

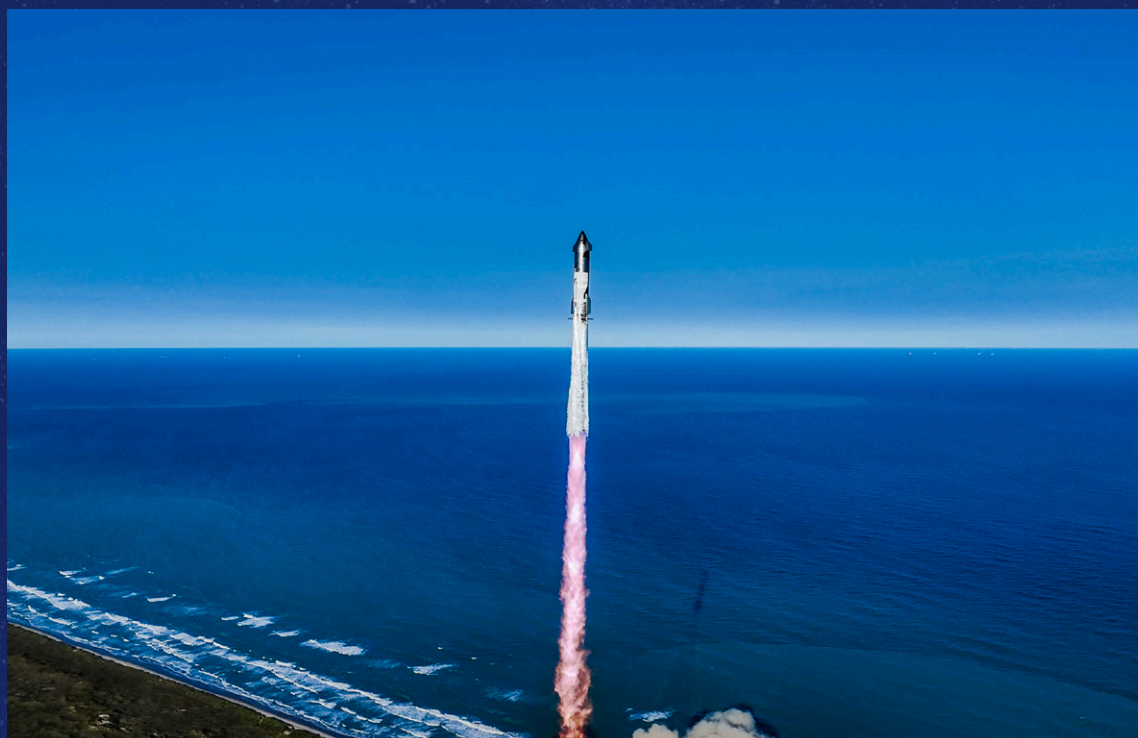
Environmental Impact Statement for SpaceX Starship-Super Heavy Launch Vehicle

**AT LAUNCH COMPLEX 39A AT THE KENNEDY SPACE CENTER,
MERRITT ISLAND, FLORIDA**



Draft Environmental Impact Statement (EIS)

**for SpaceX Starship-Super Heavy Launch Vehicle at Launch Complex 39A
at the Kennedy Space Center, Merritt Island, Florida**



August 2025

Why is the Federal Aviation Administration (FAA) preparing an Environmental Impact Statement (EIS)?

An EIS is one of three possible levels of review an agency may prepare to comply with the National Environmental Policy Act (NEPA). Under NEPA, an EIS is appropriate when a proposed action has reasonably foreseeable significant effects on the quality of the human environment.

Why are we here?

