

February 1, 2008

Testimony for Gov. George Ariyoshi to the State Senate re SB2891 and SB2340

Dear Members of the Twenty-Fourth Legislature:

I am writing this testimonial in strong support of two timely and visionary bills that have been introduced to help position Hawaii as both a competitive and globally recognized leader in the aerospace industry.

The first bill, **SB2891**, requests additional funding to support the sustained development and build-out of a Pacific International Space Center for Exploration Systems (PISCES) in Hawaii – an initiative which our State Legislature helped launch through ACT 149 in the 2007 Session.

I serve as the United States Advisor to the Japan-U.S. Science, Technology & Space Applications Program (JUSTSAP), which is the international body that helped develop the PISCES concept for the State of Hawaii. In this capacity, for which I have volunteered my efforts for the past fifteen years, I envision PISCES as a truly outstanding opportunity for our State whose time has clearly come – and yet one which, if we do not act now, will cause our State to “miss the boat” and the wealth of scientific, educational and commercial development opportunities this unique opportunity can provide.

Building upon Hawaii’s Moon-Mars like terrain, resident experience and expertise in aerospace, and strategic mid-Pacific location, PISCES is designed to address the substantial technological, human and financial challenges associated with future space exploration – providing an interdisciplinary and multinational testbed for the demonstration, evaluation and validation of innovative technologies to support future robotic and human missions to the Moon, Mars, and beyond; facilitating the training of astronauts, scientists, engineers and other professionals engaged in research and development activities associated with future space exploration; catalyzing innovative aerospace education programs in local secondary schools, community colleges, and universities statewide; and affording a unique international venue to support sustained dialogue and collaboration toward the formulation of multinational space enterprise.

In addition to both enhancing and diversifying research, training, and employment opportunities for Hawaii residents in scientific and technical fields, PISCES will also strengthen the University of Hawaii as a center of excellence for aerospace-oriented education in science, technology, engineering and mathematics (the fundamental STEM disciplines), expand tourism opportunities as space exploration captures the imagination and interest of the international public, and help establish our state as a vital resource for the planning, development, and implementation of future space exploration missions.

Although PISCES was only formally established last October, this program has already achieved some truly remarkable milestones, including the establishment of an international headquarters at the University of Hawaii at Hilo (UHH) to help coordinate PISCES activities, an international PISCES conference linking Hawaii scientists and entrepreneurs with aerospace professionals from around the Asia-Pacific region, implementation of a space science curriculum at UHH to train undergraduates for careers in aerospace, a national student design competition enabling college undergraduates to engage in the formulation of a plan for a human habitat on the moon, and the formation of collaborative research teams involving researchers from the University of Hawaii, the Jet Propulsion Laboratory in California, and the NASA Johnson and Kennedy Space Centers in Texas and Florida, that recently won two NASA Innovative Partnership awards (totaling \$640,000) to develop, test and evaluate innovative technologies in Hawaii to support *in-situ* resource utilization and human-robotic systems for future missions to the Moon. In addition, a video highlighting the scientific, educational and commercial promise of PISCES has been produced by the PISCES Coordinating Team, and I understand copies of this production have been distributed to your Committee members for review.

Over the next three to four years, the goal is to make PISCES completely self-sustaining through government and industry contracts, facility user fees, education and outreach program grants, and tourist revenues. However, to achieve this goal, we need to provide continued State support for this outstanding program during this critical period in its development. The funding requested through HB2939 will provide sustained staff support for PISCES, enable logistical support for the annual PISCES conference and student design competition, expand aerospace education opportunities at both K-12 and university levels statewide, develop grant proposals for continued NASA funding, and facilitate the development of a national capital fundraising campaign to help build core facilities in Hawaii, such as a simulated lunar habitat, that will both train astronauts and other aerospace professionals for future space exploration missions as well as afford unique educational resources to educate and inspire Hawaii's youth in a broad range of science and engineering disciplines.

The second bill under consideration, **SB2340**, addresses another very promising opportunity for aerospace in Hawaii – the development of commercial space launch capabilities. To date, over several billion dollars have been invested nationally in developing innovative (e.g., smaller, more fuel-efficient, and safer) technologies to facilitate the launch of satellites, scientific payloads, and tourists to both sub- and low-earth orbits. One outstanding example is the “XP Spaceplane” under development by Rocketplane Global, which takes off and lands at an airport like a commercial jet plane, but also uses an onboard rocket engine to carry this vehicle (and its cargo of satellites, experiments and tourists!) to space.

