



Audubon FLORIDA

February 20, 2014

Ms. Stacey M. Zee
Commercial Space Transportation, AST-100
Federal Aviation Administration
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Dear Ms. Zee:

Audubon Florida, the state's oldest and largest conservation organization, comments on the EIS scoping process for the Space Florida facility proposed at the "Shiloh" site within the Merritt Island National Wildlife Refuge and Kennedy Space Center lands held by NASA. These comments are intended to supplement the comments and exhibits previously delivered to you during the course of the public scoping workshops held on February 11th, and 12th 2014 at New Smyrna Beach and Titusville.

Previously we have delivered the following documents to you which we ask be considered and evaluated in the EIS process:

- (1) Testimony of Charles Lee, Audubon Florida, to House Oversight and Government Reform Committee, Subcommittee on Government Operations, February 10, 2014.
- (2) Exhibits to the testimony referenced above, including the USFWS letter to Dr. George C. Nield of the FAA, dated January 3, 2014, and the "Kennedy Space Center - Future Development Concept 2012-2031" prepared by NASA, in 2012 (http://www.nasa.gov/centers/kennedy/pdf/634026main_future-concept.pdf)
- (3) Page 73, "Exhibit 2.1-1. Proposed Launch Day Closure Areas" Draft Environmental Impact Statement, SpaceX Texas Launch Site; Volume I, Executive Summary and Chapters 1-14, April 2013.
- (4) USFWS Map, Merritt Island NWR, Watercraft Use of Southern Mosquito Lagoon, and Northern Indian River Lagoon, results of 100 aerial surveys conducted in 2002.

In addition, we request that the FAA take notice of and obtain the transcript of the House Oversight and Government Reform Committee, Subcommittee on Government Operations, dated February 10, 2014. We request that in particular, that the testimony of Kennedy Space Center Director Bob Cabana regarding NASA's plans for public and private space launch sites through the year 2031 be considered.

Alternatives

Section 102 (2) (E) of the National Environmental Policy Act of 1969 requires that FAA "...study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources."

The U.S. Fish and Wildlife Service, a cooperating agency with FAA in the scoping and preparation of the environmental impact statement for the Space Florida Shiloh project has clearly recommended that alternatives beyond the "no action" alternative be developed, described and analyzed in this environmental impact statement.

Audubon believes that the primary locations which should be evaluated in the EIS as alternative sites for the proposed facility are south of State Road 402 (Playlinda Beach Access Road) within the lands which are currently fenced and controlled by NASA within its security zone. USFWS appears to share this point of view (See USFWS letter of January 3, 2014 to Dr. George C. Nield of FAA.).

NASA has made clear in its long term plan for development of space launch facilities for both public and private space launch programs ("Kennedy Space Center - Future Development Concept 2012-2031") that it believes all future space related development in the Kennedy Space Center area, including the type of facility Space Florida envisions, can and should be accommodated south of State Road 402.

There are strong environmental and management advantages to alternative sites south of SR 402. First, such sites are outside the public use area of the Merritt Island National Wildlife Refuge, Mosquito Lagoon, and Canaveral National Seashore. Minimization of public closures of these areas can be attained by placing launch sites south of State Road 402. NASA has minimized public access closures north of State Road 402 during the duration of the Mercury, Gemini, Apollo and Space Shuttle programs. A principle feature of these sites is that rocket trajectories would not pass over the public use areas.

Next, sites south of SR 402 would be located in an area which has extensive built infrastructure that could be repurposed for Space Florida's use. It is notable that Space Florida itself, and private space launch providers such as SpaceX are already using Air Force facilities for launches in this area, and that SpaceX is in active negotiations with NASA for the reutilization of Space Shuttle launch facility components.