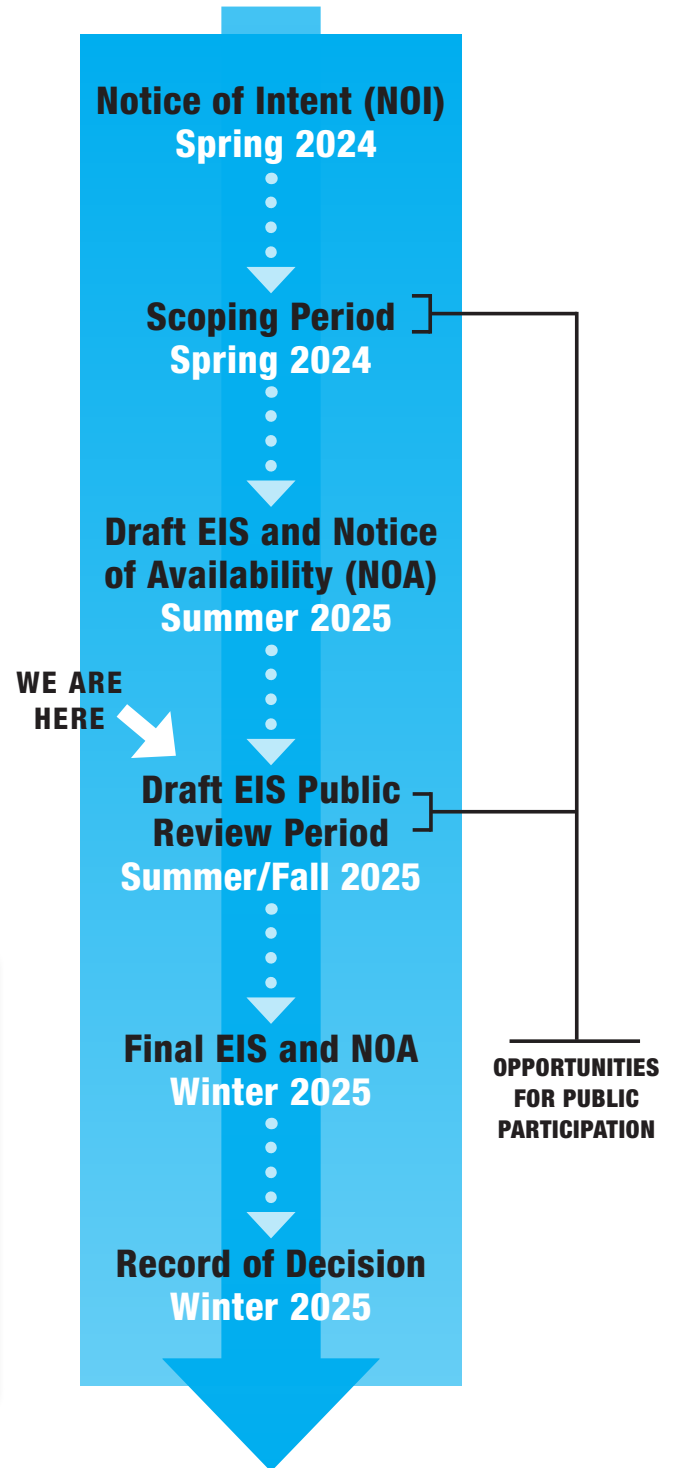
The FAA has issued a Draft EIS evaluating SpaceX's proposed development of infrastructure at Launch Complex 39A (LC-39A) at Kennedy Space Center (KSC) in Merritt Island, Florida to support Starship-Super Heavy operations. It is in the 45-day public comment period associated with the Draft EIS. The purpose of these meetings is to receive public comments on the environmental impacts of the proposed action presented in the Draft EIS.

The FAA will host five public meetings at the following dates and times:

- **Tuesday, August 26, 2025; two meetings:**
1:00 PM - 3:00 PM and 6:00 PM - 8:00 PM Eastern Time, Astronauts Memorial Foundation, Conference Center, State Road 405, Kennedy Space Center, FL 32899
- **Thursday, August 28, 2025; two meetings:**
1:00 PM - 3:00 PM and 6:00 PM - 8:00 PM Eastern Time, Radisson Conference Center, Grande Caribbean, 8701 Astronaut Boulevard, Cape Canaveral, FL 32920
- **Wednesday, September 3, 2025;** 6:00 PM - 8:00 PM Eastern Time (virtual via Zoom webinar)



EIS MILESTONES



What is the background of the project?

LC-39A at KSC was previously sited for Starship-Super Heavy activities through NASA's Final Environmental Assessment (EA) for the SpaceX Starship and Super Heavy Launch Vehicle at KSC which resulted in a Finding of No Significant Impact.

The 2019 NASA EA was not adopted by the FAA because SpaceX did not apply to the FAA for a commercial launch license at that time and the FAA had no federal action to consider.

