

WRITTEN RE-EVALUATION OF THE 2014 FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE SPACEX TEXAS LAUNCH SITE

Introduction and Background

Introduction

This written re-evaluation (WR) evaluates whether supplemental environmental analysis is needed to support the Federal Aviation Administration (FAA) Office of Commercial Space Transportation decision to issue launch licenses and/or experimental permits to Space Exploration Technologies Corp. (SpaceX) to conduct experimental test flights of a reusable suborbital launch vehicle from SpaceX's Texas Launch Site. The affected environment and environmental impacts of construction and operation of the Texas Launch Site in Cameron County, Texas were analyzed in the 2014 *Final Environmental Impact Statement for the SpaceX Texas Launch Site* (2014 EIS; FAA 2014a). The FAA's Record of Decision (ROD) was issued for this action on July 9, 2014. This WR describes modifications to the Vertical Launch Area (VLA) and evaluates whether the proposed activities fall within the scope of the 2014 EIS.

Issuance of a launch license or experimental permit is a major federal action subject to the requirements of the National Environmental Policy Act of 1969 (NEPA). As such, the FAA must assess the potential environmental impacts of SpaceX's proposed modifications to the VLA. The FAA's environmental policies and procedures for implementing NEPA (FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*) provide that the FAA may prepare a WR to determine whether the contents of previously prepared environmental documents remain substantially valid or whether significant changes to a previously analyzed proposed action require the preparation of a supplemental EIS. Additionally, FAA Order 1050.1F, Paragraph 9-1.d, provides time limits for final EISs and states:

1. If major steps toward implementation of the proposed action (such as the start of construction, substantial acquisition, or relocation activities) have not commenced within three years of approval of the final EIS, a WR must be prepared (unless a decision has been made to prepare a new or supplemental EIS); or
2. If the proposed action is to be implemented by the FAA in stages or an action implemented by an applicant requires successive FAA approvals, a WR of the continued adequacy, accuracy, and validity of the EIS must be made at each major stage or approval point that occurs more than three years after approval of the final EIS.

In accordance with Paragraph 9-2.c of FAA Order 1050.1F, the preparation of a new or supplemental EIS is not necessary when the following can be documented:

1. The proposed action conforms to plans or projects for which a prior EA and FONSI have been issued or a prior EIS has been filed and there are no substantial changes in the action that are relevant to environmental concerns;

2. Data and analyses contained in the previous EA and FONSI or EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and
3. Pertinent conditions and requirements of the prior approval have been, or will be, met in the current action.

This WR provides documentation for the above three factors as well as the FAA's conclusion that the contents of the 2014 EIS remain current and substantially valid and the decision to issue a launch license or experimental permit to conduct tests of the proposed reusable suborbital launch vehicle from the Texas Launch Site does not require the preparation of a new EA or EIS. During preparation of this WR, the FAA distributed a draft copy of the WR to the consulting parties to the National Historic Preservation Act Section 106 process for the project—Texas State Historic Preservation Officer (SHPO), National Park Service, Advisory Council on Historic Preservation, U.S. Fish and Wildlife Service (USFWS), and Texas Parks and Wildlife Department (TPWD). The FAA received comments from the SHPO, USFWS, and TPWD. These comments and the FAA's responses are attached (Attachment 1).

Background

The NEPA process for SpaceX's original proposal was initiated with the publication of the Notice of Intent in the *Federal Register* on April 10, 2012 (77 FR 21619-21620). The FAA published a Notice of Availability (NOA) of the Draft EIS in the *Federal Register* on April 19, 2013 (78 FR 23629-23630). The NOA described the Proposed Action, provided the public hearing date and time, informed the public on how to obtain a copy of the Draft EIS, and initiated the public comment period. The FAA also announced the availability of the Draft EIS and the public hearing date in area newspapers. Flyers were posted in the local area to announce the NOA and comment period for the Draft EIS. Copies of the Draft EIS were distributed the week of April 8, 2013. The FAA sent notification letters, e-mails, and compact discs containing the Draft EIS to individuals; federal, state, and local agencies; elected officials; various interest groups that were part of the mailing list compiled during the scoping period; and Native American tribes.

At the request of Environmental Protection Agency (EPA) Region 6, the public comment period was extended 21 days until June 24, 2013 (78 FR 35067). The FAA held a formal public hearing in Brownsville, Texas on May 7, 2013. The EPA issued an NOA for the Final EIS on June 6, 2014 (79 FR 32729). The FAA signed its ROD on July 9, 2014.

Following the ROD, the FAA has prepared three WRs (FAA 2014b, 2017, and 2019) to address project changes proposed by SpaceX (see Table 1). Since the publication of the 2014 EIS and ROD, and the three WRs, SpaceX has continued to develop the Texas Launch Site.

Table 1. Summary of Environmental Documentation for the SpaceX Texas Launch Site

Document	Date of Publication	Proposed Action
EIS for the SpaceX Texas Launch Site	2014	Issue launch licenses and/or experimental permits to SpaceX for Falcon 9, Falcon Heavy, and reusable suborbital launch vehicle launches from a private launch site
WR of the 2014 EIS	2014	Site design modifications of the Control Center Area
WR of the 2014 EIS	2017	Site design modifications of the Control Center Area and VLA
WR of the 2014 EIS	2019	Site design modifications of the Control Center Area and VLA and Starhopper experimental flight tests
1 st Addendum to the 2019 WR	2019	Addressed the 2019 brush fire, methane, and nighttime operations
2 nd Addendum to the 2019 WR	2019	Addressed a test vehicle hop up to 30 kilometers

Proposed Action

The FAA’s Proposed Action, which was the subject of the ROD and is described in full in Section 2.1 of the 2014 EIS, is to issue launch licenses or experimental permits to SpaceX to conduct launches of a reusable suborbital launch vehicle from the Texas Launch Site. The Proposed Action remains the same as described in the 2014 EIS and subsequent WRs with exception of proposed modifications to the VLA, as described below. There would be no changes to launch operations as described in the 2014 EIS and subsequent WRs.

Since publication of the 2014 EIS, SpaceX has constructed various facilities at the VLA. Figure 1 shows the VLA layout as analyzed in the 2019 WR. SpaceX is proposing to further develop the VLA with additional infrastructure. SpaceX is currently proposing to add an additional launch mount, increase the landing pad size, and install an air separation unit. All proposed construction is located within the construction boundary analyzed in the 2014 EIS. The new launch mount would be in the same area as the proposed Falcon Heavy launch mount analyzed in the 2014 EIS. The new layout is shown in Figure 2.

