Strategic Business Plan

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prepared by:

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION

CHARLIE CRIST
GOVERNOR

February 27, 2007

Florida's economy is at a critical point in time. Economic development opportunities abound, but so too does increasing global competition, particularly in the aerospace industry. Florida is the premier location for aerospace business and investment, but we must work hard to maintain that position. The future economic prosperity of Florida depends in large part on a vibrant aerospace and hi-tech industrial base. In this regard, Space Florida is the organization to lead the way.

The Space Florida Act requires the organization to submit a strategic business plan. The enclosed business plan, however, is much more than a required reporting document. The Strategic Business Plan for Space Florida will guide aerospace economic development in Florida and serve as a blueprint for business development, education, spaceport operations, research and development, workforce development and financing. The plan will direct the efforts of Space Florida and ensure that the organization focuses on efforts that will generate the greatest return for the citizens of Florida.

The Strategic Business Plan provides an overview of Florida's current strengths and weaknesses, along with potential threats as well as opportunities. I am most excited about the opportunities to expand aerospace business throughout the state. Through a smart, strategic approach, we can capitalize on these opportunities, maximize our strengths and enhance our position as the global leader in space exploration and commerce.

As Chairman of Space Florida, I praise the efforts of the Board in the development of this Strategic Business Plan. This is the first step toward an even brighter future for Florida's space industry.

Sincerely,

Charlie Crist

CC/psh

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1.0 EXECUTIVE SUMMARY

Florida stands on the threshold of a new and rapidly developing era in space and aerospace activity. In early 2004, President Bush and the National Aeronautics and Space Administration (NASA) announced a bold new Vision for Space Exploration that will send humans beyond Earth orbit for the first time since 1972. Additionally, NASA is soliciting private companies to provide crew and cargo services for the International Space Station through its Commercial Orbital Transportation Services (COTS) program. Florida must be optimally positioned to support NASA and the Vision for Space Exploration, but also must prepare for emerging commercial space markets, ranging from privatization of the nation's civil and military launch functions, to space tourism and other entrepreneurial efforts to move people and cargo through suborbital or orbital trajectories. As these market shifts occur, the aerospace industry is rapidly consolidating, creating new niche companies, and developing new technologies that increasingly blur the line between aviation and spaceflight. Florida must leverage these opportunities into expanded roles in space and aeronautics technology, manufacturing, services, and research.

Today, Florida has a formidable position within the aerospace industry, with strengths in space launch, space research, and space vehicle manufacturing. Overall, Florida ranks third among the states for employment in the cluster of interrelated industries and activities that comprise aerospace, including commercial and military aviation. However, Florida ranks as the 7th highest state for employment within the space sector of the aerospace industry.

Florida can, and must, do much better.

In June of 2005, Governor Bush created and charged the Commission on the Future of Space and Aeronautics in Florida to assess and make recommendations to strengthen Florida's role as a leader in space and aeronautics to maximize the economic development and job creation opportunities throughout the State. The final report, dated January 2006, published the Commission's findings and 18 specific recommendations.

In May 2006, Part II of Chapter 331 of the 2006 Florida Statutes, "The Space Florida Act", was signed into law. Space Florida was formed to be the single point of contact for state aerospace-related activities with federal agencies, the military, state agencies, businesses, and the private sector, consolidating the roles and responsibilities of three predecessor organizations. Further, the Legislature backed Space Florida with significant authorities and economic development powers in order to execute its responsibilities.

This Strategic Business Plan responds to the Commission's recommendations and to Legislative direction for Space Florida to "Create a business plan to foster the growth and development of the aerospace industry. The business plan must address business development, finance, spaceport operations, research and development, workforce development, and education." This document is deliberately titled as a Strategic Business Plan since it describes the current state of Florida's aerospace enterprise, Space Florida's vision of the desired future end state, and goals and objectives aimed at moving towards that end state. This plan is also specific, and implements an

aggressive economic development strategy with 38 specific actions to diversify the aerospace economy throughout the State and create high-value-added businesses and jobs.

Florida is uniquely positioned to help space launch providers drive down the cost of getting payloads into orbit by shortening the supply chain. Collocating launch activities with related activities such as manufacturing, assembly, and research and development makes economic sense if the workforce can support these activities and if the business environment is supportive. Space Florida will help aerospace-related businesses make the connection. Space Florida will partner with other State economic development bodies to configure tailored economic incentive transactions that are based upon sound business practice and that recognize business expectations. Incentive packages will address business needs, mitigate or resolve differences, and adhere to Space Florida's responsibilities as a trusted public entity. A recent agreement with Lockheed Martin to locate Orion final assembly and testing in Florida illustrates Space Florida's ability to create a positive business climate for the State's aerospace sector, and to produce high-quality jobs and additional business opportunities for the State.

In order to maximize the economic benefit, Florida must compete in the aerospace arena on a global scale. Space Florida will take action to:

- Expand the State's dominant role in U.S. vertical launches for civil, military, and commercial markets
- Identify opportunities to encourage existing small business ventures and new business opportunities to expand and diversify into Florida's aerospace enterprise
- Claim a large share of the emerging global market for horizontal launches, including sub-orbital space tourism, transportation and cargo, and orbital payload delivery
- Broaden the state's presence in the space industry beyond launch activity to include the R&D, design, manufacturing, assembly, testing, launch, and servicing of space vehicles
- Capture a larger share of the supply chain for space vehicles and related equipment
- Position for global leadership in new space markets, including the increasing integration of space with aviation and other technologies

Specific actions within this Strategic Business Plan to address these market opportunities include:

- Partner with, and provide support to, the Economic Development Commission of Florida's Space Coast and Workforce Florida to ensure that space industry talent currently involved in the Space Shuttle program is retained after 2010
- Establish a new world-class, commercially focused vertical launch capability
- Expand and focus use of the Space Life Sciences Laboratory by providing unparalleled research facilities to be used by the world's brightest scientists to solve high priority space-related problems
- Develop the Shuttle Landing Facility for commercial use
- Develop capture strategies for the rest of the Vision for Space Exploration

- Develop Florida's supply chain for Orion and other aerospace activities
- Establish a small businesses qualification and ISO 9000 compliance pilot program to help Florida businesses capture NASA contracts
- Develop adequate launch facilities to support COTS
- Provide launch customer support to complete UDS documentation and securing required launch approvals and authorization
- Reach out to the aerospace industry and meaningfully engage industry leaders on their future business needs for early identification of economic development opportunities. This shall include recurring proactive visits to top aerospace industry leaders.

The competitive environment has never been more challenging. Other nations are leveraging lower labor costs and less encumbered regulatory processes to capture significant market share of the commercial orbital and suborbital launch opportunities. Competition among states and international ventures to capture market share of the emerging space tourism market is intensifying. However, through a statewide effort and with the support of Florida's leadership, there are genuine opportunities for Florida to position as the preferred location for a full range of aerospace activities. Space Florida will focus first and foremost on understanding and responding to customer needs, whether in the civil, military, or commercial sectors. Space Florida's business development tools will be applied to invest in the State's future aerospace economy.

This Strategic Business Plan reflects the intention of Space Florida, and the actions specified will be executed in close cooperation with Space Florida's partner State agencies, Federal agencies, and the aerospace business community. **This is the first iteration of a living document.** The Strategic Business Plan will be updated and refined as necessary to accelerate growth throughout Florida's aerospace enterprise.

2.0 BACKGROUND AND INTRODUCTION

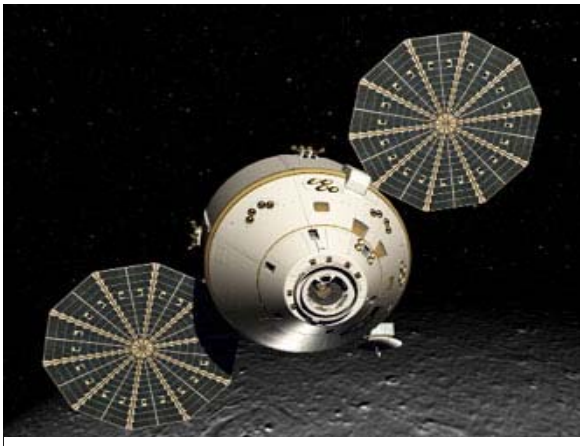
2.1 Background

The State of Florida enjoys a history rich in space and aeronautical achievement. For more than 50 years, Florida has hosted and supported key segments of the Nation's space exploration, commercial flight, and military aviation activities. From the earliest aerospace pioneers to today's robust network of private companies, educational institutions, research and development activities, and federal agencies and installations, Florida's aerospace enterprise has been integral to the State's economic diversity and long-term growth.

But Florida can, and must, do much better.

With overall wages that exceed the State average by more than 40 percent,[1] the high-value jobs in aerospace technology, manufacturing, and services must be a top priority for State economic development efforts. However, Florida is still largely perceived to be a location for launching and processing spacecraft for the Department of Defense (DoD) and the National Aeronautics and Space Administration (NASA) with little attention to commercial space activity. Florida has had very limited success in recruiting other commercial space industry activities such as satellite and vehicle manufacturing. State leadership has recognized that this must change. Florida's aerospace industry must strive to capture major new roles in developing and manufacturing new spacecraft and developing capabilities from research fields such as life sciences, Earth sciences, aeronautics, robotics, and national security-related research and technology initiatives.[2] This is a statewide challenge, and also a statewide opportunity.

Florida is uniquely positioned to help space launch providers drive down the cost of getting payloads into orbit by shortening the supply chain. Co-locating launch activities with manufacturing, assembly, and research and development activities makes economic sense if the workforce can support these activities and if the business environment is supportive. These factors were instrumental to Lockheed Martin's decision regarding NASA's Crew Exploration Vehicle (CEV) program (now specified as "Orion"). According to Cleon Lacefield, Vice President and Orion Program Manager for Lockheed Martin, "This innovative partnership between Space Florida and Lockheed Martin is critical to expanding our operations in the State and ensuring the success of the Orion program. We regard Florida as a friendly climate for our



Orion – Crew Exploration Vehicle
Source: NASA

[1] U.S. Bureau of Labor Statistics, National Aeronautics and Space Administration, U.S. Department of Defense.
[2] Enterprise Florida, Roadmap to Florida's Future, 2007 – 2012 Strategic Plan for Economic Development

business, and hope to do more of it in the future."[3] This announcement was a first step towards a new and reinvigorated future for Florida's aerospace industry. There are many other opportunities that need to be explored.

New developments and opportunities have placed Florida on the threshold of a new and rapidly developing era in space and aerospace activity. President Bush and NASA have established a bold new Vision for Space Exploration that will send humans beyond Earth orbit for the first time since 1972. Additionally, NASA is soliciting private companies to provide crew and cargo services for the International Space Station (ISS) through its Commercial Orbital Transportation Services (COTS) program. Florida must be optimally positioned to support NASA and the Vision for Space Exploration, but also must prepare for emerging commercial space markets ranging from privatization of the nation's civil and military launch functions to space tourism and other entrepreneurial efforts to move people and cargo through suborbital or orbital trajectories. As these market shifts occur, the aerospace industry is rapidly consolidating, creating new niche companies, and developing new technologies that increasingly blur the line between aviation and space flight. Florida must leverage these opportunities into expanded roles in space and aeronautics technology, manufacturing, services, and research.[4]

Space Florida recently signed a new partnership agreement with Zero-G to develop a Florida-based Microgravity Education and Research Center. This agreement helps to position the State as an innovator and broadens the State's science and engineering research capabilities. Specifically, the agreement:

Image credit: Zero-G

- Establishes Florida as a base of flight operations for Zero-G
- Establishes Florida as headquarters for Zero-G education and research operations
- Develops an outreach program to affect at least 3,000 teachers and 80,000 students
- Provides the opportunity to expose dozens of Florida university researchers to a zero-gravity environment

The Orion final assembly effort and the Zero-G partnership illustrate Space Florida's commitment and ability to work creatively with multiple parties to build a favorable climate for aerospace economic expansion.

The competitive environment has never been more challenging. Other nations are leveraging lower labor costs and less-encumbered regulatory processes to capture significant market share of

[3] Space Florida Press Release, "Space Florida Announces Major Partnership with Lockheed to enhance State's Aerospace Infrastructure", January 30, 2007
[4] Governor's Commission on the Future of Space and Aeronautics in Florida – Final Report, January 2006, page 1-2

the commercial orbital and suborbital launch opportunities. Competition among states and international ventures to capture market share of the emerging space tourism market is intensifying, notwithstanding the uncertainty regarding the timing and success of the related spacecraft and business plans. However, through a statewide effort, and with the support of Florida's leadership, there are genuine opportunities for Florida to position as the preferred location for a full range of aerospace activities.

Expanding Florida's current leadership in domestic civil and military launch activity, and emerging as the global leader in commercial space opportunities, will contribute to sustained economic growth throughout the state. Diversifying Florida's commercial, civil, and military aerospace industry, which includes enhancing its space-related research and development initiatives, is a critical component of the future of Florida's aerospace industry. The State must position for and achieve this objective through a strong, sustained public and private commitment to a world-class aerospace industry. Florida's residents and policy makers must embrace the importance of an expanding statewide aerospace industry, as it benefits more than just the communities along the "Space Coast." Aerospace industry decision makers across the nation and throughout the world must see Florida as more than just a launch site, but also as a home for the manufacturing, assembly, and supply support for rockets, missiles, satellites, and other spacecraft, and for the research and innovation that underpins all of these industries.[5] This provides businesses with the opportunity to shorten their supply chains and reduce operating costs.

In fact, Florida is off to an excellent start as a direct result of the Governor's Commission on the Future of Space and Aeronautics in Florida. Subsequent legislative support through the Space Florida Act of 2006, and the formation of Space Florida, delivered the next "giant leap" for Florida aerospace.

2.1.1 The Governor's Commission on Space and Aeronautics in Florida

In June of 2005, Governor Bush created and charged the Commission on the Future of Space and Aeronautics in Florida to assess and make recommendations to strengthen Florida's role as a leader in space and aeronautics, and to maximize the economic development and job creation opportunities throughout the State.[6] The Commission was chaired by Lt. Governor Toni Jennings and included 16 members representing civil, military, commercial, and academic interests. Meeting eight times between June 2005 and January 2006, the Commission reviewed prior and ongoing studies of space and aeronautics in Florida and nationally, and heard testimony from a wide range of industry leaders, including representatives of NASA, the United States Air Force (USAF), the Federal Aviation Administration (FAA), all Florida state agencies involved in space transportation, and private companies involved in space, aeronautics, and aviation. The Commission also established working groups to review trends and issues and develop specific recommendations in six areas: industry economics, workforce composition, education, business climate, launch

[5] Governor's Commission on the Future of Space and Aeronautics in Florida – Final Report, January 2006, page 1-2
[6] Governor Bush's Charge to the Commission, 10 June 2005

environment, and management structure.[7] The final report, dated January 2006, published the Commission's findings and recommendations.

A summary of the Commission's eighteen recommendations within four major categories is provided in Table 1 below. Additionally, a matrix that compares the Commission's recommendations to the Actions specified in this Strategic business plan is provided in Appendix C.

2.1.2 The Space Florida Act and the Formation of Space Florida

In May 2006, a series of new economic development initiatives designed to bolster Florida's innovation economy were signed into law. The new legislation included House Bill 1489, which focused on the State's aerospace industry, and implemented many of the Commission's recommendations. Part II of Chapter 331 of the 2006 Florida Statutes, "The Space Florida Act," consolidated Florida's three existing space entities into a single new organization. Space Florida was formed to be the single point of contact for state aerospace-related activities with Federal agencies, the military, State agencies, universities, and the private sector, consolidating the roles and responsibilities of three predecessor organizations. The three organizations and their functions were:

Florida Space Authority (FSA). Formerly known as the Spaceport Florida Authority, the FSA was created in 1989 as a state government agency. The FSA's mission was to establish facilities or complimentary activities that provide and enhance space-related development opportunities for businesses, education, and government. FSA had governmental powers similar to other types of transportation authorities, and was broadly empowered to own, operate, construct, finance, acquire, extend, equip, and improve spaceport infrastructure. Another aspect of FSA's mission was to develop and implement space-related education programs.

Florida Space Research Institute (FSRI). The FSRI was established in 1999 as a statewide, industry-led center for space research, technology development, and education. FSRI leveraged academic and economic development resources with those of industry, NASA, and the military. FRSI partnered with NASA and multiple universities on space-related research and apprenticeship programs; developed initiatives to foster industry participation in NASA research programs; co-managed with NASA the Space Life Sciences Laboratory; and collaborated with NASA, Workforce Florida, and colleges and universities on training initiatives.

[7] Governor's Commission on the Future of Space and Aeronautics in Florida – Final Report, January 2006, page1-3

Table 1 - Summary of Recommendations of the Governor's Commission on the Future of Space and Aeronautics in Florida

Talent	1. Integrate space and aeronautics industry needs into the State's clusterbased workforce development programs.
	2. Ensure that space industry talent currently involved in the Space Shuttle program is retained after 2010.
	3. Establish a Center for Mathematics and Science Education Research to enhance K-12 mathematics and science instruction quality.
	4. Improve K-12 mathematics and science teacher availability through a greater emphasis on teacher recruitment.
	5. Expand enrollment in, completions of, and retention of graduates from post-secondary degree programs in mathematics, science, and engineering, with emphasis on aerospace fields.
	6. Provide hands-on opportunities for students to experience and learn about the aerospace industry
	7. Increase general awareness of aerospace activities.
	8. Create a center of excellence with focus on space and aeronautics research and technology.
Economic Diversification	9. Position Florida to assemble, test, check out, launch, maintain, and refurbish the Crew Exploration Vehicle.
	10. Reaffirm space and aeronautics as a statewide target industry with Enterprise Florida as the lead business development agency.
	11. Expand the tools available for recruitment of space and aeronautics businesses.
	12. Provide targeted support and venture capital for aerospace technology businesses that are created in Florida.
Space Launch Environment	13. Support Federal efforts to renew and upgrade the infrastructure and technologies at the Cape Canaveral Spaceport and Eastern Range to support the nation's Vision, new military programs, and commercial growth.
	14. Improve highway, rail, and waterway connections to the Cape Canaveral Spaceport.
	15. Advocate for enhanced Federal procedures and customer service for commercial launches.
	16. Plan and develop a commercial spaceport targeted initially at horizontal launches and located separately from the Federal lands at the Cape.
Management	17. Consolidate Florida's existing space entities into a new organization, Space Florida.
	18. Provide dedicated funding to support innovative education programs or other space initiatives.

Florida Aerospace Finance Corporation (FAFC)**.** The FAFC was created in 1999 as a not-for-profit corporation with a mandate to provide financial resources and technical expertise to help the aerospace industry finance a wide variety of projects, including infrastructure, manufacturing, assembly, and launch investments. FAFC was authorized to offer a loan guarantee program for small- to medium-sized Florida companies that could not otherwise obtain financing. FAFC also designed tailored programs providing creative financing through loan facilitation customized on a case-by-case basis.

The Space Florida Act stated, in part, "the aerospace industry of this State is integral to the State's long-term success in diversifying its economy and building a knowledge-based economy that is able to support the creation of high-value-added businesses and jobs. Further, under the direction of Space Florida, this State has the opportunity to strengthen its existing leadership in civil, commercial, and military aerospace activity and emerge as a leader in the nation's new vision for space exploration and commercial aerospace opportunities, including the integration of space, aeronautics, and aviation technologies. As the leading location for talent, research, advanced technologies and systems development, launch, and other aerospace-based industry activities, this State can position itself for sustainable economic growth and prosperity."[8]

Further, the Legislature backed Space Florida with significant authorities and economic development powers in order to execute its responsibilities, including:

- Acquiring, owning and operating facilities, launch pads, experimental spaceport facilities, landing areas, ranges, payload assembly and processing buildings, laboratories, aerospace business incubators, launch vehicles, payloads, space flight hardware, and other aerospace-related systems or initiatives, including utilities, educational and cultural initiatives
- Issuing contracts, grants, and contributions
- Conducting research activities and experimentation
- Collecting revenue including Federal and other funding
- Designating spaceport territories and coordinating with municipalities on the planning of these territories
- Entering into cooperative agreements
- Providing sovereign immunity
- Issuing revenue bonds, assessment bonds, or any other bonds or obligations
- Making investments

The Legislature stated its clear intent to "implement an aggressive strategy that enhances the State's workforce, education, and research capabilities, with emphasis on mathematics, science, engineering, and related fields; … focus on the State's economic development efforts in order to

[8] 2006 Florida Statutes, Chapter 331, Part II, 331.3011(1)

capture a larger share of activity in aerospace research, technology, production, and commercial operations, while maintaining the State's historical leadership in space launch activities; and… preserve the unique national role served by the Cape Canaveral Air Force Station (CCAFS) and the John F. Kennedy Space Center (KSC) by reducing costs and improving the regulatory flexibility for commercial sector launches, while pursuing the development of complementary sites for commercial horizontal launches."[9]

2.2 Introduction to Space Florida

The Governor's Commission Report outlined the potential benefits of realigning the structure and functionality of the three predecessor organizations into a new structure that satisfied three characteristics derived from best practices; a high level of visibility within the State; a high level of recurring industry participation in setting strategic direction; and a single point of contact for business.[10] All three of these attributes were considered in the creation of the new organization, Space Florida.

