
From: [REDACTED] on behalf of Geoffrey Clarke
Sent: Monday, November 1, 2021 3:54 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

Construction at the facility, launch activities, fires, and rocket debris are already impacting the wildlife and people of the Boca Chica region. This region contains critically important and sensitive bird habitat used by hundreds of thousands of individual birds of many different species throughout the year – from the federally Threatened Piping Plover and Red Knot to the Endangered Northern Aplomado Falcon. According to an analysis by Coastal Bend Bays & Estuaries Program in Corpus Christi, the Piping Plover population in the Boca Chica region has decreased by 54% over the past 3 years (2018-2021) since SpaceX started testing and launching rockets.

These lands also support several species of sea turtle and mammals listed under the Endangered Species Act. The current assessment fails to adequately analyze the impact of operations on wildlife, the environment, and surrounding communities. The assessment presents only two alternatives to be considered: a Preferred Alternative and a No Action Alternative. At this time, the No Action Alternative is recommended by conservation organizations given the lack of an in-depth EIS.

Various individual components of the SpaceX Starship Super Heavy Project are massive and complex, and it is reasonable to foresee that they could result in significant environmental impacts. Elements of the project, such as liquefied natural gas processing plants, seawater desalination plants, and solar farms, are of sufficient complexity that they typically warrant analysis through an EIS as stand-alone projects, let alone as components of a larger project. Yet, no EIS has been required.

I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Geoffrey Clarke

[REDACTED]

From: [REDACTED] on behalf of Robert Farley [REDACTED]
Sent: Monday, November 1, 2021 3:55 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Robert Farley

From: [REDACTED] on behalf of Kathleen Eaton <[REDACTED]>
Sent: Monday, November 1, 2021 3:55 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Kathleen Eaton

From: [REDACTED] on behalf of Judy Dorsey
Sent: Monday, November 1, 2021 3:59 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Judy Dorsey
[REDACTED]

From: [REDACTED] on behalf of Susanna Lang
Sent: Monday, November 1, 2021 3:59 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded. I am especially concerned about the welfare of piping plovers, as we only have about 70 mating pairs left in the entire Great Lakes region. Hundreds of us in Chicago and surrounding communities volunteer our time in the spring and summer to watch over a single nesting pair, Monty and Rose, and try to safeguard their nests and then their chicks. To think that when they leave us for the south, they fly into such danger, is devastating.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,



From: [REDACTED] on behalf of ROSEMARY TANN
Sent: Monday, November 1, 2021 4:02 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
ROSEMARY TANN
[REDACTED]

From: [REDACTED] on behalf of Jodi Bell
Sent: Monday, November 1, 2021 4:03 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Jodi Bell
[REDACTED]

From: [REDACTED] on behalf of Louise Booth [REDACTED]
Sent: Monday, November 1, 2021 4:09 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am an animal lover, and long-time docent at the Oakland Zoo, and I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Louise Booth
[REDACTED]

From: [REDACTED] on behalf of frank Kroger
Sent: Monday, November 1, 2021 4:10 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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Thank you for your attention on this matter.

Sincerely,
frank Kroger
[REDACTED]

From: [REDACTED] on behalf of Brian Craig <[REDACTED]>
Sent: Monday, November 1, 2021 4:13 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Brian Craig

From: [REDACTED] on behalf of Kathlene Croasdale
Sent: Monday, November 1, 2021 4:14 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

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Thank you for your attention on this matter.

Sincerely,
Kathlene Croasdale
[REDACTED]

From: [REDACTED] on behalf of Elisabeth Freeman
Sent: Monday, November 1, 2021 4:22 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Elisabeth Freeman
[REDACTED]

From: [REDACTED] on behalf of Julia M Fuller <[REDACTED]>
Sent: Monday, November 1, 2021 4:25 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Julia M Fuller

From: [REDACTED] on behalf of Malerie Wirey [REDACTED]
Sent: Monday, November 1, 2021 4:36 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

Construction at the facility, launch activities, fires, and rocket debris are already impacting the wildlife and people of the Boca Chica region. This region contains critically important and sensitive bird habitat used by hundreds of thousands of individual birds of many different species throughout the year – from the federally Threatened Piping Plover and Red Knot to the Endangered Northern Aplomado Falcon. According to an analysis by Coastal Bend Bays & Estuaries Program in Corpus Christi, the Piping Plover population in the Boca Chica region has decreased by 54% over the past 3 years (2018-2021) since SpaceX started testing and launching rockets.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Malerie Wirey
[REDACTED]

From: [REDACTED] on behalf of Maureen Medina [REDACTED]
Sent: Monday, November 1, 2021 4:37 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Maureen Medina
[REDACTED]

From: [REDACTED] on behalf of Elizabeth Hall [REDACTED]
Sent: Monday, November 1, 2021 4:41 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Elizabeth Hall
[REDACTED]

From: [REDACTED] on behalf of Mary Mulcahy
Sent: Monday, November 1, 2021 4:41 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded. SpaceX needs to be held accountable for any actions that disrupt the environment in Boca Chica.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Mary Mulcahy
[REDACTED]

From: [REDACTED] on behalf of Johanna Perlinn
Sent: Monday, November 1, 2021 4:42 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Johanna Perlinn
[REDACTED]

From: [REDACTED] on behalf of Krin Asselta
Sent: Monday, November 1, 2021 4:45 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Krin Asselta
[REDACTED]
[REDACTED]

From: [REDACTED] on behalf of Lisa Matheus
Sent: Monday, November 1, 2021 4:46 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Lisa Matheus

[REDACTED]

From: [REDACTED] on behalf of Lorraine Small
Sent: Monday, November 1, 2021 4:52 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Lorraine Small
[REDACTED]

From: [REDACTED] on behalf of Stacy Schrader [REDACTED]
Sent: Monday, November 1, 2021 4:53 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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Thank you for your attention on this matter.

Sincerely,
Stacy Schrader
[REDACTED]

From: [REDACTED] on behalf of Raleigh Schroeder [REDACTED]
Sent: Monday, November 1, 2021 4:55 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Raleigh Schroeder
[REDACTED]

From: [REDACTED] on behalf of Hall SHERRIE [REDACTED]
Sent: Sunday, October 31, 2021 6:44 PM
To: SpaceXBocaChica
Subject: Comment on SpaceX Starship/Super Heavy project

Dear Federal Aviation Administration,

I am deeply concerned about the impacts on birds and other wildlife from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy Project and launch site are being built and expanded.

SpaceX operations have significantly changed since 2014, when the company was authorized to test and launch much smaller rockets than those being proposed today. The company is also now developing a natural gas facility to extract and deliver fuel to the site. These changes to SpaceX's activities in Boca Chica are substantial enough that – according to the National Environmental Policy Act – the Federal Aviation Administration (FAA) should require a full Environmental Impact Statement (EIS), rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced.

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I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

Thank you for your attention on this matter.

Sincerely,
Hall SHERRIE
[REDACTED]

From: Lee Norgren <[REDACTED]>
Sent: Monday, November 1, 2021 11:50 AM
To: SpaceXBocaChica
Subject: Comment/technical drawing regarding SpaceX PEA
Attachments: Comment on SpaceX PEA.pdf

Dear Ms. Stacey Zee,

Please see attached PDF for comment to FAA on SpaceX PEA (incl. technical drawing on page 2).

Kind Regards,
Lee

[Please withhold from public my personal identifying information found in- and related to this letter]

Comment in support for SpaceX PEA (proposal to conduct launch operations from the Boca Chica Launch Site)

Federal Aviation Administration
Ms. Stacey Zee,
SpaceX PEA, c/o ICF,
9300 Lee Highway,
Fairfax, VA 22031

Dear Ms. Stacey Zee,

Hope this letter finds you well and thank you for inviting the public to participate in this process.

First, I feel that it is my duty to state the opinion that the FAA cooperation with SpaceX in the development of the Starship vehicle, has been-, is- and will continue to be an asset to our future.

Secondly, the development of Starship at Boca Chica, which you have generously helped along, and the SpaceX PEA is something I wish to voice my full support to. The services that SpaceX offer us today with Falcon 9 and the capabilities that are being created with Starship are unique to the USA and the world. They represent a crucial step forward for us all.

We should not forget that, while launching rockets is a demanding and - at times - explosive operation, if we take into consideration the effects on day-to-day life observed so far, the dangers dwindle in comparison to the environmental cost/reward-ratios found among each of the almost 1900 oil rigs¹ just off-shore from Boca Chica, in the Gulf of Mexico. If those operations are risks that we have found acceptable, then surely the proposed operation of SpaceX has to be a negligible risk and impact given the intentions stated in their PEA. Also keep in mind the possibilities that a program like this offers our future (for instance; it is an amazing fact that a modern rocket such as Falcon 9 is more efficient at converting its fuel to forward motion, i.e. less energy lost in by-products such as heat, than the average combustion engine found in a road car today).

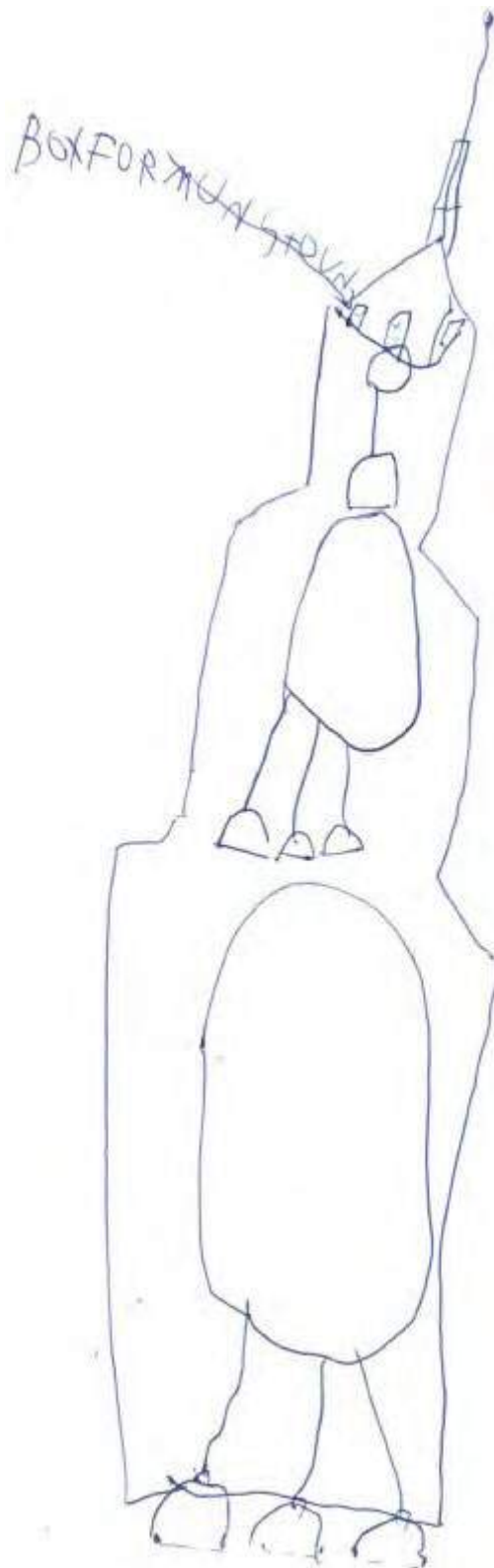
In closing, and perhaps the best argument I can offer in support of SpaceX's proposal to conduct Starship/Super Heavy launch operations from the Boca Chica Launch Site, is a drawing of the Saturn V rocket made by my younger brother for me when he was five years old (*see **page 2***). Even though the rocket flew more than 40 years before he was born, it is something that to this day inspires him and countless other kids to do well in school and life, with the hope that this will enable them to one day also be able to contribute to something as great and awe-inspiring as those momentous days of July, 1969.

I believe that it is our generation's duty to continue creating these examples for the future to follow.

Yours sincerely,

Lee Norgren

1 <https://www.bsee.gov/faqs/how-many-platforms-are-in-the-gulf-of-mexico>



Saturn V technical drawing by a very young aspiring aeronautical engineer

From: [REDACTED]
Sent: Monday, November 1, 2021 6:47 AM
To: SpaceXBocaChica
Cc: Clay Diamond
Subject: Comments of the American Pilots' Association on the Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas
Attachments: APA_Comments_SpaceX_PEA_11-01-21.pdf

Attached please find the comments of the American Pilots' Pilots' on the Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas.

Respectfully submitted,

Clayton L. Diamond
Executive Director - General Counsel
American Pilots' Association

[REDACTED]
[REDACTED]
Phone [REDACTED]
email: [REDACTED]
Web: [REDACTED]

This electronic message contains information from legal counsel at the American Pilots' Association. The contents may be privileged and confidential and are intended for the use of the intended addressee(s) only. If you are not an intended addressee, note that any disclosure, copying, distribution, or use of the contents of this message is prohibited. If you have received this e-mail in error, please contact me at [REDACTED]



AMERICAN PILOTS' ASSOCIATION
INCORPORATED

WASHINGTON, DC 20003

PHONE: [REDACTED]

CAPTAIN JORGE J. VISO
PRESIDENT

CAPTAIN WHIT SMITH
SECRETARY-TREASURER

CLAYTON L. DIAMOND
EXECUTIVE DIRECTOR-GENERAL COUNSEL

PAUL G. KIRCHNER
SENIOR COUNSEL

WILLIAM R. CAIRNS
TECHNOLOGY DIRECTOR

LISA P. TOWNSHEND
OPERATIONS DIRECTOR

**COMMENTS OF THE AMERICAN PILOTS' ASSOCIATION
ON THE DRAFT PROGRAMMATIC ENVIRONMENTAL ASSESSMENT FOR THE SPACEX
STARSHIP/SUPER HEAVY LAUNCH VEHICLE PROGRAM AT THE SPACEX BOCA CHICA
LAUNCH SITE IN CAMERON COUNTY, TEXAS**

November 1, 2021

Introduction

The American Pilots' Association (APA) is pleased to submit, on behalf of our nation-wide membership, the following comments regarding the Draft Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program in Cameron County Texas (herein after referred to as the "SpaceX PEA").

The lead federal agency for the SpaceX PEA is the Federal Aviation Administration (FAA); and the cooperating agencies are: the National Aeronautics and Space Administration, National Park Service, U.S. Coast Guard, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service. While the SpaceX PEA was prepared by SpaceX, we understand that the FAA has an obligation, consistent with 40 CFR 1506.5(a) and 14 CFR 450.47, to independently evaluate this document. We also presume that, as necessary given the various issues and subject matters that may arise, the FAA will consult with the appropriate cooperating agency.

The APA has been the national association of professional maritime pilots since 1884. Virtually all of the nearly 1,200 state-licensed pilots working in the coastal ports and approaches of the United States, as well as all of the U.S. registered pilots operating in the Great Lakes system under authorization by the Coast Guard, belong to APA member pilot groups. The pilot groups that APA represents includes specifically the Brazos Santiago Pilots, who provide pilot services for the Port of Brownsville and the Port of Isabel in Cameron County, Texas. These APA-member pilots handle well over 90 percent of all large ocean-going vessels moving in international trade in the waterways of the United States. Their role and official responsibility to their licensing authorities and the citizens of their respective state is to protect the safety of navigation and the marine environment and to keep maritime commerce moving efficiently in the waters for which they are licensed.

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Like most Americans, the APA and our member pilot groups are excited by the resurgence of manned space launches. Notwithstanding this pride in our Nation's space program, as explained below we have serious concerns with some parts of the SpaceX PEA.

Comments

APA's concerns with the SpaceX PEA relate to the sections that discuss areas that would be subject to closure during SpaceX launch operations; specifically Section 2.1.6.5 (Nominal Closures), 2.13.5.1 (Ground Closures), Section 3.8.3.2 (Launch Operations), 3.8.3.2.1 (Nominal Closures), and 3.8.3.3 (Anomalies). It is of serious concern to the APA and the Brazos Santiago Pilots that the areas subject to closure under these sections would include the Brownsville and Isabel shipping channels. Under the provisions of the SpaceX PEA, these shipping channel closures could be for as long as 800 hours per year or more than 33 full days.

The Ports of Brownsville and Isabel, those companies that ship their goods through these ports, the Brazos Santiago Pilots, and other waterway users are understandably concerned with the adverse impact these closures would have on the robust domestic and international trade moving through these ports. These modern Texas deep-water ports are major multimodal pathways that support major domestic and international markets. Government leaders and most especially American consumers have seen the devastating negative impacts the recent backlog of ships at the Ports of Long Beach and Los Angeles, as well as the recent blocking of the Suez Canal, have had on the U.S. supply chain. Such disruptive port closures should not be voluntarily introduced, as would be the case if the SpaceX PEA goes forward without modification.

The APA shares these concerns, but also has concerns with the impact these closures could have on navigation safety in the shipping channel. Presently, the Brazos Santiago Pilots are able to keep large commercial vessels moving 24 hours a day, 7 days a week, and 365 days a year in steady, rhythmic, well-planned fashion. The massive delays that would be introduced by the shipping channels being closed for more than 33 days per year for SpaceX launches would lead to massive delays for ships entering and departing the Port of Brownsville and Port of Isabel, which could in turn result in bottlenecks and surges of shipping traffic following channel re-openings.

While the Brazos Santiago Pilots are among the most highly trained mariners in the world, such sporadic and unpredictable surges in shipping traffic could result in periodic high density traffic of massive commercial vessels in the confined shipping channels. These traffic surges in short periods of time could also negatively impact the Pilots' work rotation, which could lead to fatigue. Both of the situations could negatively impact navigation safety in the Port of Brownsville and Port Isabel.

Additionally, APA shares the concerns of the Texas State Pilots' Association (who have submitted comments of their own) that this SpaceX PEA could set a dangerous precedent by allowing a nonuser of a waterway to have the ability to shut down a major U.S. port and economically vital waterway.

APA urges the U.S. Coast Guard, one of the cooperating agencies that will be assisting FAA in reviewing the SpaceX PEA and the U.S. agency that maintains broad authority over navigation safety in U.S. waterways, including the ability to issue orders relating to vessel and port operations, to exercise this authority. This Coast Guard authority, generally carried out by its local captains of the port, covers the entire

waterfront and includes extraordinary authority over vessels, facilities, cargo operations, and the people working on vessels and the waterfront, and also includes broad waterways management functions.

Coast Guard captains of the port have been exercising their authority since 1917 to help local officials, mariners and State-licensed pilots (like the Brazos Santiago Pilots) keep America's ports operating safely and efficiently operating. The purpose of the Coast Guard's waterways management function is to provide mariners access to navigable waterways; facilitate effective, efficient movement of commerce to and from intermodal connections; and promote a safe, secure, and environmentally sound marine transportation system as a component of the national transportation system. We respectfully urge the Coast Guard and its COTPs to step up now to ensure SpaceX PEA is not inadvertently allowed to encroach upon its COTP and waterways management authority and negatively impact the flow of maritime commerce in these vital port areas.

Conclusion

We appreciate the FAA, U.S. Coast Guard and other cooperating agencies considering these comments. We respectfully urge these agencies, especially the U.S. Coast Guard, to intervene to ensure the disruptive and potentially dangerous SpaceX launch port closures do not take place.

From: David Newstead <[REDACTED]>
Sent: Monday, November 1, 2021 4:51 PM
To: SpaceXBocaChica
Subject: Comments on Draft PEA for Starship/Super Heavy Program at Boca Chica, Texas
Attachments: CBBEP_comments_reports_on_SpaceX_Draft_PEA_Boca_Chica_1Nov2021.pdf

Dear Ms Zee,

Please find attached our comments on ***SPACEX Draft Programmatic Environmental Assessment for Starship/Super Heavy Program***

Thank you for the opportunity to provide input.

In addition to our two reports that are included within the attached comment letter, we also referenced two other pieces of gray literature in our comments (Maddock 2010, and Zonick 2000). In order not to exceed file size limits, I will send these separately and reference this email.

Sincerely,

David Newstead
Director, Coastal Bird Program
Coastal Bend Bays & Estuaries Program
[REDACTED]



Protecting our bays and estuaries

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November 1, 2021

Ms. Stacey Zee
SpaceX PEA, c/o ICF
9300 Lee Highway
Fairfax, VA 22031

Transmitted via electronic mail to [REDACTED]

RE: Comments on SpaceX Draft Programmatic Environmental Assessment for Starship/Super Heavy Program

Dear Ms. Zee,

On behalf of Coastal Bend Bays & Estuaries Program (CBBEP), please accept these comments on the Draft Programmatic Environmental Assessment ("Draft PEA") for the Starship / Super Heavy Program ("project") by SpaceX, relating to the construction and operation of new testing and launch infrastructure and engaging in associated activities.

The CBBEP Coastal Bird Program has been conducting habitat management, monitoring, and research on avifauna of the Texas coast since 1999. While initially focused in the Coastal Bend area, the program's focus has increased its geographic scope and scale of activities in the Lower Laguna Madre and Lower Rio Grande Valley region over the past ten years. Since 2017, we have been conducting monitoring and research in the Boca Chica area, primarily on lands of the Lower Rio Grande Valley NWR (LRGVNWR), Boca Chica State Park, Brazos Island State Park, and state-owned submerged lands including the Gulf beach. By way of this comment letter, we wish to contribute the results of findings relevant to the environmental impacts already incurred in the area, and to add records of species occurrence that were evidently not available to the preparer(s) of the Biological Assessment.

Using data from surveys conducted on Piping Plovers in the area between 2018 – present, we modeled population abundance and survival rates over four nonbreeding seasons and the three intervals between them. This analysis indicates the Piping Plover population has decreased by ~54% over the course of three years (from over 300 to below 150), survival rates are low compared with other published estimates for the species, the downward trend is significant and continuous, and these findings suggest the area may be becoming a population sink. We incorporate the attached report "Piping Plover population abundance, trend, and survival at Boca Chica 2018-2021" as part of our comments.

A study of nesting activity of Wilson's and Snowy Plovers in the area was also conducted during the five breeding seasons of 2017-2021. We incorporate the attached report "Nesting of Snowy

and Wilson's Plovers at Boca Chica 2017-2021" as part of our comments. The results indicate that the population of Snowy Plovers nesting in the area has declined significantly throughout the area, and that both species are now nearly absent from the vicinity of the Vertical Launch Area (VLA), where they were previously common.

For reference, we have conducted similar analyses at other sites on the Texas coast over the same time periods and detected no alarming negative trends. The timeframe of these studies is temporally consistent with the major buildout and testing of SpaceX infrastructure, rocket components, and Starship prototypes from 2019-2021. These findings indicate the associated activity has had negative impacts to wildlife well beyond the applicant's property boundaries.

Critical Habitat Unit TX-1 for Piping Plover encompasses 7,217 acres in the area. This site is considered one of the single most important wintering areas for the species anywhere in its range. The species' spatial use of the site is dependent on highly dynamic processes of inundation and exposure of the tidal flats by marine waters which is partly driven by lunar tides but dominated by wind on shorter temporal scales. This means the wintering population there depends on the sum of all parts of the habitat mosaic. If the activities thus far have resulted in a loss of over half of the population there, it indicates the entire unit is being affected, and the environmental analysis needs to evaluate the impacts to the entire area.

It is not clear what has happened to the "missing" plovers. Some possibilities include direct mortality from explosions/tests (heat plume, blast overpressure, falling debris), chronic injury to internal organs from those operations, loss of habitat due to damage from debris recovery activities, or avoidance/displacement due to frequent noise and testing. Surveys in other parts of the area do not indicate the birds simply "went somewhere else," nor is that likely as the species is known for very high site fidelity, so the losses do appear to represent real losses to the entire population.

Our analysis on Piping Plovers was facilitated by the fact that it is the only species in the area that has been subject of an extensive marking program on breeding grounds, resulting in a significant proportion of uniquely-identifiable individuals. It is reasonable to assume that the factors that have resulted in this sharp decline on this species are also affecting many others that occupy the area in greater abundance.

With these clear indications that environmental impacts are extending well beyond the range of the construction and operational areas up to this point, we recommend that the full scale of impacts to these and other wildlife be evaluated in a full Environmental Impact Statement. As FAA is aware, the original EIS published in 2014 (and Biological Opinion) did not anticipate activities and construction of the magnitude that has subsequently occurred, nor did it consider the impacts from using it as a testing site. Inherent in testing is failures, which in this case often means explosions sending debris far off site into sensitive wildlife habitat. The applicant refers to these explosions as "anomalies," but there is nothing anomalous about a test failure, since failure is inherent in the testing process. These failures have spread debris far into surrounding lands of LRGV NWR and Boca Chica State Park, which has resulted in extensive habitat damage, in addition to imposition of additional burdens on limited resources of USFWS and TPWD. While

the Draft PEA appears to accept that more anomalies can and will happen in the future (the additional 300 closure hours for debris removal), the impacts of these anomalies on surrounding lands is not evaluated at all. The document suggests that any damage will be remediated through restoration, no detail is provided as to how that would occur. We are aware of no successful method of restoring these highly sensitive tidal flats, especially those with a blue-green algal layer which have developed over many hundreds of years.

The extensive buildout at the Launch and Landing Control Center in the past two years has converted much of the Mesa del Gavilán into impermeable surfaces, which has evidently become problematic for the company's operations during periods of high rainfall. As a consequence, multiple drainage ditches have been dug draining the surfaces of industrial sites directly into the adjacent tidal flats of LRGVNR properties. This appears to be affecting vegetation dynamics in this highly sensitive habitat. Because the original EIS never contemplated this level of development, these types of impacts to surrounding lands were never considered. Though the applicant seeks to limit the consideration of impacts under this Draft PEA to the activities associated with launches at the VLA, the scope of the current activities and those associated with the proposed expansion clearly illustrate the "connectedness" of the full operation and cumulative impacts need to be considered in a comprehensive Environmental Impact Statement.

The Noise Assessment presented in the Draft PEA provides noise contours using several measures, all associated with the frequency range of human hearing (decibels). While these measures may be appropriate for projecting impacts to the human environment, there is no mention of the potential impacts to wildlife. A large proportion of the area of high value to wildlife would experience SEL noise levels exceeding 130 dB. Various studies on birds and other wildlife demonstrates that significant behavioral and physiological impacts can occur at noise levels much lower than those they would experience at the sound levels projected for this project. Also, since Starship prototype launches and landings have already been occurring at the site, wildlife has *already been exposed* to levels associated with those activities. Impacts from noise can manifest effects in wildlife in numerous ways (loss of hearing, difficulty communicating, increased stress levels, avoidance of otherwise suitable habitat – functionally equivalent to habitat loss, and various carry-over effects on fitness and reproduction). An analysis of noise impacts should include a thorough evaluation of impacts to wildlife.

The frequency and duration of highway and beach closures has had significant impact on our own research activities over the past three years. Two studies that optimally require up to four site visits per week with no more than two days between visits have been curtailed due to the impracticality of planning fieldwork when closure announcements and revocations occur so frequently and without sufficient advance notice. Instead of hiring staff to work on our monitoring and research projects there, we were forced to reallocate an existing staff person's time to cover those projects. This required constant monitoring of closure notifications from Cameron County and emails from SpaceX to find time windows in which to accomplish the work. While the level of effort was sufficient to accomplish the main objectives of one of our projects, another had to be shelved.

The impacts of closures on the public needs to be clearly evaluated based on real scenarios, for which there is already a substantial record. We have been tracking the closure notices since 2019, and the sums of our closure calculations have exceeded 1,000 hours in both 2019 and 2020, and total 546 hours thus far in 2021 (through October 29). These estimates are similar to those kept by USFWS Refuge staff. The definition of closure for the purpose of calculating closure time as presented in the Draft PEA is based entirely on the decision by SpaceX (or county deputies) to place and remove barriers, and to enact or revoke closures without sufficient notice to the public. This definition in no way reflects the real impacts to the public.

If the effect on the public of 180 hours of closure (based on the current Memorandum of Understanding between Texas General Land Office and Cameron County) is in reality closer to 1,000, then the impact of the 800 hours of closure proposed in this Draft PEA can be expected to be substantially greater than that (over 5,500 hours at that rate). While FAA is not directly involved in the mechanism by which closure hours are granted, calculated, or enforced, the issue of closures is relevant to the analysis of Section 4(f) use and Environmental Justice impacts, which do fall under the purview of the Draft PEA. The effect of 800 hours of operational closure (500 plus 300 for post-“anomaly”) needs to be evaluated in light of the *actual* impact to the public, incorporated into the Section 4(f) and Environmental Justice impacts, and that information needs to be presented to the public prior to authorizing any additional closure time.

We would like to provide additional information and context to be considered relative to items presented in the Biological Assessment (BA).

On page 62 of the BA (Section 5.3.1), it is stated that “recent records (2011–2016) indicate no eastern black rail breeding in Cameron County.” We would like to notify the applicant of several more recent records that may not have been available to the preparer of the assessment. On June 2, 2019, an adult male eastern Black Rail was captured in Cameron County on a tract of Laguna Atascosa National Wildlife Refuge just south of Arroyo Colorado (Mark Conway, unpublished data). Additional records on June 10, July 5, and July 16, 2019, and March 23, 2020 (CBBEP, unpublished data) – two of which involved multiple birds at the same site and were at sites several kilometers apart – are within seasons indicating the species is present as a breeder in Cameron County. These records were all from habitats characterized as low halophytic vegetation (e.g. *Distichlis spicata*, *Borrchia frutescens*, *Rayjacksonia phyllocephala*, *Salicornia* spp.). This vegetation type is common on supratidal soils that fringe tidal flats and mangroves in south Texas, and which do occur in the Boca Chica ROI. The records are from areas that have not been well-surveyed previously, and given that this species is highly secretive, they suggest the species may be more common in the county than previously thought. The evaluation of potential impact to this species should be revisited based on the additional information provided.

Several statements in the BA regarding the use of the area by Piping Plover are misleading and/or require consideration of additional sources. The conclusion that “there is other habitat nearby that the piping plover could use” (page 64) based on the total acreage of designated critical habitat in the state of Texas makes no ecological sense. The statement in the BA is not

supported by any citations, nor are we aware of any published literature indicating that it is in fact true for this species (or many others). It ignores the fact that the species is highly site faithful and that their home range is comprised of a mosaic of important habitats in a close vicinity. Piping Plovers wintering in the Boca Chica area are highly likely to return the following year, regardless of the suitability of habitat. The habitat has historically been very highly suitable for the species, as evidenced by many records not cited here. Zonick (2000) regularly encountered the species in flocks exceeding 200 individuals, and Maddock (2010) encountered 239 during one survey as recently as 2009 (for reference, these documents are also provided by attachment to the email transmittal). These surveys were not comprehensive surveys of the area, nor modeled estimates, so they represent only a *minimum* number of birds present. Our modeled point estimate (in attached report) was 308 individuals during the 2018/19 nonbreeding season. These data make the site one of the single highest concentrations of the species in its entire range. The use of partial surveys to assert that piping plovers are “not known to use areas within the action area in large numbers” (page 64) is highly misleading and not supported by a careful reading of the cited references. The assessment needs to be corrected and impacts considered based on the additional information provided here.

The BA states that “none of the land near the LLCC contains PCE for wintering piping plover habitat.” Though the term “near” isn’t clearly defined, the LRGVNR lands immediately adjacent to most of the LLCC provides extensive unvegetated tidal flats that constitute PCE for the species.

The BA incorrectly asserts that the Red Knot is a “transient winter visitor to Boca Chica Beach” (page 66). The term “transient” suggests rare or occasional use, while the documented occurrences of the species in the area suggest it is far more common. Further, they utilize not only the Gulf beach but also the extensive tidal flats both north and south of Highway 4. On September 29, 2021, we documented 1,225 knots foraging and roosting in the flats to the north of the LLCC (unpublished data). This represents a substantial proportion (over ¼) of the presumed migratory and wintering population for the species in the western Gulf of Mexico. The records of occurrence indicate that a greater level of consideration of the species’ use of the area is warranted in assessing the project’s impacts to the species.

In addition to the previous comments, the lack of sufficient detail about the proposed major additions of infrastructure (power plant, natural gas plant, liquefier, desalination plant) and their potential impacts, the fact that no other alternatives other than the “no action” alternative are considered, and the absence of any proposed mitigation for this project make this Draft PEA inadequate. We recommend that a full Environmental Impact Statement be prepared which takes into consideration the numerous cumulative impacts this project would have on the area if the applicant wishes to move forward.

Sincerely,

A handwritten signature in black ink, appearing to read 'David Newstead', with a stylized, cursive script.

David Newstead
Director, Coastal Bird Program

Attachments:

Piping Plover abundance, trend, and survival at Boca Chica 2018-2021. Report by CBBEP Coastal Bird Program

Nesting of Snowy and Wilson's Plovers at Boca Chica 2017-2021. Report by CBBEP Coastal Bird Program

Additional referenced literature:

Maddock, S.B. 2010. Wintering Piping Plover Surveys 2008-2009, Boca Chica, Texas to Marco Island, Florida. Report to Canadian Wildlife Service. 34 pp.

Zonick, C.A. 2000. The winter ecology of Piping Plovers (*Charadrius melodus*) along the Texas Gulf Coast. PhD Dissertation. University of Missouri-Columbia. 180 pp.

PIPING PLOVER POPULATION ABUNDANCE, TREND AND SURVIVAL AT BOCA CHICA 2018-2021

Report by Coastal Bend Bays & Estuaries Program – D. Newstead and B. Hill

22 October 2021

INTRODUCTION

Piping Plovers are known to be highly faithful to wintering sites. Habitat used in winter consists mainly of Gulf beaches, and tidal flats (“mud flats,” “algal flats,” “sand flats” are commonly used descriptors). The species’ preference for one habitat or another is largely a function of habitat availability. High water levels that inundate the tidal flats reduce potential habitat there, at which time they are often found on the Gulf beach. While daily lunar-driven tides are relatively minor in the western Gulf of Mexico, seasonal tides are a more influential driver of habitat availability. Overall, tides tend to be highest in spring and fall periods, and lowest in summer and winter periods. Weather can have a strong overriding influence on this (e.g. storm surge from tropical systems, strong cold fronts), so plover habitat usage is not strictly a function of season.

The Boca Chica area is unique in that the inundation/exposure regimes of the flats north and south of the highway often alternate (Fig. 1). The north side becomes inundated when tides or strong northerly winds drive water through the pass into South Bay off the Brownsville Ship Channel. When this happens, water can be driven off the flats on the south side of the highway, “dewatering” those flats via a mangrove-lined connection to the Rio Grande near the rivermouth. When winds reverse, the opposite occurs. Flats that have recently become exposed after inundation provide preferred habitat for Piping Plovers and many other shorebirds, as prey items are still close to the surface. Blue-green algal mats are also an important foraging strata, where they forage on dipteran larvae that grow in cracks and crevices of the desiccated surface algal layer (Zonick 2000). Plovers are often found in groups when on the flats, and sometimes in groups exceeding 100 individuals. This would constitute an exceptionally large concentration in most parts of the species’ winter range, but in the past it has not been uncommon at Boca Chica to encounter groups of 200 or more (Zonick 2000, Maddock 2010). When flats are not available, they are more frequently found on the Gulf beach, where they are often quite territorial to a given linear stretch of beach. This mosaic of multiple habitat options – at least one of which is virtually always available to them – in a relatively confined area makes this site of unique importance for the species.

Piping Plovers depart their breeding grounds and arrive on the Texas coast as early as mid-July, and generally stay until at least March or April before returning north to breed. Based on previous radiotelemetry projects (Drake et al 2001, unpubl. data), most Piping Plovers are very territorial while on the beach and have small home range sizes throughout the full nonbreeding season. However, several birds captured in late September to mid-October (our study) on Padre Island National Seashore wintered further south in the Lower Laguna Madre including one that wintered in the flats at Boca Chica/South Bay.



Figure 1. Study area including Piping Plover Critical Habitat Unit TX-1 outline in red.

Over the past 30 years there have been multiple banding programs on the species' breeding grounds. Most plovers that migrate to and winter in south Texas are from the Northern Great Plains (including Prairie Canada) and Great Lakes populations (Gratto-Trevor et al 2011). Birds captured for those projects were uniquely marked with a combination of color bands/flags and/or a leg flag with a unique alphanumeric code. Incorporating encounter histories of these birds – including the original marking and subsequent resightings – as well as proportions of marked and unmarked individuals into population models allows for estimation of important population parameters, including abundance and survival.

The objective of this analysis was to estimate population abundance, trend, and survival of Piping Plovers in the Boca Chica/South Bay area.

METHODS

From late summer 2018 through fall 2021, we conducted surveys of Piping Plovers in the Boca Chica/South Bay area. The site is designated Critical Habitat Unit TX-1 for Piping Plover. Surveys were conducted along the Gulf beach, and in the tidal flats north and south of State Highway 4 (Fig.1).

Beach surveys were conducted as a linear transect covering the Gulf beach from the south jetty of Brazos Santiago Pass on the north end to the Rio Grande/Bravo rivermouth (international border) to the south. A skilled observer drove the beach slowly in order to detect Piping Plovers before they might be flushed. A GPS point was recorded for each individual observed. Each encountered plover was observed using binoculars and/or a spotting scope to determine if it was uniquely marked. If marked, the full band color/leg flag combination was recorded. If the observer was unable to read the full combination, it was recorded as "marked but unread."

On the flats, a skilled observer familiar with habitats and behaviors of Piping Plovers used binoculars or a spotting scope to locate individuals or flocks from the highway or other access point, and then approached on foot. A GPS point was recorded in approximately the center of the flock. The whole flock was counted, and then the entire flock (or a sample in the case of a few very large flocks) were closely observed to determine how many marked and unmarked individuals were present. Once the ratio had

been recorded, the observer recorded the band combination of all uniquely marked plovers. In some cases, not all marks could be read.

In addition to records of individuals uniquely-marked on breeding grounds, we captured and marked four additional plovers at Boca Chica during the study (one in fall 2018, three in fall 2019) and these encounter histories were included in the analysis.

We used a Mark-Resight model in Program MARK to estimate abundance and other demographic parameters. Specifically, we used the Zero-Inflated Unidentified Marks Poisson Mark Resight Robust Design across Primaries model type (a type of zero-inflated Poisson log-normal estimator, hereafter, ZPNE). The ZPNE model allows for the estimation of the total population size by incorporating data describing temporal patterns in the number of both marked and unmarked individuals within a study system. This model assumes geographic closure within a single survey period (hereafter, primary period), but allows individuals to leave the population via mortality or permanent emigration (i.e., apparent survival; ϕ) between primary periods.

Encounter histories were compiled for each individual for each of the primary periods of the time range. A primary period consisted of all surveys conducted within a nonbreeding period ("year"). The year began with surveys following the arrival of birds from breeding grounds (earliest survey date July 24) and continued until as late as February 20. Each survey is considered a secondary occasion, and were grouped into 4 primary periods, with a varying number of secondaries in each: 2018/19 (16); 2019/20 (12); fall 2020 (9); and fall 2021 (8). The numbers of "marked unidentified" and "unmarked" for each primary period were also incorporated into the data structure to allow for an unbiased estimate of the total overwinter population size. As the number of marked birds within the system on the initial time step was considered known, we constrained the presence parameters (w and g) to 1.0 (McClintock 2021). Likewise, as zero banded birds were observed beyond the confines of the study system during the overwinter period, we fixed the temporary emigration parameters (γ' , γ'') to zero to allow for the apparent survival (ϕ) and resight parameters to fully estimate. Models allowing the other parameters (σ^2 – individual heterogeneity across primaries; ϕ – apparent survival between primary occasions) to vary among years or remain constant were tested to determine the most parsimonious fit.

To assess the potential for immigration or emigration of individuals to or from the study area between occasions, we searched other datasets of similar surveys in the Mustang and North Padre Island areas (near Corpus Christi) and South Padre Island (just north of Boca Chica) for records of the individuals encountered at Boca Chica. The Boca Chica area was considered the terminal wintering site.

RESULTS

A total of 379 observations of 85 uniquely marked Piping Plovers were recorded in the surveys. With the exception of the four individuals captured at Boca Chica, all others were originally marked on breeding grounds in the Northern Great Plains.

The model allowing α , σ^2 , U , and ϕ to vary with time (with w and g fixed to 1.0 and γ' and γ'' fixed to 0.0) was the only model that properly estimated all real and derived parameters.

The point estimates (\hat{N}) indicate the wintering Piping Plover population at the site declined from approximately 308 to 142 over the course of three years, a 54% decline (Table 1, Fig. 1) since 2018 (= the 2018/19 nonbreeding season). The decline between the first and second years was over 38%, and the

trend continued downward in the following years. None of the confidence intervals in the last three years of the study overlap with the initial year. The fit of a linear trend through the point estimates over time was 0.82.

Apparent annual survival (ϕ_a) measured in this study ranged between 0.57-0.62 (Table 1). Since all marked birds in this study were breeding-age adults prior to entering the study area (or for those banded on site – were breeding-age adults at capture), these estimates reflect adult apparent annual survival.

Table 1: Population size (\hat{N}), encounter probability (\hat{p}^*) and annual survival estimates (ϕ_a) with lower/upper 95% confidence intervals for Piping Plovers at Boca Chica. “Year” is the calendar year of the beginning of the nonbreeding period (i.e. “2018” is fall and winter beginning 2018, ending 2019).

Year	\hat{N}	LCI (95%)	UCI (95%)	\hat{p}^*	LCI (95%)	UCI (95%)	ϕ_a	LCI (95%)	UCI (95%)
2018	308.0	260.7	363.8	0.91	0.83	0.95	-	-	-
2019	189.0	146.1	244.4	0.83	0.72	0.91	0.57	0.43	0.69
2020	147.8	118.2	184.9	0.93	0.84	0.97	0.62	0.44	0.78
2021	141.8	86.6	232.3	0.81	0.49	0.95	0.61	0.30	0.85

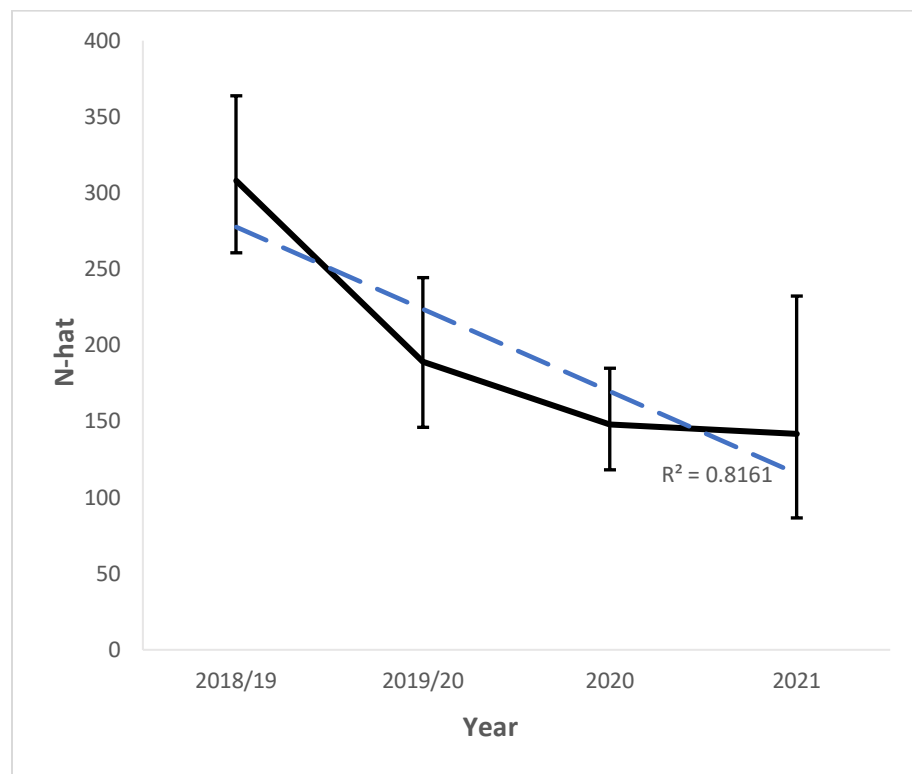


Fig. 1. Population estimate (including 95% confidence intervals) and trend of Piping Plovers at Boca Chica, 2018-2021.

DISCUSSION

The overwhelming provenance of marked individuals from the Northern Great Plains (NGP) breeding population suggests plovers wintering at Boca Chica are almost entirely associated with that population (the two other breeding populations – the Great Lakes population of *C. m. circumcinctus* and the coastal Atlantic *C. m. melodus* population – had even more extensive banding programs during this timeframe but were not detected at the site during the study period), consistent with results of a range-wide connectivity analysis (Gratto-Trevor et al 2011). While birds from the far smaller Endangered Great Lakes population have been documented at the site in the past, none were detected at the site during this study.

The NGP breeding population is estimated at 4,700 individuals (Andres et al 2012). The population point estimate at Boca Chica in the first year of the study (~308) represents approximately 6.5% of that population while the point estimate in 2021 (~142 individuals) represents 3.0%. With no evidence that birds have changed wintering areas, this would suggest the NGP population experienced a ~3.5% decline over the period solely based on the trend at this specific site. Alternate hypotheses are that the entire NGP population has undergone a >50% decline in only four years, or that the population is in fact stable but greater numbers of unmarked individuals are now occupying other sites. The former hypothesis has no support, as such a catastrophic decline would not escape notice of many field-based projects on the species both in breeding and other wintering areas. While the latter hypothesis is plausible (it would require similar analysis of concurrent years at many other sites across the wintering range to test), wintering site fidelity is known to be very high with this species. If this hypothesis were correct, we would likely have detected at least some of these individuals at other wintering sites (none were).

Based on this model and data structure, the survival estimates represent the probability of an adult bird surviving from one nonbreeding season to the next. Since the nonbreeding season for Piping Plovers at the site is fairly long (~8 months), it cannot be definitively determined what part of the annual cycle is responsible for the highest component of the mortality (the inverse of survival). This model estimates “apparent” survival, assumed to be equal or lower than “true” survival which is the sum of apparent survival plus emigration from the site (a bird that survived but is no longer “available” to be seen at the site). However, none of the birds in this study were detected in other surveys in the most adjacent suitable habitat (Laguna Madre shoreline of South Padre Island), suggesting emigration is unlikely to have been a significant component of the inverse of apparent survival (i.e. the decline more likely reflects true mortality). The propensity for individuals to remain faithful to a wintering site despite high disturbance and/or degraded habitat quality can lead to lower site-level survival (Gibson et al 2018) as seen in this study.

Breeding-ground-based studies have yielded adult apparent annual survival estimates between 0.69-0.81 (Larson et al 2000; Roche et al 2010). Using a Barker model which approximates true survival (accounting for movement in/out of a site), Cohen and Gratto-Trevor (2011) estimated annual survival at 0.80 for adults for the studied Prairie Canada component of the NGP population. Similarly, a study incorporating both breeding and nonbreeding areas estimated apparent annual survival of the Texas population at 0.80 (Ellis et al, *in press*). Given the geographic scope of that study and very limited evidence of emigration, the authors suggest the apparent survival estimates closely approximate true survival.

Estimates from nonbreeding-ground-centric studies are more variable. Gibson et al (2018) estimated true survival at a range of sites across the southeast US Atlantic coast between 0.50-0.92, linking lower survival rates with sites experiencing higher levels of anthropogenic disturbance (a composite metric incorporating recreational beach usage and shoreline modification). The only sites in that study with lower survival estimates (0.50 and 0.55) than in our study were geographically proximate, not truly independent, and one was undergoing a significant natural loss of suitable habitat during the studied interval while the other had high levels of anthropogenic disturbance. Estimates of site fidelity in the Gibson et al (2017) study ranged from 0.73-0.91. While we did not explicitly measure site fidelity in this study, the fact that none of the uniquely-marked individuals detected in the study were ever detected in nearby sites in the winter suggests fidelity was very high. This would mean our apparent survival estimates are likely a close approximation to true survival.

A simulation study on the US NGP population of Piping Plovers (i.e., this study population, in part) demonstrated that variations in adult survival have the strongest potential to affect population trends compared to other demographic rates (McGowan and Ryan 2009). This means relatively minor decreases in adult survival across the population would likely accelerate population declines. A drastic decrease in survival at a key site such as this could have similar consequences.

The results of this study indicate a rapid and substantial loss of the population of Piping Plovers at the site (and to the NGP population), and that it may be functioning as a population sink.

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Coastal Bend Bays & Estuaries Program

NESTING OF SNOWY AND WILSON'S PLOVERS AT BOCA CHICA 2017-2021

October 31, 2021



Submitted by:

David Newstead, Brooke Hill, Stephanie Bilodeau, Justin LeClaire
Coastal Bend Bays & Estuaries Program

BACKGROUND

Snowy Plovers (*Charadrius nivosus*) and Wilson's Plovers (*Charadrius wilsonia*) are two species of small shorebirds that nest on open and sparsely-vegetated marine and estuarine flats along the coast of Texas. The Boca Chica area – comprising lands protected for their outstanding wildlife value as parts of Lower Rio Grande Valley National Wildlife Refuge, and Boca Chica and Brazos Island State Parks – contains some of the most extensive expanses of this type of habitat anywhere throughout the species' range. Both species are on the 2016 State of North America's Birds Watch List, meaning they are species most at risk of extinction without significant conservation actions to reverse declines and reduce threats (NABCI 2016). Their populations are facing many threats throughout their breeding range, with habitat loss and degradation, caused by increasing development and recreation on the coasts, being one of the primary threats (Page et al 2009). Plovers are also susceptible to disturbance on nest sites by beachgoers, pets, predators and vehicular traffic. When plovers leave their nests due to disturbance, the eggs are exposed to the elements and possible predation (Corbat and Bergstrom 2000).