Finally, even if it is necessary to locate a "greenfield" site for the Space Florida facility in some of the natural areas located south of SR 402, these areas of the Merritt Island NWR are generally less valuable from an ecological perspective than areas north of SR 402. This is because areas south of SR 402 are highly fragmented by existing space infrastructure, and have not been managed as effectively by USFWS to maintain habitats that require controlled burns. Controlled burns are difficult to conduct and subject to significant restrictions by NASA south of SR 402. While reutilization of existing disturbed areas should be the preferred strategy for development of alternative sites south of SR 402, it is also clearly preferable that any necessary new disturbance or loss of habitat caused by this and other space related projects be contained south of SR 402.

Space Florida states that it must seek a site outside of government security zones so that private space contractors, foreign national clients, and their proposed payloads and employees will not be subjected to NASA or Air Force Security clearances (which Space Florida claims are difficult to obtain for these entities). Space Florida also claims that private rocket launch providers have difficulty coordinating launch dates with the Air Force and NASA because these agencies must maintain their own priority launch schedules. With regard to the first point (first setting aside the question of whether it is in the national interest to provide the “freedom from security clearances” for foreign nationals and others who want to launch rockets with various payloads from American soil) it is clear that the “problem” Space Florida complains about is a policy issue which (if appropriate) could be resolved by policy changes on the part of NASA and the Air Force. The FAA should evaluate the national security implications of the “freedom from security clearances” that Space Florida is seeking as part of this EIS. If it is appropriate to grant this “freedom from security” as a matter of national homeland security policy, then the alternative of initiating policy changes to give Space Florida an operable site south of SR 402 must be considered as a primary, viable alternative. If it is not in the national interest to grant this “freedom from security clearances” south of SR 402, then the FAA must analyze with particularity and detail why it would be appropriate to provide this “freedom from security clearances” in a de-facto manner by granting approval for the requested launch complex at Shiloh.

With regard to the second issue, involving the coordination of launch schedules with NASA and the Air Force (which Space Florida also seeks to avoid) the FAA must analyze with particularity and detail how and why a launch site located just 10 miles north of the NASA and Air Force launch complexes would be able to operate, launching space vehicles into the same airspace utilized by NASA and Air Force launches, without maintaining the same coordination that would be required if the Space Florida facility were south of SR 402. Because the Space Florida complex proposed at Shiloh would launch space vehicles into the same airspace as NASA and the Air Force, we believe that the same coordination would be required for launches from the Shiloh site, and therefore that the arguments presented on this point by Space Florida are fatuous.

Purpose and Need

U.S. Department of Transportation guidelines for the preparation of Environmental Impact Statements make clear that the FAA must carefully define the purpose and need for the project: “A well-justified purpose and need is vital to meeting the requirements of Section 4(f) (49 U.S.C. 303) and the Executive Orders on Wetlands (E.O. 11990) and Floodplains (E.O. 11988) and the Section 404(b)(1) Guidelines. Without a well-defined, well-established and well-justified purpose and need, it will be difficult to determine which alternatives are reasonable, prudent and practicable.”

Audubon believes that available facts point to the lack of need for this facility, and that the “need” claimed by Space Florida is speculative and undocumented. FAA must harmonize the “need” for this proposed Space Florida facility with the conclusions that it reached and documented in the Draft Environmental Impact Statement for the SpaceX Texas Launch Site, dated April 2013 prepared by the FAA. In this draft environmental impact statement, in sections 2.3.1 and 2.3.1.2 it was conclusively stated that:

“Within the U.S., most sites were eliminated due to safety concerns, as there are very few sites in the nation which are in a sparsely populated area and would not result in overflights over populated areas. Given those constraints, the search was narrowed down to three potential areas: Puerto Rico, Florida, and Texas.”

“Within Florida, SpaceX looked into three areas: north of CCAFS, CCAFS, and south of CCAFS. The area north of CCAFS was eliminated because the coast is heavily populated, and higher latitudes are not optimal for performance” (emphasis added).

Because of these prior conclusions in an EIS process for the closely related and obviously relevant proposal of SpaceX in Texas, it is incumbent on the FAA to document with precise particularity why an opposite conclusion with regard to the Space Florida EIS would be justified. Because the SpaceX Texas facility is so nearly identical to the proposal of Space Florida, The FAA must either acknowledge that the conclusion in the Texas SpaceX EIS is in error, or it must abide by that conclusion in the preparation of the Space Florida EIS, and conclude that the proposed Space Florida site north of CCAFS is not suitable for the reasons stated in the Texas SpaceX EIS.

