mission by voicing commercial needs through White House decision-making processes that focus on space policy and international negotiations with other spacefaring nations. The Office works in close coordination with the International Trade Administration (ITA), the DOC bureau that focuses on U.S. exports and international competitiveness.

National Aeronautical and Space Administration

The National Aeronautical and Space Administration (NASA) is the world's premier space transportation advanced technology research and development organization. NASA's Space Launch Initiative (SLI) will foster technology development that will impact the future commercial reusable launch vehicle sector. Through the SLI, NASA seeks to invest in advanced technologies that make space flight safe and affordable for both the government and private industry. The initiative also invests in NASA's special needs, such as developing technology and vehicles to transport crews and cargo to and from the International Space Station more cheaply than the Shuttle.

Other NASA programs that could potentially impact the commercial space sector include NASA's Advanced Space Transportation Enterprise and the Pioneering Technology Innovation Enterprise. The Advanced Space Transportation Enterprise Program goals are:

MISSION SAFETY – Reduce the incidence of crew loss by a factor of 40 within 10 years, and an additional factor of 100 within 25 years.

MISSION AFFORDABILITY – Reduce the cost of delivering payload to LEO by a factor of 10 within 10 years, the cost of inter-orbital transfer by a factor of 10 within 15 years. Reduce costs for both by an additional factor of 10 within 25 years.

NASA's "Pioneering Technology Innovation" Enterprise Program seeks to promote:

ENGINEERING INNOVATION – Develop the advanced engineering tools, processes and culture to enable rapid, high confidence, and cost efficient design of revolutionary systems.

TECHNOLOGY INNOVATION – Develop the revolutionary technologies and technology solutions that enable fundamentally new aerospace system capabilities or new aerospace missions.

NASA also owns and operates the Wallops Flight Facility (WFF) on Wallops Island, Virginia. The WFF has hosted a number of launches conducted by licensed commercial operators.

APPENDIX C

AST CORPORATE PROJECT OVERVIEW

The corporate projects described in this section are led by AST and directly support FAA strategic and performance goals. Support organizations for execution of these projects include FAA Air Traffic Services (ATS), Research and Acquisitions (ARA), Regulation and Certification (AVR), System Safety (ASY), General Counsel (AGC), and Airports (ARP). Implementation status for each of these projects is reported quarterly to the Administrator and the FAA's senior management team.

Space and Air Traffic Management System

The Space and Air Traffic Management System (SATMS) project supports the FAA's SYSTEM EFFICIENCY goal. The SATMS project which began in 1997, focuses on the development and implementation of capabilities, procedures, and processes necessary to integrate new commercial space transportation operations into the National Airspace System (NAS), as well as, accommodate increased activity of existing launch operations. A key objective of this effort is to enable space vehicle flight through and in the NAS en route to and from space in a manner that is both safe and efficient. Moreover, SATMS addresses the emerging need to integrate new launch and reentry sites in the NAS. Further, the importance of this effort is underscored by the expected increase in the number of commercial space transportation operations coupled with increased service demands from aviation users of the NAS. Once fully realized, the Space and Air Traffic Management system will represent an environment in which space and aviation operations are fully integrated in a modernized National Airspace System. This is the goal and vision of SATMS.

While there are many stakeholders associated with this effort, AST's role is to provide corporate leadership within FAA towards the SATMS vision. In this role, AST has formed critical partnerships with other FAA lines of business such as Air Traffic Services, Research and Acquisitions, and Regulation and Certification. Outside agency partners include the Air Force and NASA. By working in close concert with the aforementioned stakeholders, and industry, AST developed and published the Commercial Space Transportation Concept of Operations in the National Airspace System in January 2000, which remains an important reference document relative to evolution towards a SATMS. Specifically, the Concept of Operations serves as the cornerstone of a foundation upon which a corporate strategy for investment in new or enhanced capabilities for space operations in the NAS may evolve.

Space Transportation Vehicle Safety

AST's Space Transportation Vehicle Safety project was kicked off in 1998 and supports the FAA's Strategic SAFETY goal. Specifically, the STVS project is geared to produce products and services required to enable space launch vehicle concepts safely. This project responds to the many challenges brought by the dynamic shift in launch vehicle operational concepts in a timely manner.

The FAA is now engaged in pre-application discussions with many companies seeking to build and operate launch vehicles that will carry crew and passengers, fly overland, and operate from non-traditional launch locations such as airports. The potential of such concepts to be realized has dictated that the FAA be proactive in establishing an adequate regime, which brings to bear the requisite corporate knowledge and resources, to make full and thorough safety evaluations. Project areas of focus include policies governing corporate interaction with launch vehicle operators and manufacturers, processes that incorporate a mix of FAA resources and skills to make decisions relating to vehicle system and flight approvals, and standards for vehicle operations and performance.

Transition to Shared Responsibilities

This effort supports the FAA Strategic SAFETY goal. AST will play a leadership role in developing and implementing national strategies pertaining to the future use and management of the major U.S. space launch bases and ranges, as well as, efforts to streamline space launch range safety.

Specifically, the FAA will establish and administer common safety standards for all licensed launch activities at both federal and non-federal launch sites. Additionally, the FAA will execute an agreement with the Air Force to enhance the already existing partnership between the two agencies for commercial space transportation safety and range activities. This agreement between the FAA and the Air Force, which applies to licensed launch and reentry activities carried out within the U.S. or by U.S. citizens, establishes roles and responsibilities of each agency for overseeing safety of commercial launch and reentry activities. Further, the agreement allows AST to partner with the Air Force to exchange and share safety and engineering resources to inspect and evaluate flight safety systems for licensed launches.