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June 14, 2018

Via U.S. Mail and Electronic Mail

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**RE: Comments on Draft Environmental Impact Statement for Spaceport
Camden**

Dear Ms. Zee:

On behalf of the National Parks Conservation Association, One Hundred Miles, Center for a Sustainable Coast, Glynn Environmental Coalition, Satilla Riverkeeper, and Atlanta Audubon Society, the Southern Environmental Law Center (SELC) submits the enclosed comments on the Federal Aviation Administration's (FAA) Draft Environmental Impact Statement (DEIS) for the proposed spaceport in Camden County, Georgia.

SELC is a regional nonprofit organization that uses the power of the law to champion the environment in six southeastern states: Virginia, North Carolina, South Carolina, Tennessee, Alabama, and Georgia. We fight for clean water, healthy air, and the South's special places, including iconic Georgia places like Cumberland Island National Seashore, the Cumberland Island Wilderness Area, and Georgia's unique and impressive tidal saltmarsh.

But we do not do this work alone. We have many partners on the Georgia Coast, including the organizations on whose behalf we send this letter. They all have unique, but complimentary missions. The National Parks Conservation Association's mission is to protect and enhance America's National Park System for present and future generations. One Hundred Miles focuses its efforts on protecting, preserving, and enhancing the Georgia coast. The Center for a Sustainable Coast advocates for responsible decision-making that sustains coastal Georgia's environment and quality of life. The Glynn Environmental Coalition concentrates on enhancing the environment in and around Glynn County, Georgia. The Satilla Riverkeeper is the "eyes and ears" of the Satilla River watershed. And the Atlanta Audubon Society builds places where birds and people can thrive.

As set forth in the attached comments, the FAA's DEIS violates the National Environmental Protection Act (NEPA), Section 4(f) of the Department of Transportation Act, and the Endangered Species Act (ESA). The DEIS is rife with failures to properly address critical aspects of the proposed project and comply with applicable laws. The FAA can cure these shortcomings only by preparing a new DEIS containing the necessary information and analysis. But even if the FAA corrects the DEIS's deficiencies, it will not be able to correct problems that are inherent in the proposed site, including the fact that any rocket launched would travel over populated areas and significant public lands.

This project poses non-legal risks as well. The DEIS makes clear that the proposed site is deeply flawed. In chasing the allure of an enticing new industry, Camden County risks compromising the natural beauty and unique features that drive its tourism industry. Given the large number of existing and planned spaceports and the relatively small number of rocket launches, Camden County is poised to embark on an extremely expensive undertaking in a highly competitive market. While the benefits of this venture are speculative, the costs are very real. And ultimately, the financial burden and risk of this enterprise will be borne by the citizens of Camden County, not the FAA.

The FAA must take a hard look at the environmental and human harms that would be caused by the proposed spaceport. And it must do so now. If the project is due to fail, as we believe, Camden County deserves to know that today, rather than a year and several million dollars down the road.

If you have any questions concerning these comments, you can reach us at 404-521-9900.

Sincerely,



William W. Sapp
Senior Attorney



Brian Gist
Senior Attorney



April Lipscomb
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Stacey Zee
June 14, 2018
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Enclosures (will be provided with U.S. Mail version, but not with Electronic Mail version)

cc (without enclosures):

Region 4, U.S. Environmental Protection Agency
National Park Service
Fish and Wildlife Service
Georgia State Historic Preservation Office
Camden County Commission
Little Cumberland Island Association

National Park Conservation Association
One Hundred Miles
Center for a Sustainable Coast
Glynn Environmental Coalition
Atlanta Audubon Society
Satilla Riverkeeper

Summary of Comments

The following comments address areas in which the Federal Aviation Administration (FAA) failed to take a hard look at the environmental impacts that the proposed Spaceport Camden would have on the human environment. The most significant shortcomings of the Draft Environmental Impact Statement (DEIS) include:

- The DEIS' statement of purpose and need is too narrow and does not demonstrate an actual need for the Spaceport.
- The DEIS does not contain critical information regarding the project, including information about closure areas, potential impacts from launch failures, and "authorized persons."
- The alternatives considered do not satisfy FAA requirements for a launch site.
- The DEIS does not discuss offsite and onsite alternatives to the preferred alternatives and the relative risks associated with each.
- The DEIS does not adequately consider the direct, indirect, and cumulative impacts of the project.
- The FAA ignores the potential impact of climate change and sea level rise on the proposed project.
- The DEIS does not contain an adequate discussion of mitigation for the proposed project.
- The proposed project does not comply with Section 4(f) of the Transportation Act, because prudent and feasible alternatives exist, and because all possible mitigation measures have not been implemented.
- The proposed project does not comply with the Endangered Species Act.

Individually and collectively, these deficiencies render the DEIS inadequate to satisfy the requirements of the National Environmental Policy Act, the National Historic Preservation Act, Section 4(f) of the Department of Transportation Act, and other federal requirements. A new DEIS that complies with the requirements of these statutes must be prepared and released for public comment.

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I. Introduction

The Camden County Board of Commissioners (the County or Camden County) has proposed to build and operate a commercial space launch site, called Spaceport Camden, on the Georgia coast in Camden County. The County proposes to launch small to medium-large lift-class rockets, which would blast off carrying sub-orbital and orbital payloads such as satellites. The proposed launch site is adjacent to the Satilla River and immediately landward of the Cumberland Island National Seashore and Little Cumberland Island. The National Seashore contains a 9,000-acre Wilderness Area and an 11,000-acre potential wilderness area, which are major tourist locations on the Eastern Seaboard. Little Cumberland Island contains 40 residences, which private citizens live in or frequently visit. Any rockets fired from the proposed spaceport would travel directly over both islands.

During the twelve launches that are predicted each year, fishermen and boaters would have to evacuate the public marshes and tidal creeks that must be closed pursuant to FAA regulations during launches. Depending on the launch, the public may have to evacuate parts of Little Cumberland Island and Cumberland Island National Seashore. Weather conditions could cause launches to be delayed for several days. During that time, the public would not be allowed to enter the closure areas, and thus, people could be denied access to special areas for extensive periods of time, not just twelve times a year.

The launch facility would be constructed directly on the fringe of the marsh on a parcel of land that has been highly contaminated for decades by various industrial facilities. The site would contain brightly lit towers that would jut skyward 250 feet. The facility would house large tanks of highly flammable propellants. The propellants used for payloads are incredibly toxic and, if combined prematurely, can explode without any form of igniter. These propellants would have to be transported on public roads.

Before the County can construct the facility, it must obtain a launch site operator license from the FAA. As part of the licensing process, the FAA has prepared and distributed a draft EIS for the proposed spaceport under the National Environmental Policy Act. Before issuing a license, the FAA must respond to any substantive comments, make changes to the DEIS, and then issue a Final EIS with a Record of Decision. Then, it must conduct a national security and foreign policy review, a safety review, and a launch site location review before it can issue a license to the County. None of these other reviews are subject to public notice and comment.

Thus, it is imperative that FAA fully consider all issues and fully disclose all necessary information to the public through the EIS process.

II. The DEIS violates the National Environmental Policy Act.

“NEPA has twin aims.” Balt. Gas & Elec. Co. v. Natural Res. Def. Council, Inc., 462 U.S. 87, 97 (1983). “First, it places upon an agency the obligation to consider every significant aspect of the environmental impact of a proposed action.” Id. (quotation omitted). “Second, it ensures that the agency will inform the public that it has indeed considered environmental concerns in its decisionmaking process.” Id. These goals are “realized through a set of action-forcing procedures that require that agencies take a hard look at environmental consequences, and that provide for broad dissemination of relevant environmental information.” Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 350 (1989) (quotations omitted). “Other statutes may impose substantive environmental obligations on federal agencies, but NEPA merely prohibits uninformed—rather than unwise—agency action.” Id. at 351.

“An agency’s primary duty under the NEPA is to take a hard look at environmental consequences.” Pub. Utils. Comm’n v. FERC, 900 F.2d 269, 282 (D.C. Cir. 1990) (quotation omitted). At a minimum, an agency must have “adequately considered and disclosed the environmental impact of its actions.” Balt. Gas & Elec. Co., 462 U.S. at 97–98. The agency’s “analysis must be reasonable and adequately explained.” Sierra Club v. FERC, 867 F.3d 1357, 1368 (D.C. Cir. 2017).

The FAA has failed to fulfill NEPA’s twin aims. The FAA has not adequately considered every significant aspect of the environmental impact of Spaceport Camden, nor has it informed the public by disclosing those impacts in the DEIS. A draft EIS that falls short of the requirements imposed by NEPA must be revised. The FAA must acknowledge the deficiencies in the DEIS, as discussed in these comments, and issue a revised DEIS for public comment. Alternatively, the FAA must issue a supplemental DEIS for public comment.

A. Purpose and Need

The DEIS offers a two part statement of purpose and need, encompassing requirements of both Camden County and FAA. The DEIS describes Camden County’s statement of purpose as:

The purpose of the County’s proposal to construct and operate Spaceport Camden is to allow the County to offer a commercial space launch site to a growing number of small to medium-large lift-class, orbital and suborbital, vertical launch vehicle operators to conduct commercial launches from the east coast of the United States.

The need for the proposed commercial space launch site is to further the goals of Camden County as established in the County’s Strategic Plan 2018, 2023, 2032 to create a strong regional economy with diverse job opportunities based on four

major pillars of economic growth and sustainment, one of which is developing a world-class spaceport that would also attract businesses to support its operation.

DEIS at 1. With respect the FAA, the DEIS describes the purpose of the project more broadly.

The purpose of FAA action in connection with the County's proposal is to fulfill FAA's responsibilities as authorized by EO 12465, Commercial Expendable Launch Vehicle Activities (49 Federal Register [FR] 37099, 3 CFR, 1984 Comp., p. 163), and the Commercial Space Launch Act of 2015 (51 U.S.C. §§ 50901–50923) as amended by the U.S. Commercial Space Launch Competitiveness Act of 2015 (Public Law 114-90) for oversight of commercial space launch activities, including issuing Launch Site Operator Licenses for the operation of commercial space launch sites, and launch licenses to operate expendable and reusable orbital and suborbital launch vehicles.

The need for the FAA action of issuing a Launch Site Operator License and launch licenses results from the statutory direction from Congress under the Commercial Space Launch Act to protect the public health and safety, safety of property, and national security and foreign policy interests of the United States and to encourage, facilitate, and promote commercial space launch and reentry activities by the private sector in order to strengthen and expand U.S. space transportation infrastructure.

Id. at 3. By adopting this compound statement of purpose and need, the DEIS limits the range of alternatives to those which satisfy both sets of criteria – the economic development goals from Camden County and spaceflight goals from the FAA. This compound statement of purpose and need unreasonably predetermines the range of possible alternatives to exclude anything other than the option already selected by Camden County.

“[A]gencies must look hard at the factors relevant to the definition of purpose” and “should take into account the needs and goals of the parties involved in the application.” Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991). An agency may not “define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency’s power would accomplish the goals of the agency’s action, and the EIS would become a foreordained formality.” Citizens for Smart Growth v. Sec’y of Dep’t of Transp., 669 F.3d 1203, 1212 (11th Cir. 2012); see also City of New York v. Dep’t of Transp., 715 F.2d 732, 743 (2d Cir. 1983) (holding agency may not “narrow the objective of its action artificially and thereby circumvent the requirement that relevant alternatives be considered”); Residents in Protest--I-35E v. Dole, 583 F. Supp. 653, 660 (D.

Minn. 1984)(“[I]t is not permissible to define the goals [of a project] so as to preordain the outcome.”); Simmons v. U.S. Army Corps of Eng’rs, 120 F.3d 664, 666 (7th Cir. 1997) (“One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing ‘reasonable alternatives’ out of consideration (and even out of existence). . . . If the agency constricts the definition of the project’s purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role”).

With respect to Camden County’s purpose and need, the DEIS adopts the goals set in the Camden County 2018→ 2023→ 2033 Strategic Plan.¹ This plan references eight principles for the county to achieve by 2033 including not only the spaceport but also goals like “beautiful,” “safe,” “quality residential developments,” and “abundant leisure choices for all.” The planned spaceport is described as a “world-class launch facility with regular launch schedule,” but contains no other details regarding its design.

With respect to the FAA’s portion of the purpose and need statement, the DEIS states that the project is intended to fulfill the agency’s obligations under Executive Order 12465 and the Commercial Space Launch Act of 2015. These mandates generally direct the FAA to “facilitate and coordinate the development of commercial expendable launch vehicles,”² but they do not speak directly to Spaceport Camden or the need for facilities of the specific design considered in the DEIS.

There are a number of design elements that are adopted elsewhere in the DEIS that are not required by the stated purpose and need. The DEIS focuses on a commercial space launch site that can accommodate vertical launch vehicle operators for the orbital and suborbital launch of small to medium-large, liquid propellant launch vehicles. DEIS at 1-1. This description includes a number of variables including the launch orientation, the type of launch (orbital/suborbital), and the size of the launch vehicles. However, the DEIS never addresses why this combination of variables is necessary to meet the compound statement of purpose and need. Instead, this is another example of the DEIS using an overly narrow statement of purpose and need to predetermine the range of viable alternatives.

The DEIS uses a single design for its statement of purpose and need. Yet it fails to address why other design elements related to launch orientation, the type of launch (orbital/suborbital), and the size of the launch vehicles could not be considered. Further, it fails to provide any analysis to justify the actual need for such a facility, other than its inclusion in the County’s

¹Camden County 2018→ 2023→ 2033 Strategic Plan [hereinafter Strategic Plan], available at https://issuu.com/camdencountyboc/docs/2018_camden_county_strategic_plan?e=32272897/58551200.

² <https://www.archives.gov/federal-register/codification/executive-order/12465.html>.

strategic plan. Third, the DEIS fails to evaluate the projected demand for rocket launches of this type and whether those launches could be met by other existing and permitted spaceport facilities.

Information available regarding current space launches suggests there is no need for Spaceport Camden. As of 2014, there were 10 active launch sites and 23 active launch licenses.³ Later that year, the FAA signed a Record of Decision for the Boca Chica facility in Texas, which is planned to conduct 12 launches per year.⁴ In addition to Spaceport Camden, two other new launch facilities currently have environmental studies in progress.⁵ And last month the Wallops Island facility released a programmatic EIS that would allow it to update and increase its launch capabilities. One FAA report suggests that the number of launches per year is expected to grow from 22 in 2017 to between 39 and 61 launches in 2020.⁶ However, FAA's launch projections have been criticized by the Government Accountability Office for consistently over-estimating the number of launches per year.⁷ In 2012, the FAA estimated that 33 launches would take place in 2015.⁸ The actual number of launches was 20.⁹ In short, the available and new launch site capacity may be outstripping the need for launch sites. If this is the case, there is no legitimate need for Spaceport Camden. The DEIS must provide some market analysis to justify the need for the spaceport generally and for the specific design it recommends.

³ https://www.faa.gov/data_research/commercial_space_data/licenses/.

⁴ Final Environmental Impact Statement SpaceX Texas Launch Site, Volume I, Executive Summary and Chapters 1-14 (May 2014), available at https://www.faa.gov/about/office_org/headquarters_offices/ast/environmental/nepa_docs/review/launch/spacex_texas_launch_site_environmental_impact_statement/media/FEIS_SpaceX_Texas_Launch_Site_Vol_I.pdf.

⁵ United States Government Accountability Office Report to the Chairman, Committee on Science, Space and Technology, House of Representatives: Federal Aviation Administration Commercial Space Launch Industry Developments Present Multiple Challenges GAO-15-706 (August 2015) at 26, available at <https://www.gao.gov/assets/680/672144.pdf>.

⁶ FAA Aerospace Forecast: Fiscal Years 2018-2038 at 36, available at https://www.faa.gov/data_research/aviation/aerospace_forecasts/media/FY2018-38_FAA_Aerospace_Forecast.pdf.

⁷ Commercial Space Launch Industry Developments Present Multiple Challenges at Table 1, at <https://www.gao.gov/assets/680/672144.pdf>.

⁸ FAA, Annual Compendium of Commercial Space Transportation (2013), at https://www.faa.gov/about/office_org/headquarters_offices/ast/media/Annual_Compendium_of_Commercial_Space_Transportation_2012_February_2013.pdf.

⁹ FAA, Annual Compendium of Commercial Space Transportation (2018), at https://www.faa.gov/about/office_org/headquarters_offices/ast/media/2018_AST_Compendium.pdf.

Further, the DEIS should also have considered whether any such need could have been met by existing and permitted launch facilities. Instead of conducting such an analysis, the DEIS relies on a compound statement of purpose, and further narrows that statement to a single site design. The DEIS contains no information to support the assertion that a facility of this design is actually needed. Accordingly, the DEIS has improperly predetermined the alternatives analysis under NEPA.

B. The lack of key analyses in the DEIS prevents meaningful comment by the public.

NEPA requires “that the relevant information will be made available to the larger audience that may also play a role in both the decision making process and the implementation of that decision.” Methow Valley, 490 U.S. at 349. An EIS “should go beyond mere assertions by providing sufficient information and reasoning to enable readers to consider and evaluate the comparative merits of the alternatives on their own and to comment on the EIS.” Druid Hills Civic Ass’n v. Fed. Highway Admin., 772 F.2d 700, 713 (11th Cir. 1985). Public scrutiny is “essential to implementing NEPA.” 40 C.F.R. § 1500.1(b).

To comply with NEPA, the FAA “must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken.” Id. Where this information is not provided by the agency, the public is “limited to two-dimensional advocacy” in violation of NEPA. WildEarth Guardians v. Mont. Snowmobile Ass’n, 790 F.3d 920, 927 (9th Cir. 2015). By depriving the public of relevant information, the agency asks the public and other decision-makers “to assume the adequacy and accuracy of partial data without providing any basis for doing so.” Id.

If an agency realizes there is incomplete or unavailable information when evaluating the reasonably foreseeable adverse effects on the human environment, the agency must make clear that such information is lacking. 40 C.F.R. § 1502.22. If the incomplete information “is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information” in the EIS. Id. § 1502.22(a). But if information relevant to reasonably foreseeable significant impacts cannot be obtained because of exorbitant costs or the means to obtain it are unknown, the agency must include within the EIS the following:

- (1) A statement that such information is incomplete or unavailable;
- (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
- (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment, and
- (4) the agency's evaluation of such impacts based

upon theoretical approaches or research methods generally accepted in the scientific community.

Id. § 1502.22(b). Critically important for this DEIS, “reasonably foreseeable” adverse effects “includes impacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.” Id. § 1502.22(b)(1).

The DEIS is replete with missing, inadequate, incorrect, and misleading information pertaining to the most critical aspects of the proposed spaceport, including but not limited to information about launch failures, closure areas, and risks to human life and property.

1. Launch failures, debris fields, and testing mishaps

The DEIS consistently skirts around the impacts associated with launch failures, noting that while failures are possible, the probability of a launch failure at Spaceport Camden is only in the 2.5 to 6 percent range. DEIS at 2-34.¹⁰ The DEIS asserts that launch failures typically occur: (1) at the launch pad soon after ignition, (2) much later in the flight and well out to sea, or (3) during the return flight or at the landing site for first-stage landings. Id. at 2-34. Vehicle debris from explosions at the launch pad “would be expected to be confined to the launch site,” while debris from explosions during the other scenarios “would be expected to impact within the launch site boundary, or on land or in water within the hazard area.” Id. at 2-34 to 2-35. Aside from these general and vague descriptions, the DEIS omits any real analysis of the direct and indirect environmental impacts of launch failures.

For instance, in Chapter 4 (Environmental Consequences), the Air Quality section explains that residual propellant could escape during a failure and vaporize into an airborne cloud. Id. at 4-3. In addition, other propellants such as UDMH, MMH, and NTO may be released into the environment. While the DEIS states that MMH and NTO are toxic to humans and pose environmental hazards if released in sufficient quantity to the environment, the DEIS does not explain how the propellants are toxic or what the potential impacts to humans and the environment would be in the event of a release from a launch failure. Id. at 4-3 to 4-4. Instead, the DEIS attempts to downplay the risks by claiming that Spaceport Camden operators and the FAA would take “all reasonable and feasible measures . . . to minimize accidents and to protect human health and the environment.” Id. at 4-3.

¹⁰ Notably, 6.7 percent of launches failed in 2017 at existing, licensed launch sites worldwide. <http://spaceflight101.com/2017-space-launch-statistics/>.

A similarly lacking discussion about launch failures appears in the Biological Resources section. Id. at 4-20. Although that analysis does identify some of the impacts of a launch failure, it fails to provide any specifics. Vague sentences such as “[h]abitats may be temporarily degraded or permanently destroyed, causing animals to move to other areas to forage and nest,” are insufficient. Rather, the DEIS must discuss specific direct and indirect impacts to the Satilla River estuary, to endangered and threatened species and their habitat, and to tidal marshland and old growth maritime forest, for instance. In addition, the DEIS fails to discuss the reasonably foreseeable impacts from first-stage landing failures at the barge in both the proposed action and the ocean-landing only alternative (and for each resource category, not just biological resources).

Critically absent in the DEIS is any discussion of how a launch failure could impact the hazardous waste landfill that sits adjacent to the site and next to Todd Creek, as well as a related analysis of how a launch failure would impact the already eroding banks of Todd Creek. Presumably, this analysis could fit within Section 4.7, Hazardous Materials, Solid Waste, and Pollution Prevention. In the same vein, that section should discuss how a launch or landing failure could impact existing contamination and MECs on and surrounding the property. But it does not. Interestingly, that section makes the grand conclusion that the “largest potential for hazardous materials/wastes releases would occur in the event of a launch failure,” and that possible outcomes “include fires, explosions, or releases of propellants or other hazardous materials.” Id. at 4-42. But instead of explaining the actual impacts, the DEIS simply states that “clean up and recovery of components would be performed to minimize impacts on lands.” Id. at 4-42. More data, information, and analysis are needed to inform the public and decision-makers.

Also missing is an analysis of how a launch failure could impact Cumberland Island and Little Cumberland Island. This oversight is alarming, given the high risk of fire on the islands, the lack of emergency response personnel, the existence of residences and historic properties on the islands, and Camden County’s insistence on allowing “authorized personnel” like campers to remain on the islands during launches. This is grossly deficient under NEPA.

Accordingly, in addition to addressing the shortcomings detailed above, we recommend adding a “Launch and Landing Failures” subsection to each resource category in Chapter 4 (Environmental Consequences), Chapter 5 (Cumulative Impacts), and Chapter 6 (Mitigation) where currently absent. The reasonably foreseeable direct and indirect impacts from launch and landing failures should be sufficiently analyzed for both the proposed action and the ocean landing-only alternative in each resource category. Where the DEIS suggests that launch failures would have impacts but fails to elaborate, the DEIS must provide an actual analysis or explain why such analysis is absent. A low probability of occurrence is no excuse. The Noise and Noise-Compatible Land Use resource category provides the perfect example of what not to do: “Noise levels that could be generated by a catastrophic rocket failure are not discussed in detail as such events are unlikely to occur.” Id. at 4-69. Again, NEPA requires an analysis of all “reasonably

foreseeable” adverse effects, including “impacts which have catastrophic consequences, even if their probability of occurrence is low.” 40 C.F.R. § 1502.22(b)(1). The impact of the launch failures fits that description precisely.

Furthermore, the DEIS should include maps showing potential debris dispersion fields from launch failures occurring (1) soon after ignition/lift off and over the launch site, (2) over Cumberland Island and Little Cumberland Island, (3) at the landing barge out to sea, and (4) at the landing pad. These maps would help decision-makers and the public understand the extent of environmental impacts from launch failures under various scenarios and could help guide the discussion of direct and indirect impacts in each resource category in Chapter 4. Notably, we understand that Camden County has worked with a consultant, The Aerospace Corporation, to prepare a risk analysis or hazard analysis for the proposed spaceport, which likely includes such maps or descriptions of what would happen in the event of a launch failure at various points in the flight corridor. This analysis should be included as an appendix to the DEIS, especially if the FAA relied on this analysis for any part of the DEIS (which we believe it has, as discussed in more detail below). 40 C.F.R. § 1502.24 (stating federal agencies “shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix”).

Finally, the DEIS omits any discussion of mishaps or failures during static fire engine tests, despite the likelihood of a testing mishap. For instance, last year, a SpaceX static fire engine test at Kennedy Space Center sparked a four-acre brush fire at the Merritt Island National Wildlife Refuge.¹¹ The DEIS must be revised to discuss the reasonably foreseeable impacts from a testing failure or incident at Spaceport Camden.

Unless and until the DEIS includes sufficient information about the impacts from launch and landing failures, the public and decision-makers cannot meaningfully comment on the DEIS. In its current form, the DEIS asks the public to speculate about impacts or, worse, to turn a blind eye and assume that reasonably foreseeable and catastrophic impacts will not occur at all.

2. Closure areas, hazard areas, and “authorized persons”

In addition to ensuring that the relevant information is made available to the public, the FAA must ensure that the EIS is “organized and written so as to be readily understandable by governmental decisionmakers and by interested non-professional laypersons likely to be affected by actions taken under the EIS.” Oregon Envt’l Council v. Kunzman, 817 F.2d 484, 494 (9th Cir.

¹¹ Rick Neale, “SpaceX Engine Test Sparks 4-acre Brush Fire at Merritt Island NWR,” Florida Today, May 28, 2017.

1987). An agency violates NEPA if it provides the public with erroneous or misleading information or fails to disclose the assumptions underlying the data contained in the EIS. N.C. Wildlife Fed. v. N.C. Dep't of Transp., 677 F.3d 596, 603 (4th Cir. 2012) (holding agencies violated NEPA by failing to disclose the assumptions underlying their data and providing the public with erroneous information).

Here, the DEIS notes that public access in the vicinity of the launch site would be restricted during launches, wet dress rehearsals, and static fire engine tests. DEIS at 2-27. These “closure areas” or “hazard closure areas” would include both land and water areas and are “expected to include the areas around the access points to the launch site at the end of Harrietts Bluff Road (also referred to as Union Carbide Road) and the waterways surrounding the launch site, in addition to parts of Cumberland Island and Little Cumberland Island extending along the trajectory and out to sea.” Id. at 2-27 to 2-28. Though not expressly stated, we can infer that these closure areas are a precautionary measure to reduce the risk to human life in the event of a launch failure. In contrast to this, “authorized persons,” which include residents, vacation house owners, permit-holding campers, and National Park Service personnel on Cumberland Island and Little Cumberland Island, may remain in closure areas if they wish. DEIS, Executive Summary (ES) at 11; DEIS at 2-31, 4-59.

Notably, “closure areas” or “hazard closure areas” appear to be different from just “hazard area.” The DEIS defines “hazard area” as encompassing “areas that could potentially be affected by debris from a launch incident.” DEIS at 2-28.

The public is unable to comment meaningfully on these bizarre terms. First, the terms are confusing and are used inconsistently throughout the DEIS. Second, the terms are not defined in FAA regulations. See 14 C.F.R. §§ 417.3, 420.5. Third, the DEIS does not explain how these terms relate to actual FAA terminology, such as aircraft hazard areas, ship hazard areas, land impact hazard areas, 14 C.F.R. Part 417, App. B, and the overflight exclusion zone (OEZ), which is an area that must remain clear of the public during launches, 14 C.F.R. § 420.5. Fourth, the DEIS does not explain how closure and hazard areas were established. Fifth, the DEIS does not explain how certain members of the public can be deemed “authorized persons” and yet others must evacuate from closure areas for their personal safety. And finally, Camden County has recently published information about the OEZ and “land hazard areas” that appears to contradict the information in the DEIS.

On the latter issue, Camden County recently published a blog post in which it claimed that neither the OEZ nor the land hazard area will extend to Little Cumberland Island or

Cumberland Island, and thus, the islands would not have to be closed at all during launches.¹² This contradicts the DEIS, which states that the islands would be in the closure areas and that only “authorized persons” could remain during launches.

Restricting access to public lands and water is one of the most significant reasonably foreseeable adverse impacts of the spaceport. The public and decision-makers must have adequate and reliable information to ensure that they understand exactly which areas will be closed, for how long, and how often. They also must have enough information to understand how those areas are determined. And the need to clarify and understand “authorized persons” cannot be overstated. By allowing certain members of the public to remain in closure areas if they so desire, the FAA is shifting the burden to protect human lives from itself to those individuals whose lives are most at stake. This directly contradicts Congress’s mandate that the FAA protect the public health and safety.

Accordingly, the FAA must revise the DEIS to include the following additional information. First, the DEIS must clearly distinguish between “closure area” and “hazard area” and explain how those terms relate to FAA terminology, including the OEZ and land hazard areas. Second, the DEIS must explain how the closure areas and hazard areas were calculated. We understand that hazard areas at other spaceports around the country are much wider than what is presented in the DEIS, so the DEIS must explain why a narrower hazard area is sufficient here. Relatedly, the DEIS must disclose any assumptions or underlying data it used to establish the dimensions of those areas so that the areas are “readily understandable” by laypersons likely to be affected, such as residents of Little Cumberland Island and visitors to the national seashore. On this issue, we understand that The Aerospace Corporation has performed at least one risk analysis or hazard analysis for the County, which may have been used to inform or establish the respective closure and hazard areas in the DEIS.¹³ The DEIS should include that risk analysis in an appendix. At a minimum, the DEIS must disclose the assumptions that The Aerospace Corporation (or the FAA) used to calculate potential hazard areas, as well as potential overflight exclusion zones. N.C. Wildlife Fed., 677 F.3d at 603.

Just as important, the DEIS must explain why the closure areas in the DEIS, which include Little Cumberland Island and Cumberland Island, are different than Camden County’s recently published expectations. And finally, the DEIS must provide legal justification for

¹² John Simpson, Spaceport Camden Blog, The ABCs of OEZs: Understanding Spaceport Camden’s Safety Criteria (May 14, 2018), <https://spaceportcamdenblog.com/2018/05/14/the-abcs-of-oezs-understanding-spaceport-camdens-safety-criteria/> (last visited June 6, 2018).

¹³ Email from Andrew Nelson, on behalf of Steve Howard, County Commissioner, Camden County, to Dick Parker, April 24, 2018 at 12:46 PM (on file with author).

deeming a subset of the population as “authorized persons” who may remain in closure areas. Otherwise, the DEIS must delete all references to authorized persons and explain how and whether those people will be forced to evacuate their private homes during launches.

C. The Alternatives Analysis is arbitrary and capricious.

1. The proposed site for the spaceport fails to meet the launch site selection criteria.

The DEIS explains that the siting criteria for the spaceport’s location have evolved to include eight primary criteria and two secondary criteria that could be applied to potential sites identified by the county. DEIS at 2-41. “Failure of a site to meet any one of the primary criteria was sufficient to eliminate the site from further consideration as a spaceport site.” Id. (emphasis added). The DEIS included the criteria to explain why the “alternatives considered but not carried forward” were eliminated from further analysis. But the DEIS does not explain how or why the proposed location for the spaceport actually meets the criteria. This analysis is necessary to provide the public and decision-makers with relevant information about the project and to demonstrate that the selection of this location was not arbitrary and capricious.

Alarming, a careful review of the proposed location reveals that it too should have been eliminated from further consideration as a spaceport site. Specifically, the proposed location fails to satisfy the following primary criteria:

- The site must be large enough, approximately 100 acres of usable upland with sufficient on-property or adjacent government-owned buffer lands/wetlands, to accommodate one vertical launch pad; the necessary facilities and infrastructure to support the launch of liquid-fueled, medium-large lift-class, orbital and suborbital vertical launch vehicles; the landing of the vehicles’ first stage; a control center/payload integration facility; an alternate control center, visitor center, visitor viewing area for up to 1,000 visitors; and necessary parking for up to 250 cars.
- The site must have the clear potential to satisfy FAA regulations, 14 CFR Part 420.
- The site must be located in an area with either existing or reasonable potential access for required launch infrastructure, to include utilities and community services such as fire, medical, and law enforcement.
- The site’s natural features (e.g., topography, soil type, presence of floodplains and/or wetlands) and risk exposure(s) (e.g., ability to satisfy FAA regulations, 14 CFR Part 420) must not unduly complicate the construction or operation of the launch complex.

Id. (emphasis added). Likewise, the following secondary criterion raises numerous red flags:

- The site acquisition and development costs must be affordable for the County, cost competitive in relation to other potential sites, and have an anticipated timeline pursuant to the commercial need envisioned by the project (i.e., reasonably developable within approximately 24 months after approval of a launch license application).

Id.

a) The site is not large enough because it lacks “sufficient” and “government-owned” buffer lands.

The first site selection criterion at issue states that the site must have at least 100 acres of usable upland with sufficient on-site or adjacent government-owned buffer lands or wetlands. As an initial matter, because of the “on-site” reference, we assume that the referenced “government” is Camden County as opposed to the State of Georgia or the United States. Second, the criterion does not define “buffer lands” or quantify what constitutes “sufficient” buffer lands or wetlands. How can decision-makers and the public know what buffer lands are or how large they must be to accommodate the launch pad and other on-site facilities? The DEIS must provide additional information to justify the proposed location.

But regardless, it appears that the proposed spaceport site does not meet this criterion. Earlier in the DEIS, the “buffer area” is defined as the land that exists “between the launch point and the launch site boundary, to satisfy 14 CFR 420.21, Table 2, and any other additional lands, water, and/or marsh around the launch point determined to be needed to ensure the safety of the public.” DEIS at 2-2 n.5. Presumably, “sufficient buffer lands” has the same meaning as “buffer area.” Of the 11,800 acres that could ultimately be purchased by Camden County for the spaceport site and surrounding buffer, approximately 10,600 of those acres are tidal saltmarsh.

Camden County does not and cannot own tidal saltmarsh. Rather, the State of Georgia owns tidal marshlands unless title can be traced to a valid Crown or state grant. Kelso v. Baxter, 665 S.E.2d 381, 383 (Ga. Ct. App. 2008) (holding state owns the bed of tidewaters, including marshland); Dorroh v. McCarthy, 462 S.E.2d 708, 710 (Ga. 1995) (holding state owns fee simple title to strip of land that lies between high and low water marks and is alternately wet and dry according to flow of tide); see also Ga. Code Ann. § 52-2-2 (declaring “the State of Georgia became the owner of the beds of all tidewaters within the jurisdiction of the State of Georgia as successor to the Crown of England and by the common law” and that Georgia “continues to hold title to the beds of all tidewaters within the state, except where title in a private party can be traced to a valid Crown or state grant which explicitly conveyed the beds of such tidewaters”).