The Commission Report further envisioned that Space Florida would:

- Enhance customer service
- Ensure a focus on mission-critical activities through clear lines of authority and accountability that flow from a single, strongly managed coordinating office
- Serve as the central organization for coordinating and communicating all space-related matters within the State
- Be responsible for representing the State and tracking all related legislative issues at the State and Federal levels
- Be the faces and voices of space and aeronautics in Florida (President of Space Florida and senior staff)
- Be structured as a private/public partnership similar to Enterprise Florida or Visit Florida
- Report to its Board of Directors, which will be chaired by the Governor and includes representatives from all aspects of the State's space industry, including business, finance, marketing, spaceport operations, research and development, and education. The Board also includes members appointed by the Governor, the Speaker of the House, and the Senate President
- Include three major functions that receive their strategic direction, budget, and authority from the Board: Business Development and Finance; Spaceport Operations; Education, and Research & Development and Workforce Development[11]

[9] 2006 Florida Statutes, Chapter 331, Part II, 331.3011(2)
[10] Governor's Commission on the Future of Space and Aeronautics in Florida – Final Report, January 2006, page 3-26
[11] Governor's Commission on the Future of Space and Aeronautics in Florida – Final Report, January 2006,

The 2006 Florida Statutes, Chapter 331, formally established Space Florida as the single point of contact for State aerospace-related activities with Federal agencies, the military, state agencies, businesses and the private sector, assigned specific business development powers and authorities.[12] The Space Florida Act further mandated several key milestones to achieve the Legislatures intent to implement Space Florida and transition the three predecessor organizations. In compliance with the law, Space Florida became an active organization on September 1st, 2006. A new Board of Directors was named and a President was hired in August of 2006.

2.2.1 The Space Florida Strategic Business Plan

The Space Florida Act also directed the new organization to "Create a business plan to foster the growth and development of the aerospace industry. The business plan must address business development, finance, spaceport operations, research and development, workforce development, and education. The business plan must be completed by March 1, 2007, and be revised when determined as necessary by the board."[13]

The objectives of this document are to address the Commission Report recommendations, to satisfy the Legislative requirements within the Space Florida Act, and to build on best practices leveraged from predecessor agencies and competitors worldwide to guide Space Florida as it executes its charter to retain, expand, and attract aerospace activities, businesses, research, and educational activities throughout the State. This document is deliberately titled as a Strategic Business Plan because it describes the current state of Florida's aerospace enterprise, Space Florida's vision of the desired future end state, and goals and objectives aimed at moving towards that end state. Throughout the document, context will be provided by a current market assessment and a recently conducted Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis.

This document is also specific, and describes Space Florida's immediate and longer-term priorities, how they will be achieved, and wherever available, the financial support and measures of effectiveness for each endeavor. This Strategic Business Plan reflects the intention of Space Florida, and the actions specified will be executed in close cooperation with Space Florida's partner State agencies, Federal agencies, and the aerospace business community. Finally, **this is the first iteration of a living document.** The Strategic Business Plan will be updated and refined as necessary and as determined by the Board of Directors.

2.2.2 Mission, Vision, and Organizational Values

In January 2007, Space Florida hosted a strategic planning exercise to clarify its purpose, direction, and several key values to guide the organization's efforts as it executes this plan and into the future.

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[12] 2006 Florida Statutes, Chapter 331, Part II, 331.3011(3)
[13] 2006 Florida Statutes, Chapter 331, Part II, 331.3051(1)

Mission Statement

In developing its mission statement, Space Florida considered several key thrusts that were documented in the Governor's Commission Report and the Space Florida Act, such as:

> "…an independent special district that fosters the growth and development of a sustainable and globally-renowned aerospace industry…"
>
> "…economic development body …"
>
> "Created and empowered by the Florida Legislature.."
>
> "… an innovative and responsive economic development catalyst, active throughout Florida's aerospace enterprise…"
>
> "… to create opportunities and deliver solutions in business financing, spaceport operations, research and development, workforce development and innovative education programs."

At the conclusion of the analysis, it was clear that Space Florida's mission is to enable Florida to compete on a global scale through economic development efforts spanning the aerospace enterprise. The term "aerospace enterprise" includes space-related education, research and development, workforce knowledge and capacity, and supply chain activities, in addition to all aspects of the aerospace industry as defined in the Space Florida Act.

> *"…the industry that designs and manufactures aircraft, rockets, missiles, spacecraft, satellites, space vehicles, space stations, space facilities or components thereof, and equipment, systems, facilities, simulators, programs, and related activities, including, but not limited to, the application of aerospace technologies in air-based, land-based, and sea-based platforms for commercial, civil, and defense purposes."* [14]

Mission Statement:

Space Florida drives State economic development across the global aerospace enterprise

[14] 2006 Florida Statutes, Chapter 331, Part II, 331.303(1)

Vision Statement

Space Florida envisions tomorrow's aerospace enterprise as a vibrant and diverse economic engine. Solid K-12 math and science programs feed higher-level education institutions that produce technicians, engineers, and scientists that make up tomorrow's knowledge-based aerospace workforce. Aerospace companies are drawn to Florida as startups or expansion efforts, capitalizing on the synergies created by the strong workforce, reasonable business costs, high quality of life, and the advantages that come with locating within a cluster of compatible businesses. Florida's business incentives support development of this cluster.

The product flow and logistics chain from the point of manufacturing to the space point of use is short and efficient. Supply chains are well supported by road, rail, air and sea delivery.

Launch support from Florida's revitalized spaceport is efficient, timely, and cost effective as a result of innovative commercial and government practices. Launch customers are supported by a standardized flight safety system that utilizes a space-based tracking process. New customers are routinely approved by regulatory agencies to gain access to space in six months or less.

Vision Statement:

To be the world leader in developing tomorrow's aerospace enterprise, creating a diversified business environment and robust continued economic growth for Florida

2.2.3 Key Values

Space Florida will create the environment for success and pursue immediate and long-term aerospace business development opportunities through an aggressive strategy that reflects the following principles:

- **Focus on customer needs.** Space Florida's leadership is dedicated to an efficient and expeditious decision-making process in order to meet customer requirements as quickly as possible. Space Florida will focus first and foremost on understanding and responding to customer needs, whether in the civil, military, or commercial sectors. Space Florida will configure packaged economic incentive deals that are based on sound business practices and that recognize business expectations. Incentive packages must address business needs, help to resolve "sticking points," and adhere to Space Florida's responsibilities as a trusted public entity. Space Florida's business development tools will be applied to invest in the State's future aerospace economy.

- **Encourage innovation and agility.** In order to develop into a world-class economic development organization, Space Florida will foster an environment that encourages innovation, responds to evolving market opportunities, and moves viable concepts to market quickly. Ongoing and effective communications with customers and statewide partners will be key to identifying and capturing value-added opportunities. Strong internal communication channels within Space Florida will be essential in translating opportunities into deliberate and focused execution. Space Florida will be staffed with eminently qualified personnel who are committed to the continuous improvement of the organization and their professional growth.
- **Position for global leadership.** Space Florida will identify and work toward those market opportunities where Florida can serve as a global leader. Space Florida's business development, spaceport operations, education, R&D, and workforce development strategies will build upon and preserve Florida's existing strengths, while also identifying and moving aggressively in those market segments where Florida has the potential to be more competitive than other states or nations.
- **Measure results and ensure accountability.** Space Florida will fulfill its commitment to deliver superior results to its customers and the public. Space Florida's leadership is committed to disciplined economic development planning and deliberate execution. Specific measures of effectiveness will be developed and tracked over time to assess how Space Florida creates a return on public and private investment in its business development initiatives.
- **Work in partnership with public and private organizations.** Space Florida will lead Florida's aerospace business development strategy and serve as a single point of contact for business partners where needed. However, Space Florida will work in partnership with Enterprise Florida, Florida's Departments of Transportation and Education, Workforce Florida, Florida Commission on Tourism/Visit Florida, and regional and local economic development organizations, rather than trying to replicate the tools, expertise, and relationship already resident in these entities. Space Florida brings complementary expertise and financing tools specific to aerospace applications. Additionally, Space Florida will continue, and enhance, its partnerships with the DoD and NASA.

2.3 Strategic Focus for the Space Florida Board of Directors, Committees, and Staff

Space Florida was formed with a solid foundation of study, forethought, and sound legislative language. The Commission Report and the Space Florida Act share many common themes. Each publication also delivered specific guidance or requirements. Space Florida's strategic focus is captured in the following major initiatives:

Spaceport Operations

- Develop the Central Florida Commercial Spaceport
- Deliver a streamlined and standardized approach to accessing and operating on a Federal launch range

- Establish multiple Florida spaceports

Business Development

- Expand the State's dominant role in U.S. vertical launches for civil, military, and commercial markets
- Claim a large share of the emerging global market for horizontal launches, including sub-orbital space tourism, transportation and cargo, and orbital payload delivery
- Broaden the State's presence in the space industry beyond launch activity to include the R&D, design, manufacturing, assembly, testing, launch, and servicing of space vehicles
- Capture a larger share of the supply chain for space vehicles and related equipment
- Position for global leadership in new space markets, including the increasing integration of space with aviation and other technologies

Education, Research & Development, and Workforce Development

- Monitor employment trends and meet workforce training needs
- Expand and focus use of the Space Life Sciences Laboratory
- Establish a Center of Excellence for Aerospace
- Conduct an education, R&D, and workforce development programs assessment
- Provide focused funding support to the most relevant and worthwhile education programs

2.3.1 Immediate Priorities "Top Ten"

As a startup organization, Space Florida faces organizational challenges while simultaneously developing and implementing action plans to position Florida's aerospace enterprise for global competitiveness. These "top ten" priorities reflect the most critical challenges and opportunities as of this snapshot in time. Most of these items are developed more fully in the following sections.

- Develop and obtain an FAA license to operate at least one horizontal launch spaceport in Florida to capture suitable aerospace activities, sub-orbital space tourism, travel and cargo operations, and reach agreements with commercial interest to locate launch, headquarters, services, and support activities in Florida
- Develop a short terms, medium to heavy lift commercial vertical launch capability in central Florida to support COTS launch and reach agreement with COTS developers to locate additional COTS activities such as R&D, manufacturing, assembly, services, and support activities in Florida.
- Partner with, and support, NASA, State, and local efforts to position the Space Shuttle workforce to conduct the transition from the Space Shuttle operations to supporting the new Crew Exploration Vehicle (CEV) – Orion.

- Accelerate commercial launch customer processing through the Eastern Range's Universal Documentation System (UDS) and Range Safety process with dedicated and knowledgeable professional support services.
- Capture the remainder of the Vision for Space Exploration activities, including the assembly, launch, and other activities associated with the Crew Launch Vehicle (CLV) – Ares I, and the Cargo Launch Vehicle (CaLV) – Ares V.
- Coordinate with NASA, commercial space interests, and appropriate State, regional and local economic development organizations to evaluate supply chain needs for the future, the available businesses to meet the need, and develop solutions to close the gap.
- Coordinate with DoD, FAA, NASA, other states, legislative bodies, and industry to improve Federal procedures and processes in support of commercial launch activities.
- Capture targeted research and development activities that support commercial space activities or the Vision for Space Exploration, and achieve full capacity at the Life Sciences Laboratory.
- Develop agreements, partnerships, relationships and liaisons with State and local economic development organizations to optimize existing economic incentives and apply Space Florida's economic development and financing tools to achieve targeted aerospace objectives.
- Stabilize the Space Florida staffing plan and develop an updated budget to support ongoing and future operations, and effective business development.

3.0 MARKET ASSESSMENT

Summary of Key Findings

- Aerospace is a major global industry with annual commercial revenues in excess of $340 billion.
- The space industry is becoming a significant global growth market as businesses find more opportunities to harness space for a range of commercial applications.
- Florida has a formidable position within the aerospace industry, with strengths in space launch, space research, and space vehicle manufacturing. Overall, Florida ranks third among the states for employment in the cluster of interrelated industries and activities that comprise aerospace, including commercial and military aviation.[15] However, Florida ranks as the 7th highest state for employment within the space sector of the aerospace industry today.[16]
- Aerospace is a very competitive industry and has been targeted by other states and nations, all seeking leadership in the economic growth and technological advancements linked with increased commercial activities in space.
- The State of Florida has great opportunities in the aerospace market over the next several years to:
  - Expand the State's dominant role in U.S. vertical launches for civil, military, and commercial markets;
  - Claim a large share of the emerging global market for horizontal launches, including sub-orbital space tourism, transportation and cargo, and orbital payload delivery;
  - Broaden the State's presence in the space industry beyond launch activity to include the R&D, design, manufacturing, assembly, testing, launch, and servicing of space vehicles;
  - Capture a larger share of the supply chain for space vehicles and related equipment; and
  - Position for global leadership in new space markets, including the increasing integration of space with aviation and other technologies.

3.1 Global Market Overview

The space and aeronautics (or "aerospace") industry cluster includes the manufacture, repair, and maintenance of aircraft, gliders, guided missiles, spacecraft, satellites, and their components; various aspects of defense technology; the transportation of people and goods via air and space;

[15] U.S. Bureau of Labor and Statistics, National Aeronautics and Space Administration, U.S. Department of Defense
[16] Aerospace Industries Association, State Aerospace Employment, http://www.aia-aerospace.org/stats/state_data/alpha_state.cfm

and related research, technology, and support services. The industry cluster covers civil, military, and commercial transportation, services, research, and manufacturing.

This Strategic Business Plan focuses primarily on Space Florida's role in developing the space segments of this industry cluster. Relevant aspects of the aeronautics industry, along with the commercial aviation and defense/military aviation industries, are discussed because there is increasing potential for overlap between aviation and space as the technologies merge. However, Space Florida's primary focus remains oriented to the space side of the aerospace industry.

Worldwide Market Size

The global aerospace market is estimated to generate approximately $340 billion in revenues per year, distributed as follows:

- Production of satellites, missiles, and civil, military, and commercial aircraft and spacecraft --$161 billion;[17]
- Commercial satellite services -- $80 billion;[18]
- Commercial infrastructure to support space launch and satellite activity -- $29 billion;[19]
- U.S. government spending on aerospace research, development, and launch activity -- $57 billion;[20] and
- International government spending on aerospace research, development, and launch activity -- $12 billion.[21]

This figure does not include the value of passenger travel and cargo transport via commercial aviation, or the value of military and defense activity not directly related to the aerospace industry.

National Market Size

The Aerospace Industries Association estimates that U.S. aerospace industry sales totaled $184 billion in 2006, an increase of 8 percent over 2005 levels.[22] The largest segment of the industry was military aircraft ($52.5 billion), followed closely by civil aircraft ($47.5 billion). Space-related activities accounted for $38.6 billion in sales, or about 21 percent of this total. Recent growth has been driven by a boom in civil aircraft sales, with more modest gains in the military aircraft and space segments. This trend is expected to continue into 2007.

[17] Aviation Week, January 15, 2007, 2007 estimate.
[18] The Space Foundation, "The Space Report: The Guide to Global Space Activity", 2006; 2005 estimate.
[19] The Space Foundation, 2005 estimate
[20] The Space Foundation, 2005 estimate.
[21] The Space Foundation, 2005 estimate.
[22] Aerospace Industries Association, 2006 Year-End Review and Forecast, December 13, 2006. The Aerospace Industries Association uses a different definition from Aviation Week and the Space Foundation, so these totals are not directly comparable.

The aerospace industry enjoyed profits of $13.3 billion in 2006, representing a 6.5 percent margin on sales. While low on a historic basis, this 6.5 percent margin was a significant increase over the 3 to 4 percent margins typical of the 2001 to 2003 period.

The aerospace industry accounted for approximately 644,000 jobs in the United States in 2005. Combined with the commercial and military aviation industries, the entire industry cluster accounted for over 2 million jobs and $113 billion in wage and salary disbursements in the United States in 2005.[23]

Florida Market Size and Overview

In 2005, Florida employed over 145,000 people in the space, aeronautics, and aviation industry, representing 7.1 percent of the Nation's total employment in the broad industry, and the third highest employment level in the combined industry among the 50 states (Table 2). These jobs generated over $7.5 billion in earnings, with an annual average wage of more than $51,000.

Table 2 - Florida's Space, Aeronautics, and Aviation Industry Profile 2005

Description	Companies Florida	Employment (*in thousands*) Florida	% of U.S.	Annual Wages per Job (*in $ thousands*) Florida	% of U.S.	Earnings (*in $ millions*) Florida	% of U.S.
Total	**1,768**	**147.5**	**7.1%**	**51.4**	**95%**	**$7,580**	**7%**
Space and Aeronautics	**377**	**30.2**	**5%**	**66.1**	**87%**	**$1,999**	**4%**
Search, Detection, and Navigation Instrument Manufacturing	72	9.7	6%	61.4	73%	$593	5%
Aerospace Products and Parts Manufacturing	200	17.8	4%	65.0	89%	$1,157	4%
Aircraft Manufacturing	52	2.7	1%	41.5	54%	$114	1%
Aircraft Engine and Engine Parts Manufacturing	55	3.9	5%	65.3	96%	$252	5%
Other Aircraft Parts and Auxiliary Equipment Manufacturing	54	3.1	4%	42.6	75%	$132	3%
Guided Missile and Space Vehicle Manufacturing	30	ND	ND	ND	ND	ND	ND
Space Vehicle Propulsion Units and Parts Manufacturing	9	0.9	7%	71.0	104%	$63	7%
Other Guided Missile and Space Vehicle Parts Manufacturing	2	ND	ND	ND	ND	ND	ND
Satellite Communications	92	0.7	4%	113.4	151%	$75	6%
Space Research and Technology	13	2.1	11%	83.3	92%	$173	10%
Aviation	**1,391**	**50.2**	**7%**	**45.9**	**87%**	**$2,304**	**7%**
Air Transportation	571	31.3	6%	48.0	91%	$1,499	6%
Support Activities for Air Transportation	668	16.5	10%	43.8	91%	$723	9%
Flight Training	152	2.5	15%	32.8	79%	$82	12%
Military		**67.0**	**9%**	**48.9**	**129%**	**$3,277**	**11%**
Air Force		35.3	8%	48.6	100%	$1,716	8%
Navy (at Naval Air Stations)		23.1	25%	66.4	110%	$1,536	28%
Air Force Reserve and Air National Guard		8.6	4%	3.0	99%	$25	4%

Source: U.S. Bureau of Labor Statistics, NASA, U.S. Department of Defense.

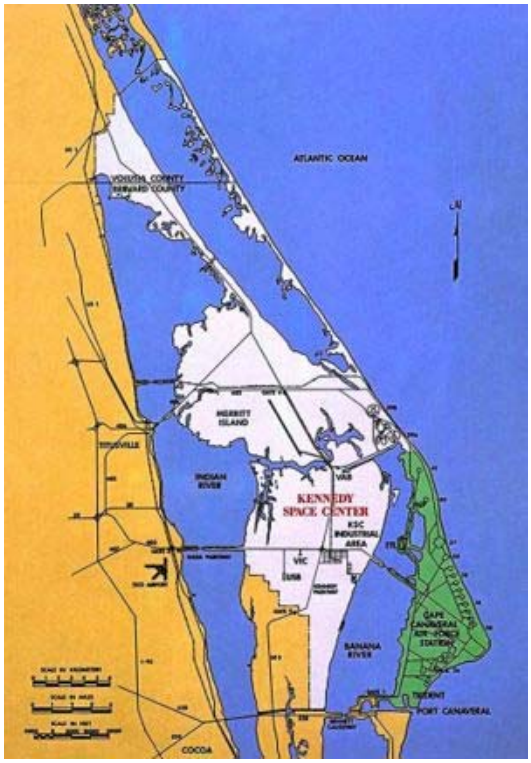
Notes: Due to applicable disclosure standards, employment values are not available for two aerospace products industries: (i) "guided missile and space vehicle propulsion" and (ii) "other guided missile and space vehicle manufacturing." Although detailed data are not disclosed for these two industries, their employment and wage values are included in the "aerospace products" total. For this reason, the four italicized aerospace products industries, included in the table, do not sum to the aerospace products total. Military jobs include both active duty military and civilian personnel. Military contractors, including those located on-site, are included in the private sector employment totals. Military jobs include all employees at applicable Air Force, Naval air station, and Air National Guard facilities, including those personnel who are not directly involved in space, aeronautics, and aviation activities. Other military services are not shown due to limited data for distinguishing space- and aviation-related activities from other military activities.

[23] U.S. Bureau of Labor Statistics, NASA, U.S. Department of Defense.

Approximately 380 Florida businesses are focused on space and aeronautics, representing 30,200 private sector jobs and nearly $2 billion in wages in 2005. Of these jobs, approximately 9,700 are involved in search, detection, and navigation equipment manufacturing; an additional 9,700 are involved in manufacturing of aircraft, aircraft engines, and related parts; and 7,200 are involved in manufacturing of spacecraft, guided missiles, and related systems. Florida's competitive strengths within the aerospace industry cluster are related to space launch, guided vehicles and space equipment manufacturing, space technology, and flight training and simulation -- all areas in which Florida accounts for more than one out of 10 jobs nationally.

NASA operates the KSC at Cape Canaveral. In 2005, NASA injected $1.65 billion into the Florida economy to support KSC activities, mainly space program operations. This represented a 6.6 percent increase over 2004 investments. KSC employed nearly 15,500 workers on-site as of September 2006. These workers received a total of $936 million in spendable earnings. About 85 percent of these workers are employed by NASA contractors, and 14 percent were Federal civil service employees.

The CCAFS, adjacent to KSC, is the East Coast launch facility of the United States Department of Defense (DoD). The site is located just north of Patrick Air Force Base (PAFB), which serves as the headquarters for the 45th Space Wing. The Air Force employs more than 3,600 military and civilian personnel at the CCAFS and PAFB.



