

The Florida Senate
BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Commerce Committee

BILL: SM 1878

INTRODUCER: Senator Altman

SUBJECT: Support for Space Program/Space Flight Research

DATE: March 2, 2010 REVISED: _____

	ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1.	Pugh	Cooper	CM	Favorable
2.			RC	
3.				
4.				
5.				
6.				

I. Summary:

Since 1961, Florida has enjoyed a robust role as the launch pad for NASA missions, from Mercury to Gemini, to Apollo and the soon-to-retire Space Shuttle. But cost and timing issues with the shuttle program’s successor, Constellation, had forced Florida’s aerospace workers and industry since 2007 to brace for significant layoffs and retooling over the next 5 years. More recently, President Obama’s announced cancellation of Constellation and a shift toward reliance on commercial spaceflight companies have raised more questions about how Florida’s economy, workforce, and previous aerospace investments will be affected.

Senate Memorial 1878 requests that the U.S. Congress take a number of actions to support an American space exploration program. It asks Congress to appropriate more funding to NASA for specified uses; support life sciences research into human space flight beyond low earth orbit (LEO); find ways to utilize Florida’s unique aerospace workforce; and support the increased utilization and sustainable development of federal and state spaceports, so they can be used to support commercial spaceflight enterprises and research and development projects.

II. Present Situation:

Florida as NASA’s Launch Pad

Less than 3 years after NASA was created, astronaut Alan B. Shepard, Jr., became the first American to make a space flight. On May 5, 1961, Shepard launched from Complex 5 at Cape Canaveral aboard a Redstone rocket in a Freedom 7 capsule, reaching an altitude of 116 miles above the Earth. In the last 5 decades, American astronauts launching from Kennedy Space Cent (KSC) have landed on the Moon six times, helped build the International Space Station in low

earth orbit, attempted “space walks” to repair aerospace hardware, and engaged in a variety of scientific experiments.

NASA’s economic impact on Florida

Besides historical significance, NASA’s operations in Florida are a major economic driver.¹ The total amount of NASA spending (so-called “outside money”) for KSC-related activities was \$1.96 billion, including \$1.1 billion in wages in FY 2007-2008. Counting indirect spending, the total economic impact of NASA to Florida was estimated at \$4.1 billion in production output, \$2.1 billion in household income, 40,802 jobs, and \$103 million in state and local tax revenues. The study also found that 98 percent of the output impact and 99 percent of the jobs and wage impacts occur in the seven-county Central Florida region² around KSC.

Less easy to quantify are the impacts of defense-related launch activities and commercial launch activities in the Cape Canaveral area. However, a recent report estimated that local economic impact of Patrick Air Force Base and the Cape Canaveral Air Force Station (home of the 45th Space Wing) during FY 2007-2008 was nearly \$1.07 billion.³ This amount represents wages and salaries for all military and civilian employees. The estimated dollar value of the indirect jobs created is included. Also included are local contracts and construction.

Florida Aerospace Workforce Issues

The last mission for the Space Shuttle program is scheduled for September 2010. The “moon to Mars” successor program (known as Constellation) was scheduled to begin launches in 2015.⁴ The intervening period is referred to as the “shuttle gap,” in which a number of employees in the aerospace industry, in Florida and elsewhere, likely will lose their current jobs.⁵

In August 2007, the Brevard Workforce Development Board, Inc., (BWDB) estimated that shuttle-related activity in Florida supports a workforce level of approximately 9,235 employees (6,340 United Space Alliance employees and 2,895 sub-tier and related support contractor employees). The majority of this workforce is located at or near the Kennedy Space Center. However, the total economic impact of the space shuttle program is statewide, and it has a specific shuttle-related supplier base of some 1,046 companies throughout the state.⁶

The BWDB further found that Shuttle workforce skills are highly translatable to any work that the state pursues as part of its next-generation space activities. The BWDB estimated that one-third of the space shuttle-related workforce will need transition assistance to a different industry

¹ Information in the paragraph was obtained from the report, “Economic Impact of NASA in Florida, FY 2008.” Available at http://www.nasa.gov/centers/kennedy/pdf/318131main_economic-impact08.pdf. Last visited Feb. 24, 2010.

² The report lists those seven counties as Brevard, Flagler, Lake, Orange, Osceola, Seminole, and Volusia.

³ “2008 Economic Impact Analysis -- Patrick AFB and CCAFS.” Available at

<http://www.patrick.af.mil/shared/media/document/AFD-090410-088.pdf>. Last visited Feb. 2 2010.

⁴ On January 14, 2004, then-President Bush announced a new mission for America’s civil space program that calls for human and robotic missions to the moon, Mars, and beyond. See Report of the President’s Commission on Implementation of United States Space Exploration Policy. Available at http://www.nasa.gov/pdf/60736main_M2M_report_small.pdf. Last visited Feb. 24, 2010.