Figure 1. VLA Rendering as Proposed in May 2019

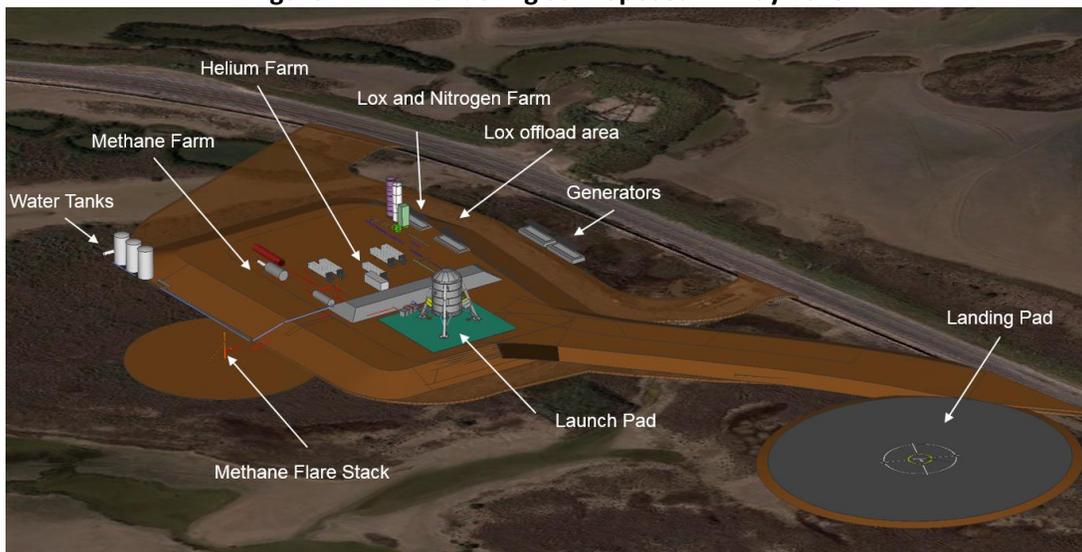
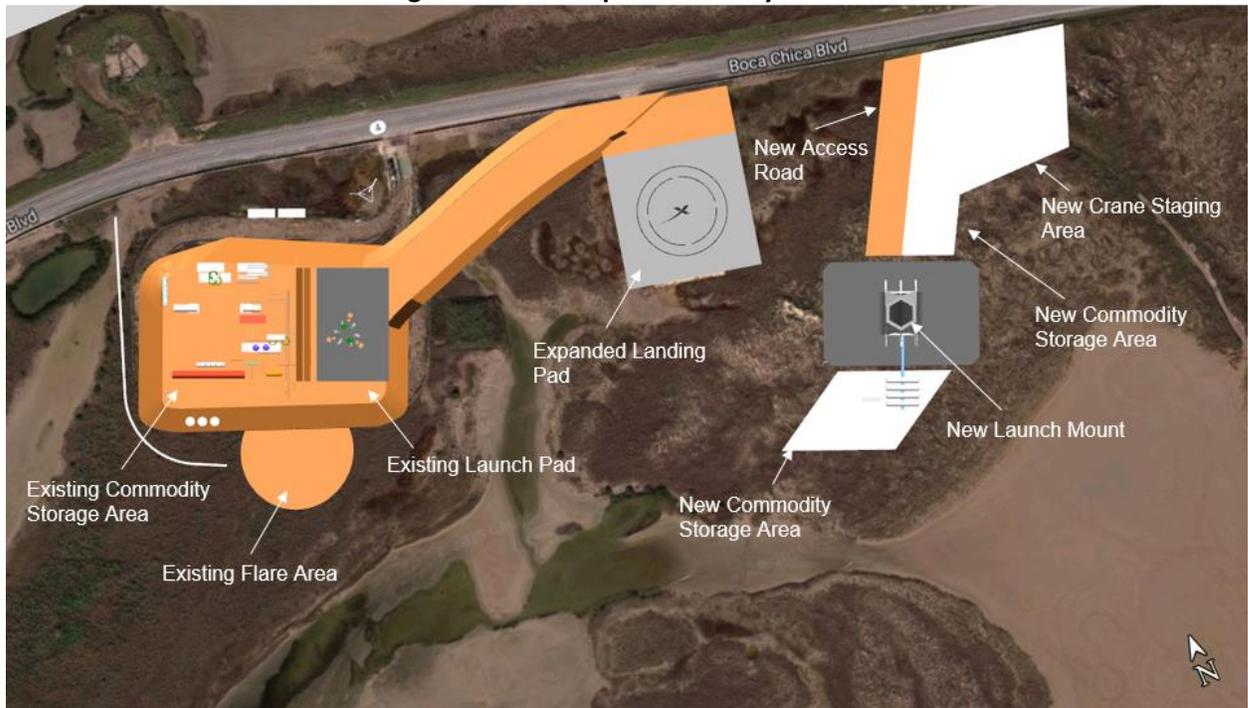


Figure 2. New Proposed VLA Layout



SpaceX would install approximately 150 piles (two-feet in diameter) using Auger Cast-in-Place (ACIP) piles to support the new launch mount. ACIP piles are installed using an auger drill rig to drill into the ground, and as the drill is lifted out, the tip of the drill fills the hole with concrete. This method is much quieter and less invasive when compared to driven piles, which was the method of installation proposed in the 2014 EIS. Driven piles are installed similar to violently hammering a nail into a piece of wood. ACIP piles are similar to screwing in a wood screw.

The new launch mount would be approximately 80 feet tall and made of steel. A crane would be used to construct the launch mount and would be staged in the area shown in Figure 2. The crane would use a new access road to the launch mount.

SpaceX is also proposing to expand and reshape the current landing pad. The landing pad would expand to the north and to the east for a total landing area of 225 feet long by 225 feet wide.

SpaceX would install additional commodity tanks adjacent to the new launch mount (see Table 2). Each commodity farm would include concrete pads to support ground equipment such as piping and pumps. There would be approximately four liquid oxygen tanks, two liquid nitrogen tanks, and three liquid methane tanks. These tanks would be vertical and no higher than 70 feet tall. All of the other tanks would be horizontal and below 30 feet. SpaceX is still designing the exact layout and number of tanks, but the total quantity of each commodity would not exceed the quantities shown in Table 2. Per the Section 106 MOA in place, SpaceX would paint all infrastructure taller than 30 feet a color agreed-upon by the consulting parties.

Table 2. Proposed Commodities at the VLA

Commodity	Total Quantity	Tank Orientation	Tank Height (ft)
Liquid Nitrogen	700,000 gallons	Vertical	<70
Gaseous Nitrogen	3,600 ft ³	Horizontal	12
Liquid Oxygen	1,300,000 gallons	Vertical	<70
Gaseous Oxygen	1,200 ft ³	Horizontal	12
Liquid Methane	1,000,000 gallons	Vertical	<70
Gaseous Methane	1,200 ft ³	Horizontal	12
Helium	1,100 ft ³	Horizontal	12
Hydraulic Fluid	5,000 gallons	Horizontal	12

Notes:
ft = feet; ft³ = cubic feet

SpaceX plans to install an air separation unit within the existing launch pad area (Figure 2) to generate the liquid nitrogen and liquid oxygen required for launch operations. The air separation unit dehumidifies, liquefies, and separates air into its major components (oxygen and nitrogen). Most of the nitrogen is then used in a separate heat exchanger to liquefy natural gas. The rest of the nitrogen is stored for densification. Prior to being liquefied, the natural gas is put through a nitrogen rejection unit and a de-methanizer to purify it to the required methane levels. Once in the distillation tower, the liquid air is separated into oxygen, nitrogen, and argon by densities and pressures. The liquid is then pumped into the main storage tanks at the pad and used for launch operations. No wastewater would be generated and no gases would be vented during this process. The infrastructure for the air separation unit would be less than 10 feet tall with the exception of two 130-foot tall towers. Per the Section 106 MOA in place, SpaceX would paint the towers a color agreed-upon by the consulting parties.

Affected Environment

The existing conditions for the environmental impact categories analyzed in the 2014 EIS are unchanged except with regard to the existing construction and installation of facilities in the VLA (see Figure 1 above). Such changes include alterations to the existing natural and physical conditions at the VLA. The study area for the Proposed Action has not changed.

Re-evaluation of Environmental Consequences

Because SpaceX's proposed modifications to the VLA would not affect launch-related operations as discussed in the 2014 EIS, this WR focuses on re-evaluating construction-related impacts.

Air Quality

Air quality impacts under the Proposed Action would be less than those impacts described for VLA construction. The 2014 EIS concluded that the estimated emissions from construction and operation of the launch site represent an extremely small percentage of the Cameron County regional emissions and would not cause any National Ambient Air Quality Standards (NAAQS) to be exceeded. Emissions associated with construction of additional infrastructure at the VLA would be

temporary and less than the total emissions considered in the 2014 EIS. Emissions associated with the Proposed Action are therefore within the scope of impacts analyzed in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact on air quality.