In addition, it is unlikely that Union Carbide Corporation or Bayer CropScience own the saltmarsh via valid grants. Nothing in the DEIS indicates that Camden County has entered into any type of agreement with the State of Georgia for use of tidal marshlands as a buffer or if any

such agreement would be legal under existing Georgia law. Furthermore, Camden County does not and cannot own the saltwater creeks and other state waters that surround and flow through the property. And current law does not allow Camden County to use state waters as a buffer for spaceport construction or operation. In fact, state waters and tidal saltmarsh must be buffered from land-disturbing activities. Ga. Code Ann. § 12-7-6(b)(15)(A), (17)(A).

Accordingly, because the proposed location for Spaceport Camden does not include sufficient “government-owned” buffer lands, it should have been eliminated from consideration.

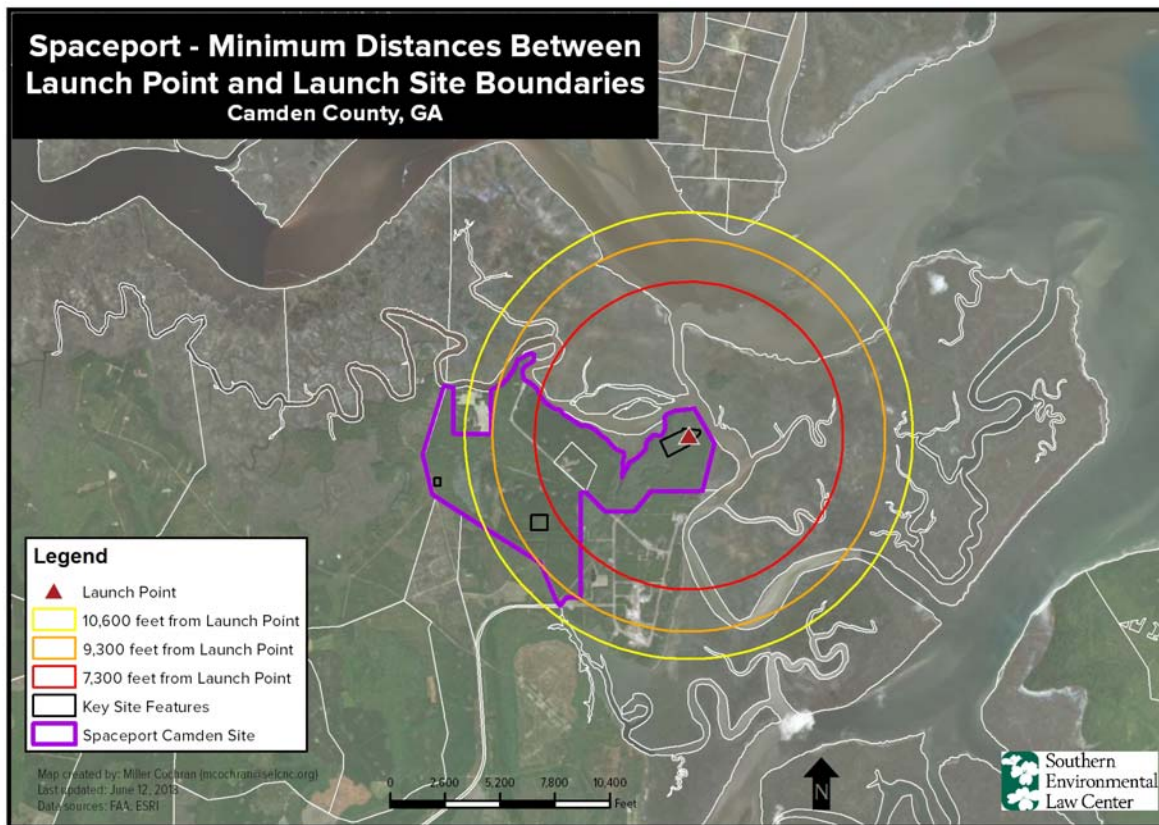
b) The site does not have the clear potential to satisfy FAA regulations.

Similarly, because Camden County does not and cannot own the surrounding tidal marshlands, adjacent tidal creeks, and the Satilla River, this location cannot satisfy the FAA regulation establishing minimum distances from the launch point to the nearest launch site boundary. According to 14 C.F.R. § 420.21, Table 2, the required minimum distance for medium-large orbital expendable vehicles is 10,600 feet. For medium launch vehicles, the minimum distance is 9,300 feet, and for small launch vehicles, the distance is 7,300 feet.

First, assuming that the launch site boundary is shown by the blue outline of “Proposed Spaceport Camden” on any map in the DEIS (e.g., Exh. ES-3), the site clearly violates this regulation. The distance between the launch point and the launch site boundary in that scenario is less than a mile (5,280 feet) in nearly all directions, and less than half a mile to the eastern site boundary. DEIS, ES at 7, Exh. ES-3. To get around this obvious problem, Camden County has defined the “buffer area” as the land that exists “between the launch point and the launch site boundary, to satisfy 14 CFR 420.21, Table 2, and any other additional lands, water, and/or marsh around the launch point determined to be needed to ensure the safety of the public.” DEIS at 2-2 n.5. Thus, the County appears to be using the total acreage to be purchased by Union Carbide Corporation and Bayer CropScience as the launch site boundary to satisfy FAA regulations, rather than just the part of the property where construction and operations will occur. See id. at 2-3, Ex. 2.1-1 (showing all properties being considered for purchase or under option for purchase).

But as discussed above, most of that property is tidal marshland owned by the State of Georgia, not the County. Land that is not within the County’s control or ownership cannot be considered to be within the spaceport boundary. And as demonstrated by the map below, the minimum distance between the launch point and the nearest launch site boundary for even a small rocket extends into adjacent navigable tidal creeks, including Todd Creek, Floyd Basin, and Floyd Creek, as well as the Satilla River, all of which are owned by the state for the benefit of the public. Camden County cannot restrict public access to those tidal waters or otherwise include those tidal waters in the launch site boundary. Ga. Code Ann. § 44-8-8 (prohibiting the

exclusive appropriation of any tidewater by any person that prevents the free use of that tidewater for passage or transportation of freight). In sum, the site fails to meet the location restrictions in 14 C.F.R. § 420.21, Table 2.



The proposed site also lacks the clear potential to satisfy 14 C.F.R. §§ 420.5 (overflight exclusion zone) and 420.53 (control of public access). Both of these regulations involve keeping the public out of dangerous areas. The OEZ is defined as the “portion of a flight corridor which must remain clear of the public during the flight of a launch vehicle.” 14 C.F.R. § 420.5. The “control of public access” regulation requires launch site operators to “prevent unauthorized access to the launch site, and unauthorized, unescorted access to explosive hazard facilities or other hazard areas not otherwise controlled by a launch operator, through the use of security personnel, surveillance systems, physical barriers, or other means approved as part of the licensing process.” *Id.* § 420.53.

Camden County (or private launch companies, for that matter) lacks legal authority to force people to evacuate the OEZ and hazard areas for any particular launch. For instance, Camden County has no authority to force fishermen to evacuate the Satilla River or the tidal creeks surrounding the proposed spaceport. The Georgia Constitution provides that the “tradition of fishing and hunting and the taking of fish and wildlife shall be preserved for the people and

shall be managed by law and regulation for the public good.” Ga. Const. Art. 1, § 1, ¶ XXVIII. Only the Board of Natural Resources has the authority to regulate fishing in Georgia, including when and where people may fish, and “[n]o political subdivision of the state may regulate . . . fishing.” Ga. Code Ann. § 27-1-3(h). Critically, it is “unlawful for any person to obstruct or interfere with the right of any other person to fish in these salt-water creeks, streams, or estuaries leading from the Atlantic Ocean or from the sounds, rivers, or bays surrounding the several islands of” Georgia. *Id.* § 27-4-2 (emphasis added). Likewise, Georgia law prevents the closure of tidewaters to commercial freight vessels. Ga. Code Ann. § 44-8-8 (prohibiting the exclusive appropriation of any tidewater by any person that prevents the free use of that tidewater for passage or transportation of freight).

The OEZ and/or land hazard area for any particular launch at Spaceport Camden will include portions of Floyd Creek, Floyd Basin, and the Satilla River. Not only does Camden County lack legal authority to require fishermen or freight vessels to leave these locations within the OEZ and hazard areas, but the “use of security personal, surveillance systems, physical barriers, or other means” to keep fishermen out of the tidal waters surrounding the proposed site would be unlawful. 14 C.F.R. § 420.53. To the extent that the OEZ and hazard areas extend to Little Cumberland Island, Camden County lacks authority to force residents and visitors to evacuate their homes absent eminent domain proceedings. Ga. Const. Art. 1, § 3, ¶ I (“private property shall not be taken or damaged for public purposes without just and adequate compensation being paid”). Otherwise, denying those citizens access to their private properties would be unconstitutional takings. Arbitrarily designating those individuals as “authorized persons” does not cure this problem.

Accordingly, the proposed site does not have the clear potential to satisfy FAA regulations and should have been eliminated as a spaceport site.

c) *The site is not located in an area with existing or reasonable potential access for community services such as fire.*

Also of note, the proposed site does not meet the criterion requiring the site to be in an area with access for community services such as fire, medical, and law enforcement. DEIS at 2-41. The “area” referenced in this criterion should include areas where debris could fall during a failed launch. Little Cumberland Island and Cumberland Island are both in that category and neither have medical or fire suppression support. They are barrier islands that can only be accessed by boat. They also are heavily vegetated with pine trees and saw palmetto. Pine straw and saw palmetto fronds are highly flammable. Flaming debris from a failed rocket could set the two islands ablaze. Fire and medical teams could do little to put out the fire or tend to the injured. Thus, the proposed site cannot be used under the very criteria set forth by FAA, and thus, should be disqualified.

d) The site's risk exposures may unduly complicate the construction or operation of the launch complex.

The DEIS states that the ability to satisfy FAA regulations, 14 CFR Part 420, is an example of a potential “risk exposure” that could unduly complicate the construction or operation of the launch complex. DEIS at 2-41. As discussed above, the proposed site for Spaceport Camden does not have the clear potential to satisfy FAA regulations. In particular, the inability of Camden County to force evacuations from the OEZ and hazard areas would not only unduly complicate the operation of the launch complex, but it would completely hinder spaceport operations. If just one person is present within the OEZ, launches must be canceled. 14 C.F.R. § 240.5 (stating OEZ must remain clear of the public during a launch). For this reason alone, the proposed location does not meet this siting criterion and should have been eliminated.

But the inability to satisfy FAA regulations is not the only risk exposure associated with this particular location. This site (including both the Union Carbide Corporation and Bayer CropScience properties) is contaminated with a wide variety of chemicals and contains an unknown number of munitions and explosives of concern (MECs). The DEIS asserts that once “the land is acquired by Camden County these potential contaminated sites would likely be managed under the Georgia Brownfields program. In this case the new owner (Camden County) would be responsible for soil and groundwater investigations and management of soil and source material that are above Georgia risk reduction standards.” DEIS at Table ES-1.

However, the Union Carbide property has a Resource Conservation and Recovery Act (RCRA) permit and currently is not eligible for the Georgia Brownfield Program. Should the County purchase this property with the existing RCRA permit in place, it will inherit significant liability for soil and groundwater impacts as well as onerous financial assurance requirements for cleanup that must be assured for 30 years or more. Moreover, solid waste management units (SWMUs) 8 and 9 are still under investigation, so future assessment and cleanup costs for those units are yet unknown.

Should Camden County wish to purchase the Union Carbide property under the Georgia Brownfield Program and not under RCRA, it must wait until the property is removed from the RCRA post-closure permit. This process is complicated, can take years, and can be accomplished only after all SWMUs are approved by the Georgia Environmental Protection Division as requiring no further action. The DEIS does not explain if Union Carbide is working toward no further action for all SWMUs or where Union Carbide is in that process. Overall, the County would be accepting numerous risks and long-term costs of purchasing a RCRA property, all of which could hinder spaceport construction and operations.

The risks associated with the Bayer CropScience property are even more troubling. The DEIS contains very little information about the property, with the exception of noting that

portions of the property may contain certain contaminants. DEIS at 3-49. But we know that EPA has cited Bayer for noncompliance with environmental statutes as recently as the third quarter of 2017.¹⁴ And according to Camden County Attorney John Myers and the Georgia Historic Preservation Division, Bayer has been unwilling to disclose the extent of contamination on the property with local and state officials.¹⁵ In addition, archaeological surveys have not been conducted on the property, leaving open the possibility that other historical, archaeological, architectural, or cultural resources will subject to protection under state and federal statutes. This leaves Camden County with unidentified liability.

The DEIS must explain how this property meets this site selection criterion when the risks of purchasing contaminated properties are so high for Camden County and the costs so potentially burdensome for Camden County taxpayers.

e) The DEIS does not include enough information for decision-makers and the public to conclude that the proposed site is affordable and cost competitive.

Relatedly, the DEIS includes no information about the costs of site acquisition and development. Likewise, it fails to address whether the proposed site is cost competitive in relation to other sites, and it does not explain if the site could be “reasonably developable within approximately 24 months after approval of a launch license application.” DEIS at 2-41. Such an analysis is especially important given the costs and financial assurance requirements that would be imposed on the County for purchasing a RCRA property, as discussed above, as well as the time it would take for the property to be eligible for the Georgia Brownfields Program.

In addition, a cost-benefit analysis is “relevant to the choice among environmentally different alternatives [] being considered” for the spaceport. 40 C.F.R. § 1502.23. When a cost-benefit analysis is relevant, “it shall be incorporated by reference or appended to the statement as an aid in evaluating the environmental consequences.” *Id.* But the FAA has not performed any cost-benefit analysis here, or if it has, it has not disclosed it.

The FAA cannot justify the proposed location for a spaceport without explaining how the site meets the siting criteria. Otherwise, its alternatives analysis is arbitrary and capricious.

¹⁴ EPA Enforcement and Compliance History Database, available at <https://echo.epa.gov>.

¹⁵ Telephone call between John Myers, Camden County Attorney and April Lipscomb, Staff Attorney, Southern Environmental Law Center, June 1, 2018; FAA Office of Commercial Space Transp., Spaceport Camden Archaeological Survey – Contamination Issues and Graveyards, Notes from Conference Call, recorded by Pam Schanel, ICF International, FAA Environmental Support Contractor, Aug. 24, 2016, 1:30 PM Eastern.

2. The DEIS does not adequately consider other reasonable alternatives.

The DEIS includes an alternatives analysis, but it does not comply with NEPA. It considers only three alternatives: (1) the Proposed Action Alternative, (2) the Ocean-Landing Only Alternative, and (3) the No-Action Alternative. DEIS at 2-1. Under the Proposed Action Alternative, the operator of the facility would have the option of landing the first stage of the rocket on the facility's landing pad or on a barge located 200 to 300 miles offshore. The second alternative differs from the Proposed Action only in all first-stage landings would be on the offshore barge. Under the No-Action Alternative the County would not construct the facility.

An agency's discussion of alternatives is "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. "It should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." Id.

To satisfy this obligation, the agency must "rigorously explore and objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14(a) (emphasis added). This includes reasonable alternatives not within the jurisdiction of the lead agency. Id. § 1502.14(c). For each alternative considered, the agency must "devote substantial treatment . . . so that reviewers may evaluate their comparative merits." Id. § 1502.14(b). For all alternatives which are eliminated from detailed study, the agency must discuss the reasons that those alternatives were eliminated. Id. § 1502.14(a). The agency must also "include appropriate mitigation measures not already included in the proposed action or alternatives." Id. § 1502.14(f).

Although an agency is entitled to some deference in its decision of which alternatives to consider, "deference . . . does not mean dormancy, and the rule of reason does not give agencies license to fulfill their own prophecies, whatever the parochial impulses that drive them." Busey, 938 F.2d at 196. To this end, "an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality." Id.; see also City of New York v. Dep't of Transp., 715 F.2d 732, 743 (2d Cir. 1983).

Although an agency may take into account the goals of the applicant in evaluating alternatives, NEPA also requires an agency "to exercise a degree of skepticism in dealing with self-serving statements from a prime beneficiary of the project and to look at the general goal of the project rather than only those alternatives by which a particular applicant can reach its own specific goals." Simmons v. U.S. Army Corps of Eng'rs, 120 F.3d 664 (7th Cir. 1997) (internal quotations omitted); but see Busey, 938 F.2d at 190. As the Council on Environmental Quality has advised:

In determining the scope of alternatives to be considered, the emphasis is on what is “reasonable” rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.¹⁶

a) *FAA failed to consider alternative property uses through which Camden County’s purpose and need could be satisfied.*

The DEIS violates NEPA by failing to consider alternative uses of the property or other available properties. FAA justifies this failure by narrowly characterizing the County’s purpose and need as “developing a world-class spaceport,” but such an artificial definition improperly excludes many reasonable alternatives from consideration. Courts have repeatedly warned against such an approach. As one federal appellate court cautioned:

The “purpose” of a project is a slippery concept, susceptible of no hard-and-fast definition. One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing “reasonable alternatives” out of consideration (and even out of existence). The federal courts cannot condone an agency’s frustration of Congressional will. If the agency constricts the definition of the project’s purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act.

Simmons, 120 F.3d at 666.

Here, the County’s true purpose and need is “to create a strong regional economy with diverse job opportunities.” DEIS at 105. Indeed, in the County’s Strategic Plan, it identifies its “goal” as “grow the local economy” and identifies successfully operating Spaceport Camden as a means by which to do so.¹⁷

Given that the County’s real goal is to grow the local economy, the DEIS should have considered alternative means through which the County could do so. For example, in Stand Up for California! v. U.S. Department of the Interior, an American Indian Tribe sought to acquire a nearby tract of land held in trust by the Bureau of Indian Affairs to construct a casino and resort complex. 204 F. Supp. 3d 212, 307 (D.D.C. 2016), *aff’d*, 879 F.3d 1177 (D.C. Cir. 2018).

¹⁶ Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 C.F.R. § 18026, Question 2A (March 23, 1981).

¹⁷ Strategic Plan, supra note 1 at 25.

According to the EIS in that case, the purpose and need of the proposed project was to promote the “long-term economic self-sufficiency, self-determination and self-government of the tribe.” Id. at 233. To meet these goals, the EIS considered five alternatives in detail, including other uses for the property such as “a mixed-use retail development” that “would include several larger retail outlet stores and smaller storefronts, including food and beverage establishments,” but would not include any casino or gaming options. Id. at 307.

Here, several individuals recommended consideration of alternative property uses during the scoping process, including a Climate Change Research Center or a technological park. These alternatives were summarily dismissed because the suggested uses did not meet the DEIS’s artificially narrow purpose and need statement – specifically, to build a commercial spaceport in Camden County. DEIS at 2-49. However, by summarily dismissing these options without any consideration, the FAA violated NEPA’s requirement that it “rigorously explore and objectively evaluate all reasonable alternatives.” 40 C.F.R. § 1502.14(a).

b) FAA failed to consider alternative sites outside of Camden County through which FAA’s purpose and need could be satisfied.

The DEIS also violates NEPA by failing to consider other potential locations for a commercial spaceport, including other Georgia locations outside Camden County. FAA characterizes the FAA’s purpose and need as fulfilling its responsibilities under the Commercial Space Launch Act of 2015. That Act acknowledges “a need to develop a strong space transportation infrastructure with significant private sector involvement” and “encourages private sector launches, reentries, and associated services.” 51 U.S.C.A. § 50901. It imposes no obligation, however, that FAA restrict its consideration of sites to applicant counties. Instead, the Act focuses on the participation of state governments in the commercial spaceport siting process:

The participation of State governments in encouraging and facilitating private sector involvement in space-related activity, particularly through the establishment of space transportation-related infrastructure, including launch sites, reentry sites, complementary facilities, and launch site and reentry site support facilities, is in the national interest and is of significant public benefit.

51 U.S.C.A. § 50901(9).

In the present situation, the DEIS acknowledges that part of the FAA’s purpose and need is to encourage state participation in the process, yet it artificially restricts its consideration of potential spaceport sites to Camden County and ignores other potential sites throughout Georgia. By doing so, FAA violates NEPA’s requirement that it “rigorously explore and objectively evaluate all reasonable alternatives.” 40 C.F.R. § 1502.14(a).

Similarly, the FAA does not consider alternatives at existing facilities outside of Georgia. As commenters brought up during the scoping phase, there are several existing facilities across the country that may have capacity to launch the type and number of rockets that the County hopes to launch. As of 2015, excluding Spaceport Camden, there were 10 existing or proposed private spaceport facilities in the United States—Mid-Atlantic Regional Spaceport, Cecil Field Spaceport, Spaceport Florida, Houston Spaceport, Midland International Air and Space Port, Oklahoma Spaceport, Spaceport America, Mojave Air and Space Port, California Spaceport, and Kodiak Launch Complex.¹⁸ At a minimum, the FAA should determine if any of these facilities by themselves or combined with other facilities could accommodate another 12 rocket launches per year. The FAA should then determine whether there is a current need for such launches. FAA NEPA guidance documents require as much:

[s]imilar actions, such as those with common timing or geography, should be considered in the same environmental document when the best way to assess their combined impacts or reasonable alternatives to such actions is in a single document (see 40 CFR §§ 1502.4(b) through (c) and 1508.25(a)(3), CEQ Regulations).¹⁹

Whether it is in the scoping section of an EIS, or elsewhere, the FAA must examine other similar spaceports. The FAA should not be in the business of licensing such facilities if there is no demand for them, because other similar spaceports can provide the capacity needed.

c) The DEIS fails to adequately consider alternative sites in Camden County.

The DEIS has not thoroughly examined alternative sites within Camden County. The County proposed and promptly eliminated four alternatives within the County. Two of these proposed alternatives were laughable. One was less than a quarter mile from downtown St. Marys, Georgia, a quaint coastal village. Two additional alternative sites were proposed for Little Cumberland Island and Cumberland Island. Neither island has a bridge. The first island has over 40 private houses on it, and the second contains many residences and a federally designated wilderness area. DEIS at Table 2-4.1.

The one alternative that appears to have some merit, Ceylon, was dismissed without adequate analysis. The DEIS states that the Ceylon site, which is located west of the proposed site, could not meet the boundary limitations of the FAA regulations. *Id.* at 2-42. The DEIS,

¹⁸ GAO Report at 26.

¹⁹ FAA, Order 1050.1F, at 2-8 (July 16, 2015).

however, applied the wrong approach to examining the large expanse of land immediately west of the proposed launch site. That area of land is divided up into many smaller parcels. The DEIS looked at the parcels individually and determined that each was not large enough to meet the minimum-distance requirements contained in the FAA regulations. The DEIS should have examined the land west of the proposed site in reverse. It should have examined the western land and located several promising sites. Then it should have drawn in the minimum distances around these sites. And only then should the DEIS have looked at the parcels and who owned them. Attachment 9 provides two potential alternative sites selected using the second approach that would appear to meet the site criteria provided in the DEIS.

The DEIS also failed to consider other potential sites further inland. In 2014, the FAA licensed a spaceport in Midland, Texas.²⁰ This site is located far inland. Camden County is a very rural county, yet the DEIS did not give any serious consideration to alternative sites located west of Interstate 95.

d) The DEIS fails to consider alternative designs at the proposed site that could lessen the environmental impacts of the launches.

The DEIS considered only two configurations on the Union Carbide property. DEIS at 2-46 (admitting both Fairfield sites are essentially the same). And it did not consider any configurations on or using part of the Bayer property. Additionally, the DEIS considered only on-site alternatives that located the launch pad on the very fringe of the marsh (where the likelihood of environmental harm from stormwater runoff or rocket fuel spills is greatest). Instead of proposing that the County construct the launch facility further from the shore, where the lights and noise of the rockets would be screened by the trees on the proposed site,²¹ FAA is considering licensing a launch facility in the most visible location on the site.

Furthermore, the DEIS did not consider the alternative of a runway for horizontal launches. Launch vehicles such as Virgin Galactic's Space Ship Two are being constructed and tested. These crafts launch from horizontal runways. The DEIS must be revised to discuss alternative sites that could launch horizontal rockets as well as configurations at the existing site that would allow for horizontal launches.

²⁰ GAO Report at 26.

²¹ It is not clear from the DEIS whether FAA is planning to clearcut the site or leave the existing trees standing. This is another part of the DEIS that is lacking.

D. The DEIS fails to take a hard look at direct and indirect effects

NEPA requires federal agencies to take a “hard look” at the environmental consequences of the proposed action. To do so, agencies must have “adequately considered and disclosed the environmental impact” of their actions. An agency has not taken a hard look at environmental effects if it fails to consider an important aspect of the problem or offers an explanation for its decision that runs counter to the evidence, among other factors. In addition, the agency’s “analysis must be reasonable and adequately explained.” Sierra Club, 867 F.3d at 1368.

Agencies must take a hard look at both direct effects, “which are caused by the action and occur at the same time and place” and indirect effects, “which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.” 40 C.F.R. § 1508.8.

The DEIS fails to take a hard look at the direct and indirect effects of the proposed spaceport. Chapter 3 (Affected Environment) of the DEIS contains inaccurate and misleading information, and it also omits important information about existing conditions. In other words, the baseline conditions in the DEIS are unreliable and inadequate. As a result, Chapter 4 (Environmental Consequences) lacks reliability. Moreover, within each resource category in Chapter 4, the FAA fails to identify important direct impacts or fails to adequately explain the impacts. Indirect impacts are largely ignored.

For example, the DEIS fails to address induced growth from the spaceport altogether, despite the belief by Camden County and other spaceport proponents that the facility would make the county a hub for the aerospace industry. The County’s strategic plan lists not only the spaceport, but a cluster of related industries including “space vehicle and payload technology businesses,” development of space tourism, new university campuses, “support businesses for spaceport operation,” and an “Aerospace Commerce Center.”²² Some spaceport supporters claim that the facility and these related businesses may generate as many as 2,000 jobs.²³

If related aerospace facilities are built in Camden County or in one of the nearby counties, they would cause environmental impacts. Based on the strategic plan and the projections of spaceport boosters, it would appear that the environmental impacts of these

²²https://issuu.com/camdencountyboc/docs/2018_camden_county_strategic_plan?e=32272897/58551200 at 6.

²³ Georgia spaceport opponents question suitability of site, Atlanta Business Chronical, Nov. 28, 2016 at <https://www.bizjournals.com/atlanta/news/2016/11/28/georgia-spaceport-opponents-question-suitability.html>

companies are reasonably foreseeable and therefore fall within the definition for indirect effects. In light of this, the DEIS should have discussed any environmental impacts associated with reasonably foreseeable development.

In addition to this shortcoming, the DEIS must be revised to include adequate discussions of direct impacts and indirect impacts in each of the following resource categories.

1. Air Quality

The DEIS incorrectly states that only those emissions occurring below 3,000 feet above ground level in the troposphere have the potential to affect human health and regional air quality. DEIS at 3-5. To the contrary, ozone-depleting chemicals and greenhouse gases affect human health and well-being well above 3,000 feet. For example, ozone-depleting chemicals released into the stratosphere are linked to higher rates of skin cancer, because of the increase in UV radiation reaching the Earth's surface. The DEIS should be revised to correct this inaccuracy, to include any ozone-depleting chemicals that could be released by spaceport activities, and to analyze the impacts from those releases.

A separate concern involves Title V operating permits. In Chapter 3, the FAA asserts that the proposed spaceport is not likely to be considered a major source of criteria pollutants or hazardous air pollutants and thus, a Title V permit would not be required. *Id.* at 3-4. In Chapter 4, however, the FAA admits that it has no idea whether a Title V permit is needed for the spaceport. The DEIS notes that the aggregate of many smaller sources may have the potential to emit more than the major source threshold of 100 tons per year. The DEIS calls for an emissions inventory to be prepared after construction of spaceport facilities to determine if a Title V permit is needed. Reliance on this future analysis runs counter to NEPA's intent. The public and decision-makers need to have information about the spaceport's projected impacts on air quality before the decision is made to continue this project. Thus, the DEIS must be revised to include an assessment of whether the aggregate emissions from the spaceport require such permit.

In addition, the DEIS inappropriately focuses on regional air quality and ignores whether emissions from the spaceport will have localized impacts on the surrounding natural environment and human environment. The DEIS must be revised to include an assessment of those localized impacts. Furthermore, the DEIS completely ignores air quality impacts from indirect effects. Camden County asserts that the spaceport will bring with it additional space-related industries that will set up shop in Camden County, along with space-related tourism opportunities. The DEIS must include a description of that induced growth and the associated air quality impacts. Likewise, it must consider increased pollution from trucks, barges, and other heavy equipment necessary to build, supply, and operate the spaceport.

2. Biological Resources

Despite the FAA's legal obligation to "take a hard look" at the project's potential impacts on biological resources, including special status species and critical habitats, the DEIS fails to do so. In some sections of the analysis, it punts—promising that the effects of the project will be more fully evaluated down the road, whenever the relevant information has been gathered. In others, the DEIS ignores or fails to fully discuss relevant and reasonably foreseeable direct and indirect impacts of the proposed spaceport.

a) General Concerns

Generally, the DEIS contains numerous inaccuracies or omits necessary information for existing conditions for biological resources. First, the description of "Southern Atlantic Coastal Plain Salt and Brackish Tidal Marsh" is incorrect. Tidal marshes are not infrequently flooded or dominated by southern red cedar or wax myrtle. It appears that this description is for a different type of vegetated community. The DEIS must be revised to correct this inaccuracy.

Second, the DEIS contains minimal to nonexistent discussions of brown pelicans and pelican rookeries, bald eagles and nearby nesting sites, and nesting sites for least terns, Wilson's plovers, American oystercatchers, and other shorebirds. This is a significant oversight. It appears that the FAA has placed a much greater emphasis on examining impacts to federally listed species than other prevalent and important species that exist in the region of influence (ROI) for the spaceport. The DEIS must be revised to include information about these significant birds, their habitats, and their nesting sites in the ROI. In addition, the DEIS must be revised to analyze the impacts on these birds from noise events, sonic booms, vibrations, heat, and emissions from launches, landings, and failures.

Likewise, the DEIS contain no discussion of marine invertebrates, such as crabs, shrimp, clams, and oysters. While Appendix D includes brief descriptions of marine invertebrates, the DEIS itself includes no analysis of the spaceport's impacts on those species. The DEIS must be revised to take a hard look at those impacts, particularly as impacts accumulate over time.

Next, the DEIS fails to examine the full extent of impacts to the critically important surrounding saltmarsh. The DEIS incorrectly characterizes the saltmarsh as a "buffer" for spaceport activities, when the saltmarsh should be buffered from the spaceport. The DEIS must be revised to include a much more in-depth analysis of reasonably foreseeable impacts to the marsh, from construction, daily operations, launch and landing activities, and failures. In addition, the DEIS must be revised to acknowledge that the saltmarsh is Essential Fish Habitat.²⁴

²⁴ http://sero.nmfs.noaa.gov/habitat_conservation/efh.html .

The DEIS also impermissibly relies on future studies and a “Protected Species and Habitat Management Plan” (PSHMP) to be prepared eventually in conjunction with the U.S. Fish and Wildlife Service and Georgia Department of Natural Resources. It appears that no recent on-the-ground surveys for plant and animal species have been conducted on the Union Carbide and Bayer CropScience properties, as well as throughout the ROI for the spaceport, so much of the information on existing conditions is speculative. Moreover, because the PSHMP has not yet been prepared and made available for review, the public and decision-makers do not have enough information available to determine what the actual direct and indirect impacts of the spaceport will be on particular species. Similarly, the National Marine Fisheries Service documentation and consultation has not been finalized. The DEIS must be revised to include NMFS’s response and specific mitigation measures so that the public has the opportunity to comment and receive the FAA’s response before the final EIS is issued.

Finally, the DEIS relies on measures such as prescribed fire to improve long-leaf pine habitat on the spaceport site for species such as indigo snake, gopher tortoise, and striped newt. DEIS at A-359, A-365. Decision-makers and the public need much more information about these activities, including information about burning schedules and whether the spaceport can actually adhere to the prescribed burning schedule. At other spaceports around the country, launch activities typically shut down prescribed burning activities within a five-mile radius of the launch site for at least a month.²⁵ If a launch is planned each month at Spaceport Camden, then prescribed fire may not be an option, and the FAA must revisit and revise its analysis for these three species. The DEIS must consider whether the spaceport’s launches will prevent other nearby property owners from conducting prescribed burns on their properties.

b) Specific Concerns for ESA-listed Species

Red-cockaded woodpeckers. The DEIS’s analysis on impacts to the endangered red-cockaded woodpecker is just one example of the FAA’s failure to provide a sufficient discussion of potential impacts to imperiled species. The text of the DEIS includes one, conclusory statement, without any justification: that the spaceport “may affect, but would not likely adversely affect” the red-cockaded woodpecker (RCW). DEIS at 4-10, 4-16. For a full analysis of RCW impacts (as well as impacts to all ESA-listed terrestrial species), the DEIS refers readers to the Biological Assessment (BA) in Appendix A. But the BA is also deficient.

The BA notes that no suitable nesting habitat for the RCW exists on the Spaceport Camden site because most of the upland areas are in young plantation pine. DEIS at A-358. The BA does not indicate whether the upland pine plantations on the spaceport site are suitable RCW

²⁵ Letter from Cynthia K. Dohner, Regional Director, U.S. Fish and Wildlife Service to Stacey M. Zee, Federal Aviation Administration 4 (Feb. 21, 2014).

foraging habitat. Likewise, it contains no information about RCW nesting or foraging habitat outside of the spaceport site. The BA simply concludes that the area around the site is “degraded,” without explaining how those areas are degraded or what that means for RCWs. The BA and DEIS must be revised to include all of this information.

The BA also asserts that, as of 2014, no RCWs have been recorded within three miles of the site. *Id.* But interestingly, the BA explains that “if RCWs are located within an 8-mile radius,” they would be adversely impacted by noise from spaceport operations. The BA does not discuss whether and the extent to which RCWs are located within an eight-mile radius of the spaceport site. Significantly, this eight-mile radius includes a national seashore, a wilderness area, state parks, tree farms, and other areas that could be populated by RCWs. The BA must be updated to include information about the existence of RCWs within this broader region.

Sea Turtles. The BA contends that construction activities would have “no effect” on sea turtles or on loggerhead critical habitat. DEIS at A-364. But neither the BA nor the DEIS explain whether outdoor lighting for site security during construction and exterior lighting that is installed as facilities are completed could interfere with sea turtles. The DEIS must be revised to include information about the impacts on sea turtles from outdoor lighting during construction.

More concerning, the BA notes that spaceport operations “may affect but are not likely to adversely affect the nesting or hatchling sea turtles and would have no effect on loggerhead critical habitat.” *Id.*; *see also id.* at 4-16, 4-20. The BA contends that tower lighting could disorient both nesting and hatchling sea turtles, but that lighting systems would be designed and operated to reduce light pollution. The DEIS must be revised to explain how those lighting systems would be designed and operated to reduce light pollution and how effective those methods would be at reducing the number of sea turtles that are disoriented by artificial light from the spaceport. Simply stating the desired conclusions, without identifying the means, is not sufficient.