In accordance with the 2019 NASA EA, SpaceX has undertaken infrastructure improvements at LC-39A. The Starship-Super Heavy concept of operations has been updated and is evaluated in the EIS.

What is the role of the FAA in this Draft Environmental Impact Statement?

The FAA is the lead agency overseeing the development of the Draft EIS and is involved due to its special expertise in launch operations, and jurisdiction by law in licensing commercial launches/reentries and approving associated airspace closures. The FAA's federal action for this project is to:

- Issue a new, or modify an existing Vehicle Operator License
- Approve airspace closures for launch and landing operations to ensure public safety

The FAA's license determination and environmental review process:

- Policy, location, safety, payload, and **environmental review** are completed prior to all licensing determinations
- Should an FAA license be issued, any required environmental mitigations would become a condition of the license
- Successful completion of the environmental review does not guarantee that the FAA will make a license determination



What is the Purpose and Need of the Proposed Action?

The purpose of Starship-Super Heavy at LC-39A is to provide greater mission capability to NASA and other SpaceX customers. SpaceX's activities would continue to fulfill the United States' expectation that increased capabilities and reduced space transportation costs will enhance exploration (including within the Artemis and HLS programs), support U.S. leadership in space, and make space access more affordable.

Starship-Super Heavy at LC-39A is needed to satisfy government and public interests and reduce operational costs.

Who are the Cooperating Agencies (CA)?

The following Federal agencies accepted the FAA's request to participate in the NEPA process as cooperating agencies due to their special expertise concerning the environmental effect of rocket launch operations or jurisdiction by law over the launch facility or maritime environment:

- National Aeronautics and Space Administration (NASA)
- Department of the Air Force (DAF)
- U.S. Coast Guard (USCG)
- U.S. Fish and Wildlife Service Merritt Island National Wildlife Refuge
- National Park Service Canaveral National Seashore



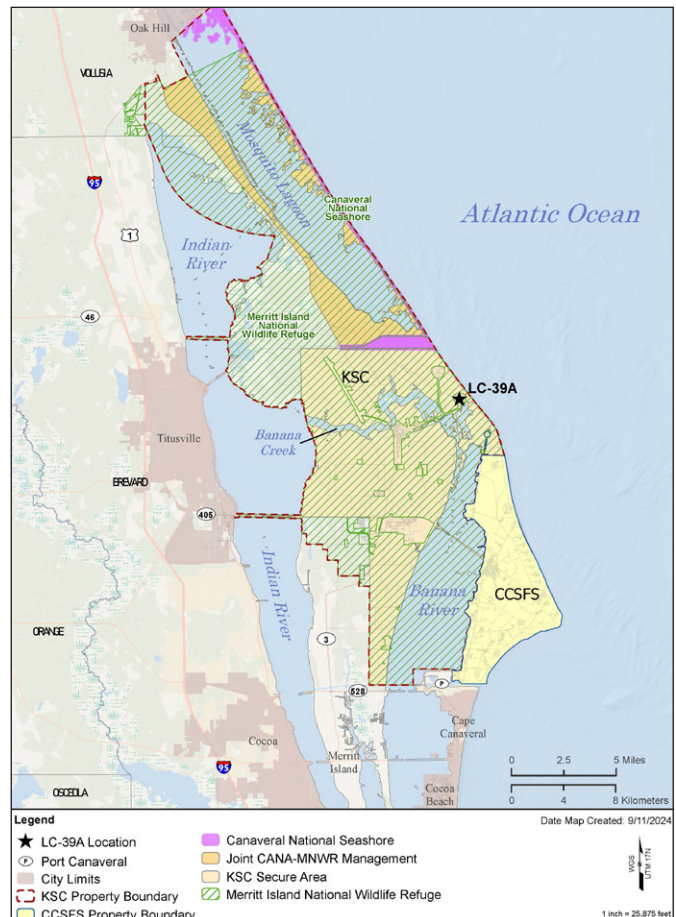
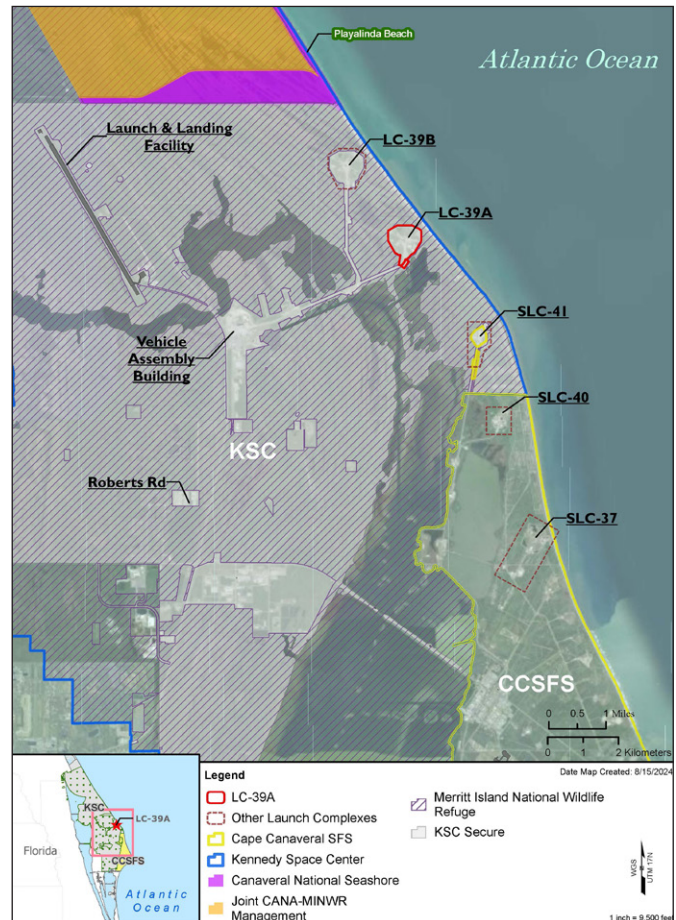
What are the two Alternatives in the Draft EIS?