Biological Resources (including Fish, Wildlife, and Plants)

Biological resource impacts under the Proposed Action would be similar to those impacts described in the 2014 EIS for VLA construction. In accordance with Section 7 of the Endangered Species Act (ESA), the FAA prepared a Biological Assessment (BA) and entered into formal consultation with U.S. Fish and Wildlife Service (USFWS) to address potential effects to ESA-listed species and critical habitat. Based on the analysis presented in the BA, the FAA determined the Proposed Action “may affect and is likely to adversely affect” the following species: piping plover and its critical habitat, red knot, northern aplomado falcon, Gulf Coast jaguarundi, ocelot, and Kemp’s ridley, hawksbill, leatherback, loggerhead, and green sea turtles. The FAA determined the Proposed Action “may affect, but is not likely to adversely affect” the West Indian manatee. Consultation with USFWS was completed with issuance of a Biological Opinion (BO) on December 18, 2013. The BO concurred with the findings in the BA and concluded no jeopardy to any species and no adverse modification to critical habitat. The BO specified non-discretionary terms and conditions that are necessary to avoid or minimize effects to listed species and critical habitat. The FAA and SpaceX are committed to implementing the conservation measures and terms and conditions outlined in the BO to minimize potential effects to ESA-listed species and critical habitat. The Proposed Action would not introduce any additional construction-related effects that are outside the scope of impacts analyzed in the 2014 EIS and the USFWS BO. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid and the Proposed Action would not result in a significant impact on biological resources.

Climate

Climate-related impacts under the Proposed Action would be similar to those impacts described in the 2014 EIS for VLA construction. Climate impacts were addressed in Appendix L of the 2014 EIS. The 2014 EIS concluded that greenhouse gas (GHG) emissions from all construction would be less than 800 metric tons of carbon dioxide equivalent per year for the estimated two-year construction period. GHG emissions under the Proposed Action would be minimal, and the source of emissions would be temporary, occurring only during the period of construction. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in significant climate-related impacts.

Coastal Resources

Coastal resource impacts under the Proposed Action would be similar to those impacts described in the 2014 EIS for construction. Although not required by the Coastal Zone Management Act,¹ during preparation of the 2014 EIS, a Federal Consistency Determination was submitted to the Texas General Land Office (TGLO). The TGLO raised no objections to the Federal Consistency Determination. Based on this consultation, the FAA determined construction and operation of the launch site was consistent with the enforceable policies of the Texas Coastal Management Program. The Federal Consistency Determination remains unchanged. Therefore, the Proposed Action is still consistent with the Texas Coastal Management Program. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact on coastal resources.

Department of Transportation Act Section 4(f)

Impacts on Section 4(f) properties under the Proposed Action would be similar to those impacts described in the 2014 EIS for construction. The 2014 EIS determined VLA construction would not result in a physical or constructive use of any Section 4(f) property. The Proposed Action would not result in any potential construction-related impacts on Section 4(f) properties which would be considered outside the scope of impacts analyzed in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact on Section 4(f) properties.

Farmlands

There are no farmlands located within or near the Texas Launch Site. Farmlands were dismissed from analysis in the 2014 EIS. Thus, the Proposed Action would not impact farmlands.

Hazardous Materials, Solid Waste, and Pollution Prevention

Impacts related to hazardous materials, solid waste, and pollution prevention under the Proposed Action would be similar to those impacts described in the 2014 EIS for construction. Construction activities would use products containing hazardous materials, including paints, solvents, oils, lubricants, acids, batteries, surface coating, and cleaning compounds. Implementation of appropriate handling and management procedures for hazardous materials, hazardous wastes, and solid wastes would avoid or minimize the potential for impacts. Any potential accidental releases of hazardous materials would be managed according to SpaceX's Hazardous Materials Emergency Response Plan. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact related to hazardous materials, solid waste, and pollution prevention.

¹ Because the applicant (SpaceX) is seeking a license from the FAA, and the action is not a direct federal activity (15 CFR part 930), the FAA is not required to submit a consistency determination. Rather, the applicant (SpaceX) is required to submit a consistency certification.

Historical, Architectural, Archeological, and Cultural Resources

Historical, architectural, archeological, and cultural resource impacts under the Proposed Action would be similar to those impacts described in the 2014 EIS for construction. The 2014 EIS determined construction and operation of the launch site would directly impact the historic integrity of the Palmito Ranch Battlefield National Historic Landmark (NHL) through visual impacts, including construction of towers and lighting. The FAA and other consulting parties executed a Programmatic Agreement (PA) and MOA to mitigate adverse effects on historic properties. In accordance with the MOA, any infrastructure over 30 feet tall would be painted a color that is agreed-upon by the consulting parties to avoid or minimize visual impacts on the NHL.

None of SpaceX's newly proposed tanks (see Table 2) are as tall as the tallest structures analyzed in the 2014 EIS. The 2014 EIS included a 250-foot water tower and four 230-foot lightning towers. SpaceX is no longer proposing to construct the water tower and lightning towers. SpaceX would adhere to the mitigation requirements in the MOA and paint any infrastructure over 30 feet tall a color that is agreed-upon by the consulting parties. No additional impacts to the historic integrity of the Palmito Ranch Battlefield NHL or any other historic property would occur from the proposed construction.

In accordance with Stipulation VIII of the PA, the FAA sent this WR to the consulting parties for the purposes of identifying the proposed changes to the undertaking and seeking concurrence that the proposed changes do not require amending the PA (see Attachment 2 for the correspondence). The FAA did not receive any objections from the consulting parties. The SHPO concurred with the information provided (see Attachment 1).

The Proposed Action is not expected to impact archeological resources. Any unanticipated discoveries during construction would be subject to the management guidelines established in the Unanticipated Discoveries Plan. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact on historical, architectural, archeological, and cultural resources.

Land Use

Land use impacts under the Proposed Action would be similar to those impacts described in the 2014 EIS for construction. The proposed activity in the VLA is within the launch site boundary analyzed in the 2014 EIS. The Proposed Action would not violate local land use ordinances. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact on land use.

Natural Resources and Energy Supply

Impacts related to natural resources and energy supply under the Proposed Action would be similar to those impacts described in the 2014 EIS for construction. Energy required for construction activities would predominantly be associated with operating construction equipment and generators, which would require the supply of gasoline and diesel fuels. Although construction may

have a minimal requirement for single-phase electrical power, no significant impact to energy supply is anticipated. It is possible the solar array could provide for all of the power demands of the launch site, making the launch site self-sustaining, using a fully renewable energy source. If utility upgrades were not needed, the use of solar technology would have a beneficial effect on energy supply. The region surrounding Brownsville has sufficient supply of aggregate to meet the requirements for the proposed construction. No significant impacts to municipal water supply in Brownsville, or groundwater supply in Cameron County, were identified in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact related to natural resources and energy supply.

Noise and Noise-Compatible Land Use

Noise and noise-compatible land use impacts from the Proposed Action would be less than those impacts described for VLA construction. The 2014 EIS concluded significant impacts to land use compatibility would occur as a result of increased personnel working on-site, traffic, and noise generated from operational activities and from increased noise during launches, particularly to Boca Chica Village (a residential area) and the surrounding public lands. The Proposed Action would not generate noise or result in compatible land use impacts beyond the noise levels and impacts discussed in the 2014 EIS. The total number of employees associated with the newly proposed VLA construction on a normal day would be approximately 40–50 people. This would not substantially add to the overall traffic along State Highway 4 (SH 4) and would not affect daily average sound levels experienced at the NHL. The launch area is adjacent to SH 4, which provides the only access to Boca Chica Beach and is thus subject to traffic noise. Beach visitors frequent this area where vehicles can drive onto the beach. SpaceX proposed installing 70 piles using a pile driver in the 2014 EIS to support infrastructure in the VLA. SpaceX is proposing to install 150 piles using ACIP, as discussed above. Though the number of piles is above what was analyzed in the 2014 EIS, the ACIP produces much less noise than a pile driver and thus the noise impacts would be less. Accordingly, the data and analyses contained in the 2014 EA remain substantially valid.