STUDY SITE

The study area is located in the Boca Chica Subdelta of the Rio Grande in southeastern Cameron County, Texas (USFWS 2012). The Boca Chica area is bordered on the south by the mouth of the Rio Grande River and on the North by the Brownsville Ship Channel and South Bay (Fig. 1). Habitats within the area includes wide expanses of coastal grasslands and lomas mixed with wind tidal flats and a 7-mile stretch of coastline with associated dunes. The expansive tidally-influenced flats at Boca Chica provide important foraging and roosting habitat for many shorebird species including a large population of Piping Plovers (listed Threatened under Endangered Species Act) during the nonbreeding season.

TX Highway 4 is a state highway which runs east to west through the habitat all the way to the Gulf beach. The federally- and state-protected lands are open to foot traffic and the beach is the only part of the tract that is open to vehicular access. In recent decades, some visitors used off-road vehicles to access distant parts of the properties, driving through sensitive tidal flat habitat and especially along the upper edge of this habitat where plovers are normally inclined to nest. South Bay, on the north side of Boca Chica, is a popular kayaking/fishing spot typically accessed through the flats or from the beach through the overwashes. There have been efforts in recent years to reduce vehicular traffic in the flats and through overwashes using signage and bollard/cable.



Figure 1. Boca Chica study area with four study sites in yellow, and the general location of the SpaceX facilities marked by red "X." The LLCC is the Launch and Landing Control Center; the VLA is the Vertical Launch Area. Google Earth imagery has not been updated for this area since SpaceX began major conversion of the two sites for rocket production and testing/launching.

The area has historically had a very light human footprint, with only a small subdivision of homes in one area where the land rises a few feet above the surrounding tidal flats. However, in 2014, SpaceX selected the area for development of a launchsite for Falcon 9 and Falcon Heavy class rockets. That project was evaluated by an Environmental Impact Statement (EIS) issued by the Federal Aviation Administration (FAA). In 2017-2018, there were relatively minor levels of construction activity in the Vehicle Launch Area (VLA) site on the property on the south side of Highway 4 just west of the entrance to the Gulf beach. In 2019, construction activity began to increase both at the VLA and the Launch and Landing Control Center (LLCC) further west. Pressure-testing of rocket components and static-fire testing of rocket engines began at the VLA in 2019, and increased in frequency and intensity through 2021 as Starship prototype rockets underwent component testing and launch attempts (Wikipedia, "SpaceX South Texas launch site," accessed 1 November 2021). Several events during this

phase directly affected the study area, including two fires that ignited via flaming debris ejected from the VLA, and multiple rocket prototype explosions that sent large pieces of debris into the surrounding federal and state protected lands (including this project study area). People and equipment traversed much of the Launchsite Vicinity study site during debris recovery operations, especially during the 2020 and 2021 breeding seasons. The original proposed project for launching Falcon 9 and Falcon Heavy rockets never happened at the site, and the major expansion in production facilities and associated infrastructure, and the testing and launching of a much more powerful series of rockets did not undergo a new EIS. As of October 2021, the FAA is reviewing potential impacts of a far more expansive project including addition of a power plant, a gas plant, liquefier, desalination plant and redundant launchpads in addition to testing the largest rocket ever proposed for launch from earth.

We have been monitoring the nesting activity of Snowy and Wilson's Plovers in the Boca Chica area since 2017. The purpose of this report is to describe the spatial distribution and trends in nesting activity over that timeframe.

METHODS

The study area was monitored beginning in February in each year and continued until the last nest either hatched or failed, typically in mid-July. The area was searched by either walking through or adjacent to each site and scanning with binoculars for either incubating birds, or more frequently, behavioral cues that indicated nesting activity. Both species typically leave an active nest well in advance of arrival of a perceived threat, and vocalize and/or feign injury to distract the threat and draw it away from the actual nest. These cues allowed an observer to find nests by moving away so that they were no longer perceived as a threat and observing from a distance as a bird returned to an active nest or chicks. GPS locations were recorded for each nest encountered.

The study area represents only a portion of the suitable habitat available at Boca Chica. This was the maximum area that could feasibly be surveyed by 1 person on foot in a day. These areas were chosen for their relative ease of accessibility and for habitat suitability for nesting Wilson's and Snowy Plovers.

The study area was divided into four discrete "sites" for the purpose of this analysis (Fig. 1). The Launchsite Vicinity site was expanded slightly in 2019 to incorporate some additional nesting area that was not covered in 2017 or 2018. Wilson's Plovers were found to be nesting in that area in 2019 but Snowy Plovers were never encountered there. Since the area provides less preferable habitat for Snowy Plovers, data for that site is considered complete for 2017-2021 for that species, and from 2019-2021 for Wilson's Plovers.

For each nest check, the time, number of eggs or chicks, and signs of disturbance within 50 meters of the nest were recorded. Signs of disturbance include an actual sighting of a predator species or tracks left behind of a predator or a vehicle since the previous nest check. For each nest, an initiation date (estimated or actual date of first egg laid), incubation date (estimated or actual date of last egg laid and beginning of full-time incubation), and a projected hatch date (incubation date plus species incubation period) were recorded. A nest was recorded as hatched if chicks were observed in or around the nest bowl, pipping fragments (indicating a hatched egg) were found in the nest bowl, eggs that were pipping on the previous visit were gone on the next visit, or if adults from the nest were behaving in

ways that indicated they had chicks hiding nearby. A nest was recorded as failed if it was gone starting several days before its estimated hatch date; if heavy rains or high tides recently occurred, or the nest site was covered in water, it was labeled as washed out; if predator tracks led to the nest, broken eggs with yolk were found, or the eggs had otherwise disappeared with no chance of having hatched, it was labeled as predated. Other causes of failure may have been abandonment by parents or human disturbance. A nest was recorded as having an unknown fate if it could not be definitively determined that the nest hatched or failed.

As part of a long-term study on survival and dispersal, some birds were captured and leg-banded with a unique color band combination to allow for identification of unique individuals upon encounter in the future.

RESULTS

Survey frequency during the nesting season varied between 0.74 surveys/week in 2018 to 2.75 surveys/week in 2019. There was a weak relationship ($R^2 = 0.379$) between survey frequency and number of nests found.

Across the project study area, the number of Snowy Plover nest attempts ranged from a high of 56 in 2019 to a low of 4 in 2021; Wilson's Plover nest attempts ranged from a high of 20 in 2017 and 2019 to a low of 9 in 2020 (Table 1).

Species	Site	2017	2018	2019	2020	2021
	TOTAL	37	32	56	37	4
Snowy Plover	Launchsite Vicinity	13	7	11	4	0
	non-Launchsite combined	24	25	45	33	4
	<i>Boca Chica Flats</i>	13	13	18	16	2
	<i>South Overwash</i>	0	3	3	0	0
	<i>North Overwash</i>	11	9	24	17	2
	TOTAL	20	13	20	9	13
Wilson's Plover	Launchsite Vicinity	a*	a*	4	2	1
	non-Launchsite combined	20	13	16	7	12
	<i>Boca Chica Flats</i>	11	5	7	3	1
	<i>South Overwash</i>	2	7	7	2	6
	<i>North Overwash</i>	7	1	2	2	5

Table 1. Number of nest attempts recorded for each species in the respective sites from 2017-2021. a* - the part of this site where Wilson's Plovers were detected nesting in 2019 was not covered in 2017 or 2018.

Time trends were compared between the Launchsite Vicinity and the three other sites combined. All time trends for both species and the site comparisons were negative. Variability between years in number of nest attempts at non-Launchsite Vicinity sites resulted in low R^2 values, while the correlation was much stronger in the Launchsite Vicinity (Figs. 2 & 3). In the Launchsite Vicinity site, there were no nest attempts by Snowy Plovers in 2021, and one attempt by Wilson's Plovers. Site maps showing locations of nest attempts are provided in Appendix I following the text of this report.

At specific sites within a year, hatching success ranged from 0.0 to 1.0, but in many cases these rates are based on only one or a small number of nests. Across all sites within years, nest success ranged from 0.11-0.30 for Snowy Plovers, and 0.16-0.56 for Wilson's Plovers. Actual hatch rates may be slightly higher, as it was not always possible to determine nest fate especially when effort was limited by closures. Combining all nests monitored across sites and years, minimum overall hatch rate was 0.22 and 0.29 for Snowy and Wilson's Plovers, respectively, while unknown nest fates constituted 0.38 and 0.30 of all nest attempts.

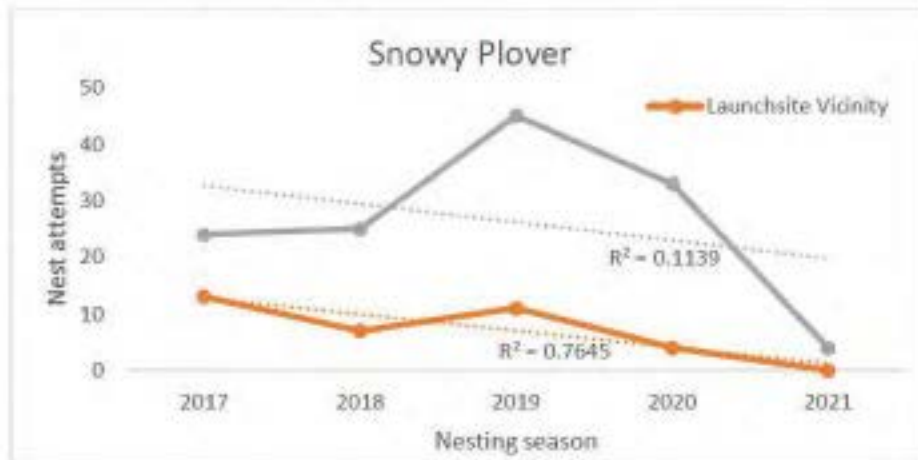


Figure 2. Number of nest attempts by Snowy Plovers at the Launchsite Vicinity site and the other three sites combined, 2017-2021.

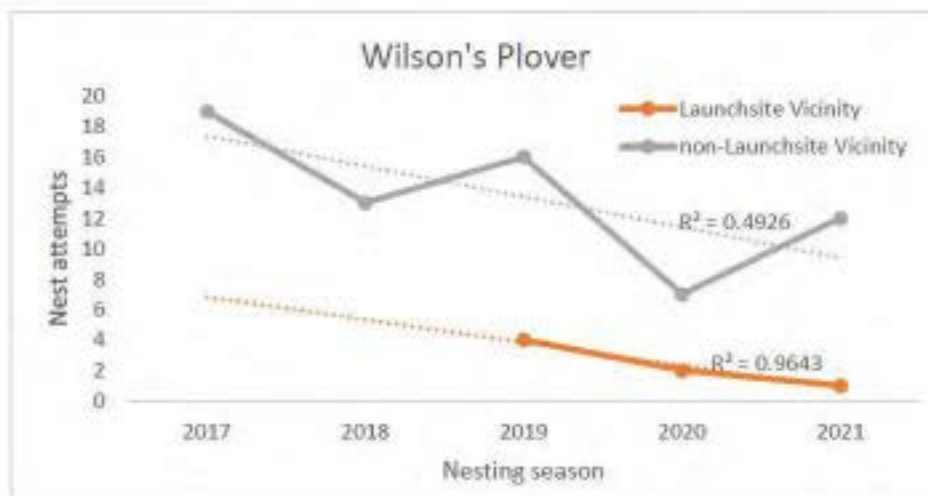


Figure 3. Number of nest attempts by Wilson's Plovers at the Launchsite Vicinity and the other three sites combined, 2017-2021. The area within the Launchsite Vicinity where Wilson's Plovers were detected nesting in 2019 was not covered as part of this site in 2017 or 2018.

Foot and vehicle traffic generally increased throughout the area near the VLA and LLCC over the duration of the study. In addition to security personnel, tourists entering the flats seeking photos of the launch area from various angles have also increased over time. Photos illustrating nesting habitat and anthropogenic disturbances are provided in Fig. 4.



Figure 4. Photos from LRGV NWR and Boca Chica State Park: A) Wilson's Plover nest in sparse halophytic vegetation, 2017; B) Snowy Plover nest on open ground in flats, 2017; C) brood of three Snowy Plover chicks sheltering in sparse halophytic vegetation, 2020; D) ATV tracks near an abandoned Snowy Plover nest (red circle), 2017; E) truck and ATV tracks across nesting and foraging habitat of tidal flats, 2017; F) a Snowy Plover nest recently crushed by a truck tire, 2020; G) one of many vehicles encountered mired in tidal flat sediments, April 2019; H) deep rutting following removal of mired vehicles, April 2019; I) debris from SN11 explosion spread across Boca Chica State Park flats north of VLA, March 30, 2021; J) large rocket piece on wet tidal flats on Boca Chica State Park, March 30, 2021; K) initial debris assessment recovery efforts involving personnel on foot, March 30, 2021.

DISCUSSION

There was an overall negative trend in nesting activity across all sites combined. Somewhat greater variability between years (not consistent downward trend) at the sites more distant from the launch area may be more related to habitat conditions varying between years due to storms and abnormal tides, and other stochastic phenomena, which can affect the availability and suitability of a site. That

overall trend appears to be led by the decrease in Wilson's Plover nesting in 2020, and the near abandonment of the area by Snowy Plovers in 2021.

In the vicinity of the VLA, there was a sharp decrease in Snowy Plover nest attempts in 2020, and they made no attempts in 2021 (average of 9.3 nests at site from 2017-2019). There are fewer years of data of full coverage of that site for Wilson's Plovers, but the three most recent years show a declining trend. The single nest in the site in 2021 was initiated on May 22, well after the last major rocket explosion on March 30, 2021 as well as the first Starship prototype that landed without exploding on May 5. It hatched on June 18.

The number of nest attempts is not a direct proxy for "success" of the species at a site, since nests can fail (through predation, destruction, flooding, etc) and mated pairs will often re-nest several times through the season. Hence, a higher number of nest attempts can sometimes be an indicator of high rates of failure. Observation of scatter plots of nest failures relative to attempts showed a strong positive relationship across sites and years (meaning nest failures were more a function of nest attempts rather than attributable to any specific site(s) or year(s)), however, the relatively high proportions of attempts to which we could not ascribe a hatch/fail fate makes further exploration of this relationship of limited value.

Both species are considered migratory, though there are considerable differences in their migratory habits. Snowy Plovers breeding in the area show some capacity to disperse to different areas during the nonbreeding season and likely wander into northeast Mexico. Those that stay in the area are joined by others from the interior populations that breed in parts of north Texas, eastern New Mexico, Oklahoma and occasionally farther north. Wilson's Plovers are nearly wholly migratory. While small numbers remain in Texas during the nonbreeding season, they are mostly gone, much further into Mexico or Central America, between September and April.

Because of these differences, the species (and individuals) would vary in their levels of exposure to activities related to rocket testing and launches at Boca Chica. Being absent from the area during explosions would obviously reduce their exposure to noise, visual, and other immediate direct impacts at the site. However, birds not present for six months might arrive in spring "naïve" about potential threats that have increased during their absence, choosing nesting sites without that knowledge.

While frequency of surveys was lower in 2021 due to access restrictions, the reduced effort probably did not substantially reduce the number of nesting attempts detected. In fact, the number of Wilson's Plover nests monitored in 2021 at all sites combined was actually slightly higher than in 2020 when survey effort was substantially greater.

The trends suggest the area surrounding the VLA has been nearly completely abandoned by nesting shorebirds as of the past year, and that causes of that decline may be having more far-reaching effects by reducing nesting activity throughout the area.

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Appendix I. Locations of nest attempts within study sites of Boca Chica study area, 2017-2021.

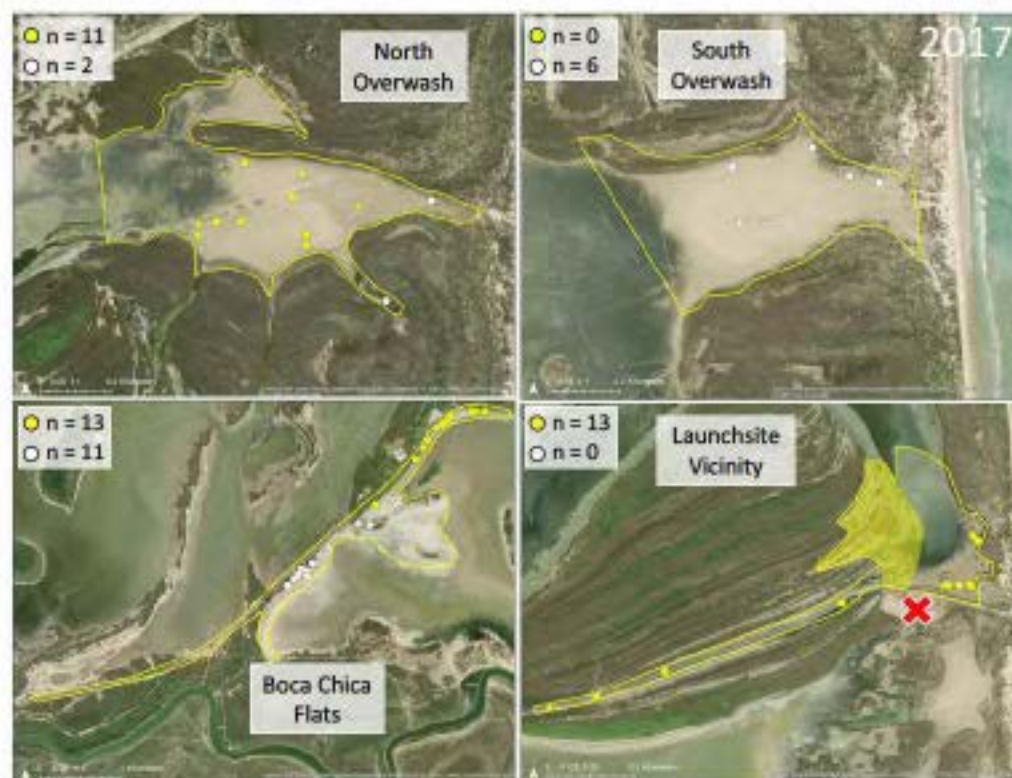


Figure 5. Nest locations by site, 2017. Snowy Plover and Wilson's Plover nests represented by white and yellow dots, respectively. SpaceX VLA denoted by red X. The shaded area in Launchsite Vicinity site was not surveyed in 2017 or 2018.

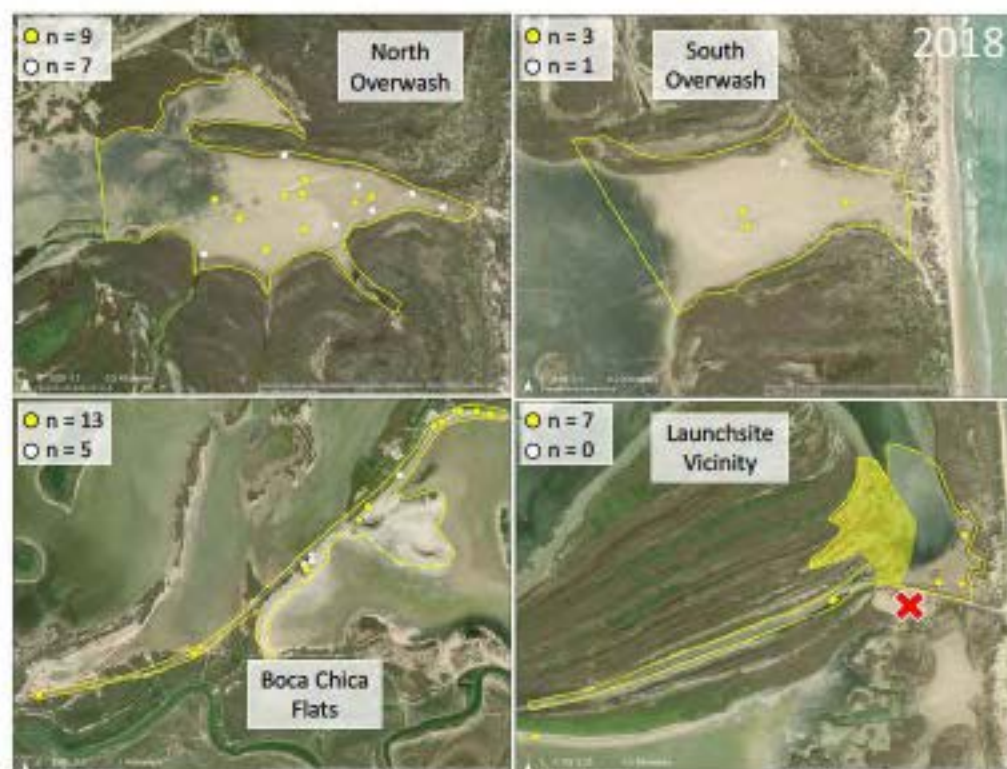


Figure 6. Nest locations by site, 2018. Snowy Plover and Wilson's Plover nests represented by white and yellow dots, respectively. SpaceX VLA denoted by red X. The shaded area in Launchsite Vicinity site was not surveyed in 2017 or 2018.

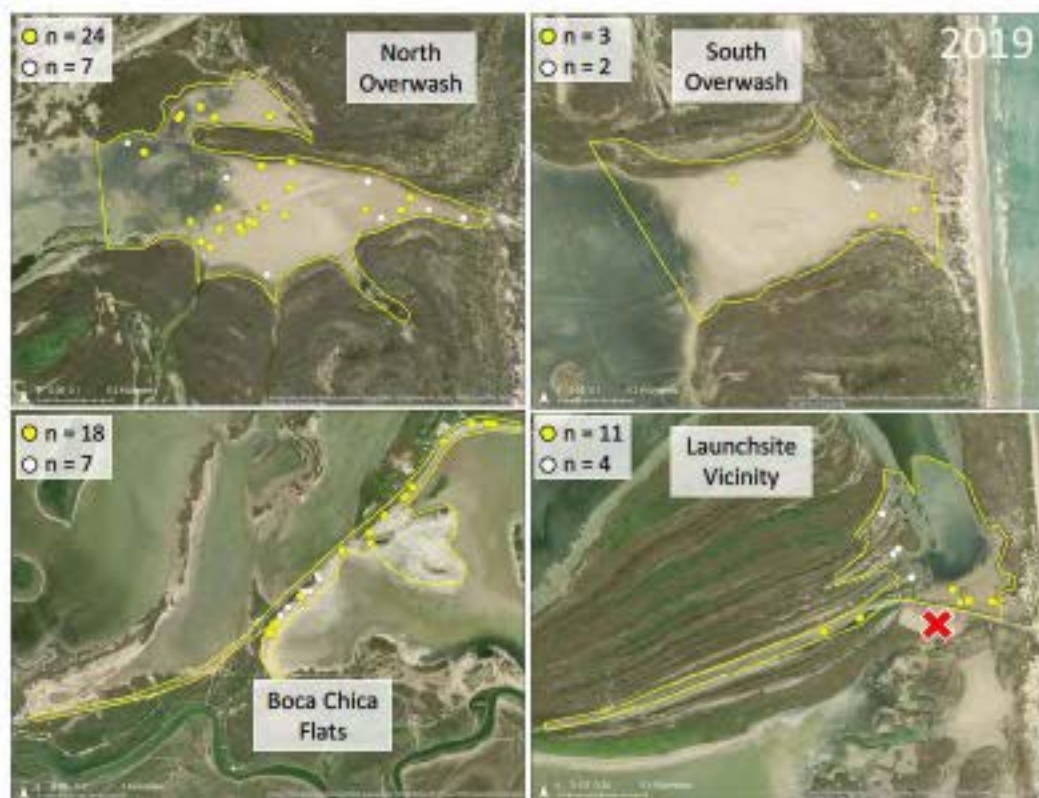


Figure 7. Nest locations by site, 2019. Snowy Plover and Wilson's Plover nests represented by white and yellow dots, respectively. SpaceX VLA denoted by red X.

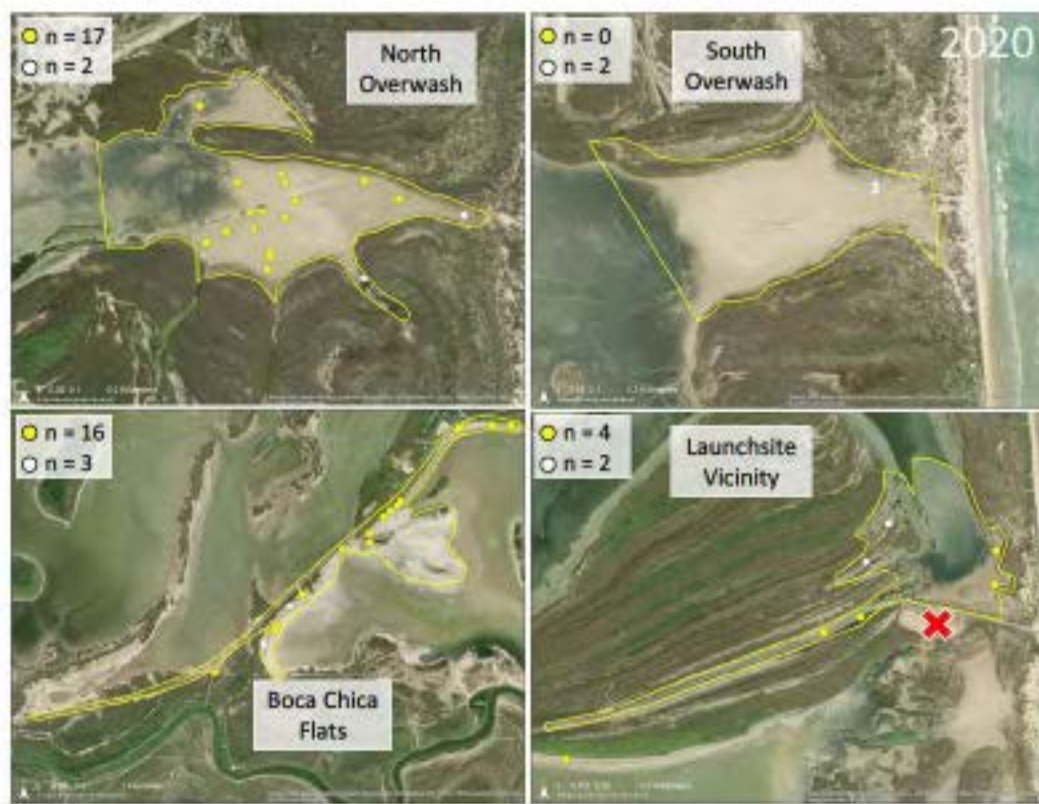


Figure 8. Nest locations by site, 2020. Snowy Plover and Wilson's Plover nests represented by white and yellow dots, respectively. SpaceX VLA denoted by red X.

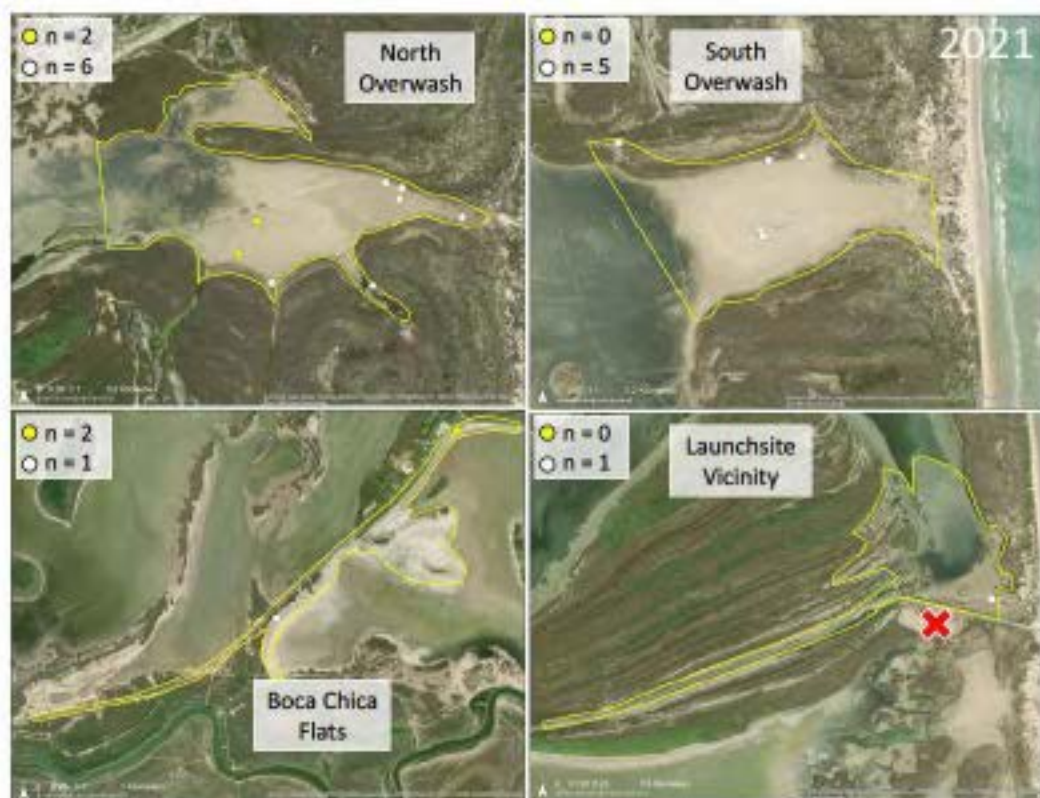


Figure 9. Nest locations by site, 2021. Snowy Plover and Wilson's Plover nests represented by white and yellow dots, respectively. SpaceX VLA denoted by red X.

From: Florian Meier <[REDACTED]>
Sent: Monday, November 1, 2021 10:23 AM
To: SpaceXBocaChica
Subject: Comments on Draft PEA

Hi,

1. NASA has selected SpaceX as the sole provider for the HLS (Human Landing System) for the Artemis Program. This critical mission is scheduled for 2024 and will include up to 16 (and at least 8 according to Elon Musk) Starship launches from Boca Chica, as per NASA's Source Selection Statement. It is expected that a prior unmanned test mission will also include up to 16 (and at least 8 according to Elon Musk) Starship launches for testing of the orbital refueling procedure. Why is the PEA Draft request for only 5 orbital missions a year, when even the publicly known HLS mission has more than that?

2. I've noticed that after every test of Starship (Engine Static Fires, Cryogenic Pressure Tests, High Altitude Flight Test) the remaining Methane Fuel in the Starship Fuel Tank is vented straight into the atmosphere. This will also happen after the Sub-Orbital and Orbital Tests, because the Starship cannot be safely approached and secured after landing if there is still Methane in the tanks. Why is this Methane venting of a very powerful greenhouse gas not mentioned in the PEA Draft?

Best regards,
Florian Meier

From: Mark Rinaldi <[REDACTED]>
Sent: Monday, November 1, 2021 9:28 AM
To: SpaceXBocaChica
Subject: Comments on draft Programmatic Environmental Assessment for SpaceX Starship/Super Heavy

Dear Ms. Zee,

I have just completed reading the draft PEA. As a retired electrical engineer (45 years) let me begin by praising the thoroughness and professional quality of the document.

Also I must first confess my lack of objectivity so to speak when it comes to matters involving humanity's exploration of space. I had just graduated from high school about to embark on my pursuit of a career in engineering when Apollo 11 launched to the moon. I and a close group of high school friends devoured all we could learn about the space race. This fascination, love is not too strong a word to describe it, with all things space was a major factor in choosing my college major in aeronautical engineering. Sadly two things were responsible for me changing my major in my sophomore year. First, I ran headfirst into fluid mechanics. Second and more important, of course, the space program as we knew it was winding down. Boeing and other contractors were laying off engineers in large numbers. Although I switched majors to electrical engineering, my interest in space never diminished. I followed the shuttle program and even witnessed a landing at Edwards AFB. But that program never captured my imagination as did Apollo.

Which brings me to today and Starship. After reading the PEA I am convinced that there is the capability and good will by everyone involved not only to achieve this goal, but to do it in a way that is both safe and minimally disruptive to both the people and the environment of the Boca Chica area.

As an experienced engineer I know that one document, no matter how thorough, can possibly foresee all of the problems and issues that will inevitably arise during such a complex engineering undertaking. The document must evolve over time and be tested to see what needs modification in the light of new knowledge or developments. What is essential is that all parties involved commit themselves to a working relationship that emphasizes both trust and openness and allows cooperative and constructive means of overcoming problems. The PEA is a good first step toward establishing such a relationship between SpaceX, FAA, NASA, and government bodies at all levels.

It feels like Apollo again with its goal of a manned landing on the moon. This goal, human exploration and colonization of Mars, once again seems so worthy of the effort. I hope that all of us can work toward successfully achieving that goal.

Sincerely
Mark Rinaldi

From: Mark Sossi <[REDACTED]>
Sent: Monday, November 1, 2021 2:33 PM
To: SpaceXBocaChica
Subject: Comments on SpaceX Draft PEA, Boca Chica Beach, Texas
Attachments: Letter of Support, SpaceX.pdf

Dear Mrs. Zee,

Please find enclosed a statement in favor of Space Exploration Technologies (SpaceX) Proposal to operate a starship/ Super Heavy Launch Vehicle at its' present launch site at Boca Chica Beach.

Mark Sossi

Troiani and Sossi pllc
Attorneys at Law

Mark Sossi
(956) 455 5414

1 November , 2021

Ms. Stacey Zee
Space X PEA, c/o ICF
9300 Lee Highway
Fairfax, Va. 22031
Attn: [REDACTED]

Re: Comments on SpaceX Draft PEA, Boca Chica Beach, Texas

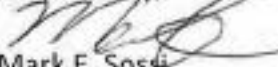
To whom it may concern;

My name is Mark Sossi. I am a managing partner of the law firm of Troiani and Sossi pllc. I live in Brownsville, Texas which is located very close to Boca Chica Beach. I strongly support Space Exploration Technologies (SpaceX) proposal to operate the Starship/Super Heavy Launch vehicle at its present launch site at Boca Chica Beach in Cameron County, Texas.

SpaceX has consistently demonstrated that they are good stewards of the environment at Boca Chica Beach. While no companies' operations are ever perfect, the company has consistently demonstrated a willingness to minimize environmental impact on Boca Chica Beach from their operations. Their launches have had no noticeable impact on breeding Kemps Ridley Sea Turtles which are indigenous to the area. This February, SpaceX provided a power generator to provide heat for approximately 4,000 freezing sea turtles rescued by volunteers from a polar vortex. These endangered turtles would have died but for SpaceX quick intervention. The environmental impact of SpaceX launching the Starship/ Super Heavy from Boca Chica beach will certainly be less that if the entire area were covered with apartments and condominiums like another neighboring barrier island.

SpaceX expanded presence near the on the US southern border is also a good thing for border security. The security of the southern border is closely tied to its economic prosperity. The presence of a company like SpaceX has the potential to radically improve the local economy in southern Cameron County in the form of expanded employment and diversification of the economy. SpaceX positive impact on the local economy, and ultimately security of the local area cannot be overstated. I believe that the positive impacts of SpaceX expanded presence at Boca Chica Beach on the environment and local economy far outweigh any risks associated with their operation at that remote location.

Respectfully,


Mark E. Sossi

From: Sharon Wilcox <[REDACTED]>
Sent: Monday, November 1, 2021 3:51 PM
To: SpaceXBocaChica
Subject: Comments on the Draft PEA for the Starship / Super Heavy Program by SpaceX
Attachments: Space X - PEA Group Comment Letter.pdf

Dear Ms. Zee,

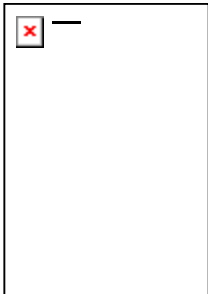
On behalf of Defenders of Wildlife, Surfrider Foundation, American Bird Conservancy, Center for Biological Diversity, Coastal Bend Audubon Society, Environment Texas, the Endangered Species Coalition, Friends of the Wildlife Corridor, Save RGV, Sierra Club Lone Star Chapter, and Texas Campaign for the Environment, please accept these comments on the Draft Programmatic Environmental Assessment for the Starship / Super Heavy Program by SpaceX.

PDF attached.

Sincerely,

Sharon Wilcox, Ph.D.

--



Sharon Wilcox, Ph.D.

Senior Texas Representative

Pronouns: She/Her/Ella

DEFENDERS OF WILDLIFE

Southwest Program, Austin, Texas

TEL: [REDACTED] FAX: [REDACTED]

[Facebook](#) | [Twitter](#) | [Instagram](#) | [Medium](#)

Visit <https://defenders.org/>!



November 1, 2021

Ms. Stacey Zee
SpaceX PEA, c/o ICF
9300 Lee Highway
Fairfax, VA 22031

Transmitted via electronic mail to [REDACTED]

***RE: Comments on SPACEX Draft Programmatic Environmental Assessment for
Starship/Super Heavy Program***

Dear Ms. Zee,

On behalf of the undersigned organizations, Defenders of Wildlife, Surfrider Foundation, American Bird Conservancy, Center for Biological Diversity, Coastal Bend Audubon Society, Environment Texas, the Endangered Species Coalition, Friends of the Wildlife Corridor, Save RGV, Sierra Club Lone Star Chapter, and Texas Campaign for the Environment, please accept these comments on the Draft Programmatic Environmental Assessment ("Draft PEA") for the Starship / Super Heavy Program ("project") by SpaceX, which consists of constructing and operating new testing and launch infrastructure and engaging in associated activities. Agencies, including the Federal Aviation Administration ("FAA"), must comply with the National Environmental Policy Act ("NEPA") during the planning stages of federal agency actions. NEPA is intended to ensure that "unquantified environmental amenities and values may be given appropriate consideration in [federal] decision-making."¹ Under this landmark environmental statute, a federal agency must take a "hard look" at the environmental impacts of its proposed action. The statute is therefore crucial because, when properly executed, it allows federal agencies and members of the public to weigh the environmental consequences of proposed federal actions before agencies reach a final decision regarding the best path forward.

¹ 42 U.S.C. § 4332(B).

We have serious concerns with the Draft PEA that can only be resolved by the FAA developing an Environmental Impact Statement (“EIS”). The project requires an EIS because its impacts on surrounding habitat, listed species, and the neighboring community will be significant. Moreover, the Draft PEA fails to consider dozens of environmental impacts and does not contain sufficient evidence to justify any potential decision to not prepare an EIS. Thus, to comply with NEPA, the FAA must prepare an EIS.

I. The FAA Must Prepare an Environmental Impact Statement

Under NEPA, an agency must prepare a detailed statement, referred to as an EIS, if it plans to undergo a “major Federal action[] significantly affecting the quality of the human environment.”² NEPA regulations include guidance for determining the significance of a project’s impacts, requiring agencies to consider “the potentially affected environment and degree of the effects of the action.”³ The potentially affected environment includes “the affected area (national, regional, or local) and its resources, such as listed species and designated critical habitat under the Endangered Species Act.”⁴ When analyzing the degree of an action’s effect, agencies must consider, among other factors, adverse effects and effects that would violate other laws.⁵ Among other harms, SpaceX’s activities are likely to adversely affect the surrounding area, at least ten listed species, designated critical habitat, and the neighboring community. Moreover, the project’s effects will result in multiple legal violations. Thus, the SpaceX project is likely to have significant environmental impacts, and the FAA must prepare an EIS before moving forward with any approvals.

A. Impacts to the Surrounding Area

The SpaceX launch site is adjacent to and surrounded by national wildlife refuge land, state park land, tidal flats that host many wading bird species, and beaches used by nesting sea turtles. The site is situated near the Lower Rio Grande Valley National Wildlife Refuge (“LRGVNWR”), Boca Chica State Park, Boca Chica Beach, the South Bay Coastal Preserve, Brazos Island State Park, Isla Blanca Park, Las Palomas Wildlife Management Area, and Palmito Ranch Battlefield National Historic Landmark.⁶ This is an ecologically diverse area with a remarkable community of wildlife unlike any other place in the United States. The site is located in a hemispheric meeting place of tropical and subtropical species on a unique matrix of terrestrial, coastal, and marine environments, representing one of the greatest diversity of plants and animals found in one place in North America. This area is a unique flyway for western hemisphere avian species, and more than 250 different bird species have been identified in the area. The ecological sensitivity and vulnerability of this area cannot be overstated, and activities in this area must be carefully managed to reduce, avoid, and mitigate impacts to resident and migrant wildlife.

² *Id.* § 4332(C).

³ 40 C.F.R. § 1501.3(b).

⁴ *Id.* § 1501.3(b)(1).

⁵ *Id.* § 1501.3(b)(2), (b)(2)(ii), (b)(2)(iv).

⁶ Federal Aviation Administration, *Draft Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas* at 121 (Sept. 2021) (“Draft PEA”).

SpaceX's operations have seriously harmed nearby areas and will almost certainly continue to do so. Impacts from testing, launches, and failures include, but are not limited to: explosions, sonic booms, bright lights, debris fields, debris left in the ocean, fire, smoke, and release of hazardous fuels and vapors. In the last two years, SpaceX operations have caused repeated explosions, including—among other dates—on November 20, 2019,⁷ May 29, 2020,⁸ June 23, 2020,⁹ December 9, 2020,¹⁰ and March 30, 2021.¹¹ When explosions occur, the debris field can span for miles, which has happened as recently as this year.¹² Exploded rocket debris, along with its removal operations involving heavy machinery such as high-capacity tow trucks and construction dump trucks, have been known to damage sensitive habitat in the area.¹³ Moreover, these explosions can and indeed have caused wildfires, such as two 2019 incidents that “resulted in wildfires of 130-acres and 10-acres respectively burned through coastal prairie and dune habitats on [national wildlife] refuge managed land.”¹⁴ SpaceX's proposed activities, therefore, threaten to disturb, burn, and damage ecologically critical state, federal and privately-owned lands. These are significant, adverse impacts that the FAA cannot overlook.¹⁵ Instead, it must address these in an EIS.

B. Impacts to Listed Species and Critical Habitat

The proposed expansion of SpaceX activities at this site would adversely affect at least ten federally listed species and designated critical habitat for one or two listed species.¹⁶ In its Biological Assessment (“BA”), the FAA admitted that the project is likely to adversely affect three listed species of birds in the area: the threatened red knot (*Calidris canutus rufa*), the threatened piping plover (*Charadrius melodus*), and the endangered northern aplomado falcon (*Falco femoralis*).¹⁷ According to the BA, the area contains potential foraging habitat for all

⁷ Mike Wall, *SpaceX's 1st Full-Size Starship Prototype Suffers Anomaly in Pressure Test* Space.com (Nov. 20, 2019), <https://www.space.com/spacex-starship-prototype-anomaly-pressure-test.html?jwsourc=cl>.

⁸ Tariq Malik, *SpaceX's Starship SN4 Prototype Explodes After Rocket Engine Test* Space.com (May 29, 2020), <https://www.space.com/spacex-starship-sn4-prototype-explodes.html>.

⁹ Tariq Malik, *Boom! SpaceX Pops Huge Starship SN7 Test Tank on Purpose in Pressure Test (videos)*, Space.com (June 23, 2020), <https://www.space.com/spacex-starship-sn7-test-tank-destroyed-videos.html>.

¹⁰ Mike Wall, *SpaceX's Starship SN8 Prototype Soars on Epic Test Launch, with Explosive Landing*, Space.com (Dec. 9, 2020), <https://www.space.com/spacex-starship-sn8-test-launch-landing-explosion>.

¹¹ Amy Thompson, *SpaceX Launches Starship SN11 Rocket Prototype, but Misses Landing*, Space.com (Mar. 30, 2021), <https://www.space.com/spacex-starship-sn11-rocket-launch-2nd-attempt>.

¹² Email from Bryan Winton (Mar. 30, 2021, 21:25 CST) (Estimating that a March 2021 explosion resulted in a 2-3 mile debris field) (Attachment A).

¹³ See, e.g. Email from Randy Reese (Nov. 23, 2019, 17:09 CST) (Attachment B); see also Email from Bryan Winton (Jan 21, 2021, 10:33 CST) (“April 21,22 -2019 - Space X employee(s) get stuck with 2 vehicles and a forklift in tidal flats. Causes significant damage to tidal flats.”) (Attachment C).

¹⁴ Letter from Manuel “Sonny” Perez III, Complex Refuge Manager, South Texas Refuges Complex, U.S. Fish & Wildlife Serv. & Charles Ardizzone, Project Leader, Texas Coastal Ecological Service Office, U.S. Fish & Wildlife Serv. to Daniel P. Murray, Manager, Safety Division, Federal Aviation Administration at 2 (Jan. 22, 2021) (“FWS January 2021 Letter”) (Attachment D).

¹⁵ 40 C.F.R. § 1501.3(b).

¹⁶ See *id.* § 1501.3(b)(1) (agencies should consider impacts to listed species and designated critical habitat when determining an action's significance).

¹⁷ Federal Aviation Administration, *Biological Assessment: SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site*, 63-66 (June 2021) (“BA”). We note that the BA is also inadequate and fails to properly consider many harmful impacts that the project will have to listed species and critical habitat. However,

three species, and northern aplomado falcons may also nest in the vicinity. Noise associated with the project, such as from intensified traffic, construction, engine testing, and sonic booms, is likely to disturb or displace these species and to decrease foraging efficiency. All three species of birds, along with any nests or eggs, could also be killed if they appear within the heat plume created by engine ignition during testing and launches.¹⁸ The heat plume generated by launches would be 212 degrees Fahrenheit within a .3 mile radius of the launch area.¹⁹ Moreover, according to the FAA, northern aplomado falcons could be attracted to nest and perch on proposed infrastructure, such as towers. If they flush off their nests during disturbances, it would expose their eggs or small young to inclement weather and predators, destroying the eggs and killing the young. Finally, the area contains piping plover critical habitat and proposed red knot critical habitat, both of which are also likely to be adversely affected by the project.²⁰ There are no plans to adequately mitigate any of these impacts.

The FAA moreover admitted in its BA that the project is likely to adversely affect endangered Gulf Coast jaguarundis (*Herpailurus yagouaroundi cacomitli*) and ocelots (*Leopardus pardalis*).²¹ Texas is home to the only remaining breeding population of ocelots in the United States. This is a very rare species, with only 15 known individuals residing in the area of Laguna Atascosa National Wildlife Refuge, near the SpaceX site. The last verified jaguarundi near Boca Chica was a mortality that occurred on State Hwy 4 (also known as Boca Chica Boulevard)—the road on which SpaceX is located and by which all employees and visitors must travel. The area near the launch site is part of a broader travel corridor connecting suitable habitat for both species, but the proposal will be accompanied by an expansion in the amount of traffic in the area, increasing the likelihood of a deadly vehicle collision.²² The project could also cause Gulf Coast jaguarundis and ocelots to avoid lit areas and seek alternate travel corridors through their native habitat in the lomas of the LRGVNR, causing them to expend more energy and increasing the possibility of a vehicle collision with a member of the species.²³ Finally, the rocket heat plume may injure or kill individual cats exposed to the plume.²⁴ The FAA has not explained how any of these impacts to Gulf Coast jaguarundis and ocelots would be sufficiently mitigated.

Lastly, in its BA the FAA asserted the project is likely to adversely affect endangered Kemp's ridley sea turtles (*Lepidochelys kempii*), endangered hawksbill sea turtles (*Eretmochelys imbricata*), endangered leatherback sea turtles (*Dermochelys coriacea*), threatened loggerhead sea turtles (*Caretta caretta*), and threatened green sea turtles (*Chelonia mydas*).²⁵ Noise and vibrations generated by rocket launches could cause turtles to abandon their nesting attempts by

even the BA's limited analysis demonstrates that the project can cause serious harm to listed species and critical habitat in the area.

¹⁸ *Id.* at 63-66.

¹⁹ *Id.* at 46.

²⁰ *Id.* at 64-66; Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Rufa Red Knot (*Calidris canutus rufa*), 86 Fed. Reg. 37,410, 37,493-94 (July 15, 2021).

²¹ BA at 67-68.

²² *Id.* at 67.

²³ *Id.* at 67-68.

²⁴ *Id.*

²⁵ *Id.* at 69.

frightening them.²⁶ Vibrations from rocket launches could also damage incubating eggs not collected by Sea Turtle Inc. either because they were overlooked during patrols or they were laid during times when public access was prohibited.²⁷ Also, lighting could potentially be visible from the beach and disorient emerging hatchlings. Finally, sea turtles and hatchlings present near the site at the time of engine ignition could be injured or killed by the rocket heat plume.²⁸ There are no plans to adequately mitigate any of these impacts.

Thus, because this project is likely to adversely affect at least ten listed species and designated critical habitat for one or two listed species, its impacts are significant and must be analyzed and mitigated in an EIS.

C. Impacts to the Neighboring Community and Environmental Justice Concerns

The FAA must also prepare an EIS because the project will likely have significant impacts on the neighboring community, and many of these impacts will be adverse and unduly burdensome. During the NEPA process, “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...”²⁹ According to the draft PEA, “[i]n 2018, minority representation in Cameron County was 89.8 percent and Willacy County was 88.4 percent,” and the median household income for Cameron and Willacy counties was 50 percent of that reported for Texas for the years 2014–2018.³⁰

One negative impact to environmental justice communities includes the encroachment and frequent closures of the public beach. There is immense value of a free public resource, like Boca Chica Beach, especially to communities who need beneficial open space in which to enjoy recreation and other activities. Brownsville residents have highlighted the cultural and environmental value of Boca Chica Beach and concern for its degradation and closure to the public.³¹ Boca Chica Beach is one of the few, undeveloped, free public beaches in the area. Many residents of Brownsville feel a close connection to Boca Chica as being their beach, because access is free of cost, it is easily accessible, and it is closer than the beaches on South Padre Island. The use of natural and open spaces, especially the beach, help to improve physical and mental health and well-being for all.³² No mitigation of public beach access and environmental justice impacts have been identified.

Furthermore, 13 of 18 local historic resources including national battlefields and local cemeteries have been identified for potential adverse effects by the FAA. These sites hold significant local

²⁶ *Id.* at 68.

²⁷ *Id.*

²⁸ *Id.* at 69.