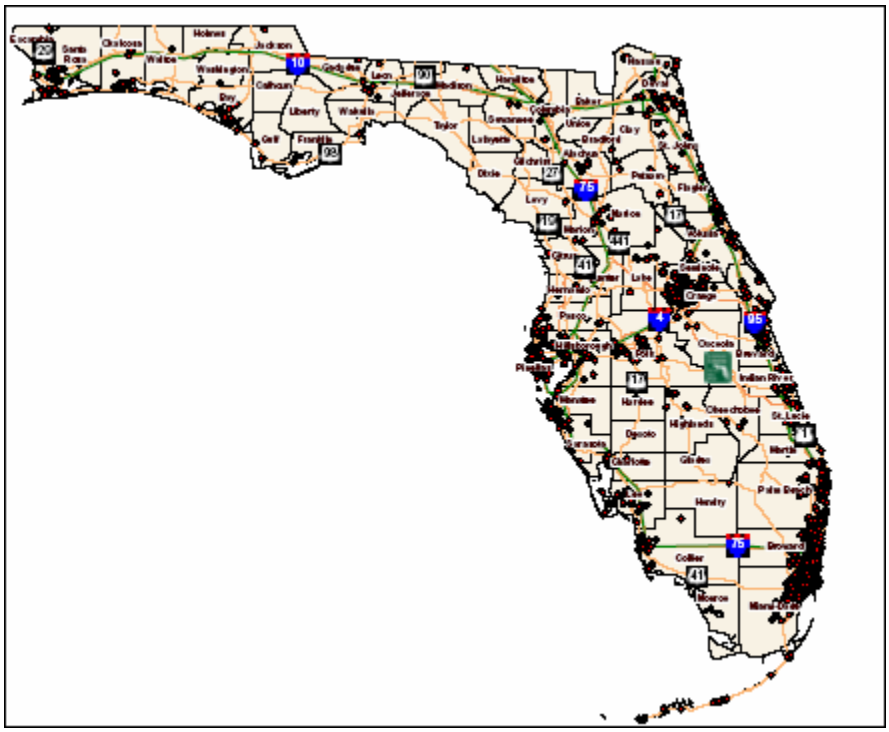
*Map of **CCAFS** and KSC*

The space and aeronautics industry is not only an important employer in Florida, but also a significant customer for other industries such as electronics, materials, engineering, research, and business services. Moreover, employees in this industry, because of their above-average wages, are important customers for Florida's retail and service industries. It is estimated that every dollar earned in the space and aeronautics industry in Florida generates $2.83 in earnings for other sectors of the economy.[24]

Although a large portion of the space industry's activities are centered around Cape Canaveral in Brevard County, businesses involved in various aspects of space, aeronautics, and aviation are spread throughout Florida (Figure 1). A high concentration of companies are located along the East coast, especially the southern part of the State (from Brevard County to Miami-Dade), as well as on the Gulf Coast (around Tampa Bay) and Central Florida (Orange County).

[24] U.S. Department of Commerce, Bureau of Economic Analysis, RIMS II Multiplier.

Figure 1 - Florida's Aeronautics, Space, and Aviation Industry Cluster 2004



Source: Enterprise Florida from Dun & Bradstreet.

Global Market Trends

The space and aeronautics industry sector has been experiencing significant changes in recent years. Key trends include the following:

- **Shift in the U.S. civil space program to a new Vision for Space Exploration**. In January 2004, President Bush announced the Vision for Space Exploration, committing the nation to a long-term human and robotic effort to explore the solar system. As part of this Vision, the United States will continue flying the Space Shuttle and complete its work on the ISS by 2010. The United States will begin developing a series of new launch vehicles to explore beyond Earth orbit and travel to other worlds, as well as to ferry astronauts to and from the Space Station. These include the Orion, Ares I, Ares V, and related systems. Orion's first manned launch is scheduled for 2014. Using these vehicles, the United States will return to the Moon around 2018 and use the Moon as a stepping-stone for more ambitious missions. Using Orion, humans will conduct extended lunar missions with the goal of living and working there for increasingly extended periods.
- NASA's budget constraints will continue to place pressure on Florida and other states to support the Vision in a cost-effective manner. NASA's fiscal year (FY) 2006 budget was $16.6 billion, with a comparable request for FY 2007. The NASA FY 2008 Budget

Request forecasts relatively small (1.8 percent to 3.1 percent) annual increases in the total NASA budget, bringing the total budget to $18.03 billion by FY 2010.[25]

- **Continued military space applications**. The DoD will remain a second major driver of space-related activity nationally and in Florida, with an estimated space budget of $21.7 billion in 2005.[26] The trend during the past few years has been toward a greater emphasis on homeland security and intelligence. DoD is also developing initiatives for "operationally responsive space" activities that would provide greater flexibility. A total of 118 dedicated military satellites are earmarked for production globally during the next 10 years, with associated revenue of $41 billion.[27]
- **Increasing commercial role supporting Federal space programs.** Federal law requires the DoD to purchase launch services from commercial operators. NASA has established a goal of increasing the commercial alternatives available for key missions, including suborbital operations, resupply for the ISS, and some lunar support functions. In January 2006, NASA announced the COTS program to coordinate the commercial delivery of crew and cargo to the ISS. Instead of launching payloads to the ISS on government-operated vehicles, NASA will spend $500 million – less than the cost of a single Space Shuttle flight – to finance the development and demonstration of orbital transportation services from commercial providers.
- **Emergence of commercial space tourism and related industries**. The commercial space tourism industry is in its infancy, but it is not unreasonable to foresee a time when its status will be comparable to that of commercial aviation. The emergence of near-space travel and horizontal launches, combined with private research and development activity, is expected to create a robust space tourism market. The demand for orbital and suborbital space tourism is projected to increase exponentially, with nearly 14,000 passengers traveling by the year 2021 and providing revenues approaching $700 million to the future suppliers of vehicles, services, and infrastructure.[28] Entrepreneurs also are seeking to open up low earth orbit to other commercial opportunities, including space cargo delivery, research, and possibly even military activities as the DoD considers using commercial solutions to meet its needs. Although development of this market is still in its infancy, it is prudent for Space Florida to plan for, and position to support, this market as it matures, while ensuring that Florida is not solely dependent on these activities.
- **Continued strong demand for commercial satellite services**. Strong demand for commercial telecommunication and new commercial and government applications related to global positioning systems and remote sensing are the primary driving forces of the

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[25] NASA's FY 2006 Budget Request, from http://www.nasa.gov/about/budget/FY2006/index.html

26 Smith, M.S. (2004, September 28). US Space Programs: Civil, Military and Commercial. CRS Issue Brief for Congress No. IB92011. http://www.nuclearfiles.org/menu/key-issues/space-weapons/issues/nti_crs092804.pdf

[27] Forecast International. (April 7, 2005). US Space Dominance Drives Military Satellite Market. Defense Aerospace http://www.defense-aerospace.com/cgi-bin/client/modele.pl?prod=55327&session=dae.22103727.1154366588.RM48fMOa9dUAACDwW-s&modele=jdc_1

[28] Futron Corporation, *Suborbital Space Tourism Demand Revisited*, August 24, 2006.

satellite industry today. The Satellite Industries Association (SIA) estimates that worldwide satellite industry revenues increased nearly 7 percent per year between 2000 and 2005, with increasing demand for both satellite services and related ground equipment.[29] SIA forecasts that total demand for fixed satellite capacity will increase about 10 percent per year between 2006 and 2011, reflecting the renewal of existing infrastructure, as well as continued growth in consumer demand for data and video services. The SIA forecast did not include the emerging, and potentially significant, market of mobile satellite/Ancillary Terrestrial Component (ATC) services. Smallsats (such as CubeSats) form another emerging market.

- **Decline in orbital launches.** A total of 55 orbital launch events occurred worldwide in 2005, 18 of which were commercial. This represented the second smallest orbital launch tally in the past 45 years.[30] This decline represents both a refocusing of civil and military launches, as well the ability to launch multiple satellites into orbit from a single launch. The FAA's Office of Commercial Space Transportation and the Commercial Space Transportation Advisory Committee (COMSTAC) estimate that the demand for global satellite launches will decrease through to 2010 and then remain steady through 2015. These forecasts estimate an average of about 37 satellite launches per year between 2006 and 2015.[31]

- **Increase in suborbital launches.** The suborbital launch market is experiencing a resurgence of interest, stimulated by emerging markets such as space tourism and other entrepreneurial services. The FAA reports that three vehicles have existing suborbital space tourism agreements and another 18 vehicles are under development to serve markets including space tourism, delivery of microsatellites, and various scientific payloads.[32] Futron Corporation predicts a total suborbital launch market of 852 flights through 2020.[33]

- **Increasing competition for global space launch activity**. The FAA projects a continued increase in competition to provide launch services among the United States, Europe, Russia, and Ukraine. Since 2000, the United States has carried out 20 commercial launches. Russia and Europe exceeded this count with 30 and 28 commercial launches, respectively, while the multinational Sea Launch Company performed 13 commercial launches. The United States has lost market share in recent years as international locations have been able to offer reduced costs and streamlined launch processes. The other major

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[29] Futron Corporation, *Satellite Industries Association's State of the Satellite Industry Report*, June 2006, http://www.sia.org/PDF/2006SIAStateofSatelliteIndustryPres.pdf.

[30] Commercial Space Transportation: 2005 Year In Review, FAA.

[31] Federal Aviation Administration and Commercial Space Transportation Advisory Committee. (May 2006). *2006 Commercial Space Transportation Forecasts*, Pg. 4. http://ast.faa.gov/pdf/rep/study/2006_Combined_Forecast_Report_final_printable.pdf

[32] Federal Aviation Administration. (2005, February). *Suborbital Reusable Launch Vehicles and Emerging Markets.* Pg. 26. http://ast.faa.gov/files/pdf/Suborbital_Report.pdf

[33] Futron. (2005, December 30). *New Mexico Commercial Spaceport Economic Impact Study* for State of New Mexico Economic Development Department.http://ww1.edd.state.nm.us/images/uploads/Futron_Report.pdf

international competitor is Spaceport Australia in Woomera, where COTS demonstration flights will be staged and space tourism agreements are being developed. China is attempting to re-enter the launch services market with non-competed launches of commercial satellites and planned manned missions. Possible new entrants into the international launch services market include Japan, South Korea, India, and Brazil.

- **Increasing competition from other states.** Florida faces increasing competition from other states that are aggressively focusing on the rapidly growing commercial space market. Industry professionals often identify California, Texas, Alabama, Colorado, and New Mexico as states that offer Florida the greatest competition in the most lucrative aspects of the space industry. The FAA has licensed five commercial spaceports: Cape Canaveral Spaceport; California Spaceport at Vandenberg AFB, California; Mid-Atlantic Regional Spaceport (MARS) at Wallops Island, Virginia; Kodiak Launch Complex in Alaska; and Mojave Spaceport in California. The FAA Office of Commercial Space Transportation (FAA/AST) reports that eight other states have applied for licensing, including New Mexico, Texas, Alabama, Nevada, Wisconsin, Oklahoma, Utah, and Washington.[34] Each of these states has plans to build and operate a spaceport that would be in direct competition with Florida, mainly for space tourism ventures. Most states have developed incentives to help encourage customers to operate from their state spaceport(s) or otherwise locate in their state. Some spaceports are considering building hangars for research and development, developing terminals for passenger training and operations, and providing customer services catering to the "elite" passenger.
- **Continued consolidation of the U.S. aerospace industry.** The space and aeronautics industry nationally is in a period of consolidation due to several factors:
  - The end of the Cold War and the terrorist attacks of September 11, 2001, which have led to a shift in defense activity to more mobile operations and homeland security activities;
  - The temporary halt in Space Shuttle launches following the Columbia accident and an overall reduction in the number of Shuttle launches as NASA nears completion of the ISS and retirement of the Shuttle;
  - Slower than originally anticipated growth in commercial satellite launches, leading to a global oversupply of launch vehicles relative to demand; and
  - The continuing restructuring in the national commercial aviation industry.
  - The consolidation of the largest of the aerospace companies appears to be completed, but medium to small companies will continue to consolidate as they attempt to increase their market share, reduce costs, and focus on higher-growth areas. Small businesses have the ability to break into selected aspects of the aerospace industry; creating opportunities for states like Florida that historically have had environments conducive to creating new businesses.

[34] Federal Aviation Administration, Office of Commercial Space Transportation, 2005 U.S. Commercial Space Transportation Developments and Concepts: Vehicles, Technologies, and Spaceports, January 2005.

- **Emerging technologies**. The aerospace industry also is undergoing a series of important technological changes that are creating new markets and leading to a convergence of aviation and space technologies. These include:
  - The development of platforms for near-space operations and travel at altitudes between 65,000 and 300,000 feet (i.e., 13 to 65 miles), an environment between traditional air space and suborbital space;
  - The development of horizontal launch systems to support both suborbital and orbital space missions, often with reusable launch vehicles;
  - Continued enhancements to the major vertical launch systems with expendable stages and reusable crew or cargo vehicles, as envisioned with NASA's ORION/ARES as well as the Air Force's Evolved Expendable Launch Vehicle (EELV);
  - Recent enhancements to launch vehicle and propulsion technologies that may dramatically lower the cost of launch for smaller loads, such as Space-X's Falcon 1 and the Air Force's planned Hybrid Space Launch Vehicle (HLV);
  - Development of small, or micro, satellites that can support operationally responsive defense applications, academic research, and more flexible and less capital-intensive commercial applications; and
  - Development of very light jets (VLJ), small aircraft transportation systems (SATS), unmanned aerial vehicles (UAV), and other next-generation aircraft that share common operating characteristics with horizontal launch spacecraft.
- **Emergence of new space-related markets**. A new generation of in-space activities is anticipated, ranging from research on the ISS to scientific probes to space tourism to missile defense. Greater use of space products, services, and information is anticipated in a wide range of industries, including industries that traditionally have been customers for space-related data and services (e.g., defense, security, intelligence, and media) and industries that are making better use of data or new research capabilities (such as hospitality, logistics, finance, retail, earth and energy resources, life sciences, and government).[35]

3.2 Florida's Opportunities

The State of Florida faces tremendous opportunities in the aerospace market over the next several years. These opportunities include the following:

- Expand the State's dominant role in U.S. vertical launches for civil, military, and commercial markets;
- Claim a large share of the emerging global market for horizontal launches, including sub-orbital space tourism, transportation and cargo, and orbital payload delivery;

[35] *2006 Space Report*, The Space Foundation.

- Broaden the State's presence in the space industry beyond launch activity to include the R&D, design, manufacturing, assembly, testing, launch, and servicing of space vehicles;
- Capture a larger share of the supply chain for space vehicles and related equipment; and
- Position for global leadership in new space markets, including the increasing integration of space with aviation and other technologies.

All of these opportunities could retain existing jobs involved in the Space Shuttle and related programs, and create new jobs and capital investment in Florida. Most of these opportunities focus on diversifying Florida's aerospace industry from its traditional emphasis on civil and military launch activity. As Florida's aerospace **industry diversifies, its economic impact** will grow through development of higher value-added activities such as R&D or manufacturing, and as a deeper supply chain keeps more of the indirect impacts of aerospace spending in Florida.

1. Expand the State's dominant role in U.S. vertical launches for civil, military, and commercial markets

Florida's space and aeronautics industry has benefited in the past from Cape Canaveral's role as the Nation's preeminent launch facility and from a steady stream of military and civil space programs based at the Cape. Florida is positioned to maintain its dominant role in U.S. vertical launches, particularly with respect to the NASA-sponsored programs. Florida will continue to serve as the launch site for the Shuttles that will be working on the ISS through 2010, and provide support for these missions. Beyond 2010, Florida will be the launch site for new NASA manned and unmanned vehicles, including Orion.

The best near-term commercial vertical launch opportunities for Florida are related to NASA's COTS program. Once developed, these vehicles could be used for additional markets including space tourism, on-orbit servicing, on-orbit refueling, space burial, and satellite launching. NASA has narrowed the selection process to two finalists. A high priority for Florida is to ensure that the launch of these vehicles takes place in the State – a goal that will require upgrades to launch facilities and streamlining of the processes involved in approving new commercial ventures to launch from the Eastern Range.

2. Claim a large share of the global market for horizontal launches, including sub-orbital space tourism, transportation and cargo, and orbital payload delivery.

Space tourism also offers a promising near-term opportunity for Florida, given the rapidly increasing demand projected in this market. As the concept is proven and consumer services are developed, Florida has the ability to become a worldwide leader, given its location, launch capabilities, and historical legacy. The Shuttle Landing Facility (SLF) is a potential location for these launches, and would bring an advantage not possible in newer competing sites in other states. Many of the State's airports and military airfields also have the physical capacity to accommodate these launches. Florida's world-renowned hospitality industry can support the growth of space tourism by lending its expertise in customer service and providing alternative activities for the families of space travelers. Florida would also be a potential site for the headquarters of space

tourism providers and for support activities such as customer support and marketing. Florida could also play a role in developing, manufacturing, and maintaining the spacecraft used for space tourism.

Similar vehicle technologies could be used for high-speed movement of goods in suborbital trajectories. In the near future it is likely that a private company will provide a "Fed-Ex low-Earth-orbit" service to provide guaranteed small package delivery between continents in a breathtakingly short period of time. Florida would be a potential site for companies seeking to develop and market this type of service.

3. Broaden the state's presence in the space industry beyond launch activity to include the R&D design, manufacturing, assembly, testing, launch, and servicing of space vehicles.

While well known as a launch site, Florida has had less success in capturing other activities related to the vehicles that it launches. The launch is just one piece of a value chain of activities that extends from research and development to assembly, testing, and other launch preparatory activities, to the launch itself, and then to subsequent recovery, maintenance, and refurbishing of reusable launch vehicles (Figure 2). Florida's historical role in many of the pre- and post-launch activities has been limited; indeed, among seven major NASA science missions launched from Florida between 2003 and 2006, in all cases the primary manufacturing location and the university hosting the principal research investigators were in other states.[36]

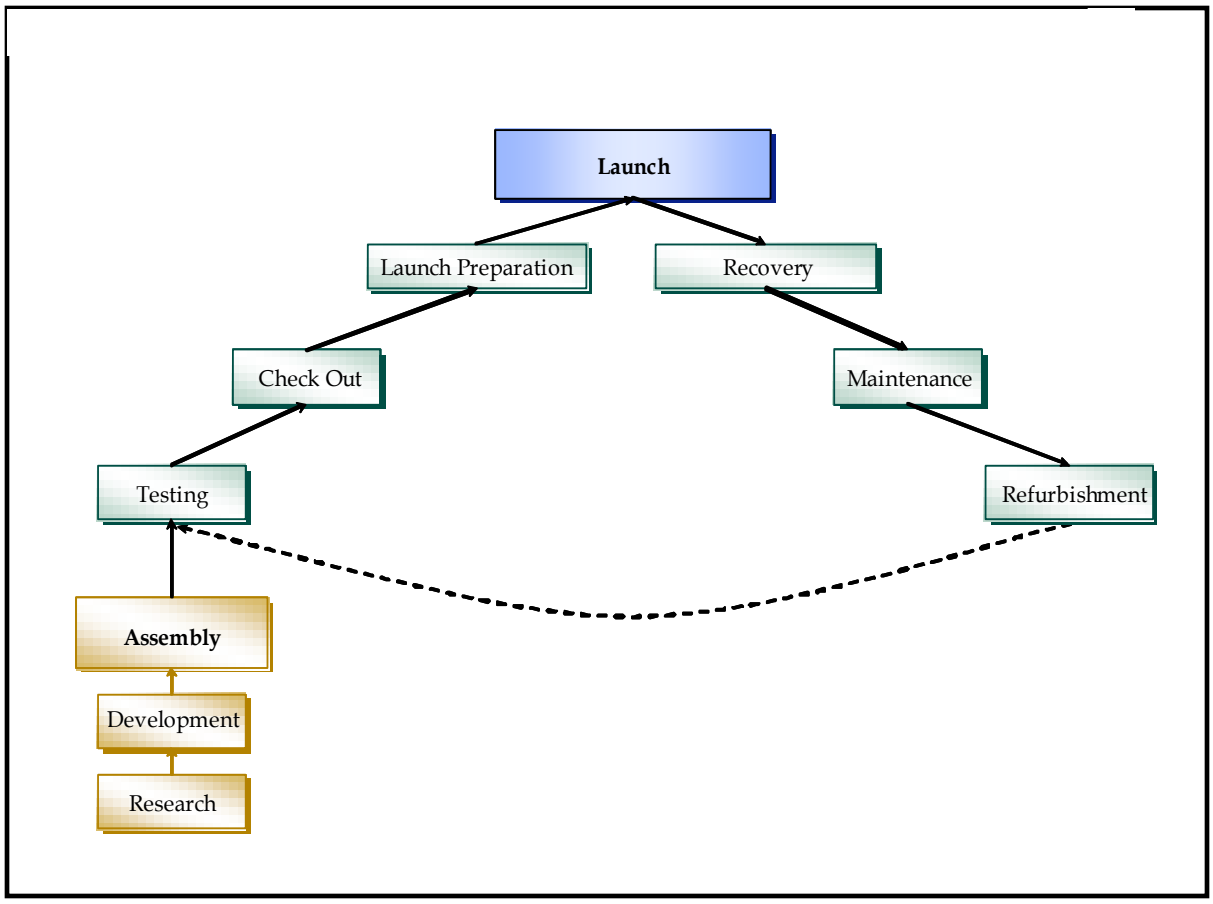
The transition from the Shuttle to Orion is creating great opportunities in Florida. Florida not only will be the launch site for Orion, but also will host the final assembly and systems integration for the new space vehicle. In early 2006, Lockheed Martin, the contractor selected by NASA to develop Orion, reached agreement with the State of Florida to perform final assembly and testing of Orion at Cape Canaveral, creating 350 to 400 jobs. Lockheed's decision reflected its analysis of the economic efficiencies involved in sitting the final assembly close to the launch facility, as well as the facility improvements and other incentives provided by the State. With these two key functions in place, Florida is in a good position to garner a greater share of the work related to testing, checking out, maintaining, and refurbishing Orion between launches.