UNDER THE PROPOSED ACTION:

- SpaceX would conduct up to 44 Starship-Super Heavy launches per year
- SpaceX would conduct up to 44 Super Heavy landings per year, to include landings at LC-39A, landing on a droneship in the Atlantic Ocean, or expending in the Atlantic Ocean
- SpaceX would conduct up to 44 Starship landings per year, to include landings at LC-39A, landing on a droneship in the Atlantic Ocean, or soft-water or hard-water landing with expending or recovery in the Atlantic Ocean, Pacific Ocean, or Indian Ocean
- SpaceX would construct launch, landing, and other associated infrastructure at and in proximity to LC-39A
- The FAA would need to authorize temporary airspace closures to accommodate launch and reentry operations at LC-39A

UNDER THE NO ACTION ALTERNATIVE:

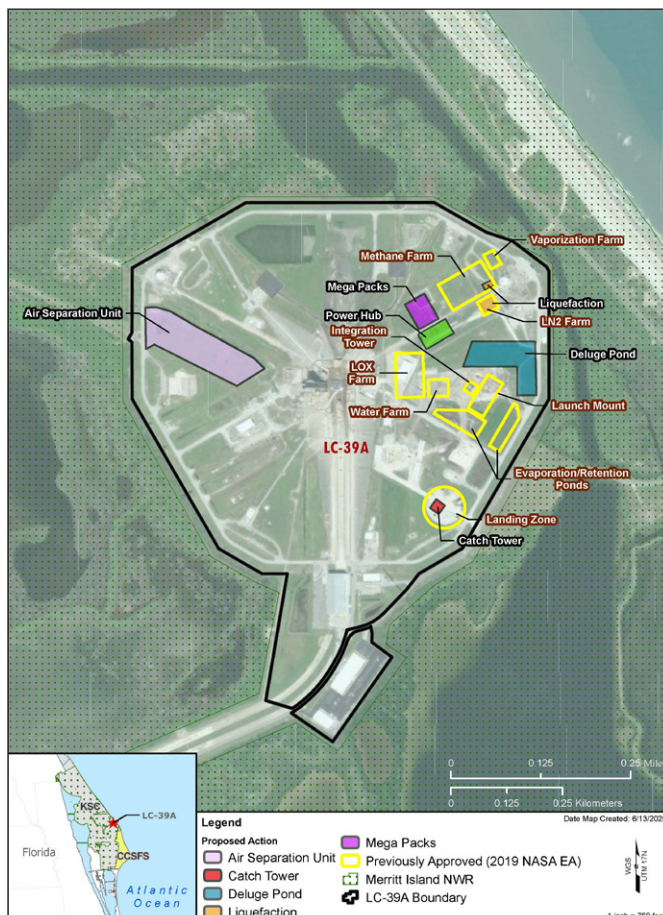
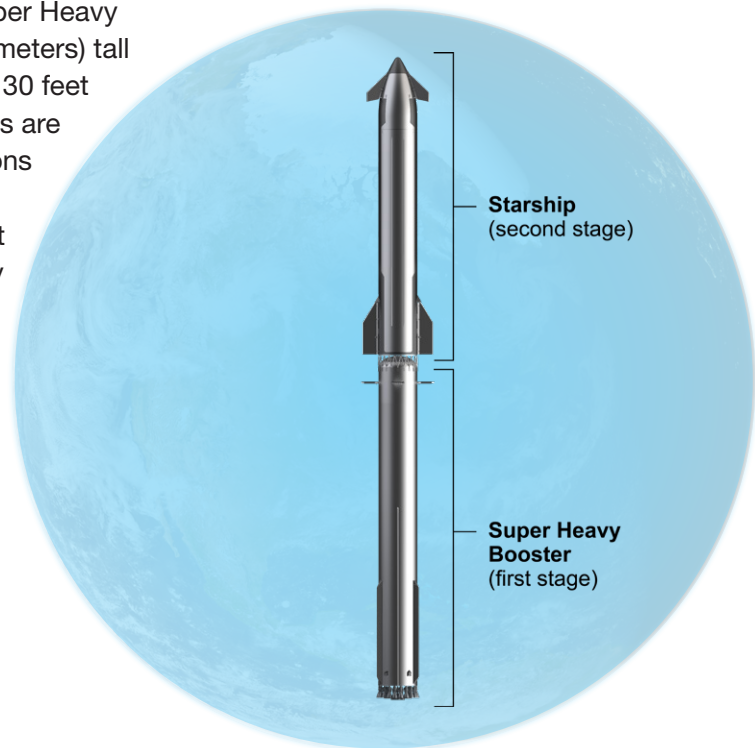
- The FAA would not issue SpaceX a new, or modification of their existing, Vehicle Operator License for Starship-Super Heavy operations at LC-39A and would not approve the closure of any associated airspace
- SpaceX would not implement further improvements or launch Starship-Super Heavy from LC-39A
- NASA would not develop, implement or approve agreements with SpaceX associated with Starship-Super Heavy operations at LC-39A



What is the Launch Vehicle?

Starship-Super Heavy is composed of two stages. Super Heavy is the first stage (or booster), and Starship is the second stage. The fully integrated Starship-Super Heavy launch vehicle is expected to be 492 feet (150 meters) tall depending on