⁵ Senate Issue Paper 2009-305, Efforts to Address Workforce Issues Related to the Space Program. Published October 2008. Available at http://www.flsenate.gov/data/Publications/2009/Senate/reports/interim_reports/pdf/2009-305cm.pdf.

⁶ Aerospace Workforce Outlook Report, Executive Summary, August 2007. Prepared by the Brevard Workforce Development Board, Inc. (BWDB) On file with the Senate Commerce Committee.

or occupation, and one-third will need skills upgrades for the next generation space programs, public or private. The remaining one-third is expected to retire.⁷ Disregarding the number of employees who will retire, the BWDB estimates that at least 3,500 aerospace workers will lose their current positions.⁸

However, the most recent BWDB report, dated January 2010, appears to indicate that of the 9,160 total current space shuttle-related workers, between 6,400 to 7,000 may be impacted greater than anticipated because they may not “easily transition, at this time, to known new programs...”⁹ This report predates the Obama Administration’s announced cancellation of Constellation.

Additionally, the new report indicates that by March 2011, thousands of Florida aerospace workers may be laid off – a change from past transitions from one federal program to another, where there was a gradual ramping down of the labor force.

BWDB has been working with Workforce Florida, Inc., to implement training programs and placement services for aerospace employees who may already be laid off or are expected to lose their jobs in the next few years. Additionally, BWDB, the Governor’s Office, Enterprise Florida, Inc., and Space Coast area economic development entities have been coordinating efforts to recruit companies that need the type of highly skilled workforce available in the KSC region.

Florida’s Space Life Sciences Lab (SLSL)¹⁰

Over the years, the state of Florida has made significant investments in infrastructure to attract space-related business. One of the more successful ventures is the SLSL. It was built in 2004 with \$26.8 million in state appropriations to provide NASA with state-of-the-art lab space to process science experiments or equipment (collectively called “payloads”) that were headed for or returning from the International Space Station (ISS). It replaced a hangar that NASA had been using, but which was inadequate for the ISS payloads.

The SLSL is roughly 100,000 square feet in size, with 28 science labs, 15 controlled-environment chambers, and an isolated area of six “holding rooms” totaling 15,000 square feet for animal research.¹¹ Most recently, working in the SLSL were 30 NASA employees and 85 contractors; 15 state university researchers; and 10 commercial researchers.¹²

NASA is the primary user of the SLSL, and is running a number of experiments that include:

- Assessing the long-term effects of weightlessness on the human skeleton;

⁷ Ibid.

⁸ Aerospace Workforce Transition Program Implementation Plan, July 17, 2008. Prepared by the BWDB. This estimate constitutes the direct job losses due to the retirement of the shuttle program. BWDB staff also estimate that the indirect job losses could be 2.5 times greater. On file with the Senate Commerce Committee.

⁹ Aerospace Workforce Outlook Report – Phase III, January 2010. Prepared by the BWDB. On file with the Senate Commerce Committee.

¹⁰ More information about the SLSL is available at <http://sosl.lssc.nasa.gov/about/>.

¹¹ See the Senate Commerce Committee’s Issue Brief 2010-307 entitled, “A Review of Space Florida’s Infrastructure Projects.” Available at http://www.flsenate.gov/data/Publications/2010/Senate/reports/interim_reports/pdf/2010-307cm.pdf.

¹² Ibid.

- Analyzing the challenges of growing food crops in outer-space environments to feed astronauts on lengthy missions;
- Developing ecological systems that will naturally recycle food, oxygen, nitrogen, and waste during outer-space missions to make them self-sufficient; and
- Simulating the atmosphere, weather, and geologic conditions of Mars.

Space Florida's FY 2008-2009 revenue from the SLSL leases was \$1.6 million, and its operating expenses were \$777,802.

NASA's lease of the SLSL expires December 31, 2010. Complicating matters is the future of the U.S. space program. NASA has been reducing its ISS-related research at the SLSL since the George W. Bush Administration announced its initiative in 2004 to go beyond low earth orbit, and return astronauts to the Moon and explore Mars.¹³ Depending on policy and funding decisions made by the Obama Administration and Congress about NASA, the SLSL's future could be dramatically impacted.

But Space Florida staff believes that the SLSL will remain a viable research setting and even grow its client base for two reasons: Space Shuttle flights are scheduled through the fall of 2010, and the Space Station currently is scheduled to be online at least until 2015, so payload processing will continue at the SLSL for the foreseeable future.

Full implementation of the 2005 designation of the ISS as a "National Laboratory," where NASA partners with other governmental agencies and the private sector, is expected to bring more researchers to the SLSL, such as the National Institutes of Health and the Department of Agriculture. ISS advocates also believe this designation means political support for maintaining the ISS beyond 2015. If commercial launch companies are able to fill the projected 5-year gap between the Shuttle retirement and implementation of the Constellation program, by ferrying astronauts and cargo to the ISS, that results in more tenants and more research at the SLSL. Space Florida staff anticipates that about half of the future research will be "exploration-related" and the other half will be research that has outer-space and earth-bound applications, such as medical research.