With this range of activities Florida should retain a large share of the jobs currently supporting the Shuttle program and stimulate new and expanded business activity.

The State is also pursuing opportunities to play significant roles in the assembly, testing, maintenance, and refurbishing of the other new launch vehicles, including Ares I and Ares V as well as COTS vehicles. Working proactively with companies looking for new sites to launch new vehicles must be a cornerstone of Florida's space business development vehicles.

[36] Florida Space Research Institute, compiled for the Governor's Commission on the Future of Space and Aeronautics in Florida, January 2006.

Figure 2 – More than Launch – Handling More of Value Chain in Florida

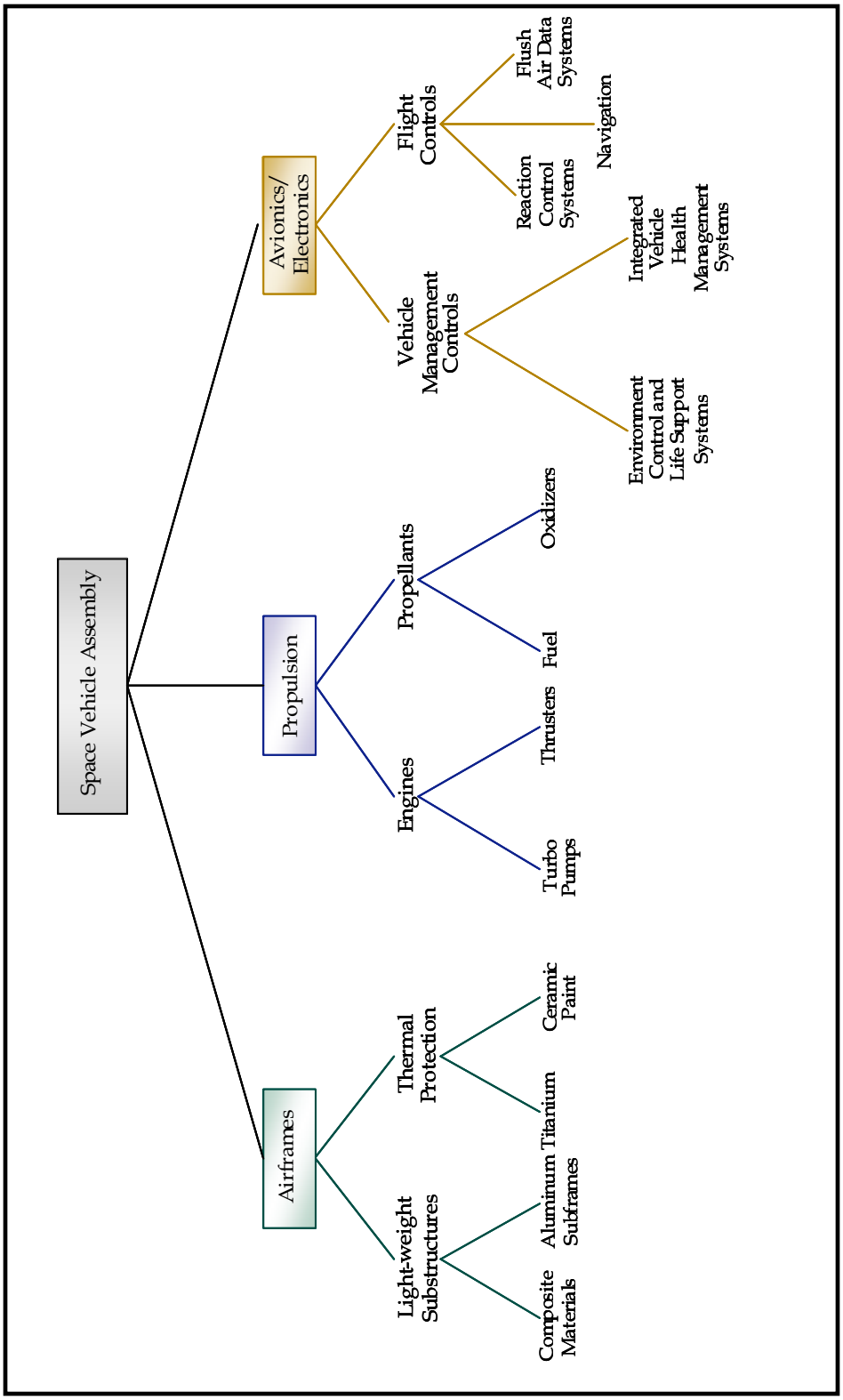


Source: Cambridge Systematics, Inc.

4. Capture a larger share of the supply chain for space vehicles and related equipment.

In many ways the space vehicle itself is the "head of the arrow" – a critical final product that results from the contributions of a long list of intermediate products and services. Development of a space vehicle typically requires core engineering competencies in thermodynamics, trajectory and performance analysis, structural analysis, systems engineering, and power systems. Due to their complexity, design processes for aircraft and space vehicles require specialized software for design and testing, rapid prototyping, and flight demonstrators and other simulation technologies. The manufacture of space vehicles is carried out by an "integrator" (generally the lead contractor and designer of the vehicle), bringing together airframe, propulsion, and electronics systems, often made off-site by key subcontractors that offer technical leadership in their respected fields. The components and properties of the key systems that go into the production of a space vehicle are shown in Figure 3.

Figure 3 – Space Vehicle Supply Chain



The assembly of Orion in Florida creates opportunities to develop a corps of sophisticated suppliers that can manufacture sub-assemblies and components for the new space vehicle as well as provide technical services. NASA will require that 22 percent of the Orion contracts be set aside for small businesses, creating opportunities for existing businesses located in Florida to grow, as well as for the State to encourage other suppliers, presently located in other parts of the country, to expand in Florida to be closer to their customers. Whether through the recruitment of out-of-state firms or the development of in-house capabilities, Florida will benefit economically as a larger share of the space vehicles being launched from the State are built with Florida-made components. Through this process, Florida can capture more value-added activity within the State, providing opportunities for jobs and higher earnings. And as these supply chains are established for Orion, they can be applied in other aspects of the aerospace industry. Over time, a more robust supply chain will improve Florida's competitiveness in the space industry by reducing the cost of launches and other major business investments.

5. Position for global leadership in new space markets, including the increasing integration of space with aviation and other technologies.

With new technologies coming online and new methods of space travel under development, the space frontier is expected to become a more integral part of science, medicine, business, transport, and tourism in coming decades. From low earth orbit to the ISS to the Moon and beyond, space is anticipated to become a more significant platform for doing business in a range of industries. The technologies and materials developed to do business in space – as well as the information that can be collected and transmitted in space – will create opportunities across a wide range of sectors. This is where the greatest long-term opportunity for Florida lies – to become the center of global space-related activity as space makes the transition from being an experimental endeavor to becoming a mainstream part of travel and commerce.

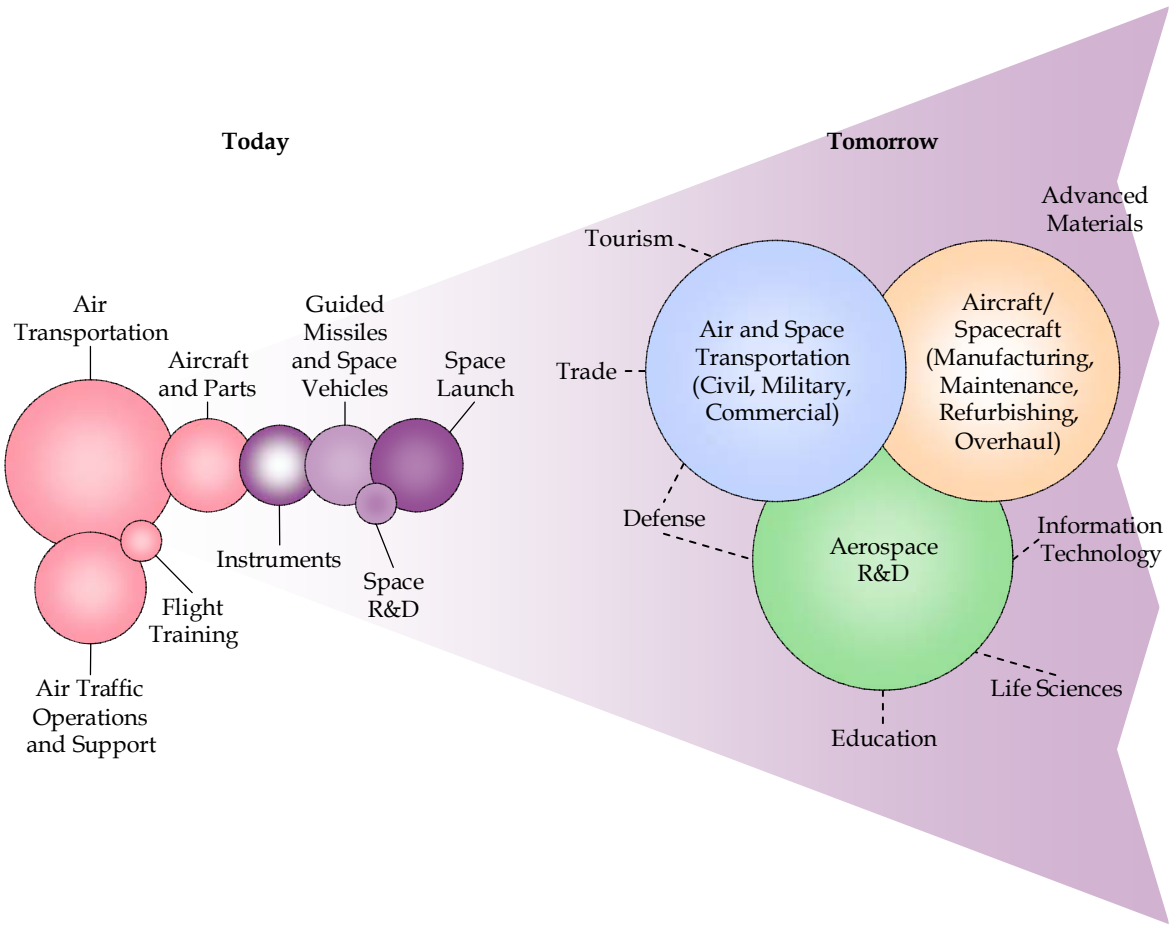
The Governor's Commission on the Future of Space and Aeronautics in Florida concluded that long-term aerospace industry growth will require a more coordinated, cluster-based approach. Such an approach would consider the full range of economic activities that are related to space, aeronautics, and aviation, and the interactions between businesses in these industries that create economies of scale. The cluster approach is comprehensive, involving the development and refinement of strategies related to technology, talent, and infrastructure – all working together to grow and diversify Florida's aerospace industry.

Florida has particular strengths today in several aspects of the aerospace industry cluster, including civil and military space launch and guided missile and space vehicle manufacturing. These strengths reflect NASA's and DoD's presence and program emphases. Florida also has unique strengths in commercial air transportation and related support services; flight training and simulation; some aspects of aircraft and parts manufacturing; emerging technologies such as robotics, laser optics, and communications; and military aviation.

In the future, all of these strengths can come together to form an aerospace cluster that would be unlike any in the world today – one that commingles air transportation with space and aircraft technologies and enables a new generation of travel (Figure 4). This cluster will include more

frequent space launches by commercial enterprises rather than just nationally sponsored programs, the opening of space travel to everyday citizens rather than just astronauts, and the continued pursuit of the leap technologies needed to reach destinations beyond the Moon. The cluster's likelihood for success will increase from having complementary research and technology development, systems engineering and integration, production, and professional and technical services, all taking place in close geographical proximity.

Figure 4 – Florida's Space, Aeronautics, and Aviation Industry Cluster Today and Tomorrow



Source: Cambridge Systematics, Inc.

Florida's research institutions can feed the cluster with talent and provide basic and applied research to support the innovation that will drive the industry. Key research areas are likely to include aerospace materials, avionics, information technologies, power sources, range safety systems and simulation – many of which already have a strong presence in Florida. Spacecraft and aircraft, based on technologies developed in the State, can be produced within Florida. These vehicles can operate from Florida's spaceport and airports. This cluster will be enhanced by Florida's already significant capabilities in defense (which provides specialized skills and facilities), tourism (to accommodate and support the space travel market), and trade (to bring parts and supplies from overseas and to export).

Emerging Florida strengths in life sciences, advanced materials, and information technology can further add to the capabilities of the aerospace cluster. For example, Florida is a logical site for biosphere facilities that would simulate life on the Moon or other planets, which can help prepare astronauts as well as explore potential technologies and systems that may flourish in those habitats. Florida's emerging specialization in life sciences can help prepare humans for the rigors of long-distance space travel, which may lead to discoveries about how to extend human life. Space research may create alternative energy sources that can support Florida's growing population. Satellite-based information can help Florida's agribusinesses better manage citrus and other crops, and help the State make better decisions about managing sensitive environmental lands and preparing for hurricanes and other natural disasters, as well as the long-term impacts of global climate change.

Other states offer specific strengths, but none (with the possible exceptions of California and Texas) can offer as comprehensive a set of strengths to be a leader in this type of integrated space, aeronautics, and aviation industry cluster.

3.3 Legal and Regulatory Challenges

The legal environment creates a variety of challenges to the aerospace industry. These challenges generally group into two categories: liability and regulatory. The purpose of this section is to provide a brief background setting the stage for Florida to remove or mitigate these obstacles and provide incentives for aerospace ventures to locate their operations in the State.

Liability

Liability issues pose a significant concern to both spaceport entities and launch vehicle operators. The potential for liability exposure ranges from the potential hazards of the people of the host spaceport state and the subsequent costs resulting from a catastrophic launch vehicle accident, to the financial impacts facing commercial space ventures that may become spaceport customers. These commercial space ventures are concerned about the potential for staggering liability verdicts. A state that can manage liability concerns for its customers will assume a competitive advantage in attracting new business clients to its spaceport.

Regulatory

Federal Technology Transfer Restrictions and Export Controls. In order to protect space-related national security technologies, the Federal government has incrementally developed a complex array of technology transfer restrictions and export controls. The United States has implemented some of the most restrictive export controls in the world. The Export Administration Act and the Arms Export Control Act form the main implementing mechanisms of export control. Rockets (including but not limited to meteorological and other sounding rockets) and launch vehicles are designated as significant military equipment on the United States Munitions List.

Existing export controls affect the launch and space industry negatively by inhibiting the sale of space lift components or systems to entities abroad. Additionally, prohibitions in transferring technical data in order to obtain the required liability coverage from insurance providers outside of the Unites States, limits aerospace companies' ability to secure cost effective coverage.

Regulatory and Policy Issues. Since the mid-1980s, National policy and Federal law have established the goal of fostering the growth of the US commercial space launch industry. A myriad of policy and regulatory guidance exists. From the President's National Space Policy to the Commercial Space Launch Act to various Department of Defense Instructions (DoDI) and Directives (DoDD), these documents lay out policies and procedures designed to both encourage the development of space industry within the United States (as well as limit government assistance to commercial industry) and provide restrictions on operations.

While all of these policies and procedures were undoubtedly established for good reason at the time of their creation, some have become contradictory and burdensome. It is in the best interest of Florida, as well as other space-faring states, to deal with this issue by identifying the pertinent issues, obtain agreement on improved policy/regulation, and gaining support within Congress for change.

4.0 STRATEGY AND IMPLEMENTATION SUMMARY

This section of the Space Florida Strategic Business Plan provides strategic goals, objectives and specifies action items in the areas on Spaceport Operations, Business Development, and Education, R&D, and Workforce Development. Market context was provided in Section 3.0.

Specific actions items presented in this section are summarized in Appendix B. These action items are also compared to the recommendations delivered by the Governor's Commission on Space and Aeronautics in Florida in Appendix C.

Space Florida's internal and external operating context is provided in the Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis summarized below.

4.1 Strengths, Weaknesses, Opportunities, Threats Analysis Report Summary

A SWOT Analysis is a strategic planning tool used to evaluate the Strengths, Weaknesses, Opportunities, and Threats that affect organizational or individual decision-making in the context of achieving a specified objective. Space Florida completed a SWOT analysis in February 2007 to provide context for developing this Strategic Business Plan. The objective that Space Florida used to develop the SWOT analysis was "to significantly increase market share for all commercial space enterprise activities within the State of Florida."

A brief summary of the SWOT analysis follows:

Strengths

- Florida's national brand as a tourist destination and the transportation infrastructure in place to support millions of guests each year is a valuable recruitment tool for enticing people to come live and work in Florida.
- A strong economic development toolkit and state-wide partnerships, including:
  - The state has established Innovation Incentives, Quick Action Closing Fund, tax exemptions on space-related equipment, and many other financial tools and business services at its disposal.
  - In order to attract new launch providers, Florida has established business support services and each county offers additional incentives on their own. There are numerous tax-relief incentives for aerospace activity performed within the State and Space Florida, as a special district, has additional powers to assist in operating a spaceport.
  - The Florida legislature has made as much as $4 million available to Space Florida to fund business development and education efforts. There also is a significant statewide pool of economic development funding available through Space Florida's state partner organizations to incentivize research or business development deals throughout the State.

  - Space Florida is categorized as a special district and thus given special financial and economic development powers not available to other organizations.

- The Canaveral Spaceport has everything a launch provider or satellite operator could need from world-class payload processing facilities to an extensive space transportation supply chain, and an experienced, extraordinary workforce.
- Florida's network of interstate freeways, intracoastal water ways, rail lines and airfields – including two major runways at KSC and CCAFS -- makes it well connected to the rest of the Nation for handling supply chain and logistics.
- Florida has an impressive array of colleges and universities with world-class engineering departments and capabilities, and key participation in many of the State's various centers of excellence. Florida also has a large number of space-related education programs embedded within local schools, science museums, civic organizations and non-profits such as the Challenger Center and Astronauts Memorial Foundation.
- Florida's concentration of modeling and simulation capabilities is an example to hold up as the State seeks to set up similar capabilities that will be useful for the space program.
- There are seven active launch pads and three excess launch pads at KSC and CCAFS. Infrastructure includes the world's largest rocket assembly buildings, modern launch control centers, and a fully instrumented range. In addition to government payload processing facilities, there are also commercial providers for this service off base.
- The name of Cape Canaveral is synonymous with Florida and the space program, echoing a sense of history and nostalgia.
- The KSC Shuttle Landing Facility can provide horizontal launch and recovery services.

Weaknesses

- Commercial customers find operating on a Federal range to have too many regulatory and safety requirements when compared to other launch sites. Air Force regulatory and safety requirements are perceived to be inflexible, costly, and tend to discourage commercial customers, particularly international customers.
- Eastern Range launch support from CCAFS is available on a "non interference" basis and only if the Federal range has "excess capacity." Limited Air Force financial resources have made supporting commercial space ventures more challenging. The Range Standardization and Modernization Program has met with limited success in increasing automation and range capacity.
- The State's aerospace enterprise is heavily launch-focused and should diversify its interests in R&D, manufacturing, construction, commercial satellite services, satellite manufacturing, supply chain expansion, workforce development, and trade and tourism.
- Space tourism will require commercial (FAA licensed) horizontal and possibly vertical launch/recovery sites and pads, which are not currently available at the Canaveral Spaceport.

- There is no coordinated education effort among the education system, industry and government within Florida to produce engineering and science graduates from Florida schools who will, in turn, work in aerospace fields in Florida.
- Other influential users of the Eastern Range can create operational burdens for newer and smaller commercial operators. There is not an effective or responsive commercial customer support service system and there is currently no FAA licensed horizontal launch site available in Florida.
- Although there are many space-related education programs within the State, there is no single database or clearinghouse that could help coordinate operations or marketing, and thus determine the State's specific strengths, weaknesses, opportunities, and threats in this area.
- Launch infrastructure at Cape Canaveral is assaulted on a daily basis by corrosive sea air, requiring constant reinvestment in facilities that are also aging.
- The State of Florida does not effectively market itself as a space state to potential commercial users and customers. While understandable given the start up time for Space Florida, the State's online marketing presence is negligible.
- While Florida's public and private universities profess willingness to work together on major projects, and there are many examples where the schools do, dollars for education and research and development programs remains highly competitive, and cooperation is not necessarily rewarded.
- New users must comply with extensive Federal Aviation Administration spaceport operations licensing requirements and National Environmental Policy Agency (NEPA) environmental procedures, however all domestic commercial spaceports must also obtain an FAA license and NEPA approvals.

Opportunities

- The Vision for Space Exploration is Florida's most significant opportunity for the next decade and beyond. The Vision will lead to the retirement of the Space Shuttle in 2010, the need to design, build, and assemble the new Ares rockets and Orion spacecraft that will carry our astronauts back to the Moon and eventually on to Mars. The Vision also has NASA looking to procure more and more of its services on a commercial, off-the-shelf basis, including launch and logistics support to the International Space Station through the COTS program.
- Retirement of the Space Shuttle will make several processing facilities available for new, and possibly commercial, use at Kennedy Space Center, including the 15,000-foot-long Shuttle Landing Facility.
- NASA is budgeting 22 percent of exploration dollars for small business set-asides. This creates an opportunity for Florida to recruit candidate businesses and help certify them for doing business with larger companies and with the government.

- Retiring the Shuttle to make way for the Orion Ares 1 and Ares 5 will create new business opportunities that must be supported by innovative education and training programs to provide a qualified workforce.
- The "Alt Space" Community has emerged, introducing a new breed of entrepreneurs with different ideas about how to launch, and has money to back up their initial efforts. Each of these start ups create new opportunities for Florida, including in the space tourism arena.
- These new entrepreneurs will seek to open up Low Earth Orbit to new commercial opportunities, including space tourism, supplying services and material for NASA's exploration program, and possibly even military activities as the Defense Department considers using commercial off-the-shelf solutions to meet their needs.
- The new commercial aerospace market also brings with it a renewed interest in, and need for, technological R&D, investigation and breakthrough to develop new products and to make these ventures safer, more reliable and cost effective. Research areas might include aerospace materials, avionics, IT, power sources, range safety systems and simulation -- which already has a strong presence in Florida.