²⁹ Exec. Order 12,898, 59 Fed. Reg. 7629 (Feb. 16, 1994).

³⁰ Draft PEA at 136.

³¹ Nansi Guevara, “When I go to Boca Chica Beach, I see brown joy,” [Letter to the Editor], *MyRGV News*, February 28, 2021, available at <https://myrgv.com/opinion/letters-to-the-editor/2021/02/28/letter-spacex-opposed/>.

³² Significant impacts exist due to the fact that the project will have effects on public health and safety (40 CFR § 1501.3(b)(2)(iii)).

cultural significance and significance for tourism in the area. The proposed mitigation of these impacts is consultation, which assumes that consultation will result in sufficient mitigation measures. Again, no appropriate minimization of and mitigation for the negative effects have been adequately identified.

Environmental harms from this project would disproportionately impact the residents of Cameron County and Brownsville, many of whom are already overburdened by many other sources of pollution. Neighboring communities are already facing structural issues, such as broken windows and disrupted foundations, resulting from the impacts of SpaceX's activities that are already occurring. The proposal will now increase the amount of activity, which would likely be accompanied by increased structural issues, as well as increased air quality concerns, noise impacts, and other environmental degradation described herein.

D. Threatened Legal Violations

The FAA must also prepare an EIS for this project because its effects may violate multiple statutes, including laws that serve to guarantee beach access, govern the National Wildlife Refuge System, and protect other public lands. First, this project greatly affects the ability of the public to access and enjoy the Texas coastline adjacent to the project site, including Boca Chica State Park and Beach, a popular public beach on an 8-mile stretch of sand near the city of Brownsville. This area is enjoyed by coastal enthusiasts, bird watchers, conservationists, and surfers, as well as those who wish to enjoy the beautiful dunes and native plants near the seashore, a pleasant beach walk, search for seashells, and many more coastal activities.

The importance of environmentally responsible beach access, especially to this special place on the South Texas Coast, is guaranteed by local, state and federal law. The Cameron County Beach Access and Dune Protection Plan guarantees beach access in coastal Cameron County and lays out a local plan for accessibility.³³ This includes access to the beautiful coastal prairie and waters of the Gulf of Mexico in Boca Chica Beach. The premier state law on beach access, the Texas Open Beaches Act³⁴, which was passed in 1959 making Texas one of the first states in the nation to have strong beach access protections memorialized in law, states: "It is declared and affirmed to be the public policy of this state that the public, individually and collectively, shall have the *free and unrestricted right of ingress and egress* to and from the state-owned beaches bordering on the seaward shore of the Gulf of Mexico..."³⁵ The 2009 Texas Proposition 9 ("Prop 9"), a legislatively-referred constitutional amendment approved by the Texas electorate, elevated the level of protection of Texas's beaches by making Texas's Open Beaches Act a part of Texas's

³³ State of Texas, County of Cameron, Order No. 2018012017, available at <https://www.glo.texas.gov/coast/coastal-management/forms/files/cameron.pdf> (updated Dec. 11, 2018).

³⁴ Texas Open Beaches Act, Tex. Nat. Res. Code § 61.001-.254.

³⁵ Tex. Nat. Res. Code § 61.011(a)(emphasis added). Additionally, the Texas Open Beaches Act states at § 61.013(a): "It is an offense against the public policy of this state for any person to create, erect, or construct any obstruction, barrier, or restraint that will interfere with the free and unrestricted right of the public, individually and collectively, lawfully and legally to enter or to leave any public beach or to use any public beach or any larger area abutting on or contiguous to a public beach if the public has acquired a right of use or easement to or over the area by prescription, dedication, or has retained a right by virtue of continuous right in the public," and at § 61.022(b): "No local government may regulate vehicular traffic so as to prohibit vehicles from an area of public beach ..."

Constitution.³⁶ Federally, the Coastal Zone Management Act was promulgated into law in 1972 to guide the state implementation of coastal zone management programs. The National Oceanic and Atmospheric Administration, which oversees the state implementation process, requires that coastal management programs include a planning process for protection of and access to state beaches.³⁷ Here, the duty to protect public access is mandated by federal law, incorporated into state and local laws as a priority for the use of coastal resources and activity in the coastal zone.

A conservative estimate of the number of hours that Boca Chica Beach has been closed or inaccessible in 2021 is over 500 hours. According to tracking of Cameron County notices by the Coastal Bend Bays and Estuaries Program, Boca Chica Beach and/or State Highway 4 had been closed for 473 hours from January 2021 to August 2021. These closures occurred on over 100 separate days and created an inaccessible Boca Chica Beach in 2021. These closures have happened in past years, as well. Since 2019, county officials have repeatedly closed off the beach and State Highway 4 (the only road that leads to the beach) for various SpaceX launches, including its Falcon rockets. According to local conservation group Save RGV, the Boca Chica Beach has been closed for SpaceX launches for over 450 hours per year since 2019.

The project's effects will also result in violations of the National Wildlife Refuge System Improvement Act of 1997 ("Refuge Improvement Act").³⁸ For members of the public to use a national wildlife refuge, the U.S. Fish and Wildlife Service ("Service" or "FWS") must engage in a compatibility determination to ensure that activities are compatible with a refuge's purposes.³⁹ It is our understanding that the U.S. Fish and Wildlife Service has no plans to engage in a compatibility determination to authorize SpaceX's use of the Lower Rio Grande Valley National Wildlife Refuge as a debris field and for debris retrieval. However, even if the Service *does* engage in this analysis, there is no possibility that these activities could ever be deemed compatible with the purposes of the refuge. Moreover, whenever a refuge is used for economic purposes, the Service must issue a special use permit for economic activities.⁴⁰ Similarly, we are not aware of any plans to authorize all of SpaceX's current and proposed activities in a special use permit. Moreover, the Refuge Improvement Act requires the Service to administer the System to "ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans."⁴¹ However, largely due to hundreds of hours of forced refuge closures, the Service has explicitly stated that "[d]ue to operations by SpaceX, the FWS's ability to maintain the biological integrity, diversity and environmental health of Refuge resources... has been significantly diminished at the Boca Chica tract."⁴² Finally, the Refuge Improvement Act also requires the Service to "provide for the conservation of fish, wildlife, and plants, and their habitats within the System,"⁴³ and "ensure that the mission of the System... and the purposes of each refuge are carried out,"⁴⁴ The project will impede the Service's ability to do so.

³⁶ Tex. Const. art. I § 33.

³⁷ 16 USC § 1455(d)(2)(1).

³⁸ *Id.* § 668dd-668ee.

³⁹ *Id.* § 668dd(d)(1)(B).

⁴⁰ 50 C.F.R. § 27.97.

⁴¹ 16 U.S.C. § 668dd(a)(4)(B).

⁴² FWS January 2021 Letter at 2-3.

⁴³ 16 U.S.C. § 668dd(a)(4)(A),

⁴⁴ *Id.* at (a)(4)(D).

This proposal, which would cause significant unmitigated environmental damage to nearby lands, would also result in violations of the use restrictions delineated in Section 4(f) of the U.S. Department of Transportation Act of 1966. Section 4(f) provides that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge, only if there is no feasible and prudent alternative to the using that land and the program or project includes all possible planning to minimize harm resulting from the use.⁴⁵ Although SpaceX seeks an exemption to 4(f) requirements by claiming that its “use” is temporary and intermittent, according to the federal judiciary “any park use, *regardless of its degree*, invokes § 4(f).”⁴⁶ Additionally, under federal regulations a “use” of Section 4(f) property can include a temporary adverse occupancy of land.⁴⁷ SpaceX would engage in temporary adverse occupancy of neighboring Section 4(f) lands because public access to Boca Chica State Park, Brazos Island State Park, the South Bay Coastal Preserve, and major portions of LRGVNR, would be closed during launches. Indeed, even the FWS has highlighted this concern, asserting to the FAA that proposed SpaceX activities will in fact result in a “constructive use” of the Boca Chica tract of the LRGVNR.⁴⁸

Thus, the project will have significant unmitigated impacts on neighboring habitat, listed species, and the surrounding community, and the project’s effects will violate the law in multiple ways. The FAA must prepare an EIS to analyze these significant impacts.

II. The Environmental Assessment is Inadequate

Even if it were not clear that the FAA must develop an EIS for the SpaceX project, it would be indefensible for the FAA to issue a Finding of No Significant Impact (“FONSI”) at this stage, because the agency’s Draft PEA does not meet the requirements of NEPA regulations for issuance of a FONSI or Mitigated FONSI. If it is unknown whether an action will be “significant,” then an agency may prepare an EA. An EA must provide “sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.”⁴⁹ In doing so, the EA must discuss the environmental impacts of and alternatives to the proposed action⁵⁰ and must account for connected actions.⁵¹ The Draft PEA, however, fails to adequately consider this information. Overall, the analysis does not provide sufficient evidence to support a FONSI.

The Draft PEA overlooks scores of crucial factors. There has been insufficient launch failure scenario analysis, including associated risk to public safety and natural resources. This is

⁴⁵ 49 U.S.C. § 303. In the landmark Supreme Court case that still guides implementation of section 4(f) Justice Marshall observed that the “very existence” of Section 4(f) demonstrates “that protection of parkland was to be given paramount importance” in planning the nation’s transportation projects. *Citizens to Preserve Overton Park v. Volpe*, 401 U.S. 402, 412 (1971), *overruled on other unrelated grounds*.

⁴⁶ *Louisiana Environmental Society, Inc. v. Coleman*, 537 F.2d 79, 84 (5th Cir.1976) (emphasis added).

⁴⁷ C.F.R. § 774.17.

⁴⁸ FWS January 2021 Letter at 2.

⁴⁹ 40 C.F.R. § 1501.5(c)(1).

⁵⁰ *Id.* § 1501.5(c)(2).

⁵¹ *Id.* § 1501.3(b).

particularly egregious given that failures already are repeatedly occurring yet have never been properly analyzed under NEPA. The Draft PEA should, but did not, adequately consider the impacts that explosion-induced wildfires and debris-removal operations will have on surrounding habitat.

Among other failings, the FAA has not adequately evaluated the infrastructure attached to this project for significant environmental impacts and feasible alternatives. The Draft PEA makes only passing reference to a power plant, without discussing it in any depth and without incorporating it into the site-wide emissions estimate. Moreover, the power plant would require a cooling tower, with additional emissions and/or intake concerns. Other launch-related and power plant operations are estimated to emit 47,522 metric tons of carbon dioxide equivalent per year,⁵² with no mitigation measures attached to this massive greenhouse gas emission, as well as 102 tons of carbon monoxide per year.⁵³ The proposed Liquefied Natural Gas (“LNG”) export terminals and a proposed crude upgrading, processing and export facility that includes marine loading berths 6 miles offshore have not been evaluated for connected water quality and marine life degradation concerns.

Additional connected concerns that have not been addressed, sufficiently characterized, and/or fully evaluated, include but are not limited to:

- Air quality and public health concerns, including those associated with the proposed 250 MW combined-cycle fossil-fuel fired steam electric power plant, which may qualify as a “major emitting facility”⁵⁴ subject to Prevention of Significant Deterioration regulations⁵⁵;
- Water quality impacts associated with development and industrial applications, including the desalination plant;
- Impacts to listed species and critical habitat;
- Growth inducement and development impacts associated with augmented water, power and gas needs to accommodate a large workforce;
- Gas extraction, LNG transportation, and storage;
- Greenhouse gas emissions for auxiliary projects;
- HAZMAT, solid waste, and pollution prevention;
- Land use and other impacts to public lands; and
- Health and safety, particularly as it relates to "anomaly" explosions, sonic booms/overpressure, and high decibel noise in proximity to populated areas and schools.

Looking down the road at the profound impacts this project could have on this geographic area and sensitive coastal resources, the FAA should take into account how to minimize related impacts that are feasibly connected to the SpaceX project if it were to proceed. These effects are reasonably foreseeable given the immense scope and future plans of the project. The effects should be analyzed thoughtfully, controlled, and mitigated at this early date.

⁵² Draft PEA for Starship/Super Heavy at Boca Chica at Table 3-3, p. 47.

⁵³ Draft PEA for Starship/Super Heavy at Boca Chica at Table 3-2, p. 44.

⁵⁴ 42 U.S.C. § 7479 (1).

⁵⁵ 40 C.F.R. § 52.21.

III. Conclusion

In summary, the Draft PEA is deficient because it does not include a sufficient level of detail about the project or its potential impacts. Notwithstanding, given what is already known and can otherwise reasonably be surmised, the project will result in significant environmental impacts for which proper mitigation has not been proposed. A comprehensive EIS, with full analysis of all components of the project, including its connected actions, is needed to understand the full extent of impacts that this project may cause.

Thank you for your consideration of these comments.

Sincerely,

Lindsay Dubin, Staff Attorney
Defenders of Wildlife

Angela T. Howe, Esq., Legal Director
Surfrider Foundation

Emily Jo Williams, Vice President, South East Region
American Bird Conservancy

Jared Margolis, Senior Attorney
Center for Biological Diversity

Robyn Cobb, President
Coastal Bend Audubon Society

Corry Westbrook, Senior Grassroots and Policy Advisor
Endangered Species Coalition

Seth Billingsley, Conservation Associate
Environment Texas

Jim Chapman, President
Friends of the Wildlife Corridor

Bill Berg, Board Member & Agent
Save RGV

Craig Nazor, Conservation Chair
Sierra Club Lone Star Chapter

Robin Schneider, Executive Director
Texas Campaign for the Environment

Attachment A

From: [REDACTED]
To: [REDACTED]
Subject: Re: DRAFT REPORT SN11 Anomaly - Rocket engine explosion @ 0.5-1 mile above the launch site - 3-30-21
Date: Wednesday, March 31, 2021 7:52:27 AM

Mary- in the current BA, we need them to describe their response to anomalies. Clean up and retrieval will be occurring in piping plover habitat, maybe red knot habitat and black rail habitat and aplomado. Maybe pipl critical habitat.

From: Winton, Bryan <[REDACTED]>
Sent: Tuesday, March 30, 2021 9:25 PM
To: Gardiner, Dawn <[REDACTED]> Orms, Mary <[REDACTED]>
Subject: Fw: DRAFT REPORT SN11 Anomaly - Rocket engine explosion @ 0.5-1 mile above the launch site - 3-30-21

FYI

The debris field is likely 2-3 miles. Majority is on north side of HW 4. Its the worst "anomaly" we've experienced thus far. There is the Full Moon now so tides are high, site is being inundated, and retrieval will be significantly delayed and or more costly (helicopter).

I'll forward a copy of the Final Report.

bryan

From: Winton, Bryan
Sent: Tuesday, March 30, 2021 9:22 PM
To: [REDACTED] <[REDACTED]> [REDACTED] <[REDACTED]>
<[REDACTED]> Garza, Rolando L <[REDACTED]> Stephanie Bilodeau
<[REDACTED]> Edler, Scot <[REDACTED]> Longoria, Gerardo
<[REDACTED]> David Kroskie <[REDACTED]>
Cc: Reagan Faught <[REDACTED]> Perez, Sonny <[REDACTED]>
Fernandez, Oralia Z <[REDACTED]>
Subject: DRAFT REPORT SN11 Anomaly - Rocket engine explosion @ 0.5-1 mile above the launch site - 3-30-21

This is a DRAFT report. I am requesting the TEAM review this summary, and provide feedback by 12pm Wednesday, so that a Complete Recommendation can be reviewed/recommended by TPWD.

Thank you to the staff from TPWD, NPS, CBBEP and FWS for responding to the 7:50am Space X Anomaly/explosion today at Boca Chica.

All staff arrived on-site at or near 1pm today, and stayed until ~6:15pm.

TPWD Biological staff (Liana Garcia and Andres Garcia) were granted the lead on-site to advise me, the POC for the incident, how they recommended Space-X proceed with removal of debris. Leo Alaniz was the Space-X POC.

NPS Cultural Resources Staff (Rolando Garza) and TPWD Cultural Resources Staff (David Kroskie) surveyed the debris field but were not able to access the piling (Historical Features) or the majority of the other cultural resources within the State Park. Coastal Bend Bays and Estuary Biological staff, Stephanie Bilodeau, surveyed the area for nesting birds, evidence of nest initiation, and any evidence of impact from the debris field or Space-X staff which were authorized by myself and the Team to walk the entire debris field in search of the 2nd Flight Termination Device, which is a FAA required safety item.

No GLO representatives were present.

The debris field consists of the entire rocket. Significantly more debris on the Boca Chica State Park, Lower Rio Grande Valley NWR, and, this time, the General Land Office properties, than occurred during the previous 2 Hopper and 3 SN anomalies.

Conditions: Due to Full Moon, and subsequent high tides, the debris field had been or is subject to inundation. From what was reported by Space-X, 90% of the debris is north of the launch site/north of HW4, due to height of rocket upon explosion, and prevailing south winds.

During the afternoon much of the debris was clearly visible partly lodged in or atop the wet/soft alkaline flats.

Staff were on stand-by until 4:45pm when the 2nd Flight Termination Device was located and removed. Upon removal, staff were cleared for access to the alkaline flats to determine substrate firmness and extent of debris field. Staff reported the debris field was much more extensive than when observing from HW4. Lots more large and smaller pieces of debris than previously. Due to height of explosion, much of the materials of larger size are lodged into the alkaline flat. Approximately 20 pieces of debris are of such size that they will require equipment for removal or use of helicopter for removal. The majority of the debris (~50%) appeared to be smaller size pieces that can be removed by hand, by walking on the flats, stockpiling the materials in a particular area onto the edge of 1 of 3 vegetated lomas, where ORV or other small equipment can be used at a later time to load and remove the debris--minimizing widespread ORV/ATV tracking about the flats in the soft substrate. This was a mutual Team recommendation. The Team determined that the least-damaging approach would be to allow foot access only at this time. POC Leo Alaniz was advised that Space-X could continue GPS location for all materials so that upon my arrival on Wednesday, 9am, Space-X may begin debris capable of being collected on foot for stockpiling. Alaniz stated Space-X would focus on debris removal on HW 4, for which there was substantial materials, including 1 of the 3 raptor engines.

TPWD and the Team did not collectively agree on an approach for future debris retrieval. TPWD recommended mats for accessing the larger items that are 0.3-0.5 miles from HW 4. Some items are well into the South Bay, so during high tide those items can be retrieved by boat ideally.

The question for Leadership at this time is can we delay the retrieval due to habitat conditions, and if so, for how long. Best case scenario, the flats will likely not be capable of drying until 3-5 days after Full Moon, and an anticipated northern expected to reach the Valley by Thursday evening. The northern will likely push tidal waters far into the flats up against HW 4. Notwithstanding a significant rain event accompanying the northern, the flats could potentially be in a state they can begin drying by this Friday.

As for removal of the 20+ larger debris items. Either Space-X will need to wait until the flats are dry/firm so equipment can access those items (still high level of expected damage/ruts), and seek assistance via Helicopter so that foot access to debris can be conducted along with slings and hand-carried equipment, and then helicopter removal and drop in a designated area off the State Park/Refuge. The Team did not unanimously agree on the preferred method of retrieval for large debris items, although some participating staff had not responded to any previous Hopper or SN incidents.

US Fish & Wildlife Service will continue to serve as lead for the incident. However, TPWD Leadership, along with FWS Sonny Perez should fine-tune what approach is recommended, so that I can implement the strategy identified.

Bryan Winton

Refuge Manager

Lower Rio Grande Valley National Wildlife Refuge



Attachment B



Orms, Mary <[REDACTED]>

Fwd: [EXTERNAL] SpaceX removal of debris North of Hwy 4

1 message

Winton, Bryan <[REDACTED]> Fri, Nov 29, 2019 at 9:32 AM
To: Sonny Perez <[REDACTED]> Scot Edler <[REDACTED]> Imer Dela Garza <[REDACTED]>
Chris Perez <[REDACTED]> Ernesto Reyes <[REDACTED]> Laura <[REDACTED]> Iriz
Elizondo Navarro <[REDACTED]> Romeo Garcia <[REDACTED]> Gerardo Longoria
<[REDACTED]> Elissa Martinez <[REDACTED]> "Whitehead, Dawn" <[REDACTED]>
"Orms, Mary" <[REDACTED]>

For your records. FAA has called for a Dec 5, 2019 meeting to revisit the EA and Biological Opinion that we worked on since April 2011, which did not turn out to accurately reflect what they (Space-X) have been doing. Their action differs significantly from what they proposed. The road closures and interruptions to the refuge/public beach is considerably more than was anticipated, and the action is now testing, rather than launches, which is inherently more inclined to result in a failure and thus damage to the refuge.

Hopefully their explosions will deter the LNG's from developing our area though. The air quality, viewshed impacts, and degradation of the Boca Chica area would be accelerated if one or more of these industrial energy projects ultimately proceeds.

bryan

----- Forwarded message -----

From: Randy Rees <[REDACTED]>
Date: Sat, Nov 23, 2019 at 5:09 PM
Subject: [EXTERNAL] SpaceX removal of debris North of Hwy 4
To: Extranet Contact - bryan_winton <[REDACTED]> <[REDACTED]>
Cc: Extranet Contact - Stacey.Zee <[REDACTED]> Matthew Thompson <[REDACTED]> Katy Groom <[REDACTED]> Paul Sutter <[REDACTED]>

Hello Bryan,

For Official Use Only

Per my discussion with Scot, I wanted to send some pictures from the removal operation. The team was able to pull the debris with 2 high capacity tow trucks, over to the ATV Barrier. There the debris was rigged and flown with a crane onto our Construction Dump truck for transport to our build area for inspections.

The ATV Barrier is all there, but one bollard needs to be reset/replaced, and then the cable re-tensioned. I can work with you next week on a plan to accomplish the necessary repair.

We have had crews on foot out yesterday and today using metal detectors to ensure any small pieces aren't missed.

No vehicles or ATVs of any type crossed the ATV barrier location during the operation.

PICTURES

Initial location of debris with arrows showing direction of removal.



After the drag began.



Largest piece almost pulled in.



Final location of the drag removal operation.



Due to the weight of the debris and load bearing limitations of the sand for the crane, they had to drag into the ATV barrier several feet. This is the unset bollard. The cable tension was released at a nearby cable clamp.



If you have any questions or concerns, please call anytime.

Thank You,

Randy Rees

Environmental Health and Safety Manager

Chief of Emergency Operations

Space Exploration Technologies (SpaceX)



[South Texas Physical](#)





📞 W: (956) [REDACTED] | 📞 M: (515) [REDACTED]

📧: [REDACTED] 🌐: www.spacex.com



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--
Bryan R. Winton, Wildlife Refuge Manager
Lower Rio Grande Valley National Wildlife Refuge

[REDACTED] office; (956) [REDACTED] cell
[REDACTED]

Attachment C

From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
Subject: Re: Information for Informal Scoping FWS Response Letter to FAA per proposal to Draft a new EA - due 11am, Jan 21, 21
Date: Thursday, January 21, 2021 12:23:22 PM

Thank you Mary. Your list is more comprehensive than the one I provided. I only list explosions that resulted in major debris scattering, although the additional explosions you listed are equally notable, due to the impacts they likely have on wildlife residing in close proximity during the event. Unfortunately, we are not able to access the area immediately following an event due to safety reasons which does not offer us the ability to investigate true wildlife impacts immediately following a blast, fire, etc. Not sure how we can expect to have access immediately following future similar events, but we need assurance that Space-X employees or the public don't gain access before we have a chance to do our initial investigation after such occurrences in the future.

bryan

From: Orms, Mary <[REDACTED]>
Sent: Thursday, January 21, 2021 1:07 PM
To: Winton, Bryan <[REDACTED]> Perez, Sonny <[REDACTED]>
Cc: Perez, Chris <[REDACTED]>
Subject: Re: Information for Informal Scoping FWS Response Letter to FAA per proposal to Draft a new EA - due 11am, Jan 21, 21

Bryan,

I looked up dates of SpaceX explosions on news articles and you tube....etc..

11/18/2019 - Space Ship MK1 Pressure Test explosion

2/28/2020 - Starship SN1 pressure Test explosion

4/2/2020 - Starship SN3 pressure test explosion

5/29/2020 - Starship SN4 explosion

12/9/2020 - Starship SN8 explosion

From: Winton, Bryan <[REDACTED]>
Sent: Thursday, January 21, 2021 10:33 AM
To: Perez, Sonny <[REDACTED]>
Cc: Perez, Chris <[REDACTED]> Orms, Mary <[REDACTED]>
Subject: Information for Informal Scoping FWS Response Letter to FAA per proposal to Draft a new EA - due 11am, Jan 21, 21

Example of damages by/from Space-X:

Traffic volume, road closures, wildlife mortality

Impacts to habitat: tidal flats, dunes, coastal prairie - debris, fires, rutting, wetland filling

Fires - 2 fires in 2019

Explosions (Debris scattered) - several since 2019

Development - conversion to industrial development/testing area

Residential Eviction - Kopernik Shores

Loss of public access to refuge, state park, beach and no reliable access for land management

Important Dates:

Nov 2018 - during Federal Government Shutdown/Furlough - Space X announces they will change activity from launch facility to a testing facility

April 21,22 -2019 - Space X employee(s) get stuck with 2 vehicles and a forklift in tidal flats. Causes significant damage to tidal flats. Space X employees did not have permission to be on the refuge.

July 25, 2019 - 130-acre fire caused from Space-X test that sent

fire/embers into the coastal prairie

August 2019 - second 15-acre fire, mostly in the dunes

November 20, 2019 - MK 1 explosion; Nose cone north of HW 4; cable fence damaged (never fixed)

February 28, 2020 - explosion - SN1 - Big debris north of HW4

Dec 9, 2020 - explosion of SN8 - Big debris (LE managed); Space-X still dragged/damaged flats

Attachment D



United States Department of the Interior

FISH AND WILDLIFE SERVICE

South Texas Refuge Complex

Lower Rio Grande Valley National Wildlife Refuge



January 22, 2021

Daniel P. Murray
Manager, Safety Division
Federal Aviation Administration
800 Independence Ave., SW
Washington, D.C. 20591

Dear Mr. Murray:

It is our understanding that SpaceX is working with the Federal Aviation Administration (FAA) to prepare a draft Environmental Assessment (EA) for a Starship/Super Heavy launch program near Boca Chica, Cameron County, Texas. This program is occurring on land surrounded by the Lower Rio Grande Valley National Wildlife Refuge (Refuge). The FAA is holding a public scoping period to assist in determining the scope of issues for analysis in the draft EA. The following are U.S. Fish and Wildlife Service's (FWS) comments for consideration in your analysis:

National Environmental Policy Act (NEPA)

NEPA emphasizes cooperative consultation among agencies. 50 C.F.R. 1501.2(3) requires agencies to "...study, develop, and describe appropriate alternatives to recommend courses of action in any proposal which involves unresolved conflicts..." The process is intended to help public officials make decisions that are based on an understanding of the environmental consequences of federal agency actions and to protect the quality of the human environment, which includes ecological systems. In order to conduct a meaningful analysis consistent with the spirit and intent of NEPA, adequate and clear information regarding the proposed SpaceX activities is critical in developing informed analysis. 40 C.F.R. 1501.5(a) states that an agency shall prepare an EA for an action that is "...not likely to have significant effects or when the significance of the effects is unknown..." An environmental impact statement (EIS) may be the more appropriate NEPA pathway for this proposed action if significant effects cannot be avoided.

As stated in our previous correspondence dated October 7, 2020, and December 14, 2020 (attached); and reiterated here, the FWS does not concur with the FAA's determination that the action will not result in a "*constructive use*" of the Boca Chica Tract of the Lower Rio Grande Valley National Wildlife Refuge (Refuge). The FAA is subject to Section 4(f) regulations which "*require rigorous exploration and objective evaluation of alternative actions that would avoid all use of Section 4(f) properties...that would avoid some or all adverse effects*" (OEPC Section 4(f) Handbook, per 23 CFR § 774). Furthermore, 23 U.S.C. § 138 precludes the Secretary of Transportation from approving a program or project unless "*such program includes all possible planning to minimize harm*" to wildlife refuges. It is the FWS's opinion that FAA has failed to comply with its own regulations in this regard. Based on the Section 4(f) definitions, a "*constructive use*" occurs when there is "*a temporary occupancy of land that is adverse in terms of the statute's preservation purpose*" or when "*a project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired.*" The level, nature, and extent to which an area is constructively used is subject to the expertise and determination of the agency responsible for management and administration of the 4(f) lands impacted by the constructive use, in this case, the FWS. Frequent closures of the Refuge caused by SpaceX activities are already substantially impairing both the Refuge's ability to adequately manage the Refuge and the public's enjoyment of the Boca Chica Beach area for wildlife-dependent recreation. There are both "*adverse*" and "*severe*" impacts to Refuge public use, management, wildlife, and habitat from the SpaceX activities. The protected public activities on the Refuge that are being substantially impaired include fishing, wildlife observation, photography, environmental education, and interpretation. Annually an estimated 110,000 visitors access the Refuge for these uses. The majority are beachgoers or anglers visiting the Boca Chica tract and these activities occur throughout the year.

Since 2014, SpaceX has undertaken activities not covered in FAA's 2014 EIS which addressed only 12 launches per year, not continual experimentation related to the Starship/Super Heavy proposal as is currently being carried out. SpaceX activities not covered include a higher frequency of road closures extending well beyond 180 hours, large explosions from reported anomalies, the appearance of significantly large staffing, 24/7 operations, traffic, and construction activities not analyzed in the 2014 EIS. In addition, SpaceX rocket debris falling onto the Refuge has damaged the sensitive wind tidal flats. And, the vehicles or machinery used to retrieve rocket debris have created ruts and caused other damage that interrupts water sheet flow across these flats. Two SpaceX incidents on July 25, 2019 and again in August 2019 resulted in wildfires of 130-acres and 10-acres respectively burned through coastal prairie and dune habitats on refuge managed land. Anomalies resulting in explosions on November 20, 2019, February 28, 2020, and December 9, 2020 resulted in debris scattered onto refuge managed lands. Retrieval methods damaged the sensitive alkaline flat and refuge cable fencing installed to protect the area from disturbance.

Due to operations by SpaceX, the FWS's ability to maintain the biological integrity, diversity and environmental health of Refuge resources, as well as our ability to ensure the viability of the six wildlife-dependent recreational uses, has been significantly diminished at the Boca Chica tract. This occurs by preventing or constraining public access year-round, hampering biological and monitoring studies including sea turtle patrols, sea turtle cold-stunning responses, hampering refuge management and law enforcement patrol, increased observations of road mortality of wildlife at all hours of daytime and nighttime, damage to sensitive habitats such as the wind tidal flats and to the salt prairie from explosions and fires, as well as adversely impacting nesting

habitat for sensitive species. According to the Coastal Bend Bays and Estuaries Program, Wilson's and Snowy Plovers, have essentially stopped nesting near the SpaceX site in the last two years.

Currently, the FAA is requesting to increase the number of Refuge closure hours from 180 to 300 per year. The FWS believes the FAA/SpaceX closure reporting computation needs to be revised to consider the accounting of the extended closures occurring for anomalies or delays that are deterrents for public access to the Boca Chica tract and the beaches for the duration of all published closure timeframes. In 2019, the FWS recorded over 1,000 closure hours and SpaceX reported a total of 158 hours. When closures occur, all aforementioned wildlife-dependent recreational uses are substantially impaired because they are not available to the public. These features and attributes will be substantially impaired by increased closures.

The FAA has previously stated the road closures comprise only 2.1 percent of the total annual Refuge closure hours they calculated, which would appear to be minimal. However, the FAA's decision omitted the recreational hours lost to Refuge visitors. The Refuge is visited by approximately 110,000 visitors annually with 50% or more visiting the Boca Chica tract. Therefore, approximately 55,000 people visit the Boca Chica tract each year. Assuming each visitor to the Boca Chica tract spends only one hour there, closing access to the tract for 180 hours per year (the current closure rate) will result in a loss of 9,900,000 recreational hours per year. Increasing the number of closure hours to 300 per year will result in 16,500,000 recreational hours lost per year. This loss of public recreational hours is significant. Therefore, we reiterate that the impacts of the increased road closures are significant as that term is defined by NEPA and rise to the level of a substantial impairment and thus constitute a "*constructive use*," as defined under Section 4(f). We recommend FAA's NEPA analysis include adequate consideration of these unresolved issues.

Endangered Species Act (ESA)

The FWS is concerned about effects of SpaceX experimental rocket development activities and testing on endangered species. On three separate occasions in 2020, rocket launch failures resulted in explosions and the spread of debris on and off Refuge lands. Videos of these events show evidence of different species of birds being impacted by the blast. However, it is difficult to ascertain what species of migratory birds and/or birds listed as threatened or endangered under the ESA were harmed or harassed. We cannot determine if the blasts and fires resulted in harm (death or injury) to some of the birds or just harassed them. It is unknown if terrestrial species were killed or injured. There is documented evidence that the debris and its removal has impacted and scarred various habitats in the area, including tidal flats which are foraging habitat for the threatened piping plover and red knot. It is unclear how far vibration and noise resulting from the explosions and cleanup have impacted listed species, such as the ocelot, jaguarundi, and northern aplomado falcon. The FWS's inability to enter the action area immediately to survey the area hinders efforts to document these types of impacts before evidence is compromised or lost entirely.

The ESA prohibits the taking of endangered species except as provided for in sections 7 or 10. Since there is no way to promptly assess damages or collect injured or dead animal species, there is no mechanism to document whether SpaceX has exceeded the incidental take for individual species or habitat (sea turtles, ocelots, jaguarundi, piping plover, red knot, northern aplomado

falcon) issued in the original project biological opinion. We believe SpaceX's increase in construction, traffic, personnel levels, closures, lighting, noise and vibration, has exceeded what was evaluated in the biological opinion SUMMARY OF THE FINAL BIOLOGICAL AND CONFERENCE OPINION ON THE EFFECTS TO THE ENDANGERED OCELOT (*Leopardus pardalis*), ENDANGERED GULF COAST JAGUARUNDI (*Herpailurus yagouaroundi cacomitli*), ENDANGERED NORTHERN APLOMADO FALCON (*Falco femoralis septentrionalis*), ENDANGERED KEMP'S RIDLEY SEA TURTLE (*Lepidochelys kempii*), ENDANGERED HAWKSBILL SEA TURTLE (*Eretmochelys imbricata*), ENDANGERED LEATHERBACK SEA TURTLE (*Dermochelys coriacea*), THREATENED GREEN SEA TURTLE (*Chelonia mydas*), THREATENED LOGGERHEAD SEA TURTLE (*Caretta caretta*), THREATENED PIPING PLOVER (*Charadrius melodus*) AND ITS CRITICAL HABITAT, AND PROPOSED TO BE LISTED AS THREATENED RED KNOT (*Calidris canutus rufa*) FROM THE PROPOSED ISSUANCE OF FEDERAL AVIATION ADMINISTRATION LAUNCH LICENSE AUTHORIZING SPACEX TO LAUNCH FALCON 9 AND FALCON HEAVY ORBITAL VERTICAL LAUNCH VEHICLES AND A VARIETY OF REUSABLE SUBORBITAL LAUNCH VEHICLES FROM PRIVATE PROPERTY, BOCA CHICA, CAMERON COUNTY, TEXAS; December 18, 2013; Consultation No. 02ETCC00-2012-F-0186, and the FWS has informed SpaceX and FAA they are not in compliance with the current biological opinion numerous times. The FWS is available to assist SpaceX in reducing its risk by avoiding or minimizing impacts and potential take of threatened or endangered species in future activities. The FWS believes reinitiation of section 7 consultation on the aforementioned biological opinion is warranted. We are aware that the FAA is working on a new Biological Assessment and SpaceX is in favor of reinitiation. To date we have not received the document.

Another option to obtain ESA compliance for SpaceX would be to seek a section 10(a)(1)(B) permit that authorizes take of endangered species that is incidental to "otherwise lawful activities."

The FWS believes that an EIS may be the more appropriate NEPA pathway for this proposed action if significant effects cannot be avoided. The FWS requests that you give adequate consideration to and objective analysis of our NEPA concerns; that you adequately comply with the ESA; and, that you conduct an alternative action analysis per Section 4(f) of the Transportation Act of 1966. We appreciate your consideration of our concerns. You may contact me via email at [REDACTED]

Sincerely,

Manuel Perez III

Manuel "Sonny" Perez III
Complex Refuge Manager
South Texas Refuges Complex

Charles Ardizzone

Charles Ardizzone
Project Leader
Texas Coastal Ecological Services Office

Enclosures (2)

cc:

Stacey Zee, Federal Aviation Administration, Washington, DC.

Bryan R. Winton, Refuge Manager, Lower Rio Grande Valley NWR

Kelly McDowell, Refuge Supervisor, TX Gulf Coast Refuges

Dawn Gardiner, Assistant Field Supervisor, Texas Coastal ES Field Office

Stacey Dwyer, EPA Compliance Assurance and Enforcement Division

From: Nina Beety <[REDACTED]>
Sent: Monday, November 1, 2021 1:59 PM
To: SpaceXBocaChica
Cc: [REDACTED]
Subject: Comments, draft PEA SpaceX Starship/Super Heavy Launch Vehicle

Comments on draft PEA SpaceX Starship/Super Heavy Launch Vehicle Program

To the FAA:

I request that the FAA ==

- Require a comprehensive Environmental Impact Study (EIS) of SpaceX's operations in Boca Chica.
- Reject this scanty PEA. It is inadequate to assess the very harmful environmental consequences of expanding SpaceX's operations, which already has a track record of environmental damage. In the current assessment, I support the No Action Alternative.

I also object to the lack of public notice on this proposal. My comments are brief due to the lack of notice on this project.

Widespread environmental impacts and damage from SpaceX operations and projects are already occurring on the ground, in the air, and to the water and ocean from exhaust, fuels and components, burn-up, explosions, spills and leaks, re-entry and fallout, errors and accidents, and to humans and other species, including endangered and threatened birds and tortoises.

Approval for much increased damage and wider impacts would be arbitrary and capricious, and a complete lack of reasoned decisionmaking. No rationale or priority exists that justifies this contamination to the Earth or compromising species and Earth's future.

Major considerations missing in this evaluation include

- Ozone destruction from launch through the stratosphere, emissions dumping in stratosphere which blocks sunlight from making ozone, and re-entry ozone-destroying processes
- RF-EMF radiation exposure impacts from telecommunications equipment, telemetry, radar, and other antennas on site and launch vehicles and impacts to birds, insects, wildlife, humans, plants, and trees.ⁱ
- Increased climate change by injecting long-lasting emissions into the stratosphere which will block heat from venting into space.

Independent evaluation must be included on

- Water, air, and soil contamination and species harm from toxics
- Safety of brine injection in wells

At present, the public is not being informed of important proceedings. As a result, we have no ability to timely file comments, blocking what little due process we have and blocking out ability take actions post-decision. The SpaceX project affects everyone. It has national and international import due to atmospheric, ocean, earth, and species impacts, and impacts to national security and world peace. I found out about this FAA proceeding by chance yesterday. As a result, I was denied the time to read the draft PEA and comment in detail. Website or mailing list notices are grossly inadequate public notice. Notices must be published widely in the news media and to congressional representatives, so that the public is informed, can read the filings, and can timely participate. It is impossible for the public to inform themselves of all federal and state approved actions that have impact on their daily lives.

Nina Beety



i http://www.ntia.doc.gov/files/ntia/us_doi_comments.pdf

DOI letter on FirstNet to Dept. of Commerce, 2-7-14

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From: Kenneth Teague <[REDACTED]>
Sent: Monday, November 1, 2021 11:11 AM
To: SpaceXBocaChica
Cc: Kaspar, Paul; [REDACTED] Jackie Robinson; [REDACTED]
Subject: Comments: Draft Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas
Attachments: SpaceX comments Teague.pdf

Dear Ms. Zee: Please find my comments on the subject Draft PEA attached.

Sincerely,
Kenneth G. Teague, PWS (emeritus), Senior Certified Ecologist
Austin, TX

Sent from [Mail](#) for Windows

November 1, 2021

Ms. Stacey Zee
SpaceX PEA
c/o ICF
9300 Lee Highway
Fairfax, VA 22031

Dear Ms. Zee: I am writing to submit to the Federal Aviation Administration, my comments on the ***Draft Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas.***

General Comments

- The FAA erred in choosing to issue a Draft Programmatic Environmental Assessment (Draft PEA, EA), rather than a Draft Environmental Impact Statement (DEIS, EIS). The consequences of this decision are highly significant. The criterion that determines whether a Federal agency is responsible for issuing an Environmental Assessment or an Environmental Impact Statement, is whether or not the proposed action would have significant adverse effects on the environment. By choosing to only issue an EA rather than an EIS, FAA has apparently determined that the proposed action will not have significant adverse effects on the environment, although this is not explicitly stated in the Draft PEA. The burden of proof is on FAA to show that the selected alternative has no significant environmental impacts, using the criteria for significance (§ 1508.27). The Draft PEA did not show that the selected alternative has no significant environmental impacts, nor did it disclose criteria for significance for all affected resources it identified. **In response, I strongly assert that the proposed action WILL have significant adverse effects on the environment, and therefore, FAA must issue a DEIS rather than the Draft PEA.**
- Further, the Draft PEA asserts that one reason the effects of the proposed action on the environment are not significantly adverse, is because effects will be sufficiently mitigated so that they are not significant. However, the Draft PEA fails to even explain how mitigation will reduce adverse effects below the threshold of *significance*, or even how mitigation will render adverse effects insignificant *by any definition*. The Draft PEA fails to even define *criteria for significant adverse effects* for some environmental impact categories of the affected environment, much less provide actual commitments to clearly defined- detailed mitigation. To support a FONSI, the Draft PEA must:
 - Specifically explain how the conditions would mitigate the impact of the action, as applied and enforced (*The Steamboaters v. Federal Energy Regulatory Commission*, 759 F. 2d 1382 9th Cir. 1985)).
 - Demonstrate that all proposed mitigation is legally enforceable, not just tenuous assurances not within the authority of the agency to enforce (*Louisiana v. Lee*, 758 F. 2d (5th Circ. 1985)).
 - Analyze mitigation in detail and explain the effectiveness of the measures in terms of resulting impacts (*Northwest Indian Cemetery Protective Association v. Peterson*, 795 F. 2d 288 (9th Cir. 1986)).
 - Demonstrate compliance with *Final Guidance for Federal Departments and Agencies on the Appropriate Use of Mitigation and Monitoring and Clarifying the Appropriate Use of Mitigated Findings of No Significant Impact*.

In addition, there are likely significant environmental effects for which proper and explicit mitigation has not even been proposed. Therefore, the FAA's case for a mitigated FONSI has clearly NOT been made. **FAA must either significantly revise the Draft PEA, ensuring that it meets all legal requirements for a mitigated FONSI, or it must withdraw the Draft PEA and issue an EIS.**

- As mentioned above, the Draft PEA does not define criteria for determining whether an adverse effect is significant for some of the environmental impact categories of the affected environment, including non-threatened or endangered wildlife and socioeconomic impacts. **FAA must define such criteria for all environmental impact categories.**
- FAA improperly defined the threshold for significant impacts to biological resources. FAA must defend its restrictive, and very high threshold for defining significant adverse effects to biological resources, or revise it. The threshold for ALL biological resources cannot be: *the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat*. FAA has not established a significance threshold for unlisted species. **NEPA requires FAA to establish a significance threshold for unlisted species.** Without such criteria, FAA cannot assess the potential impacts of the proposed project.
- **FAA failed to assess the potential impacts of the proposed project on federally listed threatened and endangered species**, since the project's potential impact relative to the FAA's official significance threshold for federally listed threatened or endangered species, has not yet been determined (e.g. whether the action would be likely to jeopardize the continued existence of a federally threatened or endangered species).
- **I assert that adverse effects of the proposed action ARE significant for federally listed threatened and endangered species.**
 - First, it appears the proposed action will have significant adverse effects on the human environment, because it would result in the destruction or adverse modification of federally designated critical habitat for the piping plover.
 - Secondly, FAA's significance threshold for determining whether the proposed action would have a significantly adverse effect on the human environment, via its effects on federally threatened or endangered species, is inappropriate, since it constitutes a very “high bar”, rendering anything but the most seriously harmful effects insignificant. The proposed action would have to be shown to have the potential for jeopardizing the continued existence of an entire species, before it would be considered significant. This is outrageous and should not be accepted.
 - **Even FAA has determined the Proposed Action may affect and is likely to adversely affect the following species and critical habitat:**
 - piping plover and piping plover critical habitat
 - red knot
 - northern aplomado falcon
 - Gulf Coast jaguarundi
 - ocelot
 - Kemp’s ridley sea turtle
 - hawksbill sea turtle
 - leatherback sea turtle
 - loggerhead sea turtle
 - green sea turtle

- Finally, in spite of the fact that FAA asserts that it has monitoring data to demonstrate that SpaceX's activities at Boca Chica have not had a significant effect on piping plover to date, **another analysis concludes *there has been a rapid and substantial loss of the population of Piping Plovers at the site (and to the NGP population), and that it may be functioning as a population sink*** (Newstead and Hill 2021).
- The Draft PEA appears to have determined that the proposed action's impacts on people from noise are not significantly adverse. FAA did define *criteria for significant adverse effects* of noise on people. However, discussion of these issues in the Draft PEA is highly complex, and certainly not easily understood by most citizens. I conducted a limited, but reasonably focused review of this part of the Draft PEA, and was unable to understand how FAA was able to conclude that the proposed action will have no significantly adverse effects on people from noise. Therefore, **I assert that adverse effects of the proposed action MAY BE significant for noise effects on people.** FAA should carefully review their conclusion, and if it is correct-based on FAA's stated criteria for significance- it should attempt to simplify and clarify for the public, exactly why it believes the proposed action will have no significant adverse effect on people due to noise.
- The Draft PEA should have assessed the aesthetic effects of increased noise and sonic booms on residents and users. Many people value quiet and the sounds of nature, particularly those who are engaging in outdoor recreation. FAA erred in ignoring or discounting this effect on the human environment. Relevant *criteria for significant adverse effects* based on this human value, will be very different than that selected by FAA, based on physical harm. **FAA must assess the risk of the proposed project affecting this value.**
- The Draft PEA does not include a sufficient level of detail about the project or its potential impacts. FAA must provide the public with sufficient detail regarding proposed actions and their impacts.
- FAA's approach to alternatives is not consistent with the intent of NEPA. While FAA's proposed alternative and the no-action alternative only, *may* technically satisfy absolute minimum NEPA requirements for consideration of alternatives, they in no way provide what is intended by the spirit of the act. Alternative locations should be considered. Note that FAA did not properly evaluate alternatives in the 2014 EIS either. Alternative sites were casually dismissed, and environmental criteria were improperly and insufficiently applied to the preferred alternative site (Boca Chica).
- The Draft PEA's descriptions of the Affected Environment fails to adequately describe the unique coastal ecosystems of the Boca Chica, Texas area, which will be impacted by the proposed action. FAA must ensure that the Draft PEA (or preferably Draft EIS), accurately reflects the uniqueness of the coastal ecosystems at Boca Chica, which the proposed action will affect.

- The Draft PEA failed to even consider whether the existing ongoing, and future proposed SpaceX activities- are/were/would be- in compliance with Federal and State law, including the Texas Open Beaches Act, the National Wildlife Refuge System Improvement Act of 1997, and the Coastal Barrier Resources Act. While the Draft PEA did address Section 4(f) of the U.S. Department of Transportation Act of 1966, I do not believe it correctly assessed the proposed action's compliance with it. In addition, I am concerned that SpaceX may not properly comply with Clean Water Act Section 404(b)(1), and 33 CFR Parts 325 and 332 and 40 CFR Part 230 (Compensatory Mitigation for Losses of Aquatic Resources; Final Rule). **FAA must properly review, and disclose, the proposed action's compliance with all relevant laws and regulations, including the Texas Open Beaches Act, the National Wildlife Refuge System Improvement Act of 1997, the Coastal Barrier Resources Act, the U.S. Department of Transportation Act of 1966, Clean Water Act Section 404(b)(1), and 33 CFR Parts 325 and 332 and 40 CFR Part 230 (Compensatory Mitigation for Losses of Aquatic Resources; Final Rule).**
- **The existing and proposed SpaceX activities at Boca Chica are inconsistent with some Goals and Policies of the Texas Coastal Management Program.**
- The Draft PEA failed to address indirect and cumulative environmental impacts, with the possible exception of noise and sonic boom cumulative impacts and indirect economic impacts. Indirect effects and cumulative impacts of the proposed action on aquatic habitats, threatened and endangered species, and on certain aspects of human socioeconomic conditions, were not considered. **FAA must assess potential indirect effects and cumulative impacts on aquatic habitats, threatened and endangered species, and on socioeconomic conditions related to the proposed action, as required by NEPA.**
- Mitigation and Monitoring: The Draft PEA fails to demonstrate an FAA commitment to monitoring and enforcement of mitigation. In many cases, proposed mitigation is not sufficiently clear or detailed so support monitoring or enforcement. **FAA should clarify and provide detailed descriptions of proposed mitigation, provide additional details regarding their proposed monitoring of mitigation, and should specify how it will make all mitigation enforceable.**

Specific Comments

- Significant Effects
 - FAA has incorrectly defined the threshold for significant impacts to biological resources.
 - FAA defined the threshold for significant impacts to biological resources as follows:
A significant impact on biological resources would occur if the USFWS or NMFS determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species, or would result in the destruction or adverse modification of federally designated critical habitat.
 - The FAA threshold is incorrect for the following reasons:
 - It only allows for a significant impact on biological resources in the case of federally listed threatened or endangered species. The selected alternative could potentially have a significant impact on other biological resources, but FAA's definition of their threshold for biological effects would not allow them to find a significant impact.
 - FAA should adopt a threshold for significant impacts to biological resources other than federally listed threatened or endangered species.
 - FAA does list some reasonable candidates for official thresholds for significant effects to biological resources other than federally listed threatened or endangered species or their habitat, but they clearly do not commit to them as official FAA criteria for determining significant effects:
 - *Factors to consider when assessing the significance of potential impacts on unlisted species and habitats include whether the action would have the potential for:*
 - *A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area;*
 - *Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;*
 - *Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations;*
 - *Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.*
 - Note that these appear to be far less significant biologically than FAA's existing significance criteria for biological resources (actually just applies to federally listed threatened and endangered species and critical habitat). Thus, if these were adopted by FAA as significance criteria for biological resources other than Federally-listed threatened or endangered species, these other biological resources would be better protected by FAA than Federally-listed threatened and endangered species would be under NEPA.