The DEIS’s “no effect” determination for loggerhead critical habitat is most alarming. Cumberland Island National Seashore is one of the most important loggerhead sea turtle nesting sites in Georgia and accounts for 25 to 30 percent of the statewide nesting total. DEIS at D-12. Since 2014, Cumberland Island has produced over 1,800 loggerhead nests. *Id.* Given the projected launch trajectories over Cumberland Island and the very real potential for launch and landing failures, loggerhead critical habitat could easily be destroyed by falling debris, releases of toxic propellants, and fires from rocket explosions. The DEIS must be revised to account for

those impacts, and the DEIS must change the “no effect” determination to reflect the very real effects that spaceport operations could have on loggerhead critical habitat.²⁶

Atlantic Sturgeon. As with sea turtles, the DEIS fails to take a hard look at the project’s potential to harm the endangered Atlantic sturgeon. Remarkably, the DEIS concludes that the spaceport would likely have “no effect” on the Atlantic sturgeon. DEIS at 4-12, 4-20.

The most significant threats to Atlantic sturgeon include poor water quality, dredging, and vessel strikes.²⁷ Chemical contamination of sediments, dredging, and sedimentation all degrade habitat and cause adverse impacts.²⁸

The DEIS contends that construction activities would not impact the Atlantic sturgeon because best management practices, such as silt fencing and a sediment and erosion control plan, would prevent increased turbidity and sedimentation of tidal creeks from stormwater runoff. DEIS at A-272. This conclusion arbitrarily assumes that best management practices would be implemented correctly and would work perfectly. While silt fences and other methods can substantially reduce sediment runoff from construction sites, they are not perfect.²⁹ In addition, the strong tidal action in the Satilla River estuary means that any pollutants that enter the adjacent tidal creeks would spread for miles and relatively quickly. Thus, the DEIS’s conclusion that any stormwater pollution would not likely spread to the Satilla River—proposed critical habitat for the Atlantic sturgeon—is not supported by the evidence.

Moreover, the DEIS ignores other construction-related impacts to Atlantic sturgeon and other fish species. The FAA must revise the DEIS to assess how pile-driving may disturb buried contamination at the bottom of Todd Creek, Floyd Basin, and Floyd Creek or may impact the contaminated groundwater plume moving toward Todd Creek from underneath the adjacent hazardous waste landfill. Similarly, the DEIS must analyze how dredging activities along Floyd Creek would impact Atlantic sturgeon.

As for spaceport operations, the DEIS asserts that boat strikes and falling debris from launch failures are the only reasonably foreseeable impacts to Atlantic sturgeon, and it contends that such impacts are discountable because of the low probability. But as discussed previously,

²⁶ The FAA also must repeat these analyses and make these changes in its discussions of piping plover critical habitat and North Atlantic right whale critical habitat.

²⁷ <https://www.fisheries.noaa.gov/species/atlantic-sturgeon>.

²⁸ *Id.*

²⁹ <https://www3.epa.gov/npdes/pubs/siltfences.pdf> (stating that silt fences often “do not work effectively because they are not well designed, installed, or maintained”).

the risk of rocket failures is very real, and such impacts should not be discounted. Launch and landing failures could result in debris and incredibly hazardous propellants entering Atlantic sturgeon habitat, ultimately resulting in a “taking” of endangered species. And heat and vibrations from successful launches and landings could accelerate the movement of contaminated groundwater under the hazardous waste landfill toward Todd Creek, which could result in harm to sturgeon. The DEIS must be revised to consider each of these impacts.

3. Climate Change

The DEIS is deficient because it fails to consider the impact of climate change on the proposed launch site. In Table ES-1 “Environmental Impacts Summary by Alternative,” the DEIS states that “sea level rise and other climatological changes such as increase in extreme weather events, may impact the spaceport in the coming years.” DEIS at 17. Further, the DEIS’s “Affected Environment” section states that

Due to Camden County’s coastal location, the area is likely to be more susceptible to the potential impacts of climate change such as sea-level rise and increased frequency of extreme weather events such as hurricanes. Conversely, because this is a coastal area, some protective measures are likely to already be in place such as hurricane evacuation routes.

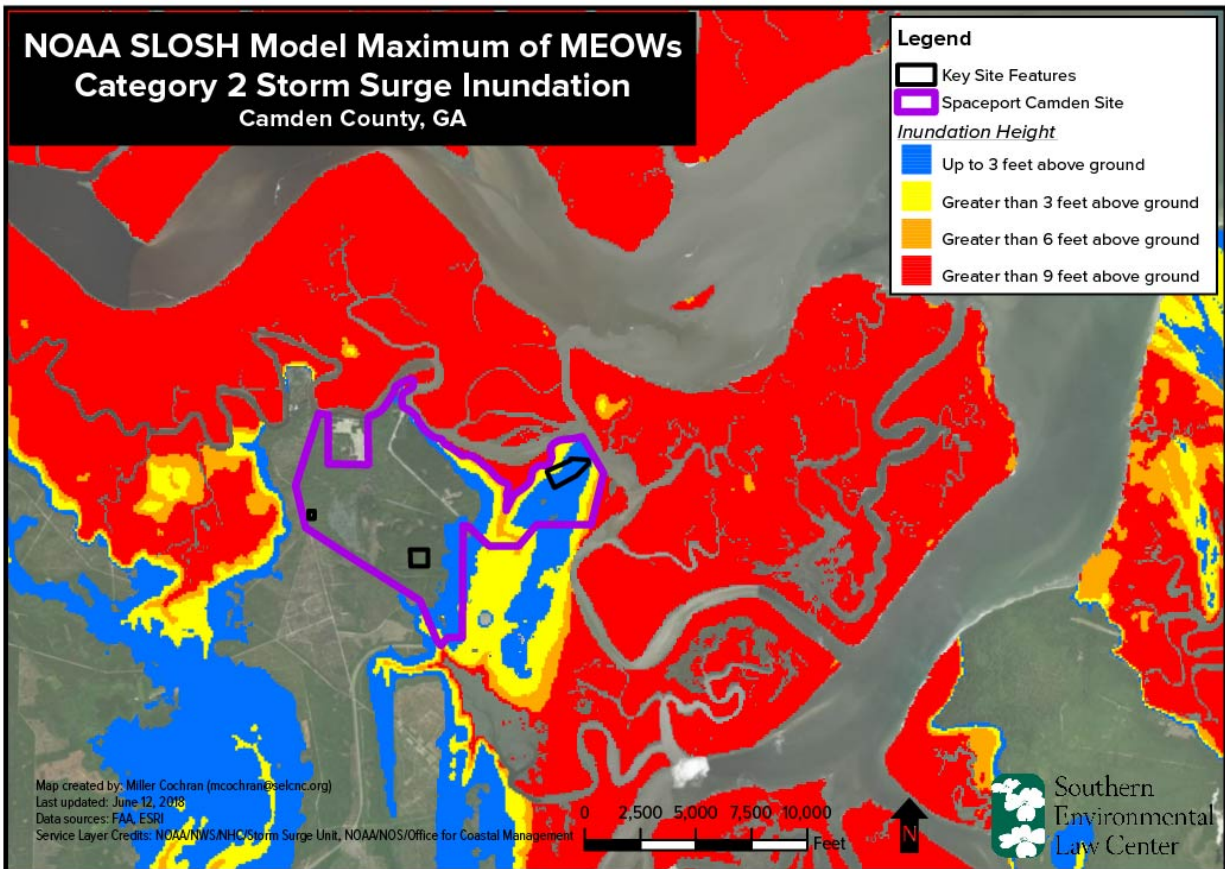
DEIS at 3-27; see also id. at 5-5. However, the DEIS does not contain any discussion of the proposed site nor does it attempt to quantify or analyze the vulnerabilities of this location. Instead, the DEIS includes a conclusory single sentence discussing potential mitigation measures.

With regard to impacts of climate change on the Proposed Action, ensuring critical facilities and storage areas are above flood level and that facilities are constructed to withstand severe storm activity would minimize any such adverse impacts.

Id. at 6-3. The DEIS does not actually identify any specific mitigation measures to protect the site against storm activity or sea level rise, nor any strategies to minimize the impacts should those events occur. In comparison, the recent DEIS for the Wallops Island Flight Facility spends multiple pages addressing the issue of sea level rise.³⁰

³⁰ Wallops Flight Facility Site-wide Programmatic Environmental Impact Statement, National Aeronautics and Space Administration (May 2018) at 3.5.1.9, https://code200-external.gsfc.nasa.gov/250-wff/sites/code250-wffe/files/draft_wff_site-wide_peis.pdf.

Even a cursory examination of readily available data shows that the proposed site is potentially vulnerable to a variety of climate change risks including storm surges, sea level rise, and higher tides. For example, the National Oceanic and Atmospheric Administration has prepared National Storm Surge Maps. Examining this data for the proposed launch site reveals that the launch site would be largely inundated with three to nine feet of water in the event of a category 2 storm.³¹



Similar risks must be examined in the event of rising sea levels and tides. Likewise, marsh migration is an expected result of changing sea levels and altered salinity, and the effects of those changes must be considered. But the DEIS does not address any of these climate change concerns.

Courts have struck down NEPA documents for failing to consider the relevant impacts of climate change on a project. AquAlliance v. U.S. Bureau of Reclamation, 287 F. Supp. 3d 969,

³¹ NOAA's National Storm Surge Hazard Maps can be found at <http://noaa.maps.arcgis.com/apps/MapSeries/index.html?appid=d9ed7904dbec441a9c4dd7b277935fad&entry=1>.

1032 (E.D. Cal. 2018). Further, numerous Department of Transportation guidance documents make clear that climate change poses substantial risk to coastal infrastructure projects. For example, the U.S. Department of Transportation's Climate Adaptation Plan states:

[N]ewly constructed infrastructure should be designed and built in recognition of the best current understanding of future environmental risks. In order for this to happen, understanding of projected climate changes would need to be incorporated into infrastructure planning and design processes, across the many public and private builders and operators of transportation infrastructure.³²

FAA's Order 1050.1F Desk Reference repeatedly references the need to consider both the contribution of potential projects to climate change and the impact of a changing climate on infrastructure projects.

The environmental consequences section should include a discussion of the extent to which the proposed action or alternative(s) could be affected by future climate conditions, based on published sources applicable to the study area. For example, a project area's ability to sustain impacts caused by climate changes should be described (e.g., identify current robustness and height of seawalls for coastal airports). This discussion should include any consideration to adapt to forecasted climate change conditions.³³

The Federal Highway Administration has issued numerous reports recommending how climate change risks can be addressed and mitigated in the context of transportation projects.³⁴

³² <https://www.transportation.gov/sites/dot.dev/files/docs/DOT%20Adaptation%20Plan.pdf>

³³ FAA Order 1050.1F Desk Reference at 3.7.

³⁴ A Framework for Considering Climate Change in Transportation and Land Use Scenario Planning: Lessons Learned from an Interagency Pilot Project on Cape Cod: Final Report, FHWA-HEP-12-028 (2012), *available at* http://web.law.columbia.edu/sites/default/files/microsites/climate-change/fhwa_framework_for_considering_cc_in_transprotation_and_land_use_scenario_planning.pdf.

Climate Change & Extreme Weather Vulnerability Assessment Framework, Federal Highway Administration, FHWA-HEP-13-005 (2012), *available at* http://web.law.columbia.edu/sites/default/files/microsites/climate-change/fha_cc_and_extreme_weather_vulnerability_assessment_framework.pdf.

Impacts of Climate Change and Variability on Transportation Systems and Infrastructure, The Gulf Coast Study, Phase 2, Task 3.2, in *Engineering Assessments of Climate Change Impacts and Adaptation Measures*, FHWA-HEP-15-004 (2014), *available at* http://web.law.columbia.edu/sites/default/files/microsites/climate-change/dot_gulf_coast_study_phase_2_task_3.2.pdf.

Although these documents focus on FHWA projects, there is no reason why their approaches and recommendations do not similarly apply to this FAA project. The DEIS' failure to consider the impact of climate change on this project, specifically its susceptibility to sea level rise, higher tides, storm surges, and more frequent storm events, is a critical omission.

Any EIS for this project must include a robust discussion of the risks posed to this project given its proximity to the water, whether less risky alternatives exist, and all potential mitigation measures that can be employed to address those risks.

4. Coastal Resources

The DEIS similarly fails to take a hard look at impacts to coastal resources. Critically absent from the discussion is a meaningful assessment of the need to dredge Floyd Creek or Floyd Cut to accommodate a barge returning first-stage landings back to the proposed spaceport. The DEIS asserts that it would not likely have to dredge either of the two creeks on which the large dock is located. *See* DEIS at Exh. 2.1-2. This dock would be used under both the Proposed Action Alternative and under the Ocean-Landing Only Alternative. *Id.* at 2-1.

The DEIS suggests that since the dock may not ultimately be used, reasonable foreseeable impacts of using the dock need not be analyzed. NEPA requires more. Specifically, it requires federal agencies to “[d]evote substantial treatment to each alternative” and “[r]igorously explore and objectively evaluate all reasonable alternatives” 40 C.F.R. § 1502.14(a), (b).

But here, the DEIS does not provide adequate information on the depths of Floyd Creek or Floyd Cut, the draft of the barge, the width of the creek near the dock, or where the County would dispose of any dredged material. It is only with this information that the public can determine the environmental impacts of dock use and dredging.

Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: The Gulf Coast Study, Phase 2, Task 3.1, Screening for Vulnerability, in Engineering Assessments of Climate Change Impacts and Adaptation Measures, FWHA-HEP-15-004 (2014), available at http://web.law.columbia.edu/sites/default/files/microsites/climate-change/dot_gulf_coast_study_phase_2_task_3.1.pdf Climate Change, Extreme Weather Events, and the Highway System: Practitioner's Guide and Research Report;

National Cooperative Highway Research Program (NCHRP) Report 750: Strategic Issues Facing Transportation, Volume 2 (2014), available at http://web.law.columbia.edu/sites/default/files/microsites/climate-change/nchrp_report_750.pdf;

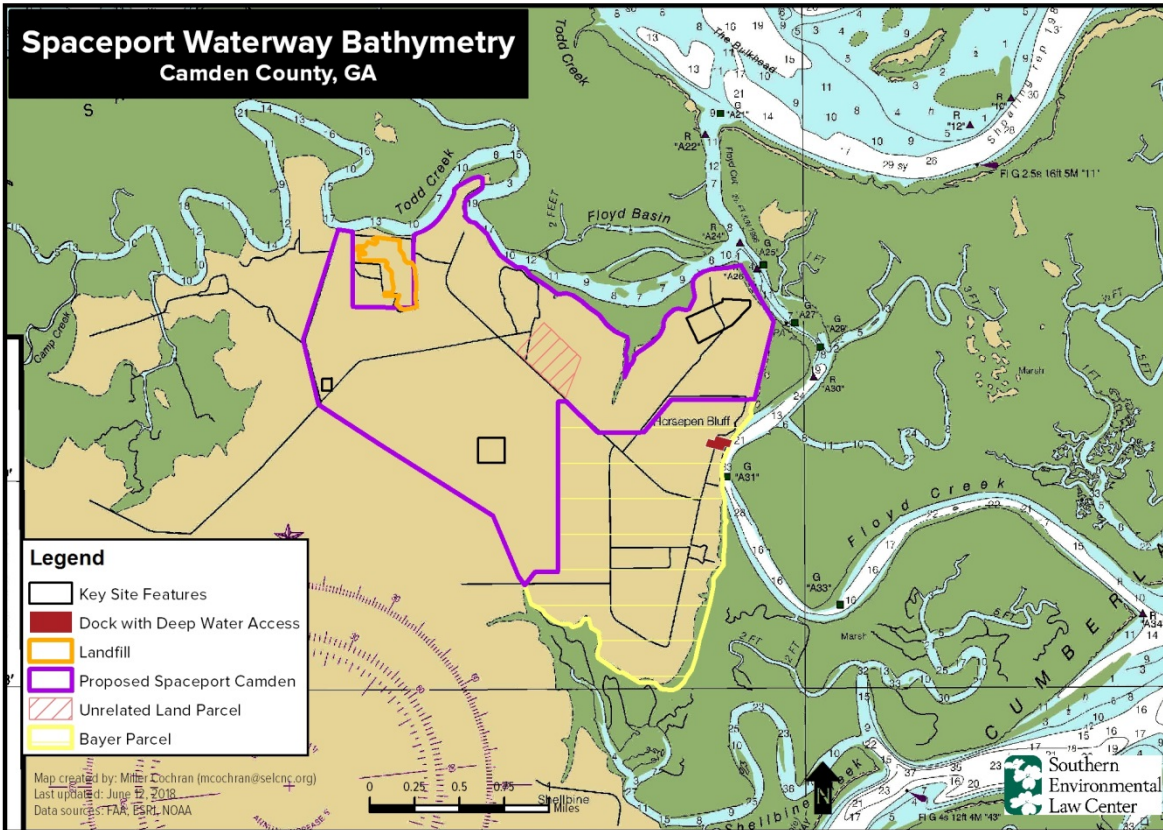
Highways in the Coastal Environment: Assessing Extreme Events, Hydraulic Engineering Circular 25, Vol. 2 (2014), available at http://web.law.columbia.edu/sites/default/files/microsites/climate-change/dot_hydraulic_engineering_circular_25-2.pdf.

Similarly, the DEIS does not adequately describe four other regulatory programs that the proposed project would have to navigate—Section 404 of the Clean Water Act, Section 10 of the Rivers & Harbors Act of 1899, the Georgia Coastal Marshland Protection Act, and the Georgia Erosion and Sedimentation Control Act. The public and decision-makers simply lack sufficient information to determine how dredging and dock use could affect the human and natural environment. Similarly, the public does not have sufficient information on which to provide comments. Until the DEIS fully describes the environmental impacts that would be associated with dock use and the dredging of Floyd Creek or Floyd Cut, the DEIS does not comply with NEPA.

In any event, it appears that the County would have to dredge either Floyd Creek or Floyd Cut to ensure access to the dock. From the dock, the County would have two choices on how a barge could arrive. The shorter route would be through Floyd Cut. As depicted by the bathymetry map below, in some areas the cut is only four feet deep.³⁵ The County could also use Floyd Creek to transport first-stage landings back to the spaceport. Floyd Creek is only eight feet deep at its mouth.³⁶ Also, the dock is located approximately three miles from the Satilla River and an equal distance from the Cumberland River. In either case, the County would have to dredge a significant distance. Both creeks flow into St. Andrew Sound and then to the Atlantic Ocean.

³⁵ National Oceanic and Atmospheric Administration Office of Coast Survey, St. Andrew Sound and Satilla River (2011).

³⁶ Id.



Twelve miles east from the mouth of St. Andrew Sound, there is a significant shoal that lies four to five feet under the surface of the Atlantic Ocean. It would appear that the barge used for first-stage landings, as well as any ship pulling the barge, would have to cross that shoal to reach open water.³⁷ Also of note, the St. Andrew Sound is considered hazardous. The attached Waterway Guide inlet cautions: [w]hile this is a reasonable inlet in calm weather, it kicks up in any sort of opposing wind or tide and isn't a good choice in deteriorating weather. Also, the southern entrance (the better of the two) has shoaled to 4 feet."³⁸ Thus, if the draft of the barge or any ship pulling the barge were greater than four feet, it would appear that the County would have no choice but to dredge the planned route for the barges.

As mentioned above, any dredging would require Camden County to obtain several permits and variances. First, it would have to receive a permit from the Army Corps of Engineers under Section 404 of the Clean Water Act. 33 U.S.C. § 1344. The act of dredging leads to the

³⁷ <https://www.waterwayguide.com/explorer?latitude=31.06263950180553&longitude=-81.24114990234374&zoom=11&mode=marina>.

³⁸ <https://www.waterwayguide.com/nav-alert/4-5644/ga-inlet-caution-st-andrew-sound-not-recommended>.

redeposit of mud and sand in a water of the United States. Under the Clean Water Act, this redeposit of dredged material is a regulated action and the applicant must follow certain procedures before the Corps can issue the applicant a permit.

If the permit applicant establishes that no less damaging, practicable alternative is available, the applicant must then show that all “appropriate and practicable steps” will be taken to minimize adverse effects of the discharge on the wetlands. 40 C.F.R. § 230.10(d). Only after showing that avoidance and minimization criteria have been met, can the Corps consider mitigation.

Fla. Wildlife Fed. v. U.S. Army Corps of Eng’rs, 401 F. Supp. 2d 1298, 1308 (S.D. Fla. 2005). The Corps regulations also require the Corps to

[e]xamine practicable alternatives to the proposed discharge, that is, not discharging into the waters of the U.S. or discharging into an alternative aquatic site with potentially less damaging consequences; evaluate the various physical and chemical components which characterize the non-living environment of the candidate site, the substrate and the water including its dynamic characteristics; identify and evaluate any special or critical characteristics of the candidate disposal site, and surrounding areas which might be affected by use of such site, related to their living communities or human uses; evaluate the material to be discharged to determine the possibility of chemical contamination or physical incompatibility of the material to be discharged; identify appropriate and practicable changes to the project plan to minimize the environmental impact of the discharge.

40 C.F.R. § 230.5.

Second, Camden County would have to secure a Section 10 permit. Such permits are also administered by the Corps. Section 10 of the Rivers & Harbors Act of 1899, 33 U.S.C. § 403, requires applicants to obtain a permit for any activities that would impact the navigable waters of the United States. The navigable waters of the United States include any waters that are subject to the ebb and flow of the tide. Although the primary focus of Section 10 is navigation, since 1970, the courts have recognized that the Corps must consider fish and wildlife in its calculus. Zabel v. Tabb, 430 F.2d 199, 214 (5th Cir. 1970). There is no doubt that the Corps can refuse on conservation grounds to grant a permit under the Rivers and Harbors Act. Id. As the U.S. Court of Appeals for the Fifth Circuit explained,

dredging activity of this sort has a profound disturbing effect on aquatic life, including shrimp and other species of tremendous significance to the commercial

fishing industry. The bays, estuaries, and related marsh areas are highly important as spawning and nursery grounds for many commercial species of fish and shellfish.

Id. at 210. Any dredging activity that the County might take in Floyd Creek or Floyd Cut would be subject to the Rivers and Harbors Act.

Third, the Georgia Coastal Marshlands Protection Act would require the County to obtain a permit for any activities disturbing marshlands, or tidal creeks. Ga. Code Ann. § 12-5-280, et seq. In enacting the Coastal Marshlands Protection Act, the Georgia General Assembly recognized that the

estuarine marshlands of coastal Georgia are among the richest providers of nutrients in the world. Such marshlands provide a nursery for commercially and recreationally important species of shellfish and other wildlife, provide a great buffer against flooding and erosion, and help control and disseminate pollutants.

Id. § 12-5-281. Based on Exhibit 2.1-2 in the DEIS, it appears that marsh vegetation would be located at the dock and along Floyd Creek. To secure a marshlands permit, the County would have to appear before the Coastal Marshlands Protection Committee, which would likely deny the permit if it found that the project was not water dependent or that there was an alternative non-marshland site. Id. § 12-5-288.

Finally, the County would have to apply for a buffer variance from the Georgia Environmental Protection Division if it intended to disturb the 25-foot buffer that extends from the marsh. Id. § 12-7-6(17)(A). The buffer bans the removal of vegetation along the marsh. Variances are granted or denied by the Director of the Georgia Environmental Protection Division. The DEIS must be revised to include each of these pertinent statutes and requirements for dredging activities.

If the County were to dredge Floyd Creek or Floyd Cut, it would cause a number of adverse impacts. Yet the DEIS fails to analyze any of the direct and indirect impacts associated with dredging. Relatedly, the DEIS fails to analyze any of the direct and indirect impacts associated with using the dock at all. The DEIS must be revised to include a detailed impacts analysis on how use of the dock and dredging activities will impact coastal resources. Similarly, the DEIS must consider impacts from dock use and dredging on biological resources and water resources. The marshes and tidal creeks along the Georgia Coast are remarkably diverse and productive. The Georgia marshes account for about one-third of the marsh on the Eastern Seaboard, and nearly 95 percent of the fish and shellfish that live off the Georgia coast reside in the marshes and tidal creeks at some time in their lives. Numerous birds rely on the marshes such

as clapper rails, egrets, oyster catchers, wood storks, and bald eagles. Manatees and dolphins frequent the tidal creeks as well.

Also, Floyd Creek and Floyd Cut contain Essential Fish Habitat (EFH) because they contain the type of habitat and substrate necessary for fish to spawn, feed, and grow to maturity. This habitat is critical to preserving our fish and shellfish communities. As the DEIS states, EFH is constantly jeopardized by activities such as marina construction, navigation projects, and dredging. The fish and shellfish in the area, based on Tables 3.2-3 & 4 of the DEIS, would include shrimp, red drum, and snapper. All are commercial species that are harvested on the Georgia Coast. The DEIS must be revised to account for impacts to these resources.

5. Farmlands

The U.S. Department of Agriculture recognizes aquaculture as farming and offers grant assistance and insurance programs for clam and oyster farming in Georgia.³⁹ Leases for clam and oyster farming exist near the proposed spaceport site in the Cumberland River in Camden County, and in Jointer Creek in Glynn County.⁴⁰ The DEIS must be revised to include these unique farmlands and an analysis of the spaceport's direct and indirect impacts on aquaculture leases. Currently, the document has no impact analysis whatsoever. The analysis should include impacts to these unique farmlands from pollution and launch and landing failures. It should also include an analysis of how temporary closures during launch activities will impact farmers.

6. Hazardous Materials, Solid Waste, and Pollution Prevention

a) Existing Conditions

The DEIS fails to include sufficient information about hazardous materials, solid waste, and pollution throughout the ROI. First, it omits an adequate assessment of Union Carbide Corporation's closed hazardous waste landfill, which is located on the northwestern edge of the proposed spaceport site. While the DEIS references the landfill in a handful of places, it does not accurately describe the toxic nature of the landfill or address the toxic groundwater plume underneath the landfill, which is making its way toward Todd Creek and is being managed by an oxygen curtain. Likewise, the DEIS fails to describe the erosion of the bank along Todd Creek back toward the toxic groundwater plume. The DEIS must be revised to include this information, including information related to ongoing efforts to stabilize the Todd Creek bank. The DEIS also

³⁹ <http://www.usda.gov/topics/farming/aquaculture>.

⁴⁰ <https://coastalgadnr.org/sites/default/files/crd/pdf/recmapcamden.pdf>.

inaccurately states that the landfill will be monitored only through the end of the post-closure care period, which ends on June 6, 2021. However, post-closure care, including monitoring and all financial obligations, will continue indefinitely, or until the Georgia Environmental Protection Division approves the completion of specific, enumerated steps.

In addition to these changes, the DEIS must also be revised to include data about hazardous wastes that may already be entering Todd Creek, Floyd Basin, and Floyd Creek from the proposed spaceport property. Similarly, the bottom soils in those tidal creeks should be analyzed for contamination. This is particularly important for Floyd Creek, where the on-site dock for returning first-stage landings is located. Barge traffic and any necessary dredging for barges could disturb contamination that may be better left undisturbed. Without having this baseline data, the potential impacts of the project cannot be adequately considered.

In addition, the DEIS omits any reference to the existing Environmental Covenant between Union Carbide Corporation and the Georgia Environmental Protection Division. This covenant restricts the type of land disturbing activities that would be necessary to construct and operate the spaceport. This information must be included in the DEIS, along with any information about whether Union Carbide and EPD are entertaining any amendments to the covenant or whether the County could negotiate changes to the covenant upon purchasing the property.

The DEIS also lacks adequate information about the Bayer CropScience portion of the property. As a threshold matter, the DEIS repeatedly states that if the Bayer portion of the property becomes unavailable, additional studies may be needed and new locations for the alternate control center and visitor center would need to be assessed. This violates NEPA. Either the Bayer property should be considered as part of the spaceport site or not. The DEIS cannot rely on inclusion of the Bayer property, as it currently does, in an attempt to meet FAA regulations for siting, for instance, when purchase of the Bayer property is entirely speculative. Likewise, the DEIS cannot omit impacts and issues related to the Bayer property when it is inconvenient. The DEIS must be revised to either fully include the Bayer property, with detailed descriptions of existing conditions and adequate analyses of all impacts associated with use of that property, or omit the Bayer property altogether from consideration as the spaceport site.

The description of existing conditions on the Bayer property is sorely lacking. The DEIS must be revised to include a detailed analysis of contamination on the Bayer property, including information about the type of contaminants, where they are located, whether soils or groundwater or both are contaminated, the extent of contamination at each location, and how much it would cost the County to clean up the contamination. Georgia Historic Preservation records actually reveal that portions of the property are too contaminated for archaeological

surveys and Bayer representatives are unwilling to disclose information about contamination on the property in writing.⁴¹ At a minimum, this information needs to be included in the DEIS.

Also missing is a description of the “unrelated land parcel” located in the middle of the proposed spaceport site, which is owned by Bayer. The lack of information about that land raises numerous red flags. The DEIS must include an explanation for why the County is not considering purchasing that property, even though that parcel would be completely surrounded by spaceport property. The DEIS must also describe the property, including what it was or is being used for, whether it is contaminated and with what contaminants, and whether Bayer would still have access to that property and why. Finally, the DEIS must address how this embedded property will be addressed in the context of FAA regulations (e.g., minimum distance requirements from launch point to launch site property boundary).

Furthermore, the DEIS inappropriately limits a description of other contaminated properties in the ROI to those properties that are listed on the National Priorities List. The DEIS must be revised to include a description of other contaminated properties in the ROI, such as properties that are included on the State of Georgia’s hazardous site index or that are regulated by Georgia as hazardous waste sites. For additional concerns with existing conditions on the site, see the attached letter from Atlanta Environmental Management, Inc., which is hereby incorporated by reference into this letter.

b) Direct and Indirect Impacts

The DEIS must be revised to explain how spaceport operations will impact the hazardous waste landfill next to the site and the underlying groundwater plume moving toward Todd Creek. It must analyze how vibrations, heat, and sonic booms from normal launches and landings, pile-driving during construction, and launch and landing failures could damage the landfill cap or in-situ oxygen curtain apparatus, could affect the rates of erosion along Todd Creek, and/or could affect the movement of contaminated water toward Todd Creek. The DEIS should explain that any seepage or sudden discharge of that highly toxic groundwater into the creek could harm fish, marine mammals, and fish-eating birds, and could make fish and shellfish too toxic for human consumption. Contamination of Todd Creek would also impact recreational and commercial fishermen in the area, and the DEIS must explain those impacts. Moreover, the DEIS must examine the extent to which such contamination would spread throughout the Satilla River estuary. Tidal movement can spread pollutants in all directions, including 10 miles or more upstream. All of these impacts must be addressed.

⁴¹ Notes from Conference Call, supra note 15.

The DEIS also attempts to downplay the spaceport's impacts on existing, on-site contamination, noting only that there is the "potential for impacts to historical contamination sites." Rather, the DEIS must explain that spaceport construction and operations will absolutely disturb areas of existing contamination, will require additional investigation and remediation, and will cause the County to incur substantial costs to conduct additional studies and cleanups. Moreover, the DEIS must be revised to explain that routine spaceport operations will result in minor and/or major leaks, spills, or releases of fuel or other contaminants into soils and groundwater. These contaminants are likely to mix with existing contamination, and the County will then be liable for remediation of those mixed plumes.

As mentioned elsewhere in this letter, the DEIS inaccurately states that the Union Carbide and Bayer properties would be managed under the Georgia Brownfields Program. Because that statement is false, the DEIS must be revised to include an analysis of how the spaceport would impact the County's obligations under RCRA.

Finally, the DEIS does not adequately address the risks posed by the facility's use of hazardous materials for payload propellant. The DEIS states that up to 5,500 pounds of payload propellants, including UMDH, MMH, and NTO, could be stored at the facility. DEIS at 2-23. These materials would be stored in aboveground storage tanks. Id. In addition, up to 2,000 gallons of hydrazine, used as a satellite propellant, could also be stored at the fuel storage area. Id. Approximately six to eight trucks delivering propellant, helium, and nitrogen would arrive at the site per month. Id. at 2-24.

The spaceport's use of these hazardous materials raises numerous concerns, including the transport of these materials to the site, the potential for spills as the payload vehicles are fueled, the threat of flooding at the site, and what would happen to these materials in the event of a launch failure or termination. Further, there are questions about the responsibility for training and equipping first responders should such events occur.

The DEIS largely dismisses all potential concerns related to these hazardous fuels by stating that they will be addressed through a Hazardous Materials Emergency Response Plan. DEIS at 2-26. However, this document has not been prepared and is not available as part of the DEIS. Therefore, it is impossible to assess whether this plan will adequately address these concerns and whether the necessary training and resources will be required to mitigate the risk posed by the use of these hazardous materials at the site.

7. Historical, Architectural, Archaeological, and Cultural Resources

The DEIS also fails to take a hard look at impacts to historical, architectural, archaeological, and cultural resources. At most, it identifies a number of historic properties that are protected under Section 106 of the National Historic Preservation Act that would be directly

affected by spaceport construction or would be directly or indirectly affected by spaceport operations. DEIS at Table 3.8-1. Notably, over 50 different historic properties may be affected and are located either on the proposed site or within the five-mile radius of potential effects. Id. But the DEIS fails to adequately analyze impacts to those properties. The DEIS also notes that an archaeological survey of the Bayer property has not yet been conducted. Id. at 3-54.

The National Historic Preservation Act (NHPA) is intended to discourage “federal agencies from ignoring preservation values in projects they initiate, approve funds for or otherwise control.” McMillan Park Comm. v. Nat’l Capital Planning Comm’n, 968 F.2d 1283, 1284 (D.C. Cir. 1992). Section 106 of the NHPA accomplishes this by requiring federal agencies to consult with the Advisory Council on Historic Preservation prior to taking an action that may affect a site that is included in or eligible for inclusion in the National Register. 16 U.S.C. § 470f. These obligations are triggered by a federal “undertaking,” which includes the FAA approvals required for the proposed spaceport. 36 C.F.R. § 800.2(o).

Under Section 106, adverse effects occur when an action directly or indirectly diminishes the characteristic of a property that makes it historic. These adverse effects include the “[i]ntroduction of visual, atmospheric or audible elements that diminish the integrity of the property’s significant historic features.” Id. § 800.5(a)(2)(v). If an adverse effect is found, the federal agency is required to consult with the relevant historic planning office to resolve the adverse effects. Id. § 800.6. This consultation should include developing and evaluating “alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties.” Id. § 800.6(a).