Socioeconomics, Environmental Justice, and Children’s Environmental Health and Safety Risks

Impacts related to socioeconomics, environmental justice, and children’s environmental health and safety risks under the Proposed Action would be comparable to those impacts described in the 2014 EIS for VLA construction. The 2014 EIS concluded construction might have a beneficial impact on the local economy through direct spending, and that the related economic activity might lead to indirect job creation in areas such as the accommodation and food services and retail trade sectors. Construction activities would not result in significant impacts to the housing market.

The Proposed Action would not strain the capacity or affect the quality of emergency response, medical, or public education services. Changes to the viewshed from SH 4 would be similar and affect all viewers equally and would therefore not result in disproportionate impacts to environmental justice populations (including minorities and low-income populations). The Proposed Action would not disproportionately adversely affect children’s environmental health and safety.

While effects on property values cannot be quantified, potential effects to quality of life for Boca Chica Village residents would still occur based on changes to the noise environment, visual viewshed, nighttime light emissions, traffic, and numbers of people in the vicinity. The Proposed Action would not result in additional construction impacts related to this impact category which are outside the scope of impacts analyzed in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the Proposed Action would not result in a significant impact related to socioeconomics, environmental justice, and children's environmental health and safety risks.

Visual Effects (including Light Emissions)

Visual effects under the Proposed Action would be similar to those impacts described in the 2014 EIS for VLA construction. The 2014 EIS determined construction activities would impact the visual environment of Boca Chica Village residents and travelers on SH 4, but the impacts would be intermittent, temporary, and minimized through SpaceX's lighting management plan.

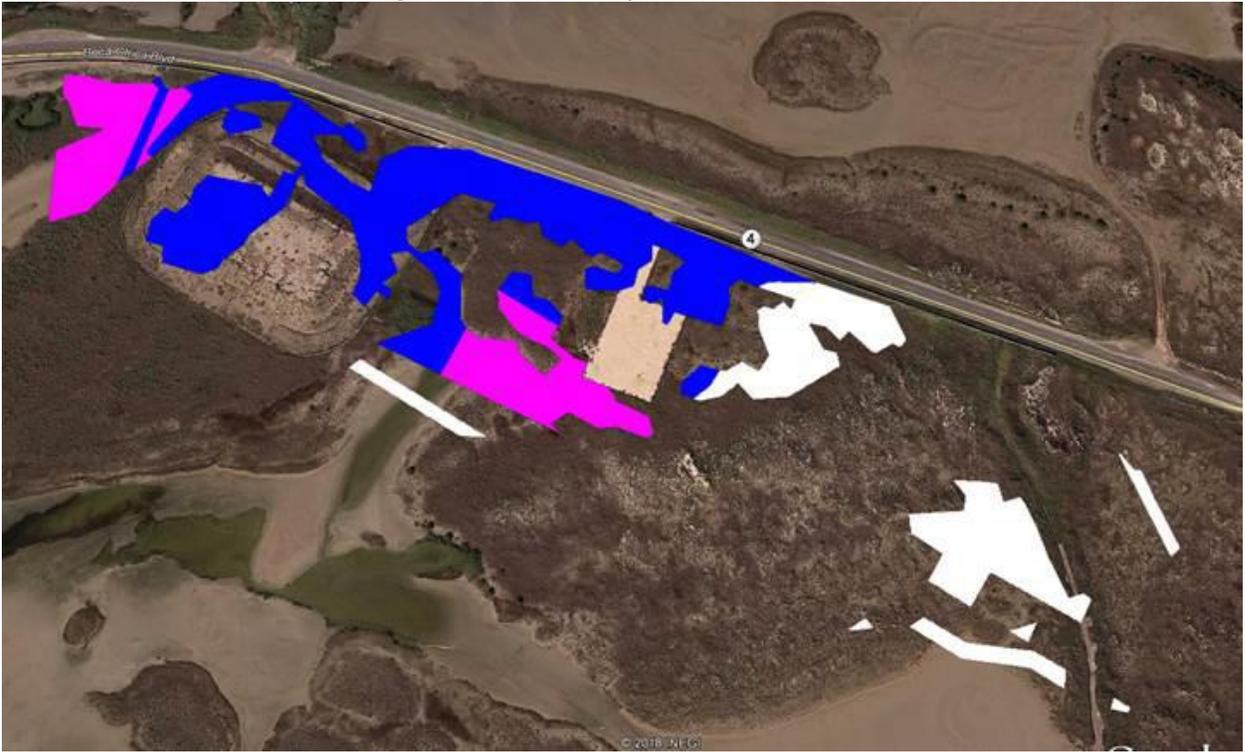
In addition, the 2014 EIS concluded that operation of the VLA would likely have a significant impact on visual resources along SH 4 and the Palmito Ranch Battlefield NHL, and that nighttime launch operations would result in considerably higher levels of light emissions than those currently present at Boca Chica Village. The Proposed Action would not result in any potential construction-related visual impacts that are outside the scope of impacts analyzed in the 2014 EIS. Construction would occur on previously analyzed parcels or on land directly adjacent to the analyzed parcels. Based on the MOA's color stipulation, the FAA does not believe the addition of the proposed tanks would substantially change the landscape as viewed from the NHL in a way that was not previously considered in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid.

Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

Impacts on water resources under the Proposed Action would be similar to those impacts described in the 2014 EIS for VLA construction. There would be no impacts to wild and scenic rivers. The 2014 EIS concluded construction of the VLA would result in approximately 6.19 acres of wetland impacts, including direct impact to approximately 3.34 acres of wetlands and the indirect impact to approximately 2.85 acres of wetlands. The U.S. Army Corps of Engineers (Corps) issued SpaceX a permit (SWG-2012-00381) on September 9, 2014, which authorized the placement of fill material in 3.3 acres of waters of the U.S. SpaceX requested modifications to the permit to add an additional 2.13 acres of wetland fill. As analyzed in the 2017 WR, the installation of the security fence and road in the VLA would impact approximately 0.08 acres of wetlands bringing the total direct impacts to 5.5 acres.

In the 2019 WR, SpaceX proposed changes to the wetlands impact area (Figure 3). As analyzed in the 2019 WR, small areas of the delineated wetlands that were previously identified as being impacted would now be avoided, and areas that were previously identified as being avoided would now be impacted. At the time, SpaceX proposed impacts to a total of 5.31 acres of wetlands.

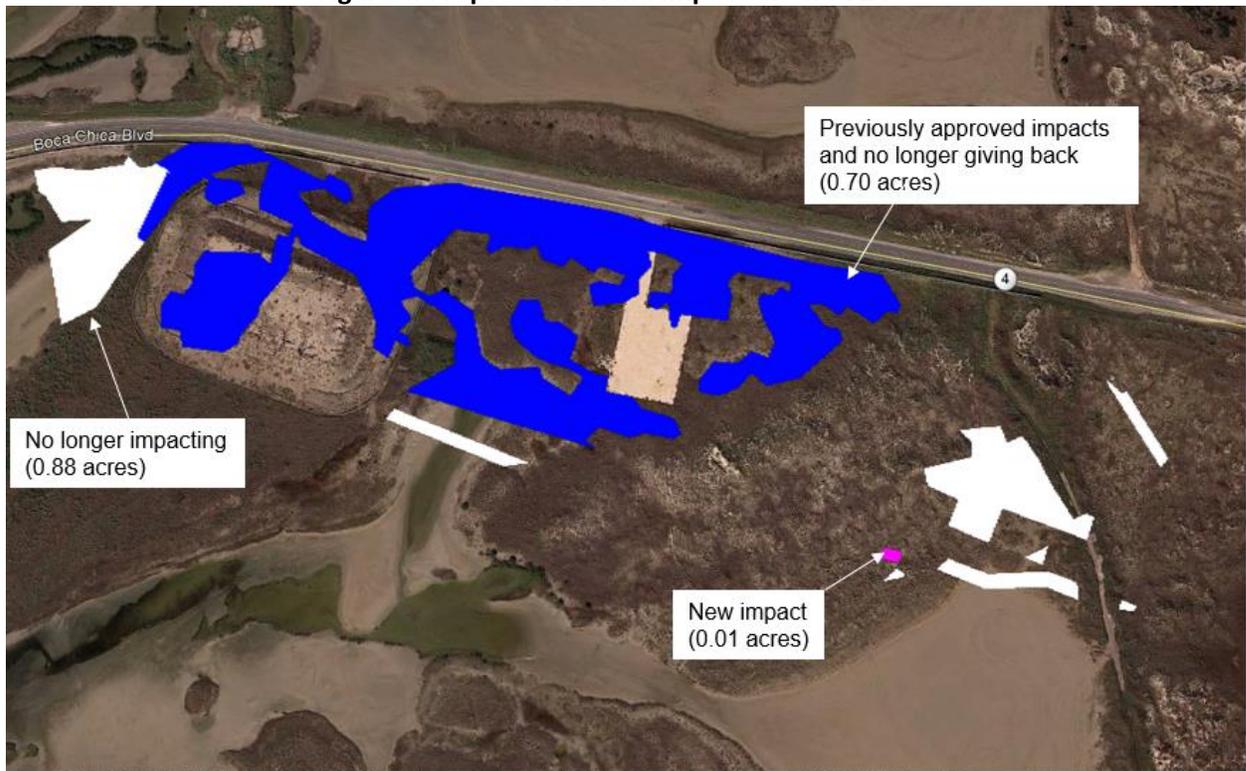
Figure 3. Wetland Impacts (2019 WR)