configuration and approximately 30 feet (9 meters) in diameter. As designed, both stages are reusable, with any potential refurbishment actions taking place at SpaceX facilities at KSC. Both stages are expected to have minimal post-flight refurbishment requirements; however, they may require periodic maintenance and upgrades.

- Starship: 9 Raptor engines
- Super Heavy: Up to 35 Raptor engines
- Powered by liquid oxygen and liquid methane
- Intended to be fully reusable



What would be constructed at LC-39A?

The figure to the left details a conceptual plan of proposed infrastructure improvements at LC-39A. The figure shows facilities that were previously approved for construction (and currently under development) under the 2019 NASA EA, as well as those associated with this Proposed Action. It is estimated that the remaining construction would last up to 2 years.

- An additional Super Heavy catch tower within the LC-39A fence line to support landing operations
- Onsite facilities for propellant generation and propellant storage
- A methane liquefier to super cool preheated natural gas into a liquid state for storage and transportation to the launch vehicle
- An air separation unit within the LC-39A fence line to generate liquid nitrogen and liquid oxygen to support launch activities
- Additional stormwater/deluge ponds, if needed, to manage water associated with deluge and stormwater within LC-39A

What are the potential environmental impacts?

TRANSPORTATION

Transportation includes land, sea, and air routes with the means of moving passengers and goods.