With respect to indirect effects to historic resources, the DEIS states:

Within the APE for audible and visual effects, although vegetation and other structures would block the view of structures at the spaceport from the High Point-Half Moon Bluff Historic District and the Main Road, visual and temporary noise intrusions (65- to 250 -foot-tall structures and launch vehicles) would result in a cumulative effect on the viewshed and other aspects of the setting of historic properties in the Cumberland Island National Seashore. Visual and temporary noise intrusions are less likely to add to a cumulative effect to historic properties on Dover Bluff and Cabin Bluff due to the more modern setting of these areas.

DEIS at 5-7. The DEIS largely dismisses these impacts and notes that consultation with the state historic preservation office is ongoing. Id. at 4-53. This approach does not satisfy the requirements of Section 106.

Although the DEIS acknowledges that dozens of properties subject to protection under Section 106 will be indirectly impacted, it does not attempt to analyze or quantify the scope of these impacts. For example, with respect to the properties on Cumberland Island, the DEIS states

On Cumberland Island, there would be effects from noise and visual intrusions on a portion of the NRHP-listed High Point-Half Moon Bluff Historic District (including six contributing elements); to the NRHP-listed Main Road; and to the NRHP-eligible Cumberland Island Cultural Historic Landscape (a Historic Vernacular Landscape).

Id. This discussion does not attempt to distinguish between the properties in these three different areas based on their location, the characteristic of the structures involved, or how the increased noise, light, and vibration from the proposed spaceport would “diminish the integrity of the property’s significant historic features.” 36 C.F.R. § 800.5(a)(2)(v). In short, the DEIS’s Section 106 analysis does not contain any meaningful analysis.

Further, Section 106 consultation requires the FAA to develop and evaluate “alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties.” 36 C.F.R. § 800.6(a). The DEIS does not contain any such discussion. Although the DEIS refers to light and noise mitigation measures, it does not discuss these measures in the context of historic properties.

Finally, the DEIS notes that an archaeological survey has not been conducted on the Bayer property. DEIS at 3-54. When an archaeological survey was conducted on the Union Carbide portion of the proposed site, a number of Section 106 properties were identified in the construction area and within the property boundaries. But because the proposed facility could include both the Union Carbide parcel and the Bayer parcel, Id. at 3-64, the lack of any archaeological information regarding the Bayer property renders the Section 106 analysis incomplete. A full archaeological survey of the Bayer property must be completed and the Section 106 analysis consultation must be supplemented once the necessary information regarding historic properties located on that site are known.

In each of these respects, the DEIS’s Section 106 analysis falls short of what the statute requires. These omissions must be corrected and the public must be afforded the opportunity to review and comment on any historic preservation plan before it is finalized.

8. Land Use

The DEIS fails to take a hard look at the proposed spaceport’s impacts on land use. Namely, its analysis of impacts to Cumberland Island Wilderness is deeply flawed.

Congress passed the Wilderness Act in 1964 to ensure that there were lands in the United States that offered solitude so that people would have the opportunity to experience natural sights and sounds. The Act aims to preserve and protect such lands in their natural condition. 16 U.S.C. §§ 1131-36. Congress defined “Wilderness” as “an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain” and “an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions.” *Id.* § 1131. And the area provides “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” *Id.*

Under the Wilderness Act, Congress determined that the Department of Interior (DOI) should be in charge of administering any wilderness area set aside. The DOI is charged with the responsibility of “preserving the wilderness character” of these special places. *Id.* § 1131(b). Congress also provided that wilderness areas “shall be devoted to the public purposes of recreational, scenic, scientific, educational, conservation, and historical use.” *Id.* They were not to be exploited for commercial gain. *Id.* § 1131(c). And, except in emergency situations, the DOI was to exclude all motorized vehicles. *Id.* Wilderness areas are intended to be a place where individuals can experience natural soundscapes and darkened night skies unmarred by human-caused noise and light, an area that can provide the visitor a sense of remoteness and solitude.

a) National Parks and Seashores

Wilderness Areas are often designated within national parks. Thus, the NPS’s responsibilities under the 1916 National Park Service Organic Act also apply to wilderness areas and the parkland surrounding them. Because the Cumberland Island Wilderness Area falls within the Cumberland Island National Seashore, any restrictions on the seashore would also apply to the wilderness area. The 1916 NPS Organic Act provides as follows:

The [National Park Service] thus established shall promote and regulate the use of the Federal areas known as national parks, monuments and reservations hereinafter specified . . . , by such means and measures as conform to the fundamental purposes of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life 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.

16 U.S.C. § 1 (emphasis added). In this passage, Congress is emphatic that the NPS is to safeguard the national parks.

This language was amended in 1978 to read:

Congress further reaffirms, declares, and directs that the promotion and regulation of the various areas of the National Park System, as defined in [16 U.S.C. § 1c], shall be consistent with and founded in the purpose established by [16 U.S.C. § 1], to the common benefit of all the people of the United States. The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.

16 U.S.C. § 1a-1 (emphasis added).

The language was amended a second time in 2014 to read:

The Secretary, acting through the Director of the National Park Service, shall promote and regulate the use of the National Park System by means and measures that conform to the fundamental purpose of the System units, which purpose is to conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

54 U.S.C. § 100101. It should be noted that although the 1978 version of the provision is somewhat different than the 1932 version, the 1932 and 2014 versions are quite similar. Nonetheless, all of these provisions are highly protective of the national parks.

b) The Cumberland Island Wilderness Area

The Cumberland Island Wilderness Area was established under the authority of the Wilderness Act within the boundary of Cumberland Island National Seashore. Public Law 97-250. The 36,000-acre National Seashore had been designated a decade earlier with the goal of permanently preserving Cumberland Island in its primitive state. 16 U.S.C. § 459i-5. Congress encouraged the National Park Service to seek a wilderness designation for any suitable parts of the island. *Id.* § 459i-8. Ultimately, Congress selected the most remote area of the island to establish a wilderness area that would provide “outstanding opportunities for solitude” and a primitive experience for generations to come. *Id.* §§ 459i-5, 1131.

Congress set aside about 9,000 acres to form the Wilderness Area. Public Law 97-250. Congress also designated as potential wilderness an additional 11,850 acres of land located north

of the Wilderness Area. According to the designation, the potential wilderness would become wilderness when activities incompatible with the wilderness area ceased. Congress modified the Wilderness Area in 2004 when it enacted the Cumberland Island Wilderness Boundary Adjustment Act of 2004. Consolidated Appropriations Act, 2005, PL 108–447, December 8, 2004, 118 Stat 2809. Under this Act, Congress added additional acreage to the potential wilderness area and removed the island’s Grand Avenue, which travels the length of the island, from the Wilderness Area. Id.

c) *Congress did not intend for space flight to trump the purposes of wilderness areas.*

Two years after Congress created the Cumberland Island Wilderness Area, it enacted the Commercial Space Launch Act of 1984 (Space Act). (P.L. 98-575)(Space Act). The Act set the stage for the further development of space by commercial entities. 51 U.S.C. § 50903. The Act goes so far as to indemnify space companies for catastrophic launches and allow these companies to obtain waivers from permit requirements under certain circumstances. Id. §§ 50905(b)(3), 50914(A)(3)(a).

The Space Act, however, conflicts with the Wilderness Act whenever a launch facility is proposed to be built adjacent to a wilderness area. While the Space Act is geared towards launching commercial rockets into space, the Wilderness Act is designed to preserve the solitude of our more remote places. Nothing could be more antithetical to a wilderness area than a rocket launch facility. The Spaceport Camden facility, the rocket launches, and the activities associated with operation of the facility would conflict with the Congressional intent of preserving the pristine qualities of the Cumberland Island Wilderness Area.

As provided above, the Wilderness Act requires that wilderness areas and their “community of life are [left] untrammelled by man” and that their “primeval character and influence . . . are preserve[d] in [their] natural condition.” 16 U.S.C. § 1131. It is only in this manner that the solitude and primitive nature of these special places can remain unspoiled. Of all the national parks in this country, wilderness areas are the only ones that are designed so that individuals can escape all the trappings of modern life. The proposed spaceport would thwart what Congress was trying to achieve when it designated the Cumberland Island Wilderness Area less than four decades ago.

As the U.S. Supreme Court has held, the specific holds sway over the general:

It is a basic principle of statutory construction that a statute dealing with a narrow, precise, and specific subject is not submerged by a later enacted statute covering a more generalized spectrum. “Where there is no clear intention otherwise, a specific statute will not be controlled or nullified by a general one, regardless of

the priority of enactment.” Morton v. Mancari, 417 U.S. 535, 550-551 (1993). “The reason and philosophy of the rule is, that when the mind of the legislator has been turned to the details of a subject, and he has acted upon it, a subsequent statute in general terms, or treating the subject in a general manner, and not expressly contradicting the original act, shall not be considered as intended to affect the more particular or positive previous provisions, unless it is absolutely necessary to give the latter act such a construction, in order that its words shall have any meaning at all.” T. Sedgwick, The Interpretation and Construction of Statutory and Constitutional Law 98 (2d ed. 1874).

Radzanower v. Touche Ross & Co., 426 U.S. 148, 153 (1976) (deciding between two federal venue provisions).

Applied to this case, the legislation that created the Cumberland Island Wilderness Area is more specific than the Commercial Space Launch Act. The former legislation dealt solely with the 18-mile long Cumberland Island. When Congress turned its sights on commercial space flight, it was constructing statutory language that would be applied to launch facilities across the country. It is doubtful that any members of Congress even considered that anyone would propose to locate a spaceport adjacent to a wilderness area, much less the Cumberland Island Wilderness Area, which they had designated only two years before. If there ever were a case that one federal statute should trump another, it is this one.

d) The DEIS wrongly implies that the Cumberland Island Wilderness Area does not meet the criteria of a Wilderness Designation.

The DEIS implies that Cumberland Island Wilderness Area is not deserving of its 50-year wilderness designation. The DEIS contends that the traffic through the Wilderness Area on Grand Avenue and on the beach destroys the solitude of the Wilderness Area. The DEIS, however, does not explain how frequently or infrequently vehicles drive on Grand Avenue or the beach. The DEIS points to inholdings within the northern reaches of the island, but it does not, however, explain how many of these inholdings exist or whether they have life estates or not. The DEIS suggests that sounds from nearby military facilities disturb those visiting the Wilderness Area. Again, the DEIS does not explain the origin, frequency, or intensity of these sounds. And the DEIS points to small aircraft as another source of noise. What the DEIS does not explain is that small engine aircraft are instructed to fly more than 2,000 feet above the island

if they go near the island at all.⁴² Furthermore, the Wilderness Act provides that aircraft can only fly over wilderness areas if they have “already become established” and the agency administering the wilderness area applies suitable restrictions. 16 U.S.C. § 1133(d)(1). If the DEIS claims that such flights are a disturbance to the Wilderness Area, they should describe those flights in greater detail. In this case, the firing of rockets over the Cumberland Island Wilderness Area is not an existing use, and even if it were, the National Park Service has not granted any permission of any form that would allow rockets to disturb the primitive character of the Wilderness Area.

Despite its attempt to discredit the Cumberland Island Wilderness Area, the DEIS admits that the “physical isolation and daily visitor cap provides visitors with outstanding opportunities for outdoor recreation and solitude.” DEIS at 3-68. At the same time, drones and helicopters will be used to locate individuals on the islands prior to launch. *Id.* at 1-11. Even if the helicopters and drones do not fly over the Wilderness Area, the sound of these flying machines would contribute to the sound pollution from the launch operations.

e) Courts have protected Wilderness Areas from pollution

Courts typically protect wilderness areas from noise pollution. For example, a Minnesota court found that a proposed snowmobile trail was incompatible with the use of the adjacent Boundary Waters Canoe Area, noting that the federal agency administering the wilderness area shall be responsible for preserving the wilderness character of the area. Izaak Walton League of Am., Inc. v. Kimbell, 516 F. Supp. 2d 982, 988 (D. Minn. 2007). The court explained that the text of § 4(b) indicates that the agency’s duty to preserve the wilderness is wholly independent of the source or location of that activity. *Id.* In other words, it does not matter whether the noise would be coming from inside or outside the wilderness area, the administering agency has a duty to prevent it.

Under the proposed action, campers in the Cumberland Island Wilderness Area would be disturbed by light and noise pollution that rocket launches would generate throughout the area’s 9,000 acres. The DEIS contends that only the western shore of the Wilderness Area would be impacted; that is simply not true. DEIS at 4-63. The noise and light pollution from the spaceport would be intense. The three towers on the launch pad would jut 250 feet skyward. Each would be covered with an array of powerful lights, which would be seen easily from the shores of Cumberland Island and the Wilderness Area. DEIS, ES at 24. Because FAA plans to locate the launch pad on the water’s edge, there will be no trees to shield the towers. FAA has stated that

⁴² FAA Advisory Circular AC-91-36C, Visual Flight Rules (VFR) Flight Near Noise Sensitive Areas (2004), available at https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_91_36D.pdf.

before a launch, the lights will have to remain on 24 hours a day. They also admit that the lights will be “highly annoying.” Id.

f) Courts have protected National Parks from activities on non-federal land.

In 1998, the Solicitor General for the Department of the Interior determined that the National Park Service (NPS) has the authority to address exterior threats to a National Park. In his interpretation of the 1978 amendment to the Organic Act of 1932, he stated that he believed that “the text of the 1978 Amendment and the other legal considerations discussed in this section support the conclusion that the Organic Act as amended in 1978 does have application to the Secretary's exercise of his authorities over activities taking place outside the boundaries of park units.” Memorandum to Secretary, 1998 WL 35152797, at *17 (emphasis added). In other words, if there is an exterior threat to a National Park, the NPS can take action.

In Sierra Club v. Andrus, the district court explained that the NPS is not “restricted in the protection and administration of Park resources to any single means.” 487 F. Supp. 443, 448 (D.D.C. 1980). The NPS has “broad discretion in determining what actions are best calculated to protect Park resources. . . .” Id. at 448 (emphasis added). The NPS’s authority is not limited to activities inside the boundaries of national park system units.

Other courts have reached similar conclusions. See United States v. Vogler, 859 F.2d 638 (9th Cir. 1988) (regulation of vehicle use on claimed non-federal right-of-way within a national park unit); Free Enterprise Canoe Renters Ass’n v. Watt, 711 F.2d 852 (8th Cir. 1983) (regulation of canoeing activity on non-federal land within the Ozark National Scenic Riverways' external boundary); United States v. Brown, 552 F.2d 817 (8th Cir. 1977) (prohibition of hunting on waters owned by State of Minnesota but within external boundary of Voyageurs National Park); United States v. Moore, 640 F. Supp. 164 (S.D.W.Va. 1986) (regulation of pesticide application on non-federally owned land within external boundary of the New River Gorge National River). In contrast to the present case where the threat to the Cumberland Island Wilderness Area is outside the footprint of both the Wilderness Area and the National Seashore, these cases involved activities that were taking place within the boundaries of federal parkland.

But the National Park Service itself has taken a position on this point. In the National Park Service Management Policies of 2006, the NPS defines an impairment to a unit of the National Park System as an impact that affects a park resource or value: “necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or key to

the natural or cultural integrity of the park or to opportunities for enjoyment of the park”⁴³ as described in the following:

If [the NPS decisionmaker determines] that there is, or will be, an impairment, the decision-maker must take appropriate action, to the extent possible within the Service’s authorities and available resources, to eliminate the impairment. The action must eliminate the impairment as soon as reasonably possible, taking into consideration the nature, duration, magnitude, and other characteristics of the impacts on park resources and values, as well as the requirements of . . . applicable laws.⁴⁴

Thus, in this case the NPS must take appropriate action to ensure that the proposed spaceport does not go forward due to the impacts it would have on the National Seashore, the Wilderness Area, and the Potential Wilderness Area. In light of this, and the likelihood that the NPS will challenge any FAA decision to allow the spaceport to go forward, the DEIS must describe how the FAA addresses a situation such as this one, where another federal agency opposes a proposed action by the FAA.

g) The frequent evacuations and access restrictions will compromise the recreational use of the Wilderness Area.

Many of the campers who come to Cumberland Island to enjoy the solitude of the Wilderness Area would suffer extreme disappointment and inconvenience if they were asked to evacuate during their special time on the island. Many campers reserve campsites on Cumberland Island six months in advance because the campsites fill up so quickly. Even if a launch were announced two months in advance, they would not be able to change their plans. The DEIS states that as many as 12 vehicles could be launched each year from the spaceport. In addition, FAA could license as many as 12 wet dress rehearsals, 12 first-stage landings, and 12 static fire engine tests.

As the former NPS Regional Director for the Southeast Region, Stan Austin, wrote in a comment letter in 2015, “[i]n many cases [these activities] may affect once in a lifetime opportunities, months or years of planning, financial obligations, time commitments, and or other commitments. Moreover, some closures/restrictions may occur with little notice and create more

⁴³ National Park Service, Management Policies 2006, § 1.4.5, Aug. 31, 2006, at https://www.nps.gov/policy/mp/policies.html#_Toc157232607.

⁴⁴ Id. at 1.4.7.

severe hardship.”⁴⁵ To add to the frustration of the campers, they would not know whether they should stay in the Wilderness Area during the launch or evacuate. According to the DEIS, they would have the option of staying.

h) The status of the potential wilderness would be jeopardized if the proposed facility were permitted.

Finally, there is the question of the potential wilderness area that is located north of the existing Wilderness Area. When the non-conforming uses of this 11,000-acre parcel cease, the land will automatically become wilderness. When that time comes, the size of the Cumberland Island Wilderness Area will more than double. The non-conforming uses include some small parcels that are life estates.

But if rockets are allowed to fly over the potential wilderness, it could permanently disqualify the potential wilderness from becoming a wilderness area. In an analogous situation, federal agencies such as the Bureau of Land Management and the Forest Service manage millions of acres of land. Some of those lands do not have any roads on them. Often, when one of these agencies authorizes road construction in these roadless lands, public interest groups will challenge these decisions in court, claiming that if roads are constructed in a roadless area, the roadless area will no longer qualify for wilderness status. These public interest groups usually win on this issue if the agency has not adequately studied the effect the roads would have on the roadless area and whether the area was in fact suitable for consideration under the Wilderness Act.

For example, as the Ninth Circuit Court of Appeals has explained, “[o]ur roadless cases, then, are consistent with our holding that a landscape’s wilderness characteristics generally must be considered in NEPA documents prepared for land use plans concerning that landscape, regardless of whether permanent wilderness preservation is an option.” Oregon Nat. Desert Ass’n v. Bureau of Land Mgmt., 625 F.3d 1092, 1117 (9th Cir. 2010). The FAA is in a similar situation to the federal land management agencies. Like these agencies, to complete the NEPA analysis, the DEIS must be revised to take a hard look at how rocket launches will impact the potential wilderness area and whether the launches would permanently disqualify the potential wilderness from ever achieving wilderness status.

⁴⁵ Mary Landers, Camden spaceport promises jobs, threatens islands, Savannah Morning News (Savannahnow), Feb. 25, 2017, at <http://www.savannahnow.com/news/2017-02-25/camden-spaceport-promises-jobs-threatens-islands>, quoting Stan Austin, former National Park Service Regional Director, NEPA Scoping comments for FAA DEIS (2015).

9. Socioeconomics and Children's Environmental Health and Safety Risks

The DEIS fails to take a hard look at the spaceport's impacts on socioeconomics and children's environmental health and safety risks. The DEIS devotes most of the analysis to a "qualitative" rather than a quantitative analysis of the potential economic impacts associated with the proposed action, and it impermissibly focuses its economic assessment on jobs. In fact, the DEIS concedes that the "overall effect from the economic analysis is the total number of jobs created throughout the ROI by the direct, indirect, and induced effects." DEIS at 4-90. A true socioeconomic analysis, however, is not that simple and should include an assessment of impacts to existing and established industries and commercial activities.

a) Employment and Jobs

The DEIS's analysis of jobs raises numerous red flags. The DEIS is clear that Camden County is pursuing a spaceport to "create a strong regional economy with diverse job opportunities." *Id.* at 1. The pivotal question is whether the proposed spaceport will make a meaningful contribution to this goal of economic growth. The DEIS provides that the spaceport would generate 60-70 temporary jobs for the 15 month construction of the launch facility and 77 full-time jobs to operate the facility. *Id.* at 4-92 & 4-93. The DEIS goes on to state that these jobs would create additional indirect employment opportunities. As the DEIS provides, the 77 full-time jobs would amount to less than one percent of total employment for the County. *Id.* at 4-93. Nevertheless, the DEIS warns that if "launches are continually delayed or cancelled, taxpayers could be required to vote for government funds to be available to support the spaceport operations." *Id.* at 4-92.

The County and spaceport supporters have been asserting that the spaceport would create 2,000 jobs, which contradicts the DEIS's estimate of 77 jobs. Apparently, these additional jobs would come from aerospace companies relocating to Camden County. The DEIS must address this inconsistency and consider the indirect impacts of the induced economic growth accordingly.

In fact, new aerospace companies relocating to Camden County is unlikely. Even if an aerospace company determined that there was an advantage to be located near a spaceport, it is not clear that they would choose the proposed Spaceport Camden. There are multiple existing facilities and several pending facilities that could launch rockets similar to those that could be launched at the proposed site. Two of those facilities are located on the east coast—Wallops and Cape Canaveral.

Although the number of launch facilities has grown in recent years, the number of launches has not kept pace. As discussed previously, the FAA consistently overestimates the

number of launches that occur each year. In light of the fact that the number of spaceports is growing at a rate that is far greater than the increase in launches, the FAA should be very hesitant to issue a license to Camden County, when the need the spaceport is probably not sufficient to guarantee its success.

An economic assessment of the proposed spaceport concluded that 12 orbital launches per year would create 126.5 jobs per year, but if only 6 launches were held the number of jobs created would drop to 20.⁴⁶ Given that the highest projected number of launches in the last decade is 58, and considering the number of spaceports that exist or are being built across the country, it is unrealistic for Spaceport Camden to think that it will command such a high market share—12 launches out of 58. Finally, the FAA predicts that the number of launches is going to decrease over the long-term. If the facility fails to reach its target number of launches, it is likely that the direct and indirect economic development will not occur.

At a minimum, the DEIS should have discussed the vulnerabilities in the spaceport market and the potential lack of demand for launch facilities.

***b) Impacts to Commercial and Recreational Fisheries
and Navigation***

The DEIS identifies just one potential impact to commercial and recreational fisheries, noting the potential for “negative impacts to local ocean-based commerce (fisheries, crabbing, oysters, and shrimping) due to possible hazard area closures.” DEIS at 4-90. And the DEIS completely omits any discussion of impacts to the commercial shipping industry. This is deficient. The DEIS must explain exactly how closure areas will impact commercial and recreational fishermen, charters, and commercial shipping. Similarly, the DEIS must explain how closure areas will impact domestic boat traffic on the Atlantic Intracoastal Waterway and the Southeast Coast Saltwater Paddling Trail.

The DEIS attempts to get around these requirements by noting that advanced notifications would allow recreational and commercial users to avoid closure areas. But the DEIS fails to consider critically important factors for fishermen, such as area restrictions for commercial and recreational fishing, harvest limits, and fishing seasons. Fishermen have limited periods of time in which they may catch certain species, as well as limited areas where they may catch those species. By limiting the places where they may go, Spaceport Camden could cause considerable hardships to commercial and recreational fishermen, including but not limited to lost income. This is particularly true in the event of repeated delays or cancellations, in which

⁴⁶ Telephone Interview with Jeffrey D. Mullen, Ph.D, University of Georgia, Department of Agricultural and Applied Economics, conducted by Bill Sapp, Senior Attorney, Southern Environmental Law Center (June 11, 2018).

certain areas may be closed for multiple days at a time. Moreover, spaceport construction and operations could damage fish, shrimp, oysters, clams, and other seafood, creating additional economic harm for commercial fishermen and commercial shrimpers. The DEIS must be revised to analyze each of these impacts on local businesses.

With regards to commercial shipping, Georgia is home to both the Port of Brunswick and the Port of Savannah, which together move millions of tons of containerized cargo each year.⁴⁷ The Port of Savannah alone receives over 2,000 vessel calls each year,⁴⁸ and the ports together contribute hundreds of billions of dollars to Georgia's economy.⁴⁹ Large shipping vessels move raw materials and finished goods to and from destinations around the globe, and numerous shipping lanes are within proposed flight corridors, hazard areas, and potential closure areas for the landing barge.

The DEIS must be revised to include a discussion of how spaceport operations will impact shipping lanes and Georgia ports, including whether and the extent to which closure areas along the Intracoastal Waterway and around the landing barge out to sea may have adverse economic impacts. The DEIS also must explain how Camden County will coordinate launches with commercial shipping operators and the Georgia Ports Authority.

Likewise, the DEIS must address the potential impact of access restrictions and the OEZ on the Atlantic Intracoastal Waterway for domestic boat traffic. The Atlantic Intracoastal Waterway is a primary thoroughfare for north/south navigation on the Atlantic seaboard. According to one estimate, the Atlantic Intracoastal Waterway carried 2.3 million short tons of domestic traffic in 2016.⁵⁰ Yet the DEIS includes no discussion on impacts to this significant thoroughfare.

In addition, the DEIS does not address the impacts of access restrictions on the Southeast Coast Saltwater Paddling Trail. This extensive trail, shown in the map below, allows for travel along an unbroken path of tidal marshes and rivers more than 760 miles along the coasts of Virginia, North Carolina, South Carolina and Georgia. The main route for this trail directs

⁴⁷ <http://gaports.com/about>.

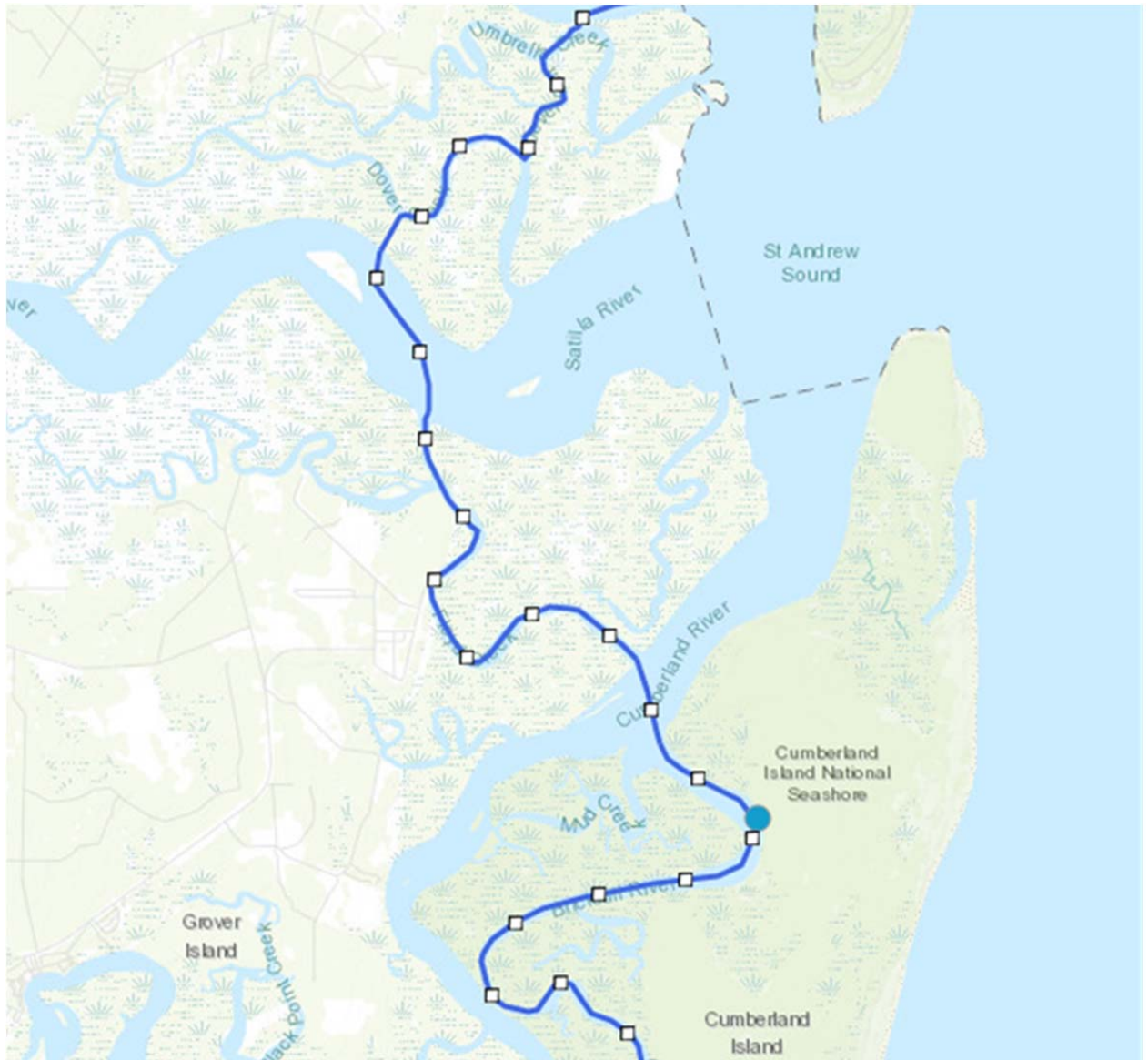
⁴⁸

<http://gaports.com/Portals/2/Market%20Intelligence/CY17%20Annual%20Vessel%20Calls%20Savannah.pdf?ver=2018-05-04-135342-593>.

⁴⁹ <http://gaports.com/about/economic-impact>.

⁵⁰ The U.S. Waterway System: 2016 Transportation Facts & Information, Navigation and Civil Works Decision Support Center, U.S. Army Corps of Engineers at 7, *available at* <http://www.navigationdatacenter.us/factcard/FactCard2016.pdf>.

paddlers through Floyd Creek – directly abutting the project site and within the proposed closure area. Yet the DEIS does not mention the paddling trail and includes no discussion of how the project might impact this trail or outfitters who lead paddles along the trail. For example, it is possible that paddlers on the trail or outfitters will not be actively monitoring maritime radio channels and thus would not be aware of launch-related access restrictions on Floyd Creek, causing them to waste time and money.



c) Children's Environmental Health and Safety

The DEIS's conclusion that spaceport operations would not cause disproportionately high and adverse health risk to children is unsupported by the evidence. Again, rockets are projected to launch directly over private residences and campgrounds on Little Cumberland Island and

Cumberland Island, where children live and visit and play. Those children would be deemed “authorized persons” who could remain on the islands during launches, putting themselves at substantial risk. The DEIS must be revised to address these concerns.

E. The DEIS fails to take a hard look at cumulative impacts.

In addition to considering the direct and indirect effects of the project, the DEIS must also consider and analyze cumulative impacts. A cumulative impact is the “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.” 40 C.F.R. § 1508.7.

Cumulative impact analyses that contain “cursory statements” and “conclusory terms” are insufficient. Del. Riverkeeper Network v. FERC, 753 F.3d 1304, 1319–20 (D.C. Cir. 2014). Likewise, perfunctory references to unspecified impacts “do not constitute analysis useful to a decisionmaker in deciding whether, or how, to alter the program to lessen cumulative environmental impacts.” Nat. Res. Def. Council v. Hodel, 865 F.2d 288, 299 (D.C. Cir. 1988). The point of the cumulative impact analysis is “to provide sufficient information to alert interested members of the public to any arguable cumulative impacts involving other projects.” Fund for Animals v. Hall, 448 F. Supp. 2d 127, 136 (D.D.C. 2006) (quotations and alterations omitted). Thus, “[s]imple, conclusory statements of ‘no impact’ are not enough to fulfill an agency’s duty under NEPA.” Found. on Econ. Trends v. Heckler, 756 F.2d 143, 154 (D.C. Cir. 1985); see also Defs. of Wildlife v. Babbitt, 130 F. Supp. 2d 121, 139 (D.D.C. 2001) (remanding EIS because although document contained section entitled “cumulative impacts,” it contained no actual discussion or analysis).

Instead, a “meaningful cumulative impact analysis must identify (1) the area in which the effects of the proposed project will be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions—past, present, and proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate.” Delaware Riverkeeper, 753 F.3d at 1319 (citation omitted).

Here, the FAA’s cumulative impact analysis for Spaceport Camden falls short by failing to make any of the necessary identifications listed above. Moreover, it relies on cursory statements and conclusory terms that understate or completely ignore impacts to numerous environmental resources.

1. The cumulative impact analysis area is impermissibly restrictive and not based on natural ecological boundaries.

As an initial matter, the DEIS's cumulative impact analysis is flawed because it unreasonably restricts the analysis area to the same ROIs used to analyze the spaceport's direct and indirect impacts. DEIS at 5-1 (explaining that the ROI for cumulative impacts analysis is the same ROI defined for the proposed action's direct and indirect impact analysis for operations). CEQ's guidance on cumulative impacts recommends significantly expanding the cumulative impact analysis area beyond the "immediate area of the proposed action" that is often used for the "project-specific analysis" related to direct and indirect effects:

For a project-specific analysis, it is often sufficient to analyze effects within the immediate area of the proposed action. When analyzing the contribution of this proposed action to cumulative effects, however, the geographic boundaries of the analysis almost always should be expanded. These expanded boundaries can be thought of as differences in hierarchy or scale. Project-specific analyses are usually conducted on the scale of counties, forest management units, or installation boundaries, whereas cumulative effects analysis should be conducted on the scale of human communities, landscapes, watersheds, or airsheds.⁵¹

CEQ further states that it may be necessary to look at cumulative effects at the "ecosystem" level for vegetative resources and resident wildlife, the "total range of affected population units" for migratory wildlife, and an entire "state" or "region" for land use.⁵²

Likewise, EPA guidance on cumulative impacts states that "[s]patial and temporal boundaries should not be overly restrictive in cumulative impact analysis."⁵³ EPA specifically cautions agencies to not "limit the scope of their analyses to those areas over which they have direct authority or to the boundary of the relevant management area or project area."⁵⁴ Rather, agencies "should delineate appropriate geographic areas including natural ecological boundaries" such as ecoregions or watersheds.⁵⁵

⁵¹ CEQ, Considering Cumulative Effects under the National Environmental Policy Act 12 (1997) (emphasis added).

⁵² Id. at 15.

⁵³ EPA, Consideration of Cumulative Impacts in EPA Review of NEPA Documents 8 (1999).

⁵⁴ Id.

⁵⁵ Id. (emphasis added).

The FAA should reexamine the construction ROI and the operational ROI for each resource category analyzed to determine what the appropriate cumulative impact analysis areas should be. In particular, to the extent that the cumulative impact analysis considers construction activities at the spaceport, the construction ROI should be expanded from just the area within the spaceport boundary to include surrounding waterways, ecosystems, communities, and other areas that are rationally related to the resource category being analyzed.