Rocketplane Global has approached our State requesting permission to launch this vehicle from Hawaii by the year 2009. Its detailed business plan projects initial intra-state launch trajectories, launching from Honolulu International Airport and returning to HNL and/or Kona International Airport at

Keahole. Long-term buildout (five to ten years after initial operations) will include trans-Pacific flights between Hawaii, Japan, and the continental U.S. Over \$200 million in annual gross revenues are projected through this plan from launch fees paid by tourists and by universities, private companies and the Dept. of Defense launching research/remote sensing experiments and payloads. In addition, Rocketplane is planning to develop a terrestrial space-themed education and training center in the Kalaeloa district that will provide opportunities for both tourists and local residents to experience "virtual reality" simulations of space flight and exploration missions to the moon and Mars, as well as 2-3 day "space camp" experiences involving "zero-G" simulated spaced flights.

In order for spaceplanes like the Rocketplane XP to launch from Hawaii's airports, our State needs to obtain a commercial space transportation license from the Federal Aviation Administration. The Funding requested through this legislation will help support studies to secure this license and make both spaceplane and other commercial space launch operations in Hawaii possible.

The potential scientific, educational and economic development opportunities afforded by this enterprise are truly substantial. Suborbital spaceflights facilitated by spaceplanes will provide low cost and frequent access to space, enabling new R&D opportunities for the development of innovative drug, biotech, and materials science applications by both university researchers and entrepreneurial companies. Microsats launched aboard spaceplanes will support remote sensing operations to facilitate oceanographic surveillance, pollution monitoring and terrestrial resource management. The development of a spaceport visitor's center at Kalaeloa in tandem with spaceplane operations will provide unique aerospace education opportunities for both visitors to Hawaii and local residents. Spaceplane operations will also generate new high-paying employment opportunities for local residents, and tax revenues from spaceport operations will quickly help recapture the State's upfront investment in a space transportation license (the only public sector investment that will be required to realize income from suborbital space flight operations).

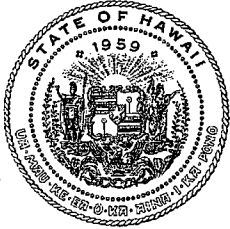
Our State is uniquely poised to partake of the tremendous scientific, economic and educational opportunities and benefits afforded through space exploration. I applaud your efforts to support this vision through these two bills, and urge you to pass this legislation.

Thank you for the opportunity to provide these comments.

Sincerely,

  
George R. Ariyoshi

GRA:khy



**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

LINDA LINGLE  
GOVERNOR  
THEODORE E. LIU  
DIRECTOR  
MARK K. ANDERSON  
DEPUTY DIRECTOR

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Statement of  
**THEODORE E. LIU**  
Director

Department of Business, Economic Development & Tourism  
before the

**SENATE COMMITTEE ON ECONOMIC DEVELOPMENT AND TAXATION  
and the**

**SENATE COMMITTEE ON TOURISM AND GOVERNMENT OPERATIONS**

Thursday, February 7, 2008

1:15 p.m.

State Capitol, Conference Room 224

in consideration of

**SB 2340**

RELATING TO AEROSPACE DEVELOPMENT.

Chair Fukunaga, Chair Nishihara, Vice Chair Espero, Vice Chair Kim, and members of the Committees. The department supports the concept behind SB 2340. There have been many good ideas introduced this legislative session that support the State's economic development goals. We note, however, that this appropriation was not included in the Executive's Supplemental Budget, and request that this appropriation not displace the priorities contained in that budget.

The effort to establish an international commercial spaceport in Hawaii builds upon the recent development of innovative "spaceplanes" that take off and land at airports like commercial jet planes, but also use onboard rockets to carry

these vehicles (and their cargo of satellites, experiments and tourists) to space. Rocketplane Global is one of several companies that have approached our state to request permission to launch these types of vehicles from Hawaii as early as 2010. Its business plan projects initial intra-state launch trajectories (launching from and returning to Honolulu), with future trans-Pacific flights between Hawaii, Japan, and the continental U.S. - generating approximately \$200 Million in annual gross revenues from user fees.

Rocketplane Global also plans to develop a terrestrial space-themed education and training center in the Kalaeloa district on Oahu that will provide opportunities for both tourists and local residents to experience "virtual reality" simulations of space flight and exploration missions to the moon and Mars, as well as 2-3 day "space camp" experiences involving "zero-G" flights simulating interplanetary space travel.

In order for spaceplanes to launch and land from Hawaii's airports, our state must apply for and receive a commercial space transport license from the Federal Aviation Administration (FAA).