They also are describing the SLSL as the "centerpiece" of Space Florida's planned Exploration Park,¹⁴ a mixed-use, multi-tenant technology and commerce park supporting both government and commercial space activities. Space Florida, in April 2009, retained a development company to design and build the park in phases. The first phase is expected to cost between \$8 million and \$10 million, and be completed in 2011.

A New Direction for NASA

Since 2005, concerns have been growing over the scheduled 2010 retirement of the Space Shuttle program and the estimated 5-year gap before its successor, Constellation, was scheduled to begin flights to the ISS and beyond. Last year, President Obama appointed a 10-member commission to evaluate U.S. space programs and policies; over the summer, this Review of U.S.

¹³ Report available at <http://www.nss.org/resources/library/spacepolicy/2004-AldridgeCommissionReport.pdf>. Last visited Feb. 24, 2010.

¹⁴ More information is available at <http://www.explorationpark.com/>. Last visited Feb. 24, 2010.

Human Space Flight Plans Committee (dubbed the “Augustine Commission” for its chairman, retired Lockheed-Martin CEO Norm Augustine) held a number of hearings around the nation to hear public testimony. The committee’s report was published in October 2009, and the first paragraph of the executive summary sent a signal that a change in U.S. spaceflight policy was coming:¹⁵

“The U.S. human spaceflight program appears to be on an unsustainable trajectory. It is perpetuating the perilous practice of pursuing goals that do not match allocated resources. Space operations are among the most complex and unforgiving pursuits ever undertaken by humans. It really is rocket science. Space operations become all the more difficult when means do not match aspirations. Such is the case today.”

When the President released his FY 10-11 budget request on Feb. 1, 2010, there was no funding for the Constellation program, but increased funding over each of the next 5 years to:

- Pursue new exploration research and development programs in areas such as in-orbit refueling, heavy-lift and propulsion rocketry, and robotic precursor missions to outer space in advance of astronaut travel;
- Provide more funding for the ISS, with a goal to extend its lifetime to at least 2020 or beyond with assistance from other nations;
- Invest in opportunities to use commercial spaceflight companies to carry astronauts and cargo into space;
- Add nearly \$1 billion to modernize KSC to improve use by NASA and others;
- Spend an additional \$600 million to assist the remaining Space Shuttle flights;
- Provide grants and other funds to promote space-related research and development; and
- Increase funding for NASA’s expanded responsibilities for climate research.

Congress has begun committee hearings on the Obama Administration’s space proposals, and opposition has been expressed by some members of Congress concerned about the proposed shift.

III. Effect of Proposed Changes:

SM 1878 is a memorial urging the U.S. Congress to support human space exploration and research. Specifically, it asks Congress to:

- Increase the level of NASA’s budget to a level sufficient to enable the development of exploration systems and vehicles; operate the International Space Station through 2020; and reduce the gap in U.S. human space flight;
- Support the life sciences research necessary for long-term human space flight beyond low earth orbit;
- Direct appropriate work and programs to utilize Florida’s unique workforce skills and aerospace facilities to preserve and enhance national space launch capability; and

¹⁵ The full report is at http://www.nasa.gov/pdf/396093main_HSF_Cmte_FinalReport.pdf. The summary report is available at http://www.nasa.gov/pdf/384767main_SUMMARY%20REPORT%20-%20FINAL.pdf.

- Support the increased utilization and sustainable development of federal and state spaceports as national resources supporting commercial enterprises and research and technology development.

In making this request, the memorial notes that:

- NASA has been transitioning to new launch systems to enable humans to explore beyond low earth orbit;
- Human space exploration can drive technology innovation, develop commercial industries, contribute to scientific knowledge, inspire the next generation of Americans, and chart a path for human expansion into the solar system;
- Human exploration beyond low earth orbit is not viable under the current federal budget guidelines and that additional annual funding for human space exploration is necessary in order to establish a meaningful program;
- NASA's budget should match its mission and goals, and that NASA should be given the ability to shape its organization and infrastructure accordingly, while maintaining facilities of national importance;
- NASA's current budget will result in a significant gap in U.S. human space flight capabilities, which may result in the loss of critical national capabilities of workforce experience and the aerospace industrial base;
- The State of Florida has invested \$27 million in the Space Life Sciences Lab at the Kennedy Space Center to promote life sciences research; and
- It is in the national interest to establish a robust and sustainable program of human space exploration.

Copies of the memorial, if approved by the Legislature and the Governor, will be distributed to the President of the United States, the President of the United States Senate, the Speaker of the United States House of Representatives, and to each member of Florida's Congressional delegation.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

None.

C. Government Sector Impact:

None.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Additional Information:

A. Committee Substitute – Statement of Substantial Changes:

(Summarizing differences between the Committee Substitute and the prior version of the bill.)

None.

B. Amendments:

None.