While some of the operational ROIs for each resource category may make sense, others are problematic. For example, the operational ROI for biological resources extends out for a radius of approximately eight miles around the spaceport site “to account for potential noise and visual effects from launches.” DEIS at 3-5. But noise and visual effects are not the only types of impacts that the spaceport may have on biological resources, and some impacts may be felt outside of that eight-mile range. Simply put, there is no rational relationship between an eight-mile radius and impacts to vegetation and wildlife. Nor is an eight-mile radius sufficient to capture the cumulative impacts of other past, present, and reasonably foreseeable actions on biological resources. Moreover, different analysis areas may be needed for different types of biological resources. The analysis area for Atlantic sturgeon, for instance, may be different than the analysis area for bald eagles.

Accordingly, the FAA must revise the DEIS to include a broadened cumulative impact analysis for each individual resource category with these considerations in mind.

2. The cumulative impact analysis fails to identify all relevant past, present, and reasonably foreseeable actions impacting the site.

The DEIS’s cumulative impact analysis impermissibly limits the past, present, and reasonably foreseeable actions identified to a “representative” set of actions that have had or are expected to have impacts near the Spaceport Camden site, in clear violation of NEPA. Although agencies generally may discuss past actions in the aggregate when analyzing impacts, a cumulative impact analysis must “go beyond merely cataloguing projects and must include a helpful analysis” of all present and all reasonably foreseeable actions expected to occur within each resource category’s scope of analysis. Muckleshoot Indian Tribe v. U.S. Forest Serv., 177 F.3d 800, 809–10 (9th Cir. 1999).

Remarkably, the DEIS lumps present and reasonable foreseeable future actions together, making it impossible to discern which actions are currently occurring and which actions are planned. Present actions should be discussed separately from reasonably foreseeable future actions.

In addition, several relevant and significant past, present, and reasonably foreseeable future actions are omitted from the cumulative impact analysis. Missing past actions include the

past erosion of the bank on Todd Creek near the hazardous waste landfill next to the proposed site and the dismantling and deconstruction of Bayer CropScience's wastewater treatment plant and land application system and spray fields. Missing present actions include ongoing site cleanup and remediation and bank stabilization efforts along Todd Creek, as well as ongoing private and public construction and renovation projects. See DEIS at 5-8 (referencing unspecified ongoing and future private and public construction and renovation projects). Finally, the cumulative impact analysis omits reasonably foreseeable future actions such as offshore oil and gas exploration and drilling, sea level rise, and the impacts of climate change.

The cumulative impact analysis must be revised to include all relevant past, present, and reasonably foreseeable future actions in the area, not simply a "representative" sampling.

3. The cumulative impact analysis fails to identify the impacts of past, present, and reasonably foreseeable actions.

A cumulative impact analysis violates NEPA if it provides no detailed analysis of the impacts of the past, present, or reasonably foreseeable projects actually listed in the EIS. Kettle Range Conservation Group v. U.S. Forest Serv., 148 F. Supp. 2d 1107, 1130–31 (E.D. Wash. 2001).

a) Past Actions

NEPA requires an analysis of the present effects of past actions which are relevant and useful in analyzing the extent to which the proposed project may add to those effects.⁵⁶ In addition, the past direct and indirect effects of individual past actions should be analyzed if they are useful in predicting the direct and indirect effects of a proposed action.⁵⁷ As discussed previously, the DEIS identifies the following past actions as relevant to the cumulative impact analysis: (1) past industrial use of the project site, (2) the Camden County Kings Bay Joint Land Use Study ("Study"), and (3) the closure of St. Mary's Airport. DEIS at 5-1 to 5-2. The DEIS fails to analyze all relevant and useful effects (both past and present) of these past actions.

(1) Past Industrial Use of the Project Site

The DEIS lists the types of industrial activities that previously occurred on the project site, including ship-building, testing rockets, manufacturing military supplies and chemicals, and manufacturing pesticides. DEIS at 5-1 to 5-2. Rather than discuss (or even list) the past or

⁵⁶ See Memorandum from James Connaughton, Chairman, Council on Environmental Quality to Heads of Federal Agencies, Guidance on the Consideration of Past Actions in Cumulative Effects Analysis 1 (June 24, 2005).

⁵⁷ See id. at 2.

present impacts of those past activities, the DEIS merely states that several historical contamination sites are present within the proposed spaceport boundary. Id. at 5-2. Presumably, the cumulative impact analysis would discuss the additional relevant past and present impacts of those past industrial uses in each resource category discussion. But a careful review of those discussions reveals just a handful of references.

In the Biological Resources section, the cumulative impact analysis states that the proposed project site “was previously disturbed from past industrial and development activities,” without explaining what those disturbance entailed. Id. at 5-5. In the Land Use section, the cumulative impact analysis simply states that because the property was historically used for industrial purposes, there would be no change in land use. Id. at 5-7. The Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks section mentions only that the resources in the area were able to accommodate fluctuations in industrial activity and corresponding populations. Id. at 5-8. In the Water Resources section, the cumulative impact analysis simply mentions that past industrial and development activities at the site have “influenced the current condition of water resources at the site,” without explaining what the current conditions are. Id. at 5-10.

These perfunctory references to unspecified impacts do not constitute an analysis that is useful to the public or decision-makers in deciding whether, or how, to alter the program to lessen cumulative environmental impacts. Hodel, 865 F.2d at 299.

Perhaps the only section with a sufficient analysis of the effects from past industrial use at the site is the Visual Effects section. There, the cumulative impact analysis states that taller structures associated with Bayer’s industrial operations were visible and prominent from offsite viewing locations and that activities produced light emissions that were noticeable sources of sky glow and glare. DEIS at 5-9. Though brief, this discussion provides the public and decision-makers with enough information to understand the types of impacts that occurred because of past industrial activities and what types of impacts could be expected to occur because of spaceport activities. Such succinct descriptions of the actual impacts of past industrial activities should be duplicated throughout the cumulative impact analysis.

(2) Camden County Kings Bay Joint Land Use Study

Frankly, the inclusion of the Camden County Kings Bay Joint Land Use Study as a past action is somewhat confusing. The DEIS fails to describe the present and/or past effects of the study, nor does the DEIS include the study by reference or as an appendix for decision-makers and the public to read. Although the cumulative impact analysis hints at growth, development, and naval operations throughout each resource category section, it is unclear whether those activities stem from the study or other present and reasonably foreseeable actions mentioned (or not mentioned) in the DEIS. Without knowing exactly what the study recommends or

anticipates, we are unable to discern how the study contributes to cumulative impacts. Furthermore, even though the study was published in 2014, it appears that any activities stemming from the study should be categorized as present or reasonably foreseeable future activities. In sum, more discussion is needed.

(3) Closure of St. Mary's Airport

The DEIS likewise fails to discuss the past or present impacts of the closure of St. Marys Airport. The DEIS mentions that the FAA closed the airport in September 2017 for safety and security issues associated with Kings Bay, so we can assume that some of the present impacts of the closure may be safer and more secure operations for the naval base. DEIS at 5-2. For all other impacts, we can only speculate. The cumulative impact analysis does not mention the airport closure anywhere else. *Id.* at 5-4 to 5-10. This lack of discussion violates NEPA.

b) Present and Reasonably Foreseeable Actions

The DEIS also fails to discuss the direct, indirect, and reasonably foreseeable impacts of (1) Naval Submarine Base Kings Bay, (2) residential growth on Cumberland Island, (3) rezoning of St. Mary's for a potential barge port, (4) the Cumberland Island Fire Management Plan, (5) ongoing public and commercial use within the area, (6) amateur rocket launches, and (7) future roadway improvements.

(1) Naval Submarine Base Kings Bay

The DEIS asserts that "Activities at Naval Submarine Base Kings Bay are anticipated to continue and expand into the future." DEIS at 5-2. First, more clarity is needed on the types of activities that are anticipated to continue and expand. Does this mean additional construction will occur, or more employees will be hired? Will more submarines or different types of vessels be added to the fleet? Second, more discussion of those activities' impacts is required under NEPA. The only specific impacts from the naval base that are mentioned in the DEIS include the disturbance of individual animals, additional habitat loss or fragmentation, noise impacts to people and wildlife, and potential encroachment issues and compatibility issues amongst recreational users, commercial users, and the military. *Id.* at 5-5, 5-7, 5-8.

While those impacts are helpful to the analysis, of particular concern is the lack of any Kings Bay discussion in the Climate; Hazardous Materials, Solid Waste, and Pollution Prevention; and Water Resources categories. The Coastal Resources section states only that "continued military requirements would affect coastal resources." *Id.* at 5-5. The DEIS must explain what those effects actually include so that decision-makers and the public can understand what the overall impacts of the spaceport will be when added to effects of continuing and expanded naval activities.

(2) Residential Growth on Cumberland Island

The DEIS explains that the Camden County Planning Commission has granted a variance for Cumberland Island, which will allow additional homes to be built on an 87-acre tract of land. Id. at 5-3. This future growth is mentioned only twice in the cumulative impact analysis. First, it states that “residential growth on Cumberland Island and continued development in the area have the potential for impacts on visual resources . . . , which in turn could affect Cumberland Island National Seashore.” Id. at 5-6. Second, the cumulative impact analysis states that “increases in residential growth on Cumberland Island could result in more conflicts with Spaceport operations and residents.” Id. at 5-9. Such a cursory overview of impacts is insufficient under NEPA. The cumulative impact analysis must state what the “impacts on visual resources” include, and it must explain what it means by “conflicts” between the spaceport and residents. Moreover, the cumulative impact analysis fails to mention any other reasonably foreseeable impacts of more residential growth on Cumberland Island, such as noise from construction, additional people traveling to and from the island, and impacts on biological resources from that development.

(3) Rezoning of St. Marys for Potential Barge Port

The DEIS states that a former industrial site has been rezoned for possible development as a logistics and industrial center and barge port. Id. at 5-3. While the cumulative impact analysis mentions a handful of general impacts from a new barge port, such as employment gains and increased noise, air pollutants, and traffic, it stops short of an adequate analysis.

The cumulative impact analysis should also address whether and how a barge port will impact barge traffic and shipping lanes, particularly around Cumberland Island and along the Intracoastal Waterway. In addition, given that one of the spaceport alternatives includes an ocean-landing only alternative, the DEIS should analyze whether barges that are returning the first stages of launch vehicles could dock at the St. Marys barge port instead of at the existing dock on Floyd Creek.

(4) Cumberland Island Fire Management Plan

In yet another flaw, the DEIS fails to identify what impacts the Cumberland Island National Seashore Fire Management Plan is having or will have in the spaceport’s region of influence. The DEIS describes the plan as having more active fire management strategies, such as prescribed burning, wildfire managed for resource objectives, and targeted herbicide use. DEIS at 5-3. But the cumulative impact analysis fails to elaborate on what prescribed burning, wildfire managed for resource objectives, and targeted herbicide use will do or what their goals are. Nor does it address whether launch activities would conflict with this plan. Notably, the plan

is not incorporated by reference into the DEIS or provided in an appendix for review by the public or decision-makers.

The Fire Management Plan is noticeably absent from the Air Quality section of the cumulative impact analysis, even though prescribed fires and wildfires on Cumberland Island could have measurable impacts on future air quality in the region. Id. at 5-4 to 5-5. The only place the plan is mentioned is in the Land Use section, and the only listed impacts include “short-term impacts to the untrammelled quality” and the expectation for overall enhancement of the wilderness character on Cumberland Island. Id. at 5-7. The plan is mentioned nowhere else in the cumulative impact analysis, which is alarming given that fires and herbicide use on Cumberland Island would have impacts on biological resources, greenhouse gas emissions, noise, visual effects, and water resources. Fires and herbicide use could also have impacts on historical, architectural, archaeological, and cultural resources. The cumulative impact analysis completely misses its point “to provide sufficient information to alert interested members of the public to any arguable cumulative impacts involving other projects.” Fund for Animals, 448 F. Supp. 2d at 136 (quotations and alterations omitted).

(5) Ongoing Public/Commercial Use within the Operational ROI

The DEIS also identifies some of the ongoing public and commercial uses within the operational region of influence as present and reasonably foreseeable future actions, but once again, the cumulative impact analysis fails to identify the current and future impacts of those activities. See DEIS at 5-3 to 5-10. At most, the cumulative impact analysis suggests that ongoing public and commercial uses could increase the population, potential employment, and economic growth in the area, but also create additional (and unspecified) environmental impacts and conflicts to natural resources and recreational and commercial users. Id. at 5-8 to 5-9. The cumulative impact analysis should explain how ongoing public and commercial uses within the operational region of influence are impacting or will impact each resource category.

A separate but related concern in this section of the DEIS stems from the following statement:

Future growth around the proposed Spaceport Camden site may occur should the proposal move forward. However, there is no information at this time available to provide any specific analysis.

Id. at 5-3. As discussed previously, NEPA requires federal agencies to analyze the indirect effects of a proposed action, and indirect effects include “growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate,

and the related effects on air and water and other natural systems, including ecosystems.” 40 C.F.R. § 1508.8(b).

The DEIS may not ignore the growth-inducing effects of the spaceport simply because it does not yet have any information. If the overall costs of obtaining that information are not exorbitant, the DEIS must include that information in the DEIS. Id. § 1502.22(a). If the costs are exorbitant or the means to obtain the information are unknown, the FAA must include the information required in 40 C.F.R. § 1502.22(b)(1). Assuming, however, that the costs are not exorbitant, the DEIS must discuss the potential environmental effects resulting from that prospective induced growth. N.C. Alliance for Transp. Reform, Inc. v. U.S. Dep’t of Transp., 151 F. Supp. 2d 661, 696–97 (M.D.N.C. 2001) (finding FEIS violated NEPA for failure to analyze potential environmental effects resulting from induced growth of project). Then, in the cumulative impact analysis, the DEIS must analyze the environmental impacts of that induced growth when combined with the impacts of other past, present, and reasonably foreseeable future actions within the area.

(6) Amateur Rocket Launches

Unsurprisingly, the DEIS touts one recent amateur rocket launch from the spaceport site by a private spaceflight startup company in August 2017. Interestingly, the DEIS states that “[w]hether or not the Spaceport Camden is ultimately approved, amateur rocket launches may continue in the future.” DEIS at 5-4 (emphasis added). It then goes on to state that amateur rocket launch authorizations are categorically excluded from the NEPA requirements for either an Environmental Assessment or an EIS. It appears that the FAA relies on that categorical exclusion to avoid discussing the impacts surrounding past or future amateur rocket launches from the site. Such reliance violates NEPA.

The proposed project is for the FAA to issue a launch operator license to Camden County to operate a space launch vehicle site, not to launch amateur rockets. The FAA must analyze all past, present, and reasonably foreseeable future actions that may contribute to the environmental impacts of the spaceport, which includes amateur rocket launches. Based on the DEIS, Camden County will still allow private spaceflight companies to launch amateur rockets from the site, conceivably in between other scheduled vehicle launches. Thus, the DEIS must analyze what the impacts of the amateur rocket launches are and how they will contribute to the overall impacts of the spaceport.

To that end, the FAA must provide additional information about when amateur rockets will be launched, how many amateur rockets will be launched, and what the effects of those launches will be on the resource categories listed in the cumulative impact analysis.

(7) Future Roadway Improvements

Oddly enough, the DEIS includes numerous future roadway improvement projects in the cumulative impact analysis, even though those projects will occur far from the proposed spaceport site and the region of influence. The DEIS claims the projects are included because of their potential to consume large amounts of energy or natural resources. But in fact, the Natural Resources and Energy Supply section of the cumulative impact analysis omits any discussion of the roadway projects or their impacts as they relate to the spaceport's region of influence. Sadly, it appears those projects were included only to create the illusion of completeness.

To the extent there are any roadway improvement projects near or in the region of influence for the spaceport, the DEIS needs to take a harder look. This includes any improvements necessary to accommodate hazardous waste shipped by trucks or extra-large vehicles used for the construction and operation of the spaceport. The document should first identify the projects, then discuss the impacts of those projects on the human environment, and then analyze the incremental effect of the spaceport's impacts when added to the roadway projects' impacts.

4. The cumulative impact analysis fails to identify the overall impact that can be expected if individual impacts are allowed to accumulate.

Because the cumulative impact analysis fails to identify the impacts of past, present, and reasonably foreseeable future actions in the spaceport's region of influence, the analysis necessarily fails to inform the public and decision-makers what the overall impacts on the human environment will be when those actions' impacts are added to the spaceport's impacts. As one example of many, the Air Quality section does not discuss any of the reasonably foreseeable impacts on air quality from the St. Mary's barge port, nor does it discuss how air quality would be affected when the spaceport's impacts are added to the barge port's impacts. Rather, that section concludes, without any documented support, that emissions from other simultaneous and future projects are not likely to adversely affect regional air quality when added to the spaceport's "temporary" impacts.⁵⁸ DEIS at 5-4 to 5-5.

⁵⁸ Remarkably, the cumulative impact analysis repeatedly dismisses the spaceport's cumulative impacts as insignificant because of the "temporary" or "short-term" or "minor" nature of the spaceport's impacts. Although some activities truly are temporary, such as construction-related activities, other activities, such as vehicle launches, cannot be described as temporary or short-term, because they would occur at least twelve times a year and have associated activities that can begin up to two weeks in advance of a launch.

To remedy this shortcoming, the FAA must revise the DEIS to include a discussion of exactly how the spaceport's impacts will affect each resource category listed in Section 5.3 (e.g., biological resources, coastal resources, etc.) when added to the direct and indirect impacts of all other relevant past, present, and reasonably foreseeable actions. Moreover, within those discussions, the FAA must truly analyze the cumulative impact, rather than simply dismiss the overall impact as "insignificant" or allude to impacts without offering details.

The following paragraphs outline some of the additional specific concerns we have with the cumulative impact analysis for each resource category in Section 5.3, with the exception of Air Quality, which is discussed above.

Biological Resources. This section fails to identify the direct and indirect effects from past, present, and reasonably foreseeable future actions on critical habitat and threatened and endangered species within the appropriate region of influence. This section identifies only naval activities, recreational activities, and general development as other actions having potential impacts on biological resources, when numerous other actions would have impacts on biological resources, including the new barge port, additional development on Cumberland Island, planned roadway projects in the area, fire management, and seismic testing for oil and natural gas. In particular, the cumulative impact analysis must be revised to include a discussion of cumulative impacts on North Atlantic right whales and calving habitat, sea turtles, piping plovers, red-cockaded woodpeckers, and Atlantic sturgeon. Moreover, the cumulative impact analysis must be revised to consider cumulative impacts on other important species and habitats, such as shellfish, brown pelicans, and tidal saltmarsh, among others. In sum, the DEIS concludes that significant cumulative impacts on biological resources are not expected without providing a rational explanation.

Climate. This section states that the "very minute emissions of GHGs" from the spaceport are not likely to have any impact on global climate change or sea level rise. The DEIS should be revised to include a discussion of whether this holds true in the event of a launch failure or multiple launch failures. In addition, this section notes that "sea level rise and other climatological changes such as increase in extreme weather events, may impact the Proposed Action in the coming years," but it fails to explain how those climatological changes may impact the spaceport. The public and decision-makers need to know what those impacts on the spaceport will be in order to make an informed decision.

Coastal Resources. The DEIS concludes that the spaceport would result in cumulative impacts on coastal resources when the spaceport impacts are added to impacts from other activities, but it does not explain what those cumulative impacts would be. Similarly, the FAA claims that cumulative impacts on coastal resources would be temporary, without explaining

how it reaches that conclusion, and then dismisses the cumulative impacts as insignificant. This conclusion is simply unsupported by any evidence or analysis.

Department of Transportation Act, Section 4(f). This section is deeply flawed for many of the same reasons discussed elsewhere in this comment letter. See infra Section III. Namely, the spaceport would result in a constructive use of Section 4(f) properties. The cumulative impact analysis must be revised to account for that constructive use.

Farmlands. As mentioned previously, the DEIS fails to include aquaculture leases for clam and oyster farming as farmland. Thus, this section must be updated to include those farmlands and a true cumulative impact analysis must be conducted for those aquaculture leases.

Hazardous Materials, Solid Waste, and Pollution Prevention. This section contradicts earlier portions of the DEIS. In Chapter 4 (Environmental Consequences), the FAA declares that the “largest potential for hazardous materials/wastes releases would occur in the event of a launch failure,” yet in the cumulative impact analysis, the FAA changes course and states that off-site impacts from disposal of spaceport generated hazardous and non-hazardous waste “would be negligible to minimal.” In the event of a launch failure, the impacts would clearly be significant, particularly when added to other actions occurring in the region, such as fire management activities on Cumberland Island. This section in particular is grossly deficient. The cumulative impact analysis must also include a discussion of hazardous waste transport to and from the spaceport via public roads, ongoing and future remediation of contaminated property on-site and adjacent to the spaceport, and ongoing clean-up, remediation, and monitoring of the neighboring hazardous waste landfill.

Historical, Architectural, Archaeological, and Cultural Resources. The DEIS provides conclusory statements of “no cumulative impact” for certain types of actions on historical, architectural, archaeological, and cultural resources and includes vague references to some cumulative impacts of other actions without explaining what those cumulative impacts are. In general, more analysis is needed to comply with NEPA.

Land Use. The introductory paragraph of this section contains at least one confusing sentence. It states that no other past, present, or future actions have been identified “that would have similar impacts” as the spaceport to recreational activities at Cabin Bluff, portions of the national seashore, Intracoastal Waterway users, and residents of Little Cumberland Island. NEPA does not limit the cumulative impact analysis to only those past, present, and future actions that have similar impacts as the proposed action. The cumulative impact analysis should examine all past, present, and future actions that will have impacts in the region of influence, even if they are different from the proposed action’s impacts. The purpose is to analyze the overall impact of the spaceport when added to other actions, not the overall impact of just one type of impact.

This section's discussion on the Cumberland Island Wilderness also needs work. It relies on 'so called' "temporary" and "short-term" and "minor" impacts from spaceport operations, without elaborating on impacts from other actions other than fire management, to conclude that no adverse cumulative impacts would occur to the wilderness character of the island. But the FAA has not provided any justification or rationale for describing spaceport operations as "temporary" or "minor." Launches will occur at least 12 times a year, and associated activities can begin up to two weeks in advance. The FAA must provide a rational basis for the conclusions in this section.

Natural Resources and Energy Supply. The DEIS does not identify any specific past, present, or future actions that impact energy use and supply and natural resources. Rather, the section alludes to "many ongoing and future construction and renovation projects, both private and public, associated with private and economic development throughout the ROI." What are those projects, and in particular, what are the public projects? These projects should be identified and analyzed not only for this section of the cumulative impact analysis, but for all of the other resource categories. The DEIS should also provide evidence for the conclusion that new facilities constructed over time will be more energy efficient.

Noise and Noise-Compatible Land Use. The DEIS briefly references the noise impacts of spaceport construction and operations, and nothing more. It again relies on the "temporary" and "short-term" nature of noise impacts during operations, and concludes that cumulative noise impacts would be short-term and temporary. But the cumulative impact analysis does not identify any other past, present, or future actions that have noise impacts or explain what those impacts are. In short, there is no rational basis for the conclusion of short-term and temporary cumulative

Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks. The DEIS impermissibly focuses solely on socioeconomics. The cumulative impact analysis contains no discussion of environmental justice issues and children's health and safety. The FAA must revise the DEIS to include an analysis of how other past, present, and future actions have impacted or will impact environmental justice and children's issues. Without such discussion, the FAA cannot rationally conclude that the spaceport's impacts will not have adverse effects on low-income or minority communities or children's health and safety.

Visual Effects. This section fails to make a conclusion on cumulative impact. It notes that the "visual changes of the new spaceport are within the historic footprint of anthropogenic change. Nonetheless, the visibility of the proposed structures and associated lighting is not congruous with the goals for sensitive viewsheds" of the national seashore and the NPS goals for maintaining a dark sky environment. From there, the DEIS stops short. It should then conclude that the spaceport, when added to light pollution from Kings Bay and other past, present, and

reasonably foreseeable future actions, would have an adverse cumulative effect on visual effects. The included discussions on minimizing those impacts should be addressed in the mitigation section of the DEIS.

Finally, the Water Resources section completely misses the mark. For surface waters and wetlands, the cumulative impact analysis considers only land-disturbing impacts from construction, such as increased sedimentation and stormwater runoff. And then it goes on to state that no other past, present, or future actions have been identified in the ROI that will move earth. Notably missing is the bank stabilization project for Todd Creek near the hazardous waste landfill and the hazardous waste landfill itself, both of which are likely to impact surface waters. And many other non-land disturbing activities can impact water resources. The analysis omits expanded naval operations, the St. Marys barge port, and increased development on Cumberland Island, which will all result in more water vessel traffic and associated impacts to surface waters.

Moreover, the ROI is subject to hurricanes and storm surges, especially considering changing weather patterns and rising seas. Portions of the spaceport itself are located within the 100-year and 500-year floodplains. Coastal flooding can cause extremely adverse impacts to surface waters, wetlands, and the saltmarsh due to the release of a wide variety of pollutants, including sediment. The cumulative impact analysis should analyze the reasonably foreseeable impacts of the spaceport in this context when added to other actions.

For groundwater, the DEIS considers only groundwater use. The FAA should analyze groundwater quality in the region of influence, not just groundwater use. This is particularly important because of the historical contamination of the proposed spaceport property. Decision-makers and the public should be made aware of any groundwater contamination on the property, the potential for spaceport operations to contribute to that contamination, and the potential for other actions to contribute to groundwater quality concerns.

F. The DEIS's discussion of potential mitigation measures is inadequate and lacks necessary detail.

The DEIS also falls short in its discussion of mitigation. Under NEPA, an EIS must include “a detailed explanation of specific measures which will be employed to mitigate the adverse impacts of a proposed action.” Methow Valley, 490 U.S. at 353; see also 40 C.F.R. § 1508.25.⁵⁹ The “discussion of potential mitigation measures in an EIS must include sufficient detail to ensure that environmental consequences have been fairly evaluated.” Nat'l Parks

⁵⁹ Other statutes, including the Endangered Species Act, the National Historic Preservation Act, and the Department of Transportation Act, Section 4(f) likewise include various requirements for mitigation measures. The DEIS lacks sufficient details to meet those legal obligations as well.

Conservation Ass’n v. Jewell, 965 F. Supp. 2d 67, 75 (D.D.C. 2013). “[O]mission of a reasonably complete discussion of possible mitigation measures would undermine the ‘action-forcing’ function of NEPA” and would prevent both the agency and the public from properly evaluating the severity of the adverse effects. Methow Valley, 490 U.S. at 352 (1989). Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects. Id.

FAA guidance documents also require robust consideration of mitigation throughout the planning and NEPA processes. An FAA EIS must discuss mitigation in “sufficient detail to disclose that the environmental consequences have been fairly evaluated.”⁶⁰ Mitigation should not be addressed after the fact, but should be incorporated “into project design (e.g., by modifying the project) to avoid and minimize environmental impacts.”⁶¹ Further, the mitigation discussion should include: design and construction actions to avoid or reduce impacts; management actions that reduce impacts during operation of the facility; and replacement, restoration (reuse, conservation, preservation, etc.), and compensation measures.⁶² Council on Environmental Quality guidance further explains that an EIS must also discuss the likelihood that potential mitigation measures will actually be implemented.⁶³

The DEIS’s mitigation discussion falls well short of these requirements. The DEIS identifies a wide variety of potential mitigation measures at a cursory level and also identifies areas where mitigation is “recommended” or “could be included.” The vast majority of these potential mitigation measures are identified in Chapter 4 (Environmental Consequences). But few of these measures are actually discussed in Chapter 6 (Mitigation), and few, if any, are discussed in sufficient detail anywhere in the DEIS “to ensure that the environmental consequences have been fairly evaluated.” The DEIS includes no discussion of the likelihood that any identified mitigation measures will be implemented or the extent to which they will be successful at mitigating adverse impacts.

⁶⁰ FAA Order 1050.1F (July 16, 2015) at 7-5, *available at* https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf.

⁶¹ Id. at 2-3.6.

⁶² Id. at 7-5.

⁶³ Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations, 46 C.F.R. § 18026, Question 18b (March 23, 1981).

As a perfect example, in Chapter 4, the Biological Resources section identifies approximately 20 different mitigation measures, including but not limited to conducting species surveys and establishing habitat avoidance marks, developing a Lighting Management Plan, following the National Bald Eagle Management Guidelines, following the Georgia Power Avian Protection Plan, creating a Hazardous Materials Emergency Response Plan, implementing erosion and stormwater control best management practices, conducting construction during daylight only, establishing a 25-foot buffer along all creeks, following unspecified conservation measures from the missing NMFS concurrence, and briefing launch personnel about avoiding sensitive habitats. DEIS at 4-6 to 4-20. Yet only a handful of these measures are included in Chapter 6 (conducting species surveys, the Lighting Management Plan, and the National Bald Eagle Management Guidelines). And when they are mentioned, they lack sufficient detail. For example, the discussion of the Lighting Management Plan simply states that such a plan will be developed to minimize “to the extent possible visibility of facility glow, sky glow, or direct light to wildlife.” Id. at 6-2. While NEPA does not require mitigation plans be completed prior to completion of an EIS, the EIS must nevertheless include sufficient detail about those plans to inform decision-makers and the public. Thus, the DEIS must highlight the specific measures the Lighting Management Plan would include, such as using certain color spectrums, pointing lights downward, or allowing only certain lights to stay on all night. In addition, the DEIS must discuss the likelihood that this plan will be implemented and the extent to which it will actually mitigate adverse impacts to biological resources.

Examples of other potential mitigation measures that must be discussed more thoroughly in the DEIS include:

- Limiting the size of launch vehicles to mitigate various impacts, including noise and visual impacts;
- Limiting the number of launches to mitigate various impacts, including access restrictions, noise, and visual impacts;
- Limiting the trajectory of launches to mitigate various impacts, including access restrictions, noise, and visual impacts;
- Limiting nighttime launches to mitigate visual and other impacts;
- Use of non-reflective materials and matching colors to limit visual impacts;
- Creation of a hurricane plan to secure hazardous materials and equipment;
- Seasonal restrictions on water-dependent construction and launch activities to minimize impacts on wildlife;
- Discussion of measures to minimize the risk of hazardous waste spills;
- Measures to minimize impacts to unique farmlands, including aquaculture; and
- Measures to protect the site from flooding due to storm surges and sea level rise.

In sum, the DEIS must discuss all reasonable mitigation measures for the spaceport, their potential to minimize the impacts of this project, and the likelihood they will be implemented. Without this analysis, the DEIS's discussion of mitigation falls short of what NEPA requires. To the extent other statutes also require mitigation, those standards must also be met.

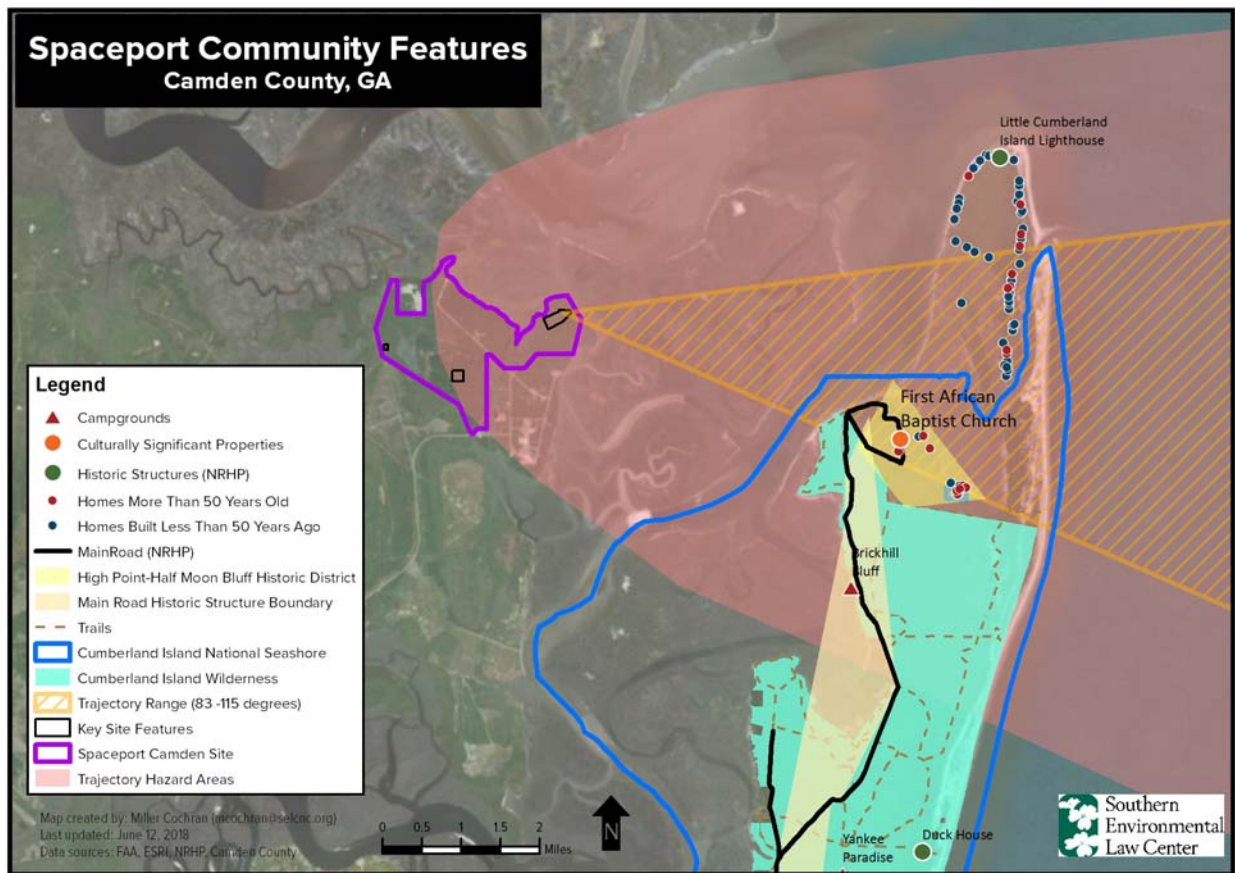
III. The DEIS violates Section 4(f) of the Department of Transportation Act.

Section 4(f) of the Department of Transportation Act restricts federal transportation agencies' ability to use the publicly owned land of a park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance. These areas may be used only if:

- (1) there is no prudent and feasible alternative to using that land; and
- (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

49 U.S.C.A. § 303(c). This obligation shall not be taken lightly. The existence of Section 4(f) "indicates that protection of parkland was to be given paramount importance." Citizens to Pres. Overton Park, Inc. v. Volpe, 401 U.S. 402, 412–13, (1971), abrogated on other grounds by Califano v. Sanders, 430 U.S. 99 (1977). Section 4(f) differs from NEPA in that it "imposes substantive restraints on an agency's action," whereas NEPA merely prohibits uninformed actions. Defs. of Wildlife v. N.C. Dep't of Transp., 762 F.3d 374, 398 (4th Cir. 2014).