- It can be argued that a significant impact as per NEPA, on federally listed threatened or endangered species, could occur without USFWS or NMFS determining that the action would be likely to *jeopardize the continued existence of the species*. *Jeopardizing the continued existence of a species*, is a very high threshold indeed, for determining significant effects under NEPA. I assert that the appropriate threshold for determining significant effects on federally listed threatened and endangered species under NEPA, is significantly less than *jeopardizing the continued existence of the species*. For example, the following may be a more appropriate threshold for determination of significant effects on Federally listed threatened or endangered species or critical habitat than the current FAA criterion:
 - A determination that the Proposed Action may affect and is likely to adversely affect Federally listed threatened or endangered species and critical habitat;
 - Even better criteria could include those that FAA failed to adopt for non-Federally listed threatened or endangered species, but which they acknowledged might be appropriate for use in determining significant effects:
 - *A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area;*
 - *Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;*
 - *Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations;*
 - *Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance.*
- FAA has not defined a threshold for significant effects to human users/uses of the area affected by the proposed action, nor for significant effects to the Boca Chica Village community.
 - FAA must define thresholds for determination of significant effects of the proposed action on users of Boca Chica Beach, both state parks, and the federal wildlife refuge.
 - FAA must estimate the effects of the proposed project on users, compare the estimate with an appropriate threshold of significance, and make a determination of significance of effects on the human environment.
 - FAA must also define a threshold for determination of significant effects of the proposed action on residents of Boca Chica Village, and on the Boca Chica Village community.
 - FAA must estimate the effects of the proposed project on residents of Boca Chica Village, and on the Boca Chica Village community. Impacts of SpaceX actions to date must also be considered.

- The purpose and need seem to suggest that it is official US policy to colonize Mars. This is used to help justify the need for the proposed project. I question whether it is official US policy to colonize Mars.
 - If it is not, FAA must revise the purpose and need section to remove suggestions that it is US policy to colonize Mars.
 - If this is official US policy, but is based on policies of the previous Executive Branch administration, I strongly recommend that FAA brief the current administration on these policies, and provide the current administration the option of revising such policies.
- The Draft PEA approach to alternatives is not consistent with the intent of NEPA. Only the Preferred Alternative and the No Action Alternative are considered. While FAA's proposed alternative and the no-action alternative only, *may* technically satisfy absolute minimum NEPA requirements for consideration of alternatives, they in no way provide what is intended by the spirit of the act. Alternative locations should be considered. Note that FAA did not properly evaluate alternatives in the 2014 EIS either. Alternative sites were inappropriately dismissed, and environmental criteria were improperly, and insufficiently, applied to the preferred alternative site (Boca Chica). Boca Chica is, and was, an alternative site with very significant environmental impacts, due to threatened and endangered species impacts and socioeconomic impacts, and potentially.
 - While this *might* be technically acceptable if the environmental impacts of the Preferred Alternative were insignificant, they are not (see below). Therefore, in view of my assertion that the environmental impacts of the Preferred Alternative *are* significant, additional alternatives, including alternative sites, should be considered.
- EPA has designated aquatic habitats at the site as Aquatic Resources of National Importance, which brings with it special procedural requirements for Clean Water Act, Section 404 permit review. This would seem to suggest that the impacts of the proposed actions may be more broadly significant under NEPA as well, suggesting in turn that FAA should have prepared an EIS rather than an EA.
- FAA failed to disclose that SpaceX may not properly comply with Clean Water Act Section 404(b)(1) Guidelines. I assert the the U.S. Army Corps of Engineers improperly ignored SpaceX's previous failure to comply with the Guidelines when they applied for their original Clean Water Act Section 404 permit. SpaceX failed to demonstrate adequate consideration of alternatives and adequate consideration of avoidance and minimization of impacts to aquatic habitats, and compensatory mitigation did not fully comply with the Mitigation Rule. SpaceX failed to consider some obvious alternatives that would have avoided and minimized impacts to aquatic habitats. SpaceX also failed to properly justify compensatory mitigation by preservation, as required by the Mitigation Rule. Similarly, SpaceX's recent application for a Clean Water Act Section 404 permit for the proposed activities assessed by this Draft PEA, failed to demonstrate adequate consideration of alternatives and adequate consideration of avoidance and minimization of impacts to aquatic habitats, and compensatory mitigation was not disclosed for public review.
- FAA asserts that *the Proposed Action includes all practicable measures to minimize harm to wetlands that may result from construction*. However, I believe this is erroneous. At a minimum, the wetland impacts from the proposed parking lot on site, could be completely avoided, by locating the parking lot near Boca Chica Village, and providing workers transport to the site via shuttle bus. I assert that such an alternative would be practicable. Similar alternatives are often adopted to avoid and minimize impacts to wetlands in other Clean Water Act Section 404 permitting situations.

- The proposed parking lot could potentially indirectly impact 14 acres of seagrasses that lie within 1 km to the north. Parking lot construction could result in increased sediment loading to Boca Chica Bay/South Bay, potentially resulting in increased light attenuation on the seagrass beds. Seagrasses are highly sensitive to reductions in light availability. Dunton et al (2003) recommended no dredging within 1 km of seagrass beds in Laguna Madre. While parking lot construction adjacent to tidal flats isn't dredging, it could result in sediment-rich runoff to adjacent tidal flats, and potentially to lagoon water during high tides. At a minimum, FAA should technically assess this potential risk.
- The Draft PEA asserts that SpaceX's Clean Water Act Section 404 permit may ultimately include compensatory mitigation for unavoidable impacts to aquatic resources, that may include out of kind mitigation or preservation. While the mitigation rule allows for these types of mitigation under certain circumstances, they require serious justification, something they were not required to do in the original permitting effort. I hope the USACE has learned the requirements of the mitigation rule regarding this, and I hope they properly require SpaceX to comply with these requirements this time.
- The existing authorized project is clearly having greater impacts than were disclosed by FAA in the 2014 EIS, and the proposed expansion and additional activities will clearly have even greater impacts than the currently authorized project does. Some of the ongoing impacts were not properly disclosed in the original EIS. The Draft PEA should disclose this.
- The existing/proposed site of SpaceX activities (Boca Chica) was an improperly selected alternative with significant, unmitigated environmental impacts. The site is situated on a tiny parcel of SpaceX property in the middle of a federal wildlife refuge and two state parks. SpaceX effectively uses this embeddedness of its very small property within large expanses of public property to support its objectives. Furthermore, this area is prime habitat for many threatened or endangered species. FAA would have to look long and hard to find another such environmentally inappropriate site.
- The project would result in violations of the National Wildlife Refuge System Improvement Act of 1997 for use of the refuge, such as it serving as a debris field within the blast danger area and it being used for debris retrieval, which has destroyed refuge habitat in the past and would likely do so in the future.
- The existing and proposed SpaceX activities at Boca Chica appear to violate the Coastal Barrier Resources Act (CBRA). The CBRA requires that Federal agencies not fund activities on Coastal Barrier Resource System (CBRS) lands. It is my understanding that the existing and proposed SpaceX activities at Boca Chica are partly funded with Federal funds. SpaceX activities at Boca Chica occur within the CBRS. In addition, the PEA clearly states that it is the intent of SpaceX to apply for Federal flood insurance for facilities at Boca Chica. Thus, it appears that existing, and future planned SpaceX facilities at Boca Chica, are not compliant with CBRA. FAA should document this in an EIS, and FAA and USFWS should take compliance action against Federal agencies who are funding SpaceX activities in the CBRS. Finally, FEMA should refuse to provide SpaceX with Federal flood insurance for facilities at Boca Chica.

- Existing authorized activities have had significant socioeconomic impacts on the users of Boca Chica State Park, including surfers, fishermen, beach-goers, swimmers, etc. Existing authorized activities have also impacted property owners and residents of Boca Chica Village, who have had their community invaded and taken over by SpaceX. Proposed additional actions will only make these worse. The impacts of SpaceX on the community of Boca Chica Village, may be one of the worst examples of negative socioeconomic impacts of a proposed Federal action on a small community.
- Part of the existing facility lies within Coastal Barrier Resources System Unit T12. Therefore, if this existing project includes any Federal funding, it would seem to violate the Coastal Barrier Resources Act (CBRA). Similarly, if any Federal funding is involved in the current proposed expansion, it too would seem to violate the CBRA. Finally, FAA's statement that SpaceX intends to use the site to meet what it claims are official US space program goals, suggests that SpaceX intends to use the site to accomplish US government funded missions, which would appear to violate the CBRA.
- Even more egregiously, The Draft PEA explicitly states that it is SpaceX's intent to participate in FEMA's National Flood Insurance Program (NFIP) (3.9.4.4 Floodplains; p. 98; 1st complete paragraph; 2nd sentence). Note that, *in particular*, the CBRA is intended to restrict the ability to obtain National Flood Insurance in CBRS units. The Draft PEA must be revised to reflect this, and FAA must acknowledge that it is unacceptable for SpaceX to pursue Federal flood insurance for portions of the project that are on, or would be on, CBRS units.
- Regarding the following assertions:
 - *The design engineer will certify that the design elevation will withstand the depth and velocity of 100-year flood events (hydrostatic and hydrodynamic loads), any potential increase in wind load, or any other relevant load factors. Compliance with the NFIP as well as county regulations would ensure that the construction will have no significant impacts on floodplain storage and base flood elevations.*
 - The close proximity to the Gulf of Mexico shoreline and the extremely low topography surrounding the site, suggest that up to 9 ft of fill may be required to elevate construction sites above potential storm surge elevations. While this can be done, the resulting side slopes of the isolated, elevated sites, would be highly vulnerable to erosion due to storm surge related flow and waves.
- FAA grudgingly acknowledges the potential for “anomalies”, otherwise known as rocket explosions. However, rather than being just a possibility, such events are virtually guaranteed, since they have occurred multiple times already. So, the first problem with this is that FAA does not adequately acknowledge and disclose the high probability of such events. Secondly, FAA acknowledges some potential environmental impacts as a result of these, or from their cleanup. However, this acknowledgment too is tepid. The EA should include estimates of such impacts, and a commitment to mitigate for them. The disturbing discomfort that arises from the audacity of FAA and SpaceX to assume they have the authority to explode rockets over Federal and State wildlife refuges containing multiple threatened and endangered species, with impunity, should be pointed out.

- Regarding the following statement: *In conjunction with final design and CWA permitting, SpaceX would submit a Notice of Intent to TCEQ for application of the general permit authorization for point source discharges of stormwater associated with industrial activity to surface water in the state. SpaceX would develop a SWPPP that would adhere to the permit effluent limitations and requirements applicable to the industrial activities.*
 - This simply says: Trust us. We will get the permit and everything will be ok. Such an approach renders NEPA assessment useless. If all an applicant has to do is say they will take care of everything, what's the point?
 - A better approach for this issue, would be for the document to disclose what the stormwater pollutant load might be in the absence of any specific measures to reduce it, and then what that load might be with specific measures to reduce that load.
- The DEA commits to retention ponds, if required. So, does that mean there may be additional impacts to aquatic resources from retention pond construction?
- The DEA states that SpaceX would “*develop appropriate sampling protocols and water quality criteria in coordination with the TCEQ in accordance with Texas Surface Water Quality*”. That is not how it works. Water quality criteria are part of the water quality standards, which are developed by TCEQ and approved by EPA. SpaceX has no role in this process. In addition, the only “sampling protocols SpaceX might be involved with, is required discharge monitoring under any permit. Again, this would be a permit condition mandated by TCEQ. SpaceX would not be involved in developing these requirements. They would be told what they must do. All this is very telling, reflecting how FAA, or most likely, SpaceX, does not understand the NPDES permitting program they are subject to, and apparently taking the same American oligarch attitude they seem to have taken regarding everything else they are doing at Boca Chica. It is unacceptable.
- 3.10.3.3 Protected Species and Critical Habitat; Terrestrial: This section doesn't make sense. It isn't really about terrestrial protected species. Rather, it is about all protected species. Finally, it includes statements that seem to exaggerate the potential for some of these species to occur here. It is outrageous that it does not even mention the ocelot or jaguarundi.
- Marine: It is not at all clear what any of this has to do with this DEA or these proposed actions at this site.
- In general, this section of the DEA is completely dismissive of any potential impacts on protected species, and barely mentions the highly significant endangered species- ocelot and jaguarundi. The treatment of this seems completely unacceptable.
- Essential Fish Habitat (p 115): The DEA fails to acknowledge that there is EFH just north of the proposed parking lot. I have already mentioned that there is a risk that construction of this parking lot may impact seagrasses to the north due to decreased light availability due to sediment loading/turbidity. These seagrasses are EFH.
- 3.10.4.3 Protected Species and Habitat; Terrestrial Species: The DEA states the following: *The FAA has determined the Proposed Action may affect and is likely to adversely affect the following species and critical habitat: piping plover and piping plover critical habitat, red knot, northern aplomado falcon, Gulf Coast jaguarundi, ocelot, Kemp's ridley sea turtle, hawksbill sea turtle, leatherback sea turtle, loggerhead sea turtle, and green sea turtle.*
 - How is this not a significant environmental impact then? If it is, then an EIS should be prepared.

- Critical Habitat; Regarding the following assertion: *While the Proposed Action would adversely affect critical habitat, the small amount of habitat that would be affected by the Proposed Action would not substantially affect the recovery of the piping plover or the breeding and wintering grounds of migratory birds.*
 - While this may be true, I assert that cumulative impacts on piping plover habitat are significant.
- 3.10.5 Mitigation and Monitoring; Regarding the following assertion: *The FAA would ensure that SpaceX implements the following measures to minimize impacts on biological resources.*
 - FAA has not ensured that SpaceX complies with many of the requirements/commitments from the original EIS, so why should we believe them this time?
- Construction Measures; 1: These may not be sufficient to protect seagrasses within 1 km of the proposed parking lot, from turbidity/reduced light availability, due to sediment loading.
 - 5. An alternative limiting construction to the time of the year when birds are not breeding should have been considered.
- 3.11 Coastal Resources; 3.11.3 Existing Conditions: The Draft PEA acknowledges: *The VLA is located within the Coastal Barrier Resource System Unit T12 and within and adjacent to the Otherwise Protected Area Unit T12P (USFWS 2021a), as mapped under the Coastal Barrier Resources Act.* However, the implications of this are not discussed. If existing facilities and/or proposed facilities are funded in part with Federal funds, this is a violation of the CBRA. Perhaps more importantly, this Draft PEA states that SpaceX intends to apply for Federal flood insurance, which the CBRA expressly seeks to avoid within the CBRS.
- 3.11.4 Environmental Consequences: The existing and proposed SpaceX activities at Boca Chica are inconsistent with the following Goals and Policies of the Texas Coastal Management Program.
 - Goals
 - to protect, preserve, restore, and enhance the diversity, quality, quantity, functions, and values of coastal natural resource areas (CNRAs);
 - to ensure and enhance planned public access to and enjoyment of the coastal zone in a manner that is compatible with private property rights and other uses of the coastal zone;
 - to balance the benefits from economic development and multiple human uses of the coastal zone, the benefits from protecting, preserving, restoring, and enhancing CNRAs, the benefits from minimizing loss of human life and property, and the benefits from public access to and enjoyment of the coastal zone;

Sincerely,
 Kenneth G. Teague, PWS (emeritus), Senior Certified Ecologist
 Austin, Texas

From: Monica Quarto <[REDACTED]>
Sent: Monday, November 1, 2021 2:34 PM
To: SpaceXBocaChica
Subject: Concern about Boca Chica

Ms. Stacey Zee, RE: SpaceX PEA

c/o ICF, 9300 Lee Highway, Fairfax, VA 22031

To: E-mail: [REDACTED]

Dear Ms Zee,

I am very concern about the news that I heard about Boca Chica There for I am writing you now to provide comment on the FAA's Draft Programmatic Environmental Assessment for the SpaceX Starship Super Heavy Project at the Boca Chica Launch Site. I am very concerned about the current state of development and activities which have already had major negative impacts and which were never evaluated in the original EIS, making this new plan to EXPAND that activity and infrastructure even more alarming. The Boca Chica area, including the Lower Rio Grande Valley National Wildlife Refuge, several Texas State Parks and the South Bay Coastal Preserve – is an ecological gem, yet it is being treated by SpaceX as if it were a wasteland. This expansion plan essentially seeks to sacrifice a publicly-owned natural resource area of hemispheric importance for a private company. I just read an informative article by the American Bird Conservancy, and the following quote is quite alarming:

“The American Bird Conservancy (ABC) is deeply concerned about the facility's impacts on wildlife habitat and species listed under the Endangered Species Act (ESA), including the federally Threatened Piping Plover and Red Knot, and the Endangered Northern Applomado Falcon...The SpaceX facility in Boca Chica is surrounded by federal and state public lands used by hundreds of thousands of individual birds of many different species throughout the year...”

Boca Chica is an especially vital place for migratory birds that pass through there to rest and refuel so they can successfully continue and complete their migratory journeys. Also, the area contains all five seagrass species that occur in Texas, mostly fringed by dense and probably the most well-established stands of black mangrove in the state. These stands of mangrove also have considerable importance to nesting waterbirds, such as the Roseate Spoonbill. The Piping Plover, listed as Threatened under the Endangered Species Act, is one of the many species being negatively impacted by the ongoing construction of the SpaceX Starship Super Heavy Project and launch site. According to a recent analysis, the population of Piping Plovers has declined by over 50% at the site in only three years since the onset of testing and launch activities. This is an alarmingly rapid decline for a species that is already under increasing risk of extinction.

An objective Environmental Impact Assessment should be made:

- To address cumulative impacts that have yet to be recognized by the Federal Aviation Administration and SpaceX, such as fuel transport and storage at the facility, as well as massive proposed infrastructure projects including a 250 MW power plant, a natural gas plant and liquefier, and a desalination plant.
- A launch failure analysis should be part of the Environmental Impact Statement (EIS) to assess the risks to public safety and risks to the proposed infrastructure and operations at the Port of Brownsville and off-shore.

- The Federal Aviation Administration should examine more alternatives, rather than just the “all or nothing” alternatives. One of the other alternatives that should be included is moving the testing of Super Heavy to a designated large rocket testing site, such as Provo, Utah or Stennis AFB in Mississippi. The latter is where the Saturn V rocket was tested, and where the Space Launch Systems (SLS) rocket is currently being tested. Another alternative should include launching Super Heavy offshore or from Cape Canaveral.
- The Clean Water Act, Section 404 specifies the consideration of alternatives to the proposed action of filling or dredging of wetlands. SpaceX has provided no alternatives or other measures necessary to protect public health and safety.
- Construction is anticipated to permanently fill 17.16 acres of wetlands, and the filling of 25.8 acres of floodplain. No alternatives or mitigation has been provided by SpaceX.
- The Draft Programmatic Environmental Assessment mentions that noise and shock waves (far-field overpressure) may break windows on SPI and Port Isabel. If that can happen 5 miles away from the launch site, what will be the effects on birds, reptiles & small mammals that are a half mile or less from the launch site? The launch site is surrounded by national wildlife refuge and state park land.

With these and many other serious concerns in mind, I therefore must ask why is the SpaceX Starship Super Heavy Project and launch site being expanded, even though some of the infrastructure has yet to be approved by the Federal Aviation Administration (FAA). This is not a suitable site for such a volatile and damaging industry to operate. Now that this site is no longer out of sight and out of mind, I ask that the FAA NOT approve this proposed SpaceX expansion scheme. Instead, I ask that the FAA move to better regulate and greatly reduce operations there so that they abide by the original approval stipulations which SpaceX has sadly repeatedly violated without sufficient repercussions.

Awaiting Your Prompt Response,

Name: Monica Gutierrez

[Email:](#) [REDACTED]

From: Ellen .Tyma <[REDACTED]>
Sent: Monday, November 1, 2021 11:33 AM
To: SpaceXBocaChica
Subject: Deny SpaceX Permits

Dear Ms. Zee:

Again I am requesting that this SpaceX project not be rubber stamped because of "popular" opinion. None of SpaceX or Elon Musk's assurances have been adhered to and he continues to violate all agreements and permitting. There are too many issues for this critical habitat that are being ignored and violated on a daily basis. Listed are the major concerns that should immediately shut this project down and restore the Lower Rio Grande Wildlife Refuge and Boca Chica Beach.

1. Where does the input fuel from the facility come from? How does it get there? How Much? What is the specific kind of natural gas being used? Is it pipeline spec gas or "wet" field gas? By continuing to ignore that every single aspect of this operation passes through a Wildlife Refuge and residential areas. Hundreds of trucks emitting their own hazardous emissions pass by schools and residents neighborhoods. None of this was EVER in the original EIS and will only poison our air, water and grounds.
2. What makes the "Liquefier" different from a regular LNG plant? What is its capacity?
3. Why is Elon Musk telling people they can launch this month, when a Section 7 Opinion under the Endangered Species act is required? Isn't that a 135 day process?
4. How do you intend to keep SpaceX in line given their track record of ignoring regulations and orders? We all know the cult of Musk and SpaceX are trying to drown out the voices of reason and logic when it comes to protecting wildlife and people.
5. How is a gas plant and LNG unit required for test flights? How was the size determined? Why was this information not required?
6. What is the need for a 250 MW power plant? Why was no "no action" or "alternate action" provided for the gas and power plants?
7. How is *any* of the information in the entire PEA credible, given that the reviewers missed a "Major Source" under the Clean Air Act?
8. How was hundreds of millions of gallons of water in a cooling tower completely missed?
9. Why is SpaceX, Musk and YOU Ms. Zee and all those involved with this project permitted to keep moving the goalposts ignoring ALL safety and environmental issues.

The pipe dream of hopium that is this cult is smoking of going to space, the Moon or Mars is ludicrous. NO ONE AND I MEAN NO ONE is going to the Moon or Mars. This is merely a billionaire playground with a flawed cult following. I live within 10 miles of the build site and deal with dead animals, deadly motor vehicle accidents, loss of light for the night sky, trash from SpaceX and their following and literal extinction of the rare jaguarundi and ocelot for its native habit here in the refuge.

Explain why Point Isabel, Port Isabel and South Padre Island are not evacuated during these failed bombs going off but my husband, myself and neighbors who live 10 miles away are denied access to our homes. Does the Money and population of those areas mean turtles, plovers, ocelots and jaguarundi can be sacrificed?

Do you think for one second if those living across the ship channel had to leave their homes this project would even be on the table? I think not. Money cannot recover what is permanently lost.

May I also add that those commenting from around the world and out of the area DO NOT DESERVE to be heard. They have no idea as to what is being lost here.

I beg you to deny this permit, project and all that this modern day charlton represents. Our Beach, Refuge, and homes are NOT for sale.

Respectfully,
 Ellen M. Tyma

Daniel S. Griffen

Homeowners deeply affected and abused by this project.

From: Bryan Parras ([REDACTED]) Sent You a Personal Message < [REDACTED] >
Sent: Monday, November 1, 2021 11:29 AM
To: SpaceXBocaChica
Subject: Do A Full Environmental Impact Study

Dear Federal Aviation Administration,

I oppose any permit without a full environmental impact study. Boca Chica holds a special place as I have camped on the beach, fished and enjoyed the largely untouched landscape that has now become a parking garage for an antiquated notion of resource extraction, colonization and destruction of our only home, planet earth.

I am writing in opposition to SpaceX's proposed Starship/Super Heavy Launch Vehicle expansion project on Boca Chica Beach.

The SpaceX expansion project would be incredibly detrimental not only to the wildlife habitat and wetland ecosystems around it, but to the nearby communities of Brownsville, South Padre Island, and Port Isabel as well.

This project will require a massive scale of new industrialization that includes a rocket launch pad, gas power plants, desalination plant, gas drilling, and more near residential communities, between wildlife refuges, and at a public beach. Not to mention, the explosive rocket launch operations are less than six miles away from two highly flammable proposed liquefied natural gas (LNG) and a pre-existing gas pipeline.

An accident on the scale of a Starship/SuperHeavy launch vehicle would be a devastating catastrophe for the Laguna Atascosa Wildlife refuge, the Lower Rio Grande Valley Wildlife refuge as well as for nearby communities of color and endangered species like the ocelot and aplomado falcon.

At the very least, the FAA should conduct a comprehensive Environmental Impact Statement because of the size and scale of SpaceX's new launching operations. This Environmental Assessment is extremely inadequate, because it only evaluates an "initial mission profile," and does not address:

1. The FAA's claims that SpaceX's mission is to launch larger rockets in pursuit of National Space Policy goals, which were updated by Trump in 2020. These policy goals should be evaluated by the new Biden Administration, and actually reflect whether space exploration is in the interest of the public rather than private corporations seeking to profit.
2. The already damaged land and wildlife that SpaceX has already caused, in addition to the new plans that will permanently destroy acres wetlands and floodplains,
3. SpaceX's rocket launching schedule results in beach closures that would further strip away people of color's rights to fish and recreate at Boca Chica Beach by up to 800 hours per year, about an entire month.
4. Elon Musk, using his social media platforms to attract outsiders to displace a historically marginalized community. Already, longtime residents are being forced away from their beach and homes, and it doesn't help when outsiders, attracted by Elon Musk and his social media presence, displace residents by moving here or soliciting comments and opinions from people who've never even been to the region.
5. SpaceX has never consulted with the Carrizo/Comecrudo Tribe of Texas, who have ancestral ties to the region, about operations. Under the United Nation's Free, Prior, and Informed Consent, SpaceX should not be authorized without consultation and consent of the Tribe.

Additionally, the FAA should have to redo its regulatory process to accommodate the Spanish-speaking population because the public hearings and materials are not translated.

About 80% of the Rio Grande Valley community, which is directly impacted by SpaceX, speaks primarily Spanish at home. The FAA should not allow SpaceX to continue to expand to launch the Starship/Super Heavy project at Boca Chica Beach because the potential for further wildlife and land damage along with the potential explosions it could cause is just not safe for the residents of the area and is not safe for the environment.

Sincerely,

Bryan Parras



This message was sent by KnowWho, as a service provider, on behalf of an individual associated with Sierra Club. If you need more information, please contact Lillian Miller at Sierra Club at [REDACTED] or [REDACTED]

From: Alam, Shawn K <[REDACTED]>
Sent: Monday, November 1, 2021 1:52 PM
To: Zee, Stacey (FAA); SpaceXBocaChica
Cc: King, Susan E; Braegelmann, Carol; Willey, Seth; Archibeque, Aaron; Brunnemann, Eric J
Subject: DOI Comment Letter and Attachments FAA SpaceX PEA
Attachments: Attachment 1 SpaceX PEA 11.01.2021.pdf; Attachment 2 NPS Matrix FAA Starship Super Heavy PEA_11.01.21.pdf; DOI_Comment_FAA_Starship_Super_PEA.10.29.2021.pdf

Good Afternoon Ms. Zee,

Attached is a copy of DOI Comment Letter with two (2) attachments for the subject Project for your consideration. If you need a hard copy by regular mail, please let me know. Thank you,

Shawn

Shawn K. Alam, PhD
U.S. Department of the Interior, Office of the Secretary
Office of Environmental Policy and Compliance

[REDACTED]
[REDACTED]
[REDACTED]

Telework: Phone: [REDACTED] (H), [REDACTED] (C)



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240

In Reply Refer to:
9043.1
ER 21/0402

Via Electronic Mail Only

November 1, 2021

Ms. Stacey Zee
Federal Aviation Administration
800 Independence Avenue SW, Suite 325
Washington, DC 20591
Stacey.Zee@faa.gov
SpaceXBocaChica@icf.com

Re: Federal Aviation Administration Starship/Super Heavy Programmatic Environmental Assessment (PEA)

Dear Ms. Zee:

The Department of the Interior (Department) has reviewed the Federal Aviation Administration (FAA) Starship/Super Heavy Launch Operations Programmatic Environmental Assessment (PEA) for the SpaceX Boca Chica Launch Site (Launch Site or Project) in Cameron County, Texas, on behalf of the U.S. Fish and Wildlife Service (FWS) and the National Park Service (NPS). The FWS and NPS are Cooperating Agencies under the National Environmental Policy Act (NEPA) and are also in consultation under the Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA), respectively.

The Department notes that additional activities at this Launch Site could occur and additional tiered NEPA analysis might be needed. There are also other FAA space exploration activities underway, such as at Spaceport Camden, Georgia, and likely upcoming elsewhere that might be better analyzed programmatically, particularly related to areas that together contribute to new and larger environmental concerns. Such areas as launch related air quality emissions and climate change, as well as additional impacts from new space exploration activities, could necessitate new mitigation and policy, such as uses under Section 4(f) of the U.S. Department of Transportation Act (49 U.S.C. § 303), that would benefit from a national programmatic level review.

Regarding this Launch Site, as indicated in Attachments 1 and 2 with FWS and NPS comments on the PEA, the Department has remaining concerns related to the following seven areas and their adverse impact minimization and mitigation:

1. Launch Site blast area hazards
2. Closure of FWS and NPS lands
3. Environmental Justice (EJ) concerns
4. NHPA Section 106 and 110(f)
5. ESA listed species
6. Air Quality emissions
7. Climate Change impacts

Launch Site blast danger area and debris removal and restoration from launches is not fully addressed. Currently, the Lower Rio Grande National Wildlife Refuge (NWR) is not included in the “blast area” and thus any resulting anomaly event debris removal and damage restoration is not fully considered in SpaceX plans. We request that the FAA/SpaceX expand the “blast area” to ensure that environmental review and mitigation covers the debris and damages to NWR lands that occurs now and would continue with the Project. Currently, scattered metal part debris removal at NWR is not conducted and FWS resource use related to SpaceX damages on the NWR are not reimbursed. Damage mitigation should include reimbursement under a reimbursement plan as is currently done for Texas Parks and Wildlife managed lands.

Section 4(f) of the U.S. Department of Transportation Act (49 U.S.C. § 303) protects publicly owned parks, recreation areas, wildlife refuges, and historic sites of national, state, or local significance from use by transportation projects unless all possible planning to minimize harm are included in the Project. The NWR and Palmito Branch Battlefield National Historic Landmark (NHL) are both subject to Section 4(f) use consideration. Access to the NHL, NWR and its beach, consist of continuing temporary closures to all features of the NWR and NHL, preventing access and enjoyment for the purposes the NWR and NHL were designated due to road access closures for over 11% of the year annually. These on-going closures extend beyond temporary Section 4(f) property use that is typically considered under Section 4(f) under DOT modal administration Section 4(f) regulations at [23 CFR 774.13\(d\)](#). FAA uses these regulations and related policy as implementation guidelines, and this Project does not appear to meet the definition for duration (“less than the time needed for construction of the project”), interference (“permanent adverse physical impacts, nor...interference with the protected activities, features, or attributes of the property”), and restoration (“the property must be returned to a condition which is at least as good as that which existed prior to the project”) as defined for temporary occupancy in regulation. There must also be documented agreement with the official(s) with jurisdiction over the Section 4(f) resource regarding these conditions. We request that Section 4(f) use consideration address the anticipated on-going temporary uses, that could become permanent if debris cannot be entirely removed, and related adverse impacts due to SpaceX close road closures for access to the NWR and NHL.

Visitors to the NWR and NHL are often from the surrounding community, which is substantially Hispanic and lower income, and for purposes of NEPA analysis would generally be called an “EJ community.” Thus, the effects of closures and other adverse effects disproportionately impact the EJ community of Boca Chica. With the proposed additional SpaceX activities, the impacts are even greater, and the FWS invites FAA and SpaceX to explore specific mitigation that benefits this EJ community for these and other on-going activities. A collaboration with community members on what additional efforts could contribute positively to their community might include

an EJ plan to achieve broader community goals and ways FWS, FAA, and SpaceX could contribute to actions specifically related to activities at the NWR and Launch Site.

There are potential additional adverse effects to the NHL due to SpaceX activities and we recommend a new NHPA Memorandum of Agreement (MOA) to address the potential adverse effects to ensure a comprehensive approach. A new Section 106 MOA that addresses both the existing and proposed activities of the Launch Site would provide for consideration of adherence concerns with the 2014 NHPA SpaceX MOA in the development of a new MOA that addresses NHPA for all SpaceX activities.

Additional ESA consultation might be needed as design and operation plans for the Launch Site are finalized to consider potential takes of ESA listed species. In addition, FWS requests SpaceX forego nighttime activities or launches or reduce the number of nighttime activities during sea turtle season (March 15 to October 1) to reduce potential impacts to nesting sea turtles and to allow seasonal patrols as scheduled or minimize risks to their safety during their patrols. The FWS also requests a full lighting plan on the Launch Site so FWS can assess lighting impacts to red knots, piping plovers, northern aplomado falcons, and the wind tidal flats. This plan should include light monitoring inspections several times a month during sea turtle season to evaluate possible lights illuminating the beach, document which lights are causing this, and correct the issue.

The Project could potentially result in violations of a criteria pollutant National Ambient Air Quality Standards under the Clean Air Act for carbon monoxide, as well as substantial increases in nitrogen oxides and volatile organic compound emissions. A potential carbon monoxide violation would primarily be due to power plant operations and natural gas pretreatment and gas liquefaction, although might not occur upon further assessment and mitigation. Even though there might not be an exceedance, the large increase in contributions to air emissions should be considered in the NEPA analysis for this Launch Site and other planned space exploration activities to ensure complete information is available for decision making.

FAA and SpaceX should address potential climate change impacts, including wetland migration from sea level rise, for both the operation and decommissioning in the event the project becomes damaged from climate change, obsolete, or SpaceX chooses to leave the site and abandon the Project. A full plan should be developed to address the siting, adaptation, removal of infrastructure, hazardous materials or underground or above ground utilities that may result in natural resources impacts, especially to listed species habitat loss or change in the NWR and NHL viewshed. The Department encourages FAA and SpaceX to continue to explore ways to reduce the release of greenhouse gas emissions from the proposed Project operations and launches, including those identified in the PEA to recycle liquid methane as technology and design develops.

The above issues and others are presented in greater detail in general and specific comments in Attachment 1 and 2. Thank you for the opportunity to comment on the PEA. The FWS and NPS look forward to working with FAA as FAA proceeds with the environmental review process for the proposed Starship/Super Heavy Launch Operations. For further questions related to FWS concerns, please contact Seth Willey, Acting Assistant Regional Director, Ecological Services, at

[REDACTED] or [REDACTED] or Aaron Archibeque, Regional Chief, National Wildlife
Refuge System, at [REDACTED] or [REDACTED] and for NPS concerns, please
contact Eric Brunnemann, Superintendent, Padre Island National Seashore, at [REDACTED] x
222 or [REDACTED]

Sincerely,

Stephen G. Tryon, Director
Office of Environmental Policy and
Compliance

Attachments

cc: Susan King, REO Albuquerque: [REDACTED]
Seth Willey, FWS: [REDACTED]
Aaron Archibeque, FWS, [REDACTED]
Eric Brunnemann, NPS, [REDACTED]

Attachment 1

FAA Starship/Super Heavy Programmatic Environmental Assessment Comments

FWS Comments

General Comments

1. ESA Listed Species

The FWS is concerned about the potential take of listed species and related construction, operation and anomaly effects to threatened and endangered species and their habitat immediately surrounding the Launch Site. The FWS appreciates the opportunity to work with FAA further in formal consultation to adequately assess potential effects to these resources and to identify measures to avoid and minimize effects, including restoration if appropriate.

2. Environmental Justice

The Boca Chica, which is 18 miles from Brownsville, is well situated to meet underserved community needs while also building a more robust conservation constituency. The Boca Chica is logistically situated to serve Brownsville as a recreational destination. The Brownsville has one of the country's highest poverty rates with 26 percent of the estimated 180,000 residents below the Federal poverty line and 23 percent of families earning less than \$25,000. The FWS recognizes the importance of embracing a new collaboration with SpaceX and suggests the deployment of the FWS's Urban Standards of Excellence to engage community members in the natural world; build partnerships; be an asset to the community; provide equitable access to the FWS facilities and programs; ensure visitors feel safe and welcome; and model sustainable practices.

The FWS also recommends using the 2016 *U.S. Department of the Interior [Environmental Justice Strategic Plan \(EJSP\)](#)* five goals to guide addressing Environmental Justice (EJ) effects related to the Project. The Department recommends development of a plan to further the EJSP goals, in collaboration with the Boca Chica community, that reflects the commitment of SpaceX and the FWS to the Boca Chica EJ community and its needs. Possible objectives are listed below to align efforts aimed to address EJ community concerns related to the Project in collaboration with other relevant stakeholders. FWS recommends the following six priority

public uses as a starting point for outreach and discussion as they are uses that are currently being impacted by SpaceX operations:

1. fishing objectives
2. wildlife observation objectives
3. wildlife photography objectives
4. environmental education objectives
5. environmental interpretation objectives
6. NHL public priorities

3. Section 4(f)

The FWS appreciates the opportunity to have discussed Section 4(f) concerns arising from Launch Site activities and road closures with both FAA and SpaceX on October 5, 2021, and looks forward to additional dialogue concerning the use of the NWR and NHL. In accordance with 49 U.S.C. § 303 the Secretary of Transportation is prohibited from approving a program or project requiring the use of a publicly significant owned park and recreation areas that are open to the general public, publicly owned significant wildlife and waterfowl refuges, and public or privately owned historic sites unless it “includes all possible planning to minimize harm”.

The Boca Chica Beach is part of the NWR and approximately 63% of all visitation to the NWR in previous years was to the beach for traditional uses and general enjoyment of one of the last free access, undeveloped natural beaches in the United States. The majority of visitors are from Brownsville, an EJ community. When the Boca Chica Tracts were acquired, the public was assured that traditional lawful recreational uses of the beach would continue to be available as stated in our 1993 Environmental Assessment for the Proposed Playa del Rio and Coastal Corridor Acquisitions. The SpaceX’s closure of the public NWR beach access and inland acres, along with closure of the NHL, prevents the public access to the NWR’s priority public purposes and uses. The protected activities of the NWR and traditional uses that have been and continue to be impaired and will be more substantially impaired include fishing, wildlife observation, photography, environmental education, and interpretation. When closures occur, all these wildlife-dependent recreational uses are substantially impaired because they are unavailable to the public. Delayed road closure announcements and inaccurate road closure signage over the past two years is further disrupting access to the NWR and NHL. The FWS recommends SpaceX’s commence and adhere to predictive scheduling for all activities that result in road closures that result in interference of the protected public use activities of the NWR and NHL.

The FWS requests clarification and discussion regarding the FAA’s proposed use determination. The FWS appreciates the FAA’s analysis of constructive use and the impacts of noise associated with the Project on the quiet enjoyment of the NWR; however, further analysis of the temporary on-going impact of the Project from closures on established purposes of the NWR, such as on

recreation and wildlife management, and anomaly events that result in debris on the NWR that will need to be removed, is warranted given the extensive interference and substantial impairment caused by access restrictions that will be permanent during Project operations. The FWS believes that a Section 4(f) use exists and requests FAA provide further clarification.

The exploration of all reasonable and prudent alternatives that completely avoid Section 4(f) properties and/or to ensure "all possible planning to minimize harm to the Section 4(f) property" has not considered the on-going nature of closures and anomaly debris activities. The FWS is willing to work with SpaceX and resolve the loss of the use of public lands, public opportunities and assist in the development of a separate NEPA analysis as warranted. As SpaceX operations are continually evolving, the FWS suggests recurring meetings between FWS, FAA, and SpaceX to collaboratively resolve these and other impacts through agreements, changes in operations, protective measures, funding studies, partnering on mutually beneficial programs, and finally mitigation or a combination of these approaches.

4. Closures

Launch site activities such as tank tests, wet dress, rehearsals, static fire engine tests, launches and moving the rocket or construction equipment from the processing area to the Vertical Launch Area (VLA) requires restricting access of VLA and securing the area for safety. A closure ends when the operations are complete and local law enforcement opens State Highway 4 and Boca Chica Beach. The SpaceX has requested 500 hours of closures per year. This is a substantial increase of closure hours and subsequent effects from the 180 hours originally analyzed in the 2014 EIS. In addition, although road closures are part of the proposed project, the FWS is notified inconsistently and often in a short time frame of when a closure will occur. Receipt of a closure notice occurs an hour to 4 hours or a day or two before the closure is actually going to occur. In the 2013 Biological Opinion the notice is to be coordinated with agencies 2 weeks prior. The short notices do not allow sufficient time for Refuge staff or researchers to reschedule surveys, work plans or deliveries of materials.

The closures impact the NWR staff and researchers needing access to NWR lands to complete management activities and listed species studies or surveys. These activities and surveys are time sensitive and closures interfere with data collection. The inconsistent announcement of closures causes NWR staff and researchers to arrive at their location, with no closure scheduled, only to be approached and asked to leave within an hour of their arrival. The SpaceX has committed to fund additional resources or personnel necessary to enforce the closures required for launch operations, and to provide NWR staff with badges to allow them to enter and use the facilities, however, that does not solve the amount of time the public is prevented from recreating at Boca Chica Beach, and staff and researchers are not able to conduct activities vital for documenting mortality, injury, or harassment of listed species or loss of their habitat. The FWS requests that FAA and SpaceX implement solutions to reduce the number of closures instead of

increasing the number of hours. The FWS also looks forward to assisting in finding those solutions.

The FWS acknowledges that FAA defined a closure hour and is attempting to work with SpaceX to adhere to the defined metric. The FWS does not believe that what is posted online regarding closure is an accurate reflection of what is occurring today based on our attempts to enter the Boca Chica area before a closure has been posted and after the closure is subsequently lifted. Staff, researchers, and the public are not entering because of electronic road signs posting closures on State Highway 4 and Cameron County officials during periods that a closure has been lifted online. The FWS strongly recommends including the items below to add long-term, predictable access to the NWR and NHL:

1. Road signage and road closure must in real time reflect accurately what is posted online. If road signs and officials are not adhering to what is posted online, then the area is not open.
2. An improved public notification system is needed other than reliance upon the Cameron County website to accomplish real time information sharing of road closures. A texting system, phone app, or other system may be ideal, but only with an informational campaign that alerts the public of the availability of such system(s). And monitoring of the success of newly implemented system(s) should also be in place to prove the success of such system(s).
3. An accounting of observed closure hours should be made available to each agency and the public after each public road closure event.
4. The two-week advance notice for agency planning (if continued) should be extended to the public.
5. The FWS requests a predictive scheduling system instead of a two-week notice for non-failure related activities including no closures on holidays and weekends. The FWS recommends that closures should only occur during set hours, excluding holidays and weekends if possible.

5. Impacts from Closures

The FWS is familiar with SpaceX's closure notification obligations under the 2014 Environmental Impact Statement and in the Closure Plan appended to the 2017 Biological Opinion and appreciates that FAA asked SpaceX to implement a Closure Notification Plan during this review. The FWS has concerns over implementation of the Closure Notification Plan and what FAA can do to bring SpaceX into compliance. The Closure Plan as proposed by SpaceX cannot require FWS staff to obtain or present a SpaceX badge, as proposed, to gain access to FWS properties as needed for management, research, fire response, or law

enforcement. The items below are strongly recommended to bring SpaceX into compliance regarding Federal access to Federal facilities by FWS personnel, contractors, or partners, etc.:

1. The FWS requests a predictive scheduling system for non-failure related activities that prevents closures on holidays and weekends.
2. The SpaceX must comply with a specific road closure window based on set and predictable scheduling.
3. The SpaceX closure authorization must be limited to a single day on a predictive schedule FWS staff, interns in the FWS uniforms or volunteers, operating government-owned vehicles with agency decals or with DOI-issued identification cards must be permitted to access the NWR and the NHL.
4. The FWS-permitted partners, researchers, should be allowed access to NWR-managed properties and the NHL. A copy of a NWR Special Use Permit provides adequate documentation for refuge-approved activities.

6. Impacts from Noise, Debris, and Traffic

The FWS appreciates that the FAA expanded environmental review of SpaceX launch activities to include debris from launch anomalies and evaluating a blast danger area. The FWS' experience with past SpaceX launch anomalies trend toward a larger debris field with each subsequent anomaly. The difficulty and duration associated with debris cleanup efforts has also increased significantly. The FWS has incurred budgetary impacts for four explosions (SN8, SN9, SN10, and SN11) in the way of staff involvement with oversight and assessment for clean-up efforts and distraction from other NWR priorities. The FWS recommends reassessing and expanding the blast danger area so the NWR's attributes and features to have the necessary evaluation and pre-planning efforts should it be impacted by future debris. A prolonged debris retrieval effort like that of SN10 should be addressed as a foreseeable event to address potential extended closures and appropriate FWS compensation and NWR restoration.

7. Anomalies

An anomaly is defined in the PEA as a failure, or explosion of a test vehicle. It is usually associated with a fire or debris being scattered on NWR lands or State lands that the NWR manages for them and listed species habitat or designated and/or proposed critical habitat. In the event of an anomaly, SpaceX evaluates the level of response based on the situation and notifies the appropriate emergency personnel and land-managing agencies according to the Anomaly Response Plan. Out of 16 tests or hops that have occurred, nine have resulted in some type of anomaly with fire or debris. The SpaceX estimated 10% of tank tests will result in an anomaly and the FWS recommends this be revised to at least 50%. The NWR staff are not allowed to enter the area until SpaceX recovers sensitive and dangerous devices. By the time NWR staff

gain entry to search for injured or dead wildlife, the carcasses may have been removed by predators. The FWS requests pictures or other remote sensing options be employed by SpaceX to document take of wildlife or the need for rehabilitation.

The fire and debris result in direct immediate damage and the response itself increases the damage. Fire trucks create ruts or get stuck in the sensitive and rare tidal flat habitat. Equipment to remove the debris damages tidal flats and listed species habitat as they remove or pull debris out of the habitat. Several hours are needed to find solutions for debris removal and additional closure hours are added. The SpaceX is looking for less damaging ways to remove the debris but have not committed to funding environmental cleanup or addressing damages to habitat and wildlife. The FWS is willing to work with FAA to identify less damaging alternatives to clean up debris and discuss appropriate options to fund clean-up of NWR lands.

8. Infrastructure

Some proposed infrastructure locations have not been identified. The PEA states it will either be built on the VLA or the processing site with no exact location specified. Not knowing the location makes it more difficult to assess impacts from potential stormwater runoff or hazardous spills. The FAA also has stated that some of that infrastructure may conduct a tiered environmental review at a later time. The FWS will be assessing both locations and the species adjacent habitat and reactions at both locations.

Some of the proposed infrastructure was built prior to the conclusion of the NEPA analysis and Section 7 ESA consultation. The FWS considers this as an after-the-fact action and will not consult on the construction of that infrastructure but only the operation of it. One of two proposed integration towers has been completed. It is 480 feet tall and is a significant obstruction to migratory birds under “fallout” conditions. This may result in unacceptable impacts to migratory birds since this area is a traditional and heavily used migration route. If impacts occur from that particular tower, FAA may potentially be in violation of Section 9 of the Endangered Species Act (ESA) if it maintains jurisdiction; otherwise, SpaceX assumes liability for Section 9 violations. The other tower has not yet been built. A proposed parking lot has been cleared and is in use, prior to Section 7 consultation. The FWS might be able to assess future operation of that parking lot.

A proposed desalination plant was proposed to be built at the VLA. However, on October 5, 2021, at a meeting at the SpaceX facility, SpaceX stated they would remove the desalination

plant from the proposed project. Additionally, during a meeting on October 18, 2021 SpaceX reaffirmed that the desalination plant would not be part of the project. It may be added back in the future and consultation will be reinitiated at that time.

The proposed power plant will either be at the VLA or the processing site. It will be used to generate power for all activities at the SpaceX facilities and would be approximately 5.4 acres in size. The PEA does not specify if a gas pipeline will be needed to connect to this plant and if the proposed route would require crossing the NWR land. Granting such a right-of-way might be found inappropriate according to the NWR policy at 03 FW 1. It may also impact listed species and its habitat depending on its location and its design.

9. Lighting

The SpaceX states that they will attempt to schedule closures and activities during the hours of 7:00 am to 7:00 pm. However, spotlights will illuminate construction areas and the rocket during a launch. Appendix F includes pictures of the viewshed during the day and the night. The night lights are visible from the dunes and 5 miles away, but not visible from 10 miles away. The SpaceX and FAA have submitted a lighting plan with measures intended to reduce nighttime lighting impacts to the surrounding areas and minimize sky glow. Some of the measures include directing, shielding, or positioning lighting to avoid visibility from the beach, minimize lateral light spread, and decrease uplighting, using low-pressure sodium bulbs and using timers.

Lighting impacts nesting sea turtles or and other sea turtles that have come up on the beach. The lights could cause the sea turtle to false crawl, and disorient hatchlings emerging from a missed nest. Late night launches also impair Sea Turtle, Inc.'s ability to complete their pre or post launch patrols due to safety concerns for the patrollers. This hinders the patrollers ability to look for tracks or nests and tell if sea turtles have been impacted by the nighttime activities. The FWS requests SpaceX forego nighttime activities or launches or reduce the number of nighttime activities during sea turtle season (March 15 to October 1) to reduce potential impacts to nesting sea turtles and allow Sea Turtle, Inc. to safely perform their seasonal patrols as scheduled or minimize risks to their safety during their patrols. The FWS also requests a full lighting plan to evaluate all lighting on the site. The FWS needs to assess lighting impacts to red knots, piping plovers, northern aplomado falcons, and the wind tidal flats. The FWS also requests the light monitoring plan include inspections several times a month during sea turtle season to evaluate possible lights illuminating the beach, document which lights, and correct the issue.

