Commercial Space Transportation

Public Hearing for the Draft Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas

October 18 & 20, 2021

faa.gov/space
Meeting Assistance

• If you need assistance, send the host a chat message or raise your hand using the raise hand icon next to your name

• If you experience technical difficulties during the meeting, you can call-in to listen to the meeting
  • Phone Number: 833-548-0276
  • Meeting ID: 883 9423 2774
  • Password: 4300505
Meeting Agenda

• Logistics
• Introductions
• AST English Presentation
• AST Spanish Presentation
• Comment Session
How to Submit Comments

• Provide an oral comment at tonight's hearing
  • Those who pre-registered will be called on first
  • Send host a chat message or raise your hand to be added to the speaker's list
• Electronically: SpaceXBocaChica@icf.com
• Mailed:
  Ms. Stacey Zee, SpaceX PEA
  c/o ICF
  9300 Lee Highway
  Fairfax, VA 22031

Comment period closes on November 1, 2021

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment — including your personal identifying information — may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.
Ground Rules

• Please do not use inappropriate language.
• Pre-registered commenters will be called on in the order in which they registered.
• Commenters will be given 3 minutes to speak. Please respect everyone’s time.
• Due to the anticipated high volume of oral comments, we may not be able to get to everyone tonight, but we will make every effort to hear from as many as possible.
• Remember all comments are weighted equally regardless if they are oral, electronic or written.
Hello, my name is Stacey Zee, and I am an environmental protection specialist with the Federal Aviation Administration’s Office of Commercial Space Transportation. I, along with Anna Cushman and Chelsea Clarkson, will explain the FAA’s licensing process and the Draft Programmatic Environmental Assessment (referred to as a PEA) for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas. Afterwards, Schedir Illoldi will provide the same information in Spanish. After the presentation, you will have the opportunity to provide oral comments on the potential environmental issues outlined in the draft PEA.
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Why Are We Here?

- The FAA is evaluating SpaceX’s proposal to operate its Starship/Super Heavy launch vehicle at its Boca Chica Launch Site in Cameron County, Texas.
- Starship/Super Heavy launch operations require a permit or license from the FAA.
- The FAA is analyzing the potential environmental impacts in a Programmatic Environmental Assessment (PEA).

We are holding this public meeting because SpaceX is proposing to operate its Starship/Super Heavy launch vehicle at its Boca Chica Launch Site in Cameron County, Texas. Starship/Super Heavy launch operations require a permit or license from the FAA.

The National Environmental Policy Act (or NEPA) requires the FAA to analyze the potential environmental impacts of a proposed licensing action.

The FAA is analyzing the potential environmental impacts under NEPA for this proposed action and is collecting comments on the Draft PEA.

As SpaceX plans future activities as part of its Starship/Super Heavy program, the FAA would analyze the environmental impacts of these future activities in tiered environmental documents, as appropriate.
A programmatic document is a type of general, broad NEPA review from which subsequent NEPA documents can be tiered. Programmatic NEPA documents may be prepared for broad federal actions, occurring over a longer period of time. Once a Programmatic EA is prepared, project specific EAs could tier off of the original programmatic document.

As SpaceX plans future activities as a part of its Starship/Super Heavy program, the FAA would analyze the environmental impacts of these future activities in a tiered environmental document. Today’s discussion focuses on the actions proposed in the PEA.
This slide shows the FAA’s process for reviewing a vehicle operator license application. The process can occur over a period of months or years depending on the applicant’s proposed operation and it begins with Pre-Application consultation.

Pre-Application Consultation is the part of the process where FAA starts coordination with the applicant on their proposed operation.

Once the FAA has accepted a license application, the formal evaluation period begins. During this part of the process, the FAA conducts several reviews on policy, payload, safety, airspace integration, financial responsibility and environmental. The environmental review will be discussed in more detail shortly.

Upon completion of the evaluation, if the FAA makes a positive determination and grants an authorization, the next part of the process is an operational phase, which includes compliance monitoring and safety inspections of the operator’s licensed activities.

An authorization for a vehicle operator license is valid for the period of time as necessary to conduct the licensed activity, but may not exceed 5 years from the issuance date. A licensee can renew the license by submitting an application to the FAA.

SpaceX’s application for the proposed Starship Super Heavy operations at the Boca Chica launch site is currently in the evaluation phase of the licensing process with the FAA.
SpaceX’s proposed Starship/Super Heavy program consists of suborbital and orbital launches.

During a suborbital launch, Starship would launch from the Vertical Launch Area or VLA and land back at the VLA or downrange either in the Gulf of Mexico or on a floating platform in the Gulf. During development, SpaceX is proposing to conduct up to 20 Starship suborbital launches annually. As the program progresses, SpaceX is proposing to conduct up to five Starship suborbital launches annually. Each launch would include a landing.