"A feasible alternative [under Section 4(f)] is one that is compatible with sound engineering and a prudent alternative is one that does not present unique problems, that is, an alternative without truly unusual factors so that the cost or community disruption would reach extraordinary magnitudes." Monroe Cty. Conservation Council, Inc. v. Volpe, 472 F.2d 693, 700 (2nd Cir. 1972) (internal citations omitted). Section 4(f) properties cannot be used for a transportation project, including a spaceport, "unless a prudent person, concerned with the quality of the human environment, is convinced that there is no way to avoid doing so." Id.



The DEIS contains a screening analysis to identify Section 4(f) properties that could be directly or constructively used by Spaceport Camden. Eight parks and recreational areas eligible for Section 4(f) protection were identified.⁶⁴ DEIS at 3-35. This screening process focused, however, only on noise and light impacts, and failed to consider the constructive use of the 4(f) properties by excluding the public during launch and related events.⁶⁵

The potential for constructive use to occur as a result of closures or restricted access to parks and recreational areas is not evaluated in this analysis. This is because sufficient information about individual launches that may take place at the proposed launch site is not yet available. The need for, and extent and duration of closures can be ascertained only when a number of

⁶⁴ Cumberland Island National Seashore, Jekyll Island State Park, Crooked River State Park, Harriet's Bluff Community Park, Coastal Georgia Greenway, Blythe Island County Park, Fort Clinch State Park, and Egan's Creek Greenway.

⁶⁵ This exclusion also constitutes temporary occupancy, but the DEIS dismisses this type of Section 4(f) use.

important launch variables are known. These include, among other factors, the time of launch, the trajectory of the launch, and the specific type and payload of the launch vehicle. At the time when individual launch licenses are applied for, FAA will evaluate the potential for restrictions in access and closures for parks and recreational areas that qualify for protection under Section 4(f) to result in a constructive use of the properties.

DEIS at 4-29. Using this rationale, the DEIS reached a “preliminary determination” that the proposed facility would not result in the use of any Section 4(f) properties. DEIS at 18. This approach violates Section 4(f) in a number of respects.

First, courts have consistently ruled that a Section 4(f) analysis cannot be “phased” to segment and compartmentalize the impacts of a project. Defs. of Wildlife, 762 F.3d at 400 (holding Secretary of Transportation “may not reduce the number of prudent and feasible alternatives that are available by fragmenting the evaluation and approval of a single project into separate parts. Instead, the Secretary must evaluate each project as a whole, not phase-by-phase.”); see also N. Idaho Cmty. Action Network v. U.S. Dep’t of Transp., 545 F.3d 1147, 1159 (9th Cir. 2008) (“[A]n agency is required to complete the § 4(f) evaluation for the entire Project prior to issuing its ROD.”); Valley Cmty. Pres. Comm’n v. Mineta, 373 F.3d 1078, 1087–88 (10th Cir. 2004) (“Section 4(f) regulations clearly require the FHWA to make the requisite Section 4(f) evaluations prior to issuing an ROD approving a proposed construction project.”); Benton Franklin Riverfront Trailway & Bridge Comm. v. Lewis, 701 F.2d 784, 788–89 (9th Cir. 1983) (criticizing agency for failing to complete Section 4(f) analysis earlier); Corridor H Alternatives, Inc. v. Slater, 166 F.3d 368, 372 (D.C. Cir. 1999) (Requiring completion of 4(f) process before issuing a record of decision). In short, the “preliminary determination” approach relied upon in the DEIS is plainly unlawful.

The FAA is impermissibly circumventing Section 4(f)’s protections in a number of ways by relying on a preliminary determination and deferring the substantive analysis until after the proposed spaceport is built. First, the FAA is avoiding considering any alternatives to the current launch site proposal, including alternative launch sites, site designs, or site configurations. Further, the FAA cannot meaningfully consider the cumulative impacts of the proposal on a launch-by-launch basis. These are the precise reasons why the “phased” approach adopted in the DEIS has been consistently and repeatedly rejected by the courts.

Second, the FAA’s approach effectively reverses the relationship between the proposed launches and the Section 4(f) analysis. Under the second element of the Section 4(f) test, the FAA is required to conduct “all possible planning” to minimize the harm resulting from the use. Department of Transportation regulations explain that “all possible planning means that all reasonable measures identified in the Section 4(f) evaluation to minimize harm or mitigate for

adverse impacts and effects must be included in the project.” 23 C.F.R. § 774.17.⁶⁶ Here, the FAA states that the Section 4(f) analysis cannot be conducted until important launch variables (such as the time of launch, the trajectory of the launch, and the specific type and payload of the launch vehicle) are known. Yet these are precisely the types of variables that should be considered in the “all possible planning” portion of the Section 4(f) analysis. The FAA should be considering these variables, and determining what restrictions need to be imposed to minimize harm or mitigate for adverse impacts. Instead of allowing the range of potential launches to define the Section 4(f) analysis, the statutory analysis should define what, if any, launches are permissible at this site.

Finally, the lack of detail regarding specific launches does not prevent the FAA from performing the Section 4(f) analysis. In fact, the information necessary to perform the Section 4(f) analysis is known or is required to be assumed. For example, launches from the proposed spaceport would require public access limitations on some or all of the Section 4(f) properties, which would require a finding of constructive use under 23 C.F.R. § 774.15(e)(3). Given such a finding, the FAA can perform an alternatives analysis to determine if any prudent and feasible alternatives exist. And to the extent that precise information is not currently available, the DEIS should have considered the potential closure areas based on the representative rockets. This approach was used elsewhere in the DEIS and could have been used for the Section 4(f) analysis. The DEIS cannot defer consideration of this issue as some form of informal tiering, because the unavailable information is not contingent upon finalizing the design of the project and because there is no ability to revisit the inadequate analysis when the missing information becomes available. Merritt Parkway Conservancy v. Mineta, 424 F. Supp. 2d 396, 421 (D. Conn. 2006) (citing Corridor H Alternatives, Inc. v. Slater, 166 F.3d 368, 373 (D.C. Cir. 1999)).

Even if the DEIS concludes that there are no feasible alternatives to avoid impacting Cumberland Island and the other Section 4(f) properties, it still must examine whether “all possible planning” has been conducted to minimize the impacts to those properties. The phrase “all possible planning” has a specific, context-dependent meaning set forth in 23 C.F.R. § 774.17. The process for implementing this meaning is further clarified in FAA guidance documents.⁶⁷ The DEIS does not contain any of the required planning described in the regulation and the guidance.

⁶⁶ 23 C.F.R. § 774 et seq. contains Federal Highway Administration and Federal Transit Administration regulations. FAA guidance states that these regulations are not binding on FAA but may be used as guidance to the extent relevant to aviation. Order 1050.1F Desk Reference.

⁶⁷ Order 1050.F1 Desk Reference at 5-10.

The Section 4(f) analysis contained in the DEIS is incomplete and fails to meet the minimum standards set forth in statute, regulations, and guidance documents. However, it is clear that operation of the proposed launch facility will result in substantial constructive and/or actual use of a number of Section 4(f) properties. Possible impacts include noise, vibration, light, and public access restrictions. A Record of Decision for the proposed project cannot be lawfully issued until a complete Section 4(f) analysis is completed and the public is provided the opportunity to review and comment on this document.

IV. The DEIS violates the Endangered Species Act.

Section 7 of the Endangered Species Act (ESA) directs all federal agencies, in consultation with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service, as appropriate, to “insure that any action authorized, funded, or carried out by such agency (hereinafter . . . referred to as an ‘agency action’) is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species.” 16 U.S.C. § 1536(a)(2).

Agency actions subject to this requirement include “all activities or programs of any kind authorized, funded, or carried out, in whole or in part” by the agency, and “actions directly or indirectly causing modifications to the land, water, or air.” 50 C.F.R. § 402.02. The action area includes “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” *Id.* The determination of the scope of an “action area” requires application of scientific methodology. Native Ecosystems Council v. Dombeck, 304 F.3d 886, 902 (9th Cir. 2002).

Action agencies, as part of their duties under section 7(a)(2) of the ESA, must engage in consultation with the appropriate Service whenever their actions “may affect” a listed species. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14(a). To fulfill this requirement, an agency must obtain a list of all threatened or endangered species that may be present in the action area and determine whether the proposed project “may affect” those species. 16 U.S.C. § 1536 (c)(1); 50 C.F.R. § 402.12. “Any possible effect, whether beneficial, benign, adverse, or of an undetermined character, triggers the formal consultation requirement . . .” 51 Fed. Reg. 19,926, 19,949 (Jun. 3, 1986).

Effects determinations must be based on the sum of the direct, indirect, and cumulative effects of the action, added to the environmental baseline and interrelated and interdependent actions. 50 C.F.R. § 402.02 (defining “effects of the action”). If the action agency determines that the action may affect but is not likely to have an adverse effect, the action agency may complete informal consultation rather than formal consultation. *See id.* § 402.12(k)(1). To complete informal consultation, the action agency must prepare a biological assessment and obtain written concurrence from the Service that the action is not likely to adversely affect listed

species or critical habitat. Id. § 402.13(a). To complete formal consultation, the Service must provide the action agency with a biological opinion, explaining how the proposed action will affect the listed species or critical habitat, together with an incidental take statement and any reasonable and prudent measures necessary to avoid jeopardy. 16 U.S.C. § 1536(b); 50 C.F.R. § 402.14(g)–(i).

Throughout the consultation process, both the action agency and the Service “shall use the best scientific and commercial data available.” 16 U.S.C. § 1536(a)(2). An action agency’s determination that the proposed action will have “no effect” on listed species and designated critical habitat is judicially reviewable under the APA and will not be upheld if it is arbitrary and capricious. See W. Watersheds Projects v. Kraayenbrink, 632 F.3d 472, 481, 495–97 (9th Cir. 2010) (rejecting BLM finding that grazing regulations would have no effect on listed species and critical habitat).

Here, the FAA has initiated informal consultation with both FWS and NMFS, based on its conclusions that the proposed spaceport “may affect but is not likely to adversely affect” certain ESA-listed species and critical habitat and that the spaceport will have no effect on other ESA-listed species and critical habitat. These conclusions are arbitrary.

First, as discussed previously in these comments, the FAA has failed to sufficiently analyze the direct, indirect, and cumulative effects of the spaceport on ESA-listed threatened and endangered species. Because the FAA has not conducted species surveys on the spaceport property, expanded the regions of influence for listed species in its cumulative impact analysis, or adequately considered the impacts of climate change and sea level rise on listed species, it has not based its effects determinations on “the best scientific and commercial data available.” 16 U.S.C. § 1536(a)(2). Thus, its effects determinations are arbitrary and capricious.

Second, the FAA attempts to justify its effects determinations by relying on mitigation and conservation measures. But as previously discussed, the DEIS’s treatment of mitigation measures is insufficient. Critically, the DEIS fails to discuss whether the specific mitigation measures identified will be sufficient to protect endangered and threatened species and prevent destruction and degradation of critical habitat. See Alliance for the Wild Rockies v. Tidwell, 2009 WL 10701951, *7 (D. Montana 2009) (finding “not likely to adversely affect” determination was arbitrary because action agency failed to discuss sufficiency of mitigation measures).

Third, the FAA’s “no effect” determinations for piping plover, red knot, loggerhead sea turtle, Atlantic sturgeon, and North Atlantic right whale critical habitat are arbitrary because they run counter to the evidence. The FAA based its “no effect” determination on the unlikelihood of launch and landing failures to occur. But there were seven launch failures across the globe in 2016 and 2017 combined, along with additional testing accidents that resulted in the loss of

vehicles and payloads.⁶⁸ In 2017, the overall failure rate across the globe also increased to 6.7 percent, which is above the range of 2.5 to 6 percent listed in the DEIS.⁶⁹ At some point, a rocket will explode at proposed Spaceport Camden.

The FAA must re-evaluate the direct, indirect, and cumulative impacts on all ESA-listed species to determine whether the spaceport “may affect” listed species or their critical habitat. Given the grave and real potential for launch and landing failures, the most likely outcome of that analysis is a “may affect” determination, which would require formal consultation with both FWS and NMFS.

V. We reserve the right to submit supplemental comments when open records documents are provided.

We requested additional information regarding this project from both the FAA and Camden County under the applicable open records laws in early March 2018. Under the statutory deadlines provided in those statutes, the requested documents should have been provided with sufficient time for them to be considered before submitting these comments. However, citing exemptions and/or delay, those documents have not been provided. The FAA, in particular, responded to our Freedom of Information Act request on March 20, 2018, asserting that it needed to extend the response due date by a minimum of 10 working days to search for and collect records. Despite additional inquiries, the FAA has not provided any responsive documents or updates to our request. Therefore, we expressly reserve the right to supplement these comments with additional information contained in the requested documents upon receipt.

VI. Conclusion

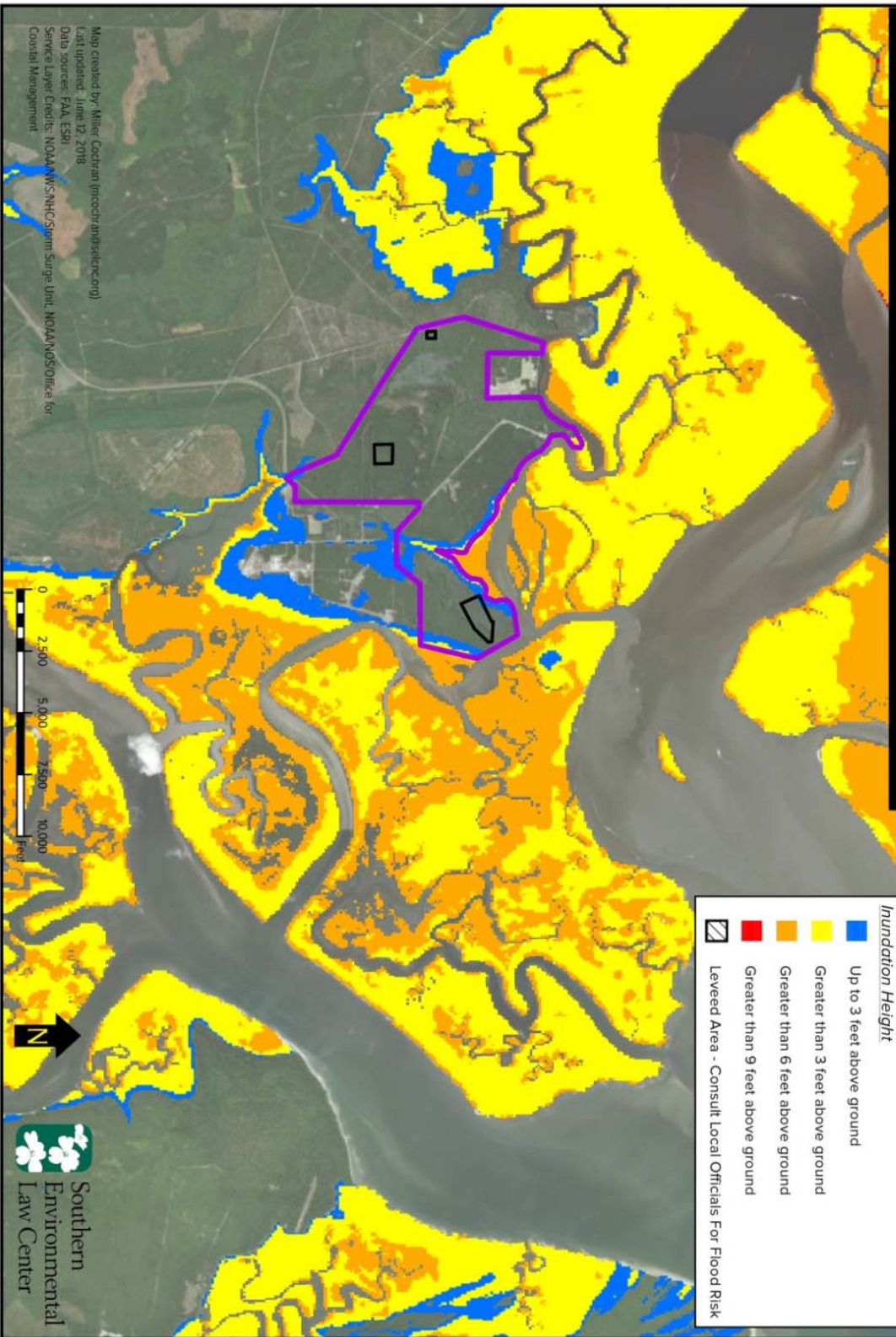
For the reasons set forth above, the DEIS contains fatal flaws and cannot be finalized in its current form. The FAA must acknowledge the deficiencies in the DEIS, as discussed in these comments, and issue a revised DEIS for public comment. Alternatively, the FAA must issue a supplemental DEIS for public comment.

⁶⁸ <http://spaceflight101.com/2016-space-launch-statistics/>; <http://spaceflight101.com/2017-space-launch-statistics/>.

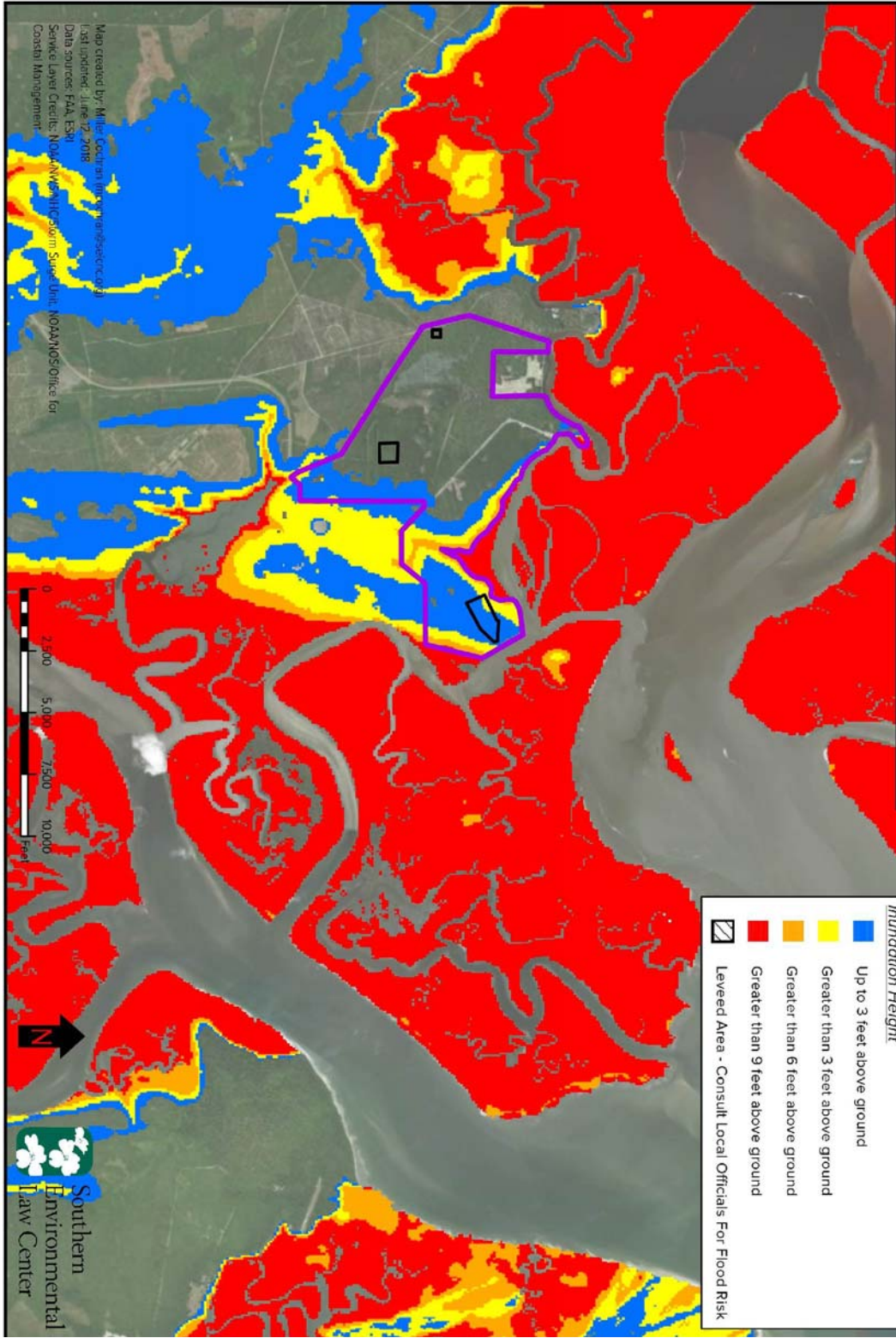
⁶⁹ <http://spaceflight101.com/2017-space-launch-statistics/>.

ATTACHMENT 1

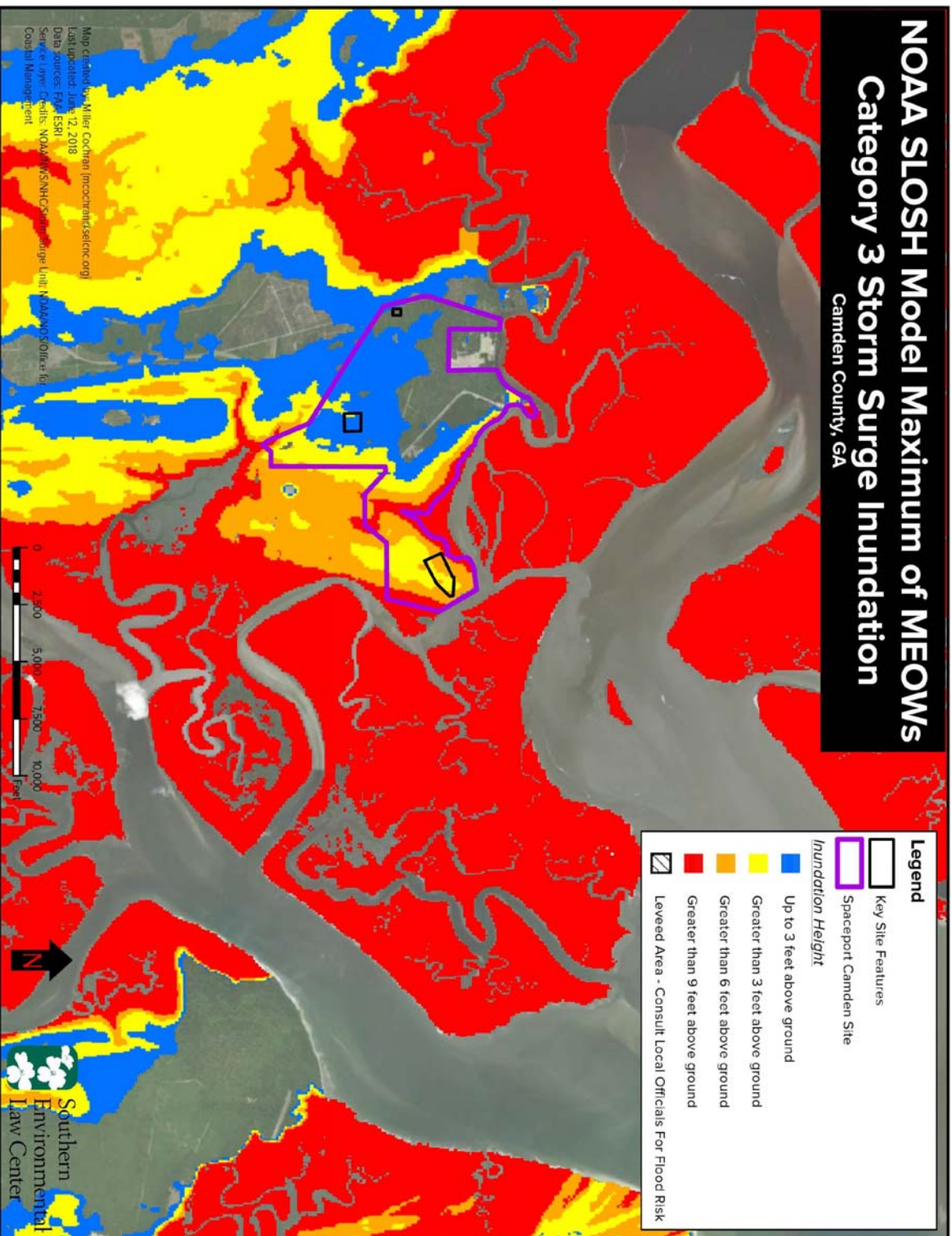
NOAA SLOSH Model Maximum of MEOWS Category 1 Storm Surge Inundation Camden County, GA



NOAA SLOSH Model Maximum of MEOWs Category 2 Storm Surge Inundation Camden County, GA

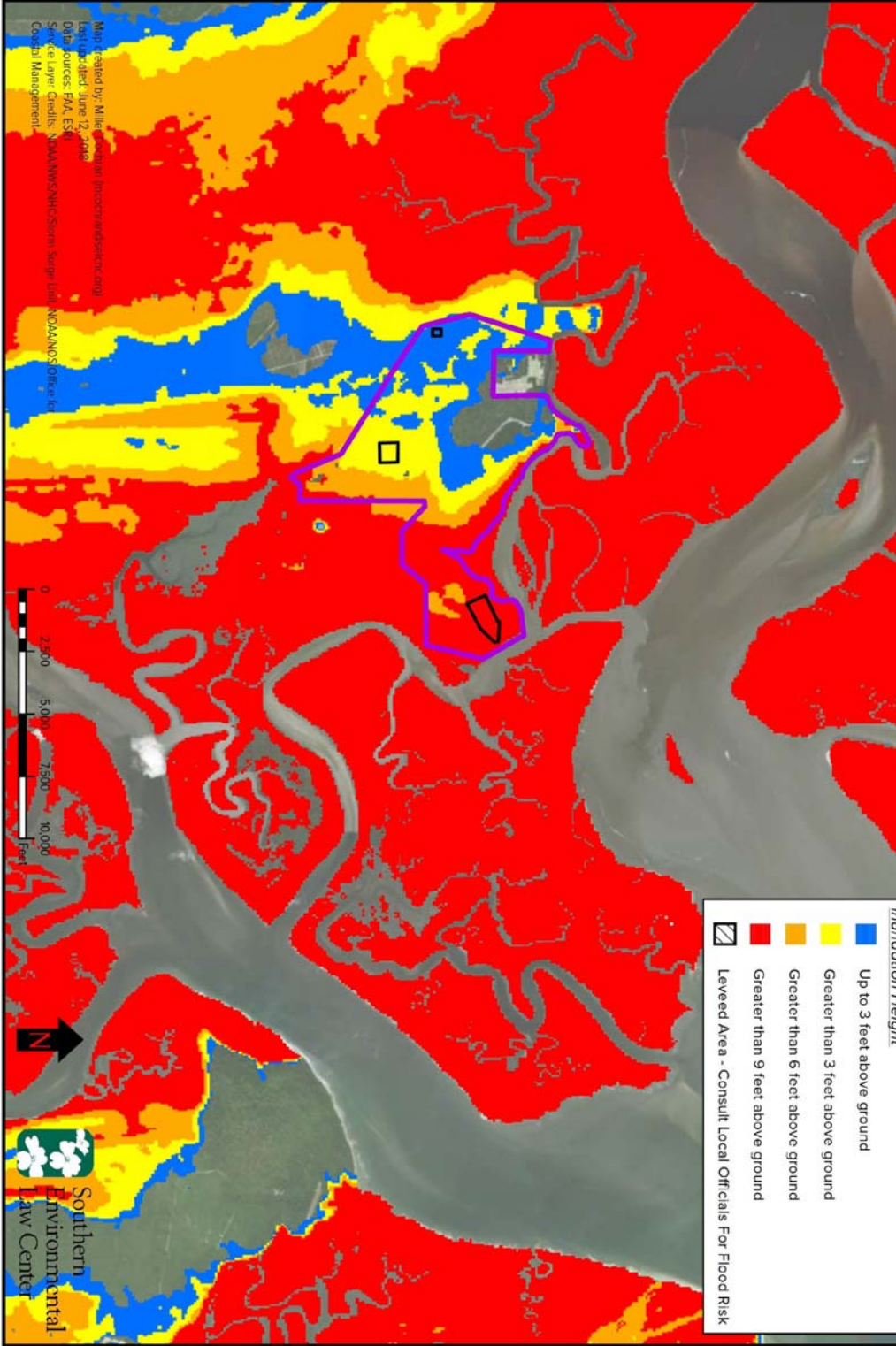


NOAA SLOSH Model Maximum of MEOWS Category 3 Storm Surge Inundation Camden County, GA

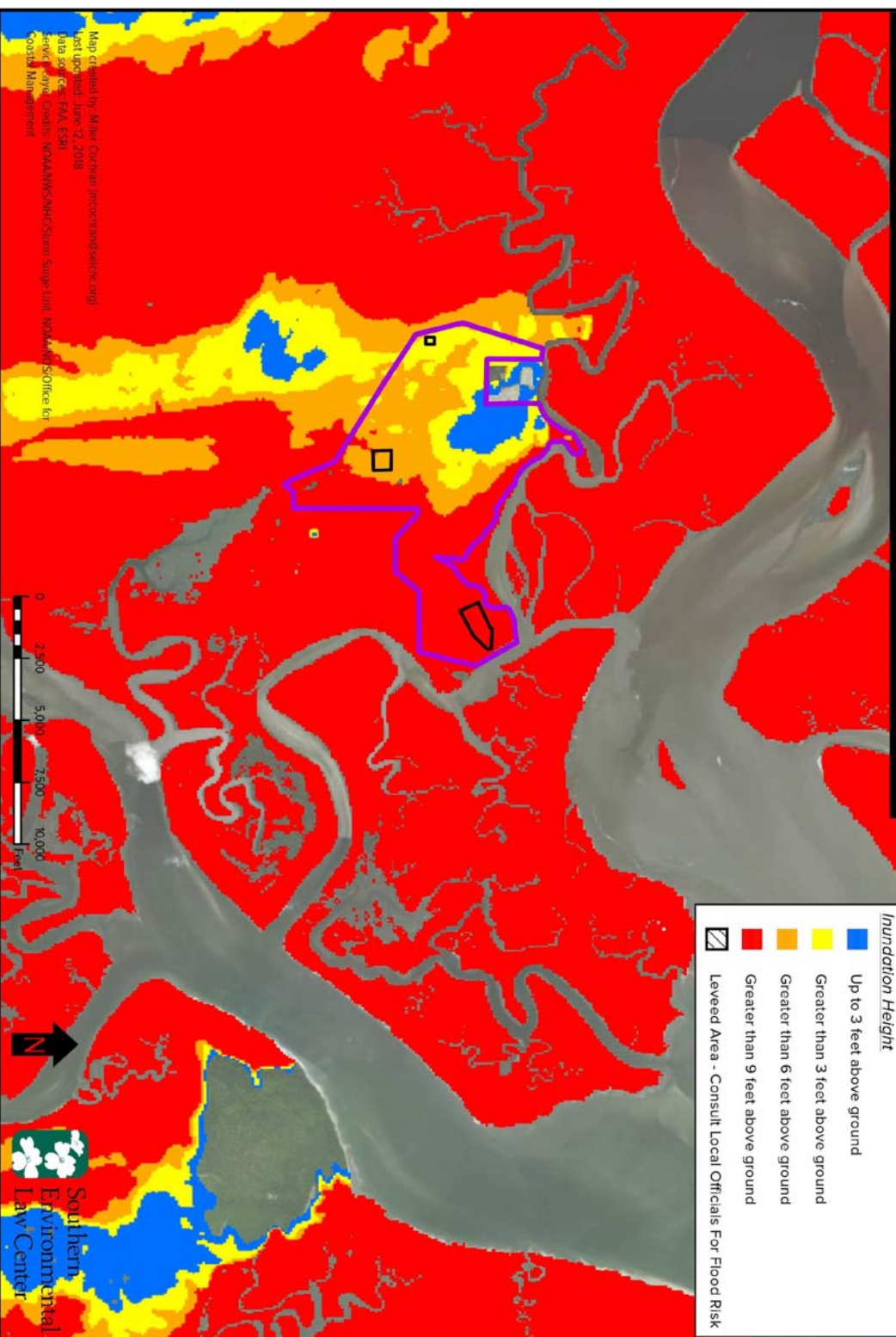


NOAA SLOSH Model Maximum of MEOWS Category 4 Storm Surge Inundation

Camden County, GA



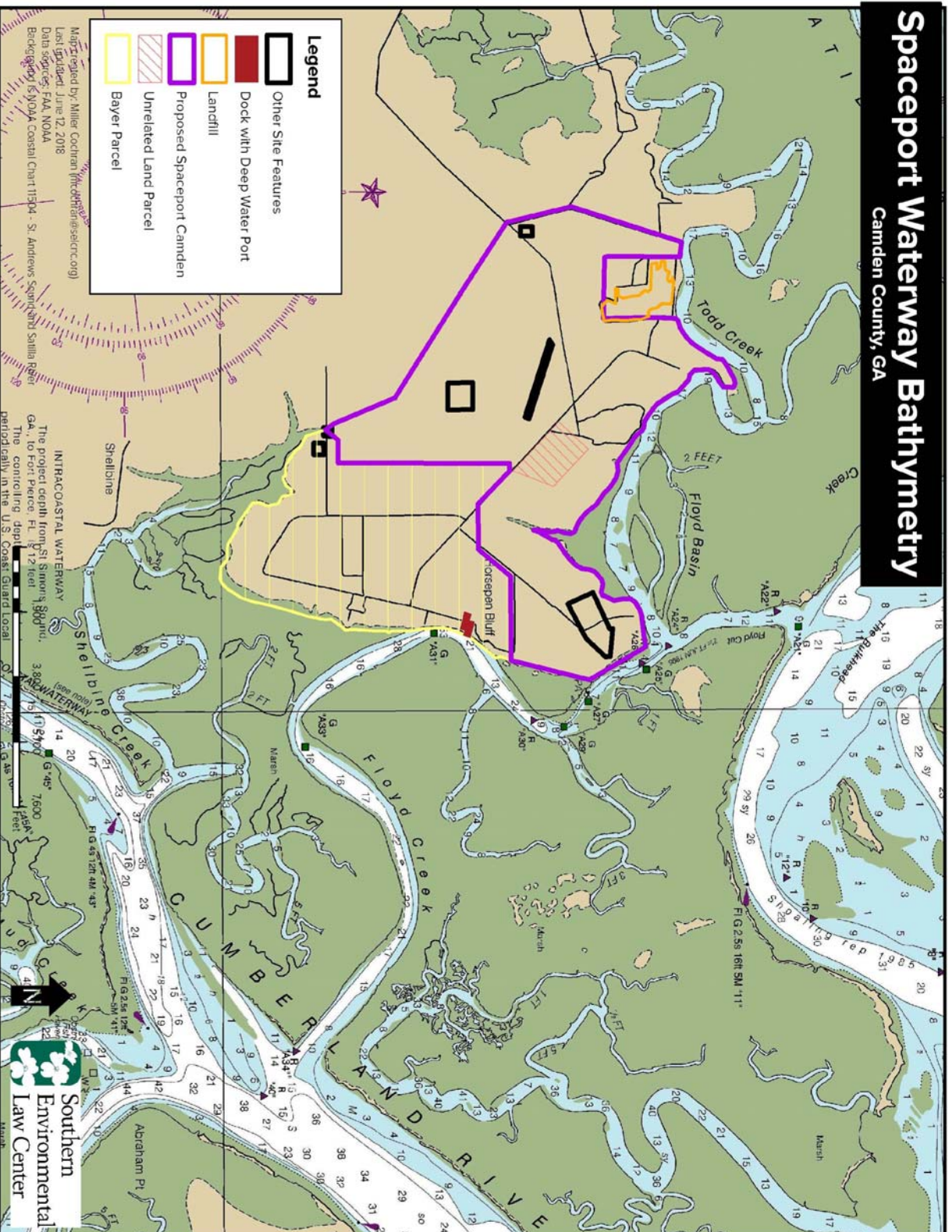
NOAA SLOSH Model Maximum of MEOWS Category 5 Storm Surge Inundation Camden County, GA