Maritime

- Vessel traffic is high to and from Port Canaveral. Maritime closures would mostly affect northbound traffic and only the southeast launch hazard area potentially affects southbound traffic. Located near an active spaceport, Port Canaveral is familiar with scheduling for launch regulated navigation areas
- Temporary water restrictions would occur more frequently, and interested parties would be notified via Notice to Mariners (NOTMARs)
- The USCG issues NOTMARs to alert the maritime community of potential hazards in navigable waterways and these notifications ensure mariners can plan around temporary disruptions

Airspace

The FAA approves airspace closures for launch and landing operations to ensure public safety

- Launch and Super Heavy booster returns may necessitate the temporary closure of airways over the Atlantic Ocean and affect the airspace of the Bahamas¹
- Starship reentry may necessitate the temporary closure of airways over portions of the Pacific Ocean, Gulf of America, Caribbean Sea, and Atlantic Ocean and affect the airspace of several Central American countries¹
- The Proposed Action may result in significant aircraft rerouting to avoid the Aircraft Hazard Area (AHAs). Multiple airports may require ground stops due to the overlying AHAs. The average expected flight delay could be:
 - Launches/booster landings – approximately 40 minutes and could last up to two hours
 - Starship reentries – approximately 40 minutes and could be up to one hour
- All launch and reentry operations would comply with necessary notification requirements, including issuance of Notices to Airmen (NOTAMs) and identification of AHAs that assist pilots in scheduling around temporary disruptions of flight activities:

- The FAA would facilitate collaboration between space operators, commercial airlines, general aviation, and defense stakeholders

BIOLOGICAL

Biological resources include native vegetation, wildlife, habitats and considers protected species, invasive species, and non-invasive species.

- NASA is conducting formal consultation with the U.S. Fish and Wildlife Service to determine whether the Proposed Action may affect Endangered Species Act (ESA)-listed species and critical habitat
- The FAA is conducting formal consultation with the National Marine Fisheries Service to determine whether the Proposed Action may affect ESA-listed marine species or designated critical habitat

LAND USE

Land use can be defined as the human use of land resources for various purposes, including economic production, natural resources protection, or institutional uses.

- Land uses at and in the vicinity of KSC would not change
- Effects to recreational land use in the surrounding study area would occur due to increased noise events, public exposure, access restrictions, and closures
- Closures (e.g., beach) would be temporary
- Pre-launch and closure-related procedures would be implemented to establish a safe and secure environment for launches

DEPARTMENT OF TRANSPORTATION SECTION 4(F)

Section 4(f) of the U.S. DOT Act of 1966 protects significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites.

- Construction activities would not involve use of any Section 4(f) property
- Operation would not result in constructive use² of any Section (f) property
- The Proposed Action would not result in substantial impairment of resources protected under Section 4(f)

- The FAA is applying the Joint Use Planning exemption for the Canaveral National Seashore and Merritt Island National Wildlife Refuge
- The FAA sent letters to officials with jurisdiction over the Section 4(f) properties within the study area. The letters included a copy of the Section 4(f) Use Determination Report which identified Section 4(f) properties within the study area and an analysis of the effects of the Proposed Action on the Section 4(f) resources

WATER RESOURCES

Water resources include surface waters, groundwater, wetlands, and floodplains, and their physical, chemical, and biological characteristics.

- Operations would not significantly affect adjacent wetlands due to stormwater controls
- Construction and operation would not result in significant effects to floodplains due to facility design considerations
- Construction and operations would not result in significant effects to surface waters due to permit-related construction stormwater controls such as retention/evaporation ponds. No wastewater would be released into adjacent surface waters
- Construction and operation would not result in significant effects to groundwater

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Includes a range of sites, properties, and resources related to human behavior and culture in the past, which have meaning to people in the present.