Ares I and V
Source: NASA

- Space Florida is actively developing new and improved commercial customer service capabilities that are designed to help new launch providers navigate through the federal range's UDS and Flight Safety System requirements.
- Space Florida can act as a technology broker in the rapidly advancing commercial aerospace marketplace in assisting NASA and other aerospace entities in marrying technical challenges and requirements confronting the new market with solutions being worked and developed in industry, academia, private companies and centers of excellence throughout the State, Nation and internationally. This will help grow and or bring jobs and economic development to Florida.
- Not every opportunity open to the State to explore is directly related to the space program. As the State investigates new companies interested in moving here, officials should be aware of these possibilities:
  - Hypersonic air travel will need initial airports from which to operate
  - Servicing of older satellites, perhaps including refueling
  - Life science is a current, hot topic among Florida economic developers
  - A mobile range tracking system is available from Florida National Guard

Threats

- Changes in National space policy or significant decreases in funding for the Vision for Space Exploration could stretch out or cancel programs that would be major sources for jobs at the Kennedy Space Center.
- The potential gap in U.S. human spaceflight between the Shuttle's retirement in 2010 and Orion's first launch in 2014 could widen, providing a window for another competitor to Florida to fill that gap for NASA.
- Internationally, there were 18 spaceports that in 2006 supported 27 commercial launches worldwide, of which 13 were from Russia and Ukraine, five from Kourou (Arianespace), five from the Sea Launch platform, and one each from Cape Canaveral, Kwajalein, Japan and China. This approximate launch rate and spaceport market share is expected to persist through 2015.
- Florida is not alone in its quest to increase market share. The State faces increasing competition from other states and nations that are aggressively focusing on aerospace and the rapidly growing commercial space market. In order to attract customers, some spaceports are building hangars for maintenance, manufacturing and R&D, terminals for space tourist operations, training and staging, along with providing customer services catering to the "elite" passenger. State governments are aggressively contributing funding and incentives to attract and win the emerging space tourism market (i.e. New Mexico has pledged $225M for spaceport development in New Mexico).
- Currently. the Nation is at war and therefore. Defense Department and civilian launches will most likely be providing direct support to National Security missions. As a result, commercial customers may find themselves at a distinct disadvantage in operating on the Range. In the event a high priority government mission is required, a commercial customer could theoretically find all support halted (no excess capacity) as the Air Force provides 100 percent support to the National Security mission.
- Florida's K-12 performance in math and science falls in the bottom half of national rankings as indicated by 2005 ACT scores and 2004 SAT average results.[37]
- Florida's population growth is encroaching on the public safety buffer zones surrounding our current spaceports; making it difficult to find an area where a new spaceport might be built, whether horizontal or vertical.

[37] K-12 Science, Technology, Engineering & Mathemetics Education Report Card: How Florida Ranks, http://www.stemedcaucus.org/documents/state_profiles/STEMEdFlorida06.pdf

4.2 Strategic Initiatives

This section addresses strategic goals, objectives and specifies action items in the areas of Spaceport Operations, Business Development, and Education, R&D, and Workforce Development. Specific goals and objectives that follow in this plan were developed with four major sources of input:

1. The Governor's Commission Report on the Future of Space and Aeronautics in Florida
2. The 2006 Florida Statutes, Chapter 311, Aviation and Aerospace Facilities and Commerce
3. Space Florida's Market Assessment (Section 3.0)
4. Space Florida's SWOT Analysis (Section 4.1)
5. The advice and counsel of the Space Florida Board of Directors, staff, and advisory committees, and leaders throughout the space and economic development communities.

4.2.1 Spaceport Operations

The Governor's Commission on the Future of Space and Aeronautics in Florida published its final report in January 2006. One of the primary recommendations was regarding the Space Launch Environment, specifically building a world-leading infrastructure and regulatory environment. The report suggested a "two-pronged" effort to maintain Florida's existing lead launch role and position the State for the emerging marketplace.

> *First, the Cape Canaveral Spaceport, including its launch facilities and ranges, must be viewed as a national asset that uniquely provides stable and predictable access to space for users from all sectors. Plans to preserve and renew the infrastructure at the Cape must be accelerated by the Federal government, with private sector and state and local coinvestment where appropriate.*

At the same time, efforts must be made to realign Federal and state agencies to meet the growing demands being placed on the Eastern Range and establish range policies and regulatory processes that will blend the needs of military and civilian users with the economic realities of commerce.[38]

The first addresses reinvigorating the launch and range facilities infrastructure at CCAFS and the KSC. The second involves realigning federal and State agencies to better meet the evolving demands of both existing and emerging commercial launch suppliers and is far more complex. Additionally, the Commission suggested an effort to develop a commercial spaceport to support horizontal launches.

While continuing these efforts to enhance commercial launches at the Cape, the State should also move forward with efforts to develop a commercial spaceport targeted initially at horizontal launches and located separately from the Federal lands at the Cape. Structured as an operating authority similar to an airport, such a facility could serve space tourism and other commercial operators.[39]

4.2.1.1 Strategic Direction

Overview of Operational Plan:

In response to the recommendations outlined in the Commission Report and the Legislative direction in the Space Florida Act, Space Florida will implement an operational plan designed to accomplish its strategic objective of positioning Florida as the premier site for civil, military, and commercial spacelift and reentry operations in the world.

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[38] Governor's Commission on the Future of Space and Aeronautics in Florida – Final Report, January 2006, page 3-23

[39] Governor's Commission on the Future of Space and Aeronautics in Florida – Final Report, January 2006, page 3-23

To accomplish this, Space Florida has established three operational objectives:

1. Improve the space launch and supporting infrastructure throughout the CCAFS, Eastern Range, and KSC to fully support the Vision for Space Exploration, new and existing military programs, and a wide variety of commercial applications and users by **developing the Central Florida Commercial Spaceport (CFCSP).**

2. Catalyze changes to Federal laws, regulations, standards, and policies to enable a **streamlined and standardized approach to accessing and operating on a Federal launch range**, thereby promoting commercial launch activity through more efficient operations.

3. **Establish multiple Florida spaceports** in coordination with various airports and other authorities. These facilities could support and facilitate horizontal launch activities or offer launch opportunities for small rockets generally associated with educational programs. Wherever possible, these spaceports will be located as close as possible to associated institutions of higher learning.

These objectives build on the State's strengths and opportunities while negating or mitigating weaknesses or threats. These objectives also recognize the evolving roles of key partners in spaceport operations.

Catalyst for Change:

Both NASA and the Air Force find themselves operating in challenging funding environments. Both institutions are looking for ways to operate more economically, while retaining operational effectiveness. Additionally, both institutions find themselves less directly engaged in spacelift activities as both rely more heavily on the commercial sector to launch their space vehicles (EELV via United Launch Alliance in the case of USAF; COTS, Orion and Ares for NASA).

Commercial space launch operators would also benefit from more cost effective and streamlined spacelift and reentry. Space Florida is committed to making lift and reentry operations more efficient to enable rapid growth in Florida's commercial spacelift marketplace.

The FAA's Office of Commercial Space Transportation (FAA/AST) is now a mature entity, actively involved in safety oversight of commercial launch activity. With an eye toward the future, the FAA is conducting a study regarding the traffic control of air and space assets transiting the Nation's airspace.

4.2.1.2 Immediate, Short-Term, and Mid-Term Actions

In order to achieve the four Space Operations operational objectives above, Space Florida developed the following series of coordinated initiatives. These efforts and actions were specifically developed to help position Florida as the premier site for civil, military, and commercial spacelift and reentry operations in the world. The initiatives are presented in the order

of immediate, short-term, and mid-term. Within each time period, initiatives are categorized as one of the three operational objectives:

- Develop the Central Florida Commercial Spaceport
- Deliver a streamlined and standardized approach to accessing and operating on a Federal launch range
- Establish multiple Florida spaceports

4.2.1.2.1 Immediate Actions

Develop the Central Florida Commercial Spaceport

Action SO-1: Update and revise the SOSA with the 45th Space Wing

In order to operate facilities at CCAFS, the FSA entered into a Space Operations Support Agreement (SOSA) with the 45th Space Wing. FSA operated facilities on CCAFS at Space Launch Complex (SLC)-46 and SLC-47.

The SOSA between the 45th Space Wing and FSA should be revised and reinstated with Space Florida. However, the review process must consider and address how Space Florida will operate commercial launch facilities located within the boundaries of the CCAFS in an efficient and commercially viable manner. Examining the commercial spaceport agreements currently in place at Vandenberg AFB, California, may be productive.

Action SO-2: Develop the Shuttle Landing Facility for commercial use

Florida requires a horizontal launch and recovery capability. The SLF presents an excellent opportunity to provide inexpensive, easy, and convenient horizontal launch operations. A feasibility study conducted in 2005 concluded that the most effective option for developing this capability would be a currently operational airport. The SLF presents an excellent opportunity to develop this capability if appropriate transfer and operating agreements can be reached. The SLF could be readily developed into a hub for a variety of aerospace activities including micogravity education and research, horizontal launch spacelift, and eventually, commercial space tourism, sub-orbital cargo and transportation operations.

Shuttle Landing Facility
Source: NASA

Space Florida will develop a cost/benefit analysis to assess the commercial viability, facilities upgrades, startup and operating costs, federal restrictions, property transfer mechanisms, user responsibilities, timeline, licensing, and economic incentive options and other topics to support a decision to acquire the SLF for commercial use.

Space Florida holds title to the Reusable Launch Vehicle (RLV) hangar, a 50,000 square foot parabolic arch hangar located adjacent to the SLF. The RLV hangar is not a useful facility due to maintenance and repair shortfalls and lack of certification to handle fueled aircraft. With the required repairs and upgrades, this facility could be readily marketed as an income generator for the State. With a positive business case, Space Florida will assess methods to implement the estimated $1.7 million in required repairs and upgrades to the RLV hangar.

Alternative or additional sites for horizontal space launch and recovery in Florida will also be considered. Jacksonville, Homestead, and other candidate sites should be identified and assessed for safety and operational requirements, and commercial support capabilities.

Action SO-3: Develop adequate launch facilities to support COTS

Space Florida will conduct a cost/benefit analysis to assess the commercial viability, facilities upgrades, startup and operating costs, federal restrictions, property transfer mechanisms, user responsibilities, timeline, licensing, and economic incentive options and other topics to support a decision to develop SLC-36 and/or other facilities for commercial use.

SLC-36 at CCAFS presents a significant commercial opportunity for Space Florida. Throughout nearly 43 years of operation, the facility launched a mixture of private and governmental satellites and NASA spacecraft. The final Atlas III-Centaur was launched from SLC-36 on February 3, 2005. Crews subsequently removed ground support equipment and secured the area; however, the Complex was left in stand-by condition with its major structures in place. Given Launch Complex 36's ideal location, it's likely that another family of rockets could find success there. Private companies have expressed interest in using SLC-36 for commercial space launch and the Air Force has indicated support for the concept.

1. If the cost/benefit analysis delivers a favorable result, Space Florida will support development of a support contractor mechanism for the launch user to maintain SLC-36 supporting infrastructure and launch user responsibilities for any operational improvement and maintenance of facility.
2. Initial assessments indicate that SLC-36 can accommodate either COTS vendor.

Action SO-4: Develop or identify a qualified spaceport operating authority/structure to manage the Central Florida Commercial Spaceport (CFCSP) and other Florida Spaceports

Space Florida requires a model to manage operations and use of the Central Florida Commercial Spaceport facilities and the Eastern Range for multiple users in a spaceport operating authority/structure. Space Florida will lead the effort to determine how such an authority could be

implemented at the CFCSP and other Florida spaceports to facilitate commercial launches within the constraints of civil and military priorities and current policies and regulations. Additionally, Space Florida will work with candidate horizontal spaceports to develop a streamlined and standardized approach to securing their FAA launch site operator's license.

Engaging the Air Force, FAA, NASA, and commercial users will be instrumental in this process. Other collocated military and commercial facilities should be considered as a model including Eglin Air Force Base/Okaloosa Regional Airport and the commercial spaceport in place at Vandenberg AFB, California.

Action SO-5: Decide to upgrade, re-license, and market SLC-46 facilities or divest of the complex

Facilities at SLC-46 include an access stand and launch support equipment that were last used to support Lockheed Martin Athena vehicle launches during the late 1990s. The facilities are in a state of decay and require extensive maintenance to make the facility safe. The remainder of the complex is assigned to the U.S. Navy and is used to support submarine launched missile testing. Access to the property and use of the facilities by the Florida Space Authority was conducted under a memorandum of agreement with the Department of Defense.

An FAA operating license was granted for this site. Space Florida will develop a business case to support a determination if there is a commercial market for this launch complex, and if this facility warrants further investment. If no market exists, Space Florida will divest itself of the facility.

Action SO-6: Renew the real property license for SLC-47 and determine required facilities upgrades and their cost to make the launch site safe and productive for educational launches

SLC-47 is a site for Super-Loki rocket launches conducted primarily for educational purposes. The site is currently allocated to educational entities under an FSA real property lease. Renewing the real property license for SLC-47 should be a simple process and accomplished immediately. Site improvements at SLC-47 are required, particularly the control room facilities.

Deliver a streamlined and standardized approach to accessing and operating on a federal launch range

Action SO-7: Provide launch customer support to complete UDS documentation and securing required launch approvals and authorization

The Universal Documentation System (UDS) and related requirements processes are used by the Air Force for supporting new operators and customers coming onto the Eastern Range. This is an involved process with the objective of fully vetting customer requirements, protecting taxpayers and government assets, supporting Range customers and launch operators, and protecting the general public. The process requires approximately a two-year lead-time with a financial deposit

from the applicant. While the process is not terribly difficult for experienced customers, for new customers it can be inundating, time-consuming, and expensive. Individuals with experience in the process who could assist new applicants are difficult to identify. Space Florida shall promote and facilitate launch activity within the state by supporting and assisting commercial launch operators in completing and submitting required documentation and gaining approvals and authorization from the required federal agencies for launching from Florida.

4.2.1.2.2 Short-Term Actions

Develop the Central Florida Commercial Spaceport

Action SO-8: Establish a new world-class, commercially focused vertical launch capability

In order to compete in the global spacelift commercial market, Florida requires a world-class facility geared to accommodating commercial customers. Geographic constraints and orbital mechanics indicate that property in the vicinity of the KSC would be ideal for this capability if suitable property arrangements can be established. The concept of operations would include a fully enclosed launch processing facility, FAA safety oversight, and current technology range tracking and safety systems.

The business model for this facility would be based on equitable distribution of costs between Space Florida and commercial interests.

This complex could offer integration, checkout, and launch facilities to private, public, and government organizations desiring to launch medium to heavy lift vehicles. Supporting facilities will be developed in close coordination with commercial launch providers to provide highly responsive spacelift in an interoperable, multi-user environment.

Action SO-9: Establish a Florida Commercial Spaceport Master Plan

A Florida Commercial Spaceport Master Plan is required to reinvigorate previous planning efforts. Commercial vertical launch opportunities, horizontal launch space tourism, and commercial launch support for NASA have fundamentally changed the planning landscape. The plan should address existing launch and support activities and develop concepts regarding a new commercial vertical launch facility located outside CCAFS property. The plan will contain recommended projects to meet current and future commercial, national, and State space transportation requirements. This plan will be submitted to Florida Department of Transportation (FDOT) and any appropriate metropolitan planning organization for review of intermodal impacts and for inclusion of eligible projects in FDOT's five year work program. The plan shall consider business case studies specified in this document and identify appropriate funding levels.

1. The Federal Aviation Administration has published Advisory Circular 150/5070-7, Airport System Planning Process that describes how to complete an airport master plan. In lieu of such a document for spaceport-specific guidance, this document and FDOT's airport planning guidelines should be consulted to help develop the necessary information to ensure a useful and complete Spaceport Master Plan.

2. In general, the Master Plan should establish a viable, balanced and integrated spaceport system, including a major spaceport located in the central Florida area, as well as a number of additional spaceports collocated near universities allowing research and development opportunities. It should leverage existing infrastructure with potential commercial use, and plan for cost-effective development to meet forecasted demand. It should ultimately incorporate space launch and reentry operations into comprehensive transportation planning for Florida and the southeast United States.

Deliver a streamlined and standardized approach to accessing and operating on a Federal launch range

Action SO-10: Evaluate existing mobile range technologies for application at the Central Florida Commercial Spaceport

Space Florida will evaluate mobile range technology that could be useful for lowering range operating costs such as the Florida Air National Guard (FLANG) Ballistic Missile Range Safety Technology (BMRST) and the Alaska Aerospace Development Corporation (AADC) Range Safety and Telemetry System (RSTS) and other appropriate systems. These technologies could be the first step toward a more efficient and cost-effective space-based range tracking system for commercial launches under FAA oversight.

Establish multiple Florida spaceports

Action SO-11: Conduct a survey and acquire launch sites for educational and small vehicle launches

Providing hands-on educational opportunities for students to experience and learn about the aerospace industry is a key recommendation from the Commission Report. Small rocket launches are fundamental to providing that hands-on experience. Space Florida shall conduct a survey of potential launch sites within the State to locate smaller spaceport sites supporting educational and small vehicle launches. Wherever possible, these sites should be located near appropriate institutions of higher learning and acquired through a competitive request for proposals in partnership with counties or municipalities, the Federal Government, or private entities.

4.2.1.2.3 Mid-Term Actions

Deliver a streamlined and standardized approach to accessing and operating on a federal launch range

Action SO-12: Establish a Regulatory and Policy Realignment Committee to recommend improvements to Federal laws, regulations and policies

Establish a Regulatory and Policy Realignment Committee to examine applicable regulations and polices regarding space launch and reentry, apply value-added or lean/six sigma techniques, and make recommendations to resolve conflicting requirements, and eliminate or significantly reduce

waste. Coordination with California and other spaceport states to synchronize activities could add significant value to this effort. The Governor and Florida Congressional delegation should play an active role engaging the DoD, NASA, and FAA to encourage necessary changes to Federal processes.

1. This activity should also develop the concept contractor-owned, contractor-operated launch ranges with U.S. government oversight. Under this construct, a contractor would own and operate a launch range, while the FAA retained oversight of flight control. The range would be owned, operated, maintained, and improved by a contractor.

Develop the Central Florida Commercial Spaceport

Action SO-13: Develop SLC-17 for commercial use

Space Launch Complex (SLC) 17, located at CCAFS, is the east coast launch site for the Boeing Delta II launch vehicle. SLC-17 consists of two launch pads, 17A and 17B. The launch facility is supported by a new 39,000-square-foot administrative and launch operations facility. The new facility, completed in June 1996, is located two miles south of SLC-17 and houses the new Launch Control Center or "soft blockhouse."

1. If additional commercial launch capacity is required after the 2011 timeframe, or if NASA desires Space Florida to support launch operations at SLC-17 after the DoD completes its Delta II flight program, Space Florida will consider adding SLC-17 to the CFCSP.

4.2.2 Business Development

One of the key recommendations of the Governor's Commission on the Future of Space and Aeronautics in Florida was to implement "a focused business attraction, retention, and creation strategy" to help Florida capture a larger share of activity in aerospace research, technology, production, and commercial operations, while maintaining its historical leadership in space launch activities.

The Commission offered four specific recommendations to help accomplish this vision:

1. Position Florida to assemble, test, check out, launch, maintain, and refurbish the Crew Exploration Vehicle.

2. Reaffirm space and aeronautics as a Statewide target industry with Enterprise Florida as the lead business development agency.

3. Expand the tools available for the recruitment of space and aeronautics businesses.

4. Provide targeted support and venture capital for aerospace technology businesses that are created in Florida.

Initial progress has been made in each of these areas. Florida was successful in reaching agreement with Lockheed Martin to execute final assembly and integration of Orion (CEV) in Florida. The Governor and Legislature have reaffirmed space and aeronautics as a Statewide target industry, and Enterprise Florida has clarified the eligibility of aerospace for its key incentives and other tools. The 2006 Legislature committed significant resources to the Governor's Closing Fund and a new Innovation Incentive Fund, programs that should be continued in the State's budget.

In establishing Space Florida, the Legislature built upon the Commission's recommendations and empowered Space Florida with an array of authorities aimed at supporting business development actions.

4.2.2.1 Strategic Direction

Space Florida's business development goals are focused on the five major market opportunities introduced in the Market Analysis section and repeated below:

1. Expand the state's dominant role in U.S. vertical launches for civil, military, and commercial markets.

2. Claim a large share of the emerging global market for horizontal launches, including sub-orbital space tourism, transportation and cargo, and orbital payload delivery.

3. Broaden the State's presence in the space industry beyond launch activity to include the R&D, design, manufacturing, assembly, testing, launch, and servicing of space vehicles.

4. Capture a larger share of the supply chain for space vehicles and related equipment.

5. Position for global leadership in new space markets, including the increasing integration of space with aviation and other technologies.

4.2.2.2 Immediate, Short-Term, and Mid-Term Actions

Achievement of these goals will guide the activities that Space Florida will initiate to facilitate the development of new business leads and economic development opportunities for Florida's future.

4.2.2.2.1 Immediate Actions

Action BD-1: Establish Capture Teams to ensure continuous, responsive, knowledgeable dialogue with the major target opportunities

There are several immediate opportunities to capture space activities related to the Vision for Space Exploration. Space Florida will assemble capture teams to engage with State economic development partners and aerospace companies to ensure that these opportunities are actively and effectively pursued. The capture teams will be assembled based on the opportunity and the talent required to meet the needs of the prospective client.