Note: pink = new impact; white = no longer an impact; blue = previously approved impacts

The newly proposed VLA construction would not increase the amount of wetlands impacted. However, based on SpaceX's proposed layout of the VLA's infrastructure, the wetlands impact area would change (see Figure 4). Figure 4 shows new impact areas in pink, areas no longer being impacted in white, and previously approved impacts are shown in blue. The amount of wetlands that would be filled would be less than the 5.5 acres that the Corps has permitted (Table 3).

Figure 4. Proposed Wetland Impacts at the VLA



Note: pink = new impact; white = no longer an impact; blue = previously approved impacts

Table 3. Wetland Impact Summary

Total Acreage Permitted by the Corps	5.5 acres
Total Previously Calculated Impact	5.31 acres
Total Proposed Impact Avoidance	0.88 acres
Total Proposed New Impact	0.71 acres
Revised Anticipated Total Impact	5.14 acres

SpaceX is coordinating with the Corps for a permit modification based on the changes to the expected acreage that would be filled. SpaceX would implement the wetland mitigation plan approved by the Corps.

The launch site is located within the 100-year floodplain. The 2014 EIS determined approximately 4.22 acres of floodplain Zone V10 and 4.37 acres of Zone A8 would be filled in the VLA. The EIS concluded that based on the expected notable adverse impacts on some of the natural and beneficial floodplain values, the Proposed Action would result in a significant floodplain encroachment per Department of Transportation Order 5650.2. In the 2014 EIS, the FAA determined there were no practicable alternatives that would totally avoid impacts to wetlands and floodplains. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid.

Cumulative Impacts

The 2014 EIS analyzed the environmental impacts of construction and operation of the Texas Launch Site along with the potential environmental impacts of past, present, and reasonably foreseeable

future actions. The Proposed Action would not result in cumulative impacts that would be substantially different from those cumulative impacts analyzed in the 2014 EIS. Impacts associated with the Proposed Action would not be expected to increase beyond those considered in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid.

Conclusion

The 2014 EIS examined the potential environmental impacts and defined the regulatory setting associated with the FAA issuing launch licenses and/or experimental permits to SpaceX that would allow SpaceX to conduct launches of the Falcon 9 and Falcon Heavy orbital vertical launch vehicles and a variety of reusable suborbital launch vehicles from a private launch site on privately owned property in Cameron County, Texas. The 2014 EIS included constructing a Control Center Area and VLA. The areas evaluated for environmental impacts included air quality; biological resources (including fish, wildlife, and plants); climate; coastal resources; Department of Transportation Section 4(f); farmlands; hazardous materials, pollution prevention, and solid waste; historical, architectural, archaeological, and cultural resources; land use; natural resources and energy supply; noise and noise-compatible land use; socioeconomic, environmental justice, and children's environmental health and safety risks; visual effects (including light emissions); water resources (including surface waters, groundwater, wetlands, floodplains, and wild and scenic rivers); and cumulative impacts.

Based on the above review and in conformity with FAA Order 1050.1F, Paragraph 9-2.c, the FAA has concluded that SpaceX's proposed modifications to the VLA conform to the prior environmental documentation, that the data contained in the 2014 EIS remain substantially valid, that there are no significant environmental changes, and that all pertinent conditions and requirements of the prior approval have been met or will be met in the current action. Therefore, the preparation of a supplemental or new environmental document is not necessary to support the FAA's action.

Responsible FAA Official: **DANIEL P MURRAY** Digitally signed
by DANIEL P
MURRAY
Date: 2020.05.22
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Location and Date Issued: _____

References

FAA (Federal Aviation Administration). 2014a. Final Environmental Impact Statement for the SpaceX Texas Launch Site. May.

FAA. 2014b. Written Re-evaluation of the 2014 Final Environmental Impact Statement for the SpaceX Texas Launch Site for Proposed Design Modifications to the Control Center Area

FAA. 2017. Written Re-evaluation of the 2014 Final Environmental Impact Statement for the SpaceX Texas Launch Site for Proposed Site Design Modifications of the Control Center Area and Vertical Launch Area.

FAA. 2019. Written Re-evaluation of the 2014 Final Environmental Impact Statement for the SpaceX Texas Launch Site for Proposed Site Design Modifications of the Control Center Area and Vertical Launch Area and Starhopper Experimental Flight Tests.

Attachment 1. Agency Comments on the Draft WR

November 2019 FAA Draft Written Re-evaluation of the 2014 Final EIS for the SpaceX Texas Launch Site for SpaceX's Proposed Infrastructure Modifications in the Control Center Area and Vertical Launch Area

Resource Agency Comments and FAA Responses

TPWD Comments

TPWD #1 – Construction Impacts

Construction impacts in the 2014 Final EIS are described as temporary, which was defined as occurring within a 24-month period from start to finish (page 2-16 in 2014 Final EIS). However, additional construction, not addressed in the 2014 Final EIS, has been proposed in each of the Written Reevaluations submitted for review by TPWD. The additional construction transforms temporary and short-term impacts associated with project construction into long-term impacts. Construction impacts have been ongoing since at least 2014 and are now concurrent with operation impacts. Due to the fluid nature of the proposed purpose of the site, TPWD has observed that the ongoing construction and associated impacts were not addressed in the original EIS and recommend further review of these changes. TPWD also recommends a meeting with relevant resource agencies and SpaceX to discuss these issues and how best to resolve them.

FAA Response: The purpose of the current and prior Written Re-evaluations (WRs) is to evaluate the continued adequacy, accuracy, and validity of the 2014 Final Environmental Impact Statement (EIS) regarding SpaceX's proposed changes to the project as analyzed in the 2014 EIS. Some of the infrastructure modifications proposed in the WRs replaces infrastructure that was described in the 2014 EIS and does not add to it. Aside from a small increase in the footprint of the Control Center Area for the solar farm (as documented in the 2017 WR), the overall project boundaries have not expanded. As stated in the previous WRs and current (2020) WR, the FAA has concluded that the FAA's proposed action of issuing launch licenses or experimental permits to SpaceX to conduct launches of a Falcon 9, Falcon Heavy, or reusable suborbital launch vehicle at the Texas Launch Site conform to the prior environmental documentation, that the data contained in the 2014 EIS remain substantially valid, that there are no significant environmental changes, and that all pertinent conditions and requirements of the prior approval have been met or will be met in the current action. Approximately 50 percent of the launch infrastructure tied to the FAA's proposed action is complete.