10. Increased Traffic, Personnel, Observers

Increases in traffic from construction vehicles, personal employee vehicles and visitors interested in observing launches parked along State Highway 4 and the dunes causes noise, trash, wildlife mortality and damage to vegetation. Wildlife tend to be more active during dawn and dusk, presently the time when approximately 450 employees are arriving or leaving a shift. Employees have been observed not abiding by speed limits. The SpaceX states they will mandate reduced speeds and educate employees to reduce potential increases in roadkill; however, the PEA does not outline how the mandate will be enforced. The TxDOT has been reviewing State Highway 4 and has indicated reducing the speed limit may be warranted. The FWS requests that SpaceX support the reduction in the speed limit and the speed limit be enforced. The FWS recommends that the shuttle be expanded and incentives offered to encourage employees to utilize it to reduce congestion, wildlife roadkill, and noise.

11. Noise and Vibration

Acoustic noise is a byproduct generated by the firing of rocket engines. Acoustic noise also leads to significant vibrations. The thrust of the rocket engines produces vibration over a wide range of frequencies. Ground vibrations, generated by the rocket engine noise can be transmitted below ground and affect buildings and equipment. The Boca Chica Village residents located about 2 miles from the VLA will be notified to go outside their homes to avoid potential injuries from overpressure impacts. The PEA should analyze overpressure and underground vibration effects to area wildlife and wind tidal flats, including effects to benthic organisms in the flats as well as nesting sea turtles on the beach.

Appendix B noise modelling assumption of 37 Raptor engines, each with thrust of about 375 Kilopound-force (Klbf) for a total of 61.7 meganewtons (MN), is inconsistent with the stated maximum lift-off thrust of 74 MN on page 12 of the PEA. Noise estimates in Appendix B may be underestimated, at a minimum, by one decibel. If SpaceX Raptor thrust hypothetically increases to 600 Klbf, this operating condition would produce a maximum lift-off thrust of 98.8 MN, with noise approximately two decibels higher than predicted in Appendix B.

Geographic noise modelling results in Appendix B, Figure 4, describe the maximum A-weighted sound level for the Super Heavy is predicted to be 110 decibels, the same value as the 2014 proposed Falcon Heavy although the Super Heavy is a much larger rocket. The Falcon Heavy also had fewer engines than the proposed Super Heavy, thus it seems unlikely that they would have the same sound level. In addition, geographic noise modelling may also be underestimated for inland areas with standing water because the ground is not porous, but saturated, and may not have captured impacts, in particular to the wind tidal flats, habitat and designated critical habitat for the piping plover as well as potential designated critical for the red knot. Appendix B rocket noise model predictions should be revised using the latest information and more current models. The FAA should also implement noise and vibration monitoring over time to properly analyze

noise impacts to piping plover, red knots and sea turtles. This monitoring will help to assess and possibly inform mitigation of long-term noise impacts to the NWR, NPS, and TPWD units along with impacts to wildlife.

12. Air Quality

The PEA lacks a quantitative air quality impact analysis for nearby NWR lands. The FAA concluded impacts would not be significantly different from construction emissions in the 2014 EIS, however details were not provided to support that conclusion. Please provide these details and quantifications of emissions including from the proposed natural gas power plant and methane processing facility. The FAA should follow the modeling guidance from the Texas Air Quality Commission for modeling various types of sources and their activity and durations since all operations may not be applicable for an annual averaging period.

13. Decommissioning

The FAA and SpaceX should commit to fund decommissioning in the event the project becomes damaged from climate change, obsolete, or SpaceX chooses to leave the site and abandon the project. A full plan should be developed to address the removal of infrastructure, hazardous materials or underground or above ground utilities that may result in listed species habitat loss or change in the NWR viewshed.

Specific Comments

1. Page 14, 2.1.3, Operations, paragraph 3, “White lighting is needed to ensure the protection and safety of SpaceX personnel. SpaceX would finalize the number of pole lights during the site design process.”

Comment: FAA should assume the worst case scenario and analyze lighting impacts to nesting sea turtles and reduce potential false crawls and disorientation to emerging hatchlings from nests that may have been missed during surveys.

2. Page 15, 2.1.3.1 Tank Tests, paragraph 2, “Burst testing includes the deliberate release of the test media (water, LN2, or LOX) to the environment upon failure of the primary structure.”

Comment: A protocol to minimize the release of waste to the environment and/or a system to capture this waste should be developed or mitigation of impacts to the environment should be identified.

3. Page 16, 2.1.3.1, Tank Tests, paragraph 1, “SpaceX estimates a 10 percent rate of anomalies during tank testing. An anomaly would result in an explosion and the spread of debris....SpaceX estimates that one tank test each month may result in an anomaly and potentially an explosion.”

Comment: No mitigation or avoidance and minimization measures are identified to clean up debris, habitat impacts to threatened and endangered species, on Federal and state lands.

4. Page 17, 2.1.3.4, Orbital Launches, paragraph 4, “There could be multiple launches in close succession required to support a single mission (e.g., Lunar resupply missions).”

Comment: Please clarify if this is in addition to the 25 proposed launches or included in the 25 proposed launches.

5. Page 71, 3.7.4 Environmental Consequences, paragraph 2, “The Proposed Action has the potential to affect a total of 18 historic properties (Table 3-8). Potential effects could result from visual or auditory effects or from ground vibrations.”

Comment: Because the historic properties are in close proximity to the VLA additional impacts could occur from anomalies, scattered debris and the retrieval of debris and should be addressed.

6. Page 77, 3.8.2.1 Public Parks, Recreation Areas, and Refuges paragraph 7, the Lower Rio Grande Valley NWR “More than 40,000 acres of NWR are open to the public for watching or photographing wildlife, walking natural trails, hunting, and special organized events (USFWS 2013a) the quiet natural setting of the NWR is a notable feature.”

Comment: We request FAA consider and analyze that Boca Chica Beach is also part of the NWR and approximately 63% of all visitation to the NWR is to the beach for traditional uses such as fishing, beachcombing, picnicking, and general enjoyment of one of the last free access, undeveloped natural beaches in the United States.

7. Page 81 3.8.3.1 Construction, paragraph 1, “The FAA has made a preliminary determination that SpaceX’s installation of utilities along the SH 4 ROW would involve a temporary occupancy and impacts would be *de minimis*, because the FAA would ensure that SpaceX restores the ROW to pre-disturbance conditions after installation.”

Comment: This statement mostly refers to utilities installed between the control site and launch site. However, if any utilities are to be placed within FWS lands, we require a ROW permit for any upgraded or new infrastructure. As such, this may or may not be considered a “*de minimis*” since it depends on the specifics of each utility installation. Any use of NWR lands would also require an appropriate uses and compatibility analysis consistent with the FWS policy 340FW3, 603FW1, 603FW2. Additional NEPA analysis and ESA compliance would also be required.

8. Page 84, 3.8.3.3 Anomalies, paragraph 2, #3, “There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, feature or attributes of the property, on either a temporary or permanent basis.”

Comment: The SpaceX appears to be a permanent facility. As such, continued closures of the road prevent public access to NWR lands and prevent staff and researchers from accessing lands they manage. This adversely and permanently impairs FWS attributes and protected activities as long as SpaceX continues to frequently close State Highway 4. This should be addressed as something other than a temporary or *de minimis* impact because it is part of a permanent operation plan. Most days in the year 2020 experienced some type of closure and over 1,000 hours of closures were documented by researchers. The FWS has provided recommendations in the Observed Closure Hours and Impacts from Closures sections of this document to address this.

9. Page 84, 3.8.3.3 Anomalies, paragraph 2, #5, “There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions.”

Comment: The SpaceX is responsible for full restoration of habitat impacted on the NWR lands and mitigation of impacts to threatened and endangered species habitat, or provide compensation for impacts from anomalies, and retrieval of debris. The SpaceX has chosen to pursue a memorandum of agreement with Texas Parks and Wildlife Department (TPWD) for lands owned by TPWD but managed by FWS. It is FWS recommendation that SpaceX enter into an agreement or another appropriate legal instrument that identifies and documents agreement and responsibilities.

10. Page 85, 3.8.3.3 Anomalies, paragraph 2, “Occupancy of the Section 4(f) properties would be short term, and there would no permanent or residual effects to the properties lasting beyond occupancy.

Comment: 100% of scattered debris has not been retrieved. Sharp metal parts can be found below the sand and may not be visible during retrieval of debris. In addition, ruts on algal flats do not recover very easily. The SpaceX contract environmental cleanup should use only specialized personnel and equipment designed to protect and restore the sensitive habitat types found in the area. The Space X should not be allowed to prohibit FWS staff, TPWD staff, NPS staff, or other agency representatives and their researchers to enter to collect biological and cultural resource data even during closures, and ensure SpaceX contract or fund collection of data on impacts to sensitive habitat types and wildlife species impacted by anomalies. Restoration of impacted habitats should be required. If restoration is not possible impacted habitats should be protected through land exchanges or land purchases. The SpaceX should provide an environmental cleanup fund that agencies can utilize to pay for environmental damage caused by SpaceX activities.

11. Page 86, 3.8.3.4, Daily Operations, paragraph 3, “Moreover, increased visitation before, during, or after a launch event could result in beneficial impacts from additional revenue from entry fees (if applicable) and further the mission of the parks recreational areas and wildlife refuges to enrich the lives of citizens through outdoor recreational opportunities and natural and cultural heritage programs.”

Comment: The statement that the event watching is beneficial appears inaccurate. There is no increase in revenue because visitors are not charged to visit Boca Chica Beach. The FAA should provide a supporting analysis for this comment.

12. Page 87, 3.8.4, Mitigation and Monitoring, paragraph 1 items 5 and 6, “Restoration measures regarding any adverse impacts to landforms include: monitoring disturbed areas for spread of non-native vegetation and removal upon discovery; spreading seeds found locally from preferred grass species, and regarding disturbed land to pre-existing conation. Alternative restoration approaches may be considered as determined by TPWD and agreed to by SpaceX.” “Restoration areas with respect to algal flats including grooming of tracks with the use of hand tools and ambient soils to prevent further impacts, removing fill, establishing the proper slope within the tidal range, and inoculating the soil with a mixture of dominant algal species, or any other approach as determined by TPWD and agreed to by SpaceX.”

Comment: The FWS recommends a restoration mitigation plan and fund be established.

13. Page 87, 3.8.3.4, Daily Operations, paragraph 2, “SpaceX would continue to support the local agencies in providing bollard fencing and signs to keep visitors out the restricted areas.

Comments: The SpaceX had committed to installing bollard fencing to help restrict the public from entering sensitive NWR areas, however installation has not been completed at this time. The SpaceX should continue to work with the NWR to identify areas that needs fencing and provide materials to complete the installation of the fencing.

14. Page 112, 3.10.4.1, Terrestrial Habitats and Wildlife, paragraph 2, “SpaceX employees will then be mandated to obey speed limits on State Highway 4 and to reduce their speeds along State Highway 4 between the proposed vertical launch and control center areas to 25 mph.”

Comment: It is unknown how SpaceX will enforce speed limit mandates. In one day

(October 5, 2021) in the span of 30 minutes, about 30-40 vehicles appeared to exceed the speed limit on Palmito Ranch Road, going in both directions. The increased speeds and traffic make it difficult for wildlife to safely cross the road. Enforcement of speed limits should be described and SpaceX should work with TxDOT to legally lower the speed limit along State Highway 4. There is currently little speed limit enforcement and no signs warning drivers to slow down for wildlife. The SpaceX committed to installing such signs but this has not been completed. The installation of signs should be completed with signs paid for by SpaceX.

15. Page 113, 3.10.4.1, Terrestrial Habitats and Wildlife, paragraph 1, “The heat plume generated from launches would travel away from launchpad, with temperatures of 212°F approximately 0.3 mile from the launch pad and temperatures reaching ambient (90°F) 0.6 mile from the launchpad.”

Comment: The FWS recommends describing how wildlife and vegetation will be affected within 0.3 miles or 1,584 feet from the launchpad during a launch and what measures will be implemented to restore vegetation affected and reduce impacts to wildlife that may be caught in the heat plume.

16. Page 114, 3.10.4.1, Terrestrial Habitats and Wildlife, paragraph 4, “The federally listed Florida scrub-jay was monitored for behavioral changes after Delta, Atlas, and Titan launches

with no apparent impacts from noise; these data came from a total of 42 launches at a cadence of 16 launches per year (Schmalzer et al. 1998).

Comment: The SpaceX plans 25 launches per year adjacent to piping plover and red knot habitat. The comparison to Cape Canaveral is misleading because the Florida scrub-jay habitat is much different than that of the piping plover and red knot habitat found at the Boca Chica Launch Site and in a much larger landscape than Boca Chica. The statement should be corrected to reflect the difference.

17. Page 114, 3.10.4.1, Terrestrial Habitats and Wildlife, paragraph 2, “Permanent construction impacts (i.e., habitat removal) would be localized and small compared to the overall available habitat Lower Rio Grande Valley, and construction equipment use and all launch operations related impacts would be primarily short-term and reduced through mitigation and monitoring measures (See Section 3.10.5).”

Comment: The statement that impacts would be localized and small compared to the overall available habitat in the Lower Rio Grande seems inaccurate and should be corrected in the PEA. Only 5% of the native habitat remains in the Rio Grande Valley and that 5% is still experiencing some level of human caused impacts. There is no other similar habitat to the clay lomas/wind tidal system in Texas. Clay-based dunes only occur in only three other parts of the world: Russia, Australia, and Africa (Perez and Downey 2018 after Richard 2005) citation: Perez, C.J. & J. Downey, 2018. Soil contaminant sampling results for Lower Rio Grande Valley NWR’s Boca Chica Tract, Cameron County, Texas. Texas J Sci 70: General Note 2.

18. Page 118, 3.10.5 Mitigation and Monitoring, Construction Measures, paragraph 1, item 7, “SpaceX would educate its personnel on the potential for vehicle collisions with ocelots and jaguarundis and encourage personnel to reduce speeds along SH 4.”

Comment: The FWS recommends prioritizing speed enforcement, posting wildlife sensitive area signs and incentivizing shuttle use. The shuttle drivers would likely be better to observe highway speeds if that was part of their job duties. The FWS recommends remote monitoring of shuttle and other vehicle speeds for monitoring and corrective action. In addition, SpaceX should develop an environmental education presentation for all employees and contractors in coordination with the FWS.

19. Appendix B.

Comment: The PEA does not discuss the effects of underground vibration on wind tidal flats or its effects to wildlife and benthic organisms as well as nesting sea turtles on the beach. The FWS requests information on such potential impacts and recommends SpaceX, along with the FWS, develop a monitoring plan to allow for adaptive management of potential impacts and loss of piping plover and red knot food source.

NPS Comments

General Comments

1. Cultural Resources, Historic Properties, and Visitor Use

The NPS continues to have concerns about the potential for impacts to cultural resources, historic properties, and visitor use and experience of these resources. The NPS appreciates the opportunity to work with FAA throughout the rest of the environmental review processes to ensure environmental analyses adequately capture potential effects to these resources and values that are specific to this proposed action/undertaking and to identify measures to avoid, minimize, and resolve these effects. Given the uncertainty over potential future tiered actions, including the location of future landing sites, the NPS believes there could be uncertain, unique, or unknown environmental effects that would need further environmental review and the NPS looks forward to working with FAA on the data and information for the environmental analysis.

As a consulting party under Section 106 of the National Historic Preservation Act, the NPS believes the FAA should not rely on the Memorandum of Agreement (MOA) for the 2014 *SpaceX Texas Launch Site* EIS and Record of Decision (ROD) for this undertaking, and instead prepare a new agreement specific to this undertaking. The 2014 MOA does not specifically address the proposed actions of the current undertaking or the related impacts to cultural resources and the Palmito Ranch Battlefield National Historic Landmark (NHL), an historic Section 4(f) property, that will exceed those of past undertakings. These adverse effects include visual effects from proposed structures, auditory and atmospheric effects from the Starship/Super Heavy launch operations, and the loss of access to the Palmito Ranch Battlefield NHL. As a result, the NPS does not believe the 2014 MOA provides an adequate framework for resolving adverse effects specific to this undertaking. Therefore, the NPS recommends FAA consult with all relevant stakeholders to prepare a new MOA that addresses the specific proposed action(s) associated with the current undertaking; and to try and identify additional measures that would avoid, minimize, or mitigate potentially significant impacts and resolve adverse effects to cultural resources and the Palmito Ranch Battlefield NHL.

2. National Historic Landmarks

The NPS Heritage Partnerships Programs (HPP) assumes a special role in consultation pursuant to Section 110(f) of the National Historic Preservation Act (NHPA), with expertise in the preservation and management of NHLs. As the PEA presents the FAA's proposed determinations of eligibility and adverse effect for the SpaceX Starship Super Heavy Project at the Boca Chica Launch Site, the NPS emphasizes that recognition of the Palmito Ranch Battlefield NHL status, as well as its physical description and related historic integrity, is critical to adequate consultation pursuant to Section 110(f) of the National Historic Preservation Act.

On September 22, 2021, after release of the PEA, the NPS received a full draft of the Management Summary of the *SEARCH Phase 1 Cultural Resources Survey of the SpaceX Starship Super Heavy Launch Operations and Revised Impact Area*. The new analysis of archaeological and architectural resources in the proposed 283.5-hectare area around the Vertical Launch Area (VLA) and the ten-mile radius of the VLA is required through Section 106 to analyze the potential adverse effects of the undertaking on cultural resources. The NPS noted that the analysis does not address cultural landscapes and the historic integrity of Palmito Ranch Battlefield NHL. In light of this, and when considering expansion of the Area of Potential Effect (APE) from a 5 to 10 mile radius, the NPS believes the 2014 MOA fails to address the scope and duration of new activities that consulting parties identified as outstanding issues that still require mitigation to resolve adverse effects.

The 1997 Palmito Ranch Battlefield NHL Nomination Form has a detailed description of the cultural landscape of the 5,991-acre NHL. The integrity of a cultural landscape is determined by the degree to which the landscape characteristics that define its historical significance are still present, and, as written by William Emory in his 1857 *Report on the United States and Mexican Boundary Survey*, “today the desolate, windswept landscape conveys a vivid historic sense of the battlefield as it was seen by the Union and Confederate soldiers in May 1865, when they finalized the long struggle to control this strategic region that was the life line of the Confederacy in its last days” (NHL Nomination Form, p. 7). Please ensure that the Cultural Landscape of Palmito Ranch Battlefield is assessed in the *Phase 1 Cultural Resource Survey* to ensure the resource is appropriately identified and mitigation, if necessary, is also identified and implemented in accordance with Section 106 and 110(f) of the NHPA.

The NPS provides the following comments to contribute to any further NHPA consultation to follow. In the Management Summary, Palmito Ranch Battlefield is referenced as a National Historic Landmark only by the NHL abbreviation used in Appendix A: Recorded Sites to Date. No detailed accounting of the property’s significance or integrity, as related to the potential adverse effects, is included in the summary or full report. The NHLs are historic places that “possess exceptional value in commemorating or illustrating the history of the United States.” Section 110(f) of the NHPA requires that “prior to the approval of any Federal undertaking, which may directly and adversely affect any National Historic Landmark, the head of the responsible Federal agency shall, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to such landmark, and shall afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking.” It is important to note that a 2019 memorandum from the ACHP supports the interpretation of the circuit court opinion *National Park Conservation Association v. Semonite* (2019) that direct and adverse effects are not limited to physical impacts and may include visual, auditory, and atmospheric effects.

In anticipation of further discussion of efforts to minimize harm to the NHL per consideration of Section 110(f), the NPS recommends that, in addition to adverse visual effects that would result

from construction of facilities at the VLA, FAA consider potential adverse effects to the Palmito Ranch Battlefield NHL resulting from: launch operations visible to viewers from the historic property; auditory effects (including ground vibrations from the proposed launch operations); and any potential for adverse effects due to impacts from launch anomalies. The NPS also believes FAA should analyze the potential for adverse effects from increased visitor use of the NHL to participate in viewing-related activities of launches at the SpaceX site. The NPS also suggests that road closures, construction-related traffic, and other activity may in fact inhibit visitation to the historic property itself as well as impact the experience of those seeking to visit the Palmito Ranch Battlefield as a site of exceptional historic integrity. These effects should be further analyzed and mitigated in an updated MOA specific to this undertaking.

3. Noise

The NPS has identified inconsistencies with the current Noise Report modelling reported for Starship/Super Heavy rocket development compared to the Noise Report provided for the 2014 EIS. The Appendix B rocket thrust assumption could result in substantially underestimated rocket noise levels. The NPS is also concerned that the PEA assumption of SpaceX Raptor thrust is substantially out-of-date, resulting in further underpredictions of impacts. The NPS noted the inconsistency of the geographic noise modelling results in Appendix B in comparison with the geographic noise modelling assumptions in the 2014 EIS. The ground impedance assumptions and the maximum sound level predicted for the Super Heavy are not commensurate with predictions for the Falcon Heavy in the 2014 EIS. Appendix B predicts that maximum A-weighted sound levels for the Super Heavy are the same as the Falcon Heavy at the eastern Palmito Ranch Battlefield NHL boundary. The NPS requests explanation of this and suggests revisions are needed to accurately capture the potential impacts to Palmito Ranch Battlefield NHL in the affected environment and impacts analysis.

The issue of concern is the substantial underprediction of rocket noise that not only impacts humans, recreational use and animals, but also introduces intense, incongruous audible elements that diminish the integrity of the acoustic environment at the site of the last Civil War battle. Since it appears that rocket noise is underestimated in Appendix B for existing bays, lagoons, and all inland areas with standing water or saturated ground, the NPS recommends FAA revise its ground impedance assumptions, utilizing the U.S. Geological Survey (USGS) National Land Cover Database (2019) for this analysis.

The NPS also requests that the FAA require (and oversee) future noise monitoring efforts to address uncertainties with respect to potential increasing noise levels from the Starship/Super Heavy and other SpaceX activities in the Boca Chica area. This monitoring will help to assess the potential long-term noise impacts to NPS units, and to further identify measures to mitigate harm to Palmito Ranch Battlefield NHL under Sections 106 and 110(f) of the NHPA.

4. Section 4(f) Determination

Palmito Ranch Battlefield NHL is managed and protected under Section 110(f) of the NHPA, which states that Federal Agencies *must exercise a higher standard of care when considering*

undertakings that may directly and adversely affect NHLs. If no feasible and prudent alternatives exist to avoid an adverse effect to a NHL, a Memorandum of Agreement (MOA) is required to outline mitigations to reconcile any adverse effects to historic properties. [Sec. 110(a)(2)(B) and Sec. 110(f)]. As described previously, because of the increase in scope and activities in this undertaking, the NPS believes a new MOA is needed to attempt to resolve the potential adverse effects and support the Section 4(f) determination. The NPS believes the effects of proposed actions will result in substantial impairment or diminishment effects (including increased sonic booms that would affect natural sounds and intensified, permanent visual impacts from the height and reflectivity of proposed structures, both of which would degrade the historic integrity of feeling and setting of cultural resources and the Palmito Ranch Battlefield NHL; and increased duration of testing closures at Palmito Ranch Battlefield lasting 11.4% of the year) of the Palmito Ranch Battlefield NHL.

Please see additional detailed comments in Attachment 2.

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

Attachment 2: NPS Comment Matrix: <i>SpaceX Starship/Super Heavy Programmatic Environmental Assessment (PEA)</i> : September 2021						
	Location		Type of Comment	Reviewer Initials	Comment	Response / Concurrence
	Page	Section	S, A			
1		General	S	NPS	Annual proposed launch operations include suborbital and/or orbital launches, and launch-related tank tests, static fire engine tests, expansion of the VLA and solar farm, and construction of additional infrastructure. Adequately detailed information regarding construction location, design, and footprint, is needed for consultation pursuant to 110(f) of the National Historic Preservation Act (NHPA). This information is critical to meaningful understanding of potential direct and indirect effects to the Palmito Ranch Battlefield NHL and address means to minimize harm per Section 110(f) and Section 106 consultation under the NHPA.	
2		General	A	NPS	With SpaceX's acquisition of the Massey Way gun range property, please address if it is being considered for further construction or activity related to the Starship/Super Heavy proposal, and if future tiered actions will be analyzed at this site.	
3		General	A	NPS	Please clarify the anticipated duration of the FAA experimental permit and/or vehicle operator license under consideration, and, in turn, what is the proposed term of an MOA amendment for increased activity in the future?	
4	4	1.2.2	S	NPS	In Section 1.2.2 <i>Cooperating Agencies</i> please state that NPS is a Cooperating Agency because of Special Expertise in management of Palo Alto Historic Battlefield as a National Historic Landmark (NHL).	

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

5	19	2.1.3.4	S	NPS	Please include text in the PEA that SpaceX will commit to coordinate with all land and water regulatory authorities prior to taking action to recover debris resulting from expended vehicle anomalies in areas outside of the Pacific Missile Range Facility.	
6	19	2.1.3.5	S	NPS	As detailed in Section 2.1.3.5, SpaceX would establish a closure area prior to launch-related operations, please account for the public use of Palmito Ranch Battlefield NHL in the Closure Area.	
7	30	2.1.4.3	S	NPS	The 2014 NHPA MOA addressed the process to select exterior color schemes for mitigation of the visual effects of structures greater than 30 feet in height by minimizing visual contrast of the facilities in the landscape. Per the 2014 MOA, color selection requires approval by all signatories. Black cladding has not been proposed to the signatories or included in the 2021 draft Facility Design Lighting Management Plan. NPS believes a new MOA is needed for the expanded scope and duration of proposed activities.	
8	32	2.1.4.7 Power Plant	S	NPS	Because the Power Plant Facility would operate during day and night hours, please outline how noise impacts emanating from the power plant and impacts from night lighting would be mitigated.	
9	41	3.3.4.1	S	NPS	In order to assess impacts to air quality, please provide an assessment of short-term impacts to the National Ambient Air Quality Standards (NAAQs).	
11	55-56	3.5.4	S	NPS	Based on the potential underprediction of rocket thrust and modeled rocket noise in the area, there is a likelihood that a larger area of the Palmito Ranch Battlefield falls within the DNL 65 dB noise contour, and this area should be considered for noise impacts to the acoustic environment as a resource unto itself and as a resource	

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

					that contributes to the integrity of the Palmito Ranch Battlefield NHL. We request that FAA revise the noise predictions as appropriate so stakeholders and decision-makers have a clear understanding of the magnitude of potential impacts to these resources, and appropriate mitigation can be identified as necessary.	
13	59	3.5.4.7	S	NPS	It appears that FAA has separately calculated the Day-Night Average Sound Level (DNL) for proposed actions other than sonic booms and the C-weighted Day-Night Average Sound Level (CDNL) for booms. Please explain the rationale for this calculation.	
14	60	3.5.5 Mitigation and Monitoring	S	NPS	This section refers to a Notification Plan; however, there is no Notification Plan available in the PEA or its Appendices. Please coordinate a new Notification Plan with Cooperating Agencies identifying specific mitigation measures and best management practices.	
15	62	3.6.4 Environmental Consequences	S	NPS	The PEA states that SpaceX will not be able to avoid or mitigate some nighttime light emissions. During nighttime construction, SpaceX would use spotlights to illuminate areas under construction to maintain safe lighting levels for workers (Appendix F, Figures K–M). The lighting is expected to be visible along SH 4 approximately five miles away and not visible ten miles away (see Figures H and J in Appendix F). The NPS appreciates efforts outlined in the Draft PEA to reduce nighttime lighting impacts in the surrounding areas and minimize sky glow. Please consider NPS recommended Best Management Practices described below in comment #31.	
16	62	3.6.4	S	NPS	The PEA states <i>SpaceX would not be able to avoid or mitigate some nighttime light emissions</i> . This statement refers to white spotlights stated to be visible from 5 but not 10 miles away, and visibility is not further defined.	

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

					Please address how visibility is defined. The NPS recommends that Sky Glow be specifically included in the definition and in the Facility Design Lighting Management Plan.	
17	63-64	3.6.4	S	NPS	The PEA states that <i>absent compliance with the measures identified in the MOA as part of Section 106 consultation for the current undertaking, significant visual effects would occur. Therefore, SpaceX must comply with the stipulations of the MOA to avoid significant impacts.</i> Some visually intrusive structures have been constructed at the Vertical Launch Pad (VLA) without adherence to the mitigations in the existing 2014 MOA (e.g., color of cladding); the existing 2014 MOA has not been updated for the proposed action(s); and measures to prevent or mitigate significant visual effects are not defined (and may not be possible). As a result, the NPS believes a new MOA is needed to resolve adverse and potentially significant effects.	
18	68	Existing Conditions	S	NPS	Please reference U.S. Fish and Wildlife Service (FWS) as manager of a large area of Palmito Hill Battlefield NHL and Texas Historical Commission (THC) as manager of the Palmito Ranch Battlefield State Historic Site. NPS provides technical expertise to NHL stewards and plays a role in regulatory compliance with section 110(f) of the NHPA.	
19	74	3.7.4	S	NPS	For consistency with the Section 4(f) consultation letter, which indicated closures would occur 11% of the year, please revise the following sentence as follows - <i>Launches and vertical transport of launch vehicles would not occur when public access to the NHL is available (approximately 89 percent of the year).</i>	
22	82	3.8.3.2	S	NPS	The PEA states that <i>based on the temporary and short duration of the closures, the FAA has made a preliminary</i>	

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

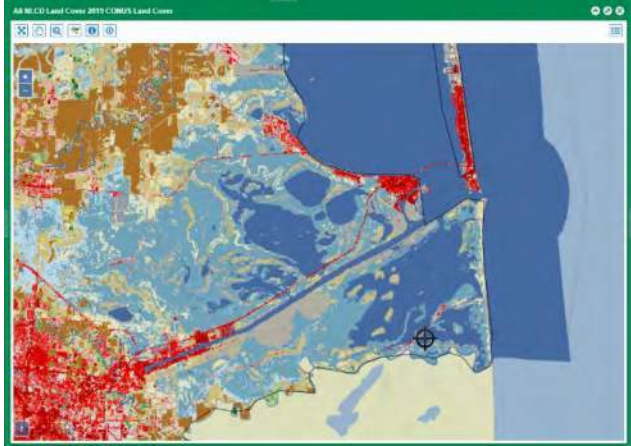
					<i>determination that the scheduled closures associated with launch operations of the Proposed Action would not substantially impair the activities, features, or attributes that qualify the state parks, historic resources, and Preserve for protection under Section 4(f) within the study area. Closure of Palmito Ranch Battlefield NHL to the public 11.4% of the year for launch operations (which does not include closures related to anomalies of up to an additional 6.8% per year) would impair public access to the NHL on a continual basis, and thus contribute to a Section 4(f) use. Restrictions to access substantially diminish the utility of the NHL (visitor use, education, and enjoyment) and thus reduce the ability to meet the NHL's purpose.</i>	
23	83	3.8.3.2	S	NPS	The 90 dB LAMax noise contour map (Figure 4, Appendix B) appears to include the entirety of the NHL, but the text on page 83 states "a small portion" of the NHL would be within the contour. Please address and resolve this inconsistency in the final compliance document.	
24	122	3.8.3.4	S	NPS	The PEA States that <i>the Proposed Action would not change the dedicated land uses in the study area. The Launch site is currently supporting launch-related tests and suborbital launches. That would not change under the Proposed Action.</i> Similarly, the PEA states that <i>public access to Boca Chica State Park, NWR, and Brazos Island State Park would be closed for safety and security reasons during launch operations, with advanced notice provided to the public for planning purposes.</i> Please include Palmito Ranch Battlefield NHL in this statement and the environmental consequences assessment, as closures of up to 500 hours are also proposed for the NHL area.	
25	123	3.12.4	S	NPS	In <i>Environmental Consequences</i> the PEA states that <i>the Proposed Action is not expected to result in significant</i>	

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021


					<p><i>land use impacts because the Proposed Action is consistent with existing uses of land, would not change land use, and would occur according to existing plans and procedures in place (e.g., SpaceX Roadway Closure Traffic Control Plan; SpaceX Security Plan). As detailed in Section 2.1.3.5, SpaceX would establish a closure area prior to launch-related operations. Please account for the use of Palmito Ranch Battlefield NHL in the Closure Area.</i></p>	
26	1	Appendix B		NPS	<p>The thrust specified for the December 2020 Super Heavy Booster noise analysis (Appendix B, p. 1) is inconsistent with the thrust specified in the Draft PEA document p. 12, and with widely reported SpaceX Raptor engine thrust figures of 500 Klbf. If thrust for the Super Heavy booster is assumed to be 37 times 375 Klbf as stated in Appendix B p. 1, this would result in a total thrust of 13.875 MIbf (61.7 MN), nearly 17% lower than the 74 MN figure offered on p. 12 of the Draft PEA. The lower thrust assumption in Appendix B would result in rocket propulsion noise estimates underestimated by one decibel, with respect to the Draft PEA thrust figure. Please address this discrepancy in the final environmental analysis. Furthermore, if actual thrust for the Super Heavy booster turns out to be 37 times 500 Klbf, this would result in a total thrust of 18.5 MIbf, 33% higher than the thrust assumed for the noise analysis in Appendix B. Assuming $10 \log T$ (where T = thrust) to estimate changes in sound power, a 61.7 MN rocket would be 5.5 decibels higher in sound power than the Falcon Heavy rocket analyzed in the 2014 EIS, but a 74 MN rocket would be 6.3 decibels higher in sound power than the Falcon Heavy. An 18.5 MIbf (82.3 MN) rocket would be 6.8 decibels higher in sound power than the Falcon Heavy.</p>	

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

					<p>If Raptor engine performance continues to increase and the thrust for the Super Heavy booster totals 37 times 600 Klb, the total noise would be two decibels higher than assumed in Appendix B. Please address these inconsistencies and uncertainties in the final environmental analysis with an updated Appendix B noise analysis and a table of the potential noise increases of the Super Heavy, as Raptor engine performance and total thrust increase over time. NPS also requests a table that addresses Starship/Super Heavy noise levels in the Palmito Ranch Battlefield NHL, similar to and allowing direct comparison to Table 4.3-3 (p. 4-27) in the 2014 EIS.</p>	
27	4	Appendix B	S	NPS	<p>Because much of the Boca Chica inland area is surface water, the assumption of acoustically soft ground is not adequate for many grid points in the predicted noise maps and will result in underestimation of noise levels. NPS recommends that the FAA characterization of variable ground impedance in the Boca Chica area be coordinated with USGS and DOT Volpe noise experts, in order to improve the description of the affected environment to model the associated impacts.</p> <p>The models and methods used to analyze impacts in the 2021 PEA are inconsistent with the models and methods used to characterize the affected environment (which is based on the 2014 EIS analysis). This includes use of an older rocket noise model, RNOISE, than was used in the 2014 EIS analysis. This prevents cooperating agency or public comparison of Starship/Super Heavy noise levels with the Falcon 9 and Falcon Heavy noise predictions in the 2014 EIS.</p> <p>The U.S. Geological Survey (USGS), has identified large</p>	

					<p>inland areas of the Boca Chica area as “Open Water” (category 11). See published National Land Cover Database (NLCD 2019) dataset, released June 3, 2021:</p> <p>[https://www.mrlc.gov/data] [https://www.mrlc.gov/viewer/]</p>  <p>The PEA noise analysis could more accurately address acoustic ground effect and the intensity of modeled rocket noise due to known land cover in many inland areas of the affected environment. NPS requests that the FAA revise the PEA noise modeling to better reflect the identified open water areas of the NLCD 2019 dataset. For further best available science on how to treat the saturated soils in the remainder of the project area, see Journal of the Acoustical Society of America publication, <i>“Experimental investigation of the Effects of Water Saturation on the Acoustic Admittance of Sandy Soils,”</i> by Horoshenkov and Mohamed, 2006. See the aerial photo below of the SpaceX launch site showing the large areas</p>	
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Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

					<p>of standing water inland from the Gulf coast.</p> 	
28		Appendix D		NPS	<p>Appendix D notes that launch anomalies would potentially result in 300 closure hours annually, in addition to 500 hours annual closure due to nominal operational closures. Analysis should be predicated on the potential for 800 hours of potential closures. Regarding 2.1.1 <i>Location</i>, please note that State Highway 4 also provides the main access to the Palmito Ranch Battlefield NHL.</p>	
29		Appendix F		NPS	<p>Appendix F does not include viewshed analysis from Palmito Ranch Battlefield NHL to Vertical Launch Area (VLA). Because the broad landscape of the Boca Chica area is flat with low lying vegetation, resulting in expansive views and visibility from great distances, consider a Visual Contrast Rating (VCR) analysis and visual simulations, similar to those outlined in Bureau of Land Management Manual 8431.</p> <p>Please provide a better quality Figure J to show analysis of nighttime conditions.</p>	

Attachment 2: NPS Comment Matrix SpaceX Starship/Super Heavy PEA September 2021

30		Anomaly Response Plan		NPS	The proposed Anomaly Response Plan indicates notification to Texas Parks and Wildlife Department (TPWD), Texas General Land Office, and/or any other landowner, while Palmito Ranch Battlefield NHL/NWR would be released from closure. What contingency has been made for unanticipated anomalies potentially impacting the NHL and/or NWR?	
31		Facility Design Lighting Management Plan		NPS	<p>The NPS noted that the Facility Design Lighting Management Plan (FDLMP) includes impact analysis and mitigation measures for the proposed Project Operations phase, but does not consider mitigation measures for the Project Construction phase of the project as well. Consider adding construction-related mitigation measures to this plan, and please reach out to NPS if you would like suggestions.</p> <p>To protect the integrity of the NHL per 110(f) of the NHPA, the NPS recommends incorporating and implementing the following six <i>Best Practices for Parking and Roadway Lighting, Egress Lighting, Facility Operations Task Lighting, and Security Lighting</i> in the FDLMP:</p> <ol style="list-style-type: none"> LEDs in Warm Colors – 3000 K or lower. Use energy efficient LEDs that have a warm color hue; e.g., yellow, amber; NOT blue or white (note: the most highly efficient LEDs are not preferable because they have a lot of blue which creates more glare and blind spots, has potential health effects, and isn't considered wildlife friendly). Also, the white lights identified in the Lighting Plan will actually create a more harsh contrast and glare, which results in reduced visibility and safety. 	

					<p>2. Recessed and Fully Shielded – Hockey puck style lights that can be inserted under a soffit or some other architectural feature are very useful; avoid globes or diffusers that hang below the light fixture; use “full cut off” shielding – allows excess light to be directed downward and not upward. The flood lights recommended in the Lighting Plan are not fully shielded and will result in excessive glare and light trespass, higher light/dark contracts that can result in reduced overall safety.</p> <p>3. Limit Upward Facing Lights – Outdoor lighting should be designed and installed to be downward facing as much as possible. Avoid lights that are directed laterally as well because will add to glare and light trespass.</p> <p>4. Lighting Fixtures That Include or Can Accommodate Timers, Motion Detectors, Hue Adapters, and Dimmers – these adaptive technologies can increase energy efficiency and reduce impacts to park natural and cultural resources substantially. Further, they can enhance human health and safety. This feature is highly recommended for the LED wall luminaires in the Lighting Plan and used with a warm color LED.</p> <p>5. Use the Lowest Lumens Possible – Lumens are the unit of measurement used to specify the intensity or brightness of LED bulbs. The number of lumens needed to safely light most areas is usually much lower than most people think, especially outdoors. LEDs are also much brighter and more energy efficient than other types of lighting so you can go with a much</p>	
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					<p>lower wattage LED and still have the same level of brightness. For example, a 250-watt incandescent bulb can be replaced with a 30-watt LED bulb with the same result. Field adjustable wattage selectors are also a good option for reducing impacts, increasing cost savings, and extending product life.</p> <p>6. Proper Installation - Lights should be installed with proper angle and height as designed. Another benefit of using LEDs for outdoor lighting is that LED luminaires allow for very specific control of the lighting “spread angle”. The size of the lighted area will change depending on the height of the fixture or pole so the spread angle should be accounted for during installation to avoid lighting a greater area than needed. Proper spread angle can also reduce the number of lights needed in general. Implementing this Best Practice should be able to reduce the number of lights outlined in the Lighting Management Plan around buildings, roadways, parking areas, and security fencing and guard shacks. The reduction in the number of lights will help reduce the impacts on the night sky environment, cultural resources, and human health of adjacent residents and nighttime visitors to NPS and USFWS protected areas, while at the same time providing improved safety.</p>	
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From: Moorhead, Scott <[REDACTED]>
Sent: Monday, November 1, 2021 12:13 PM
To: SpaceXBocaChica
Cc: Gonzalez, Lisa; Dixon, Suzanne; Baldera, Alexis; Kelley, Dallas; Swanson, Romey; Croy, Jennifer
Subject: Draft Programmatic Environmental Assessment (PEA) for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas
Attachments: AudubonTXComments_DPEA_SpaceX.pdf

Good afternoon—

Please find the attached letter for comments from Audubon Texas concerning the Draft Programmatic Environmental Assessment. Thank you.

Scott Moorhead, Policy Director

[REDACTED]
Audubon Texas

<http://tx.audubon.org/>



November 1, 2021

Ms. Stacey Zee

SpaceX PEA

c/o ICF

9300 Lee Highway, Fairfax VA 22031

SpaceXBocaChica@icf.com

Transmitted via electronic mail to SpaceXBocaChica@icf.com

Re: Draft Programmatic Environmental Assessment (PEA) for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas

Audubon Texas is the state field office of the National Audubon Society. The organization has been working along the Texas coast since 1923, focusing on birds and the places they need to survive and flourish. Audubon Texas is the leaseholder of more than 170 islands along the Texas coast, which we maintain, often with dedicated partners, for the benefit of resident and migratory birds. Additionally, Audubon owns the 557-acre Sabal Palm Sanctuary in Brownsville, Texas. This sanctuary is operated in partnership with the Gorgas Science Foundation for purposes of providing education around conservation and ecological stewardship, for making the sanctuary available to the public as community asset, and for conserving some of the last remaining intact Sabal Palm forest in North America. The sanctuary sits approximately 17.5 miles from the SpaceX Boca Chica staging area, and fewer than 20 miles from the vertical launch area (VLA).

Audubon Texas appreciates the opportunity to provide comment on this draft PEA. As stated in earlier comments, we continue to monitor the activities of SpaceX and the Federal Aviation Administration (FAA), chiefly because of the location of the launch site, situated among state-owned lands at Boca Chica State Park and federally protected lands at the Lower Rio Grande Valley National Wildlife Refuge, which includes the Las Palomas Wildlife Management Area and the Laguna Atascosa National Wildlife Refuge, as well as the relatively novel and ill-understood long-term impacts of such infrastructure in this sensitive setting.

The FAA, as the lead federal agency for this project, consistent with other agencies, has its own implementing procedures for adherence to the National Environmental Policy Act (NEPA).¹ There have been eight (8) written re-evaluations since the 2014 final environmental impact statement (FEIS) for the SpaceX launch site. We understand that business plans change, particularly in a field as novel, complex, and uncertain as private space exploration. We are also mindful of the underlying goals of the laws which apply to these studies and activities. We believe continued amendments, changes in scope, changes in the types of rockets and material used, new plans for on-site infrastructure, (e.g., natural gas-powered generation, saltwater desalination, etc.) represent connected and cumulative actions which must be carefully considered against FAA Order 1050.1F, Paragraph 2-8.b.(1-2)², which states, in part:

b. Scope of Proposed Action. To determine the scope of an EA or EIS, the responsible FAA official must consider:

(1) Connected actions. Connected actions are closely related actions that: (a) automatically trigger other actions; (b) cannot or will not proceed unless other actions are taken previously or simultaneously; or (c) are interdependent parts of a larger action and depend on the larger action for their justification (see 40 CFR § 1508.25(a)(1), CEQ Regulations). Connected actions and other proposed actions or parts of proposed actions that are related to each other closely enough to be, in effect, a single course of action must be evaluated in the same EA or EIS (see 40 CFR §§ 1502.4(a) and 1508.25(a)(1), CEQ Regulations). A proposed action cannot be segmented by breaking it down into small component parts to attempt to reduce impacts (see 40 CFR § 1508.27(b)(7), CEQ Regulations).

(2) Cumulative actions. Cumulative actions, when viewed with other proposed actions, have cumulatively significant impacts. Cumulative actions should be discussed in the same EIS (see 40 CFR § 1508.25(a)(2), CEQ Regulations). (See Paragraph 4-2.d(3) for a discussion of cumulative impacts).

Today's SpaceX activities and project scope go well beyond the plan considered under the original record of decision (ROD). Considering the interconnectedness and interdependency of

¹ Council on Environmental Quality, 2020. Federal Agency NEPA Implementing Procedures. Available online: <https://ceq.doe.gov/docs/laws-regulations/federal-agency-nepa-implementing-procedures-2020-06-04.pdf>.

² US Department of Transportation, Federal Aviation Administration, 2015. Environmental Impacts: Policies and Procedures. Available online: https://www.faa.gov/documentlibrary/media/order/faq_order_1050_1f.pdf.

actions on-site, and the cumulative impacts of activities past and contemplated including under this draft PEA, fresh consideration under a new environmental impact statement (EIS) would be appropriate. In this fashion, the FAA should consider the entire proposed complex including the full range of proposed activities and previous amendments to the project, and the potential cumulative environmental impacts and alternatives of these activities.

Audubon is sensitive to SpaceX's desire for moving this project forward quickly. We are aware that concerns over the preparation of a new EIS could delay the project. Audubon's goal is to gain understanding, not create delay. It should be possible to reconcile the need for a comprehensive analysis while also respecting the broader stakes involved. Given the sheer scope of the project and the extent to which multiple parties are committed to the project, including SpaceX, NASA, and other elements of the federal government, the resources needed to better understand cumulative impacts should be gathered in order to ensure a more comprehensive impacts and alternatives analysis can be undertaken, in a reasonable time period. A new EIS is warranted.

Audubon is impressed with the scope and the seriousness of the paradigm-altering work that is being performed at SpaceX. We appreciate and understand that the endeavor seeks to alter the course of human civilization, and that no less a species-altering opportunity to populate Mars is at stake. Further, we believe that solving many of the pressing challenges of our times (climate change, for example, which is the greatest existential threat to humans and North American birds today)³ requires significant investment in technology transfer—the kind of field-altering work in which SpaceX is currently engaged.

And yet, we simultaneously know that as humankind develops new technologies and gains extraordinary proficiencies, we must do so with a sophisticated understanding of how our activities impact our natural world, and the communities that rely on ecological biodiversity, ecological function, ecosystem services provided to society, and species' ability to survive and thrive. SpaceX has selectively chosen to defy rules and norms when it deems them obtrusive. Accordingly, the FAA has notified the company on multiple occasions that construction and

³ Wilsey, C, B Bateman, L Taylor, JX Wu, G LeBaron, R Shepherd, C Koseff, S Friedman, R Stone. Survival by Degrees: 389 Bird Species on the Brink. National Audubon Society: New York. Available online: <https://nas-national-prod.s3.amazonaws.com/climatereport-2019-english-lowres.pdf>.

launches are being conducted without proper permits.^{4,5} SpaceX activities occur on private property surrounded by some of the most critical habitat and protected areas in the state of Texas. While SpaceX's rights begin at their fence line, their obligations and the potential risks and impacts of their work do not.

We recognize and value that SpaceX has demonstrated a desire to be more integrated in and responsive to the community, whether by protecting sea turtles and supporting research during the February freeze, or by engaging in opportunities around education. SpaceX is a company, with economic means, charismatic leadership, and incredible government support, that has chosen to work in a pristine ecoregion with a rich history of environmental protection.

Reasonable operational solutions and mitigation opportunities should be brought forth to lessen environmental impacts, to the greatest degree possible. We are optimistic that the same caution and level of undertaking by the SpaceX team to seek new worlds can be applied to reducing their own environmental impacts on the fragile ecosystems of coastal South Texas and on our planet.

With respect to the current draft PEA⁶, we have listed some additional comments, ranked in no particular order.

⁴ Shepardson, D. "U.S. warns SpaceX its new Texas launch site tower not yet approved", Reuters. Available online: <https://www.reuters.com/business/aerospace-defense/faa-warns-spacex-it-has-not-approved-new-texas-launch-site-tower-2021-07-14/>

⁵ Roulette, J., 2021. "SpaceX ignored last-minute warnings from the FAA Before December Starship launch", The Verge. Available online: <https://www.theverge.com/2021/6/15/22352366/elon-musk-spacex-faa-warnings-starship-sn8-launch-violation-texas>

⁶ US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online: www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf

Species impacts since 2014 Record of Decision

- According to the draft PEA, the existing conditions for biological resources in the study area were described in the 2014 EIS (FAA 2014a) and have not substantially changed⁷, so the draft PEA incorporates the 2014 EIS information by reference. The draft PEA goes on to state that monitoring of avian impacts has been done from the period 2016-2020, and no significant impacts have been registered, as stated here:

Overall, these previous construction and operations activities have not shown a significant impact on the piping plover, red knot, and snowy plover (aplmado falcon was never observed during any monitoring event), as the mean number of individuals compared year to year (to test for a temporal trend) showed a slight negative trend but likely not significant (UTRGV 2020).⁸

The evidence outlined immediately above is based on a minimal period of five years of monitoring data. This is not an ample time period on which to base a temporal population abundance trend, nor does the draft PEA provide any statistical measures to substantiate the claim of, “a slight negative trend but likely not significant”. Additional monitoring data and peer review is required, as a more rigorous analysis could find that significant impacts are occurring. The UTRGV 2020 data referenced above may not currently be available because it is tied to a previous EA. Credible scholarship from researchers at the Coastal Bend Bays and Estuaries Program (CBBEP) expressly challenges, even rejects, the conclusions cited above, citing a significant, (more than 50%) decline in the wintering Piping Plover population in Critical Habitat Unit TX-1 since mid-2018. This wintering population represents a critical portion of the Northern Great Plains population. These are precisely the kinds of potential impacts that must be

⁷ US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online: www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 102.