Action BD-2: Develop a capture strategy for the rest of the Vision for Space Exploration

Building on its initial success with Orion assembly, Space Florida will develop and implement a strategy to capture other investment activities related to the Vision for Space Exploration. This strategy may include other stages of Orion manufacturing, as well as the development, testing, and assembly and other functions associated with Ares V, and related systems. Space Florida will consider a similar approach to Orion pursuit, working closely with the State economic development organizations and private contractor teams to identify the optimal combination of financing, incentives, and facility investments to reach agreement.

Action BD-3: Develop a capture strategy for the COTS launch and other support activities

Space Florida will develop and implement a capture strategy to ensure that Florida is the assembly and launch site for the COTS providers. As outlined in Section 4.2.1, with a supporting cost/benefits analysis, Space Florida will move forward with site improvements such as enhancements to SLC-36 (and/or other launch facilities), which can accommodate COTS vehicles and other potential launch users. Space Florida will work closely with COTS providers and other potential users to determine required infrastructure improvements and appropriate incentives and financing options.

Action BD-4: Establish a strong and responsive Business Development Team within Space Florida

Deal generation activities are aimed at ensuring that Space Florida is out-in-front of future technology and economic development opportunities, and begins working with the space industry's future industry leaders early in the process of their bringing new technologies or business opportunities to the space marketplace. This includes presenting the right message,

reaching out to industry and government partners and ensuring an early effective dialogue for identification of target opportunities.

Deal execution activities are aimed at ensuring that Space Florida has the fullest set of economic development tools and a wide range of State and other partners to assemble comprehensive coordinated and winning proposals in response to opportunities generated. Space Florida will focus first and foremost on understanding and responding to customer needs, whether in the civil, military, or commercial sectors. Space Florida will configure packaged economic incentive deals that are based on sound business practice and recognized business expectations. Incentive packages must address business needs, help to resolve "sticking points", and adhere to Space Florida's responsibilities as a trusted public entity. Space Florida's business development tools will be applied to invest in the State's future aerospace economy.

In achieving its business development goals, Space Florida must reach out to the space and related aerospace industry to ensure early identification of economic development opportunities. This will be accomplished by assembling an increased base of in-hand and committed on-call resources, working effectively with Federal, State and private organizations to leverage resources, and by proactively engaging members of the industry to ensure that they consider Florida's capabilities and resources in planning for growth and expansion of their businesses.

Action BD-5: Establish and maintain an Aerospace Industry Advisory Council

Florida needs to be in a position to capitalize on still unknown opportunities from space. There will be significant competition from other states and from around the world to be "first exploiters" of new space technologies, research, and services. For this reason, Space Florida will need to be at the forefront of knowledge about emerging technologies and business opportunities in space.

The Aerospace Industry Advisory Council will include visionaries in the areas of space launch, applied space research, space tourism, space logistics, space manufacturing, space travel, space habitation, and other trends. The Council should convene on a regular basis to advise Space Florida on what they view as the major future trends in each of these areas. Armed with an awareness of these opportunities, Space Florida can spearhead efforts to ensure Florida is first in the world to see the application and commercialization of new space technologies and services.

Action BD-6: Establish and regularly update statewide aerospace business development plan

Based on the results of the market study and additional immediate tasks, Space Florida will develop a Statewide plan for retaining, expanding, attracting, and creating public and private aerospace industry entities Statewide in coordination with Enterprise Florida and the regional and local partners. The plan will identify near-term opportunities and the range of marketing activities, financing capabilities, and tools Florida needs to be successful pursuing these opportunities.

Space Florida must reach out to the aerospace industry and meaningfully engage industry leaders on their future business needs for early identification of economic development opportunities. This shall include recurring proactive visits to top aerospace industry leaders. The business development plan shall include a concerted program of outreach to potential aerospace industry clients, academic institutions and other State and Federal research institutions to communicate and inform them on the capabilities and resources available for companies considering start-up, expansion, or relocation to Florida. This is an outreach program that will be accomplished through visits and presentations, mailings, and provision of collateral marketing materials.

As part of this outreach activity, Space Florida will actively attend and participate in industry conferences and symposia, and will organize and conduct informational and educational forums, for the purpose of increasing understanding of the capabilities and resources available to clients of the State.

Action BD-7: Continue strong advocacy in support of the Vision for Space Exploration

Space Florida will proactively foster strong advocacy at the federal level in support of the Vision for Space Exploration, to ensure that the Vision remains a priority under the new Congress and during the transition to the new Administration in 2008. Securing ongoing, national bipartisan support to ensure that the Space Exploration program is adequately resourced and remains executable is critical to Florida's aerospace enterprise. Space Florida, working with its economic development partners, and State and Federal leadership, will ensure that the Vision for Space Exploration remains highly visible and executable.

4.2.2.2.2 Short-Term Actions

Action BD-8: Survey market needs and capabilities through a focused market study

Many of the key opportunities in the aerospace industry are not well understood today. Space Florida will conduct a detailed study that will develop state-of-the-art information on:

1. The size of the aerospace industry and its segments globally, in Florida, and in key competitor states and nations.

2. The structure of the aerospace industry, including key industry segments as well as the supply chain that feeds these key segments.

3. An inventory of existing Florida companies that are involved in some aspect of the aerospace industry and their capabilities.

4. The economic impact of the aerospace industry in Florida (Statewide and in key regions), measured in terms of jobs, wages, capital investment, and business sales.

5. Benchmarks of Florida's competitiveness in key industry segments, relative to other states and nations.

6. Current and projected workforce and research capabilities needed to support anticipated growth of key aerospace market segments in Florida.

7. A refined list of business development strategies that will support the growth of the State's most promising aerospace market segments.

Action BD-9: Partner with the EDC of Florida's Space Coast and Enterprise Florida to expand the supply chain study to additional high return target areas

An initial piece of this market study is already underway. The Economic Development Commission of Florida's Space Coast is initiating a study of supply chain opportunities related to Orion in Brevard County. Florida's High-Tech Corridor Council will provide additional funding to expand the scope of the supply chain analysis to cover the 23 counties in Central Florida. Space Florida will examine funding opportunities to examine the remaining counties in Florida. This particular study will provide immediately useful information on the Orion supply chain, and could be expanded even further or coupled with a broader study to examine the entire aerospace supply chain throughout Florida.

Action BD-10: Define performance measures and track return on investment

Space Florida will refine its market focus through conduct of a market study of select space industry sectors to help identify key information required to guide its business development activities and quantify existing market characteristics in Florida. Such study information will also be used to establish benchmarks and metrics for measurement of Space Florida's Business Development performance.

Space Florida will work with Enterprise Florida and other partners to define a consistent set of measures for tracking the effectiveness of space-related business development strategies, and assessing the return on public and private investment in these activities. A periodic performance report will help Space Florida and Enterprise Florida build the case for additional investments and focus activities.

Action BD-11: Develop Effective Marketing and Communications Materials

Space Florida will develop new and effective marketing and presentation materials for the purpose of communicating the capabilities and resources available for those seeking financing for start-up, growth or expansion, or relocation of their business activity. The marketing effort will be directed to aerospace interests within the State, Nationally, and globally.

Action BD-12: Develop Florida's supply chain for Orion and other aerospace activities

Space Florida will work closely with Enterprise Florida, regional and local economic development associations, and industry associations to help ensure that a large portion of Orion's requirements for intermediate goods and services is sourced within Florida. With NASA's goal of a 22 percent set-aside of Orion contract for small businesses, the potential impact of these purchases is

significant. Space Florida should partner with the Space Coast EDC to expand the breadth of its supply chain analysis from Brevard County to the entire State, with a goal of providing a list of potential suppliers to Lockheed Martin.

Space Florida will also work with Enterprise Florida, regional organizations like Florida's High-Tech Corridor Council, and local Economic Development Organizations (EDO) to help make potential suppliers – particularly small, disadvantaged, and minority-owned businesses – aware of these opportunities. Florida-based companies with the capabilities to produce components or provide services for Orion can be offered assistance to ensure technical and quality compliance with the specialized performance needs of components being used in a space environment.

Action BD-13: Develop targeted programs for entrepreneurs and small businesses

Space Florida will work with Enterprise Florida, the National Entrepreneurial Center, the Small Business Administration, and regional and local partners to provide targeted support and venture capital for aerospace technology entrepreneurs and emerging businesses that are created in Florida. In concert with Enterprise Florida's overall innovation strategy, Space Florida will explore potential strategies such as the following:

1. University/business partnerships.

2. Expanded availability of seed and venture capital.

3. Business support services including targeted training, technical support for achieving ISO 9000 compliance and similar requirements, business planning assistance, grant writing assistance, mentoring, networking, incubators, and related activities.

4. Small businesses as Federal prime contractors.

Capital availability is of particular importance to start-up and emerging businesses in aerospace and other technology sectors. Key strategies for closing this gap include the following:

1. Create a Florida Research Commercialization Matching Grant Program to accelerate the commercialization of advanced technologies and help create successful start-up companies in Florida.

2. Increase the amount of early-stage seed and venture capital investment in Florida by providing State funds to be invested in private angel, seed, and venture capital funds.

Action BD-14: Establish a small businesses qualification and ISO 9000 compliance pilot program

Space Florida will evaluate the benefits of conducting a pilot program to help businesses qualify as small businesses and achieve ISO 9000 compliance. In addition, potential Orion, Ares, and COTS suppliers, based in other states, can be targeted to relocate or establish operations in Florida.

4.2.2.2.3 Mid-Term Actions

Action BD-15: Develop a space tourism marketing strategy

Space Florida will work with the Florida Commission on Tourism to develop a space tourism marketing plan. The tourism marketing plan will identify the full range of opportunities provided to the State by the existing space-related tourist attractions like KSC as well as the growth of space tourism itself. The strategy will also identify effective techniques for marketing these attractions and services to potential visitors. The plan should consider the costs and benefits of providing a sales tax exemption for space tourism fares and related services, similar to prior legislative actions to waive sales taxes on ticket for high-profile sporting events.

Image credit: Space Adventures

By integrating into Florida's long-standing and highly effective tourism marketing campaigns, Space Florida will be able to reach a large number of personal and business travelers. Space Florida will develop a mutually beneficial agreement with the Florida Transportation Commission to implement this marketing plan through Visit Florida.

Action BD-16: Position Florida to play a critical role in all phases of the value chain for future space vehicles

Space Florida should continue to monitor and aggressively pursue appropriate opportunities for Florida to be a location for all stages of the value chain for future launch vehicles – research, development, assembly, testing, check out, launch, recovery, maintenance, and refurbishing. These may include additional aspects of the Nation's Vision and COTS programs, as well as additional vehicles that may be developed over time to serve military or commercial markets. Particular attention should be given to companies interested in capital investments for new products that are in need of manufacturing and launch sites, as well as to working with the systems integrators who make important purchasing decisions. The proactive approach used for Orion is a model for how Space Florida may engage with these developers.

Action BD-17: Develop partnerships with regional and local economic development organizations (EDOs)

Space Florida will work with the State's regional and local economic development partners to match State capabilities with market opportunities in order to improve aerospace business retention, expansion, and recruitment projects. Developing relationships with these EDOs will help Space Florida extend its reach Statewide. The initial emphasis will be an outreach and relationship-building effort with EDOs that may have had limited interaction with space economic development efforts.

4.2.3 Education, Research & Development, and Workforce Development

Florida's ability to compete in space depends on more than just economic incentives, world-class launch pads or robust transportation infrastructure. The State's top resource for ensuring mission success in space is its trained workforce.

Without skilled technicians, creative engineers, intelligent managers and an expert support staff no rocket, missile, satellite or planetary probe is ever going to be designed, manufactured, assembled, or launched.

People make the difference.

A state that can effectively offer a strong education program from kindergarten through college, employ outstanding teachers – including professors who orchestrate cutting edge research – and provide the necessary skilled workforce to a particular industry is going to be a world leader in that field.

While Florida has a talented space workforce, employees at KSC and CCAFS too often are receiving their certifications and degrees from schools outside of Florida. Of those few who are headed for a career in aerospace, many are leaving the State.

And while Florida has an outstanding community of public universities, with few exceptions, graduates are not heading for a career in aerospace.

The story is similar with the State's Research and Development efforts. Schools are funding space-related research in a wide variety of areas, but the projects are generally small and receive little attention.

Space Florida has an opportunity to make corrections in each of these three areas by taking advantage of opportunities brought by the Vision for Space Exploration, as well as the emergence of a new breed of space entrepreneurs who are pushing the envelope to get into space.

4.2.3.1 Strategic Direction

The Commission Report and the resulting legislative action within the Space Florida Act developed a clear charter for action with respect to aerospace related education, research and development, and workforce development for the State. Space Florida is charged with realizing the vision outlined below:

1. Workforce development efforts are targeted to align programs with industry needs for the technology-intensive workers required in the space and aeronautics industries.

2. Throughout the State, elementary school math and science teachers, trained to use space themes in their curriculum, identify students who have an aptitude for success in a high-tech career. Secondary school instructors provide hands-on, space-related education opportunities and encourage those who are inspired to take the more challenging math and science courses to prepare for aerospace related college studies.

3. Florida's public and private universities compete for these native students by offering aerospace courses in engineering, management, and technology that directly meet the employment needs of government and industry aerospace employers.

4. Meanwhile, the professors teaching these classes are experts in their fields who have been enticed to Florida to conduct research that will develop technology to improve our space program and create new growth industries in Florida. Internships are offered throughout the college experience and when the students become graduates, they find jobs waiting for them in the aerospace industry. Technology developments are brought to market through Florida's business mechanisms.

5. Once employed, these Florida's graduates are offered back to the schools as volunteer mentors who help freshman and sophomore college students get through the difficult early years of higher learning so as to reduce the "drop out" rate for young student engineers.

Space Florida must lead and coordinate supporting programs with Florida's Department of Education, Workforce Florida, and Enterprise Florida.

Education, Research and Development, and Workforce Development Operational Objectives

To begin setting in motion the plans for realizing this vision for the future, Space Florida will focus on the following five operational objectives:

1. Institute formal working relationships with representatives of the aerospace industry, Workforce Florida, universities, and community colleges to **monitor employment trends and meet workforce-training needs at every level of experience.**

2. **Expand and focus use of the Space Life Sciences Laboratory** by providing unparalleled research facilities to be used by the world's brightest scientists to solve high priority space-related problems no matter the science discipline.

3. **Establish a Center of Excellence for Aerospace**, in which Space Florida facilitates unique research activities necessary to develop high-priority, commercially promising, advanced, and innovative science and technology and will transfer those discoveries to the commercial sector.

4. Survey the State's space-related education and R&D incentive programs, poll industry on their current and projected needs, and with this information **conduct an Education, R&D, and Workforce Development programs assessment** to focus the State's aerospace education and R&D efforts to meet the highest priority needs.

5. **Provide focused funding support to the most relevant and worthwhile education programs** through NASA's State Grant Consortium and other effective programs that meet the educational needs of industry and government employers.

Catalyst for Change

Two developments on the national scene, listed as "Opportunities" in the 2007 Space Florida SWOT Analysis, are key drivers to urge change in the State's education, research and development, and workforce arena.

First, the Vision for Space Exploration, announced in 2004, will see assembly of the ISS completed and the Space Shuttle retired in 2010. The loss of the Shuttle launch activity and the introduction of Orion, Ares 1, and Ares 5 as our Nation's space transportation system will affect a significant number of jobs in Florida.

Fewer technicians, engineers, and managers will be needed to care for, and operate, the replacement systems than the complex space plane first launched in 1981. The new Orion spacecraft is being designed from the start to require fewer people to maintain it. NASA continues to examine exactly how many workers it will need to support Ares and Orion, or what new job skills will be required.

The State of Florida is committed to ensuring that all workers affected by the Shuttle's retirement will have an opportunity to continue to work in Florida. Ideally, these workers will be able to transfer their existing skills to new programs or employers, but re-training programs must be carefully considered. Space Florida will work closely with its partners at Workforce Florida, Enterprise Florida, the Department of Education, and other organizations such as the Economic Development Commission of Florida's Space Coast to manage this transition.

The second key opportunity comes from the new commercial space entrepreneurs who are designing, testing, and launching a whole new breed of rockets. Attracting these businesses to Florida-from design through manufacturing, assembly and launch-must be a top priority of Florida's elected leadership and all State economic development bodies.

4.2.3.2 Immediate, Short-Term, and Mid-Term Objectives and Actions

In order to achieve the five Education, Research and Development, Workforce objectives, Space Florida developed a series of coordinated initiatives. These efforts are designed to position Florida as the Nation's top State for aerospace education, research, and workforce development. Each of the specific actions support one or more of these objectives:

1. Monitor employment trends and meet workforce training needs
2. Expand and focus use of the Space Life Sciences Laboratory
3. Establish a Center of Excellence for Aerospace
4. Conduct an R&D, workforce development, and education programs assessment
5. Provide focused funding support to the most relevant and worthwhile education programs

4.2.3.2.1 Immediate Actions

Monitor employment trends and meet workforce training needs

Action ERDW-1: Partner with, and provide support to, Space Coast EDC and Workforce Florida to ensure that space industry talent currently involved in the Space Shuttle program is retained after 2010

Kennedy Space Center today employs nearly 15,500 government and private-sector workers, with at least half dedicated to the Space Shuttle program. This total will decrease with the retirement of the Shuttle and the transition to Orion. It is critical to the success of Orion and other spacelift programs to develop and retain critical workforce skills that are most relevant to space and aeronautics companies. The State's workforce development programs must be coordinated with, and integrated into, industry needs to provide the skills most relevant to aerospace employers. Ensuring that skilled workers, from entry-level skills training through to technician-level, and 4-year degrees and higher, are retained to support the Nation's post-Space Shuttle launch vehicle and exploration programs, and other aerospace related opportunities, is critical to the State's competitive position in the aerospace market. The Economic Development Commission of Florida's Space Coast along with Workforce Florida are leading the initial effort to address this challenge. Space Florida will engage alongside the Space Coast EDC, Workforce Florida, educational institutions, and broader State efforts to ensure that Florida's aerospace workforce is ready for a new generation of space activities.

Expand and focus use of the Space Life Sciences Laboratory

Action ERDW-2: Expand and focus use of the Space Life Sciences Laboratory by providing unparalleled research facilities to be used by the world's brightest scientists to solve high priority space-related problems

In November 2003, the State of Florida and NASA/KSC opened a $30 million, 100,000 square-foot Space Life Sciences laboratory. The original purpose of the facility was to host scientists whose life sciences-related experiments were to be flown aboard the Space Shuttle and the ISS. The laboratory was intended as a place where experiments could be prepared for launch, remotely operated, and monitored while in space, and then immediately studied upon their return to Earth. Between missions, ongoing programs, mostly provided by local universities, would use the laboratory space.


NASA

The operations arrangement is complex since (i) NASA owns the land; (ii) Space Florida, on behalf of the State, owns the building, but (iii) both NASA and Space Florida share the volume of lab space inside. Budget cuts and changes in National space policy have left the building under utilized, at least as a research facility.

The new era in space opportunities will create new challenges that must be overcome through applied research and development. This facility, located near the world's most important space launch complex, offers significant potential for advancing state-of-the-art space applications of

science and technology. The facility can readily support groundbreaking research in a variety of science disciplines. Space Florida will engage key stakeholders associated with the Space Sciences Laboratory to ensure that use of this facility is optimized to support its intended purpose as a research facility. Additionally, operating processes, contracting, and agreements must be reassessed and reinvigorated to support value added research and development activities. Finally, Space Florida will develop a process to prioritize and accommodate competing demands for this critical resource.

Conduct an Education, R&D, and Workforce Development programs assessment

Action ERDW-3: Conduct a Statewide survey of all space-related education, research, and workforce development programs to create a master database

Florida supports a wide variety of space-related education programs, Research and Development activities, and workforce development programs. These programs are offered through public and private universities, community colleges, public schools, non-profit organizations, science museums, and tourist attractions. The challenge is that these programs may not be optimized to solve the most pressing problems of Florida's space segment of the aerospace industry. There are two obvious reasons why. First, the most pressing problems experienced or envisioned by the aerospace industry are not consolidated or prioritized. Second, there is not a clear understanding of what programs actually exist.

The first step towards resolving these problems is to gather pertinent information for each program such as program name, sponsor, objectives, current efforts, results, schedules, and funding levels and compile the information into a single master database that will be maintained by Space Florida. Support from the Florida Department of Education and Workforce Florida will be instrumental in setting the approach and capturing accurate and current information.

Action ERDW-4: Space Florida will host regional conferences with key space-related Education, Research, and Workforce Development leaders to vision cast, hear input, and gather data on best practices

A Space Florida team, led by the Education, Research and Development, and Workforce Planning Advisory Committee, will be formed to travel and visit representative space education, research and development, and workforce development sites around the State. At each location, a half-day conference will be held for area officials, government, and commercial stakeholders to meet and discuss their ideas and plans with Space Florida officials, who in turn will be able to share the State's vision for space. This activity will enrich the Education, Research and Development, and Workforce assessment with data and will help establish a Statewide network of regional aerospace contacts.

Fund relevant education programs

Action ERDW-5: Continue funding and operating successful Space Florida education initiatives during 2007 and prioritize and plan activity for future years

Until Florida's Aerospace Education, Research & Development Workforce Strategic Plan and supporting analysis is complete, education programs operated and/or funded by Space Florida must be judged on its merits of resources expended versus benefit. The following programs will receive close attention in the near-term for education, R&D, and workforce development funding activities.

1. Space Florida will continue to operate its Student Space Academies to achieve teacher and student involvement in these education-related programs already under way.