The fact that Space Florida claims to be seeking potential tenants for the site other than SpaceX does not change this conclusion, unless Space Florida and/or the FAA were to convincingly demonstrate that the technologies, and/or types of space vehicles that would be proposed to be utilized by other potential tenants are so fundamentally different in design and performance that the factors considered by SpaceX and the FAA in the SpaceX Texas EIS simply do not apply.

Safety and Closure Zone Considerations

In the Draft Environmental Impact Statement for the SpaceX Texas Launch Site, dated April 2013 prepared by the FAA, the extent of public closure areas during “launch day” are described in detail on Page 73, Exhibit 2.1-1. “Proposed Launch Day Closure Areas”. This Closure Area essentially encompasses a 5 mile zone surrounding the launch site. In the Texas setting, the proposed closure would curtail public access at “... two pre-defined checkpoints on State Highway 4 for up to 15 hours on a launch day”. In the case of the SpaceX Texas launch site, State Highway 4 is essentially a “dead end” road that terminates at Boca Chica Beach.

The Space Florida site is located immediately adjacent to approximately 1.5 miles of State Road 3 (also known as Kennedy Parkway), which serves as an access road providing a northern entrance to Merritt Island National Wildlife Refuge and Canaveral National Seashore, for traffic coming south from the Daytona Beach area. State Road 3/Kennedy Parkway also serves as a commuter route for workers and commercial vehicles that have access to the northern checkpoint gate of the Kennedy Space Center.

Even more significantly, the proposed Space Florida Shiloh launch sites are only about 2 miles from U.S. 1, a major arterial highway linking cities on the east coast of Florida. The proposed launch sites are also located approximately 2 miles from many residences and businesses in the populated area of the Town of Oak Hill.

If the closure areas described in Page 73, Exhibit 2.1-1. "Proposed Launch Day Closure Areas" of the Texas SpaceX EIS were superimposed on the site of the Space Florida proposal, it is clear that launch day closures would require the closure of State Road 3, and U.S. 1. In addition, this closure area would appear to require the evacuation of people from a significant portion of the Town of Oak Hill. While we understand that the ultimate closure areas on launch day for the Space Florida proposal may be different than those required at the Texas SpaceX facility, the differences must be defined with particularity, and according to the prevailing facts that are imposed by the types of space vehicles utilized at the Space Florida site. The public claims of Space Florida are that the agency is seeking to attract SpaceX and other private space contractors. Space Florida has cited "heavy lift" space vehicles and propulsion technology as one of the agency's prime objectives at this site. For this reason, while it is *possible* that closure envelope distances may be different, this seems unlikely, because the space vehicle technology publicly proposed by Space Florida is identical to that at the Texas site.

Finally, with regard to the effect of public safety/security closures on roads, the location of State Road 3/Kennedy Parkway adjacent to the proposed launch sites appears to constitute an unprecedented situation in terms of the proximity of rocket launch facilities to a public road. Mock up drawings displayed by Space Florida show vertical rocket vehicles on pads plainly visible to public traffic on State Road 3/Kennedy Parkway only a few hundred feet from the road. Surveying known rocket launch sites worldwide, there does not appear to be another situation where the movement, processing, and erection of space vehicles to a vertical launch position takes place while still permitting unrestricted public traffic on a roadway just a few hundred feet away. Space Florida has made repeated claims that traffic on State Road 3/Kennedy Parkway will not be affected except by launch day closures. This does not seem prudent or reasonable.

We believe that the FAA needs to reach an early determination on the practicality of maintaining the general public use of State Road 3/Kennedy Parkway, and the question of whether closure of a major arterial highway (U.S. 1) on launch days is permissible and practical with regard to the viability of the Space Florida Shiloh site.

