

October 29, 2021

Ms. Stacey Zee  
SpaceX PEA  
c/o ICF  
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Dear Ms. Zee,

The Nature Conservancy (TNC) appreciates the opportunity to comment on the Draft Programmatic Environmental Assessment (PEA) regarding planned expansion of SpaceX facilities at Boca Chica. While we are impressed with SpaceX's ambitious commitment to space travel, TNC is concerned about the scope of negative impacts caused by both current operations and the planned Starship/Super Heavy Program at SpaceX's Starbase facility and Vertical Launch Area (VLA) at Boca Chica. We question whether a PEA is adequate to address the full scope of impacts (both direct and indirect) to Boca Chica's unique and highly productive natural environments, which have been conserved through substantial public investment and should not be compromised for a private enterprise. We strongly urge that a complete Environmental Impact Study (EIS) be conducted that evaluates all impacts of SpaceX's planned activities on wildlife and on terrestrial, estuarine, and marine habitats.

TNC has participated in conservation at Boca Chica for almost three decades. In 1992, we assisted Texas Parks and Wildlife Department (TPWD) with the purchase of Boca Chica State Park property which adjoins the VLA. In 1999, TNC assisted the U.S. Fish and Wildlife Service (USFWS) with acquiring an additional 11,950 acres at the mouth of the Rio Grande which was added to the Lower Rio Grande Valley National Wildlife Refuge. This land now surrounds the Starbase facility. While its isolated and undeveloped character makes it desirable for SpaceX operations, this area was preserved to protect its fragile ecosystem, which has one of the largest concentrations of rare and endangered species and natural communities anywhere in Texas. In 1999, TNC purchased the 1,370-acre Southmost Preserve a few miles upstream on the Rio Grande, which we own and manage to demonstrate successful restoration techniques of native vegetation to contribute to the rich biodiversity in the Brownsville/Lower Rio Grande Valley area. In 2000, TNC acquired 25,000 acres on South Padre Island which is now part of the Laguna Atascosa National Wildlife Refuge. Finally, in 2018, TNC acquired over 2,000 acres of coastal prairie, loma thornforest, and tidal flats added to the Bahía Grande unit of Laguna Atascosa. We advocate protection of more undeveloped habitat in this unspoiled landscape which is under threat from the area's continued rapid growth.

We are concerned that the impacts of SpaceX's existing operations and planned future expansion may permanently affect and impair conservation values for which these lands were established. We believe that the PEA does not fully evaluate all potential impacts on the diverse resources at risk or present an adequate suite of alternatives that could potentially reduce the impacts of SpaceX operations on the surrounding ecosystem. The PEA presents only two alternatives, a No Action alternative and a single Proposed Action alternative of issuing new permits or licenses to the various elements of SpaceX's proposals. Of those two, TNC prefers the No Action alternative, and we suggest limiting activities at the VLA to only operations addressed in the 2014 EIS. If SpaceX plans to continue to develop the more

extensive Super Heavy/Starship Program at Boca Chica, a full accounting of direct and indirect impacts and a new Environmental Impact Study are warranted which should consider additional alternatives and recommend appropriate mitigation measures.

Boca Chica is one of the most sensitive natural areas in the state of Texas and the southwestern United States – a place where numerous species and habitats important to the public overlap and cooccur. The intersection of the Rio Grande, the region’s largest river, and the Laguna Madre, the world’s largest hypersaline bay system, creates a highly unusual mosaic of habitats including expansive wetlands of mud and algal wind-tidal flats, coastal prairies, Tamaulipan thornforest on clay dunes (lomas), barrier island dune grasslands, and Gulf beaches. The diversity and remoteness of these environments makes Boca Chica an important habitat for federally endangered species including piping plovers, red knots, sea turtles, and occasional ocelots and jaguarundis. The lower Laguna Madre is also vital habitat (significant at continental and hemispheric scales) for wintering waterfowl including large numbers of important game species, as well as migrating shorebirds and wintering raptors. The PEA recognizes this diversity by enumerating numerous species of greatest conservation need potentially inhabiting the project area.

TNC is concerned that the direct and, especially, indirect impacts of planned SpaceX operations on these habitats were not evaluated and cannot be fully mitigated for under the 2014 EIS. The seven-year-old EIS contemplated a very different scale of facility and activities – up to 12 launches annually of proven and tested rockets for which explosions (or “anomalies”) are rare. The Federal Aviation Administration (FAA) recognizes that current operations are a substantial departure from those considered in the 2014 EIS; however, SpaceX was permitted to proceed with these operations after only completing internal programmatic reviews. Additionally, the public was not permitted to comment during the review process. Since 2014, Starbase has become a center of operations for testing rockets far more powerful than those evaluated in the original EIS; explosions have occurred and polluted wind-tidal flats with debris and potentially harmful substances. The greatly expanded scope of operations at Starbase and the VLA warrants a new and complete EIS process through which FAA and SpaceX can engage the state and federal agencies and the public in addressing concerns and mitigating ongoing impacts. In addition, the following specific items should be addressed:

- Impeding public and official access: SpaceX has proposed up to 800 hours of closures (500 for testing and 300 for debris removal) of State Highway 4, the only access road to several thousand acres of public land as well as the popular Boca Chica Beach. This is a significant increase over what was originally approved. These closures have already significantly curtailed access to parks and refuge lands, limiting access for land management and research – including USFWS-permitted research to assess biological changes that may result from SpaceX operations. The extent of interruption and hindrance of the refuge’s ability and responsibility to access and manage their properties in accordance with their mandate constitutes a “constructive use” of Section 4(f) lands – an assertion which has been made repeatedly by the affected agencies and with which we agree.
- Loss of recreational enjoyment: The excessive closures of State Highway 4 have denied public access to a public beach. Boca Chica is frequented by local citizens, particularly Latino families with limited access to other recreational lands. The frequency of beach closures for a private enterprise is inconsistent with provisions of the Texas Open Beaches Act and the Texas

Constitution which protect Texans' right to access state-owned beaches. The analysis of alternatives proposes that local beach users can join the multitudes who visit South Padre Island. The local Boca Chica beach is more accessible to Brownsville-area citizens and much less crowded, and provides a very different, family-friendly experience than South Padre Island beaches.

- Conversion of wetlands: The PEA claims that loss of upland and wetland vegetation and habitats due to direct impacts are “self-mitigating” due to “habitat available in the Lower Rio Grande Valley.” This conclusion does not adequately value the irreplaceability of habitats at Boca Chica. Mitigation for SpaceX’s planned conversion of 31.6 acres of wetland and upland habitats to impervious cover must address not only direct loss of those wetlands but impacts to hydrology and morphology of surrounding habitats.
- Environmental effects of explosions: Explosions resulting from rocket tests have impacted resources on state-owned and federal-owned public lands and waters, both directly and through debris recovery activities. These impacts of SpaceX operations are considerably beyond what is presented in the PEA.
- Threats to federally protected species: SpaceX launches are immediately adjacent to state and federal lands set aside for protection of a number of threatened and endangered species. Some potential negative effects of launches and tests on terrestrial and estuarine habitats include noise pollution, greatly increased vehicle traffic, day and night operations, towering infrastructure, and lighting. Construction of Starbase facilities (e.g., the planned desalination plant) may additionally affect salinity and turbidity of marine habitats used by sea turtles. All these activities may negatively affect animal populations in numerous ways, including causing abandonment of habitat set aside by the public explicitly for their conservation. For example, surveys carried out by Coastal Bend Bays and Estuaries Program researchers indicate a precipitous decline in abundance of piping plovers on tidal flats surrounding SpaceX operations (2018-2021). SpaceX should work with agencies and researchers to ensure that monitoring of all listed species is conducted to accurately assess downward trends and inform mitigation actions. Mitigation for these species must match the scale of the impacts of SpaceX’s operations.
- Noise impacts to wildlife: The noise addendum in the PEA associated with test and launch operations does not analyze sound level impacts. There is no analysis or even conjecture as to how noise levels will affect wildlife. Comparisons to data at Cape Canaveral may not be applicable due to the unprecedented size of Super Heavy rockets. The PEA also fails to address seismic effects on the environment, particularly to benthic communities in tidal flats. Benthic communities are key parts of food webs that sustain thousands of migrating shorebirds that pass through this ecosystem.
- Effect of carbon dioxide emissions: The project is expected to emit 47,522 metric tons of carbon dioxide per year. The PEA does not address this impact. Considering the massive emissions associated with current operations, the drastic increase in emissions expected from a major expansion of testing activities (and rocket size) warrants a thorough analysis vetted by agencies and personnel with sufficient expertise.

- Assessment of other planned infrastructure: A 250 MW power plant, a natural gas plant, and desalination plant are now contemplated in addition to the operational expansion. Each of these projects alone could potentially warrant an EIS. In short, only through a full EIS can all these projects be fully evaluated, and their impacts and mitigation requirements properly assessed. FAA's tiered approach indicates a failure to recognize the magnitude of potential impacts.

Although the PEA states that both state and federal natural resource agencies have been consulted throughout the modifications, agencies with regulatory authority over water and air pollution – the U.S. Environmental Protection Agency (EPA), National Marine Fisheries Service (NMFS), and Texas Commission on Environmental Quality (TCEQ) – should also be included as participants.

The PEA does not indicate whether the FAA will solicit additional public input during programmatic reviews or written reevaluations. The public deserves to have a voice and be kept informed of all aspects of the projects and of FAA's decisions as these impact public lands, protected habitat and public access to public roads and beaches.

The Nature Conservancy has spent over 30 years partnering with USFWS, TPWD, other agencies and conservation groups, and the local community to protect Boca Chica and its mosaic of habitats. This work was funded or leveraged using public dollars and resulted in lands available for public recreation, education, and enjoyment. The impact of SpaceX's operation to these lands and natural resources has been and will continue to be significant. As a company whose mission is to explore and appreciate the vast resources of the universe, SpaceX must understand and recognize that the species and ecosystems adjacent to the Boca Chica facility are some of the rarest on this planet and deserve due consideration, including detailed planning for mitigation and monitoring to ensure the continued survival of these vital species.

If you would like to discuss these comments further, please contact me through email at [Suzanne.Scott@tnc.org](mailto:Suzanne.Scott@tnc.org) or call (210) 508-2162.

Sincerely,



Suzanne B. Scott  
Texas State Director