2. Space Florida will support short-term, high-value added programs to transfer existing Space Shuttle workforce skills to new programs or employers, and similar high value added Shuttle workforce re-training programs.

NASA

3. Space Florida will continue its investment in the Florida/NASA Matching Grant Program, to provide seed funding for R&D projects that advance the State's goals. The State should continue to equitably match NASA's investment in the Florida Space Grant Consortium. This level of investment will expand the program's positive impact by attracting higher quality proposals. Space Florida should work closely with the Florida Space Grant Consortium to develop the annual solicitation for proposals.

4. Space Florida will begin assessing the value of creating a space-related Career Academy as described in the 2007 Enterprise Florida Strategic Business Plan. These are "Innovative ideas that tie educational programs to industry needs and should be duplicated and spread throughout the state as best practices. Models should include business-initiated academies in which a company partners with local educational and workforce development stakeholders to create a pipeline of talent into the business's industry and CHOICE institutes in which academic and certification programs are tailored to State and regional workforce needs."

5. Space Florida will continue to pursue educational opportunities with its Pioneer Cup program, including the launch of Super LOKI meteorological rockets carrying educational research payloads for university, high school, and elementary school students. This program is intended to provide the educational community and other customers the capability to launch small scientific payloads in a sub-orbital trajectory. This effort has produced a novel 4-axis Solid Rocket Motor Static Test Stand and rocket design and trajectory modeling software that are available to all spaceport users. Joint sponsors include Space Florida,

Florida Space Institute, Brevard Community College, the 45th Space Wing, and SpaceTEC from Palm Beach Community College. Launches are presently on hold until qualification flight-testing is completed.

6. Space Florida will proactively pursue education and research grant opportunities, and should partner with other organizations to develop proposals for State, Federal, corporate and foundation funding for education programs.

4.2.3.2.2 Short-Term Actions

Conduct an Education, R&D, and Workforce Development programs assessment

Action ERDW-6: Conduct Education, Research & Development, and Workforce SWOT Analysis

Space Florida will conduct an in-depth Strengths, Weaknesses, Opportunities and Threats Analysis on the State's space-related Education, R&D and Workforce Development enterprise. Information gathered through the programs assessment in action ERDW-3, and information gathered during the regional conferences outlined in action ERDW-4, will be considered in the SWOT analysis. Critical to a valuable analysis will be engagement with industry and government leadership to determine current and projected gaps in workforce skills, research and development, and workforce education.

4.2.3.2.3 Mid-Term Actions

Conduct an Education, R&D, and Workforce Development programs assessment

Action ERDW-7: Develop Florida's Aerospace Education, Research & Development, Workforce Strategic Plan

An Education, Research and Development, and Workforce Strategic Plan will be completed to compile the information gathered in previous efforts (ERDW3, ERDW-4, and ERDW-6), identify gaps, and assist Space Florida in prioritizing and focusing future education, R&D, and workforce development efforts.

Establish a Center of Excellence for Aerospace

Action ERDW-8: Develop a proposal to establish a Center of Excellence for Aerospace

Space Florida will work in collaboration with one or more public or private universities and other public or private entities to develop a proposal for a Center of Excellence for Aerospace that will foster and promote the research necessary to develop commercially promising, advanced, and innovative science and technology, and will transfer those discoveries to the commercial sector.

1. Central Florida's center for modeling and simulation will be considered as a model for how to develop research and development activity into related business and jobs. The Center

of Excellence for Aerospace could be home to any number of potential research studies related to launch technology, aerospace materials, tourism space experiences, avionics, IT, range safety, or even new power sources for rocket engines or electrical systems.

2. The education, R&D, and workforce development assessment (below) will help define the State's research strengths and help identify capability gaps that need to be filled. Such a center could be set up at a specific physical location or be a virtual center networked together.

3. The Education, Research and Development, and Workforce Planning Advisory Committee will be instrumental in developing and refining this concept into an executable and value-added capability.

5.0 MANAGEMENT SUMMARY

Space Florida's management team has the expertise required to attract, retain, and grow a healthy space and aeronautics industry in Florida. Since the organization's official inception, the Board Governor has named a President, and two key leaders have been hired within the last two months. Additional staff has been carefully selected from the predecessor agencies to ensure that Space Florida operates in an organized, coordinated, and customer service-oriented manner. With a current staff of about 10, Space Florida envisions a final roster of 25 professional staff.

The experience and background of Space Florida's new leadership provides significant indicators regarding the intent and capacity of Space Florida to execute this business plan. The President, Chief Operating Officer/Chief Financial Officer, and the newly added Vice President of External Affairs are each eminently qualified to execute bold new initiatives that dramatically improve the visibility and economic contribution of space and aeronautics activities throughout Florida.

Although the internal management structure will continue to develop during the short term, sufficient talent and expertise is already in place to put Space Florida into action. As the management team fills out, so will Space Florida's ability to package and implement growth opportunities. Strong partnerships between the public and private sectors will play a key role in Florida's future aerospace enterprise. The members of Space Florida's leadership team have demonstrated a long history of developing creative and productive partnerships. Their collective skills bring a leadership force to Space Florida that will enable the organization to achieve multiple successful, high payoff, aerospace enterprise development efforts.

5.1 The Management Team

Steve Kohler - President

Steve Kohler was named as Space Florida's first President in August 2006 following an intensive and highly competitive selection process. Prior to joining Space Florida, Steve was the President and CEO for Winner Global Defense LLC, a privately held company that focuses on military and non-military applications of aircraft countermeasures and anti-terrorism technologies.

Previously, Steve served as Senior Vice President for Corporate Advisory Services for CB Richard Ellis/Pittsburgh. In that capacity, he specialized in office and industrial real estate development, private and public finance and brokerage, including developing partnerships with public-sector organizations. He was closely involved in developing a research park at Penn State University, an effort that required close collaboration with affiliated colleges, developers, and potential tenants.

In June 1996, Steve was appointed by Pennsylvania's Governor Tom Ridge to head the Governor's Action Team to recruit business and industry and to retain jobs in Pennsylvania.

As Director, Steve was responsible for the Team's configuration of financial incentive proposals on behalf of the Commonwealth's industrial and business expansion projects. The Office averaged over $2.8 billion dollars in statewide projects. This investment was combined with $184 million dollars of public support resulting in the commitment to create over 33,000 new jobs. Commercial

ventures included expansion projects with SAP America, SmithKline Beecham, the Vanguard Group, Marconi Communications, and Harley Davidson.

Steve holds a bachelor's degree in Urban Studies from Edinboro University, Edinboro, Pennsylvania. He has also completed two years of continuing education at the Economic Development Institute, University of Oklahoma, and the University of Maryland.

David Sadlowski – Chief Operating Officer/Chief Financial Officer

Dave Sadlowski joined Space Florida's team as COO/CFO on January 24, 2007. Prior to joining Space Florida, Dave was the VP for Aerospace Services for ICRC, an engineering and technical services company. Dave was responsible for launching ICRC into the aerospace business sector. Under his guidance, the aerospace division won and supported several launch operations contracts for the Kodiak Launch Complex (KLC) in Alaska. ICRC also won and successfully operated technical support contracts at Marshall Space Flight Center valued at $36 million.

Prior to ICRC, Mr. Sadlowski served as the Director of Business Development for ASWS, another technical services company. He orchestrated the win of a $300 million contract to support the Solid State Phased Array Radar System for the Air Force. Dave was also the Deputy Director of the Alaska Aerospace Development Corporation and was instrumental in the successful development of the KLC, several satellite ground stations, and in facilitating other aerospace development efforts in the state of Alaska.

Dave served 27 years in the U.S. Air Force beginning as a B-52 Crew Chief and culminated his career as a program manager for a multitude of systems ranging from ground radars through aircraft to space systems. Dave holds an MS in Management from LaVerne University, and a BS in Human Resources and manpower Development from the New School, N.Y.

Sonya Montgomery - Senior Vice President, External Affairs

Ms. Montgomery joined Space Florida in January of 2007 and serves as the primary relationship manager for all external affairs and corporate communications. She is responsible for fostering, maintaining, and improving stakeholder relationships and utilizing strategic communications expertise to drive key initiatives. Sonya supports Space Florida's mission to diversify the State's aerospace industry by managing relationships with the organization's key stakeholders, including elected officials, business leaders and local and regional economic development commissions. Additional duties include managing the activities and performance of all government and partner relations.

Prior to joining Space Florida, Sonya served as the Vice President of Corporate Communications & Investor Relations for Enterprise Florida (EFI) – the public-private partnership responsible for leading Florida's statewide economic development efforts. There, Ms. Montgomery managed Corporate Communications, Board Administration, Investor Relations and the Military, Space, & Defense Programs. She was also the Executive Director of the Florida Defense Alliance, an

organization chartered by EFI Board of Directors to ensure that Florida's military installations maximized their contribution and realized their full value to the State's economy.

Sonya has more than 10 years of experience in Florida's public policy, legislative process, and economic development. Her service to the State of Florida includes tenures as the Florida Department of Health Public Information Officer, Executive Director of Governor Jeb Bush's "Communities for a Lifetime" Initiative, and Director of Investor Relations at the Metro Orlando Economic Commission.

An Operation Desert Storm and Desert Shield Veteran, Sonya proudly served on active duty in the U.S. Army as a Military Police and Signal Communications Specialist. Ms. Montgomery holds a Master of Science degree in Communications and Bachelor of Science degree in Public Relations & Communications from the University of Maryland. She also holds a Certificate of Public Administration from Florida State University.

Patrick W. McCarthy - Director, Spaceport Operations & Planning

Mr. McCarthy leads Space Florida's launch programs as the technical point of contact, providing engineering guidance related to launch vehicle, Spaceport, and Range Operations. Mr. McCarthy has utilized his extensive expertise in the operational arena to revamp Space Florida's interface procedures with the U.S. Air Force Eastern Range to smooth the safety analysis and launch approval processes for existing and potential customers.

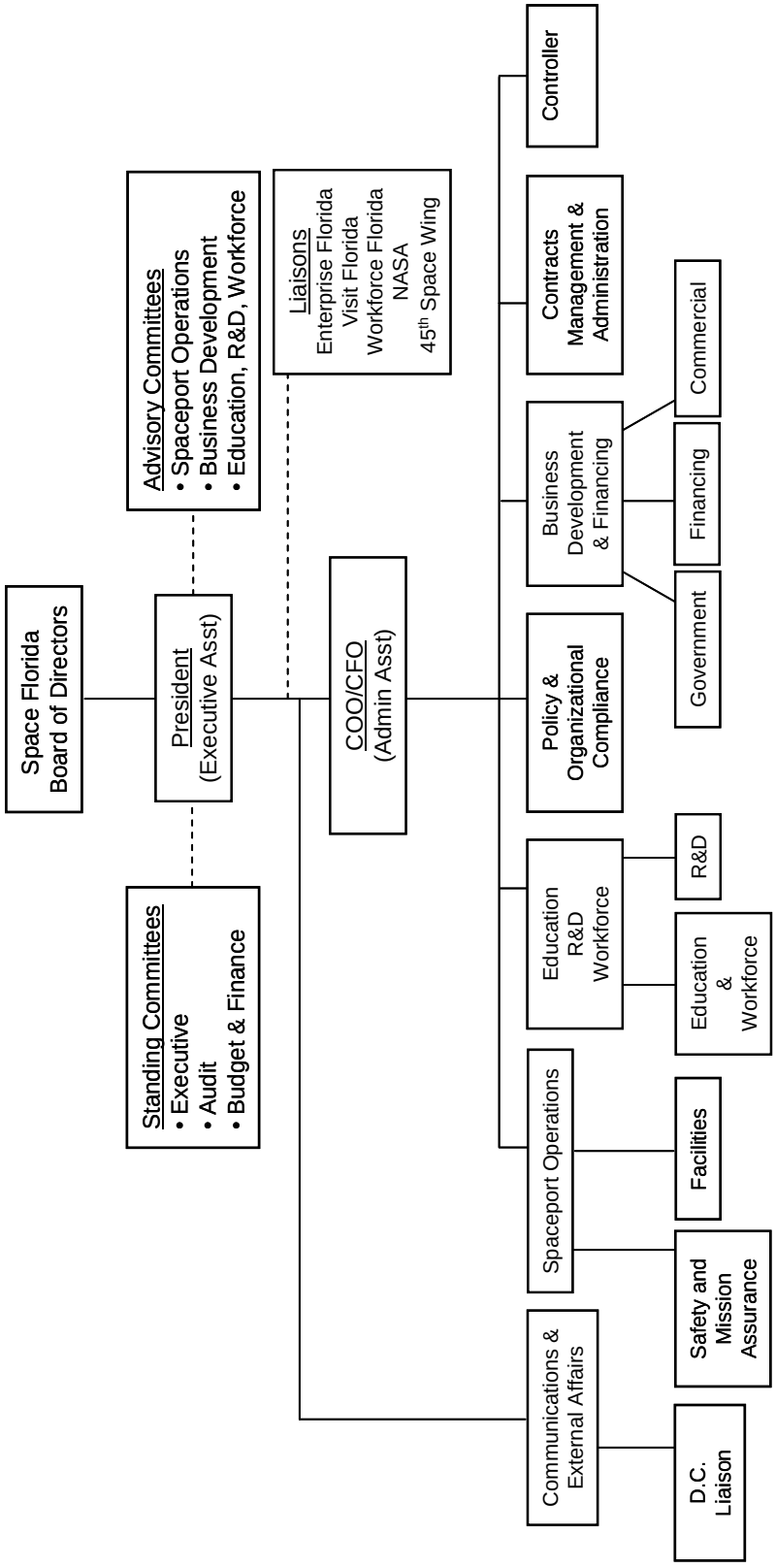
Prior to joining Space Florida, Mr. McCarthy spent 15 years with Computer Sciences Raytheon (CSR), the operations and maintenance contractor of all range instrumentation at the Eastern Range. Mr. McCarthy served in a wide range of capacities including the Manager of Operations Program Management, where he helped the firm achieve a record of over 160 successful launches with zero launch scrubs attributable to range instrumentation. While at CSR, he coordinated range support for expendable and reusable launch vehicles such as the Atlas, Pegasus, Space Shuttle, and X-34.

Mr. McCarthy earned a B.S. in Aviation Management from Embry-Riddle Aeronautical University, and is completing his Master's Degree in Space Systems Management.

5.2 Organizational Structure

Figure 5 shows a working representation of Space Florida's internal and external operating structure. Space Florida reports to its Board of Directors and is supported by three advisory committees and three standing committees.

Figure 5 – Space Florida Organizational Chart



5.2.1 Management Gaps

Although the final organizational structure may be refined from the current concept in Figure 5, several key hires remain to be made. Space Florida is actively searching for the most highly qualified candidates to lead Space Florida's efforts in four key areas:

1. Education, R&D, and Workforce Development
2. R&D
3. Business Development & Finance
4. Safety and Mission Assurance

5.3 The Board of Directors

Space Florida reports to its Board of Directors, which is chaired by the Governor and vice-chaired by a designee elected by the Board. The Board is comprised of 17 voting members. Twelve members are appointed by the Governor representing all aspects of the State's space industry, including business, finance, marketing, spaceport operations, research and development, and education. Five members are appointed by position representing Enterprise Florida, Visit Florida, Workforce Florida, the Secretary of Transportation, and the Commissioner of Education. The board also includes two ex officio, nonvoting members, one member of the Senate, selected by the President of the Senate, and one member of the House of Representatives, selected by the Speaker of the House of Representatives.

Composition of the board reflects the diversity of the aerospace industry community of the State and, to the greatest degree possible, that the composition of the board includes, but is not limited to, at least one individual from each of the industries of business, finance, marketing, space, aerospace, aviation, defense, research and development, and education. Additionally, the Governor appoints a representative of organized labor to the board who has professional experience in the aerospace industry.

Powers of the Board

The powers of the Board of Directors are specified in the 2006 Florida Statutes, and include:

1. Executing contracts and agreements
2. Providing financial services to support aerospace-related business development within the State, such as: insuring, coinsuring, or originating for sale direct aerospace-related loans; direct lending; guaranteeing and collateralizing loans; creating accounts; capitalizing, underwriting, leasing, selling, or securing funding for aerospace-related infrastructure; investing in permissible securities; organizing financial institutions and international bank syndicates; and acquiring, accepting, or administering grants, contracts, and fees from other organizations to perform activities that are consistent with the purposes of Space Florida's business plan.
3. Creating, forming, or contracting a financial services entity

4. Providing the strategic direction for the aerospace-related research priorities of the state and its aerospace-related businesses

5. Engaging in the planning and implementation of space-related economic and educational development within the state

6. Executing intergovernmental agreements and development agreements consistent with prevailing statutory provisions, including, but not limited to, special benefits or tax increment financing initiatives.

5.4 Standing and Advisory Committees

Standing Committees

Standing committees of the Board are the Executive Committee, the Audit Committee, and the Budget and Finance Committee.

1. The Executive Committee has the authority of the Board in the management of the independent special district, as allowed by law, and reports to the Board.

2. The Audit Committee consists of three Directors who are independent of the district management and can exercise independent judgment in audit activities regarding the quality and integrity of the district's financial statements, financial reporting practices, financial controls, and compliance with laws and regulations.

3. The Budget & Finance Committee assists the Board in its oversight responsibility for financial planning by reviewing budget proposals each fiscal year and monitoring the financial budget and actual results of the operation.

Advisory Committees

Three Advisory Committees have been formed and are active, consistent with the three major functions that receive their strategic direction, budget, and authority from the Board, and language contained in the Commission Report. Each advisory committee exists to assist the President in meeting his commitments to the Board. The three advisory committees are:

1. Business Development and Finance. This committee has a significant role in helping to develop Space Florida's priorities from an economic development perspective.

2. Spaceport Operations. This committee supports Space Florida's efforts with respect to establishing and operating spaceport infrastructure and related facilities.

3. Research, Development, and Education. This committee supports Space Florida's research and education functions such as operation of the Space Life Sciences Lab, targeted education programs for younger students, and mathematics and science education, training, and research programs.

6.0 FINANCIAL PLAN

6.1 General Assumptions

Space Florida will take full advantage of the fiscal authorities and financing responsibilities outlined in the 2006 Statutes, Chapter 331, Part II. Space Florida will develop, in cooperation with Enterprise Florida, an operating plan and execution strategy to provide financing assistance to aerospace businesses. Specific financing activities, capabilities and services include:

1. Provide government and industry clients with technical assistance in assessing the validity of planned projects and infrastructure development initiatives;

2. Assist clients in assessing their total capital requirements and developing an integrated financing strategy from project inception to completion or self-sufficiency;

3. Assist clients in identifying and securing private equity sources for strategic investment;

4. Assist in structuring appropriate financing mechanisms and public-private partnerships for financing space infrastructure improvements;

5. Organize third-party financing structures, where appropriate;

6. Assist clients in securing working capital relationships with local and regional banks to support operations and economic development;

7. Maintain close relationships with State and National venture capital and private equity communities to assist in securing desired financing participation in support of economic development;

8. Assist in securing innovative credit enhancement, including insurance instruments, loan guarantees and other surety and bonding instruments;

9. Assist clients in site selection assistance, negotiation of necessary lease or acquisition arrangements, clearances, permits and appropriate incentives; and

10. Assist in securing other State economic development incentives.

6.2 Annual Operating Budget

Space Florida receives appropriated funding support from the State of Florida, as well as revenue streams from leases of properties, assets and facilities, and servicing fees from financing activities. The combined funds support spaceport operations, business development initiatives, innovative education programs, research and development and workforce development.

Space Florida's fiscal year runs from 1 July to 30 June.

The Budget & Finance Committee assists the Chief Financial Officer with financial planning and oversight by reviewing budget proposals and monitors status of funds and outlays as a result of daily operations.

6.3 Statement of Projected Income and Expenditures

Table 3 depicts projected sources of revenue and significant expense categories for the current year and five future budget years.

Table 3 - Projected Income and Expenditures

Space Florida
Statement of Projected Income & Expenses

Revenue:	**FY07**	**FY08**	**FY09**	**FY10**	**FY11**	**FY`12**
Facility/Infrastructure Leases	1,811,741	1,811,741	1,811,741	1,936,741	2,061,741	2,061,741
Other Project Revenues	263,900	1,113,900	1,913,900	2,363,900	3,063,900	3,763,900
Subtotal Non-Appropriated	**2,075,641**	**2,925,641**	**3,725,641**	**4,300,641**	**5,125,641**	**5,825,641**
State of Florida Appropriations **(Note [1])**	6,400,554	9,450,000	9,810,000	7,000,000	7,000,000	7,000,000
Subtotal Appropriated	**6,400,554**	**9,450,000**	**9,810,000**	**7,000,000**	**7,000,000**	**7,000,000**
Total Revenue	**8,476,195**	**12,375,641**	**13,535,641**	**11,300,641**	**12,125,641**	**12,825,641**
Expenses:						
Wages & Benefits	1,230,494	2,000,000	2,060,000	2,121,800	2,185,454	2,251,018
Business Development & Financing Activities	2,200,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
Education Incentives	1,400,000	1,800,000	1,800,000	1,800,000	1,800,000	1,800,000
Consulting Services	562,200	562,200	562,200	562,200	562,200	562,200
Insurance - G/L, W/C, Auto, Property & Crime	452,870	543,444	652,133	782,559	939,071	1,126,885
SLS Lab - Operations & Maintenance	456,033	469,714	483,805	498,320	513,269	528,667
General Office Expenses	356,150	356,150	373,958	392,655	412,288	432,903
Legal Expenses	278,000	328,000	378,000	428,000	478,000	528,000
Marketing	192,500	192,500	192,500	144,375	108,281	81,211
Subcontracting Services	190,000	190,000	190,000	190,000	190,000	190,000
SRMU - Camp Blanding Use Permit Fee	128,670	154,000	169,400	186,340	204,974	225,471
SRMU - Operations & Maintenance	49,500	49,500	49,500	49,500	49,500	49,500
Office Lease	102,000	250,000	265,000	280,900	297,754	315,619
Travel & Entertainment	105,600	250,000	250,000	250,000	250,000	250,000
Consulting Services - Orion Program	33,664	80,000	82,400	84,872	87,418	90,041
FAS - Irish Science Challenge Programs	80,000	80,000	80,000	80,000	80,000	80,000
Staff Recruitment	77,500	50,000	50,000	50,000	50,000	50,000
RLV Hangar - Operations & Maintenance	75,000	77,250	79,568	81,955	84,413	86,946
Office & Grounds Maintenance	45,100	45,100	45,100	45,100	45,100	45,100
Educational Development Programs	32,750	32,750	32,750	32,750	32,750	32,750
Total Expenses	**8,048,031**	**9,310,608**	**9,596,313**	**9,861,326**	**10,170,473**	**10,526,311**
Net Income	**428,164**	**3,065,033**	**3,939,328**	**1,439,315**	**1,955,168**	**2,299,330**

Note 1: Appropriated funds increase requested to cover investment opportunities listed in Figure 6, with the exception of Short-Term Action SO-8, design and construct a new world-class, state of the art space launch complex

6.3.1 Detailed Revenue and Cost Assumptions

Non-Appropriated Revenues

Facility/Infrastructure Leases: Annual lease revenues are held constant through FY09, then project increases in budget years FY10-12 as a result of new lease revenue streams from Orion infrastructure.