Practicalities of Closure Management in Mosquito Lagoon

We have provided you (at the public meetings on February 11 and 12) with a document prepared by the USFWS, "Map, Merritt Island NWR, Watercraft Use of Southern Mosquito Lagoon, and Northern Indian River Lagoon, results of 100 aerial surveys conducted in 2002". It is essential to consider the characteristics of this map, and the length and shoreline intricacy of Mosquito Lagoon when evaluating the practical logistics of closing this water body to public access for launch day closures. Both the SpaceX Texas draft EIS and Space Florida cite "15 hour closures" on a launch day. However, the process of assuring the removal of people in small boats from Mosquito Lagoon is not something that can be accomplished instantaneously such as the closure of a checkpoint on a road. Mosquito Lagoon is roughly 20 miles long from the top of Merritt Island NWR to its southern terminus near State Road 402. This means that if each shoreline were a straight line, approximately 40 miles of shoreline would be involved on both the east and west sides of Mosquito Lagoon. However, the actual shoreline is highly convoluted, with many bays, and back bays accessible to the open water of Mosquito Lagoon by narrow channels or creeks. If the total length of both the east and west

shorelines of Mosquito Lagoon were accurately plotted, the shoreline length would easily reach and likely exceed 100 miles.

The nature of visitor/sportsman use of Mosquito Lagoon involves numerous access points. Many people who go to fish or camp on islands in Mosquito Lagoon arrive from points north on the Intracoastal Waterway, such as New Smyrna Beach. Small outboard boats and kayaks constitute the majority of use. As the USFWS map we provided to FAA demonstrates, the majority of this use favors the shoreline intricacies rather than the centerline of the open waters of the lagoon.

NASA previously managed closures of only the southernmost part of Mosquito Lagoon south of “Haulover Canal” during past NASA launch cycles. It was never necessary to clear the entire length of Mosquito Lagoon of kayakers and people in small boats. It is clear that Space Florida launches from its proposed site will cause closures of the northern and middle areas of Mosquito Lagoon that have never occurred before. Due to the travel patterns of users in small outboard boats and kayaks, the logistics of a closure for a Space Florida launch from the proposed site will require “sweeping” Mosquito Lagoon and all of the connected bays and back bays from south to north to assure that all of the members of the public in boats are removed from the launch closure area. Due to shoreline intricacies, conducting such a “sweep” would need to begin at least 24 hours prior to the *beginning* of any closure period. Even with a 24 hour “lead time” for closures, accomplishing the “sweep” would require a fleet of patrol boats and likely one or more helicopters to assure removal of people from the closure area. Many of the kayaks and small boats would require several hours to clear out of the closure area once notified that the area was being closed for a launch. Due to the broad front of access from the north, a fleet of patrol boats or active helicopter surveillance would be necessary throughout the closure period to preclude additional people in boats or kayaks from entering the area from the north.

Consideration of these factors is necessary in order for the EIS to be accurate in terms of assessing the true impact to the public which will occur, reducing the available visitor use for the Merritt Island National Wildlife Refuge, Mosquito Lagoon and Canaveral National Seashore. In actuality, the 15 hour closure periods often referenced by Space Florida are misleading in terms of the true extent of closures likely to be experienced by the public. Each 15 hour closure on launch day will require at least an additional 24 hours of closure in significant parts of the Refuge and Mosquito Lagoon in order for logistics to be completed.

Finally, with regard to these closures it is important to recognize the pernicious impact of launch related closures on the traveling public. Hundreds of thousands of people around the nation, and international travelers, make plans to visit Merritt Island National Wildlife Refuge on family vacations months, and even years in advance. There is no practical way for these individuals to plan in advance to avoid coming to Florida on days the Refuge, Mosquito Lagoon, or Canaveral National Seashore will be closed for a Space Florida launch. Further, practical experience with rocket launches teaches us that a significant percentage of the time a launch proposed to take place on a certain day at a certain time will be “scrubbed” due to technical difficulties. This means that a given closure planned for a specific length of time is likely to be extended until the next available “launch window” which might occur hours or days later. Once the area is “swept” of public

visitors to effect a closure, it is extremely unlikely that closures will be managed to allow the public back into these areas before the rescheduled launch if it were rescheduled to a day or two later. We believe it is incumbent upon the FAA to realistically calculate the probably length and duration of closures under real-world rather than optimal conditions.