Thank you for the opportunity to testify on this bill.



Advancing  
NewSpace

Bob Werb  
Chairman  
of the Board  
16 First Avenue  
Nyack, NY 10960  
1.845.787.7703

January 29, 2008

Members of the 24th Legislature  
State of Hawaii  
Hawaii State Capitol  
415 South Beretania Street  
Honolulu, HI 96813

RE: Spaceport Hawaii Appropriation Bill

Dear Members of the Legislature:

As Chairman of the Board of the Space Frontier Foundation I am thrilled with the Hawaii State Legislature's vision in introducing bills to fund the effort to obtain a Spaceport Operators License from FAA/AST. Many of our members have worked very closely with the FAA's space division since its inception to enable the growth of human space flight operations all over the US, and have found them committed to encouraging growth and economic development while simultaneously assuring public safety and compliance with all environmental regulations. FAA/AST has become skilled at managing the licensing process so that applicants do not have to spend inordinate amounts of time or money to obtain the necessary operating licenses.

There are now more than a dozen companies developing new reusable suborbital launch vehicles, and many of these entrepreneurial companies would be very interested in looking at Hawaii as a possible base of operations. Historically, it has been exactly this kind of new start-up business mentality that has created entire new industries in the US. Having the State of Hawaii take a pro-active position in this new area of economic development will bring the benefits of new jobs and investment to the state, while also diversifying the economy.

In addition, there will be many educational benefits to having Hawaii become a spacefaring state. The Hawaiian spaceport may become a training launch site for The Space Frontier Foundation's Teachers in Space program, which seeks to put hundreds of astronaut teachers in American schools within the next decade. We have already had six different vehicle developers donate flights to this program to fly teachers from local spaceport communities on a suborbital space flight so that they can bring the vision of humanity's future in space back to their classroom. Selection of teachers for the initial pathfinder phase of the program is already underway (see [www.teachersinspace.org](http://www.teachersinspace.org) for details). The Space Frontier Foundation started our Teachers in Space program a few years ago, and we have already had six different vehicle developers donate flights to this program to fly a teacher from the local community on a suborbital space flight so that they can bring back the vision of humanity's future in space back to their classroom. The first round of competition to select the first two Teachers in Space is already underway. We can foresee the development of an in-state version of this program for Hawaii, where companies located at your proposed spaceport would provide flights to local teachers each year as part of their commitment to the communities that host their operations. We are prepared to meet with you to discuss all the ways Teachers in Space can benefit Hawaii.

Hawaii is also uniquely positioned to be the home base for vehicles launching the latest generation of microsattellites and research payloads from new reusable launch vehicles that do not have any of the noise or other environmental impact of older generation expendable launch systems. Just as the mainframe computer transitioned to the PC twenty years ago, new small satellite payloads with increased capability will provide opportunities for an entire new class of space-based business activity to flourish.

Changing the cost-plus government contractor paradigm that has been in place for the last 50 years in the space world is challenging, and it takes support from the public sector to succeed. There are now more than a dozen states with either an existing or proposed spaceport development, and scores of "NewSpace" companies involved in various aspect of the development of this new industry. Please feel free to browse at [www.spacefrontierfoundation.org](http://www.spacefrontierfoundation.org) to see the listing of these companies as well as other activities of SFF in support of new economic development in space.

The modest appropriation currently under consideration by the Hawaiian Legislature will doubtless provide a substantial return to the state in jobs and economic activity.

Very Truly Yours,

A handwritten signature in cursive script that reads "Bob Werb".

Chairman of the Board  
SPACE FRONTIER FOUNDATION



January 29, 2008

Members of the 24<sup>th</sup> Legislature  
State of Hawaii  
Hawaii State Capitol  
415 South Beretania Street  
Honolulu, HI 96813

RE: H.B.2259 / S.B. 2340 Spaceport Licensing Appropriations Bills

Dear Members of the Legislature:

This letter is to express our support for the concurrent House and Senate appropriations bills to fund the effort to obtain a Spaceport Operator's License from the FAA / AST Office of Commercial Space Transportation. Zero Gravity Corporation has been involved in providing training flights for several of the suborbital space tourism companies that are potential tenants for Spaceport Hawaii. We are confident that the market for suborbital space flights will grow rapidly once commercial space flight operations begin in and Hawaii could become one of the most popular destinations for this activity.