Other Project Revenues

Increased income projections are based upon executing one financing project (facility or infrastructure improvements) each FY starting in FY08 (assumes $10M financing requirement for each project and a $200K annual return per project based upon 2 percent service or carry fee). Projections also assume that Space Florida will capture one additional financing project each year, FY08 - FY12.

Grant Revenues for Education Programs and new Research & Development (R&D) opportunities assumes an increase of $500K per year from FY08 - FY12.

Administrative fees for contract management of the new Orion Project in FY08 & FY09 are also projected to increase.

Appropriated Revenues

State of Florida Appropriations: Space Florida has developed an operating budget that fully executes the $7M of appropriated State dollars earmarked for day-to-day staff operations, spaceport activities, business development, education, research and development and workforce development initiatives. With the ultimate goal of decreasing its dependency on appropriated State dollars, Space Florida is poised to execute several immediate, short-term and mid-term investment opportunities. Space Florida will need the help of Florida lawmakers to secure moderate increases in appropriated support in FY08 and FY09 to help source these capital investments, then returning to the $7M level of appropriated support in FY10-12. The "investment opportunities" listed in Figure 6 [Section 6.4] will posture Space Florida to be in a position to move closer to partial financial self-sufficiency, sooner rather than later. Investing State dollars in spaceport facility upgrades, exploiting new business development tools and enhancing education, R&D and workforce development opportunities in the near term, will attract new customers to the Florida marketplace and set the stage to capture new revenue streams in the near future.

Expenses

Wages & Benefits: Assumes Space Florida's staffing levels grow to 25 employees on 30 June 2007; then held constant through 2012. Assumes cost of living escalates at 3 percent per year starting in FY09.

Business Development/Financing Activities: The Space Florida Act tasked Space Florida to allocate $7M between priority Business Development (BD) opportunities and innovative

Education incentives. Starting in FY08, after accounting for wages and benefits, the remaining funds are split on a 50/50 ratio between these two activities.

***Education Incentives*:** The Space Florida Act tasked Space Florida to allocate $7M between priority BD opportunities and innovative Education incentives. Starting in FY08, after accounting for wages and benefits, the remaining funds are split on a 50/50 ratio between these two activities.

*C**onsulting Services:*** Level of effort held flat at $500K over the budget years. This expense will increase relative to the various immediate, short-term and mid-term "above-the-line" investment opportunities Space Florida begins.

Insurance: This provides for facility insurance; assumes a price escalation of 20 percent per year to cover increased premiums, as well as additional insurance requirements related to new facilities developed by Space Florida.

Space Life Sciences Lab Operations & Maintenance (O&M): Based upon contract terms, assumes a price escalation of 3 percent per year.

General Office Expenses: Assumes a price escalation of 5 percent per year.

Legal Expenses: Assumes annual increase of $50K due to anticipated growth of legal support services/documentation sufficiency reviews, as SF takes control of more infrastructure assets as a result of financing activities.

Marketing: This pays for marketing efforts outside of business development required to establish Space Florida's relevancy, brand name and reputation. Assumes requirement will decrease significantly (25 percent each year from 2010 - 2012) as Space Florida establishes itself and sustains an enviable record of accomplishment.

Subcontracting Services: Level of effort held flat at $190K over the budget years. This expense will increase relative to the various immediate, short-term and mid-term "above-the-line" investment opportunities Space Florida begins.

Camp Blanding Use Permit Fee/O&M: Based upon terms of contract extension, assumes a price escalation of 10 percent per year.

Office Lease: Assumes FY07 pricing is based upon current manning levels of 10 employees; increased lease costs to $250K based upon anticipated staffing levels of 25 by end of FY07, then escalated 6 percent per year through FY12.

Travel & Entertainment: Assumes growth in this area due to increased staffing levels and increased focus on business development capture opportunities.

Consulting Services – Orion Program: Fee for consulting services will increase to $80K in 2008 and then assumes a 3 percent price escalation for remaining budget years.

FAS- Irish Science Challenge Programs: Held constant over the budget years.

Staff Recruitment: Assumes initial push to bring staffing levels to 25 in FY07, and then normalizes to $50K per year for employee relocation costs due to employee transfers, retirements, etc.

RLV Hangar O&M: Assumes a price escalation of 3 percent per year.

Office & Grounds Maintenance: This expense covers requirements at the old FSA campus, where SF has right of entry until 1 Mar 2007, with the anticipation that this license will be extended. Currently, SF is collocated at AMF facility until 30 June 2007.

***Educational Development Programs*:** This expense covers the Florida Space Academy and other educational programs offered for high school students, college students, and teachers in Florida. These requirements are above the funds earmarked for educational incentives.

6.4 "Above the Line" Investment Opportunities

Figure 6 - Immediate, Short-Term and Mid-Term Investment Opportunities

Business Plan Action #	Priority	Investment Opportunity	Projected Cost
SO-2	Immediate	Space Florida will perform a cost/benefit analysis to assess the commercial viability, facility upgrades, startup and operating costs, federal restrictions, property transfer mechanisms, user responsibilities, timelines, licensing and economic incentive options and other topics to support a decision to develop the Shuttle Landing Facility (SLF) for commercial use.	$150K
SO-2	Immediate	Space Florida holds title to the RLV Hangar, a 50,000 square foot parabolic arch hangar located adjacent to the Shuttle Landing Facility. The RLV Hangar is not a useful facility due to maintenance and repair shortfalls and lack of certification to handle fueled aircraft. With the required repairs and fire suppression upgrades, this facility could be readily marketed as an income generator for the State.	$1,700K
SO-3	Immediate	Space Florida will perform a cost/benefit analysis to assess the commercial viability, facilitiy upgrades, startup and operating costs, federal restrictions, property transfer mechanisms, user responsibilities, timelines, licensing, and economic incentive options and other topics to support a decision to develop and operate SLC-36 for commercial use.	$200K
SO-5	Immediate	An FAA operating license was granted for SLC-46. Space Florida will develop a business case to support a determination if there is a commercial market for this launch complex, and if this facility warrants further investment. If no market exists, Space Florida will divest of this facility.	$100K
SO-6	Immediate	If Space Florida renews the real property license for SLC-47, SF needs to determine required facility upgrades (particularly the control room) and their costs to make the launch site safe and productive for educational launches.	$50K
BD-4	Immediate	Space Florida will reach out to space and related aviation industries to ensure early identification of economic development opportunities. These outreach efforts will be accomplished through state and outside investment communities to assemble an increased base of in-hand and committed on-call resources for new infrastructure development and industry's plan for growth and expansion into the Florida market place.	$100K
BD-7	Immediate	Space Florida will continue strong advocacy at the federal level in support of the Vision for Space Exploration, to ensure that the Vision remains a priority under the new Congress and during the transition to the new Administration in 2008.	$100K
ERDW-3	Immediate	Space Florida will perform a statewide survey to document all space-related education initiatives, research & development activities and workforce development programs offered through public and private universities, community colleges, public schools, not for profit organizations, science museums and tourist attractions.	$50K
		Subtotal of Immediate Investment Opportunities	**$2,450K**

Figure 6 (Continued) Immediate, Short-Term and Mid-Term Investment Opportunities

Business Plan Action #	Priority	Investment Opportunity	Projected Cost
SO-8	Short-Term	Space Florida will perform the appropriate Architectural & Engineering (A&E) design planning and conduct an Environmental Baseline Study (EBS) & Environmental Assessment (EA) as necessary prepatory steps prior to siting and constructing a commercially focused vertical launch complex.	$25,130K
SO-8	Short-Term	In order to compete in the global spacelift commercial market, Florida requires a world-class facility geared to accommodate commercial customers. Geographic constraints and orbital mechanics indicate that property in the vicinity of the Kennedy Space Center would be ideal to construct this capability, if suitable property arrangements can be established. The concept of operations would be for a fully enclosed space launch complex, with FAA safety oversight and efficient range tracking and safety systems. This complex should offer integration, checkout, and launch facilities to private, public and government organizations desiring to launch medium to heavy lift vehicles.	$250,000K
SO-9	Short-Term	A Central Florida Commercial Spaceport master plan is required to reinvigorate previous planning efforts. Commercial vertical launch opportunities, horizontal launch space tourism and commercial launch support for NASA have fundamentally changed the planning landscape. The plan should address existing launch and support activities and develop concepts regarding a new commercial vertical launch facility located outside CCAFS property. The plan will contain recommended projects to meet current and future commercial, national and State space transportation requirements.	$1,500K
SO-10	Short-Term	Space Florida will evaluate mobile range technologies that could be useful for lowering range operating costs, such as the Florida Air National Guard (FLANG) Ballistic Missile Range Safety Technology (BMRST) and the Alaska Aerospace Development Corporation (AADC) Range Safety and Telemetry System (RSTS) and other appropriate systems. These technologies could be the first step towards a more efficient and cost-effective space-based range tracking system for commercial launches under FAA oversight.	$100K
SO-11	Short-Term	Space Florida will conduct a survey of potential launch sites within the State to develop other spaceport sites supporting educational and small vehicle launches. Wherever possible, these sites should be located near appropriate institutions of higher learning and acquired through a competitive request for proposals in partnership with counties or municipalities, the Federal Government or private entities.	$100K
BD-8	Short-Term	Space Florida will perform a detailed survey of market needs through a focused market study to better understand and prepare for Florida's business opportunities in space and aeronautics.	$50K
BD-9	Short-Term	The Space Coast EDC initiated a study of supply chain opportunities related to Orion within Brevard County. Florida's High-Tech Corridor Council will provide additional funding to expand the scope of the supply chain analysis to cover 23 counties within Central Florida. Space Florida will complete the study by examining the remaining counties in Florida. This study will provide immediately useful information on the Orion supply chain and could be expanded to examine the entire aerospace supply chain enterprise throughout Florida.	$100K
BD-10	Short-Term	Space Florida will perform a market study of select space industry sectors to help identify key information required to guide its business development activities and quantify existing market characteristics in Florida.	$100K
BD-12	Short-Term	Space Florida will work closely with Enterprise Florida, regional and local economic development associations, and industry to help ensure that a large portion of Orion's requirements for intermediate goods and other aerospace services/activities are sourced from within Florida.	$50K
BD-14	Short-Term	Space Florida will establish a pilot program to help businesses qualify as small businessess and achieve ISO 9000 compliance. Space Florida will establish relocation and transition assistance programs aimed at attracting high value aerospace industries to Florida.	$100K
ERDW-6	Short-Term	Space Florida will perform an in-depth Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis of the State's Education, Research & Development and Workforce Development enterprise.	$360K
		Subtotal of Short-Term Investment Opportunities	**$277,590K**
SO-12	Mid-Term	Space Florida will establish a Regulatory & Policy Realignment Committee to examine applicable regulations and polices regarding space launch and reentry, apply value-added or lean/six sigma techniques and make recommendations to resolve conflicting requirements, and eliminate or significantly reduce waste. Coordination with California and other spaceport states to synchronize activities will add significant value to this effort.	$100K
BD-15	Mid-Term	Space Florida will work with the Florida Commission on Tourism to develop a space tourism marketing plan. This plan will identify the full range of opportunities provided to the state by the existing space-related tourist attractions, like KSC, as well as the growth of space tourism itself.	$200K

APPENDIX A

ACRONYMS

AFB	Air Force Base
BMRST	Ballistic Missile Range Safety Technology
CaLV	Cargo Launch Vehicle (Ares V)
CCAFS	Cape Canaveral Air Force Station
CEV	Crew Exploration Vehicle (Orion)
CFCSP	Central Florida Commercial Spaceport
CLV	Crew Launch Vehicle (Ares I)
COMSTAC	Commercial Space Transportation Advisory Committee
COTS	Commercial Orbital Transportation Services
DoD	U.S. Department of Defense
EDC	Economic Development Commission
EDO	Economic Development Organization
EELV	Evolved Expendable Launch Vehicle
FAA	Federal Aviation Administration
FAA/AST	FAA Office of Commercial Space Transportation
FAFC	Florida Aerospace Finance Corporation
FDOE	Florida Department of Education
FDOT	Florida Department of Transportation
FLANG	Florida Air National Guard
FSA	Florida Space Authority
FSGC	Florida Space Grant Consortium
FSRI	Florida Space Research Institute
HLV	Hybrid Space Launch Vehicle
ISO	International Organization for Standardization
ISS	International Space Station
KSC	Kennedy Space Center
NASA	National Aeronautics and Space Administration
NEPA	National Environmental Protection Agency
OTTED	Office of Tourism, Trade, and Economic Development
R&D	Research and Development
RLV	Reusable Launch Vehicle
SATS	Small Aircraft Transportation Systems
SLC	Space Launch Complex
SLF	Shuttle Landing Facility
SOSA	Space Operations Support Agreement
SWOT	Strengths, Weaknesses, Opportunities & Threats
UAV	Unmanned Aerial Vehicles
UDS	Universal Documentation System
ULA	United Launch Alliance
USAF	U.S. Air Force
USC	U.S. Code
VLJ	Very Light Jets

APPENDIX B

SUMMARY OF ACTIONS

Immediate Actions

SO-1: Update and revise the SOSA with the 45th Space Wing

SO-2: Develop the Shuttle Landing Facility for commercial use

SO-3: Develop adequate launch facilities to support COTS

SO-4: Develop or identify a qualified spaceport operating authority/structure to manage the Central Florida Commercial Spaceport (CFCSP) and other Florida Spaceports

SO-5: Decide to upgrade, re-license, and market SLC-46 facilities or divest of the complex

SO-6: Renew the real property license for SLC-47 and determine required facilities upgrades and their cost to make the launch site safe and productive for educational launches

SO-7: Provide launch customer support to complete UDS documentation and securing required launch approvals and authorization

BD-1: Establish Capture Teams to ensure continuous, responsive, knowledgeable dialogue with the major target opportunities

BD-2: Develop a capture strategy for the rest of the Vision for Space Exploration

BD-3: Develop a capture strategy for the COTS launch and other support activities

BD-4: Establish a strong and responsive business development team within Space Florida

BD-5: Establish and maintain an Aerospace Industry Advisory Council

BD-6: Establish and regularly update statewide aerospace business development plan.

BD-7: Continue strong advocacy in support of the Vision for Space Exploration

ERDW-1: Partner with and provide support to Space Coast EDC and Workforce Florida to ensure that space industry talent currently involved in the Space Shuttle program is retained after 2010

ERDW-2: Expand and focus use of the Space Life Sciences Laboratory by providing unparalleled research facilities to be used by the world's brightest scientists to solve high priority space-related problems

ERDW-3: Conduct a statewide survey of all space-related education, research and workforce development programs to create a master database

ERDW-4: Space Florida will host regional conferences with key space-related Education, Research and Workforce Development leaders to vision cast, hear input and gather data on best practices

ERDW-5: Continue funding and operating successful Space Florida education initiatives during 2007 and prioritize and plan activity for future years

Short-Term Actions

SO-8: Establish a new world-class, commercially focused vertical launch capability

SO-9: Establish a Florida Commercial Spaceport Master Plan

SO-10: Evaluate existing mobile range technologies for application at the Central Florida Commercial Spaceport

SO-11: Conduct a survey and acquire launch sites for educational and small vehicle launches

BD-8: Survey market needs and capabilities through a focused market study

BD-9: Partner with the EDC of Florida's Space Coast and Enterprise Florida to expand the supply chain

BD-10: Define performance measures and track return on investment

BD-11: Develop Effective Marketing and Communications Materials

BD-12: Develop Florida's supply chain for Orion and other aerospace activities

BD-13: Develop targeted programs for entrepreneurs and small businesses

BD-14: Establish a small businesses qualification and ISO 9000 compliance pilot program

ERDW-6: Conduct Education, Research & Development, and Workforce SWOT Analysis

Mid-Term Actions

SO-12: Establish a Regulatory and Policy Realignment Committee to recommend improvements to Federal laws, regulations and policies

SO-13: Develop SLC-17 for commercial use

BD-15: Develop a space tourism marketing strategy

BD-16: Position Florida to play a critical role in all phases of the value chain for future space vehicles

BD-17: Develop partnerships with regional and local economic development organizations

ERDW-7: Develop Florida's Aerospace Education, Research & Development, Workforce Strategic Plan

ERDW-8: Develop a proposal to establish a Center of Excellence for Aerospace

APPENDIX C
COMPARISON OF COMMISSION RECOMMENDATIONS AND STRATEGIC BUSINESS PLAN ACTIONS

	Talent								Economic Diversification				Space Launch Environment				Management	
	1. Integrate aerospace needs into State workforce dev programs	2. Retain space industry talent after 2010	3. Enhance K-12 mathematics and science	4. Improve K-12 mathematics and science teacher availability	5. Post-secondary degree programs in mathematics, science, and engineering	6. Provide hands-on opportunities for students to experience and learn aerospace	7. Increase general awareness of aerospace activities	8. Create a center of excellence with focus on aerospace research and technology	9. Position Florida to assemble, test, check out, launch, maintain, and refurbish Orion	10. Reaffirm aerospace as a statewide target industry with EFI	11. Expand aerospace BD tools	12. Targeted support and venture capital for new businesses	13. Renew and upgrade Cape infrastructure and technologies	14. Improve Cape highway, rail, and waterway connections	15. Enhance commercial launch procedures and services	16. Develop commercial spaceport	17. Consolidate into Space Florida	18. Provide education and other funding
ERDW-1: Retain space industry talent	×	×						×	×	×					×	×		
ERDW-2: Space Life Sciences Lab			×	×	×	×	×	×	×		×		×		×	×		×
ERDW-3: Compile all ERDW programs	×	×	×	×	×	×		×	×		×							×
ERDW-4: Regional ERDW conferences	×		×	×	×		×	×	×	×	×							×
ERDW-5: Fund best ERDW programs	×	×	×	×	×	×		×	×	×								×
ERDW-6: ERDW SWOT Analysis.	×	×	×	×	×	×	×	×	×	×						×		×
ERDW-7: ERDW Strategic Plan	×	×	×	×	×	×	×	×		×	×					×		×
ERDW-8: CoE for Aerospace							×	×	×		×		×			×		×
BD-1: Establish Capture Teams							×		×	×	×					×		
BD-2: Capture Vision activities		×							×	×	×	×	×			×		
BD-3: Capture COTS activities		×								×	×	×	×			×		
BD-4: Establish BD team							×		×	×	×					×		
BD-5: Industry Advisory Council	×		×	×	×		×	×	×	×	×	×	×	×	×	×		
BD-6: Aerospace BD plan.							×		×	×	×			×		×		
BD-7: Advocacy - Vision		×					×		×	×	×		×	×	×	×		
BD-8: Market study	×						×	×	×	×	×	×		×	×	×		×
BD-9: Expand the supply chain									×	×	×	×	×	×	×	×		
BD-10: Performance measures and ROI	×						×		×	×	×	×			×	×		
BD-11: Marketing Materials				×	×	×	×		×	×	×	×				×		
BD-12: Supply chain for Orion									×	×	×	×	×		×	×		
BD-13: Targeted business support							×		×	×	×	×			×	×		
BD-14: SB qual and ISO 9000	×						×		×	×	×	×			×	×		×
BD-15: Space tourism marketing strategy.							×			×	×				×	×		
BD-16: Position for future space vehicles.							×		×	×	×		×	×	×	×		
BD-17: Partner with EDOs	×	×					×		×	×	×	×			×	×		
SO-1: SOSA									×		×		×	×	×	×		
SO-2: Develop SLF													×		×	×		
SO-3: COTS Facilities													×		×	×		
SO-4: Saceport operating authority									×				×		×	×		
SO-5: Decide SLC-46													×		×	×		
SO-6: Renew SLC-47			x.	×	×	×	×						×		×	×		×
SO-7: UDS Supprt									×	×	×	×			×	×		×
SO-8: New vertical launch capability													×		×	×		
SO-9: Master Plan							×		×	×	×	×	×	×	×	×		
SO-10: Mobile range technologies									×		×		×		×	×		×
SO-11: Education launch sites			×	×	×	×	×	×										×
SO-12: Regulatory and Policy							×		×	×	×	×		×	×	×		×
SO-13: Develop SLC-17													×		×	×		

APPENDIX D

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