ATTACHMENT 2

Spaceport Waterway Bathymetry

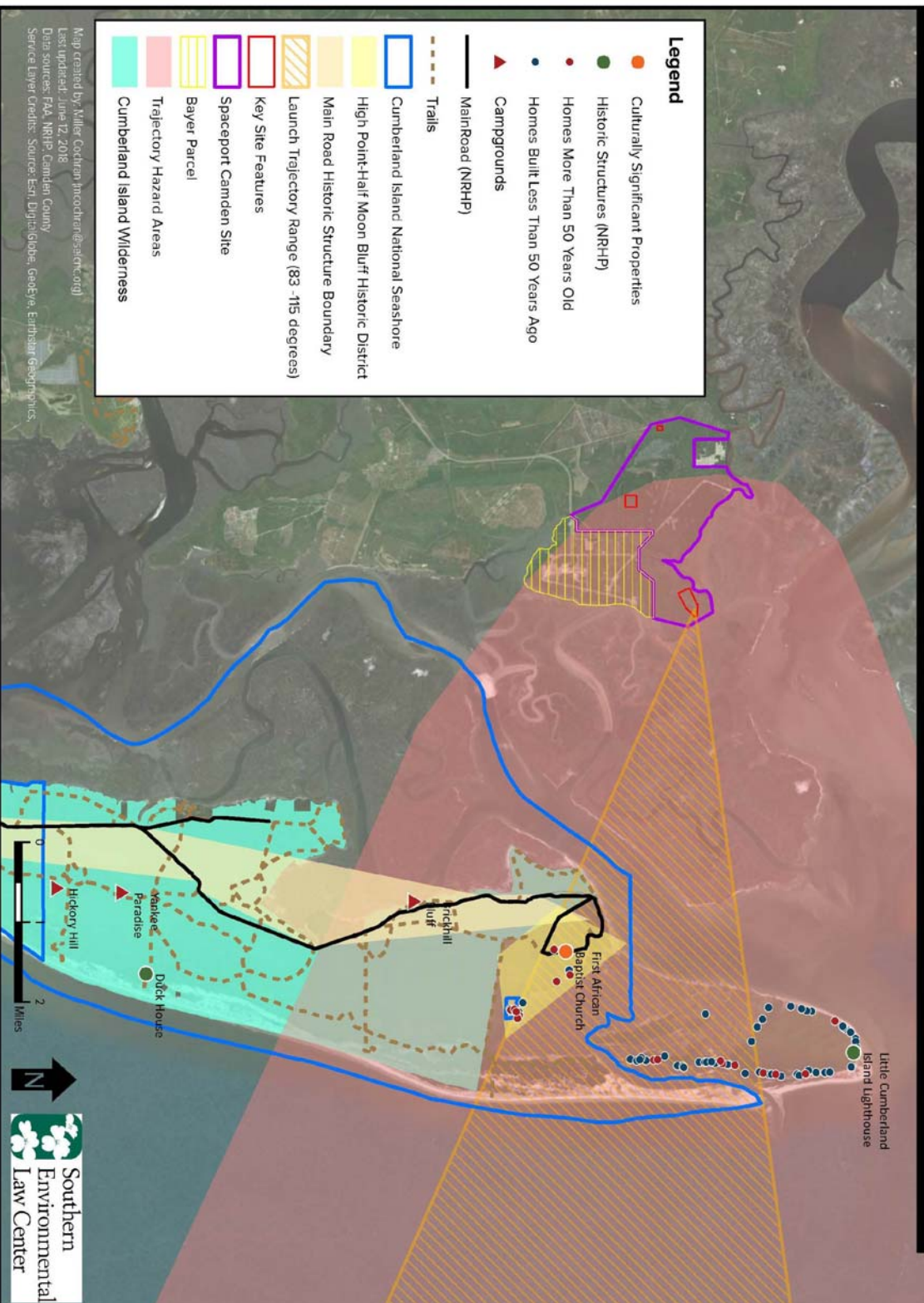
Camden County, GA



ATTACHMENT 3

Spaceport Impact on Important Cultural and Community Resources

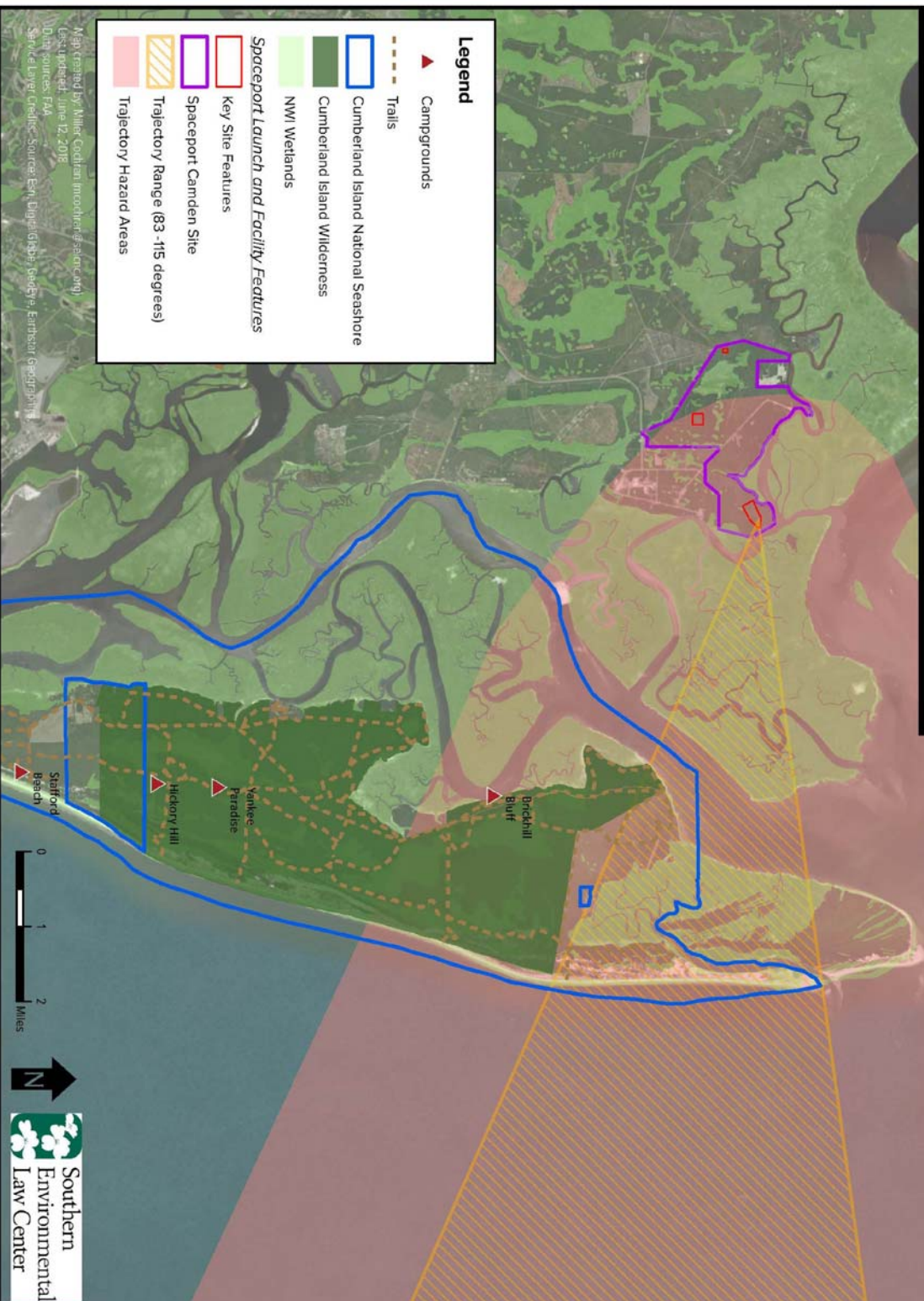
Camden County, GA



ATTACHMENT 4

Spaceport Impact on Wilderness Areas

Camden County, GA



ATTACHMENT 5

Camden County, GA



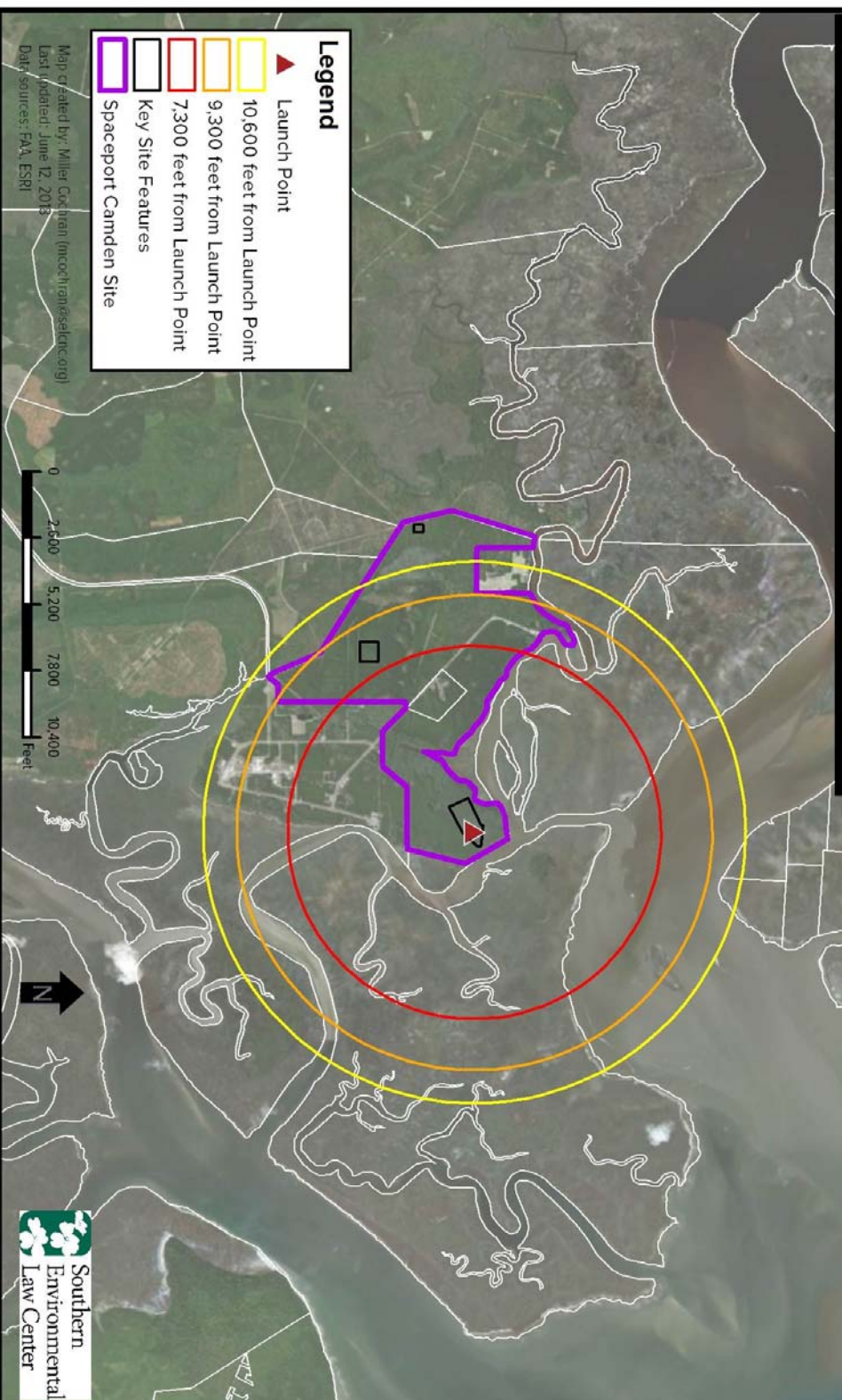
ATTACHMENT 6

Camden County, GA



ATTACHMENT 7

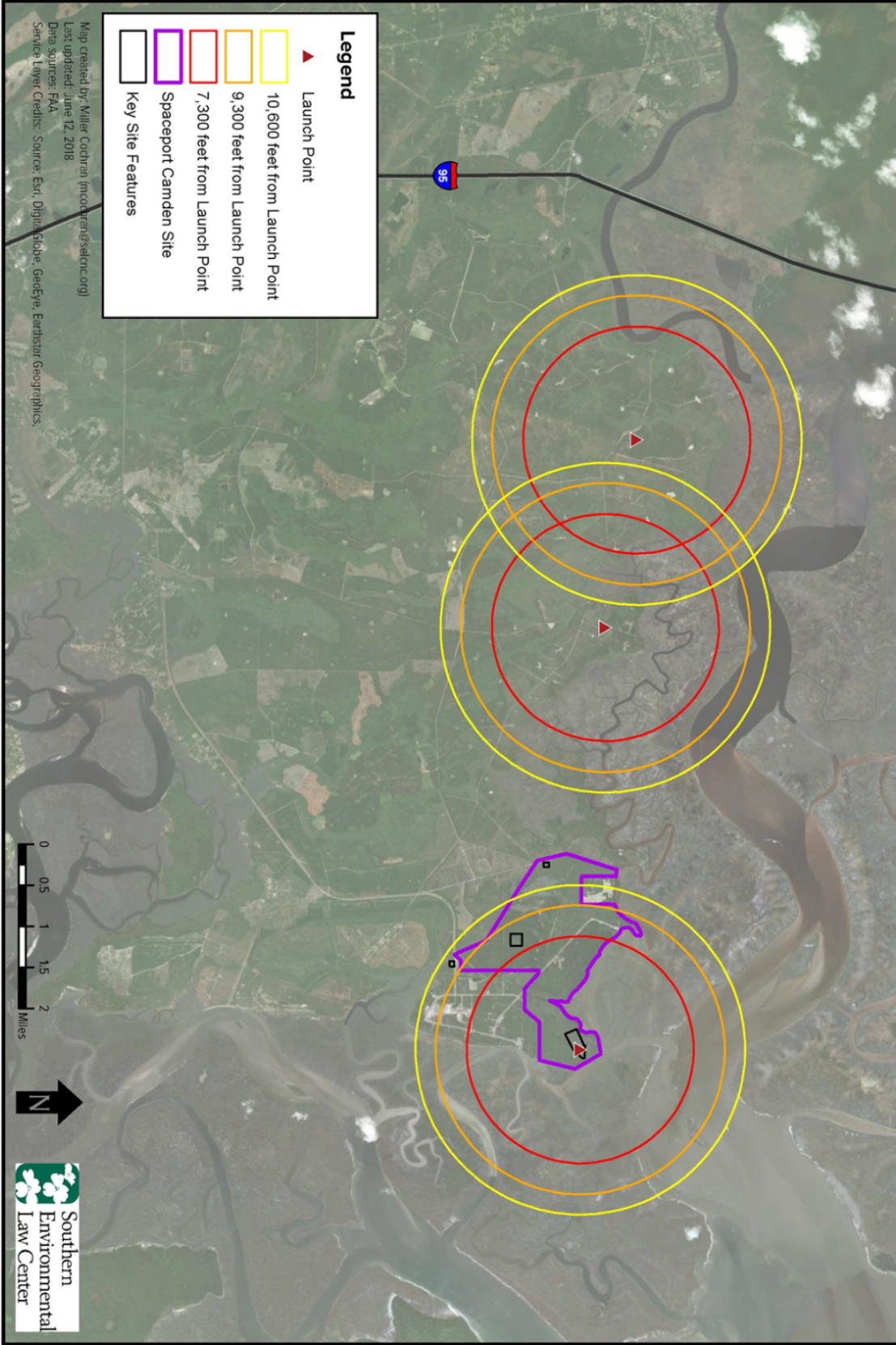
Spaceport - Minimum Distances Between Launch Point and Launch Site Boundaries Camden County, GA



ATTACHMENT 8

Alternative Sites - Minimum Distances between Launch Point and Launch Site Boundary

Camden County, GA



ATTACHMENT 9



June 12, 2018

Mr. William W. Sapp
Senior Attorney
Southern Environmental Law Center
Ten 10th Street NW, Suite 1050
Atlanta, Georgia 30309

**Re: Comments Regarding Draft Spaceport Camden Environmental Impact Statement
March 2018**

Dear Mr. Sapp:

Pursuant to the Southern Environmental Law Center's (SELC's) request, Atlanta Environmental Management, Inc. (AEM) has reviewed the Draft Spaceport Camden Environmental Impact Statement (DEIS) dated March 2018 and is pleased to provide the attached comments. AEM also reviewed several other environmental documents made available through the Georgia Open Records Act (GORA) that were directly relevant to the information contained in the DEIS.

By way of background, experience, and qualifications, AEM is an environmental consulting and engineering firm founded in 1988. AEM's core business was originally founded in the investigation, remediation, and long-term management of large RCRA regulated industrial facilities. This experience served as a natural transition into programs including CERCLA, state hazardous waste sites (including HSRA [Georgia Superfund]), Voluntary Remediation Programs, Brownfield Programs, and other environmental programs. Another area of expertise for AEM is working as a key team member to support developers and commercial, governmental, and industrial entities with assessing and remediating distressed Brownfield properties.

Please feel free to contact us if you have any questions or comments regarding the attached information. We sincerely appreciate the opportunity to assist in this process. You can reach us by telephone at (404) 329-9006 or via e-mail at janet-hart@aem-net.com.

Sincerely,

Atlanta Environmental Management, Inc.

Leona Miles, CHMM
Senior Project Manager

Janet T. Hart
President

/krf

c: April Lipscomb, SELC
Attachment

Atlanta Environmental Management, Inc.
Public Comments on the Draft Environmental Impact Statement
for Spaceport Camden and other Associated Documents

June 12, 2018

DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS), DATED MARCH 2018

1. EXECUTIVE SUMMARY (ES) OVERVIEW

The EIS evaluates the potential impacts of launches that fall within the specific parameters of what is designated as a “representative launch vehicle.” Future proposed activities are outside the scope of the EIS (e.g., one or more of the parameters of the proposed construction of launch activities fall outside of what is analyzed in this EIS).

What FAA or other entity is responsible for determining when this “out of the original scope” condition is identified? How and by what mechanism will the public be notified that a proposed launch is being considered that will NOT fall clearly within these established and approved parameters for risk management covered in the current EIS and, thus, that additional NEPA analysis is warranted? How can we be sure that the public will be made aware and that additional environmental analysis is triggered under NEPA before any such launch is approved?

- 2. Sections ES.3 and ES.4 and Section 1.4.2:** The EIS was prepared so that the Federal Aviation Administration (FAA) could issue a Launch Site Operator License to Camden County. The document also states that “launch site construction activities would not commence until after the NEPA process, including issuance of a Record of Decision, has been completed and any required permits or approvals are granted.” Also, FAA identified a number of required licenses, permits, and/or approvals for the construction and operation by Camden County.

Is it the intent of FAA to issue a Launch Site Operator License to Camden County prior to the NEPA process, Record of Decision (ROD), permit acquisition/approval etc.? What is the process for these additional NEPA surveys/decisions and when are these anticipated to be conducted?

- 3. Section ES.4.1 Operations–Security and Safety Zones:** The EIS Summary states that Camden County and the Launch operator will develop and implement an incredibly complex and intricate security plan that details the process that will be implemented to ensure that unauthorized personnel or occupied vessels, trains, aircraft, cars, trucks, all-terrain vehicles, or other vehicles are not within the FAA-approved hazard area for all launches or, if they are, that they will conform to specific criteria. Camden County and/or the launch operator will develop and implement agreements and plans with local authorities. Agencies that are named include Camden County and/or the launch operator, local law enforcement agencies, and at least 14 other state, local, and federal agencies (and possibly others).

This security plan will require increased staffing, above normal levels, from many of these agencies that may be mobilized each time a launch occurs. One concern is the “margin of error” including risks posed to the environment and populations in the affected area that can happen when this many agencies must coordinate, cooperate, and communicate to implement any type of security plan. Agencies are currently staffed to perform the current duties. The staffing levels for all agencies are likely already lean. The operation of the Spaceport will likely require a significant increase in trained manpower from all applicable agencies to meet the demanding

security needs during launches. Who will shoulder the costs for adding these personnel (i.e., state, local, federal)? Have a preliminary security plan outline and a preliminary budget been developed?

4. **Section ES.4.1 Operations–Security and Safety Zones:** Further, the E.S. states that consultation with the National Park Service (NPS) under Section 4(f) regarding impacts from the closures on the Cumberland Island National Seashore “would be” conducted as part of the consideration of the issuance of the launch license and will involve multiple stakeholders and provisions for “authorized persons” to make decisions on who is remaining or leaving the islands.

Have initial meetings with NPS not already been held? Again, this process seems like an organizational challenge with the potential of negatively impacting the quality of life for the “authorized personnel” or residents and visitors, as well as the environment.

5. **Section ES.4.1 Operations–Security and Safety Zones:** Finally, with regard to other impacts, the ES states that the proposed “closure area” would be further defined in consultation with FAA, the U.S. Fish and Wildlife Service (USFWS), and NPS to ensure that the Cumberland Island National Seashore and the Satilla River/Andrews Sound/Cumberland River areas are properly secured, with minimal impact to activities and operations.

Geographically the closure area covers a significant distance. How can this goal of minimally impacting the use and access of these areas be accomplished with the frequency of blasts and other activities performed at least once per month? Will the plans for the closure area be distributed for review and public comment well in advance of a scheduled launch?

6. **ES Table ES-1 Coastal Resources:** *How can there be no adverse impacts to the coastal barrier resources, no unacceptable risks to human safety or property that cannot be satisfactorily mitigated from the launch activities? When will the Georgia Department of Natural Resources (GA DNR), who is currently reviewing the consistency certification, issue an opinion? Will that opinion be available prior to the finalization of the EIS? Is a Risk Assessment in progress that will address some of these issues?*

7. **ES Table ES-1 Summary. Hazardous, Solid Waste, and Pollution Prevention:** The summary states that hazardous and solid wastes generated during the construction and operation, and impacts, will be minimal. *What information supports this statement?*

8. **ES Table ES-1 Summary. Hazardous, Solid Waste, and Pollution Prevention:** The summary states that “there is the potential of effects to historical contamination sites. Once the land is acquired by Camden County these potential contaminated sites would likely be managed under the Georgia Brownfields Program. In this case the new owner (Camden County) would be responsible for soil and groundwater investigations and management of soil and source material that are above Georgia risk reduction standards.”

This section is simply inaccurate and misleading in many respects. The authors of this section show a lack of knowledge regarding the Georgia Brownfield Program and the Resource Conservation and Recovery Act (RCRA). First, the Union Carbide property has an RCRA post-closure permit and is currently NOT eligible for the Georgia Brownfield Program. “Georgia risk reduction standards” do not apply to cleanups at this property. If Camden County buys the Union Carbide property, it will become subject to meeting all RCRA requirements per the hazardous waste permit. RCRA requirements are both onerous and expensive (especially for the Union Carbide Property) and carry the long-term liability for soil and groundwater impacts and,

further, for the onerous financial assurance requirements for cleanup that must be assured for 30 years or more, which Camden County will inherit for the property they purchase. Further, the future assessment and cleanup costs cannot be quantified since some areas are still under investigation (solid waste management unit [SWMU] 8 and SWMU 9) and upcoming remediation is likely. In order to purchase the property under the Brownfield program, which is preferable but not feasible at this time, the property must first be removed from the RCRA post-closure permit. This permit modification process is multistep and can require a two-year period or more and can be accomplished only after all SWMUs are approved by Georgia EPD (GA EPD) as requiring no further action. It could take many years to achieve a no further action ruling at SWMUs 8 and 9 since remediation is likely. Thus, Camden County needs to decide if it is willing to accept the risks and long-term costs of purchasing an RCRA-permitted facility. Camden County needs to work with Union Carbide to determine the steps necessary to move toward modification of the RCRA permit to remove the proposed Spaceport property. However, as noted above, this step can only be completed when all SWMUs are designated as requiring No Further Action. When the property is removed from the RCRA Permit it will then be eligible for the Georgia Brownfield program.

- 9. ES Table ES-1 Summary–Historical, Architectural, Archaeological and Cultural Resources:** The text says that temporary effects to architectural historic properties could arise from the changes to the audible and visual environmental aspects during operation of the Spaceport through the introduction of elements inconsistent with the historic properties’ setting, but there would be no adverse effects.

Can you please expand or define what is meant by “temporary effects,” as it is unclear?

- 10. ES Table ES-1 Summary–Land Use:** The summary states that “adverse impacts on recreational use within the operation Region of Influence (ROI) would be short-term and temporary during launch operation and would not result in long-term preclusion of certain uses, prohibition of severe access limitations to certain areas, and/or severe alterations or diminished aesthetic recreational experiences (e.g., wilderness solitude).”

We are unclear as to how this conclusion is supported. The ROI will see a significant increase in overall traffic, and not just on launch days with security personnel and staff traveling throughout the ROI but day to day with the addition of Spaceport workers traveling to and from the Spaceport, on new roads, and population growth in the area to support the Spaceport.

- 11. ES Table ES-1 Summary–Land Use:** “Long-term impacts to the solitude quality of the Cumberland Island Wilderness would result from the skyglow and visual intrusion of the Spaceport towers/facilities” on the west shoreline areas. These impacts will most certainly impact wildlife. Has the Light Management Plan been developed and is it available? Further, the summary states that “no substantial long-term annoyance (i.e., noise-compatible land use impacts) and/or permanent conflicts with landowners have been identified.”

It is too early to conclude that there will be no long-term conflicts with landowners. Based on anticipated EIS review comments not yet received by the FAA, there may be a lot of controversy expressed by the residents in the ROI, and in particular those in the identified trajectory of the future launches, concern over potential rocket failures and debris, emergency response, evacuation coordination, noise and light, etc. Will the EIS be revised to address these concerns?

- 12. ES Table ES-1 Summary–Water Resources:** The summary states that “the Vertical Launch Facility is considered a critical facility under Camden County’s Unified Development Code (UDC)

as the facility would store and use flammable and volatile chemicals. Construction in the floodplain would require an exemption to the County's UDC" Thus, "the Vertical Launch Facility's storage areas would be developed so that the storage of flammable and volatile chemicals would be above the 500-year flood zone."

These criteria are misleading with regard to representing the true risks of flooding or other natural causes that could result in the release of hazardous materials impacting the environment from the Launch Facility. The ROI is an area that is subject to hurricanes and storm surges, especially considering changing weather patterns and rising sea levels, coupled with 100-year floods (possibly on a yearly basis), all of which are capable of damaging chemical storage vessels causing releases to this sensitive environment and, due to the tidal marsh environment, will spread far and wide and complicate any cleanup efforts.

Further it is stated that "Potential indirect impacts from proposed construction activities could result in additional sediment loads being transported to surface waters in the vicinity of proposed construction. Increases in sedimentation could alter stream and wetland functions and result in the loss of wildlife habitat. However, during construction a Storm Water Pollution Prevention Plan (SWPPP) and sediment erosion control plan would be prepared in compliance with Georgia NPDES requirements and Georgia's Erosion and Sedimentation Act of 1975. The SWPPP and sediment and erosion control plan would implement the use of management practices to prevent erosion and sedimentation."

We do not agree that these plans will prevent impacts. Note that SWPPPs and erosion and sedimentation plans are vulnerable to failure during extreme weather conditions. SWPPPs are also often ineffective during hurricanes and tidal surges and/or only marginally effective under heavy downpours; thus, there is high risk to this sensitive environment from increases in sediment loads from construction activities.

- 13. ES Table ES-1 Summary–Water Resources:** The EIS states that "Approximately 0.78 acre of wetland and 0.166 acres of waterways may be impacted from construction activities; this would require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (USACE) and compensatory mitigation would be required for any unavoidable impacts to jurisdictional wetlands and waterways."

What is the linear foot impact to jurisdictional waterways (intermittent, perennial) requiring mitigation? Will stream impacts be reported to the U.S. Army Corps of Engineers in linear feet, to determine permit applicability and required compensatory stream mitigation credit requirements for the project?

- 14. Section ES.4.1 Proposed Action (Preferred Alternative) Construction Activities:** It is stated in this section that the proposed Spaceport Camden facilities would encompass less than 100 noncontiguous acres and that related infrastructure (e.g., roads and utilities) would also be improved within the existing industrial site. Further, in this section it is stated, "No improvements to the offsite infrastructure would be needed to support Spaceport Camden."

How was it determined that the increased truck/construction traffic and heavy load traffic and day-to-day increased traffic would not impact the off-site infrastructure? Did this conclusion include assessing the safety of the local population due to the significant increase in traffic in the area? It would be unavoidable.

- 15. Section ES.8 Unavoidable Adverse Impacts, Irreversible and Irretrievable Commitment of Resources, and Short-Term and Long-Term Productivity:** This summary provides the EIS

justification for the selection of the land area under consideration for the Spaceport since it is already an impacted industrial property, versus the consideration of property that has not had industrial use.

However, this is an RCRA post-closure care facility with documented buried hazardous waste in an adjacent legacy landfill, with multiple Munitions and Explosives of Concern Areas (MEC) that have not been fully addressed or remediated, and the overall property to be purchased is not yet fully characterized or remediated. Selection of an industrial site that is not as encumbered or surrounded by a sensitive saltwater marsh environment would be a much better choice.

DRAFT EIS (DEIS) Text

1. **Section 1.4.2 Other Licenses, Permits, and Approvals–Biological Resources:** “On February 12, 2018, the USFWS provided concurrence that the Proposed Action is not likely to adversely affect federally listed species, provided that conservation measures identified in the consultation are implemented. The agencies’ opinions may identify special terms and conditions for impact avoidance and mitigation measures that would be required to be implemented as part of the Proposed Action and/or alternatives and will be included in the Final EIS.”

Have the specific species conservation measures or No Effect or May Affect But Not Likely To Adversely Affect been defined and evaluated? If yes is this information available for review?

2. **Section 1.4.2 Other Licenses, Permits, and Approvals–Historic and Cultural Resources:** Historic Resources were evaluated and presented to the Georgia State Historic Preservation Officer (SHPO); however, there was no mention of archaeological resource surveys.

A Phase I Cultural Resource Survey would be needed to evaluate archaeological resources and confirm historic structures identified by Draft EIS. Will a Phase I Cultural Resource Survey be conducted, and will archeological resources be evaluated and the Draft EIS revised to include them?

3. **Section 1.4.2 Other Licenses, Permits, and Approvals–Wetlands:** Section 404 of the Clean Water Act Permit would be required from USACE if wetland impacts exceed 0.10 acre of wetland impact or any length of intermittent or perennial stream channel is impacted. Also, Waters of the United States (wetlands, streams, open waters) impact exceeding ½ acre and/or 300 linear feet of stream impact would require an Individual Permit application. *When will the construction design be completed and the exact Waters of the United States impact be determined? Will the EIS be updated to include this information and be made available for review?*

4. **Section 2.1.1.2 Vertical Launch Facility:** Vertical Launch Facility features would include associated roads, a parking lot, a perimeter road and fencing, gates, a guard shack, a diesel generator system (including multiple fuel and hazardous materials storage tanks), a septic system, and area lighting. Section 2.1.2.8 Launch Failures states that, historically, failures are typically at the pad, soon after ignition/lift off and over the launch site.

What extra precautions will be taken to prevent catastrophic fuel and hazardous materials storage tank impacts in case of a launch failure in this sensitive environmental setting?

5. **Section 2.1.1.3 Launch Control Center Complex:** “There may be a total of up to seven diesel fuel storage tanks on the Spaceport Camden property located at the Launch Control Center Complex.”

What are the sizes of these tanks and will they be underground or aboveground tanks? If any tanks are underground tanks, what types of leak detection and inventory monitoring will be installed? If storage is aboveground, will a Spill Prevention Control and Countermeasure Plan be developed for stored oils and fuels, and, as launch operators change, how will consistency of compliance be maintained, since the plan elements will change with each new operator’s needs? At a minimum all emergency and other specific contact information will require modification and distribution to affected authorities each time the launch operator changes.

6. **Section 2.1.1.6 Infrastructure:** This section states, “There are two existing deep wells on the Bayer CropScience property that would be used to provide water for Spaceport Camden operations. Twelve-inch water lines would be run underground alongside the launch site roadways to provide water to each facility. The site is authorized to withdraw 1.7 million gallons of water daily from the two existing deep wells. Annual water usage during launch site operation is estimated to be 16.3 million gallons of water. This volume is based on a nominal water usage of 11,500 gallons per day with peak usage of approximately 405,000 gallons per day. (Peak usage would be dominated by the activation of the water deluge system, which could use up to 250,000 gallons per launch.)”

Who provided the authorization mentioned above and was it obtained? Will this water be used for potable water at the Spaceport? Was an aquifer test conducted, and, if not, why not, to address whether the greatly increased withdrawal rate will impact the vertical or horizontal groundwater gradients, thereby potentially mobilizing contaminated groundwater downward, possibly impacting deep aquifers or laterally expanding the extent of any groundwater plumes? Is there any information available regarding the groundwater quality at the Bayer CropScience property? If so, how can it be obtained? Is there a plan to monitor the water used for launch activities to ensure that impacted water is not being used? What is the plan for the treatment of wastewater resulting from the operations? Will it be discharged via an NPDES permit to marshland?

7. **Section 2.1.2 Representative Launch Vehicle and Operational Activities:** According to this section Spaceport Camden would be available to a range of independent launch operators, each of which offers various launch vehicles, fuels, payloads, with different design and operating specifications. This also includes a variation in the actual number of launches that could occur per year.