⁸ US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online: www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 111.

more fully understood, and that could be ascertained through an EIS that assesses the project as it is today—not as it was initially scoped in 2014, prior to changes in the rocket design, plans for on-site gas power generation and desalination, disturbance caused by increased numbers of test launches, facility footprint expansion, etc.

- According to the draft PEA:

A noise-induced startle response could occur from launches and/or sonic booms from landings at a critical time in the reproductive cycle of any animal. A startle response from nesting birds can result in broken eggs or cause immature young that are not flight-capable to flee the nest. Repeated nest failures could eventually trigger desertion of a nesting area. There are no mitigation measures currently available to reduce the chances of noise-induced startle responses but monitoring of select species could determine if noise was responsible for reduced reproductive success.⁹

As elsewhere in the document, there is a discussion of what could be done and insufficient mention of what will be done. Such representations have far more force if an explanation of study and mitigation is explicit and transparent, and further, would engender more goodwill, community engagement, trust, and superior outcomes.

Mitigating for Extreme (Weather) Events

- Clarity around what constitutes event readiness is lacking in the draft PEA. No information has been included to detail what has been done to prepare the VLA and propellant storage facilities for hurricane damage, detailing ongoing maintenance, and security. We understand that as part of the Spill Prevention, Control, and

⁹ US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online: www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 113.

Countermeasures Plan (SPCCP) that these measures may be called out and in place, but they are difficult to ascertain. The hurricane plan called out in the 2014 EIS references a 25-year, 24-hour storm event (7.1 inches)¹⁰:

SpaceX would implement a Hurricane Plan and SPCCP to prevent the accidental release of fuels. Measures could include: a. Design of elevated and reinforced facilities to withstand wind and waves to mitigate damage and release of fuels b. Containment areas around fuel tanks would be sized to contain the volume of the largest tank plus sufficient freeboard for a 25-year, 24-hour storm event (7.6 inches).

It should be noted that the National Oceanic and Atmospheric Administration (NOAA) updated its precipitation frequency estimates under the Atlas 14 program. According to NOAA's Atlas 14 projections, a 25-year, 24-hour storm event is now defined as 9.06-inch rainfall event (with a 90% confidence interval of 6.82-11.9 inches of precipitation)¹¹. Under the draft PEA, design criteria for containment areas based on 7.6 inches of rainfall may not meet NOAA's Atlas 14 precipitation frequency estimates. As a result, fuel containment areas may be under-designed for precipitation events that occur along the South Texas coast, making the surrounding landscape vulnerable to fuel contamination during flood events.

The only mention of hurricane-related preparation deals with precipitation. Elements of the SPCCP do not address wind and storm surge. The VLA is located within Zone AE (a one percent annual chance flood event, sometimes referred to as the 100-yr flood plain) and Zone VE¹², and the remainder of the SpaceX

¹⁰ US Department of Transportation, Federal Aviation Administration, 2014. Final Environmental Impact Statement SpaceX Texas Launch Site. Available online: www.faa.gov/space/environmental/nepa_docs/spacex_texas_eis/media/FEIS_SpaceX_Texas_Launch_Site_Vol_I.pdf, ES-33, Table ES.8-1.

¹¹ US National Oceanic and Atmospheric Administration, 2017. NOAA Atlas 14 point precipitation frequency estimates: TX. Available online: https://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html.

¹² US Department of Transportation, Federal Aviation Administration, 2014. Final Environmental Impact Statement SpaceX Texas Launch Site. Available online:

facility is located within Zone AE^{13,14}. Zone AE is considered a high-risk area. Given the progression of our understanding of hurricane activity, including the potential for increased severity and damage in the coming decades¹⁵, it is appropriate to update plans and analyses to reflect the emerging science linking greater hurricane damage risk and the need for adaptation and mitigation. The language suggests what might be done, but it is unclear whether explicit measures have been assessed and identified that define what will be done, and why. To the extent possible, these measures should be updated and published to reflect: 1) the risk associated with the entirety of the project as assessed at today's existing and planned scope, not that of seven years ago; and 2) the risk based on the best available science describing the effects of climate change on the severity, frequency and damage of hurricanes and severe storms affecting the Texas Gulf Coast. An updated EIS would address this.

- In a related note, page 16 of the draft PEA¹⁶ references a possible methane spill. No information is included to describe how SpaceX prepares to respond to the social costs of these sorts of events in real terms. One estimate of the current social cost of methane (SC-CH₄; a measure of the social/economic loss caused by emitting one ton of methane into the atmosphere) for example, is \$670-\$4,000 per

www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 92.

¹³ US Federal Emergency Management Agency, 2020. Glossary. Available online: <https://www.fema.gov/about/glossary>.

¹⁴ US Federal Emergency Management Agency, 2020. Glossary: Zone VE and V1-30. "Areas subject to inundation by the 1-percent-annual-chance flood event with additional hazards due to storm-induced velocity wave action". Available online: <https://www.fema.gov/glossary/zone-ve-and-v1-30>.

¹⁵ Bruyère, C. L., et al., 2017. Impact of Climate Change on Gulf of Mexico Hurricanes. NCAR Technical Note NCAR/TN-535+STR, 165 pp. Available online: <https://opensky.ucar.edu/islandora/object/technotes:552>.

¹⁶ US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online:

www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 16.

short ton, depending on the discount rate applied.¹⁷ It is mentioned throughout the draft PEA that SpaceX principally works with liquid methane, not gaseous methane, but in the event of an anomalous event, it is unclear whether gaseous emissions are likely, or possible. There is discussion of the volatilization of liquids during these events, and it is implied that no significant gaseous methane events are likely or even possible, however, this remains unclear.

- Starship explosions have occurred, powered by three or six Raptor engines, and a “debris retrieval” strategy has been identified. What comprises the strategy should be more explicit. If such protocols were expressly written, and made public where possible, it would advance the conversation around safety and risk mitigation, in addition to environmental mitigation and anomaly abatement in the very sensitive, surrounding ecosystem. We also make note of our belief that SpaceX has learned from previous explosion events and is learning how to more sensibly and sensitively retrieve debris from these immensely delicate refuge lands. We understand that state and federal partners are engaged beyond the fence line. At the same time, this habitat is so sensitive that even the mildest disturbance can have lasting and sometimes irreversible impacts. The proposed vertical launch and control center areas are located within designated Piping Plover critical habitat Unit TX-1. The critical habitat description within Unit TX-1 specifically states that it does not include densely vegetated habitat within those boundaries. The majority of the region of influence, first characterized in the 2014 EIS) is densely vegetated, and therefore not considered critical habitat for the Piping Plover. However, unvegetated flats and depressional wetlands that occur within the Unit are considered critical habitat and should be given extra care during debris removal to mitigate impacts.
- Previous explosions have involved Starship prototypes. The record does not describe the potential for Superheavy anomalies, which based on engine power alone (up to 33 Raptor engines at full operational capacity) seemingly have the potential to create a much larger

¹⁷ Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, 2021. Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990. Available online: https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf?source=email, p. 6.

range of impacts. What could an anomaly look like if it were on the ground before launch? More information is needed to describe likely debris field radii, the expected increase in magnitude of an explosion, and the increased possibility of injury to the refuge and other protected lands and human communities, e.g., South Padre Island, and how potential impacts would be mitigated.

Lighting

- The SPCCP calls for up to 20% of annual engine ignitions to occur between 7:00 pm and 7:00 am.¹⁸ A plan should include steps to mitigate lighting impacts on the seasonal migration of birds and wildlife. According to the draft PEA, “SpaceX will coordinate with the USFWS, NPS, TPWD, and THC on updating its Facility Design and Lighting Management Plan.” Additional information is needed. The draft PEA states,

“The FAA has not established a significance threshold for light emissions or visual resources/visual character. Factors to consider when assessing the significance of potential visual effects include the degree to which the action would have the potential to:

- Create annoyance or interfere with normal activities from light emissions;
- Affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.
- Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
- Contrast with the visual resources and/or visual character in the study area; and
- Block or obstruct the views of visual resources.”¹⁹

¹⁸ US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online: www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 14.

¹⁹ US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online:

Creating or pursuing defined thresholds for these considerations is required to advance understanding and help all stakeholders achieve common purpose.

Additional Infrastructure

- The current record including, the 2014 EIS and Draft PEA do not define mid- to long-term plans for natural gas supply. This should be addressed in the land use section, but details are lacking. We understand that SpaceX may own inactive historical wells within its property envelope; any plans to rework these for gas production should be included. If natural gas must be brought to the site, the plans for pipelines, siting, surface impacts, etc. should also be included.

Quantitative Benchmarks

- Some challenges and uncertainties stem from the fact that the FAA has not established significance thresholds for multiple factors being reviewed in the draft PEA, including climate/GHG emissions (p. 46), light emissions (p. 62) cultural resources (p. 71), unlisted species impacts (p. 110), coastal resources (p. 119), land use (p. 121), hazardous materials, solid waste, and pollution (p. 124), natural resources and energy supply (p. 129), and socioeconomics, environmental justice, or children’s environmental health and safety risks (p. 136). By any measure, it is difficult to assess for significant impacts if there is not a standard against which to measure.

Public Equity/Public Access

- The FAA offered two public comment events: on October 18, 2021 and again, on October 20, 2021. According to the US Centers for Disease Control Social Vulnerability Index (SVI), Cameron County, Texas scores 0.9758 on a scale of 0.0 (lowest social vulnerability) to 1.0 (highest social vulnerability). Using the same numeric SVI scale, Cameron County scores 0.9981 for SVI Theme 3 (“Minority Status & Language”).²⁰

www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 72.

²⁰ US Centers for Disease Control, 2018. Social Vulnerability Index. Available online: <https://svi.cdc.gov/map.html>.

- Given the above information, the decision to present the written elements of the FAA public comment program in English-only, and without Spanish translation, made little sense in a community where only 28.6% households speak English and the vast majority of residents (71.4%) speak other languages, predominantly Spanish.²¹ The program's spoken elements were provided in both English and Spanish, though some participants raised concerns over the quality of the Spanish translation. It is troubling the FAA did not carefully choose community-conscious personnel (the proctor appeared to be a third-party contractor who was not from the community and who did not speak fluent Spanish). This creates a lack of focus on accessibility of the program, is poorly conceived, and compounds and underscores the frustration and concerns that local access and transparency are not being respected in this process.
- We believe that such missed opportunities to communicate with the local community compound and exacerbate other public equity issues that the SpaceX complex has posed. This includes escalating proposed public access/road closure hours on State Highway 4, which began in 2014 at 180 hours per year, and now stands at 500 annual closure hours in the draft PEA. In addition, there are possibly 300 additional hours for anomalies, or explosions or other unforeseen deviances from planned operations. The central point: the number of closure hours continues to climb (it should be noted that there are local reports that methods to officially tally the closure hours vary broadly from SpaceX to the local community, depending on the entity providing the accounting). These road closures impact the local community and curtail its access to local beachfront and outdoor recreation. Ultimately, the road closures amount to limiting access to public trust resources, those resources owned by the State of Texas, managed in trust for the use of all Texans and visitors to the state.

Final Comments

One phrase in the prepared draft PEA perhaps best captures the insufficiency of the arguments being made in support of continuing to blanket today's scope of work under the 2014 EIS: "During preparation of the 2014 EIS, the TGLO did not raise any

²¹ US Census Bureau, 2019. State and County QuickFacts: Cameron County, Texas. Available online: <https://www.census.gov/quickfacts/cameroncountytexas>.

objections to SpaceX's Falcon proposal. Therefore, the Proposed Action is not expected to result in significant impacts to coastal resources.”²²

This statement speaks to the heart of the cumulative impacts concern. The Falcon proposal in 2014 was a proposal of a very different scope, with lesser orders of magnitude. The project as proposed in 2014 was very different from the project as imagined today. Possible expansions contemplated and put into practice at present time are not fully described in the draft PEA. One cannot conclude that no significant impacts, coastal or otherwise, may be expected in a proposed 2021 action because impacts of a much smaller project were deemed acceptable seven years ago; such an argument simply makes no sense. Based on our understanding of circumstances, and with utmost respect to all parties involved, we believe that a new, comprehensive EIS is merited in this case.

Again, Audubon Texas appreciates this opportunity to provide public comment on the Draft PEA.

Respectfully,



Lisa A. Gonzalez

Vice President and Executive Director

Audubon Texas, National Audubon Society



Scott Moorhead

Policy Director

Audubon Texas, National Audubon Society

²² US Department of Transportation, Federal Aviation Administration, 2021. Draft programmatic environmental assessment for the SpaceX starship/super heavy launch vehicle program at the SpaceX Boca Chica launch site in Cameron County, Texas. Available online: www.faa.gov/space/stakeholder_engagement/spacex_starship/media/Draft_PEA_for_SpaceX_Starship_Super_Heavy_at_Boca_Chica.pdf, p. 120.

From: Christopher Basaldu <[REDACTED]>
Sent: Monday, November 1, 2021 4:36 PM
To: SpaceXBocaChica
Subject: Draft Programmatic Environmental Assessment Public Review and Comment

To: The Federal Aviation Administration, regarding the SpaceX project expansion at Boca Chica Beach in Texas.

I live in Brownsville, TX, and I grew up in Brownsville and Corpus Christi, Texas. I am indigenous to this area, and I am a descendent of the original Native people of the Rio Grande Valley and the Coast.

The original EIS for the SpaceX project at Boca Chica Beach, within the National Wildlife Refuge was incomplete and inadequate and reflects a failure of the company to do its due diligence.

One key issue overlooked in both the original impact statement and in the current DPEA process to expand the project is the lack of consultation with the original indigenous people of the land upon which the SpaceX project occupies. The Carrizo Comecrudo Tribe of Texas represents the original and ancestral indigenous people of the land in question. SpaceX has neglected to speak with and to consult with the Indigenous people of the land. The Carrizo Comecrudo Tribe of Texas are Esto'k Gna, the Human Beings original to the land. Their ancestors are buried in this land. Sacred sites exist in this land. There are multiple ancestral village sites throughout the region and area and are connected to one another through these ancestral ties. The SpaceX project and its proposed expansion will threaten to further damage these sites as well as restrict indigenous access to these sites and sacred lands. For these reasons, I ask the FAA to reject the permits for the SpaceX project expansion.

SpaceX has also ignored the city of Matamoros, Tamaulipas, Mexico. Even though there is an international boundary placed in the center of the Rio Grande, environmental impacts and pollution do not "stop at the border". It is extremely shortsighted of SpaceX to not communicate nor consult on this project with our sister city across the river. The SpaceX project can impact people and communities and environment on the south side of the river also. This permit for expansion should be denied.

SpaceX has not provided language in Spanish nor in American Sign Language (ASL) in order to properly communicate its projects and intentions to this area and our diverse communities. Many people who live in Brownsville and the surrounding communities speak Spanish. SpaceX did not provide adequate materials in Spanish, nor did they provide adequate nor fully adequate translation services throughout their public hearings and processes. This is both unfair and offensive. Please deny the permit for expansion of the SpaceX project.

SpaceX proposes to drill for gas in order to fuel its experimental rocket ships. They propose to use hydraulic fracturing, "fracking" in order to access these gasses from underground underneath the launch site and the surrounding area. Fracking is an extremely environmentally damaging practice that has been linked to non-natural earthquakes, and to contaminating water. Fracking also destroys natural rock formations that are vital to protecting both soil integrity and fresh water quality. We do not want, nor do we consent to the poisoning of our water and wetlands. Please deny any and all permits to the SpaceX project. The SpaceX company has not thoroughly conducted both environmental and community impact studies in good faith. Again, SpaceX has not consulted with the Indigenous people and community of the land which is further evidence of their disregard of their responsibility to conduct their due diligence.

There are many plant and animal species that are and will continue to be negatively impacted by the SpaceX project. Especially noteworthy animal species are the ocelot, the jaguarundi, the piping plover, the aplomado falcon, and several species of sea turtle, such as the Kemp's Ridley Sea Turtle. The original EIS did not do a thorough enough job in studying then potential and now real impacts. The several rockets that have exploded at the launch site have scattered pollution and dangerous debris across the delicate coastal wet land environment. If SpaceX is pretending that this impact is harmless, then they are delusional. Moreover, SpaceX is required to mitigate land loss of wet lands if they destroy delicate wet lands. They must replace and mitigate the same amount of wet lands. They cannot be permitted if they have not provided a mitigation plan, such a plan is missing or inadequate in their current statements.

SpaceX wishes to expand by also making a desalination plant. Such a plant would create hyper saline waste that would negatively impact the delicate ecosystems of these coastal wetlands. Excess salt/salinity can poison the land and endanger any and all plant and animal and marine life. This permit must be denied.

SpaceX is a private company. It is trying to colonize space and make money. This venture is not about providing for the common good nor to better society. SpaceX is a colonizing project that is damaging our community and environment and sacred lands here.

At the very least, the FAA must demand a new and more robust Environmental Impact Statement from SpaceX. It is in SpaceX's interest to make an incomplete and misleading EIS at the lowest bid possible. FAA must demand a full EIS before moving forward with any new permitting. SpaceX brags about launching the largest rocket in human history. How could such a project have minimal to no impact on the area? The carbon emissions alone from one attempted launch would continue to add to atmospheric greenhouse gasses and pollution thus perpetuating climate change and climate catastrophe. I encourage the FAA to simply deny the permit for expansion.

It bears repeating that SpaceX has not yet done their due diligence and has obscured the truth about its environmental and community impacts, or SpaceX simply ignores their negative impacts. Also, SpaceX has grossly exceeded the number of hours it was allowed to close Highway 4 and deny residence access to Boca Chica Beach. SpaceX has proven that it will chose to be dishonest about its functions, and that it will not hold itself accountable to the agreements that it has made. The FAA much therefore hold SpaceX accountable. Again this is yet another reason to deny the permit for the proposed expansion of the SpaceX project.

Christopher Basaldu, PhD
 [REDACTED]

Sent from my iPad

From: Rex Davila <[REDACTED]>
Sent: Monday, November 1, 2021 9:27 AM
To: SpaceXBocaChica
Subject: FAA environmental assessment Boca Chica Tx

To whom it may concern,

Concerning SpaceX use of Boca Chica Texas as a launch facility for test flights, suborbital and hopefully orbital flights of the of starship launch system.

SpaceX is involved in several programs which Benefit not only the local Economy, but also the state of Texas, the United States and the world. From watching the footage of SpaceX testing of the Starship systems, SpaceX cleans up after it's launch failures in an environmentally appropriate manner and even supports the local communities in conservation efforts.

Please update the FAA's review processes to accommodate not only SpaceX but to bring the review process up to modern day methodologies to be better prepared for the growing number of companies joining the space launch industry each month.

Thank you for your consideration.

Sincerely,
Rex D'Avila

Sent from my iPhone

From: Rabindra Mishra <[REDACTED]>
Sent: Monday, November 1, 2021 2:03 PM
To: SpaceXBocaChica
Subject: Feedback for Environmental Assessment for the SpaceX Starship/Super Heavy Program at Boca Chica, TX

Respected FAA Official in charge of this PEA,

I would like to, via this email, provide my feedback for this PEA done for the SpaceX Starship / Super Heavy Launch program out of Boca Chica, TX.

Humanity never has been more at the cusp of making amazing progress reaching out to the Cosmos than now. And there is only one reason for this and that is Starship (*both 1st and 2nd Stage*)!

In some sense, this moment in our history of spaceflight surpasses even the moment when Neil Armstrong and Buzz Aldrin stepped foot on the Moon. As amazing as the Apollo era was, and I am a huge fan of everything that was achieved during then, one has to admit it was, to a great extent, a fruit of adversarial contest.

What is happening in this little coastal place at Boca Chica, TX is actually "Space Exploration" for the sake of "Space Exploration"! A truly paradigm shift that has the potential to turn science fiction to reality.

A Rapidly Reusable Launch Vehicle that uses clean fuel (*both Methane and Oxygen can be extracted / made from the atmosphere*) is the Holy Grail of Rocketry. It will make space travel affordable, reliable and more importantly frequent.

SpaceX has amply demonstrated that with the Partially Reusable Falcon 9. But that is nothing compared to what Starship will be able to achieve!

While most people associate Starship with exploring Mars, Starship will in fact unlock the entire Solar System for us. With this we will be able to:

- Explore Ceres, Vesta and other Asteroids
- Explore Moons of Jupiter like Europa, Ganymede and Callisto
- Explore Moons of Saturn like Titan and Enceladus
- Explore Moons of Neptune like Triton
- Explore Pluto and Eris

All this with much larger robotic probes (than ones we can send today) and later humans on a much larger spaceship that can handle long duration spaceflight.

The immense payload capability of Starship will allow for Orbiters and even Landers, Rovers, Gliders and Submarines to explore these distant worlds, not just fly-bys!

All this with a launcher that will also be very cheap!

We may finally be able to answer the very important question "Is there life elsewhere in the Cosmos".

The importance of Starship can hardly be overstated.

Hence I urge the FAA to grant the permit that Space needs to continue this great program at Boca Chica while taking reasonable precautions to ensure the safety of local people and local flora and fauna.

If needed, the local flora and fauna can be relocated to a safer location.

But please don't let that be the reason to turn our backs on the greatest opportunity for Space Exploration that Humanity has seen thus far!

Sincerely,
An avid Space Enthusiast
Rabindra Mishra

From: ESG Hound <[REDACTED]>
Sent: Monday, November 1, 2021 9:59 AM
To: SpaceXBocaChica; David Newstead
Subject: Final Letter
Attachments: Final SpaceX Letter Eric Roesch.pdf

Ms. Zee, Please disregard my previous letter.

I have signed my name to avoid it being tossed aside.

Eric Roesch, MS
Missouri City, TX

October 30, 2021

Ms. Stacey Zee
SpaceX PEA, c/o ICF
9300 Lee Highway
Fairfax, VA 22031

Transmitted to SpaceXBocaChica@icf.com

***Comments on SpaceX Draft Programmatic Environmental Assessment
for Starship/Super Heavy Program***

Dear Ms. Zee,

Introduction

In the six weeks since the Draft Programmatic Environmental Assessment (PEA) was released to the public, not a single major media outlet has reported on a cryogenic gas fractionation plant as part of SpaceX's plans. Nor have they written the phrase "Liquefied natural gas" (or LNG). And yet, both processes are part of the PEA. SpaceX is one of the most publicly known and widely covered enterprises in the world. The fact that these highly controversial and widely protested facilities, used to refine and transform fossil fuels, went almost entirely un-noticed by the public, is disturbing and damning evidence that the very foundational basis for the National Environmental Policy Act (NEPA) has been violated to an almost unimaginable degree.

And that's only the tip of the iceberg. I will outline in my letter major points of contention I, alone, have discovered. I have also attached a table with all the missing, misleading and scientifically inaccurate flaws with this document. I keenly await your response to these concerns.

1. The Missing Gas Problem

The facility calls for not only a gas fractionation system and an LNG unit (the "Pretreatment System" and "Liquefier"), but a 250-Megawatt Combined Cycle Natural Gas Turbine power plant. The power plant *alone* would consume at a minimum 1,500 MMBtu¹ (million British Thermal Units) per hour. The quantity of pipeline quality natural gas required to fire such a facility would be roughly 35 million Standard Cubic Feet (scf) every single day. The DOT limit for transportation of Flammable Gasses is ~640,000 scf on a single trailer.² Which means that even using the largest CNG trailers available, this power plant would consume 54 trucks per day, or approximately one every 26 minutes. This, of course, is an impractical solution from a logistics standpoint alone, as SpaceX's facility is only accessible via an already over congested 2 lane highway. A parade of trucks in and out of the facility 24/7/365 would, by itself, be a "significant environmental impact." However, the average CNG trailer on the road holds less than half of the maximum, so realistically 100 trucks per day should be considered if this is how SpaceX intends to operate the facility. In addition, the impact of such a ridiculous Just-in-time operation would run the significant risk of failing. This would mean that the Combined Cycle Power Plant would run the ongoing risk of suffering an "unplanned shutdown event." The NOx and CO emissions from such a power plant would likely spike 10-100x during such an event. Such unplanned events are explicitly prohibited in

Federal Law as well as definitionally excluded from TCEQ's Maintenance Startup and Shutdown regulations.

This brings us to the next point: SpaceX has shown interest in developing a pipeline to deliver fuel to the facility, as reported by TechCrunch³, citing a Federal Official with firsthand knowledge of the situation. The word "pipeline" is not mentioned a single time in the PEA. SpaceX clearly intends to make a pipeline, as no similarly sized power plant in the entire United States is fueled via truck. The omission of this intent, which is documented in writing and verbal communications with the US Fish and Wildlife Service, is a shocking and unprecedented failure of the FAA and SpaceX to do even the most cursory of Environmental Assessments.

In *Sierra Club v. Federal Energy Regulatory Commission*, (Docket. 16-1329), the DC Circuit court ruled in favor of the petitioners that the EIS for the Valley Crossing Pipeline (SpaceX's neighbor) was inadequate because FERC failed to disclose the Carbon impact from the combustion of the natural gas delivered to end customers in Mexico. This illustrates the scope of Impact Assessment required under NEPA and repeatedly upheld in the US Court systems. SpaceX and FAA failed to even disclose the source of SpaceX's gas, how it would be delivered, and what the upstream impacts would be. This is all *clearly* in scope of the covered action, as the surrounding county and region is not currently a producer of natural gas in any sort of significant quantity.

The FAA must disclose the quantity, location, and delivery method of Natural Gas to be used at the facility, and the impacts of delivery must be analyzed quantitatively.

2. The Major Source Problem

The facility, as described, is clearly subject to the Prevention of Significant Deterioration (PSD) rule under the 1977 Amendments under the Clean Air Act, and as such would be subject to Off-Site impact analysis. A 250-Megawatt combined cycle power plant that consumes 1,500 MMBtu per hour or more would clearly be a "Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input,"⁴ as defined in the PSD rule. The General Conformity (GC) Rule, as applied in the PEA, is incorrectly applied by the authors and reviewers, seeing as:

- a. The GC rule is explicitly exempted for sources subject to PSD or Non-Attainment New Source Review, and;
- b. Per FAA's own guidance in the 1050.1F Desk Reference, a GC determination is only valid once all Direct and Indirect emissions from the proposed action are summed up. This did not happen by the authors' own admission.

Some examples of missing emissions include:

1. Emissions from existing SpaceX operations permitted by TCEQ, including
 - a. Permit no. **166086** – Painting Operations
 - b. **155544** – Diesel Emergency Generator
 - c. **156011** – Rocket Development Control Device (e.g., Flare)
 - d. **161598** – Natural Gas Generator
 - e. **165259** – LOX power plant (annual Potential to Emit of 88 tons CO, 32 Tons NOx, 9 Tons VOC and 6 Tons HAPs)
2. Emissions from the non-road engines used on the facility's numerous cranes. As an example, a LR11000 Crane, made by Liebherr, has a diesel power plant rated at 500 kW. One of these units was delivered to the site on 10/29/21. Using the EPA Tier 4 emissions factors, the emissions from

this unit alone would be 3.9 pounds of CO per hour and 1.1 pounds of NOx per hour. These emissions, from a single crane, could sum up to 17 tons of CO and 4.8 tons of NOx annually.

3. Emissions from other non-road equipment, such as earth movers, forklifts, flat bed rocket shuttles.
4. Emissions from Trucks that are loading and unloading LNG, Liquid Wastes and Co-products and other materials used and generated at the site

The fact that even with the glaring omission of all direct and indirect emissions, the calculated incremental Carbon Monoxide emissions were calculated at greater than 100 tons is a clear indication that the facility is a “Major Source” under the PSD rule. Addition of all other on-site and off-site, indirect and direct emissions would easily clear the GC 100-ton threshold by a wide margin, potentially for VOC, HAPs and NOx as well.

The PEA’s attempt to “net out” CO emissions to get under the 100-ton threshold is confusing, and grossly incorrect application of PSD major change language. Netting incremental project emissions is only allowed for sources that are already *existing* “Major Sources” under the PSD rule. For initial Major Source applicability, the total site-wide emissions, including existing emissions and emissions from non-road and fugitive sources count towards the site wide cap. This is explicitly noted in both TCEQ⁵ and EPA guidance, going back decades. And since the proposed project includes one of the 28 named sources under the 1977 CAA amendments (Fossil fuel-fired steam electric plants >250 MMBtu/hr), the criteria pollutant threshold is **100 tons** of any criteria pollutant, not 250 tons as implied elsewhere in the PEA.

I have done a records review of all FERC and DOE projects authorized under NEPA in the past 30 years. Not a single PSD subject source has ever passed through a PEA or EA process and is always part of a full EIS. As an example, the Deer Creek Station Energy Facility Project in South Dakota was a stand-alone 300-megawatt combined cycle power plant authorized by DOE in 2010 (EIS-0415). This single source, with no accompanying rockets, gas treatment or LNG, was considered a “major action” under NEPA and was required to go through the EIS process. The idea that a similarly sized power plant plus numerous other large operations would constitute a *de minimus* or insignificant action is plainly absurd.

Additionally, in 100% of cases in which a NEPA action includes a PSD subject source, the initial air permitting and PSD modeling was complete and approved *prior* to the issuance of the EIS. The PSD modeling is what determines if there would be an off-site impact. The PEA includes a passage:

There are also few members of the public that live in the project area. Boca Chica Village has 10 remaining residences; two homes are occupied full time and the remaining eight homes are seasonal or have been vacant in recent years. Pollutant concentrations would have ample distance to disperse and concentrations at the nearest populated areas (e.g., Brownsville, South Padre Island) would be low. Thus, members of the public would not be exposed to CO concentrations that would exceed the NAAQS.

This statement belies a complete lack of understanding of what the Clean Air Act requires. NAAQS levels and offsite impacts aren’t just something you can just categorically dismiss. The relatively low population of Boca Chica village is not only irrelevant to off-site impacts for NAAQS increments under PSD; the dismissive language itself demonstrates a clear and insidious disregard of the needs or concerns of the local population. SpaceX and FAA’s complete lack of regard for Environmental Justice issues is visible elsewhere in this document and in their actions since 2014. This statement only further shows that the FAA and SpaceX views NEPA as nothing more than a mere annoyance.

Finally, the LNG/LCH₄ process might be a "Fuel Conversion Plant," another of the 28 named sources under the PSD rules. EPA needs to be given an opportunity to make this determination. Natural gas fractionation plants, per EPA guidance and precedence are not a "Fuel Conversion Plants." Likewise, most LNG conversion facilities have been excluded as "Fuel Conversion Plants." However the Justification used by EPA to make this determination (Jordan Cove Liquefied Natural Gas Facility, 2017 EPA letter) is narrow and might not apply to the SpaceX facility as described. In particular, the Jordan Cove EPA determination stated:

"After a closer examination of the EPA's historical approach, our view is that a change in state is a possible characteristic of a fuel conversion plant but not the sole characteristic - i.e., not everything that accomplishes a change in state is a fuel conversion plant. Where a change of state occurs only for transportation needs, the fuel remains natural gas throughout the process, and the process is necessarily reversible. Notably, in the case of an LNG export facility the change of state must be subsequently reversed at another facility before the natural gas is used as a fuel."

EPA used the exemption for export facilities because the LNG conversion process was being used for transport purposes and the receiving facility would expand the LNG back into natural gas prior to use as a fuel. In the case of the SpaceX facility, the PEA explicitly states that this proposed processing facility will convert the natural gas to a liquid (LNG/LCH₄) for the express purpose of being used as rocket fuel. Therefore, a (1) change of state is occurring, e.g., gas to liquid and (2) the resulting liquid, not the gas, will be combusted as fuel.

To Summarize, there must be no approval of any stationary sources of pollution under NEPA by FAA, until after off-site modeling has been completed and EPA/TCEQ has approved the PSD permitting action. EPA must be given an opportunity to make a PSD applicability determination under the "Fuel Conversion Plant" provision of the PSD rules.

3. The Cooling Tower Problem

Twice in the PEA, a cooling tower is mentioned to as required to cool down process water. This unit would be expected to consume up to **400 million gallons** of water per year, based on a DOE estimated value of 200 gallons per Megawatt hour for combined cycle turbines. The PEA claims that a total of 5.8 million gallons would be consumed per year. There is no excess water available from the Lower Rio Grande, nor is there any water pipeline to the facility. Management of hundreds of millions of gallons of water is, alone, a "significant environmental impact," per FAA's own guidance documents under Order 1050.1F.

There are only two mentions of "cooling tower" in the PEA. Particulate (PM) emissions for a unit sized for such a plant would be 10-15 tons per year, yet the Power Plant emissions indicate no PM emissions. The treatment of the water in the cooling tower would require the usage, storage, and handling of thousands of pounds of chemicals such as oxidizers, acids, bases and pesticides per year. These items are not included in the PEA.

A comprehensive re-evaluation of the Cooling Tower, as well as the water resources section is required. This must happen through an EIS.

4. The Gas Plant Problem

The PEA describes a "natural gas pretreatment" facility that will

“Process natural gas brought to the site for use as propellant and for power generation. The natural gas pretreatment system would remove impurities such as water, carbon dioxide (CO₂), and hydrocarbons heavier than methane from the extracted natural gas to create a stream of pure gaseous methane (sic) The natural gas pretreatment system would include a main de-ethanizer that would be approximately 200 feet tall and 16 feet in diameter and include smaller cylinders approximately 6 feet tall.

What is being described is a rather large cryogenic gas plant, used for treating field gas directly from wells. A 200 ft tall, 16-foot diameter processing column indicates that the facility is likely rated at 200 million scf per day. Despite the description in the Assessment stating that "pure methane" would come out of the processing plant, there is no technical literature to support this claim. Deethanizer columns, such as the ones described in the PEA, process natural gas of methane purities of 50-80% into a final residue stream of 99+% pure (mol basis) methane. Indeed, the adjacent Valley Crossing Pipeline system has a FERC customer specification of 98% or higher Methane with 1-1.6% Ethane (by mass) as a residue. Large deethanizer columns such as the ones described are not suited to the task of creating pure methane from an already nearly pure input gas. An example of such a process, the Eagle LNG Facility in Jacksonville, FL (FERC docket CP17-41), processes pipeline quality natural gas into 99% or greater methane, completely devoid of CO₂ and water and then liquifies it. This facility can produce 500,000 gallons of LNG daily with no large processing column but a simple LNG train plus a small hydrocarbon knockout vessel, a glycol dehydrator, and an amine treatment unit. The Eagle LNG facility can do this all while generating 90% less VOC emissions than SpaceX is proposing.

Further evidence for this can be found in the Power Plant emissions, which indicates VOC emissions of 9 tons per year. Since Methane is NOT a VOC, these emissions must come from the combustion of propane or heavier carbon (C₃+) gasses in the turbine. If SpaceX claims to be making Pure Methane (e.g., a plain language term commonly understood to mean 100%), the power plant emissions, which is fed fuel from the "natural gas pretreatment" facility should have VOC emissions of zero (0) tons per year. And indeed, this is not the case, as the power plant VOC emissions are roughly in line with the AP-42 emission factors for combustion of regular pipeline quality natural gas (which is defined in AP-42 as being +/- 5% of Btu of Pure Methane).

In addition, the Gas plant emissions (VOC, NO_x, and CO) are estimated at 47, 10 and 14 tons per year respectively. Combustion devices have minimum destruction rate efficiencies (DRE) of 98% for process heaters, 99% for process flares, and 99.5% for thermal oxidizers. The CO (14 tpy) and NO_x (10 tpy) emissions described only line up with a total of up to 350 MMBtu combusted per year (based on AP-42 emission factors for flares and process heaters).

A simple mass balance shows that if the facility were processing pipeline quality natural gas to be 100% methane, it would have to process 20 billion scf per day (or roughly the entire daily output of the entire state of Texas) to emit 47 tons of VOC.

All of this demonstrates that SpaceX intends to begin collecting and processing natural gas from nearby gas wells. But there are no pipelines to deliver this gas and there are no producing gas fields within 50 miles of the Boca Chica site. SpaceX clearly consulted with a manufacturer of a cryogenic gas plants (such as Exterran or Honeywell UOP) and asked for engineering specifications for a plant to treat wet natural gas from fracked wells. The emissions numbers they provided prove it. This is a disturbing development. Not only does SpaceX and FAA withhold where the gas comes from (as mentioned in part 1), but their apparent intention to begin drilling for gas themselves is a stunning, and possibly criminally negligent piece of information to withhold from a NEPA document.

SpaceX must disclose the processing capacity of the “pretreatment facility” and the “liquefier.” They must characterize where the input fuels come from and must evaluate all environmental impacts that would be associated with a SpaceX natural gas E&P operation. The chemical composition of the input stream into the “pretreatment” process must be provided to the public as well. None of this can be adequately covered in a PEA and must occur via an EIS.

5. The Plain Language Problem

As alluded to in the introduction, the most troubling part of this PEA is the fact that it deviates from any sort of reasonable “plain language” requirements of NEPA. The FAA, SpaceX and the FAA reviewers are all certainly aware that this is a large project, completely unsuitable for approval via the PEA process. That the media has not picked up on this is an indication of how much required information is missing from the PEA. But it is also a function of the misuse of “plain language” rules. A “natural gas pretreatment process” is a “cryogenic gas plant” or an “NGL fractionator.” A Rocket Fuel “liquefier” is an “LNG plant.” No one is discussing what it is SpaceX intends to do with their “related infrastructure.” Elon Musk is perhaps the most widely covered individual in the world aside from Donald Trump and has made his name on being “green.” The idea that a large gas processing and utility power operation would get overlooked by the media is absurd. Unless, of course, the document containing these facts was written in such a way to cause confusion among people unaware of how the Oil and Gas business works.

The full EIS that is required must be handed off to a responsible third party. FAA, SpaceX and ICF International have proven themselves to be woefully inadequate at completing a legal and accurate document.

Conclusion

I was struck watching protests unfold this past Friday, October 29th. Hundreds of thousands of Americans poured out into the streets to protest banks and government agencies and oil companies for their inaction on slowing down fossil fuel development. Meanwhile, six weeks had passed since FAA and SpaceX disclosed to the world a greenwashed oil and gas operation proposed to be built on a Federal Wildlife Refuge, in service to the demands of the richest man in the world. No, this operation isn’t ANWAR or Keystone Pipeline. But it is significantly more impactful than the Astoria Peaking Station in New York, a 436 megawatt power plant, that was cancelled this past week to the cheers of many.

The desired effect, to let Elon Musk and SpaceX get what they want, with no pesky questions from the press appears to have been achieved. But only for the time being. Disclosure of all details is required under NEPA. The Fraud is already complete though, as you let the lie sit there, certified for weeks on the Federal Register, containing information you know to be inadequate and false.

You, Ms. Zee, are complicit. The FAA Administration is complicit, from Administrator Steve Dickson to Responsible Official James Repcheck and every feckless government official in between. A crime has been committed. Withholding relevant information with the intention to mislead, from a document that is certified in the Federal Register, is a crime. We still live in a nation of laws. You must step down. Mr. Dickson must step down. Mr. Repcheck must step down. The private contractor, ICF International, must have every single federal contract they are currently assigned to reevaluated in light of their reckless and unprofessional behavior.

A full EIS is warranted by even a cursory understanding of what NEPA is intended to do. There can be no tiered approval, as this document is de facto worthless for any sort of compliance under NEPA. Nothing produced by the people who created this PEA should be considered truthful, complete or adequate. All SpaceX activity at Boca Chica must cease, at once. This includes static fire tests and construction and rocket building. Let this testament to greed and corporate misbehavior sit unused until you follow the law and complete a full EIS.

Shame on all of you.

Regards,

A handwritten signature in black ink, appearing to read 'E. Roesch', with a long horizontal flourish extending to the right.

Eric Roesch – M.S. Environmental Engineering, Texan and Concerned citizen.

Missouri City, Texas

Attached: List of issues

¹ Industry Average of 7000 btu/kwh

² 49 CFR § 173.115

³ <https://techcrunch.com/2021/10/08/the-mystery-of-elon-musks-missing-gas/>

⁴ 40 CFR 52.21(b)(1)(iii)(z)

⁵ TCEQ doc APDG 5881 "Major New Source Review - Applicability Determination"

Discipline	Sub Discipline	Finding	Citation
General	Plain Language	<p>The Language used to describe the Natural Gas Processing plant is intentionally deceptive, misleading and dangerous. What SpaceX describes in the PEA as a "Natural Gas Pretreatment Facility" is actually a standard cryo Natural Gas plant, functionally identical to the dozens plants located all throughout Texas. Likewise, the "Liquefier" is an LNG (Liquid Natural Gas) conversion unit. These terms are both a departure from engineering standards for processing, separating and treating natural gas and appear to be intentionally designed to fool a gullible press and public into believing that somehow this facility is somehow different than other oil and gas operations, plants that the public commonly associates with negative environmental externalities.</p> <p>The evidence for this is that as of 10/31, two weeks after the release of the PEA, not one single media outlet is reporting on the very simple fact that SpaceX intends to build an integrated oil and gas processing operation in Boca Chica. Had Exxon or Chevron tried to permit a Refinery by calling it a "specialty hydrocarbon reformulator," activist groups would be rightfully up in arms. The Plain Language standards, both generally and specifically as referenced in the March 2012 CEQA Memorandum, have been abused by SpaceX. This has been enabled by the FAA and is a transparently cynical attempt to trick the public into haplessly accepting brand new oil and gas development on federal wetlands with a smile. This sort of trickery is outrageous, fraudulent, and should not be rewarded.</p>	<p>CEQ Memo Dated 3/5/2012 "Improving NEPA Efficiencies"</p> <p>FAA Order 1090.1F 1-9</p>
General	Scope	<p>The facility emissions profile indicates that SpaceX intends to source natural gas from local wells, which would require a large supporting upstream and midstream processing operation, this activity is not disclosed in the PEA</p> <p>There are two conceivable options by which the natural gas treatment plant could receive input fuel</p> <ol style="list-style-type: none"> 1. From adjacent pipeline spec natural gas or via LNG tankers ("3% molar mass ethane) 2. From a gathering pipeline (wet natural gas) <p>Despite the description in the Assessment stating that "pure methane" would come out of the processing plant, there is no technical literature to support this claim. Deethanizer columns, such as the ones described in the PEA, process natural gas of methane purities of 50-80% into a final residue stream of 99% pure (mol basis) methane. Indeed, the adjacent Valley Crossing Pipeline system has a FERC specification of 98% or higher Methane with 1-1.6% Ethane (by mass) as a residue. Additional processing of such a stream or any available LNG source would be not only not economical, but essentially a wasteful and unproductive exercise. Large deethanizer columns such as the ones described are not suited to the task of creating pure methane from an already nearly pure input gas. Companies who specialize in creating pure, lab spec Methane (such as Air Liquide), use a series of progressive distillation steps to create gasses of guaranteed purity of up to 99.99%. These processes are not like the processing plant as described, as they are low volume, high pressure and high energy intensity processes.</p> <p>Further evidence for this can be found in the Power Plant emissions, which indicates VOC emissions of 9 tons per year. Since Methane is NOT a VOC, these emissions must come from the combustion of propane or heavier carbon (C3+) gasses in the turbine. If SpaceX claims to be making Pure Methane (e.g. a plain language term commonly understood to mean 100%), the power plant emissions, which is fed fuel from the "natural gas pretreatment" facility should have VOC emissions of zero (0) tons per year. And indeed, this is not the case, as the power plant VOC emissions are roughly in line with the AP-42 emission factors for combustion of regular pipeline quality natural gas (which is defined in AP-42 as being +/- 5% of Btu of Pure Methane).</p> <p>In addition, the Gas plant emissions (VOC, NOx and CO) are estimated at 47, 10 and 14 tons per year respectively. Combustion devices have minimum destruction rate</p>	<p>AP 42 - Chapters 13.5, 1.4</p> <p>30 TAC 116.120</p> <p>30 TAC 115.120,126</p> <p>TCEQ APOG 6422</p> <p>40 CFR 60 (K)(K)</p> <p>FAA Order 1090.1F 1-9</p>
General	Scope	<p>One or more pipelines would need to be constructed in order for the facility as described to operate. The PEA makes exactly zero references to where input fuel for either the gas plant or the power plant would come from. There are zero mentions of the word "pipeline" in the entire PEA. Likewise no discussion on the increased truck traffic that would exist in order to provide the additional fuel exists.</p> <p>A 250 megawatt power plant would consume at a minimum 1500 mmBtu/hr, conservatively assuming a combined cycle heat input of 6000 btu/kwh. As a point of reference, a LNG tanker truck containing 70,000 pounds of liquified gas (80,000 pounds is the DOT wheel weight limit) would contain a grand total of 1486 mmBtu of fuel (DOE data for LNG: 21,240 btu/lb lower heating value). This means a new LNG truck would have to be hooked up to the plant every hour, on the hour throughout the year. 8000+ trucks per year is a logistical impossibility, but even if this was the plan, the environmental impact from constant truck traffic to and from the facility throughout the day and night would likely be very significant and at the minimum are required to be disclosed and analyzed per NEPA.</p> <p>Realistically a pipeline is required, and again this activity is not mentioned. There are no pipelines going to or from SpaceX property currently. A single, low pressure gathering system pipeline (TX RRC Permit T08489), that runs along The Boca Chica Highway was permanently abandoned in 2013 by the operator, as seen in RRC filings. PHMSHA rules define "abandoned pipelines" as those that have undergone a "permanent and irreversible" removal from service.</p> <p>The facility would require installation of a 30 inch or wider high pressure natural gas pipeline that would go through Fish and Wildlife (FWS) property, in addition to well head and gathering system pipelines required to support wellhead E&P activities. The omission of this basic, and easily confirmed, fact is again a egregious violation of FAA's own criteria for related activities scope under NEPA.</p>	<p>49 CFR 192.727</p> <p>FAA Order 1090.1F 1-9</p>

Discipline	Sub Discipline	Finding	Citation
Air	PSD Permitting	<p>The facility was not identified as one of 28 Named Sources under PSD. The power plant is a combination of 2 combined cycle (Co-gen) natural gas fired turbines rated at a total of 250 megawatts, per the FEA. At a conservative 6,000 Btu/kWh (from GE turbine literature), this would mean the power plant is rated at a minimum of 1500 mmbtu/hr, which is well above the 250 mmbtu/hr requirement to be defined as a "Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input"</p> <p>This puts special requirements on the facility regarding PTE thresholds. The reviewers did not identify this and as a result made a series of incorrect assumptions</p>	40 CFR 52.21(b)(1)(ii)(2)
Air	PSD Permitting	<p>The Facility is all but certainly a Major source for CO under PSD requirements. CO emissions as represented in the PEA are at 102 tons, which alone covers the 100 tpy threshold for "named" sources.</p> <p>The document describes "netting" emissions below 100 tons (i.e., the proposed action emission levels minus the no action emission levels) But the language cited by the drafters is specifically for Major Source Modification already subject to PSD. TCEQ and EPA have been clear that netting out existing emissions at minor sources is not allowed.</p> <p>Further, the 100 ton PSD threshold for the 28 named sources requires that all fugitive and non point source emissions, including those from the diesel fired cranes operated on site as well as any moored support vessels be included</p> <p>CO emissions from commonly seen supporting Power plant combustion sources (back up boiler for startup, draft burner etc) are not included as well.</p>	<p>40 CFR 52.21(b)(1)(ii)(4)</p> <p>40 CFR 52.21(b)(1)(ii)(2)</p>
Air	Off Site Impact	<p>The PEA incorrectly and without supporting data claims that NAAQS standards would not be exceeded. Because the source is a Major Source under PSD, it is required, by statute to go through off-site impact modeling. This is what determines a NAAQS exceedance, not the off handed presumptions of SpaceX employees. Furthermore, several sources of emissions (condensate and NGL storage and transfer, power plant cooling tower, fugitive dust, mobile equipment) aren't even calculated by the authors' own admission.</p> <p>The PEA drafters state "There are also few members of the public that live in the project area. Boca Chica Village has 10 remaining residences; two homes are occupied full time and the remaining eight homes are seasonal or have been vacant in recent years. Pollutant concentrations would have ample distance to disperse and concentrations at the nearest populated areas (e.g., Brownsville, South Padre Island) would be low. Thus, members of the public would not be exposed to CO concentrations that would exceed the NAAQS."</p> <p>This is plainly false and, further, NAAQS standards aren't based on how many neighbors you might impact based on a random guess. This is a wildly unprofessional and unscientific claim that has no basis in fact or regulation and completely ignores how a NAAQS standard is determined,</p>	40 CFR 52.21(c)
Air	GHG Emissions	<p>The Power plant estimated CO2e emissions are incorrect by a factor of 100 or more. The PEA authors and reviewers present that annual CO2 emissions from a 250 MW power plant would be 9,858 tpy. This is plainly absurd and should have been caught during the review process. The expected CO2 emissions from natural gas combustion at 1500 mmbtu/hr would be ~700,000 tons, meaning this calculation was off by not one, but 2 orders of magnitude</p>	<p>AP-42, Vol. I, 3.1</p> <p>Subpart C of 40 CFR 98</p>
Air	Emission Calc	<p>The Power Plant SO2 and PM emissions are projected at zero, which is not possible by any industry, regulatory or engineering standard. The default emissions factor for SO2 emissions from a stationary natural gas fired turbine is 3.4 E-08 lb/mmBtu. The default PM emission factor is 6.6 E-03 lb/mmBtu. Calculated out, assuming 1500 mmbtu/hr, these emissions should be:</p> <p>22 tpy SO2 44 tpy PM</p>	<p>40 CFR 52.21(b)(1)(ii)(a)</p> <p>TCEQ doc APDG 5881 "Major New Source Review - Applicability Determination"</p> <p>AP-42, Vol. I, 3.1</p>
Air	Emission Calc	<p>The Power Plant Would Require a cooling tower and these emissions are not included in the site wide emissions estimate. Conservatively sizing a water tower for 3000 gpm water flow and using the AP-42 PM emission factor for induced Draft cooling towers (0.019 lb/10³ gal), there are roughly 15 tpy of PM emissions from this unit, which is not mentioned in the PEA</p>	<p>40 CFR 52.21(b)(1)(ii)(a)</p> <p>AP-42, CH 13.4</p>