We are interested in becoming involved in this exciting new spaceport development project. Zero G now operates from two permanent locations (Kennedy Space Center and Las Vegas) and we routinely do tour dates at other cities around the US. We believe that the high volume of existing tourist traffic to Hawaii could justify basing one of our zero G parabolic aircraft there with appropriate support, and we could begin to offer space training experiences in Hawaii soon.

We have already flown over 3,000 individuals as well as numerous special charter flights for film and TV shows, advertising shoots, marketing promotions and other special purpose activity. We recently won the contract to provide microgravity flight services to NASA. We have also flown hundreds of teachers on special educational flights through a generous sponsorship program by the Northrop Grumman Foundation. All of these activities could be significant markets in Hawaii, and we are looking forward to exploring these business opportunities with the Office of Aerospace Development.

There are already numerous flight experiences available for visitors to Hawaii. Our \$3,500 flight price is in line with other unique luxury and adventure experiences on the islands. We are confident that we will be able to make a strong business case for parabolic flights from Spaceport Hawaii.

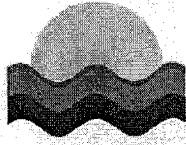
We encourage the Legislature to pass this proposed appropriation, and join the growing number of states developing their own space tourism businesses. Hawaii's unique advantages should make your proposed spaceport development very successful, and your location will definitely be the first choice for customers traveling from Japan and other Asian markets. We are already getting more interest from individuals and also media organizations in Japan, so the expansion of our flight operations to Hawaii to service these growing markets is in line with our own strategic plans.

Very Truly Yours,

A handwritten signature in black ink, appearing to read 'Noah McMahon', with a stylized, cursive script.

Noah McMahon  
Chief Marketing Officer  
ZERO GRAVITY CORPORATION





**Hawaii Island Economic Development Board**  
**ISLAND OF OPPORTUNITY**

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January 30, 2008

Senator Carol Fukunaga, Chair  
Senator Will Espero, Vice Chair  
Senate Committee on Economic Development & Taxation  
Senator Clarence K. Nishihara, Chair  
Senator Donna Mercado Kim, Vice Chair  
Senate Committee on Tourism and Government Operations  
Hawai'i State Legislature  
State Capitol, Honolulu, Hawai'i 96813

Reference: SB 2340 – Relating to Aerospace Development  
Hearing: Conference Room 224 at 1:15 a.m. Thursday February 7, 2008.

Dear Senators Fukunaga and Espero, Senators Nishihara and Kim, and  
respective Committee Members:

On behalf of the directors and the 115 member organizations of the Hawaii  
Island Economic Development Board, we wholeheartedly support SB 2340  
to enable the office of aerospace development, department of business,  
economic development and tourism to conduct feasibility studies for a  
spaceport here in Hawai'i and to make application to the Federal Aviation  
Administration for a commercial space transportation license.

Space tourism as the new frontier of commercialization, potentially can  
generate a good source of income for the State of Hawai'i without adversely  
effecting our precious environment and provide for a new set of high  
paying, higher skill jobs here in Hawai'i.

On behalf of the directors, we ask that you pass this legislation and  
appreciate the opportunity to submit testimony before you.

'O wau nō me ka ha'a ha'a

Mark McGuffie  
Executive Director



February 6, 2008

Hawaii State legislature  
State Capital  
Honolulu, Hawaii 96813

Support Testimony on  
S.B. NO. 2340

**RELATING TO AEROSPACE DEVELOPMENT - SPACEPORT LICENSE**

Senate Committee on Economic Development & Taxation  
Senator Carol Fukunaga - Chair, Senator Will Espero - Vice Chair  
Senate Committee on Tourism and Government Operations  
Senator Clarence K. Nishihara - Chair, Senator Donna Mercado Kim - Vice Chair  
Thursday, February 7, 2008, 1:15 p.m., Conference Room 224

Enterprise Honolulu strongly supports SB 2340, providing initial funding to obtain an FAA License for space port operations in Hawaii.

With congress and NASA opening up the first 100 miles of space for commercialization, Hawaii can strengthen its position in this growth market through support and funding to secure space port license authorization for Honolulu International Airport, Kalaeloa Airport, and Kona Airport, plus support for the Pisces and UH space initiatives.

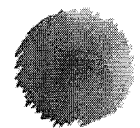
Why now? NASA rolled out America's new vision for space exploration in 2006, and Hawaii has many assets/resources/capabilities/advantages that can positively respond. Hawaii's strategic mid-Pacific location and long-standing ties with Asia-Pacific nations, makes the islands an ideal site to support collaborative international science, education and economic development initiatives (e.g., conferences/symposia, research, astronaut training, advanced optics and robotics testing and evaluation)

Getting space port authorization for sub orbital flights in Hawaii is the first step towards a future linking Hawaii to any part of the world within an hour in the not too distant future. Failure to act on this now could mean Hawaii will not be on the flight map at all. The timing is right for these activities.