Given that Space Florida is proposing 24 launches and an equal number of “static tests” of space vehicles at this site, it would appear conservatively at the outset that the actual impact of launches and static firings will cause a large portion of Merritt Island National Wildlife Refuge, the entirety of Mosquito Lagoon, and portions of Canaveral National Seashore to be closed to the public for a collective period at least of 2-3 months each year.

Again, we wish to emphasize that the Merritt Island National Wildlife Refuge is one of the most popular wildlife viewing locations on the eastern coast of the United States. It is a premier location for viewing both waterfowl and migratory birds on the Eastern Flyway, and resident species of wading birds such as the Rosette Spoonbill, Wood Stork and similar species. USFWS statistics document over 1.2 million visitors in 2012, and over 200,000 visits by boat to Mosquito Lagoon. The collective economic benefit of this activity is in excess of \$60 million each year.

Approximately 36,000 acres of Merritt Island National Wildlife Refuge are open to waterfowl hunting, an important recreational activity. Specific waterfowl hunting areas which will be directly impacted by the public closures likely as a result of the Space Florida proposal are the Shiloh 1, 3, and 5 impoundments, and Waterfowl Hunting Units V1-V5 and T41-T45 in Mosquito Lagoon.

Environmental and Ecological Considerations

In general, we rely upon the excellent recommendations and factual information presented by the U.S. Fish and Wildlife Service as stated in their letter to Dr. George C. Nield of FAA, dated January 3, 2014, which was previously provided to you both by USFWS and by Audubon as a submission at the public meetings held February 11 and 12.

We would like to emphasize that the Merritt Island National Wildlife Refuge has been listed by the National Audubon Society as an Important Bird Area (IBA) of Global Significance. While reviews of the ecological importance of the Merritt Island NWR, Mosquito Lagoon and Canaveral National Seashore areas commonly focus on the notable high-visibility year-round resident species (such as Rosette Spoonbill), the complex of managed public lands at Merritt Island that may be adversely impacted by the Space Florida proposal is actually one of the most important stopover points on the “Eastern Flyway” for migratory birds in the Americas. Many less conspicuous species of migratory birds depend upon the undisturbed availability of this habitat for their survival, and management efforts to encourage these species to thrive (such as management of impoundments at Merritt Island National Wildlife Refuge, and management of upland habitats through controlled burns) are essential to maintain this value to migratory birds. Some examples of these birds are waterfowl including Lesser Scaup, Northern Pintail, and the Florida Mottled Duck. The Merritt Island National Wildlife Refuge has a winter

population of Lesser Scaup that accounts for 62% of the Eastern Flyway population, which is equal to 15% of the entire population in North America.

Habitat management techniques such as conducting controlled burns of upland and marsh habitats are subject to the pernicious erosion of practicality. The addition of what appear to be individually minor constraints add up cumulatively to situations where managers must conclude that it is no longer practical to conduct controlled burns and meet all the policy requirements imposed by others. For example, controlled burns may only be conducted when conditions for managed fire are “just right”. This means that air and soil moisture content, and wind speed/direction (to minimize smoke reaching major roadways or populated areas) must all “line up” to provide a “window” during which a controlled burn can be conducted. Even with a large landscape such as Merritt Island National Wildlife Refuge, the permissible times for a controlled burn at a given site may only occur on a few days during any given year. If the Space Florida project adds additional factors to those constraints (such as launch days or times when sensitive electronic space vehicle payloads susceptible to contamination by particulates in smoke are present at the launch sites) the cumulative result of the addition of these new constraints could preclude controlled burns over a broad area, or cause permissible days for controlled burns to occur so infrequently as to result in dramatically curtailing the value of burns as a habitat management method. We believe that it is incumbent on FAA to evaluate these issues in depth by reliance upon data and recommendations from experts who actually conduct this management (such as USFWS personnel) rather than relying on “facts” about such matters provided by Space Florida, or its consultants.