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Air	Emission Calc	<p>The power plant Maintenance, Startup and Shutdown (MSS) emissions, as required by TCEQ for PTE calculations, appear to have been ignored. I do not know the exact operating scenarios that would be assumed here for PTE purposes, but examining other recent TCEQ issued PSD permits (such as PSDTX1582), the NOx emissions during MSS events as represented and required under 30 TAC would likely add between 10-30 tpy of both NOx and CO.</p> <p>By the authors' own admission, neither TCEQ nor EPA were contacted during this process. It is clear that given the other emissions oversights (such as forgetting to calculate PM or SO2 emissions), these emissions need to be re-calculated by an independent and actually competent Air Permitting engineer.</p>	<p>TCEQ permit PSDTX1582</p> <p>TCEQ doc APDG 5881 "Major New Source Review - Applicability Determination"</p>
Air	Emission Calc	<p>The power plant ammonia emissions, as would occur using SCR mandated under 30 TAC 117 and BACT are not accounted for - While not a criteria pollutant, it is required to be accounted for under TCEQ and TAC standards. Estimated NHS emissions from ammonia slip would be easily >100 tons per year. Facility citing would determine if this toxic chemical would be hazardous to wildlife or humans.</p>	
Air	Emission Calc	<p>The Gas Plant Emissions do not appear to include flaring MSS emissions as required by TCEQ - Based on industry knowledge as well as representative field "wet" gas mass spec analysis from Texas shale Natural Gas, and a review of recently permitted TCEQ Cryogenic gas plants, H2S emissions (not reported) and SO2 emissions (1 ton) are inadequate. The facility would be expected to have at a minimum of 0.5 tpy H2S and 5 tpy SO2 from flaring events.</p> <p>These events would also likely increase annual CO and NOx emissions by an estimated 10 tons (CO) and 5 tons (NOx) per year.</p> <p>Estimates are based on a presumed 50 mmcf/day throughput.</p>	30 TAC §106.359
Air	Emission Calc	<p>The Gas Plant SO2 emissions are estimated at 1 ton per year, which is incorrect by a factor of 10 or more.</p> <p>While exact SO2 emissions are impossible to calculate without representative inlet gas mass spectrometry data, assuming a very conservative 0.003% Mol fraction H2S, Annual SO2 emissions would be at a minimum 35 Tons per year. Because the sulfur concentration of gas varies widely by formation, this number could easily be 50 tpy or more.</p>	40 CFR 52.21(b)(1)(i)(A)
Air	Emission Calc	<p>There are no emissions described for LNG (liquid Methane storage and unloading) - While Methane is not a VOC and therefore, not a criteria pollutant, the facility (being PSD major for CO) would be subject to sitewide inventory requirements under the GHG PSD "Tailoring Rule" Requirements. Fugitive losses, loading losses and transfer losses of methane need to be inventoried, per federal GHG MACT rules as well as required under FAA Order 1050.1f.</p> <p>Additionally any combustion control devices required for transfer would generate additional CO and NOx emissions. These emissions do not appear to be represented in the PEA.</p>	40 CFR 52.21(b)(1)(i)(A)
Air	Emission Calc	<p>There are no emissions described for Natural Gas Condensate Storage and truck loading, which would be generated as part of Natural Gas Cryo Fractionation - A 50 mmcf/d gas plant would generate roughly 5 million gallons per year of Natural Gas Heavies/Condensates, presuming a C4+ mass fraction of 4% in the inlet stream (conservative estimate based on Gulf Coast shale formation data) which would require two (2) 500 bbl liquid storage tanks. EPA-TANKS emissions from storage would be ~12 tons VOC per year, assuming industry standard 500 bbl tank size and atmospheric storage.</p> <p>Tank Truck Unloading emissions would be between 1 and 20 tons VOC using AP-42 loading emission factors, which would depend on control scheme used. A combustion source used as control would significantly decrease the VOC emissions, however the NOx and CO emissions would increase.</p>	40 CFR 52.21(b)(1)(i)(A)
Air	Emission Calc	<p>There are no emissions described for Y-grade and/or NGL storage and truck loading, which would be generated as part of Natural Gas Cryo Fractionation - Calculation of these emissions is extremely difficult, but very conservatively assuming 80% methane inlet, a 50 mmcf/day gas plant would be expected to generate 305 million pounds of NGL/Y-grade (C2-C6) co products per year. This is usually an incidental, fugitive emission calculation at most Texas Gas plants, as a majority of them send these fractions directly out via a hazardous liquids pipeline.</p> <p>In the case of this facility, either a hazardous liquids pipeline would need to be constructed, or the 100+ million pounds of co-products per year would have to be stored on-site and sent out via truck. This would likely require installation of a Horton sphere along with pressurized truck loading. Emissions from this activity would be several tons of VOC per year, and if a combustion device is used for control on storage and/or loading, these CO, SO2, PM and NOx emissions would need to be quantified.</p> <p>No such description of any such equipment exists in the PEA and emissions from the "Fuel Pretreatment" facility are clearly not included in the Preparers' assumptions.</p>	40 CFR 52.21(b)(1)(i)(A)

Discipline	Sub Discipline	Finding	Citation
Air	Emission Calc.	<p>There are no emissions described for Produced Water Storage and truck loading, which would be generated as part of Natural Gas Cryo Fractionation-A 50 mmscd gas plant would generate roughly 1.5 million gallons per year of produced (oil contaminated) water, based on a conservative estimate based on Gulf Coast shale formation data which would require one (1) 300 bbl liquid storage tank. EPA-TANKS emissions from storage would be between 0.5-1.0 ton VOC per year, assuming industry standard 500 bbl tank size and atmospheric storage.</p> <p>Tank Truck Unloading emissions for this activity would be minimal but still required per FAA Order 1050.3</p>	40 CFR 52.21(b)(1)(i)(a)
Air	Emission Calc.	<p>GHG Emissions from Refrigerants are not included in the sitewide inventory as required. The facility describes the cryogenic gas plant as using Liquid Nitrogen from cooling. I cannot speak for every single gas plant but many, if not most, use CFCs for refrigeration which are often mixed with Liquid nitrogen to reduce the Carbon impact in event of a spill. It is unclear if SpaceX intends to use just nitrogen, and if so, if there's an independent engineering basis for this presumption.</p> <p>The GHG impact from this is unclear as many refrigerants have extremely high CO2e factors. It is not clear if this was an oversight, if SpaceX thinks they're going to reinvent the natural gas treatment industry on the fly, or if they actually consulted outside process engineers to develop this proposed process.</p> <p>This needs clarification and/or emissions calculations included</p>	CEQ 2010b, Guidance on Federal Greenhouse Gas Accounting and Reporting
Air	PSD Permitting	<p>The LNG/LCH4 conversion process might be a "Fuel Conversion Plant," another of the 28 named sources under the PSD rules. EPA needs to be given an opportunity to make this determination. Natural gas fractionation plants, per EPA guidance and precedence are not a "Fuel Conversion Plants." Likewise most LNG conversion facilities have been excluded as "Fuel Conversion Plants." However the Justification used by EPA to make this determination (Jordan Cove Liquefied Natural Gas Facility, 2017 EPA letter) is narrow and might not apply to the SpaceX facility as described.</p> <p>In particular, the Jordan Cove EPA determination stated: "After a closer examination of the EPA's historical approach, our view is that a change in state is a possible characteristic of a fuel conversion plant but not the sole characteristic - i.e., not everything that accomplishes a change in state is a fuel conversion plant. Where a change of state occurs only for transportation needs, the fuel remains natural gas throughout the process, and the process is necessarily reversible. Notably, in the case of an LNG export facility the change of state must be subsequently reversed at another facility before the natural gas is used as a fuel."</p> <p>It is clear that EPA used the exemption for export facilities because the LNG conversion process was being used for transport purposes and the receiving facility would expand the LNG back into natural gas prior to use as a fuel. In the case of the SpaceX facility, the company, in the FEA, explicitly states that this proposed processing facility will convert the natural gas to a liquid (LNG/LCH4) for the express purpose of being used as rocket fuel. Therefore, a (1) change of state is occurring, e.g. gas to liquid and (2) the resulting liquid, not the gas, will be combusted as fuel.</p> <p>I do not presume to predict how EPA would make this determination, but since this appears to be the first facility in the history of the Clean Air Act to have this exact process (on site generation of liquid fuel for use on site), EPA should be given an opportunity to make this determination. As previously noted, neither EPA nor TCEQ were consulted by SpaceX and FAA's own admission. This is clearly unacceptable.</p>	<p>Jordan Cove PSD Determination, EPA Region 10, 9/28/2017</p> <p>40 CFR 52.21(b)(1)(ii)(g)</p>

Discipline	Sub Discipline	Finding	Citation
Air	Emission Calc	<p>Construction Emissions are not quantified, as required per FAA guidance.</p> <p>In the Draft PEA, the preparers state: "While the 2014 EIS does not directly address or include the elements of the current Proposed Action, the scale of the construction activities (in both square footage and duration) is comparable to the construction activities proposed in 2014. SpaceX determined that the construction elements of the Proposed Action would not cause or create a reasonably foreseeable emission increase over the construction elements of the Proposed Action as analyzed in the 2014 EIS."</p> <p>The expected PM (particulate matter) emissions from construction activities in the 2014 EIS were 18 tons in 2016 and 12 tons in 2017. The scope of this project is clearly larger than the initial 2014 proposed construction, as suggested elsewhere. As a frame of reference, the 2020 EIA released by FERC for the Annova LNG facility in Brownsville, TX, less than 10 miles from the SpaceX site was similar in size and scope to this proposed construction action. Annova total property was estimated at 550 acres (SpaceX - 700 acres). The facility footprints are similar (300 acres) as well and the operations similar in size and scope. Annova and FERC projected 293 tons of PM in the first year of construction, which is over 15x higher than the number implied in the PEA. (https://www.ferc.gov/sites/default/files/2020-05/FEIS-volume-1.pdf).</p> <p>The implication that these activities would be in any way similar to the minimal construction is absurd on its face and by SpaceX's own admission, they are still scoping specifics. It is unclear if this assumption is based on an engineering evaluation of dust generation or if these numbers were selected as a matter of convenience for SpaceX to claim minimal environmental impact from construction. SpaceX and the FAA must clarify and quantify these emissions as well as assumptions regarding CO and NOx emissions from construction equipment and vehicles.</p>	1050.1F Desk Reference Air Manual 1.1.3, 1.1.2
Air	Emission Calc	<p>Operating emissions from Non-road vehicles, ships, barges, tugboats and equipment is not calculated as required. The FAA Desk Reference Guide for order 1050.1F clearly requires all indirect emissions to be calculated, as they are required in order to accurately determine de minimus impacts. As an example, SpaceX operates several diesel fired cranes with power plants as large as 750 kW. Hourly emissions from such a unit are 3 lb/hr CO and 5 lb/hr NOx (EPA Tier 4 standards). Year round operation of just this large crane would lead to 25 tons of NOx and 13 tons CO. There are 3 or more cranes of sizes 750-300 kW, in addition to other non-highway support vehicles and equipment. An accurate accounting of PTE for these combined sources is critical for not only FAA order 1050.1F, but are explicitly required for significance screening and modeling for sources of emissions that are one of the "2B named" sources under PSD.</p> <p>As covered elsewhere, 250 mmbtu/hr fossil fuel fired steam power plants are a "Named" source, so not only are these sitewide emissions required for NEPA impact purposes, they are required by statute in 40 CFR 52.</p> <p>Additionally, SpaceX uses Tugboats, barges and has recently purchased two oil rigs to handle sea operations. TCEQ guidance clearly indicates that emissions from any such vessel or boat emission while at shore supporting plant operations must be accounted for in sitewide emissions inventories for permitting and PSD purposes.</p> <p>A full and complete accounting of these emissions needs to be completed.</p>	<p>1050.1F Desk Reference Air Manual 1.1.3</p> <p>40 CFR 52.21(b)(1)(ii)(x)</p> <p>TCEQ doc AFDG 5881 "Major New Source Review - Applicability Determination" https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fmr_app_determ.pdf</p>
Air	Off Site Impact	<p>Emissions from associated Oil Field operations are not included in the impact assessment. FAA 1050.1F requires all supporting and indirect emissions to be quantified as part of the NEPA process (PEA and EIA).</p> <p>SpaceX has not identified where they intend to source natural gas for the "pretreatment system" or 250 MW power plant. Such an operation would require roughly 50 mmscf/day of inlet gas. Per Texas railroad commission (TRRC) data, only 8.1 million MSCF (million standard cubic ft) of gas was produced from 2000-2020 in all of Cameron county. The proposed gas plant, if sized at 50 mmscf, would consume that much inlet gas (20 years worth) in 5 months.</p> <p>Not only would this activity require significant drilling and well production in an area of Texas that is not currently a significant producer of fossil fuels, but the activity would generate roughly 35,000 barrels of condensate (light oil) liquids at the various wellheads, assuming a historical Gas to Oil (GOR) ratio of 530 MSCF/bbl. Flaring emissions from this activity alone would be 250 tons of VOC per year, using formation and county API emission factors. This is in addition to the PM, CO and NOx emissions expected from wellhead flares.</p> <p>SpaceX needs to disclose the projected source of inlet gas and estimate the environmental impact such incremental oil and gas production would make, including Air emissions.</p>	<p>1050.1F Desk Reference Air Manual 1.1.3</p> <p>TRRC Production Database</p> <p>API emission factors: Texas (2016)</p>

Discipline	Sub Discipline	Finding	Citation
Water	Water Usage	<p>The water usage from the cooling tower for the power plant was not discussed or analyzed.</p> <p>Using DOE estimates of 200 gallons of water/MWh using a cooling tower, the plant would consume up to 438 million gallons per year (MGY). The PEA represented only 5.8 million gallons total annual water use, and stated that ground water consumption would increase by 660,000 GPY. This is false.</p> <p>438 MGY represents 3.8% of Brownsville's stated 20.8 MGD consumption.</p>	1050.1F Desk Reference Chapter 14.4.3, 14.1.3.1
Water	Water Usage	<p>Sourcing of the water for the cooling tower was not discussed.</p> <p>The SpaceX facility does not have a utility water connection to any municipal water providers. A cooling tower of ~2000 gpm flow rate would consume, via evaporation, of up to 900 gallons (7200 pounds) of water per hour. Because the PEA does not discuss this, sourcing this water would require either:</p> <ul style="list-style-type: none"> -A water pipeline to a utility -A large aquifer permit, or -Trucks to bring in water <p>Any of these activities would create clear and accurate assessment of the environmental impact. A pipeline or well water permit for obvious reasons. Water trucks typically hold less than 6000 gallons of water. The traffic considerations of 4 water trucks per hour throughout the year is a clear environmental impact that needs to be determined.</p>	1050.1F Desk Reference Chapter 14.4.3, 14.1.3.1
Water	SPCC	<p>The facility would be required to develop a comprehensive Spill Pollution Prevention and Countermeasures (SPCC) plan:</p> <p>The natural gas treatment plant alone would annually generate a minimum of 5.9 million gallons of slop oil or condensate heavies to go along with 1.2 million gallons of oil contaminated produced water. SPCC requirements kick in at 1,320 gallons of oil storage capacity. At a minimum, SpaceX would need at a minimum of one 300 bbl (12,600 gallon) produced water tanks and three (3) 400 bbl (16,800 gallon) slop oil tanks. This would require, under SPCC rules developing plans, signed off on by a PE, for adequate secondary containment, an analysis of worst case spill impacts, engineering, maintenance and inspection requirements.</p> <p>This is quite clearly a significant potential environmental impact, as the facility is located directly adjacent to several "Waters of the United States."</p>	1050.1F Desk Reference Chapter 14.4.3, 14.1.3.1 14.3.4
Water	SPCC	<p>SPCC containment location and specifications are not discussed- Because of the very sensitive nature of the ecosystem surrounding SpaceX's facility, a storage and loading operation of this size must be scoped in depth. The siting of the containment area itself is a critical task, and materials of construction (such as concrete vs earthen berms) for the containment and engineering considerations must be evaluated. There is no discussion of the hydrological considerations from this sort of activity, eg fate and transport throughout surface or groundwater of any spills or leaks is entirely absent from the PEA.</p>	1050.1F Desk Reference Chapter 14.4.3, 14.1.3.1 14.3.4
Water	SPCC	<p>Hurricane and Flooding considerations are not discussed- Coastal Texas is prone to seasonal flooding from rivers and connected watersheds. Additionally, hurricane impacts, while rare, can create storm surges and rain flooding events. SPCC plans require special considerations for such natural events and a 110% of capacity for oil storage rules of thumb would clearly be inadequate given the surrounding ecosystem.</p> <p>In addition to the oil storage, impacts from hurricanes and flooding for power generation and oil and gas processing operations require special consideration. Impacts from such weather events are not discussed in regarding operational activities in the PEA. This is clearly an oversight, and environmental impacts from these expected events must be discussed in detail.</p>	1050.1F Desk Reference Chapter 14.4.3, 14.1.3.1 14.3.4
Water	SPCC	<p>Truck Unloading operations for wastewater and hydrocarbon storage is not discussed - The generation of 7 million gallons annually of oil slop and produced water (as discussed in item W.3) would require a busy tanker truck operation. In addition to these other co-product streams, over 100 million pounds of year would be expected to be generated of NGLs and Y-grade hydrocarbons. Because the process description in the PEA is essentially undocumented, it is unclear how many of these NGLs and Y-grades would be in liquid or gaseous phases.</p> <p>As discussed in items A.12, A.13 and A.14, the facility has no access to a pipeline to remove these co-product and waste streams. So they would be required to be removed from the facility via tanker truck. The loading operations would entail an estimated 2000 (at minimum) truck loads out of the facility annually, assuming each tanker is at DOT weight limit of 80,000 pounds. This operation is not discussed and neither is the piping, equipment and associated unloading operations required to complete this task. These activities would be subject to SPCC requirements as well. A thorough analysis of this activity is clearly required per FAA's own NEPA criteria.</p>	1050.1F Desk Reference Chapter 14.4.3, 14.1.3.1 14.3.4

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Water	Pollutants	Cooling Tower Water Treatment additives are not discussed. Water towers require the use of sanitizers, oxidizers, softening agents and pH adjusters (acids/bases) to maintain water within operational specifications. These agents, which include salts, hazardous oxidizers, strong acids and antimicrobial agents must be stored on site and continually added to the cooling tower outlet. These agents clearly provide a risk to surrounding water quality and ecosystems. No discussion of the storage or handling of such water treatment chemicals, nor the equipment to be used to add them to process water streams is discussed. This is clearly in scope of NEPA required review.	1050.1F Desk Reference Chapter 14.2.4 TPDES General Permit No. TXR050000
Water	Discharges	Management of process heat from superheated water for power generation is not discussed. - Process heat via the steam exiting the power plant is a potential pollutant under the Clean Water Act. Presumably this would be managed primarily using the cooling tower, however the PEA indicates a small amount of process steam would be used to evaporate saltwater brine extracted from water wells. Management of this heat stream is not discussed in detail and the PEA must discuss how this process won't be used to treat groundwater injection wells as a de facto heat sink, which would be a clear violation of the Safe Drinking Water and/or Clean Water acts.	1050.1F Desk Reference Chapter 14.2.4 TPDES General Permit No. TXR050000
Water	Permitting	The facility would be subject to NPDES permitting, which is not adequately disclosed in the PEA. At a minimum, the facility would be subject to a Multi Sector General Stormwater Permit (MSGP) under TCEQ and Clean Water Act rules (permit TXR050000). There is minimal to no discussion of which standards under this permit the facility would be subject to, including which pollutants would require monitoring and which additional discharge criteria would apply to such an operation.	1050.1F Desk Reference Chapter 14.2.4 TPDES General Permit No. TXR050000
Water	Permitting	Stormwater and other outfall locations are not Disclosed- Because of the size and scope of the facility as well as the proximity to sensitive ecosystems, an in-depth review of the projected outfall locations, expected annual flow rates and an analysis of the hydrology by specialists must be discussed. These facts would be required to file for a TCEQ Multi Sector General Stormwater Permit (MSGP), and are clearly within the scope of a NEPA compliant environmental review.	1050.1F Desk Reference Chapter 14.2.4 TPDES General Permit No. TXR050000
Hazardous Materials	Storage	There is no disclosure of required ammonia storage and handling operations. The power plant would require the addition of ammonia via a slip into the emissions stack. 30 TAC 117 and BACT for natural gas turbines of this size requires the usage of SCR as an emissions control, which involves the use of liquid or aqueous ammonia. The storage, unloading and handling of this material is not discussed once in the PEA. 19% ammonia (which is the typical concentration used for this activity) is classified as a Category 4 GHS hazard for inhalation and skin exposure. In addition, the ecological impacts indicate the LD-50 of 19% aqua ammonia for a model fish species (<i>Lepomis macrochirus</i>) to be as low as 0.26 mg/L. Thousands of pounds of this material must be stored on site for NOx control and there is zero discussion on the potential impacts of such operation.	30 TAC 117 TCEQ BACT - NOx for large stationary turbines
Hazardous Materials	Dispersion	Ammonia waste out of the power plant stack is not discussed. While Ammonia (NH3) is not a criteria pollutant under the Clean Air Act, TCEQ and emission factors from the RACT/BACT/LAER clearinghouse indicate that a 250 MW gas power plant would emit well over 100 tons per year of ammonia into the air. Because this is not a volatile hydrocarbon and instead is a water soluble compound, ammonia in precipitated droplets should be expected to be dispersed to ground in close proximity to the facility. Design criteria for the turbine emissions stack must consider the ecological impacts of such an activity. Ammonia does get metabolized by microbial activity and as such is not a bioaccumulation concern, but acute exposures to low concentrations of ammonia can cause harm to fish and avian species.	FAA Order 1050.1F 5-2(b)
Hazardous Materials	Radioactivity	There is no discussion of Naturally Occurring Radioactive Materials (NORM) that are generated by E&P and midstream processing operations. The quantity and concentration of NORM present in oil and gas operations is very formation specific, however it has been highlighted by TCEQ as an item of concern. Because of the low oil and gas production activity in Cameron county, it is unclear how much NORM would be expected to be generated by the E&P or gas processing operations associated with this project. At a minimum, SpaceX and FAA must evaluate this activity and provide information regarding the expected impacts as NORM is radioactive and clearly of environmental concern.	30 TAC 386.1
Hazardous Materials	Radioactivity	Regulatory Standards for NORM handling and disposal are not discussed- As mentioned in item H.3, Naturally Occurring Radioactive Materials (NORM) generation should be anticipated as a consequence of extracting and processing natural gas and associated liquids. No discussions of which co-product and waste stream may contain radioactive material is discussed. Items that are likely to contain NORM include NGL fractions, Oil Slop, Produced water, Oil condensate as well as Deethanizer column scaling and tank bottoms waste for materials potentially containing NORM. Handling of this material is subject to State and Federal standards and no indication is given for how such materials are to be categorized, managed and disposed of.	30 TAC 386.1
Hazardous Materials	RCRA	Tank bottom and process vessel sludge would be a Hazardous waste under RCRA; these items are not discussed - Gas Plants and associated equipment, especially those that handle and store liquid fractions periodically generate sludge, scaling and other solids wastes that are subject to RCRA management and disposal requirements. A discussion of the quantities of, management of, and equipment required for handling these wastes is clearly in scope per NEPA generally, as well as FAA requirements specifically. No such discussion on midstream related waste streams is discussed on the PEA and is a clear deficiency.	40 CFR 261.3

Discipline	Sub Discipline	Finding	Citation
Hazardous Materials	Storage	<p>There is no disclosure of required methanol storage and handling operations. Cryogenic gas plants, such as the one described in the PEA require the process usage and consumption of methanol. Methanol is a GHS/HMIS Class 3 Hazard for flammability, and a Class 3 Hazard for acute toxicity. The 96 hr LC50 for fish species <i>Oncorhynchus mykiss</i> is 18-20 ml/L and is highly mobile in soil in its liquid form.</p> <p>Methanol is additionally a U-listed hazardous waste under RCRA (U154). Discussion of the usage, storage, handling and risk mitigation of methanol and methanol wastes is not discussed in the PEA. These impacts are clearly relevant to environmental impact analysis under NEPA.</p>	40 CFR 261.3
Hazardous Materials	RCRA	<p>Hazardous waste generation, storage, disposal and handling are not discussed. The facility as described would be at minimum a periodic Large Quantity Generator (LQG) of Hazardous wastes, especially following gas plant blowarounds. LQGs are subject to increased inspection, storage and recordkeeping requirements under RCRA. The location of Hazardous waste storage is not discussed. Nor is a description of the methods of containment discussed. Additionally, the expected RCRA waste streams from the facility as described need to be characterized and expected volumes must be estimated. This is clearly a relevant environmental impact that needs to be included per NEPA and FAA's own guidance.</p>	40 CFR 261.3
Industrial Hygiene	Sound	<p>Environmental sound impacts related to power plant operations are not discussed- A review of other sound surveys for similarly sized combined cycle turbine power plants indicates that sound levels of 100+ dB can be expected for normal steady state operations. Blowdowns and steam releases from the power plant would be expected periodically as well, and a literature review indicates that this activity can generate 150+ dB events that last 30-60 minutes. This is a clear deficiency, as the PEA goes into exhaustive detail about periodic rocket launches but fails to discuss noise impacts from power generation activities. FAA's own guidance on sound impacts is clear that such operational sounds must be analyzed.</p>	1050.1F Desk Reference Chapter 11.2
Industrial Hygiene	Sound	<p>Environmental sound impacts related to gas plant and LNG operations are not discussed- Similarly to item 5.1, natural gas processing plants generate steady state and periodic environmental noise. This is from compressor operation as well as periodic blowdown events to the process flare. It is hard to know exactly what noise levels can be expected without knowing more details about flare sizing, detailed process streams or an inventory of compression equipment horsepower and class (e.g. number of compression stages, electric or natural gas compressors, etc)</p> <p>This is a clear deficiency as outlined in item 5.1. These impacts must be characterized, modeled and revealed to the public.</p>	1050.1F Desk Reference Chapter 11.2
Process Safety	RMP	<p>The Facility would be subject to the PSM/RMP process safety requirements. A 200 ft tall Deethanizer column doing cryogenic fractionation of gas would contain well in excess of 10,000 pounds of flammable gases in the covered process and would likely go above the RQ for several RMP subject chemicals. As such, the process safety, siting requirements, to go along with things like risk assessment, local emergency response and worst case scenario modeling for flaring events and potential explosions and catastrophic release, must be analyzed.</p>	40 CFR 68.10(a)
Air	Emission Calc	<p>Construction Emissions completely inconsistent with other recent FAA Actions.</p> <p>Camden Spaceport in Georgia, a 2021 EIS Action for a small footprint facility, indicated annual construction emissions of:</p> <p>38.17 Tons CO 89.85 Tons NOx 314.73 Tons PM10</p> <p>By way of comparison, this PEA implies that the 2014 EIS for construction Emissions will be adequate for this project; these emissions are:</p> <p>11.47 Tons CO 8.73 Tons NOx 18.07 Tons PM10</p> <p>Given the complexity of the project and installation of several very large industrial processes, these assumptions are absolutely not a reflection of reality. The PEA alone calls for backfilling 17 acres of wetland. A full and comprehensive evaluation of all construction emissions must be completed.</p>	1050.1F Desk Reference Air Manual 1.1.3, 1.3.2

Discipline	Sub Discipline	Finding	Citation
General	General	<p>There Are many missing, but required items in this document, including:</p> <ul style="list-style-type: none"> -One or more process flares for Gas handling and processing -Liquid Ammonia storage and handling -An amine treatment process (for CO2 removal) -Acid Gas handling (for CO2 and H2S removal) -Glycol Dehydration process (for water removal) -Truck loading racks (for LNG, NGLs, Wastewater, Slop oil) -Vehicle refueling operations -Power plant pre-heating boiler -Cooling tower fans and blowers -Multiple electrical transformers and substations -Overhead and underground power lines -On site pipelines for oil, gas and oxygen handling 	1050.1f Desk Reference Air Manual 1.1.3, 1.3.2

From: Vicky Guerra <[REDACTED]>
Sent: Monday, November 1, 2021 6:23 PM
To: SpaceXBocaChica
Subject: Friends of the Wildlife Corridor Comments to SpaceX PEA
Attachments: FINAL LETTER WT EXHIBITS USE THIS ONE.pdf

Attached please find comments to SpaceX PEA submitted on behalf of the Friends of the Wildlife Corridor.

Sincerely,

Victoria Guerra



Friends of the Wildlife Corridor
3325 Green Jay Road
Alamo, TX 78516

VM [REDACTED]

Email: [REDACTED]

November 1, 2021

Ms. Stacey Zee
SpaceX PEA, c/o ICF
9300 Lee Highway
Fairfax, VA 22031
Transmitted via electronic mail to [REDACTED]

RE: Comments on SPACEX Draft Programmatic Environmental Assessment for Starship/Super Heavy Program

Dear Ms. Zee,

These written comments to the draft Programmatic Environmental Assessment for the SpaceX Starship / Super Heavy Launch Vehicle Program dated September 2021 are submitted by the Friends of the Wildlife Corridor, a non-profit 501(c)3 organization whose mission is to support and further the conservation mission of Santa Ana National Wildlife Refuge and Lower Rio Grande Valley National Wildlife Refuge (the Refuge). The latter Refuge's largest single tract (21,000 acres) is the Boca Chica Unit which is immediately adjacent to SpaceX's launch site. Thus our organization is extremely concerned about impacts to that area and its irretrievable and irreversible commitment of natural resources.

FAA's Chief of Staff Brian Rushforth stated in an email dated June 29 [2020],
[f]or what it's worth, we do plan on conducting a new EIS See attached Exhibit 1.

Letter dated July 17, 2020, from Daniel Murray, Manager, Safety Authorization Division, Office of Commercial Space Transportation, Federal Aviation Administration

To operate Starship/Super Heavy at the Texas Launch Site, SpaceX must obtain an experimental permit or launch license from the FAA Office of Commercial Space Transportation. Issuing experimental permits and launch licenses is a major federal action under the National Environmental Policy Act (NEPA) and requires a new environmental review beyond the 2014 EIS. See attached Exhibit 2.

We anticipate FAA's fulfillment of this representation.

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Introduction: A New EIS Must Be Prepared.

Agencies, including the Federal Aviation Administration ("FAA"), must invoke the National Environmental Policy Act ("NEPA") during the planning stages of federal agency actions. NEPA is intended to ensure that "unquantified environmental amenities and values may be given appropriate consideration in [federal] decision-making." Under this landmark environmental

statute, a federal agency must take a "hard look" at the environmental impacts of its proposed action and "provide for broad dissemination of relevant environmental information." The statute is therefore crucial because, when properly executed, it allows federal agencies and members of the public to weigh the environmental consequences of proposed federal actions before agencies reach a final decision regarding the best path forward.

We have serious concerns with the Draft PEA that can only be resolved by the FAA developing an Environmental Impact Statement ("EIS"). The project requires an EIS for the reasons listed below.

The 2014 EIS is Obsolete.

In 2014, an EIS was conducted, which since then, became deficient, invalid, and misleading. The construction, testing and firing of the massive Starship and Heavy Booster will have much greater impacts, as opposed to the Falcon 9 and Falcon Heavy, for which the 2014 EIS was written. In fact SpaceX never tested or launched the Falcon 9 or The Starship and Super Heavy booster together will be larger than the 2014-EIS-approved Falcon 9 and Falcon Heavy by an order of magnitude, standing 50 stories tall, with 5.2 thousand metric tons of explosive propellant, nearly 50% more than NASA's Saturn V rocket used to launch moon-landing missions. Space X has turned its site and activities into something unrecognizable from the 2014 EIS and ROD--it is now a large and expanding industrial and launch complex to manufacture, fabricate, assemble and test the Starship and Super Heavy booster rocket. Round-the-clock experimental testing has already significantly increased SpaceX's footprint, and it plans to expand further, by enlarging its acreage, its number of buildings, its number of employees and contractors, its hours of beach and refuge closure, and its number of test firings and pressure tests. Not included in the 2014 EIS are the analysis of environmental impacts of the proposed desalination plant with injection well(s), an LNG plant with associated gas wells and pipelines, and a 250 megawatt gas-fired power plant.

In the short time since SpaceX has conducted operations at the Boca Chica site, there have been multiple accidental explosions at and above the launchpad that disrupted people's lives, scattered rocket debris and caused wildfires that have consumed more than 100 acres of native habitat on national wildlife refuge land. See attached Exhibit 3, which is a list of links to videos of SpaceX explosions. A new EIS needs to also include analysis for the direct and indirect impacts of SpaceX's increased noise, light, shock waves, sonic booms, anomaly events, fires, and explosions, to neighboring towns of South Padre Island, Port Isabel, and Long Island Village as well as to Refuge wildlife, wetlands, vegetation, and endangered and threatened species and their habitat. The Ocelot conservation measures in the ROD were not complied with by SpaceX, and neither

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were the conservation of many other endangered and threatened species in the area, as well as their habitats.

It is necessary to study by way of a new EIS, the direct and indirect impact of SpaceX's frequent fires and explosions upon the permitted but not yet built Texas LNG, Rio Grande LNG, the proposed Jupiter MLP crude upgrader facility, off-shore VLCC loading terminals on the Brownsville Ship Channel, and the storage of much more highly volatile rocket propellant that is also extremely explosive.

We note that the latest license for the Starship tests requires \$198 million in third party liability, and federal indemnification for losses beyond that. This is higher than is required for any Falcon 9 or Falcon Heavy launch from Vandenberg AFB or Kennedy/Cape Canaveral, suggesting a far larger risk zone than was included in the FEIS or ROD. And this probably doesn't include liability for the potential \$20 billion LNG terminals and LNG tankers that will likely be in the expanded risk zone. This list is by no means comprehensive.

The FAA has done an inadequate job in ensuring SpaceX compliance with many of the conditions in its 2014 (ROD). One example is the closure of Highway 4 and Boca Chica beach, which was to be limited to no more than 180 hours per year. In just the past 3 months of this year closures have exceeded 225 hours, often with confusing and inadequate prior notifications and last-minute changes and revocations. SpaceX now wants to nearly triple its beach closure time. To increasingly deny access to eight miles of public beach, state parkland and national wildlife refuge is a significant human impact and needs to be addressed in a new EIS. The road and beach closures, which have further enabled SpaceX's dangerous and careless expansions also constitutes constructive use of state and federal public land, as spelled out repeatedly by USFWS and as addressed later in this letter.

By failing to limit SpaceX's activities to the confines of the 2014 EIS, and by failing to conduct a new EIS, FAA has violated NEPA's prohibition of "irretrievable and irreversible commitment of resources" by allowing a huge build-out of infrastructure, including the 500 foot integration tower, without FAA authorization.

The significant impacts generally described above, and detailed below, illustrate how critical it is for FAA to initiate a new EIS process, and to exercise meaningful, legally required oversight. Otherwise, FAA is not doing its job--to protect the public.

Significant Impact

Under NEPA, an agency must prepare a detailed statement, referred to as an EIS, if it plans to undergo a "major Federal action[] significantly affecting the quality of the human environment." NEPA regulations include guidance for determining the significance of a projects' impacts, requiring agencies to consider "the potentially affected environment and degree of the effects of the action." The potentially affected environment includes "the affected area (national, regional, or local) and its resources, such as listed species and designated critical habitat under the

Endangered Species Act.” When analyzing the degree of an action’s effect, agencies must consider, among other factors, adverse effects and effects that would violate other laws. Among other harms, SpaceX’s activities are likely to adversely affect the surrounding area, at least ten listed species, designated critical habitat, and the neighboring community. Moreover, the project’s effects will result in multiple legal violations. Thus, the SpaceX project has significant environmental impacts, and the FAA must prepare an EIS before moving forward with any approvals.

Impacts to the Surrounding Area

The SpaceX launch site is adjacent to the Lower Rio Grande Valley National Wildlife Refuge ("the Refuge"), Boca Chica State Park, Boca Chica Beach, the South Bay Coastal Preserve, Brazos Island State Park, Isla Blanca Park, Las Palomas Wildlife Management Area, and Palmito Ranch Battlefield National Historic Landmark. Nearby are tidal flats that host many wading bird species, beaches used by nesting sea turtles and by large numbers of people from the nearby communities for recreation, relaxation and enjoyment. This is an ecologically diverse area with a remarkable community of wildlife unlike any other place in the United States. It is located in a hemispheric meeting place of tropical and subtropical species with a mix of terrestrial, coastal, and marine environments representing one of the greatest diversity of plants and animals found in one place in North America. This area is a unique flyway for western hemisphere avian species, and more than 400 different bird species have been identified in the area. The ecological sensitivity and vulnerability of this area cannot be overstated, and activities in this area must be carefully managed to reduce, avoid, and mitigate impact to resident and migrant wildlife. SpaceX’s operations have seriously harmed nearby areas and will almost certainly continue to do so. Impacts from testing, launching, and failures include, but are not limited to: explosions, sonic booms, bright lights, debris fields, debris left in the ocean, fire, smoke, and release of hazardous fuels and vapors. In the last two years, SpaceX operations have caused repeated explosions, including—among other dates—on November 20, 2019, May 29, 2020, June 23, 2020, December 9, 2020, and March 30, 2021. See attached Exhibit 3. When explosions occur, the debris field can span for miles, which has happened as recently as this year. Exploded rocket debris, along with its removal operations involving heavy machinery such as high-capacity tow trucks and construction dump trucks damage sensitive habitat in the area.

Moreover, these explosions can and indeed have caused wildfires, such as two 2019 incidents that resulted in wildfires of 130-acres and 10-acres respectively which burned through coastal prairie and dune habitats on [national wildlife] refuge managed land. SpaceX’s proposed activities, therefore, threaten to disturb, burn, and damage ecologically critical state, federal and privately-owned lands. These are significant, adverse impacts that the FAA cannot overlook. Instead, it must address these in an EIS.

Impacts to Listed Species and Critical Habitat

The proposed expansion of SpaceX activities at this site would adversely affect at least ten federally listed species and designated critical habitat for one or two listed species. In its Biological Assessment ("BA"), the FAA admitted that the project is likely to adversely affect three listed

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species of birds in the area: the threatened red knot (*Calidris canutus rufa*), the threatened piping plover (*Charadrius melodus*), and the endangered northern aplomado falcon (*Falco femoralis*).

According to the BA, the area contains potential foraging habitat for all three species, and northern aplomado falcons may also nest in the vicinity. Noise associated with the project, such as from intensified traffic, construction, engine testing, and sonic booms, is likely to disturb or displace these species and to decrease foraging efficiency. All three species of birds, along with any nests or eggs, could also be killed if they appear within the heat plume created by engine ignition during testing and launches. The heat plume generated by launches would be 212 degrees Fahrenheit within a .3 mile radius of the launch area. Protected Refuge land begins within 200 feet of the launch area. No living animal above ground can survive 212 degrees. Moreover, according to the FAA, northern aplomado falcons could be attracted to nest and perch on proposed infrastructure, such as towers. If they flush off their nests during disturbances, it would expose their eggs or small young to inclement weather and predators, destroying the eggs and killing the young.

Last, the area contains piping plover critical habitat and proposed red knot critical habitat, both of which are also likely to be adversely affected by the project. We note that population and survival estimates indicate Piping Plovers have declined significantly in the past three years. Contrary to what is stated in the BA, birds cannot just “go somewhere else.” There are no plans stated in the PEA to adequately mitigate any of these impacts.

The BA states that the project is likely to adversely affect endangered Gulf Coast jaguarundis (*Herpailurus yagouaroundi cacomitli*) and ocelots (*Leopardus pardalis*). Texas is home to the only remaining breeding population of ocelots in the United States. This is a very rare species, with only 15 known individuals residing in the area of Laguna Atascosa National Wildlife Refuge, near the SpaceX site. The last verified jaguarundi near Boca Chica was a mortality that occurred on State Hwy 4 (also known as Boca Chica Boulevard)—the road on which SpaceX is located and by which all employees and visitors must travel. The area near the launch site is part of a broader travel corridor connecting suitable habitat for both members of the species, but the proposal will be accompanied by an expansion in the amount of traffic in the area, increasing the likelihood of a deadly vehicle collision with these rare species. The project could cause Gulf Coast jaguarundis and ocelots to avoid lit areas and seek alternate travel corridors through their native habitat in the lomas of the Refuge, causing them to expend more energy and increasing the possibility of a vehicle collision mortality on SH4. Finally, the rocket heat plume may injure or kill individual cats exposed to the plume. The FAA has not explained how any of these impacts to Gulf Coast jaguarundis and ocelots would be mitigated. Lastly, in its BA the FAA asserted the project is likely to adversely affect endangered Kemp's ridley sea turtles (*Lepidochelys kempii*), endangered hawksbill sea turtles (*Eretmochelys imbricata*), endangered leatherback sea turtles (*Dermochelys coriacea*), threatened loggerhead sea turtles (*Caretta caretta*), and threatened green sea turtles (*Chelonia mydas*). Noise and vibrations generated by rocket launches could cause turtles to abandon their nesting attempts by frightening them. Vibrations from rocket launches could also damage incubating eggs not collected by Sea Turtle Inc. either because they were overlooked during patrol or they were laid during times when public access is prohibited. Finally, lighting could potentially be visible from the beach and disorient emerging hatchlings and sea turtles, and hatchlings present near the site at the time of engine ignition could be injured or killed by the

rocket heat plume. There are no plans to adequately mitigate any of these impacts. Monitoring and “best practices” is not mitigation. Thus, because this project is likely to adversely affect at least ten listed species and designated critical habitat for one or two listed species, its impacts are significant and must be analyzed and mitigated in an EIS.

Impacts to the Neighboring Community and Environmental Justice Concerns

The FAA must also prepare an EIS because the project will likely have significant impacts on the neighboring community, and many of these impacts will be adverse and unduly burdensome. During the NEPA process, “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...” According to the draft PEA, “[i]n 2018, minority representation in Cameron County was 89.8 percent and Willacy County was 88.4 percent” and the median household income for Cameron and Willacy counties was 50 percent of that reported for Texas for the years 2014–2018.

One negative impact to environmental justice communities includes the encroachment and frequent closures of the public beach. There is immense value of a free public resource, like Boca Chica Beach, especially to communities who need beneficial open space in which to enjoy recreation and other activities. Brownsville residents have enjoyed the cultural, environmental, and recreational values of Boca Chica Beach for generations, and we have major concerns for its degradation and closure to the public. Boca Chica Beach is one of the few, undeveloped, free public beaches in the area. Many residents of Brownsville feel a close connection to Boca Chica as being their beach, because access is free of cost, it is easily accessible, and it is closer than the beaches on South Padre Island. The use of natural and open spaces, especially the beach, help to improve physical and mental health and well-being for all. The burden of reduced public access to Boca Chica beach falls disproportionately on the lower income and Hispanic population of Brownsville and surrounding communities. No mitigation of public beach access and environmental justice impacts are offered.

Furthermore, 13 of 18 local historic resources including national battlefields and local cemeteries have been identified for potential adverse effects by the FAA. These sites hold significant local cultural significance and significance for tourism in the area. The proposed mitigation of these impacts is consultation, which assumes that consultation will result in sufficient mitigation measures. Again, no appropriate minimization of and mitigation for the negative effects have been adequately identified. Environmental harms from this project would disproportionately impact the residents of Cameron County and Brownsville, many of whom are already overburdened by many other sources of pollution. Neighboring communities are already facing structural issues, such as broken windows and disrupted foundations, resulting from the impacts of SpaceX's activities that are already occurring. The proposal will now increase the amount of activity, which would likely be accompanied by increased structural issues, as well as increased air quality concerns, noise impacts, and other environmental degradation described herein.

Threatened Legal Violations

Open Beaches Constitutional and Statutory Guarantees: The FAA must also prepare an EIS for this project because its effects may violate multiple statutes, including laws that serve to guarantee beach access, govern the National Wildlife Refuge System, and protect other public lands. First, this project greatly affects the ability of the public to access and enjoy the Texas coastline adjacent to the project site, including Boca Chica State Park and Beach, a popular public beach on an 8-mile stretch of sand near the city of Brownsville. This area is enjoyed by coastal enthusiasts, bird watchers, conservationists, surfers, as well as those who wish to enjoy the beautiful dunes and native plants near the seashore, a pleasant beach walk, search for seashells, and many more coastal activities. The importance of environmentally responsible beach access, especially to this special place on the South Texas Coast, is guaranteed by local, state and federal law. The Cameron County Beach Access and Dune Protection Plan guarantees beach access in coastal Cameron County and lays out a local plan for accessibility. This includes access to the beautiful coastal prairie and waters of the Gulf of Mexico in Boca Chica Beach. The premier state law on beach access, the Texas Open Beaches Act, which was passed in 1959 making Texas one of the first states in the nation to have strong beach access protections memorialized in law, states: "It is declared and affirmed to be the public policy of this state that the public, individually and collectively, shall have the free and unrestricted right of ingress and egress to and from the state-owned beaches bordering on the seaward shore of the Gulf of Mexico..." The 2009 Texas Proposition 9 ("Prop 9"), a legislatively-referred constitutional amendment approved by the Texas electorate, elevated the level of protection of Texas's beaches by making Texas's Open Beaches Act a part of Texas's Constitution. Federally, the Coastal Zone Management Act was promulgated into law in 1972 to guide the state implementation of coastal zone management programs. The U.S. National Oceanic and Atmospheric Administration, which oversees the state implementation process, requires that coastal management programs include a planning process for protection of and access to state beaches. Here, the duty to protect public access is mandated by federal law, incorporated into state and local laws as a priority for the use of coastal resources and activity in the coastal zone.

Boca Chica Beach has been closed or inaccessible to the public in 2021 for over 500 hours, a conservative estimate. According to tracking of Cameron County notices by the Coastal Bend Bays and Estuaries Program, Boca Chica Beach and/or State Highway 4 had been closed for 473 hours from January 2021 to August 2021. These closures occurred on over 100 separate days and created an inaccessible Boca Chica Beach in 2021. These closures have happened in past years, as well. Since 2019, county officials have repeatedly closed-off the beach and State Highway 4 (the only road that leads to the beach) for various SpaceX launches, testing, and debris clean-up. According to local conservation group, SaveRGV, the Boca Chica Beach has been closed for SpaceX launches for over 450 hours per year since 2019. The FAA has been indifferent to these abuses of beach closure limitations. It follows that the public has lost confidence that the closure hour limits in the PEA will be adhered to and enforced.

National Wildlife Refuge System Improvement Act of 1977: The project's effects will also result in violations of the National Wildlife Refuge System Improvement Act of 1997 ("Refuge Improvement Act"). For members of the public to use a refuge, the Service must engage in a compatibility determination to ensure that activities are compatible with a refuge's purposes. However, it is our understanding that the U.S. Fish and Wildlife Service has no plans to engage in a compatibility determination to authorize SpaceX's use of the Lower Rio Grande Valley National Wildlife Refuge as a debris field and for debris retrieval. However, even if the Service does engage in this analysis, there is no possibility that these activities could ever be deemed compatible with the purposes of the refuge.

Economic Activities: Moreover, whenever a refuge is used for economic purposes, the Service must issue a special use permit for economic activities. Similarly, we are not aware of any plans to authorize all of SpaceX's current and proposed activities in a special use permit. Moreover, the Refuge Improvement Act requires the Service to administer the System to "ensure that the biological integrity, diversity, and environmental health of the System are maintained for the benefit of present and future generations of Americans." However, largely due to the forced refuge closures, the Service has explicitly stated that "[d]ue to operations by SpaceX, the Fish and Wildlife Service's ability to maintain the biological integrity, diversity and environmental health of Refuge resources... has been significantly diminished at the Boca Chica tract." Finally, the Refuge Improvement Act also requires the Service to "provide for the conservation of fish, wildlife, and plants, and their habitats within the System," and "ensure that the mission of the System... and the purposes of each refuge are carried out." The project will impede the Service's ability to do so.

4(f) Review: The SpaceX proposal would cause significant unmitigated environmental damage to nearby lands, would result in violations of the use restrictions delineated in Section 4(f) of the U.S. Department of Transportation Act of 1966. Section 4(f) provides that the Secretary of Transportation may approve a transportation program or project requiring the use of publicly owned land of a public park, recreation area, or wildlife or waterfowl refuge, only if there is no feasible and prudent alternative to the using that land and the program or project includes all possible planning to minimize harm resulting from the use.