- Proposed new construction would not pose viewshed effects to historic properties
- Significant impacts to historical, architectural, and cultural resources would be unlikely due to the infrequency of damage to these kinds of resources when exposed to sonic boom overpressure events and vibratory effects
- NASA is continuing Section 106 consultation with the Florida State Historic Preservation office, federally recognized Indian tribes, and other consulting parties

- NASA intends to execute a Programmatic Agreement to guide future identification, evaluation, monitoring, and mitigation that may be determined necessary

NOISE

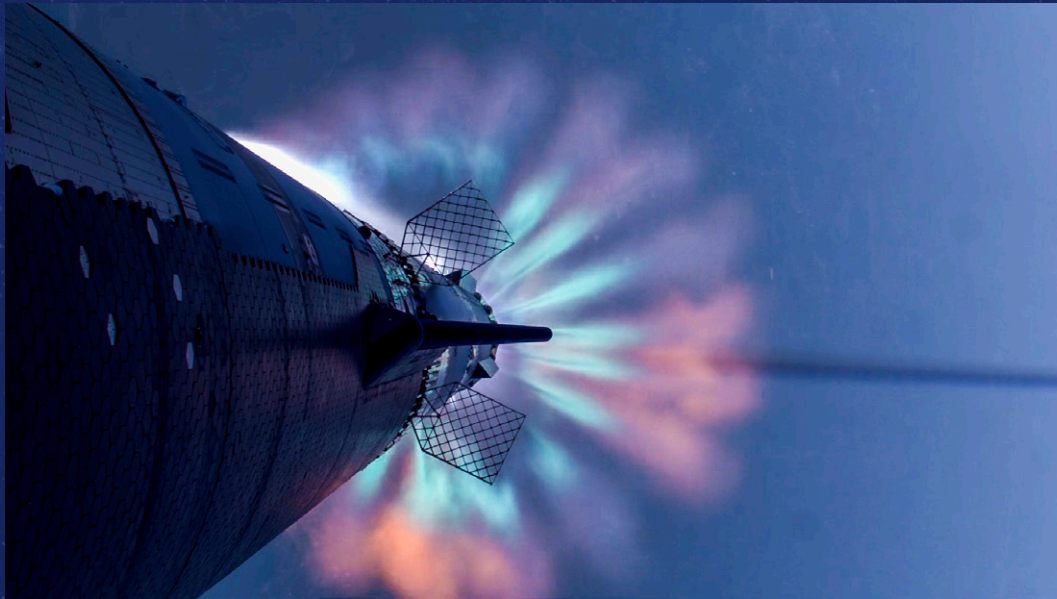
Noise is defined as unwanted sound and a person's response to a noise event depends on several factors.

- Noise associated with Starship-Super Heavy at LC-39A would result from construction, facility operation, static fire tests, launches, and landings
- High percentages of sleep disturbance predicted from sonic booms
- Hearing loss risk is low and managed through existing programs on KSC and CCSFS
- Launches and landings would occur in the daytime and nighttime³
 - 22 daytime launches per year, 22 daytime landings (per vehicle) per year
 - 22 nighttime launches per year, 22 nighttime landings (per vehicle) per year
- Static fire tests would only occur during the daytime
 - 44 Super Heavy Booster static fire tests per year
 - 44 Starship static fire tests per year
 - Each test planned to last for 15 seconds
- Highest noise levels caused by Starship-Super Heavy launches would occur in Titusville, Port Saint John, Merritt Island, Cape Canaveral, and others

¹Specific airspace routes affected would be dependent on the actual trajectory of the launch, return, and reentry.

²Constructive use occurs when the impacts of a project on a Section 4(f) property are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired.

³Daytime refers to the hours of 7:00 a.m. to 10:00 p.m. Nighttime refers to the hours of 10:00 p.m. to 7:00 a.m.



For more information please visit the LC-39A project website at:
https://www.faa.gov/space/stakeholder_engagement/spacex_starship_ksc



Comments can be submitted in the following ways:

By U.S. mail:

Eva Long, FAA Environmental Protection Specialist
c/o Leidos
2877 Guardian Lane
Virginia Beach, VA 23452

Electronically:

Using the project website listed above
or visiting
<https://www.regulations.gov>
and searching "FAA-2024-1395"

Comments on the Draft EIS must be received or postmarked by September 22, 2025

PLEASE NOTE

The EIS for SpaceX's Starship-Super Heavy operations at Cape Canaveral Space Force Station or SLC-37 is a different project. For more information on that project, lead by the DAF, please visit <https://spaceforcestarship.com>

SpaceX has established an email address where property owners may submit damage claims for SpaceX launches and landings at Insurance@SpaceX.com