SpaceX is proposing to conduct up to five Starship/Super Heavy suborbital or orbital launches annually. Starship/Super Heavy would launch from the VLA. Each Starship/Super Heavy orbital launch would include an immediate boost-back and landing of Super Heavy. Landing could occur at the VLA or downrange in the Gulf of Mexico either on a floating platform or expended in the Gulf.

Each Starship/Super Heavy orbital mission would include a Starship landing after Starship completes its orbital mission. Starship landing could occur at the VLA or downrange in the Gulf of Mexico, Atlantic Ocean, or Pacific Ocean on a floating platform.

SpaceX’s first mission involves a Super Heavy landing in the Gulf of Mexico and Starship landing off the coast of Hawaii in the Pacific Ocean.

Operations would include closures in and around the launch site. For this analysis, SpaceX estimates that total number of annual closure hours to be 500 hours for nominal operations and 300 hours for anomalies.
The image shows the proposed SpaceX Boca Chica Launch Site. SpaceX’s proposal includes two integration towers with associated launch mounts, tanks to hold propellants and commodities (including liquid and gaseous nitrogen, water, oxygen, methane, helium, and hydraulic fluid) and a crane. This image does not include some of the other proposed infrastructure mentioned in the draft PEA because SpaceX is still deciding the final location and design. However, the other proposed infrastructure mentioned in the draft PEA will be within the VLA.
The FAA is the lead Federal agency for the PEA.

There are 5 cooperating agencies who are included due to special expertise and/or jurisdictions:

- NASA has space launch special expertise
- The U.S. Fish and Wildlife Service has expertise regarding threatened and endangered species and national wildlife refuges. The Lower Rio Grande National Wildlife Refuge is located near the launch site.
- The National Park Service has special expertise regarding historic properties. The Palmito Ranch Battlefield National Historic Landmark and the Palo Alto Battlefield National Historic Park are located approximately 3 and 19 miles, respectively, from the launch site.
- The U.S. Coast Guard provides maritime safety and security expertise during launch operations.
- The U.S. Army Corps of Engineers is responsible for regulating the deposition fill material in waters of the United States. SpaceX has applied to the Army Corps of Engineers for a modification to its Clean Water Act Section 404 permit for impacts of the proposal on waters of the United States, including wetlands.

The Texas Historical Commission, Texas Parks and Wildlife Department, Texas General Land Office, Texas Department of Transportation, and the U.S. Navy are participating agencies on the project.
This slide lists the environmental impact categories that are analyzed in detail in the draft PEA. The following slides present a high-level summary of the potential impacts for many of the impact categories. Please refer to the draft PEA for a full discussion of potential environmental consequences, as well as proposed mitigation measures to avoid, minimize, or mitigate the potential impacts.
The proposed construction and operations would emit air pollutants. Most of the emissions would occur from SpaceX’s proposed power plant and natural gas pretreatment and liquefaction. As discussed in the draft PEA, emissions are not expected to result in an exceedance of the National Ambient Air Quality Standards.
Noise impacts include increased sound levels from construction, facility operations, and launches and landings. Noise from individual launch (including landing) and static fire engine test events is expected to be heard by people in the surrounding communities, including Brownsville, Laguna Vista, Port Isabel, South Padre Island, and parts of Mexico. Cumulative noise in the surrounding communities is estimated to be below levels associated with adverse noise exposure. Predicted overpressure levels:

- Starship landing range from 1.2 to 2.2 pounds per square foot (or psf)
- Super Heavy landing range from 2.5 to 15 psf.
- Populated areas would not be exposed to overpressure levels above 2.5 psf during Starship landings or 11 psf during Super Heavy landings.
This figure shows modeled sonic boom overpressures for a Super Heavy landing at the launch site. As I mentioned, the predicted overpressure levels range from 2.5 to 15 psf. The 11 to 15 psf levels would be concentrated around the launch sites. Levels would be reduced to 4 to 6 psf at South Padre Island.
Visual effects include nighttime light emissions, particularly when the launch vehicle is on the launch pad at night, and the visual presence of launch-related infrastructure, including the integration towers and crane, as well as the launch vehicles themselves. SpaceX would need to implement a number of measures to minimize visual effects.
The Proposed Action has the potential to adversely affect historic properties. Potential effects could result from visual or auditory effects or from ground vibrations. The FAA has made a finding of *adverse effect* for historic properties and is currently conducting National Historic Preservation Act Section 106 consultation with the State Historic Preservation Officer (or SHPO) and other consulting parties. As part of this consultation process, the FAA, in consultation with the SHPO and consulting parties, will be amending the current Section 106 Programmatic Agreement. All adverse effects to historic properties will be mitigated through the Section 106 consultation process, including development of a Memorandum of Agreement.
The Proposed Action would not result in a permanent incorporation of any Section 4(f) property. SpaceX’s proposed launch activities would have temporary, intermittent impacts on the access and availability of some Section 4(f) properties. Section 4(f) properties would experience increased sound levels during launch operations. There is also the potential for impacts caused by launch anomalies. Some of these impacts will be mitigated via consultation with the officials that have jurisdiction over the 4(f) properties. The FAA has made a preliminary determination that the Proposed Action would not result in more than a minimal \emph{physical use} of any 4(f) property and would not result in a \emph{constructive use}. 
SpaceX’s proposed construction would result in the filling of approximately 26 acres of floodplain and 17 acres of wetlands. Impacts to water of the U.S., including wetlands, will be mitigated through SpaceX’s Clean Water Act Section 404 permitting process.
### Biological Resource Impacts