Since these variables cannot be identified until each individual launch operator is under contract, if the launch vehicles and/or propellants selected for future use vary from those evaluated and approved in the EIS, will the EIS be revised, or will a separate EIS be prepared to include the evaluation of these launch variables?

8. **Table 2.4-1. Topics Identified During Public Scoping Evaluated as Possible Alternatives–Proposed By Agencies During Scoping–Modified Site Configuration–Description:** *Since it was determined that the site should be surveyed to identify gopher tortoise habitat so that it may be avoided in siting the facilities of the project, will the Gopher Tortoise burrow surveys be conducted using GPS to locate and document burrow locations? What time of year will the gopher tortoise burrow scoping surveys be conducted? Will it accommodate the identification of federally endangered indigo snake species within the burrow locations? Eastern indigo snake*

surveys to document presence of specimens within gopher tortoise burrow would involve burrow scoping surveys during the winter months (December–February). The burrow scoping survey would also document active gopher tortoise burrows that may require bucket trapping and/or excavation to relocate individuals outside of the construction area.

Since the relocation of gopher tortoise and eastern indigo snakes beyond the project's disturbance limits or to an approved recipient site may be required, will exclusionary fencing to be installed to prohibit the movement of the species into the construction area? Will required additional annual surveys, scoping, and relocation be conducted?

9. **Table 2.4-1. Topics Identified During Public Scoping Evaluated as Possible Alternatives–Proposed By Agencies During Scoping–Modified Site Configuration–Disposition:** In the table it states “ .. there are no plans to conduct species surveys at this time because construction activities may occur several years from the publication of this EIS.”

Since Gopher tortoise and Eastern indigo snake surveys would be implemented in response to a proposed construction phase schedule for the project, would initial burrow surveys and scoping be considered to provide details for developing the future scope of these specific species surveys?

10. **Table 2.4-1. Topics Identified During Public Scoping Evaluated as Possible Alternatives–Proposed By Individuals During Scoping–Minimize Impact to Species–Disposition:** “Prohibiting launches during certain seasons, controlling lighting, and other measures could be considered as mitigations if the analysis indicates the potential for adverse impacts to the northern right whale, its respective habitat, or to other species. This suggestion seems best suited as a potential mitigation measure rather than a separate alternative.”

Will Section 7 of the Endangered Species Act be followed along with formal coordination with the US Fish and Wildlife Service and National Marine Fisheries Service to ensure that protected marine and coastal species mitigation measures are properly addressed?

11. **Section 3.2.3.1 Terrestrial Vegetation and Habitats:** The project would result in approximately 0.78 acre of wetland impact. Construction activities would result in impact that could include habitat for the hairy rattlesnake weed. Will specimen and habitat surveys be conducted to obtain USFWS concurrent of no effect or not likely to adversely affect the species, if needed?

12. **Section 3.2.3.2 Terrestrial Animals–Terrestrial Special Status Animal Species–Red-cockaded woodpecker (*Picoides borealis*):** Although the EIS states that there is no Red-cockaded woodpecker nesting habitat, is there potentially suitable foraging habitat? The property has a dominant pine plantation vegetative community which could represent habitat.

13. **Section 3.2.3.2 Terrestrial Animals–Terrestrial Special Status Animal Species–Wood storks (*Mycteria americana*):** Mitigation measures during the construction phase would likely be required to avoid potential harm, harassment, or take of this mobile avian species. Typically, it involves ceasing work activities when a wood stork is observed in the construction zone by a biological monitor.

Will a biological monitor be on site during construction activities to monitor the need to cease construction as/if needed?

14. **Section 3.7.3 Existing Conditions under Section 3.7 Hazardous Materials, Solid Waste, and Pollution Prevention:** This section states that “activities associated with the Proposed Action, such as road improvement or facility construction, would not occur on or near the landfill.

Consequently, no direct or indirect impacts to the landfill (SWMU 1) would be expected from the Proposed Action and the landfill is not discussed further in this section.”

Although no construction will occur on the actual landfill, there may be other potential environmental impacts due to construction near the landfill and/or operation of the Spaceport. Will launch vibrations or impacts from launch failures not potentially cause a destabilization of the landfill cap and/or possible sloughing of contaminated soil toward Todd’s Creek?

- 15. Section 3.7.3 Existing Conditions:** *The Bayer CropScience Woodbine Plant is listed in the EPA Enforcement and Compliance History database, which indicates that during past RCRA inspections there have been noncompliance findings as recently as during the third quarter of 2017. However, no RCRA facility-related reports, National Pollutant Discharge Elimination System (NPDES) monitoring results/reports, or other information relating to existing site conditions for this plant have been provided in this section of the EIS. There is a notable lack of information regarding this property.*

This section of the EIS does acknowledge that “thorough site investigations would be required prior to ground disturbance, and appropriate land restrictions and remediation would be identified in coordination with State regulators.” This statement and the lack of pertinent information leave the EIS evaluation without information upon which to base a supportable opinion or conclusion. It also leaves Camden County with unidentified liability. Bayer CropScience produced TEMIK (determined by the EPA to be a health risk) and in all likelihood soil and groundwater somewhere on the site are contaminated and may require short-term or possibly long-term remediation. Will Camden County purchase the property only after the site is clean as approved by GA EPD? When will site investigations be conducted? Potentially impacted groundwater and/or soil at the Bayer CropScience facility could have an impact on ultimate decisions regarding the EIS. In fact, results of investigations could place additional RCRA regulations on the Bayer property. Also, any liability (financial and otherwise) after purchase will be that of Camden County and the costs will be the responsibility of Camden County citizens. How have these factors been evaluated?

- 16. Section 3.7.3 Existing Conditions–Identification of Contaminated Sites:** This section states, “There are no sites within the construction ROI that are included on the USEPA National Priorities List (NPL).”

However, activities associated with the Proposed Action do overlap historical areas of contamination from historical usage.” There are other Georgia-regulated hazardous waste sites, regulated under RCRA, located in the ROI. This statement is misleading since it implies a lessened concern of environmental contamination since the site is not an NPL site. RCRA sites can be just as contaminated and pose as much risk to receptors as NPL sites.

- 17. Section 3.7.3 Existing Conditions under Section 3.7 Hazardous Materials, Solid Waste, and Pollution Prevention–Loop Road Equipment and Material Surface Storage:** This section states that “because the site reconnaissance activities determined that only small amounts of metallic debris was present within the Loop Road area, no further action was proposed. Consistent with USEPA’s Final Guidance on Completion of Corrective Action at RCRA Facilities (FRL-7454-7), Union Carbide recommended that a determination of Corrective Action Complete without controls be considered for the Loop Road area (CH2MHill, 2008).”

Since the Georgia Environmental Protection Division has regulatory primacy, explain the agency’s determination relating to the need for no further corrective action?

- 18. Section 3.7.3–Post-Closure Care Period:** This section states that the closed landfill will be monitored through the post-closure care period, which ends on June 6, 2021.

This statement is inaccurate as post-closure of this landfill and all financial obligations will continue indefinitely, or until certain steps are taken as approved by GA EPD, such as possibly removing all wastes to achieve a clean closure. This step of complete waste removal is cost prohibitive and thus the reason the area was capped and post-closure was implemented. Note that the landfill is not part of the Spaceport property but access via the Spaceport property will be required indefinitely.

- 19. Section 3.7.3–Identification of Contaminated Sites:** This section states that the Vertical Launch Facility overlaps two historical contamination sites, the Munitions Response Area 2 (MRA-2, also known as SWMU 9), and the empty Drums Area. The proposed Landing Zone overlaps two historical contamination sites, Loop Road and SWMU 6. The proposed Action also includes improvements to several existing roads. These roads traverse the following historical contamination sites: MRA-1 (SWMU 8), MRA-2 (SWMU 9), Loop Road Site, and SWMU 6.

However, SWMUs 8 and 9 will require further investigation (soil and/or groundwater assessment) by Union Carbide, per the Hazardous Waste Permit, and may require short- and/or possibly long-term active remediation. How is this plan compatible or predictable schedule-wise with the proposed construction of the Spaceport roads that will require intrusive work at these SWMUs? What kind of risks does this plan pose, and how will the risks be addressed?

- 20. Exhibit 3.7-1 Eastern portion of the Union Carbide Woodbine Facility:** Based on Exhibit 3.7-1 the vertical launch facility will be constructed within the boundaries of MRA-2/SWMU 9 where open burning of off-specification Munitions and Explosives of Concern (MECs) was conducted in the open area in the central part of the MRA. Historical investigations at this site identified seven MEC items, consisting of one M71A2 primer, one M7A1 primer, and five partial M84 fuzes, on the ground surface at MRA-2. An MEC Corrective Action Plan (CAP), dated February 2012 (CH2MHill, 2012), has been prepared and clean up alternatives proposed.

Will these MEC items be removed and GA EPD approval of the final removal action be obtained prior to the purchase of the property or commencement of Spaceport construction? GA EPD must agree that No Further Action is required and a permit modification completed BEFORE the property can be entered into the Georgia Brownfield Program.

- 21. Exhibit 3.7-1 Eastern portion of the Union Carbide Woodbine Facility:** Based on Table 3.7-1 the Former Rocket Test Pit is recommended for no further action.

According to the GA EPD letter dated February 1, 2018, which provides comments on the Former Rocket Test Pit Additional Soil Characterization Work Plan, the soils in this area are still in the process of being characterized. Dioxin has been identified as a contaminant of concern in this area. The extent of any Dioxin contamination has not been defined. With the site in the process of being characterized, what is the basis for no further action determination, as this is conflicting information?

- 22. Section 3.7.3 Existing Conditions under Section 3.7 Hazardous Materials, Solid Waste, and Pollution Prevention–MRA-1 (SWMU 8):** This section states that Land use and institutional controls, such as required training and MEC signage, are in place to educate and restrict access to the MRAs by unauthorized personnel. The current Union Carbide Woodbine MEC ICP contains detailed information on site accessibility of each MRA (CH2MHill, 2012).

Is the MEC ICP available for review? Also, the Adjusted 2018 Post-Closure Care and Corrective Action Cost Estimate Union Carbide Corporation, Woodbine, Camden County, GA (dated January 18, 2018) for the Union Carbide site indicates that a Phase III Supplemental RCRA Facility Investigation was conducted for the munitions sites. Where can this information be found?

Also, in the GA EPD comment letter (dated November 8, 2017) related to the MEC RFI Phase III Report, GA EPD required that the former 40-mm Test Range, located at SWMU-8 and an area containing high explosive 40-mm grenades (with 5 meter kill radii), undergo a 100 percent clearance of the area for protection of human health. This statement indicates that further action will need to be taken at this site in regard to the MEC issues. How can institutional controls remain as the preferred corrective action for this site? This conclusion is not logical.

- 23. Section 3.7.3 Existing Conditions under Section 3.7 Hazardous Materials, Solid Waste, and Pollution Prevention—Other Contamination Sites:** The table provided in this section (Table 3.7-1. Other Contamination Sites Within the Site Boundary) states that, for the sites on this table, no further action is recommended.

However, the Adjusted 2018 Post-Closure Care and Corrective Action Cost Estimate Union Carbide Corporation, Woodbine, Camden County, GA (dated January 18, 2018) for the Union Carbide site indicates that a Phase III Supplemental RCRA Facility Investigation was conducted for the munitions sites. A Corrective Action Plan for the SWMUs appears to be required as the next step. This indicates that munitions issues exist that exceed levels considered to be safe for human health and the environment. Although MRA-3 (SWMU 1A) is listed in Table 3.7-1 (Other Contamination Sites Within the Site Boundary) as recommended for no further action, it should be noted that this determination is not final. How can Spaceport construction activities proceed without a final determination of No Further Action for the MEC sites?

- 24. Section 3.7.3 Existing Conditions under Section 3.7 Hazardous Materials, Solid Waste, and Pollution Prevention—Bayer CropScience Contamination Sites:** *Potential contamination on the Bayer CropScience is basically unknown at this point, and it could be expansive or not. This section states that preliminary investigations identified ten additional sites that may be potentially contaminated within the Bayer CropScience property. Contaminants are multiple and varied and include (1) sanitary wastewater disposal, (2) gas/diesel compounds/benzene, toluene, ethylbenzene and xylene (BTEX), (3) pesticides, (4) BTEX, (5) munitions waste, (6) munitions waste, (7) acids and pesticides, (8) pesticides, (9) munitions/rocket fuel waste, and (10) pesticides.*

“They are located on the northwest quadrant of the Bayer CropScience property, with most of the sites adjoining or located near Union Carbide Road (which would be improved as part of the Proposed Action). They range in size from approximately 2 to 30 acres, with an average size of approximately 8 to 10 acres. Detailed information on the presence of hazardous constituents is unavailable from Bayer CropScience. The EIS states that “thorough site investigations would be required prior to ground disturbance, and appropriate land restrictions and remediation would be identified in coordination with State regulators.”

These statements and conclusions are inadequate to describe the potential extent and type of contamination that may be discovered when investigations are conducted and, further, the extent and eventual cleanup costs, as appropriate, and potential long-term implications of the use of the land. How and when will these investigations begin? Will Camden County lease or purchase the property before the investigations and results are known? Will the EIS be revised to include this information in all considerations?

25. Section 4.2.1.1 Construction–Terrestrial Vegetation and Habitats: Since Up to 0.78 acre of the 3.61 acres of the wetland delineated in the vicinity of proposed construction areas may be directly impacted as a result of the Proposed Action, will a Section 404 Clean Water Act Permit be obtained and Compensatory wetland and stream mitigation be a component of that permit?

26. Section 4.2.1.1 Construction–Terrestrial Vegetation and Habitats: *When conducting the required Protected State Plant Species surveys within the proposed construction limits, will specimens and populations be flagged and GPS located for the development of avoidance and minimization measures and establishment of necessary buffers? Will Surveys be conducted during the USFWS and GA DNR recommended survey periods for each species?*

27. Section 4.2.1.1 Construction–Special Status Animal Species–Migratory Birds: *Will nest locations be GPS located and flagged in order to establish necessary buffers?*

28. Section 4.2.1.1 Construction–Special Status Animal Species–Marine and Estuarine Animals: This section states, “FAA determined the Proposed Action “may affect, but would not likely adversely affect,” Atlantic sturgeon, shortnose sturgeon, North Atlantic right whale, and green, hawksbill, Kemp’s ridley, loggerhead, and leatherback sea turtles. FAA also determined the Proposed Action would have no effect on Atlantic sturgeon, loggerhead sea turtle, and North Atlantic right whale critical habitat. Refer to Appendix A for the complete analysis. NMFS is currently reviewing the consultation letter.

Will the Final EIS document the conclusion of the ESA consultation with NMFS? Will the results of the FAA/NMFS consultation be available for review before finalization of the EIS?

29. Section 4.2.1.2 Operation–“On February 12, 2018, the USFWS provided concurrence that the Proposed Action is not likely to adversely affect federally listed species, provided that conservation measures identified in the consultation are implemented. Final requirements associated with the NMFS consultation will be incorporated into the Final EIS.”

Will comments from the NMFS be included in the Final EIS and will the Final EIS be available for public review?

30. Section 4.7—Hazardous Materials, Solid Waste, and Pollution Prevention: This section states that “The methodology used to evaluate the impact of these factors identified proposed activities and, using process knowledge or other available data, determined the type and quantity of waste (hazardous and non-hazardous) that would likely be generated by the Proposed Action. Resulting waste types/quantities were then compared to proposed management measures to determine if applicable waste regulations would be met, or if regional landfill capacities (in the case of solid wastes) would be exceeded.”

For emergency planning and preparedness purposes, what is the total maximum volume by “type” of each hazardous substance and hazardous waste that may be on site at any one time, and upon which the EIS evaluation was based? Also, this section references the presence of solvents in various locations, both as hazardous materials and hazardous wastes. What types of solvents are anticipated to be on site? Solvents are notorious as groundwater contaminants that are difficult to remediate, and they are especially difficult to remediate in an estuarine environment.

31. Section 4.7—Hazardous Materials, Solid Waste, and Pollution Prevention: The EIS states "Analysis also evaluated the types and quantities of hazardous materials that would be employed and whether proposed engineering controls (e.g., secondary containment) or operational controls (emergency response plans) would be adequate to address potential

releases and whether local emergency response resources would be available to respond to a potential release of hazardous materials.”

Based on the maximum anticipated type and volume of hazardous substances and hazardous waste on site at any one time, how was it determined that local emergency response agencies would be capable (i.e., capability and capacity) of addressing such releases during a launch failure or during a natural disaster such as a hurricane that could result in a catastrophic release to the environment? Please define what is meant by “local emergency response”? Will the facility have its own emergency response capabilities (i.e., Fire Department) and if so, please describe those projected capabilities. Or, will the spaceport be dependent upon Camden County Emergency Response resources and if so please explain?

- 32. Hazardous Materials, Solid Waste, and Pollution Prevention:** The EIS says “As indicated in discussions below, there is the potential for effects to historical contamination sites. Once the land is acquired by Camden County, these potentially contaminated sites would likely be managed under the Georgia Brownfields Program. In this case, the new owner (Camden County) would be responsible for soil and groundwater investigations and management of soil and source material that are above Georgia risk reduction standards. This would involve preparing a CAP, which would work like a contract for soil and source management at these sites in accordance with State of Georgia requirements.”

As noted previously, the author of this section does not demonstrate an understanding of the requirements of the Georgia Brownfield Program. First, this Union Carbide facility is regulated under RCRA and it is not currently eligible for Georgia Brownfield. The portion of the Union Carbide facility, which Camden County proposes to purchase, is subject to all RCRA regulations including the requirements for assessment and clean up to RCRA standards, as specified in the Union Carbide Hazardous Waste Permit. RCRA cleanup standards are much more stringent than HSRA Risk Reduction Standards. Second, the Union Carbide property cannot be removed from the RCRA permit and program until all SWMUS achieve No Further Action (NFA) designations. Achieving NFAs on the remaining SWMUs will likely take years. After receiving NFAs, the next step is a Union Carbide RCRA permit modification to remove the property being purchased by Camden County from RCRA regulation. It is only at that time can the property be entered into the Georgia Brownfield program.

- 33. Section 4.7.1.1—Construction—Hazardous and Solid Wastes:** “Soil excavated during construction activities would be stockpiled for construction and landscaping uses, while woody debris from land-clearing activities could also be chipped or mulched onsite and used for landscaping.”

Please note that since this is an RCRA-regulated site which is not fully characterized or remediated, all soil waste generated must be fully profiled (i.e. characterized with regard to contamination) and then shipped off site for proper disposal in accordance with the results of the profiling. Does Camden County intend on developing a Construction Management Plan which will detail the steps necessary for the management of all waste generated as a result of construction? This is a recommended action to assist in ensuring that contaminated soil is not spread from contaminated areas to other noncontaminated areas of the facility.

- 34. Section 4.7.1.1—Construction—Pollution Prevention:** The EIS states that “Construction projects would apply pollution prevention measures to the greatest extent possible.”

Will best management practices be developed to ensure that pollution prevention measures are identified and implemented?

- 35. Section 4.7.1.1—Construction—Historical Areas of Contamination:** The EIS states that “Several historical areas of contamination are located within the ROI, as described in Section 3.7.3, Existing Conditions. These contamination (MEC) sites are primarily associated with historical uses of munitions. Construction in areas such as MRA-1 and MRA-2 could potentially expose workers to MECs. ... Unlike chemical exposure where there may be an exposure limit where no adverse effects will occur, there is no accepted method for establishing the incremental probability for injury or death from an encounter with MEC. If the potential for an encounter with MEC exists, the potential that the encounter will result in death or injury also exists.”

Unless the MEC sites are remediated and designated as NFA by Georgia EPD, how can the Launch Operator consider putting construction workers at risk of injury or death? Any risk of injury or death to the construction worker is unacceptable. As an aside, since this is a hazardous waste site, will all construction workers be required to be OSHA 1910.120 trained, medical monitored, and certified? If not, why not?

- 36. Section 4.7.1.1—Construction—Post-Construction Practices:** The EIS states that “when non-employees visit the site, they would be escorted and instructed not to leave the prescribed travel routes. So long as these travel routes are adhered to, the probability on an employee or a visitor being exposed to MECs would be extremely low.”

Are Camden County and the FAA willing to accept the risks that visitors will adhere to staying on the prescribed route and will obey signage?

- 37. Section 4.7.1.1—Construction—Post-Construction Practices—Additional Investigations:** The EIS restates that “As discussed in Section 3.7.3, Existing Conditions, there are also 10 additional sites that may be potentially contaminated. They are located on the northwest quadrant of the Bayer CropScience property, with most of the sites adjoining, or located near, Union Carbide Road (which would be improved as part of the Proposed Action). ... The new owner (Camden County) would be responsible for soil and groundwater investigations and management of soil and source material that are above Georgia risk reduction standards.”

Where can information be found regarding potential contamination that may be present on the 10 additional sites that are referenced above? Has Camden County developed a preliminary cost estimate for the assessment and delineation of the extent of contamination and cleanup of these areas? If so, where can this information be found? Please provide more detail with regard to this anticipated approach for cleanup, the anticipated costs, and the preliminary schedule.

- 38. Section 4.7.1.1—Construction—Post-Construction Practices—Additional Investigations:** The EIS states that “Additionally, the land acquisition process would require completion of a Phase I Environmental Site Assessment. The Environmental Site Assessment would document environmental conditions at the Spaceport Camden site.”

What is the anticipated schedule for the Phase I Environmental Site Assessment (ESA)? Will the ESAs be performed on both the Bayer CropScience and Union Carbide properties simultaneously? It should be noted that the ESA may identify Recognized Environmental Conditions, per ASTM E 1527-13, beyond those areas already identified in the available environmental documents for both Union Carbide and Bayer CropScience properties and which may also require investigation and/or possible remediation.

- 39. Section 4.7.1.2—Operations—Hazardous and Solid Wastes:** The EIS states that “Georgia follows Federal hazardous waste management regulations, which allow the disposal of hazardous waste generated by CESQGs in municipal waste landfills permitted by State (such as the Camden

County C&D and Industrial Waste Landfill). The regulations governing hazardous waste management are found [in] Georgia Administrative Code 391-3-11, Hazardous Waste Management.”

*The EPA defines a municipal solid waste landfill (MSWLF) as a discrete area of land or excavation that receives household waste. An MSWLF may also receive other types of **nonhazardous** wastes, such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial nonhazardous solid waste. Therefore, Camden County C&D and Industrial Waste Landfill is not permitted to accept hazardous waste even if generated by a CESQG. Does the Camden County C&D and Industrial Waste Landfill have a hazardous waste transfer facility, which could accept hazardous waste for transfer to a hazardous waste landfill?*

- 40. Section 4.8.1.3 Summary of Finding of Effect for the Proposed Action:** *Since the State Historic Preservation Officer (SHPO) and Tribal coordination has not been completed, will the results of coordination and resolution of all adverse effects be presented in the Final EIS?*
- 41. Section 4.14.1.1 Construction–Wetlands:** *Will an individual Permit, which is required with compensatory wetland mitigation, be obtained?*
- 42. Section 4.14.1.1 Construction–Surface Water Resources:** *Indirect effects to surface waterways could represent adverse effects to marine mammal and fish species. Will this be covered by conservation and mitigation measures obtained from USFWS and NMFS review and coordination?*
- 43. Section 6.2.1 Construction:** *“A bald eagle nesting survey would be required prior to construction; if an active nest (i.e., nest with eggs or chicks) occurs within the construction ROI, then the nest would be protected until the chicks have fledged.” Will GPS location of nest locations be recorded and buffer requirements be implemented?*
- 44. Section 6.2.1 Construction:** *“Camden County would maintain clear shoulders on road edges to allow drivers to more easily see wildlife along the road edge and reduce incidents of vehicle/wildlife collisions.” Will biological monitoring for protected species and common wildlife species during the construction phase of the project be conducted?*
- 45. 6.4 Coastal Resources:** *Will the GA DNR coastal consistency review comments for requested mitigation measures, which are to be included in the final EIS, be available for review?*

GENERAL COMMENTS REGARDING DEIS

1. Since it impacts the DEIS, what is the status of negotiations between Camden County and Union Carbide with regard to the 2015 draft option agreement (DOA) for purchase of the Union Carbide property? The duration of the DOA was two calendar years and thus it expired in June 2017 unless it was finalized and executed. Is there a current OA document under review and where is it available? Is there a draft purchase agreement under consideration for purchase of the Bayer CropScience property?
2. What due diligence efforts has Camden County performed, such as a Phase I Environmental Site Assessment (ESA) or Phase II soil and/or groundwater investigation, at the Union Carbide (now Dow) property, or at the Bayer CropScience property? An ASTM compliant Phase I ESA is required to support an innocent landowner defense and documentation of a bona fide purchaser. Are these efforts in the planning stage?
3. The draft DOA states that Union Carbide will be responsible for the completion of remediation required by the Hazardous Waste Permit for currently known solid waste management units (SWMUs) and similarly for the remediation of newly discovered releases, areas of concern (AOCs), SWMUs, or other environmental conditions, which resulted from Union Carbide's activities prior to closing. Thus, it appears that Camden County is depending on the long-term support from Union Carbide to continue to address outstanding environmental issues, those that are the result of Union Carbide activities. What mechanisms has Camden County considered to limit future environmental liability for investigations and cleanup that may be discovered post sale, but which cannot be directly or clearly attributable to Union Carbide? Does Camden County have a listing of areas to be investigated and/or remediated as agreed by Union Carbide and/or by Bayer CropScience at this time? Where do these locations lie with respect to the proposed Spaceport construction activities and do they include SWMU 8 and SWMU 9?
4. Is there a concern regarding the long-term viability of Union Carbide with regard to meeting financial obligations for the legacy environmental issues at the proposed Spaceport purchase property? Camden County is at risk by purchasing this property. If Union Carbide were no longer a viable entity, which can happen to any corporation, Camden County would be responsible for all ongoing liability and costs of this RCRA site.
5. If the proposed Spaceport property is not purchased under the Brownfield Program as noted in the DEIS, Camden County will be purchasing an RCRA-regulated site and will be fully liable, per GA DNR rules and regulations, for assessment and cleanup of soil, source material, and groundwater contamination on the property or off site that exceeds applicable RCRA standards. Regardless of any and all agreements with Union Carbide or others, GA DNR will look to Camden County as the responsible entity.
6. The DOA states that the parties will work cooperatively to try to modify institutional controls and/or engineering controls currently imposed on the property, for example, in an effort to remove the existing Environmental Covenant that prohibits the use of groundwater under the site. How important is the successful resolution of this issue, which is noted in multiple locations in the DOA and DEIS? If not successful, and the groundwater use remains restricted, how will this impact Camden County's decision to purchase the property and the planned Spaceport construction and/or operation?

7. Environmental Insurance is a requirement of the DOA. Per the DOA, Camden County must attempt to obtain a pollution legal liability insurance policy to cover pre-existing environmental conditions that is satisfactory to Union Carbide. The policy terms specified are seven years and for a limit of not less than \$10,000,000. Environmental Insurance of this type is often difficult to obtain, especially if there are unknown conditions and remediation costs are ill-defined, and it is extremely expensive. Has Camden County begun researching this requirement and the costs, which will be borne by the Camden County residents?
8. There is a March 25, 2015, Technical Review from Georgia DNR, which is a letter from GA DNR to Mr. Timothy King, Union Carbide Corporation, regarding the MEC and FFI Corrective Action at the Union Carbide facility. The letter discusses the site's cleanup status based on the review of reports and corrective action plans (CAPs). Specifically, based on the reviews, GA EPD determined that additional investigative work must be completed to fully define the nature and extent of releases from SWMU-3, SWMU-7, and SWMU-1A, which includes investigation of potential environmental contamination from munition constituents (MC). Which reports include the results of the efforts, and has GA EPD agreed that the work is complete?
9. An area called The Rocket Test Pit was reportedly used to test solid rocket boosters and "various ordnance products." Have soil and groundwater samples been collected and analyzed and any impacts fully remediated to appropriate background concentrations, both horizontally and vertically, and to GA EPD's approval for all potentially present (energetic) MC, metals, and perchlorates? Where is this information referenced in the DEIS?
10. What is the status of a comprehensive risk assessment that was required to be performed to properly assess the risk to human health and the environment? It was requested of Union Carbide in both EPA's Technical Review letter (12/17/14) and GA EPD's CAP letter (11/19/13).
11. Has the RFI Phase III Workplan been provided to GA EPD and approved and implemented? If so, has the RFI Phase III Report been submitted and the June 6, 2014, draft CAP been revised to include the RFI Phase III Report? Can you please summarize the current status as of 2018 of Union Carbide's RCRA compliance with their Hazardous Waste Permit (Part B Permit-HW063(D)) in the DEIS and what efforts are anticipated to be ongoing during the remainder of 2018 and 2019, including on-site remediation?
12. The DOA between Camden County and Union Carbide notes that ongoing access is going to be needed by Union Carbide in order for them to meet their GA EPD permit long-term obligations for maintenance, repairs, monitoring, and corrective action of the hazardous waste units and SWMUs. Has Camden County considered how that ongoing effort may be disruptive and also potentially compromise sensitive, confidential, or proprietary launch-related information such that an unacceptable risk is incurred by the launch operator and/or Camden County?
13. Has a baseline environmental assessment, Phase II site assessment, or any initial investigation been conducted by Camden County on the Union Carbide property to identify the impacts of current soil, groundwater, sediment, and/or surface water contamination on the property to be purchased? Any initial effort could also focus on the Bayer CropScience property, which has little available information. It appears that groundwater generally flows from Bayer CropScience across the Union Carbide site and to Todd Creek or to other wetlands.
14. The existing restrictive covenant on the Union Carbide property prohibits the use of groundwater for drinking water or for any other non-remedial purposes. Where does Camden County propose to obtain potable water for Spaceport if the environmental covenant cannot be removed? If Camden County is pursuing the use of groundwater from water pumped from the

Bayer CropScience property as noted in the DEIS, what is the estimated cost for the pipeline installation, treatment equipment, permitting, and long-term permit monitoring and reporting required to use the Bayer CropScience groundwater?

15. A 2015 Site Characterization Report, prepared by CH2M for Union Carbide, discusses known archaeological and cultural features on the Union Carbide site, as well as high-priority habitats and species (i.e., loblolly pines, deer, coyotes, gopher tortoises). This report also includes known wetland areas that require restoration. Restoration activities may not be part of the environmental remediation process for soil and groundwater impacted by prior site operations. At what point would liability for Todd Bank and other wetland area conservation transfer to Camden County? Will site construction and/or operations of the Spaceport have continuing impacts to these areas following restoration? Will Camden County be required to monitor in perpetuity the conditions of the streambanks and make repairs as necessary as indicated in the Union Carbide Hazardous Waste Permit?
16. Did the DEIS consider that unidentified impacts could exist based on Thiokol waste disposal activities? According to the January 14, 2011, Responses to Comments and Revised Permit Renewal Application, Permit HW—063(D), Union Carbide Corporation, Woodbine, Camden County, GA EPA ID No. GA981235294, Thiokol did not provide Union Carbide with a record of materials that they disposed of in the RCRA post-closed landfill. Have the groundwater and/or subsurface soils been screened for other potential contaminants of concern beyond those identified by Union Carbide?
17. The January 14, 2011, Responses to Comments and Revised Permit Renewal Application, Permit HW—063(D), Union Carbide Corporation, Woodbine, Camden County, GA EPA ID No. GA981235294, states that an active remediation system will be installed to reduce concentrations of constituents and provide an added measure of long-term protectiveness of potential downgradient receptors. Specifically, this system will include intercepting the contaminated groundwater plume so there are no constituents of concern (COCs) with concentrations above their specific groundwater protection standard (GWPS) or alternate concentration limits (ACLs) at the point of compliance/point of exposure (POC/POE) wells for the current off-site discharge-based site water-use scenario(s). The POE for the site is Todd Creek under current conditions. Where is the proposed location of this remediation system in respect to the proposed Spaceport location? Will the Spaceport location impact the installation of the remediation system in a location to optimize system effectiveness in treating the groundwater plume?
18. As noted in the DEIS, hydrazines (MMH and UDMH) and nitrogen tetroxide (NTO) will be stored on the launch center for payload processing. Both are very reactive and toxic chemicals and hazardous to the environment if released. While they are not released to the environment (air) as part of the initial launch activities, they could be released through mishandling or an accident on site. They could also be released if a launch fails and the payload falls on the islands or in the estuary.
19. Potential Creek and Marsh Dredging is a concern on the Bayer CropScience property. Does the Spaceport have plans to utilize the Bayer CropScience dock? Further, has investigation been performed to identify potential contamination in the sediment at the existing port? If so, what are the impacts? Dredging and other construction presumably would be required in this sensitive environment in order to use the dock. Would dredging be permitted?

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20. Have changes in sedimentation profiles and potential impacts to the ecosystem that might result in large-scale dredging of Floyd Creek, for example farther downstream closer to Kings Bay Naval Base, or around Jekyll, LCI, and Cumberland Islands and St. Andrews Sound, been considered in the DEIS? Dredging and related (perhaps unanticipated) bank erosion could potentially contribute to leaching of contaminated soils into waterways.
 21. The potential migration or spreading of hazardous waste is a concern during construction and future operations. It is our understanding that there is perchlorate contamination (a hazardous waste) on the site in concentrations and amounts that are unacceptable and that require cleanup. If so, to what are they attributed? Has the vertical and horizontal extent of these impacts been defined to GA EPD's satisfaction? Will the perchlorate be cleaned up and approval for "No Further Action" be received from GA EPD before construction starts? If not, what are the risks to the workers and the ongoing risks to the environment of the release of these contaminants, which are being cleaned up at many military bases and other facilities in the country?
 22. The potential for salt water intrusion is always a concern in a coastal environment. The Spaceport will apparently require significant quantities of fresh water that presumably will be withdrawn from the Bayer CropScience site. Would the additional, large-scale withdrawal of fresh water from the regional aquifers contribute to the potential for local saltwater intrusion into the existing cones of depression in the fresh water aquifers? Has this question specifically been evaluated by GA EPD? Could this anticipated new high demand on the existing aquifer perhaps negatively impact the future availability of fresh water for Camden County residents?
 23. Impacts to local businesses are a concern as noted in the DEIS. Closures of the Intracoastal Waterway and possible island evacuations will obviously impact residents and visitors to the various nearby islands, potentially including Jekyll, Little Cumberland, and Cumberland Islands. There is going to be an undefined but substantial impact on tourism, thus impacting revenue for these coastal areas. Also, how will the Spaceport activities, with the restrictions on access, impact local businesses and business activity at the Port of Brunswick, Georgia, which is only a short distance away?
 24. Have tax incentives been discussed or proposed to attract launch operation companies, such that the residents will end up paying a share of the ongoing costs for infrastructure upgrades and maintenance and other ongoing costs as a result of the Spaceport operations?