Some of SpaceX's past and current facility construction at the Texas Launch Site is not explicitly connected to the FAA's proposed action of issuing launch licenses or experimental permits for launch operations at the site. These facilities include those associated with SpaceX's production and manufacturing area located near the control center. Therefore, we removed these facilities from the current WR. The FAA has no authorization associated with approving construction of these facilities.

The FAA is currently conducting an environmental review of SpaceX's proposed Starship/Super Heavy orbital launch program at the launch site, which will involve publishing a draft environmental assessment (EA) or environmental impact statement (EIS). As part of this environmental review, the FAA will be re-initiating National Historic Preservation Act Section 106 consultation and Endangered Species Act (ESA) Section 7 consultation.

SpaceX welcomes the opportunity to meet with relevant resource agencies to discuss construction and operational activities. Please reach out to Matt Thompson of SpaceX at Matthew.Thompson@spacex.com.

TPWD #2 – State-Listed Species

During the past seven years since the EIS was prepared and finalized for this project, TPWD has revised the list of state threatened and endangered species. Several bird species that are currently listed as state threatened in Cameron County have been documented near the project area. TPWD recommends that these species and the potential impacts of project construction to these species be evaluated since they were not included in the 2014 Final EIS.

FAA Response: Please provide us a list of the state-threatened bird species in Cameron County that have been documented near the launch site. We will include these birds in our environmental review of SpaceX's proposed Starship/Super Heavy orbital launch program at the launch site.

Note that SpaceX is required to comply with the Conservation Measures and Terms and Conditions included in the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO). Conservation Measure #18 states "[i]f construction activities occur during avian breeding season (15 February through 31 August), construction will avoid impacts to nesting migratory birds within the project area to the maximum extent practicable. Specifically, a biologist will check the proposed areas of construction activities, including laydown areas, for nests (in shrubs and on the ground) once before the construction phase has begun. If the biologist finds an active nest, construction workers would not directly or indirectly disturb the nest or adjacent areas until the biologist determines the nest is no longer in use."

TPWD #3 – Aquatic Resources

Elevation modifications associated with construction activities have the potential to alter site hydrology, thus affecting the location, extent, and types of aquatic resources occurring within the vicinity of the project. Additional information is requested about any vegetation surveys conducted and the results of those surveys.

FAA Response: SpaceX has conducted pre-construction and active construction vegetation surveys in the study area. The results of these surveys are provided to the Service as part of compliance with the Service's BO. We will provide you these survey reports.

TPWD #4 – Construction Traffic

Construction traffic causes noise impacts to wildlife and the general public visiting adjacent public lands. The construction traffic also creates an increased opportunity for wildlife-vehicle collisions, especially for species such as the Texas tortoise. TPWD recommends that these potential impacts be assessed since proposed project activities deviate from those assessed in the 2014 Final EIS.

FAA Response: The 2014 EIS analyzed the potential impacts of construction traffic noise to wildlife. The previous WRs and current WR consider potential construction noise impacts from those activities related to the FAA's proposed action of issuing launch licenses and experimental permits to SpaceX for launch operations at the site.

SpaceX is required to comply with the Conservation Measures and Terms and Conditions included in the Service's BO. Conservation Measure #5 states "SpaceX employees and construction personnel and FAA inspectors will be educated on the potential for vehicle collisions with wildlife, particularly ocelots and jaguarundis, and mandated, with strict internal repercussions, to reduce their speeds along SH4 between and within the vertical launch and control center areas to 25 miles per hour. Vehicles will be restricted to existing paved and dirt roads, parking areas and authorized construction sites." Additionally, "Watch Out for Wildlife" signs were installed along SH 4 in 2015 in coordination with the Texas Department of Transportation. Further, measures to reduce construction equipment noise, as described in the 2014 Record of Decision (ROD) and 2015 Section 106 Memorandum of Agreement, have been implemented. These measures help avoid or minimize potential impacts on wildlife, including potential vehicle collisions with species such as the Texas tortoise.

TPWD #5 – Night-time Construction

Construction has been occurring at night-time at a frequency not addressed in the 2014 Final EIS. Impacts to wildlife, such as sea turtles, from lighting used for night-time construction will be greater than anticipated due to the increased and prolonged construction period.

In addition, due to nocturnal habitats of many of the species in the area, impacts to wildlife from night-time construction traffic and machinery operation has likely increased due to reduced visibility in the project area and on Highway 4. TPWD recommends an assessment of these potential impacts given the deviation from the proposed activities assessed in the 2014 Final EIS.

As a reminder, the July 9, 2014 Record of Decision, on p. 27, #3 and #4 special conservation measures limit vehicle speed to 25 mph between the vertical launch and control center areas.

FAA Response: The FAA has informed SpaceX that night-time construction and operations have exceeded the limits of environmental review (i.e., 2014 EIS). The FAA does not have regulatory authority for all of SpaceX's activities occurring at Boca Chica, including those projects associated with SpaceX's production and manufacturing area located near the control center (see response to TPWD #1). For those projects related to the FAA's proposed action, SpaceX must comply with the measures outlined in the 2014 ROD and the Service's BO. SpaceX is subject to the FAA revoking licenses and permits and/or subject to Service law enforcement for violations of the Terms and Conditions included in the BO.

SpaceX is in the process of updating its Facility Design and Lighting Management Plan to address night-time lighting. The updated plan will be distributed to the Section 106 Consulting Parties for review during Section 106 consultation re-initiation as part of the FAA's NEPA process for the Starship/Super Heavy orbital launch program. SpaceX personnel are trained regarding the effects of lighting on sensitive species, and annual notices regarding light use requirements and responsibilities are issued prior to sea turtle nesting season. The majority of night-time activity is occurring at the Control Center Area. Based on SpaceX past field observations from Boca Chica Beach, SpaceX's night-time lighting is not visible from the beach. SpaceX recently installed amber light filters and is completing a new night-time lighting survey. Sea Turtle Inc. continues to administer sea turtle patrols and egg relocations, with findings submitted annually to the Service as part of SpaceX's compliance with the BO. The FAA is not aware of a "take" of a sea turtle from SpaceX's activities.

Regarding the speed limit, see response to TPWD #4. SpaceX's failure to comply with this speed limit could result in the FAA revoking a license or permit and/or the Service issuing fines to SpaceX.

TPWD #6 – Implementation of Special Conservation Measures

Several of the special conservation measures in the July 9, 2014 Record of Decision, from p. 26-31, describe plans and procedures to avoid and minimize impacts from construction. These plans and procedures should be implemented prior to further construction in order to minimize impacts.

FAA Response: The measures identified on pages 26–31 of the FAA's ROD are also included in the Service's BO as conservation measures. The FAA submits an annual report to the Service, which documents the current status and compliance with each of the conservation measures. SpaceX must comply with these measures or face consequences imposed by the FAA and/or the Service. We will provide you a copy of the 2019 annual report.

SpaceX is in the process of updating all of the site plans that have been reviewed by the Section 106 Consulting Parties, including TPWD, to account for the infrastructure changes and change from Falcon launches to Starship/Super Heavy launches. The FAA will distribute these plans to TPWD once they are ready.

U.S. Fish and Wildlife Service Comments

Service #1 – Construction

Much of the construction proposed in the WR has already occurred or ongoing. Buildings are described but the details of lighting, parking, construction times, and anticipated traffic are not clear and not comparable to the original consultation documents. Nighttime construction was limited in the BO to two weeks during construction of pilings and nighttime launch activities. There has been reported and documented construction at night that exceed those limits. A schedule of nighttime construction should be included in the new EIS, EA or BA. We recommend pre-construction and post construction surveys to verify that no impacts have occurred to Refuge property or listed species or their habitats. Trash associated with SpaceX construction and operation has been identified on adjacent Refuge lands. Employee cars are parked on both sides of Highway 4, along ditches and right-of-ways. We recommend the BA assess those impacts and adhere to the conservation measures in the original BO or identify new methods to alleviate impacts that may be occurring.