Enterprise Honolulu strongly **supports** SB 2340.

John Strom

VP Director of Business Development & Technology



**ENTERPRISE  
HONOLULU**

737 Bishop Street, Suite 2040, Honolulu, Hawaii 96813 • 808-521-3611  
Fax: 808-536-2281 • [www.EnterpriseHonolulu.com](http://www.EnterpriseHonolulu.com)

THE BUSINESS CLIMATE OF PARADISE



February 6, 2008

Members of the 24<sup>th</sup> Senate  
State of Hawaii  
Hawaii State Capitol  
415 South Beretania Street  
Honolulu, HI 96813

RE: S.B. 2340 Space Transportation License Bill

Dear Members of the Senate:

I am writing to offer support for the above referenced appropriations bill and to commend the Legislature for taking this visionary step in bringing new space business opportunities to Hawaii.

Market studies over the last five years have validated the concept that space tourism can become a billion dollar industry over the next ten years, with thousands of people from all over the world flying to space in new reusable suborbital spacecraft in order to experience the unique views of the Earth from space and the thrill of acceleration and the feeling of weightlessness. Hawaii's unique geographic position will draw customers from all around the Pacific Rim to be able to see the entire chain of islands and the beauty of the blue planet from 100 kilometers altitude.

Rocketplane Global is committed to becoming an anchor tenant for Spaceport Hawaii as soon as a Spaceport Operator's License is approved by FAA / AST. Our experience in dealing with this agency during the licensing process for the Oklahoma Spaceport was extremely positive, and much of the work that was done for that license will also be applicable to the licensing effort for Spaceport Hawaii. The Programmatic Environmental Impact Statement that was prepared by the FAA / AST office for the horizontal takeoff and landing class of suborbital launch vehicles (including the Rocketplane XP) will also be applicable for licensing the existing airport infrastructure in Hawaii as dual use airport / spaceport facilities. Because the physical infrastructure to support space flight operations is already in place on Oahu and Kona, the state can enter the spaceflight business without any public sector investment beyond the cost of the licensing effort. This will provide a strong competitive advantage to Spaceport Hawaii, augmented by the climate and natural beauty that the state is already famous for.

In addition to space tourism, microgravity research, remote sensing applications and the affordable launch of small satellite payloads are all significant business opportunities for Rocketplane Global spaceplanes operating from Spaceport Hawaii. The ability to launch payloads in any direction from an existing runway without any noise or environmental impact associated with ground-based expendable rocket launches will open up significant

new markets for both civil and government small satellite payloads, as well as provide new space test capabilities for the Pacific Missile Test Range.

We believe that there are also significant terrestrial space-theme tourism development opportunities associated with the spaceport development. With proper planning and design, the Spaceport Hawaii Visitor's Center could become one of the top tourist attractions on Oahu as well as being a world class immersive space education facility for residents. Promoting educational opportunities, seeing real spaceflights, and hands-on participation by students from across the state will be an additional benefit of the development of Spaceport Hawaii.

Second generation spaceplanes with much greater speed and range should begin to enter service within five to ten years of the start of space flight operations in Hawaii. These vehicles will have the ability to fly from Japan or the mainland US to Hawaii in an hour or less. By entering service as a commercial spaceport now, Hawaii is also positioning itself as a key node in a global spaceport network. In the future, suborbital spaceplanes will allow people and cargo to move anywhere on Earth in about two hours, and Hawaii will benefit greatly from this increased global ease of access.

There are now six licensed commercial spaceports in the US and another 8 being proposed. In addition, commercial spaceports in Europe and Asia are now in development. These locations will form the backbone of a global network of spaceports which will provide access points to long range hypersonic travel. Hawaii can be a critical node in this network connecting the US to Asia. Transportation has long been a driver in new economic development activity, and the development of Spaceport Hawaii will position the state for this growth, both now using first generation spaceplanes and into the future with long range hypersonic transportation.

We encourage the Legislature to approve this appropriation, and look forward to working closely with the state in a spirit of public / private partnership to create new jobs and economic activity.

With Warmest Regards,

ROCKETPLANE GLOBAL, INC.

A handwritten signature in black ink, appearing to read "G. French, Jr.", written in a cursive style.

George D. French, Jr.  
CEO