National Park Organic Act and U.S Transportation Act Section 4 (f) issues

The National Park Service Organic Act (16 USC 1) provides that Canaveral National Seashore must be managed to: "...conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." Given that Canaveral National Seashore was established by an act of Congress pursuant to the Organic Act cited above, overflights of the seashore, environmental impacts from launches, and closures of the Seashore to visitors for launches are only permissible to the extent that Congress has granted approval. P.L.93-626 which established Canaveral National Seashore has specific requirements in it for coordination of the mission of the National Park Service at the seashore with NASA's mission concerning the Space Program of the United States. There are specific requirements in the legislation that allow NASA limited uses within the National Seashore, including a time limited (and long since expired) period to withdraw certain lands from the National Seashore boundary, and a requirement for closure (if necessary) during NASA launches. However, the specificity of this statutory language, and its exclusive relation to NASA launches which are part of the Space Program of the United States is clear. The Canaveral Seashore legislation did not contemplate or provide for compromising the integrity of Canaveral National Seashore by due to activities by “Space Florida” or other private space launch activities not actually part of the Space Program of the United States. For these reasons, we believe that FAA must analyze whether space vehicle overflights, visitor closures, and other impacts or management changes impacting Canaveral National Seashore can be approved as matters appurtenant to an FAA license without an express act of Congress modifying the National Park Service Organic Act,

and/or the act that established Canaveral National Seashore specifically. It is Audubon's position that the specific legislation establishing Canaveral National Seashore and the Organic Act are predominant, and cannot be subject to implied modification by virtue of a license or permit issued by the Federal Aviation Administration to Space Florida for this project.

Audubon believes that Section 4(f) of the U.S. Transportation Act creates a substantive requirement for the Federal Aviation Agency, which is part of the U.S. Department of Transportation, to deny approval for the Space Florida License. Under the provisions of 49 USC 303, the Secretary may approve a transportation project within a park, wildlife refuge or historic site, only if "there is no prudent and feasible alternative to using that land." It should be noted that a "prudent or feasible alternative" does not mean an alternative that must be convenient to or preferred by Space Florida. It means instead that the Secretary of the Department of Transportation must make an independent determination whether any alternatives (such as those recommended in the USFWS January 13, 2014 letter to Dr. Neild of FAA) are prudent or feasible. Since NASA's 2012-2031 long range plan provides that the Shiloh Site should remain undisturbed as part of the Merritt Island National Wildlife Refuge, and further since the NASA plan makes clear that alternative sites such as are recommended by USFWS are available south of SR 402, we believe that the evidence of record available is uncontroverted on this point. The available information at this point strongly favors a presumption that "feasible and prudent" alternatives exist. If the FAA chooses to reach a different conclusion, Audubon believes FAA must bear the burden of convincingly overcoming the presumption created by these facts.

While the EIS process under NEPA requires an "alternatives analysis", in typical EIS situations, a NEPA EIS is a procedural requirement, and alternatives are developed as a matter of public disclosure and advice to federal agencies making decisions impacting the environment. Here, due to the provisions of Section 4 (f) of the Transportation Act, there is a specific substantive requirement for a determination that no "feasible and prudent" alternatives exist in order for FAA to grant the license requested by Space Florida. For these reasons, we believe that FAA must perform a robust, in depth, analysis of alternatives as an obligatory decision making criteria in addition to procedural compliance with NEPA.

In conclusion, Audubon Florida thanks the FAA for this opportunity to comment, and we look forward to answering any questions or providing any further information you may request during the EIS and license review process. Please provide us with notification of any additional opportunities for public comment.

Sincerely,

A handwritten signature in black ink, appearing to read 'Charles Lee', with a stylized, flowing script.

Charles Lee
Director of Advocacy