FAA Response: The FAA has informed SpaceX that night-time construction and operations have exceeded the limits of environmental review (i.e., 2014 EIS). The FAA does not have regulatory authority for all of SpaceX's activities occurring at Boca Chica, including those projects associated with SpaceX's production and manufacturing area located near the control center (see response to TPWD #1). For those projects related to the FAA's proposed action, SpaceX must comply with the measures outlined the 2014 ROD and the Service's BO. SpaceX is subject to the FAA revoking a license or permit and/or Service law enforcement for violations of the Terms and Conditions included in the BO.

The FAA provided the Service pre-construction and active construction biological survey reports. SpaceX will be conducting post-construction biological surveys. The FAA will send the post-construction biological survey report to the Service.

The FAA is currently conducting an environmental review of SpaceX's proposed Starship/Super Heavy launch program at the launch site, which will either involve the preparation of a draft EA or EIS. As part of this environmental review, the FAA will be re-initiating ESA Section 7 consultation with the Service.

Service #2 – Road Closures

The EIS and BO identified a maximum of 180 hours of road closures annually. The Service negotiated the 180 hours seeking to minimize disruption to the public accessing the beach, fishing, birding, visiting the refuge, state park, and battlefield site. Additionally the Service seeks to maintain predictable and regular scientific survey access.

In 2019, Space X reported 158 hours of road closures. The Service calculated overall disruption to public access in excess of 1,000 hours in 2019. We recommend all agencies need to agree on the method of record keeping, announcements, and cancellations and these details included or appended to the revised NEPA documents. This process needs to be put into effect as soon as possible to calculate 2020 hours of road closures.

The Service recommends that road closure announcements be provided to affected landowners 1-2 weeks prior via email notification with the time range. These will count toward the 180 hours allowed in the BO. Backup dates, as required by the Governor's Office for the State of Texas, will not count toward cumulative hours if cancelled within a minimum of 24-hour notice to affected agencies and the public. We recommend the Cameron County Judge be briefed by FAA or the Service on the established method of announcing and tracking closures.

FAA Response: SpaceX has been calculating closure hours based upon the closure definition of actual (or implemented) full road and beach closures (and not public notification of potential closures). As described in the County Agreement, "[s]hort term HWY 4 closures of less than one hour that permit the public to remain on the beach during such short closure time shall not be counted against the maximum closure time per year specified in the FAA Record of Decision so long as those that remain on the beach are permitted to leave the beach in case of an emergency during that hour."

SpaceX continues to send notifications of closures two weeks prior to the closure. SpaceX strives to limit disruptions to the greatest extent possible and to keep resource agencies and the public apprised of road closures. Cancellations are dictated by the unforeseen problems or issues of the vehicle or ground support equipment, and SpaceX notifies as soon as possible of any cancellations.

That said, the FAA recognizes the issues that are created when SpaceX cancels a closure on short notice. We look forward to discussing the closure process further with the Service in the near future during our environmental review for the Starship/Super Heavy launch program.

Service #3 – Checkpoints

The Soft Checkpoint location for future road closures cannot be changed due to border security needs. It is west of the Border Patrol's Fort Brown Highway 4 Checkpoint. The Service believes the Hard Checkpoint location could be adjusted to provide access to Massey Way Gun Range users, even during road closures, as this was identified as a private landowner economic hardship.

FAA Response: The checkpoint locations were selected in coordination with the Service (and other agencies) during preparation of the 2014 EIS. SpaceX is committed to designating checkpoints that are favorable for local agencies and for the public, and will investigate moving the hard checkpoint to provide access to Massey Way Gun Range users. This will be included in our environmental review for the Starship/Super Heavy launch program.

Service #4 – Hazardous Incidents and Containments

On February 28, 2020, a test rocket exploded during a nighttime firing and voicemail was left for the Refuge Manager. Debris reportedly landed northwest of the launch site. Refuge staff will be assessing explosion impacts to nesting birds and impacts from ATV use and then make recommendations on the least impactful way to clear the debris field. On July 25, 2019, a burn occurred after a rocket test. It occurred at approximately 11:30 pm and burned about 10 to 15 acres of Boca Chica State Park, a property owned by TPWD but managed by the Service. The Refuge was not notified until the next day and by that time, the fire was smoldering and flared up and had burned approximately 130 to 135 acres more. Fire engines had gone off road and had gotten stuck causing damage to refuge lands. On August 2019, 6.2 acres were burned and debris was scattered on Refuge lands. Firefighters were not allowed to enter the area for three hours because of the type of fuel that was used. On April 22, 2019, SpaceX employees went off-road and got a golf cart stuck in the tidal flats on Refuge land. They attempted to remove the golf cart and in doing so got an additional truck and forklift stuck in the same area. The Refuge was not immediately contacted. Damage accrued to sensitive mudflats which provide shorebird habitat.

These types of incidents were not anticipated to this extent in the original BO because the likelihood of it occurring on launching known vehicles, which we analyzed, was less than during experimentation on new space crafts. Therefore, the Refuge proposes to establish a damage assessment protocol to address any future spills, rocket fuel releases, launches/tests, fires, explosions and debris cleanup. Natural resource damages thus far were negligible, but in the event of a larger impact, a damage assessment protocol will be identified to FAA and SpaceX. The protocol should be will be similar to that used to address oil and gas development impacts on refuges in Texas and Louisiana.

The incidents that have occurred have not been during a migratory bird season. Therefore, large flocks of migratory birds or listed species were not in the area. If a fire occurs during the migratory season, impacts may be greater. SpaceX should strive to avoid or reduce the number of testing/launches between March 15 and August 15 to avoid disturbance to nesting sea turtles and shorebirds that utilize refuge areas immediately adjacent to the launch site.

The Service and TPWD should be allowed access to surrounding public lands to survey the scene and document/record any observed environmental impacts (i.e., fire, explosion, sound impacts, dead birds, other wildlife, etc.). SpaceX should also explore options to compensate the Refuge and TPWD for damages caused by the two fires and two explosions. One possible option is to contract the completion of the Cable Fence Project. The cables benefit SpaceX, the public, and conservation of the area. In addition, plant, soil and water monitoring can be added to track effects of the different fuel types and explosions.

FAA Response: We appreciate these comments. The FAA and SpaceX look forward to discussing a damage assessment protocol with you. SpaceX is open to working with you to establish compensation for Refuge damages caused by SpaceX anomalies. Please reach out to Matt Thompson of SpaceX at Matthew.Thompson@spacex.com.

SpaceX is currently avoiding Starship testing and launches during migratory bird and sea turtle nesting seasons. However, some testing and launches might occur during this period. SpaceX will adhere to the Facility Design and Lighting Management Plan and other measures identified in the BO in order to avoid or minimize effects to ESA-listed species and other sensitive species. SpaceX has been conducting periodic inspections of the facilities to ensure that all required turtle-related lighting mitigations are in place.

Service #5 – Hiring of Law Enforcement and Biologist

SpaceX has agreed to hire one Refuge law enforcement staff through a reimbursable agreement. Further negotiations regarding the 22% Administrative Fee should be resolved. Although monitoring sites established in the general area may be of great learning experience for undergraduate studies at the University of Texas at Brownsville, the pre-construction and operational monitoring must follow peer-reviewed protocols. Protocols and monitoring should be developed and monitoring conducted by experts within the field, as findings of the baseline monitoring will lead to adaptive management decisions by the Service, SpaceX, and FAA.

During the original consultation, SpaceX agreed to hire two biologists. These biologist would be Refuge-hired employees, located at the Refuge, and would monitor and collect data outlined in the BO for the life of the project. The University of Texas at Brownsville was asked to do pre-construction baseline studies until the biologists could be hired. The hiring of the biologist has not occurred, because FAA states it was an agreement between the Refuge and SpaceX, not FAA. Additional biological monitoring needs are necessary to collect vegetation data associated with larger rocket engines and different fuel type associated with tests, launches and releases of any kind. We recommend FAA reconsider funding the biologists as SpaceX proposed.

FAA Response: SpaceX is committed to resolving issues regarding funding the Refuge law enforcement position and will continue coordination with the Service regarding the position.