- Adverse effects to federally threatened and endangered species
- FAA consulting with the U.S. Fish and Wildlife Service (USFWS) per Section 7 of the Endangered Species Act
- Effects mitigated via consultation
  - USFWS Biological Opinion

The FAA has determined the Proposed Action would adversely affect species listed under and critical habitat designated under the federal Endangered Species Act. The FAA submitted a Biological Assessment to the U.S. Fish and Wildlife Service and requested to initiate formal consultation per Section 7 of the Endangered Species Act. Adverse effects to listed species and critical habitat will be minimized through the Endangered Species Act consultation process. The FAA will not conclude its NEPA process until the Fish and Wildlife Service issues a Biological Opinion.

The FAA is also conducting Section 7 consultation with the National Marine Fisheries Service (or NMFS) but does not expect the Proposed Action will result in adverse effects to listed species and critical habitat under NMFS jurisdiction. The Final PEA will document the results of all interagency consultations.
**Land Use Impacts**

- Proposed Action is consistent with existing land uses at the Boca Chica Launch Site
- Closure areas would be established prior to launch-related operations and publicized by Cameron County
- **Closure Hours**
  - Nominal operations – 500 hours per year
  - Anomalies – 300 hours per year
- **Closure information:**
  - Hotline: 956-548-9541
  - Cameron County webpage
  - Text updates: text “BEACH” to 1-877-591-2152 to subscribe to live text updates of closure status

The proposed action is consistent with existing land uses at the Boca Chica Launch Site. As discussed earlier, the proposed action includes 500 hours of annual closures related to nominal operations, and 300 hours of annual closures related to anomalies. Closure areas would be established prior to launch-related operations and publicized by Cameron County. The FAA is not responsible for issuing closures. Resources for additional closure information can be found at the bottom of this slide.
Now that I have provided an overview of the PEA, I will discuss the current PEA schedule and how you can remain involved.

The FAA carried out coordination with state and federal agencies throughout preparation of the Draft PEA. The FAA has also initiated agency consultation with Federal resource agencies, such as the U.S. Fish and Wildlife Service, National Marine Fisheries Service, Texas Historical Commission, and Government to Government consultation with Native American Tribes.

We are currently in step 4 of the PEA schedule. The PEA was published on September 17 with an initial 30 day comment period. The FAA received requests to extend that comment period. The extension was granted. Today is a Draft PEA public hearing and the public comment period on the Draft PEA closes on November 1.

The next step is for the FAA to publish the Final PEA, which will incorporate public comments received on the Draft PEA and will announce a finding on the proposed action—either a Mitigated Finding of No Significant Impact or a Notice of Intent to prepare an Environmental Impact Statement because one or more impacts are significant and cannot be mitigated to levels below significance.
Comments on the Draft PEA

- Submit comments on the Draft PEA:
  - **By Email:** SpaceXBocaChica@icf.com
  - **By Mail:** Stacey Zee, SpaceX PEA, c/o ICF, 9300 Lee Highway, Fairfax, VA 22031
- Comment period closes on **November 1, 2021**
- Draft PEA and public comment form available at: [https://www.faa.gov/space/stakeholder_engagement/spacex_starship/](https://www.faa.gov/space/stakeholder_engagement/spacex_starship/)
- To subscribe to the project mailing list, visit: [https://www.faa.gov/space/stakeholder_engagement/spacex_starship/](https://www.faa.gov/space/stakeholder_engagement/spacex_starship/)

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Comments on the Draft PEA can be submitted either by email or mail to the addresses on the slide. We request that comments be submitted by Monday, November 1 to ensure that they are considered in the development of the Final PEA. The FAA cannot guarantee that comments received after November 1 will be considered in the development of the Final PEA. Before including personal identifying information in your comment, be advised that your entire comment may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The Draft PEA and a blank public comment form are both available on the FAA’s website at the link provided on the slide. The FAA’s website also includes a place to sign up for the project mailing list. Members of the mailing list will receive project updates, including notification of the FAA publishing the Final PEA and the FAA’s finding.

The remaining portion of tonight’s meeting is reserved for providing oral comments. Jennifer will explain the process.
AST
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Go for launch.

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