As part of fulfilling BO Term and Conditions #7 and #8, SpaceX developed a pre-construction biological monitoring plan and active construction biological monitoring plan. The Service approved both plans. The FAA has been submitting the biological survey reports to the Service as they are completed by SpaceX.

The FAA acknowledges the Service's desire for SpaceX to hire two Service biologists for the purposes of conducting the biological monitoring at the launch site. The FAA has conveyed this to SpaceX several times. SpaceX would like to continue working with UTRGV because UTRGV has extensive and historical knowledge of the area and has all the biological monitoring data from at least four years of surveys. UTRGV is able to identify trends and impacts with that data. The UTRGV team is led by a PhD professor with specific knowledge and expertise in the area.

The FAA looks forward to discussing this further as part of ESA Section 7 consultation for the Starship/Super Heavy orbital launch program.

Service #6 – Traffic and Speed

Additional Wildlife Crossing Signs and Reduced Speed limit signs are needed based on the significant increase in daily traffic volume now occurring on Highway 4. Roadkill appears to have increased and includes bobcats, tortoises, javelina, and white-tailed deer, along with a variety of other species (feral

pigs, birds, etc.) There have been over 150-200 vehicles at the StarGate Building and SpaceX Launch Control Center area. The original EIS assessed only 30 to 130 personnel that would be at the site in the future. More construction is occurring on the site. Impacts from vehicles have included parking along the road shoulder (some on the refuge), trash and litter, and road-killed wildlife due to high volume vehicle traffic and vehicle speeds. We recommend further discussion on conservation measures that could avoid or minimize the risk of a potential take of an ocelot or jaguarundi, and possibly receiving take authorization for the species.

FAA Response: SpaceX will coordinate with the Service regarding the installation of additional Wildlife Crossing Signs, and will continue to inform staff of the speed limit in the area. SpaceX apologizes for trash that has accumulated along Highway 4 and will continue to clean up litter and work to prevent its release.

SpaceX has expanded its project work in the Boca Chica area which includes construction of facilities associated with SpaceX's production and manufacturing area. The FAA has no regulatory authority over these facilities as they are not explicitly connected to the FAA's proposed action of issuing licenses or permits. The FAA will analyze these potential cumulative impacts as part of our environmental review of the Starship/Super Heavy orbital launch program. SpaceX is responsible for any effects to ESA-listed species from these other projects, including obtaining any necessary incidental take permits from the Service under ESA Section 10.

Service #7 – Suggested Conservation Activities

SpaceX approached the Service for a list of possible conservation activities they could implement for listed species. The Service would also like to collaborate with SpaceX to provide multi-purpose information for the public. An increase in public visitation is occurring because of the attraction to SpaceX. The Service seeks to take advantage of these new visitors to educate them about natural resources, the Palmito Ranch Battle, and to offer information about SpaceX activity. Another suggestion is funding or assistance in implementing recovery actions such as additional nest platforms for the northern aplomado falcon and ocelot crossing signage. The Service is interested in exploring other options with SpaceX if they would like to voluntarily assist with such efforts.

FAA Response: Please reach out to Matt Thompson of SpaceX at Matthew.Thompson@spacex.com to discuss voluntary conservation measures. As a reminder, note that BO Term and Condition #3 addresses the northern aplomado falcon habitat. Per the 2019 annual report sent to the Service, the current status of this term and condition is: "SpaceX requested peregrine contact information from the Service. Contact information was not received, and no progress was made in 2019. SpaceX and the FAA welcome the Service's input."

Attachment 2. Coordination with the Section 106 Consulting Parties

Baker, Nicholas

From: Zee, Stacey (FAA) <Stacey.Zee@faa.gov>
Sent: Tuesday, November 26, 2019 4:40 PM
To: Amy_Pallante@nps.gov; Cushman, Anna (FAA); Collins, Ansel (FAA); Astrid_Liverman@nps.gov; Bill.Martin@thc.state.tx.us; Bryan_Winton@fws.gov; Czelusniak, Daniel (FAA); Murray, Daniel (FAA); David_Hurd@nps.gov; David.Kroskie@tpwd.texas.gov; Dawn_Gardiner@fws.gov; Ellen.Busch@thc.texas.gov; Emily.Dylla@thc.texas.gov; Glenn.Reed@thc.texas.gov; Searight, Howard (FAA); Jackie.Robinson@tpwd.texas.gov; Jayson.M.Hudson@usace.army.mil; Jeff.Raasch@tpwd.texas.gov; Julie.Guy@thc.texas.gov; Justin_Henderson@nps.gov; Justin.Kockritz@thc.state.tx.us; Andrus, Katherine (FAA); Katy.Smith@spacex.com; Kendal.Keyes@tpwd.texas.gov; Laura.Zebehazy@tpwd.texas.gov; Thomas, Lemuel (FAA); Grey, Leslie (FAA); Mark_E_Meyer@nps.gov; Mark_Spier@nps.gov; Mary_Orms@fws.gov; Matthew.Thompson@spacex.com; Melissa.Jones2@tpwd.texas.gov; Michael.Strutt@tpwd.texas.gov; Baker, Nicholas; Pat_Clements@fws.gov; Randy_Stanley@nps.gov; Reagan.Faught@tpwd.texas.gov; Robert_Jess@fws.gov; Rolando_Garza@nps.gov; sstokely@achp.gov; Russell.Hooten@tpwd.texas.gov; Zee, Stacey (FAA); Steve@spacex.com; Tom_Keohan@nps.gov; Clarkson, Chelsea (FAA)
Subject: SpaceX Boca Chica
Attachments: Boca Chica Fire Damage Assessment Report 2019.pdf; 20191101 Starship Test Vehicle Hop 2_Monitoring Report.pdf; 20191101 Starship Test Vehicle Hop 1_Monitoring Report.pdf; 20191126 SpaceX Comment Form.docx; 20191120 WR for SpaceX Construction.pdf

All –

I have attached four files for your review:

- A Written Reevaluation for SpaceX Construction (the evaluation in accordance with the MOA (Stipulation I.C) is outlined below.
- Comment form – for comments on the WR
- A report – Boca Chica Fire Damage Assessment Report
- Starship Hop 1 – Monitoring Report
- Starship Hop 2 – Monitoring Report

Please provide any comments on the WR by December 30, 2019.

Happy Thanksgiving all!

Dear Consulting Parties:

In accordance with Stipulation VIII of the *Programmatic Agreement Among the Federal Aviation Administration, the Texas State Historic Preservation Officer, National Park Service, the Advisory Council on Historic Preservation, Space Exploration Technologies Corp., United States Fish and Wildlife Service, and Texas Parks and Wildlife Department, Regarding the Construction and Operation of a SpaceX Texas Launch Site, Cameron County, Texas* (the PA, May 2014), the Federal Aviation Administration (FAA) is informing you of proposed changes to the undertaking prior to making and implementing the changes. Space Exploration Technologies Corp. (SpaceX) is proposing changes to launch site infrastructure in the Control Center Area (Parcels 1 and 2) and the Vertical Launch Area. The attached draft Written Re-evaluation describes the proposed changes.

Based on the nature of the proposed changes to the undertaking (e.g., similar development as that analyzed in the 2014 Final Environmental Impact Statement and development occurring within previously analyzed parcels) and with the Memorandum of Agreement (MOA) in place to minimize potential impacts on historic properties, including the Palmito Ranch Battlefield National Historic Landmark, the FAA has determined the proposal does not require a change to the PA. In accordance with the MOA (Stipulation I.C), SpaceX will paint all structures above 30 feet tall a color agreed upon by the National Park Service and Texas State Historic Preservation Officer.

In accordance with Stipulation VIII of the PA, the FAA is providing the Signatories and Invited Signatories a 30-day review and comment period to concur with the FAA's determination that the proposed changes to the undertaking do not require amending the PA. Please submit comments to Stacey Zee at Stacey.Zee@faa.gov by December 30.