The Lower Rio Grande Valley National Wildlife Refuge (Refuge) and the overall National Wildlife Refuge System maintains the biological integrity, diversity, and environmental health of its natural resources for the benefit of present and future generations of Americans. The Refuge was established in 1979 to protect and restore the unique biodiversity of the Lower Rio Grande Valley of Texas, ensuring the conservation of South Texas fish, wildlife and plant populations and their habitat, which is necessary for the scientific study of wildlife, conservation biology and ecosystem management. The Refuge and Boca Chica public beach also provide recreational uses including hunting, fishing, wildlife observation, photography, environmental education, and interpretation. The area also holds historical significance on a National, State and local level. For these reasons, Boca Chica, the Refuge, and its surrounding areas are 4(f) protected properties.

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Constructive use occurs when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose or when the project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired or substantially diminished. Although SpaceX seeks an exemption to 4(f) requirements by claiming that its "use" is temporary and intermittent, according to the federal judiciary "any park use, regardless of its degree, invokes § 4(f)." Additionally, a "use" of Section 4(f) property can include a temporary adverse occupancy of land. SpaceX would engage in temporary adverse occupancy of neighboring Section 4(f) lands because public access to Boca Chica State Park, Brazos Island State Park, the South Bay Coastal Preserve, and major portions of the National Wildlife Refuge, would be closed during launches. Indeed, even the FWS has highlighted this concern, asserting to the FAA that proposed SpaceX activities will in fact result in a "constructive use" of the Boca Chica tract of the Refuge. FWC submits that "constructive use" exists in the following:

a. 500 Hours of Closure (PEA 2.1.3.5, pgs. 19-23; 2.1.3.5.3, pgs. 23–26)

Beach and SH4 closures constitute "constructive use" because (1) the temporary occupancy of land is adverse in terms of the statute's preservation purpose; and (2) the project's proximity impacts are so severe that the protected activities, features, or attributes of the Refuge and surrounding protected areas are substantially impaired or substantially diminished.

Boca Chica is a public beach, and the public has unfettered access to it under Art. 1, Sec. 33 of the Texas Constitution and Sec. 61.011 Tex. Nat. Res. Code, the Open Beaches Act. Closures from SpaceX activities violate these provisions.

Prior to SpaceX-associated closures, an estimated 110,000 visitors accessed the Refuge annually. Sixty three percent of visitors to the Boca Chica tract were going to surf fish or beachcomb. The majority of visitors are from Brownsville, which has one of the country's highest poverty rates with 26 percent of the population below the federal poverty line and 23 percent of families earning less than \$25,000. SpaceX activities already exceed the 300 road closure hours of FAA-permitted operations. Closures of the beach affect a population with limited income and few options to recreate. Boca Chica is the only beach that is free to the nearby and largely Hispanic communities. Therefore, additional closures cause substantial impairment and substantially diminish protected activities, features, or attributes of the Refuge and surrounding protected areas because the public beach and all the associated activities are no longer available on an unfettered basis.

b. 300 Hours of Additional Closure to Address Anomalies (PEA pgs. 9, 85–86, 122; Sec. 2.1.3.1, pgs. 15–16).

300 hours of additional closures to address anomalies (accidents or explosions on or above the launchpad) constitute "constructive use" because (1) the temporary occupancy of land is adverse in terms of the statute's preservation purpose; and (2) the project's proximity impacts are so severe that the protected activities, features, or attributes of the Refuge and surrounding protected areas are substantially impaired or substantially diminished.

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In PEA Section 2.1.3.1: Tank Tests, SpaceX is proposing to conduct approximately 10 tank tests a month, estimating a 10 percent rate of anomalies and acknowledges that anomalies would result in explosions and the spread of debris. Anomaly means an unexpected event. The PEA's description is not an "unexpected event," but rather is clearly anticipated. If and when 5,200 tons of liquid oxygen and liquified methane explode (the fuel load of Starship Super Heavy), that is not an "anomaly." It is an environmental catastrophe.

300 hours is an underestimation of the time for road and beach closure for these purported anomalies if comparison is made to the amount of time that it took to clear the debris from the explosion of three Raptor engines. Super Heavy will have as many as 37 Raptor engines and 3 times the amount of volatile fuel.

Since one explosion is expected a month, the noise, light, and debris from the explosion will not be contained only within the SpaceX property line. The PEA is devoid of comments by USFWS or other governmental entities who have care and control of the protected areas.

An EIS is necessary to determine whether the anomalies are adverse to the statute's preservation purpose; and whether these anomalies are so severe that the protected activities, features, or attributes of the Refuge and surrounding protected areas are substantially impaired or substantially diminished. We think they will be.

An EIS would reveal the same matters on closure discussed in part 2 above, which are incorporated herein for all intents and purposes. The extended closures occurring for hazardous explosion and debris-related events, or delays are deterrents for public access to the Boca Chica tract and its beaches for the duration of all published closure timeframes. In 2019, the FWS conservatively quantified more than 1,000 closure hours and noted a significant disparity in accounting between SpaceX's reported total of 158 hours and the conservative total being tracked by FWS staff. Frequent closures caused by SpaceX activities are already substantially impairing both the Refuge's ability to adequately manage the Refuge and the public's enjoyment of the Boca Chica Beach area for wildlife-dependent recreation. The protected activities of the Refuge that are being substantially impaired include fishing, wildlife observation, photography, environmental education, and interpretation. When closures occur, all of these wildlife-dependent recreational uses are substantially impaired because they are not available to the public.

Additional features and attributes of the Refuge that have already been substantially impaired include the sensitive tidal flats, salt prairies, wildlife, and sensitive bird nesting and wintering sites. Based on bird monitoring reports, Snowy and Wilson's plovers have not been documented nesting in close proximity to the SpaceX launching site as they had in years prior to the project. Finally, none of the damage to the sensitive tidal flats from debris pickup and motorized equipment and human access has been adequately addressed. These features and attributes will likely continue to be substantially impaired because explosions, debris, traffic, building construction, and invasive plant species will continue to threaten the health and diversity of the Refuge's habitats and wildlife.

An EIS would also reveal that SpaceX's activity of debris removal has had devastating effects: it has damaged sensitive wind tidal flats and the vehicles or machinery used to retrieve debris have

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created rutting and damage that interrupts tidal water sheet flow across these flats. These hazardous activities prove that FAA's current EIS and USFWS' Biological Opinion must be reinitiated and reevaluated considering SpaceX's expanded and untethered operations. See 50 C.F.R., part 402.16.

c. Noise from SpaceX flight activities. (PEA 3.5, pgs. 48–60).

The noise pollution caused by SpaceX during its testing and launch activities constitutes constructive use because the project's proximity impacts are so severe that the protected activities, features, or attributes of the Refuge and surrounding protected areas are substantially impaired or substantially diminished.

The Department of Transportation Act requires the consideration of natural resources during project development. 23 U.S.C. § 138. 23 C.F.R. § 774.15 identifies potential causes of constructive use to include among many things, “non-physical intrusions such as noise, air pollution, or other effects that would substantially impair the resource's use.”

Upon information and belief, decibel sound will be converted into shockwaves with the launch of the superheavy. The shockwave will kill every living thing in the direct vicinity of the launch pad and will blast eardrums out of every creature until the shockwave drops below 140 decibels. Destruction of hearing in an animal is often a fatal injury at 131.4 decibels. The PEA's glossing over facts and data from noise and shockwave impacts by SpaceX operations, and the failure to study this level of irreparable damage to animal and human life is irresponsible and unmitigated nonsense.

Constructive use exists around the SpaceX protected surrounding site because the emissions of noise during launches or testing will require closure of the beach and State Highway 4. Previous discussions about constructive use resulting from beach and road closures under items a. and b. above are incorporated herein for all intents and purposes.

The project's proximity impacts are so severe that the protected activities, features, or attributes of the Refuge and surrounding protected areas are substantially impaired or substantially diminished because of the declining nesting of certain bird species in Refuge areas as documented by the Coastal Bend Bays and Estuary Program. The effect of both existing and anticipated noise levels on wildlife, such as nesting sea turtles or birds, resulting from these tests has not been adequately analyzed and there has been no demonstration that the noise levels pose no harmful effect. Therefore, an EIS is required to conduct this analysis.

4(f) requires all possible planning to minimize harm resulting from the use; this has not been practiced, documented, or evidenced on the behalf of SpaceX or in the PEA.

An accurate determination of impact is not achievable due to the inability of USFWS to monitor SpaceX's operations due to road and beach closures and other SpaceX related obstructions. Thus, SpaceX has failed to avoid, minimize, and mitigate impacts. A true and accurate finding of effects of SpaceX's proposals under Section 4(f) and Section 106 is not possible.

The PEA acknowledges that, “[a] startle response from nesting birds can result in broken eggs or cause immature young that are not flight-capable to flee the nest. Repeated nest failures could eventually trigger desertion of a nesting area.” Yet, there are no mitigation measures currently available to reduce the chances of noise-induced startle responses but monitoring of select species could determine if noise was responsible for reduced reproductive success.” With no substantiating data, the PEA then speculates that “[n]oise from the Proposed Action would not be expected to cause a significant impact because the noise events are infrequent and short-term and would not result in impacts at the population level.” See PEA, pg. 113. The words infrequent and short term downplay the effects, especially when other negative effects of increased lighting and road traffic are added to the day-to-day conditions. The PEA offers no mitigation whatsoever for the many and significant impacts to wildlife and wildlife habitat.

Appendix B of the Draft PEA states, “Loud individual events can pose a hearing damage hazard to people and can also cause adverse reactions by animals. Adverse animal reactions can include flight, nest abandonment, and interference with reproductive activities.”

As to all of the foregoing, the level, nature, and extent to which an area is constructively used should be subject to the expertise and determination of the agency responsible for management and administration of the parkland impacted by the constructive use. The project will have significant unmitigated impacts on neighboring habitat, listed species, and the surrounding community, and the project's effects will violate the law in multiple ways. The FAA must prepare an EIS to assess the adverse reaction of species whose hearing response is different from that of humans and to analyze all of these described significant impacts.

The Environmental Assessment Is Inadequate

Even if it were not clear that the FAA must develop an EIS for the SpaceX project, it would be indefensible for the FAA to issue a Finding of No Significant Impact (“FONSI”) at this stage, because the agency's Draft PEA does not meet the requirements of NEPA for issuance of a FONSI or Mitigated FONSI. If it is unknown whether an action will be “significant,” then an agency may prepare an EA. An EA must provide “sufficient evidence and analysis for determining whether to prepare an environmental impact statement or a finding of no significant impact.” The EA must discuss the environmental impacts of and alternatives to the proposed action and must account for connected actions. The Draft PEA, however, fails to adequately consider this information. Overall, the analysis does not provide sufficient evidence to support a FONSI.

The Draft PEA overlooks scores of crucial factors. There has been insufficient launch failure scenario analysis, including associated risk to public safety and natural resources. This is particularly egregious given that failures already are repeatedly occurring yet have never been properly analyzed under NEPA. The Draft PEA should have, but did not, adequately consider the impacts that explosion-induced wildfires and debris-removal operations have had and will have on surrounding habitat.

Among other failings, the FAA has not adequately evaluated the infrastructure attached to this project for significant environmental impacts and feasible alternatives. The Draft PEA makes only

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passing reference to a power plant, without discussing it in any depth and without incorporating it into the site-wide emissions estimate. Moreover, is our understanding that the power plant would require a cooling tower, with additional emissions and/or intake concerns. a 250 megawatt gas-fired power plant requires its own environmental review.

Other launch-related and power plant operations are estimated to emit 47,522 metric tons of carbon dioxide equivalent per year with no mitigation measures attached to this massive greenhouse gas emission. The proposed Liquefied Natural Gas ("LNG") export terminals and a proposed crude upgrading, processing and export facility have not been evaluated as part of the cumulative impacts analysis. Additional connected concerns that have not been addressed or fully evaluated, include but are not limited to:

- Air quality and public health concerns, including those associated with the proposed 250 mW combined-cycle power plant;
- Water quality impacts associated with development and industrial applications, including the desalination plant and injection wells.
- Impacts to listed species and critical habitat;
- Growth inducement and development impacts associated with augmented water, power and gas needs to accommodate a large workforce;
- Gas extraction, gas pipelines, LNG liquefaction, transportation, and storage;
- Greenhouse gas emissions for auxiliary projects;
- HAZMAT, solid waste, and pollution prevention;
- Land use and other impacts to public lands; and
- Health and safety, particularly as relates to "anomaly" explosions, sonic booms/overpressure, and high decibel noise in proximity to populated areas and schools.

Looking down the road at the profound impacts this project could have on this geographic area and sensitive coastal resources, the FAA should take into account how to minimize related impacts that are feasibly connected to the SpaceX project if it were to proceed. These effects are reasonably foreseeable given the immense scope and future plans of the project. The effects should be analyzed thoughtfully, controlled and mitigated at this early date.

Alternatives

While applicants for proposed actions are permitted to draft environmental assessments, the FAA has taken, as it must, responsibility for the document. The FAA has also appropriately warned SpaceX that the launch tower and other infrastructure it has or is constructing has not been

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approved, that SpaceX is proceeding at its own risk in undertaking that construction, and that Space X's proposed actions are not covered by the 2014 environmental impact statement (EIS).

FAA appears to have inappropriately deferred entirely to Space X's evaluation of reasonable alternatives to the proposed action. Without the requirement to analyze all reasonable alternatives as rigorously and objectively as possible, the NEPA process becomes merely an evaluation of the impacts of a decision already made, not a process for making a decision in accord with this nation's national environmental policies.

The statutory basis for alternatives analysis in EA requires that agencies, "study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." Certainly, the situation at issue involves serious unresolved conflicts. The fact that the proposal comes from an applicant instead of the FAA does not lessen the FAA's responsibility to take a "hard look" at alternatives to the proposed action, especially those that would mitigate some of the serious effects of Space X's ongoing and potentially expanded operations.

In the draft EA, the FAA examines only two alternatives – SpaceX's alternative and the no action alternative. The brief discussion of "Alternatives Considered but Eliminated from Further Consideration" in Section 2.3 of the EA succinctly reveals how completely the FAA ceded the alternatives analysis to Space X. It begins by stating that to meet "the purpose and need of SpaceX's proposed Starship/SuperHeavy launch program, Space X determined that action alternatives must meet the following criteria . . ." But there is no legal authority that permits agencies to simply adopt the purpose and need statement of an applicant; indeed, federal courts have cautioned agencies not to frame the purpose and need statement in a way that would "define competing 'reasonable alternatives' out of consideration (and even out of existence). The criteria that follow in the EA are clearly and openly framed by SpaceX's needs and evaluation alone ("SpaceX evaluated its existing launch facilities SpaceX dismissed these launch sites from detailed review.") But while the FAA must understand the applicant's goals, nothing in NEPA law permits the FAA to cede evaluation of alternatives solely based on the applicant's evaluation of its own purpose and need. Indeed, the purpose and need statement and EA violates the FAA's own NEPA procedures that states:

Purpose and Need. This section briefly describes the underlying purpose and need for the Federal action. It presents the problem being addressed and describes what the FAA is trying to achieve with the proposed action. The purpose and need for the proposed action must be clearly explained and stated in terms that are understandable to individuals who are not familiar with aviation or commercial aerospace activities. To provide context while keeping this section of the EA brief, the FAA may incorporate by reference any supporting data, inventories, assessments, analyses, or studies.

The FAA Order contains the legally appropriate direction – to identify the federal purpose and need; that is, what the FAA is trying to achieve with this proposed action. Unfortunately, this monumentally inadequate consideration of alternatives leads the reader to conclude that, despite

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its statements to the contrary, the FAA is trying to get to an approval of SpaceX's proposal without a thoughtful, objective consideration of alternatives.

Conclusion

In summary, the Draft PEA is deficient because it does not include a sufficient level of detail about the project or its potential impacts. Notwithstanding, given what is already known and can otherwise reasonably be surmised, the project will result in significant environmental effects for which proper mitigation has not been proposed. A comprehensive EIS, with full analysis of all components of the project, is required to understand the full extent of impacts that this project may cause, and how, if it is possible, to prevent or mitigate them. SpaceX says its mission is to save humanity. You, FAA, need to divorce yourself from such delusional nonsense. FAA is not SpaceX's lapdog. The FAA is obligated to always put the safety of the public first and foremost. The FAA must make SpaceX honor its original agreement and comply with existing laws and regulations. You are bound by your office's mandate to enforce the laws and regulations, including NEPA. Otherwise, the Boca Chica operations should be shut down for noncompliance, and all unauthorized structures removed. By ignoring your own declared public safety mission, you are failing the residents, wildlife, and populated areas around Boca Chica, allowing an ego-driven company with a terrible environmental and operational record to continue to operate in defiance of your orders and the laws and regulations that govern this situation. The only conclusion that FAA can reach with regards to this PEA is that there are too many significant environmental impacts and no environmental benefit associated with this project. And if it is allowed to proceed without a comprehensive EIS, FAA will violate NEPA's prohibition of "irretrievable and irreversible commitment of resources," the delicate, unique ecosystems of Boca Chica irreparably harmed and the public endangered. Accordingly, as a federal agency entrusted with the public good, the FAA must at the very least do an Environmental Impact Statement. We expect you to do your duty.

Respectfully,


Jim Chapman, President


Exhibit 1

Rushforth, Brian (FAA) <[REDACTED]> Mon, Jun 29, 7:53 AM

to me

Mr. Chapman,

As Chief of Staff for the office, you are more than welcome to send the letter to me.

For what it's worth, we do plan on conducting a new EIS.

SpaceX has informed the FAA that its future plans are to eventually conduct suborbital test flights of the Starship prototype and then operate a full-scale Starship launch site at Boca Chica. A full-scale Starship launch site falls outside the scope of the 2014 EIS. The FAA is in the beginning stages of conducting an environmental review of SpaceX's Starship proposal in accordance with the National Environmental Policy Act (NEPA) and the FAA's policies and procedures for conducting a NEPA review (FAA Order 1050.1F). The FAA is working with SpaceX on a project schedule and will put out updates to the FAA project website and environmental distribution list.

The 2014 EIS analyzed the FAA's action of 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 SpaceX's Texas Launch Site in Boca Chica, Texas. Since publication of the 2014 EIS, SpaceX started to develop the Starship Prototype (Starship for short), which falls under the "reusable suborbital launch vehicle" category discussed in the 2014 EIS.

The EIS assessed up to 12 commercial launch operations per year, including launches of the Falcon 9, a maximum of two Falcon Heavy launches, and/or associated mission rehearsals and static fire engine testing, through the year 2025. SpaceX's current testing of Starship prototypes, including the planned static fire engine test on May 29, 2020, falls within the scope of the 2014 EIS. The FAA conducted environmental reviews of SpaceX's changes to its original proposal analyzed in the 2014 EIS.

These reviews are documented in Written Re-evaluations and can be accessed on the FAA's website: https://www.faa.gov/about/office_org/headquarters_offices/ast/environmental/nepa_docs/review/launch/spacex_texas_launch_site_environmental_impact_statement/#spacex.

I hope this information is helpful, but of course you are more than welcome to send the letter.

Sincerely,
Brian Rushforth
Chief of Staff
Office of Commercial Space Transportation
Federal Aviation Administration
[REDACTED]



U.S. Department
of Transportation
**Federal Aviation
Administration**

Commercial Space Transportation

800 Independence Ave., SW.
Washington, DC 20591

July 17, 2020

Mr. Jim Chapman
President, Friends of the Wildlife Corridor
613 West St. Charles Street
Brownsville, Texas 78520

Dear Mr. Chapman:

Thank you for your July 3, 2020 letter requesting the Federal Aviation Administration (FAA) conduct a new Environmental Impact Statement (EIS) for Space Exploration Technologies Corporation's (SpaceX's) facility at Boca Chica, Texas.

Before we received your letter, SpaceX proposed operating its Starship/Super Heavy launch vehicle at its Texas Launch Site in Cameron County, Texas. To operate Starship/Super Heavy at the Texas Launch Site, SpaceX must obtain an experimental permit or launch license from the FAA Office of Commercial Space Transportation. Issuing experimental permits and launch licenses is a major federal action under the National Environmental Policy Act (NEPA) and requires a new environmental review beyond the 2014 EIS.

As the lead federal agency, the FAA is responsible for complying with NEPA. Under our NEPA policies, applicants have the right to choose whether to conduct an Environmental Assessment (EA) under FAA oversight or work with the FAA to initiate the EIS process. If an applicant believes the proposed action would have no significant environmental impacts, or that they can mitigate any potential impacts, then the applicant typically chooses an EA. However, all applicants run the potential risk that further review may uncover significant impacts that cannot be mitigated. In those cases, the FAA must conduct an EIS.

SpaceX has begun an EA for the action of issuing experimental permits or launch licenses to SpaceX for Starship/Super Heavy launch operations at the Texas Launch Site.

The FAA has invited the U.S. Fish and Wildlife Service, the National Parks Service, and the National Aeronautics and Space Administration (NASA) to participate as cooperating agencies. In the role of cooperating agency, each agency will actively participate in project meetings and provide comments regarding the description of the proposed action and the proposed action's potential impacts on resources for which it has special expertise and any related mitigation measures.

Again, if the EA identifies one or more significant environmental impacts from the proposed action, and mitigation measures would not reduce the impact(s) below significant levels, the FAA must prepare an EIS.

Your letter also raised several issues on the current mitigation measures, stemming from the 2014 EIS process that SpaceX has conducted. First, that SpaceX no longer conducts bird and vegetation monitoring. Much of the biological resources mitigation stated in the Record of Decision (ROD), including bird and vegetation surveys/monitoring, is also included in the U.S. Fish and Wildlife Service's (USFWS) Biological Opinion for the project. The Biological Opinion (BO) requires the FAA to submit an annual report to the USFWS Coastal Ecological Services Field Office by December 31 of each year. The FAA has submitted an annual report to the USFWS every year since publication of the BO and ROD (2015–2019). The last annual report was submitted to the USFWS in December 2019. SpaceX is continuing active construction biological resource surveys in accordance with the USFWS-approved monitoring plan.

Second, on the ocelot, jaguarundi, and falcon issues, SpaceX has continued to work with the USFWS on how best to conduct monitoring.

Third, SpaceX has and continues to coordinate with the Lower Rio Grande Valley National Wildlife Refuge staff establishing security fencing to protect Refuge lands. SpaceX has contributed funds towards the purchasing of the fence supplies as well as provided storage for the supplies. In addition, SpaceX immediately notifies the Refuge when operations are occurring and in the event of any anomaly or unplanned emergency occurs.

Finally, the FAA coordinated the development and review of the Facility Design and Lighting Management Plan and the Security Plan over several years with the National Historic Preservation Act Section 106 consulting parties. The FAA coordinated the development of the Fire Mitigation and Response Plan with the USFWS and Texas Parks and Wildlife in 2019. SpaceX is currently in the process of updating the Facility Design and Lighting Management Plan given SpaceX's changes to the launch site. As with the mitigation measures described above, these plans stemmed from the 2014 EIS process. All mitigation measures and SpaceX's site plans, including these three plans, will be revisited as part of the FAA's new environmental review for SpaceX's Starship/Super Heavy proposal.

Thank you again for your letter. If you have any questions, please feel free to call me at [REDACTED] or send me an email at [REDACTED]

Sincerely,



for: Daniel Murray
Manager, Safety Authorization Division, (ASA-100)
Office of Commercial Space Transportation
Federal Aviation Administration

EXHIBIT 3

Explosion Coverage Links

November 20, 2019 MK1 (exploded in pressure test releasing cryogenic fluid and white vapor clouds)

<https://www.space.com/spacex-starship-prototype-anomaly-pressure-test.html?jwsourc=cl>

April 2, 2020 SN3 (exploded during pressure test)

<https://youtu.be/wFXQ5SRCy74>

May 29, 2020 SN4 (exploded in sonic boom dramatic fireball, black smoke spewing for hours with fire)

<https://cdn.mos.cms.futurecdn.net/Jm37dwZyFdSDgUiAjHezvh-970-80.gif>

June 23, 2020 SN7 test tank (exploded super-chilled liquid nitrogen and released billowing white nitrogen clouds)

August 4, 2020 SN5 Successful

September 22, 2020 SN7.1 test tank (exploded in pressure test)

<https://youtu.be/CkFFgngw6Q4>

December 9, 2020 SN8 (the one he launched w/o FAA permit that FAA eventually looked the other way, exploded in a dramatic fireball 6 minutes and 42 seconds after liftoff.)

<https://www.space.com/rocket-launch-failures-of-2020?jwsourc=cl>

February 2, 2021 SN9 (exploded in fiery explosion again, 911 called out for fire sweep)

<https://www.cnn.com/video/2021/02/02/spacexs-starship-prototype-again-explodes-on-landing-attempt-after-successful-launch.html>

March 3, 2021 SN10 (exploded in a sonic boom and fiery blaze of glory)

<https://videos.space.com/m/bYPbUiBr/spacex-starship-sn10-explodes-shortly-after-landing?list=9wzCTV4g>

March 30, 2021 SN11 (exploded after take off in the air scattering hot, fuel laden debris as far as the Jetties and into the Laguna Madre. Debris in the tidal flats at Boca Chica still there.)

<https://www.valleycentral.com/spacex/public-responds-to-spacex-debris-from-sn11-still-scattered-across-boca-chica/>

SpaceX Launch Investigation Links

February 2, 2021:

<https://spacenews.com/spacex-violated-launch-license-in-starship-sn8-launch/>

March 29, 2021:

<https://spacenews.com/congress-raises-concerns-about-faas-handling-of-starship-launch-license-violation/>

March 29, 2021:

<https://www.reuters.com/world/us/us-house-panel-probes-spacex-launch-activities-2021-03-29/>

June 17, 2021

<https://www.cnbc.com/2021/06/17/faa-defends-spacex-despite-unauthorized-starship-sn8-launch.html>

June 18, 2021: House hearing rehashes longstanding commercial space transportation issues. This article is a very good summary of events.

<https://spacenews.com/house-hearing-rehashes-longstanding-commercial-space-transportation-issues/>

Referenced in the above June 18 article, the House Subcommittee hearing on “Starships and Stripes Forever – An Examination of the FAA’s Role in the Future of Spaceflight”:

https://transportation.house.gov/committee-activity/hearings/starships-and-stripes-forever_an-examination-of-the-faas-role-in-the-future-of-spaceflight

June 21, 2021 FAA Defends SpaceX to Congress

<https://www.avweb.com/aviation-news/faa-defends-spacex-to-congress/>

General Media Coverage

February 28, 2021

Nansi Guevara, a Brownsville resident, effectively addresses the social/environmental injustice issues in this letter to the editor of My RGV News (<https://myrgv.com/opinion/letters-to-the-editor/2021/02/28/letter-spacex-opposed/>)

July 15, 2021: Elon Musk may be forced to take down a SpaceX starship tower because of an FAA environmental review. This is about the integration tower that is being built prior to the release of the EA.

<https://www.independent.co.uk/life-style/gadgets-and-tech/elon-musk-spacex-starship-faa-b1884781.html>

Aug 4, 2021 Job alert: ‘Spaceport Mixologist’ - Bar and grill next to SpaceX High Bay

<https://www.theverge.com/2021/8/4/22609916/spacex-job-opening-spaceport-mixologist-starship-elon-musk>

August 17, 2021 SpaceX Launch Site Brings Controversy to Texas Town - 60 Min+ streaming on Paramount+ - did a good job of examining all the various issues

<https://www.cbsnews.com/news/spacex-launch-site-boca-chica-texas-60-minutes-plus/>

August 30, 2021 – The Final Frontera by Gus Bova – one of the first articles to aptly address environmental issues

<https://www.texasobserver.org/the-final-frontera/>

September 1, 2021 Radio interview with Gus Bova (see above) by Texas Standard

<https://www.texasstandard.org/stories/reduced-beach-access-part-of-battle-between-south-texas-community-and-spacex/>

September 5, 2021 Elon Musk's SpaceX Launch Site Threatens Wildlife, Texas Environmental Groups Say

<https://amp.theguardian.com/environment/2021/sep/05/texas-spacex-elon-musk-environment-wildlife>

September 14, 2021 FAA says it's keeping tabs on SpaceX over environmental concerns in South Texas

<https://www.wric.com/news/u-s-world/faa-says-its-keeping-tabs-on-spacex-over-environmental-concerns-in-south-texas/>

From: [REDACTED]
Sent: Monday, November 1, 2021 8:40 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: [REDACTED]

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Starship's first orbital launch attempt is history in the making, and it would be a shame if it had to be delayed. This program will create many opportunities for our country in the future, thus in my opinion any negatives from this test are vastly outweighed by the positives.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:34 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: [REDACTED]

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I wish to be part of it. Kindest regards..

From: [REDACTED]
Sent: Monday, November 1, 2021 8:31 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve for further development!

From: [REDACTED]
Sent: Monday, November 1, 2021 8:26 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Let them fly...brownsville needs to keep the economy going. It benefits all!!!

From: [REDACTED]
Sent: Monday, November 1, 2021 8:21 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

It would be most excellent if you could grant SpaceX the ability to launch next month. Please don't slow down technology.

From: [REDACTED]
Sent: Sunday, October 31, 2021 6:53 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support all things Elon and Starbase, SpaceX. They should be granted FAA approval for anything they ask for,.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:25 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Sería para mí un gran honor participar

Translation: It would be a great honor for me to participate

From: [REDACTED]
Sent: Monday, November 1, 2021 7:24 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

If Elon says it needs to happen let him do it. Best, Nick Richards

From: [REDACTED]
Sent: Monday, November 1, 2021 7:16 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

As humanity continues to evolve, we must simultaneously strive to adapt in order to survive. Space exploration and making life multiplanetary are vital to the survival of our species. Research conducted in space will not only bring forth major scientific and technological advancements, but it will benefit our lives, our health, and the life and health of our planet Earth. In support of SpaceX, I urge you to please approve the PEA for the SpaceX Starship/Super Heavy Launch Vehicle Program and allow them to continue to carry out their mission. Thank you, Jamie Tonon

From: [REDACTED]
Sent: Monday, November 1, 2021 7:03 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

PLEASE allow SpaceX to proceed with Boca Chica launches to orbit. We as a country need to keep pushing forward with their technology. Don't slow them down. Please streamline the process for them to get approval to test, launch and land their rockets. Please allow America to blossom. We need a known direction to be proud of us continuing to achieve. Thank You, God Bless America. God Bless Boca Chica. God Bless SpaceX. God speed Elon Musk.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:59 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

we need inspirational companies like this! the launch is another step closer to everything in space

From: [REDACTED]
Sent: Monday, November 1, 2021 6:56 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To whom it may concern, I highly support and encourage FAA to issue experimental permits or licenses to SpaceX as it pertains to the Starship/Super Heavy program. The technological knowledge and experience we, as humans, will gain from this program is invaluable. The Starship/Super Heavy program represents the essence of humanity; it represents exploration, discovery, and survivability. It is of utmost importance that humans continue to push boundaries, both in areas of technologically , and in areas pertaining to efforts of conserving and expanding human consciousness. Nothing has made me feel more excited in life than being a humble spectator of SpaceX and their accomplishments. I have understanding for locals who might be disrupted at times, for the occasional environmental impacts such as unaccounted debris; and other potential small/short term consequences; but, the convenience of a few must sometimes be sacrificed for the greater good of humanity. I am of a deep conviction that if we want humanity and consciousness to survive and excel into the future, we must allow SpaceX to keep pushing the limits of technology and innovation; and the only way to allow for this is for FAA to do its role by issuing experimental permits or licenses to SpaceX as it pertains to the Starship/Super Heavy program. Sincerely, Morgan Brandsø

From: [REDACTED]
Sent: Monday, November 1, 2021 6:49 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

As a Canadian, my interest is in the security of the West. SpaceX seems by far the most likely to be in a position to provide the technology to the US military to insure that security against Russian and Chinese interests, but only if they are allowed to continue this development at the pace they have demonstrated. I believe that if this momentum is lost, our mutual way of life will be at risk.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:47 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I'm writing in support of the orbital rocket development efforts of SpaceX at Boca Chica, Texas. I hope FAA will provide timely approval to upcoming Starship launches to spur innovation and enhance America's leadership position in space.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:46 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

FAA - I'm very excited to see SpaceX's orbital launch attempt. I think it's critical that it happen soon so that we can continue building momentum in our new push towards the stars. It will be an historic moment in aviation/space history. Thanks! Ray

From: [REDACTED]
Sent: Monday, November 1, 2021 6:43 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To whom it may concern, I highly support and encourage FAA to issue experimental permits or licenses to SpaceX as it pertains to the Starship/Super Heavy program. The technological knowledge and experience we, as humans, will gain from this program is invaluable. The Starship/Super Heavy program represents the essence of humanity; it represents exploration, discovery, and survivability. It is of uttermost importance that humans continue to push boundaries, both in technologically aspects, and in areas pertaining to efforts of conserving and expanding human consciousness. Nothing makes has had me more excited in life than being a humble spectator of the feats of SpaceX. I have understanding for locals who might be disrupted at times, for the occasional environmental impacts such as unaccounted debris; and other potential small/short term consequences; but, the convenience of a few must sometimes be sacrificed for the greater good of humanity. I am of a deep conviction that if we want humanity and consciousness to survive and excel into the future, we must allow SpaceX to keep pushing the limit of technology and innovation, and the only way to allow for this is for FAA to issue experimental permits or licenses to SpaceX as it pertains to the Starship/Super Heavy program. Sincerely, Morgan Brandsø

From: [REDACTED]
Sent: Monday, November 1, 2021 6:42 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Goodevening to all, My name is Amanda Hancock and I'm writing this to express my support of Elon Musk and his SpaceX team. I've never known a soul to dream as boundless as him who seeks such depth and extensiveness understanding upon our universe that he wants to make human's a spacefaring, interplanetary species. My dream is the same and I am not alone in that. With a span that covers the entire world, there are people who have this same dream. But our dreams are more than just that; they are another form of air in our short and trying existence. Living isn't just breathing; to live is to have something worth breathing for and space exploration is that breath worth taking and that beat worth beating. Elon Musk has one of the most freed and intelligent minds I've ever listened to. If you've taken the time as you hear his intellectual discussions, you hear his very very loving heart as well. Highly intelligent imperfect people don't always communicate like we'd wish and nor do they let people people see their deeply loving heart as apparently as others but Elon most certainly has that deeply loving and passionate heart that wants to give the world a reality interplanetary life. I want him to lead in that because of what I see in him. He understands America's song of freedom and exploration that is inclusive. Please support him too. Thank you.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:39 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA, I actually support what you guys do. Y'all do an excellent job keeping our skies safe and commercial launches safe. Keeping track of the environmental impact of spaceflight is crucial to preserving our Earth and way of life. I would like to comment that SpaceX is the only launch provider that possesses the ability and drive to explore our solar system. I urge you to allow them to proceed with Starship/Super-Heavy launches and testing operations. As that is crucial to our specie's survival. Thank you for your time, A Proud American

From: [REDACTED]
Sent: Monday, November 1, 2021 6:25 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hi, Please approve the spaceX starship and mars base in Texas. We need more innovation in America and support the dreamers and doers as much as possible to send a message to our kids and dreamers all around the world; If you want to do great things, you do them in America! Thank you!!

From: [REDACTED]
Sent: Monday, November 1, 2021 6:25 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA, Firstly, thank you for having an open mind and asking the public through accessible means for their collective opinion. I strongly believe that by allowing SpaceX to continue their operations and granting them the access they require from the US gov't, it will greatly benefit the country. This is a grand opportunity and if there's ever a time to make exceptions, this is definitely one of them. The FAA (along with other US agencies) essentially foster SpaceX, like a parent fosters a child. Be there to guide them, not hinder them. Help them excel and realize their potential. The moments are far and few in between where we have great teams working together to build something that will have positive, lasting impacts on humanity. Despite the fact that there are (or could be) environmental impacts, but I think this is a rather minor one to consider. I do understand what it could entail if you make exceptions for one person/company. However, given that other industries in the US have far greater negative environmental impacts I don't think it would be fair to nitpick SpaceX's impacts given their goal. Please allow them to continue and grant them the approvals they need to test and fly their rockets. Sincerely, A Space Enthusiast, Pablo Jacome

From: [REDACTED]
Sent: Monday, November 1, 2021 10:54 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support the development and testing of Starship and Starbase. SpaceX is making the U.S. competitive both technologically and helping to build out our future infrastructure. While regulations are in place for a reason and environmental concerns can not be ignored they should be put into the context of what SpaceX is trying to achieve. Any delays could hugely impact our competitiveness in the global space market.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:24 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Reading the Draft Programmatic Environmental Assessment, it appears that the impact of the SpaceX operations in Boca Chica, Texas are well documented and mitigation of impacts has been identified or is ongoing. The impacts identified in the PEA due to the proposed SpaceX activities appear to be less than the impacts the Boca Chica area has been subject to in the past, with prior development still leaving noticeable footprints. However, even these past, non-SpaceX, activities seem to have minimal impact on the local wildlife, despite seeming to have been larger operations. Finally, comparing the proposed SpaceX activities to similar operations, such as in Cape Canaveral, would indicate that the environmental impact of SpaceX operations as indicated in the PEA would have a net benefit to the local wildlife and environment, by restricting further development in the area. Thank you.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:04 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

SpaceX has the potential to transform the economics of Space travel in the same way that Henry Ford made the automobile a viable reality. Please allow this game changing program to proceed. Whole heartedly in favor, Jerry Edward Swank Jr

From: [REDACTED]
Sent: Monday, November 1, 2021 5:55 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Let Elon Musk get approval please! This is history in the making. I'm from McAllen Tx 1 hour away from SpaceX and this is very important to us. Thank you!

From: [REDACTED]
Sent: Monday, November 1, 2021 5:47 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve SpaceX orbital starship launch. This is some of the most important work in mankind's history.

From: [REDACTED]
Sent: Monday, November 1, 2021 5:41 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: spacexbocachica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I believe that Space X and environmentalists can work together to overcome objections. I think there should be sufficient protection provided by current environmental and historical regulations to protect our historical sites, our environment, and our wildlife. I think the possibility of closing Boca Chica Beach for up to 1 day per week seems high. I think that should be negotiated. I am hopeful resolutions for objections raised by environmentalists can be found. I know 400 Idea students have toured the facility. That tour is inspiring to children and I hope one day some of those children will help find scientific solutions to many of the world's problems.

From: [REDACTED]
Sent: Monday, November 1, 2021 5:29 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA, SpaceX is doing amazing things in Boca Chica! Please help them advance human space flight by approving their environmental impact ASAP! Thank you, The Human Race

From: [REDACTED]
Sent: Monday, November 1, 2021 5:21 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

SPACE X is making a real difference in the universe! LET THEM CONTINUE TO GROW!

From: [REDACTED]
Sent: Monday, November 1, 2021 5:20 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

For the future of all humankind, please give SpaceX total permission to launch Starship from Starbase, Texas.
Sincerely: Manel Morros Catalonia, Europe

From: [REDACTED]
Sent: Monday, November 1, 2021 5:19 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Let's make it happens FAA give the okay.the future of tomorrow generation. 🙏🙏🙏🙏🙏

From: [REDACTED]
Sent: Monday, November 1, 2021 5:18 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve SpaceX activities, and facilities-development, at BocaChica. We, here, are so very proud of this man's efforts and wish our governmental agencies would be gentle in their rules interpretation and application, recognizing that much of the success of his efforts is due to the way he does what he does.

From: [REDACTED]
Sent: Monday, November 1, 2021 5:15 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve of the SpaceX starship launch! It would be singlehandedly the most inspiring and important spectacle of my life. This is the dream! :>

From: [REDACTED]
Sent: Monday, November 1, 2021 5:11 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am marveled at the bravery and success of such a company to strive to progress the way things are done for America and the world as a whole. What Space X accomplishes will not only affect one individual, or one nation, or even the people who are with us today, but will revolutionize at such an unbelievable rate the world and the future we are creating. I fully support Space X and anything to help ensure the company can keep working at a rate that will ensure the world gains value from what Elon is developing and testing. I can not list what America and the world have to value from SpaceX as the list is unlimited and open to the creativity of the next individual to help improve life as we know it.

From: [REDACTED]
Sent: Monday, November 1, 2021 5:03 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve the further starship activity at Boca Chica, including the scheduled orbital flight of BN4/SN20. America is seeing way other challenges and risks from both inside and outside. If this project is delayed due to those protests of starship activity, US is gonna lose the opportunity to lead the further industry revolution, and in general, this delay will lead a big political and economical risks to US. What would other countries think of America based on that? They will say, yeah US is not a country for the future of humans anymore, instead of it's a corrupted system feeding so many deniers which only know money but nothing. On the other side, spacex is always transparent on doing all activities and its impacts on environment. We can see that they are doing a great job on ensuring the harmony between human and nature. Human activities will ALWAYS have impacts on nature, and having impacts on nature doesn't mean doing harm to nature, what really matters here is that how we can be more consistency and keeping nature being adorable to humans/other life forms. In my view, spacex contributes way much more to this local community and its nature asides, having a hard technique company means that it can provide those helps to nature and local citizens during emergency time such as storm and huge windy days. We have seen lots of examples on that from SpaceX too, for example, saving those sea turtles during storm. If there was no spacex there no one is able to do so much efforts to rescue them. I also agree that environmental review from FAA is necessary, public, not only government, is also looking over those activities on SpaceX. Together, we can push humans to a new generation, but we need to give SpaceX a chance to show that us human beings are able to be beyond stars. Please, please approve this new starship activity at Boca Chica. Thanks!

From: [REDACTED]
Sent: Monday, November 1, 2021 4:57 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Allow elon and his camp to finish what they started. -Luna

From: [REDACTED]
Sent: Monday, November 1, 2021 4:54 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA: I am writing to express my strongest support of SpaceX's orbital launches in Boca Chica, TX and urge your regulatory approval. It is important that we keep light of hope alive in this age of disappointment. Best,
Zhibin Yang

From: [REDACTED]
Sent: Monday, November 1, 2021 4:50 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Let Starship launch!!!!

From: [REDACTED]
Sent: Monday, November 1, 2021 4:49 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Getting our species to be multi planetary will be one of the greatest accomplishments of all time and necessary for our long term survival. The boca chica facility is essential for moving forward on this journey. I fully support this effort.

From: [REDACTED]
Sent: Monday, November 1, 2021 12:40 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

RE: The impact of launches at SpaceX Boca Chica and the impact Port Isabel Lighthouse State Historic Site and other Port Isabel historic structures. The Port Isabel Lighthouse is situated on the downwind side and about 6 miles in a northerly direction from the launch pad at the SpaceX Boca Chica site. There is a clear line of sight with no barriers. Only the Laguna Madre Bay and flat marshlands lie between. The impact of the launches to date can be felt in Port Isabel and have resulted in a variety of impacts from items falling from shelves, to doors blown open, to cracked windows. As we approach the idea of heavier rockets and therefore greater impacts, our concern is heightened. The Lighthouse was built in 1852 and designed to withstand natural weather forces. While it has undergone some maintenance, engineering for sustained vibration was never a consideration. Now that the structure is nearly 170 years old, it is facing a new threat never anticipated. The Lighthouse is the primary economic engine in Port Isabel and the loss of it, or even closures threaten livelihoods in a wide ripple. The Lighthouse is also an important historic structure to South Texas and to the entire Gulf Coast of Texas. It is the only one open to the public on the Texas Gulf Coast. The City of Port Isabel would ask: Firstly- SpaceX not damage the Lighthouse structure in any way. Secondly- if damage were to occur, that SpaceX bear the costs for the repairs. Thirdly- that damage would be repaired expeditiously and thoroughly. Fourthly- there be a way to monitor the impact of the vibrations or other impacts caused by SpaceX activity, And Fifthly- there be a workflow in place where the Lighthouse is inspected for damages after a SpaceX launch after a baseline is established. Port Isabel is also home to other historic buildings that we are concerned about. The Charles Champion building (1899) sits closer to the site and is very vulnerable. The Queen Isabel Inn (1906) and the Alta Vista Apartments (1926) are both properties that are important to the history of the Laguna Madre area and their age and location puts them in harms way. We would implore you to consider these structures when moving forward with decisions to launch even heavier craft. The impacts felt from the launches to date have been alarming and the idea of heavier launches have us in fear for our historic treasures as we are tasked with preserving them for future generations. Thank you for your consideration, Valerie Bates City of Port Isabel Marketing Director Port Isabel Lighthouse State Historic Site Manager

From: [REDACTED]
Sent: Monday, November 1, 2021 4:46 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

She work spacex is doing is important to humanity. They work with the idea to design by failure. They need multiple launches. I think support of this is not political.. I think musk may support the republicans. I'm a Democrat who would like to see this bird fly.....many times.

From: [REDACTED]
Sent: Monday, November 1, 2021 4:45 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please allow SpaceX to continue to test Starship. It is in the best to allow this new technology to move unhampered.

From: [REDACTED]
Sent: Monday, November 1, 2021 4:43 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Going ahead with Starship's orbital launch is US's change to retake the world as the leader in space technology. I fully support and amazed by everything SpaceX and Elon Musk are doing, especially going against all odds, to innovate in space technology. By American, for American with a proven track record of being the ONLY company to go orbital and back. Please support and approve the upcoming Starship orbital launch.

From: [REDACTED]
Sent: Monday, November 1, 2021 4:41 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Yes! Let the Starship program continue in boca chica. The magnitude and the importance of what is happening over there is of great interest to all humankind and can assure the evolution and continuation of the human species in the universe. "We have been given the scientific knowledge, the technical hability and the materials to persue the exploration of the universe. To ignore this great resources, would be a corruption of a God given hability." -Wernher von Braun

From: [REDACTED]
Sent: Monday, November 1, 2021 4:37 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Space X is a groundbreaking US made company. Their amazing and forward thinking designs will propel USA to to the front and help us take that next big leap forward as mankind. Help keep thousands employed at Starbase and approve the production of Starship and all its surrounding infrastructure. As a nation we need to unite and support the efforts of Space X , they will help us take the next leap forward as a spacefaring nation. Thank you.

From: [REDACTED]
Sent: Monday, November 1, 2021 4:30 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I would just like to add my views on Space Exploration Technologies (SpaceX) and their StarShip/SuperHeavy program and the Starbase facility in Boca Chica South Texas. I've followed SpaceX from its inception in 2002 and it's early attempts into the launch business with the Falcon 1 on Kwajalein. And as a UK citizen and child of the 1960s I've never been more excited and optimistic about space travel since those heady days of Apollo when anything seemed possible, mankind was united in a sense of wonder. Sadly politics got in the way after the great fanfare, budgets cut and small minded bureaucrats and politicians stifled all those grand dreams which set mankind back decades and locked us in LEO with the STS a jack of all trades vehicle, compromised, unsafe and failing to live up to its initial promise. I was never particularly excited watching a Shuttle launch(save for the first flight) same goes for Ariane, Delta4H, Atlas or Soyuz nothing has excited or inspired me since Apollo/Saturn, occasionally something like the X33- Venture Star comes along the Roton, Delta Clipper Skylon* etc but they ultimately amount to nothing and are shelved and take their place in the failed projects room along with all the Old Space Mars/Moon concept vehicles and Shuttle replacement vehicles. I was excited about the X-Prize and commercial sub orbital spaceflight but that took far longer than initially promised and it's still out of the reach of the average man still. Then a crazy South African software guy has a wild idea to land a small greenhouse on Mars using a repurposed old Soviet ICBM, film it to inspire a new generation and increase funding for NASA. Things didn't quite play out that way but the massive interest excitement and optimism generate by that initial simple naive idea has more than benefited not just NASA but countless other Space Agencies and tech companies all over the globe into thinking outside the box and pushing forward to rekindle those great optimistic days of Apollo/Saturn. The incredible progress in such a short space of time in South Texas is probably a large embarrassment to old space that crawls along at a snails pace happy to receive juicy cost plus government contracts but not actually launching anything or having nothing to show for it after years and countless billions spent. Still actually launching and expanding mans scientific knowledge isn't really their goal, keeping congressional districts sweet and lobbyists happy are the only motivations for these old space donkeys not excitement or awe. SpaceX are pushing boundaries and creating massive excitement, they have brought attention and jobs in both tourism, hospitality, transport, freight, food and construction to name just a few to one of the most impoverished areas of America. To the many kids in that area that felt left out and forgotten, SpaceX has brought a new optimism and a chance to work in a hi skilled area like aerospace which was never an option for them in that location. Along with all the associated industry jobs that will be generated as off shoots when other hi skill hi tech companies locate to the area. As for the small "Karen's" that decry the environmental impact to the area these are the same people gunning down the pristine beach in a huge Ford 150 gas guzzling pickup forgetting that Elon Musk has single handedly done more to protect not just Boca Chicas environment but the world's, with solar roofs- tiles and panels, power walls and advancing battery tech. Not to mention the single most important person to drive the uptake of the electric car and make it cool and push other ICE manufacturers to change direction. And lets not forget popularise reusable launch vehicles and equipment not throw it away into the pristine ocean like other old space companies. So people who on the one hand complain about the impact these launch facilities have on the area need to look more closely at the tonnes of rubbish left dumped all over the beach and surrounding area by the local folk in their gas guzzling pickups when going fishing or having a party on the beach, all going on long before SpaceX arrived. And let's not forget that the Brownsville ship canal has many heavy industries located there, involving petro chemicals gas and oil, Ship breakers, storage

and heavy construction all located next door too a wetland and nature reserve and a large town Brownsville, and tourist spots like Port Isabel and South Padre island without issue. The FAA needs to use common sense (I know that seems to be sadly lacking these days especially in government agencies) listen to the many positives SpaceX has brought to the region and its people but the huge lead the company has brought to the United States in space vehicles and associated technologies in just a few years, a lead others from countries elsewhere would give their hi teeth to have and be in a similar position, too beat America in the race to land the next man and woman on the moon establish a base and do the same on Mars. A new Space Race is on the cards don't hamper a company that can bring back the excitement, optimism and glory days of the Apollo moon programme. FAA it's up to you to make the correct and informed decision allowing a launch of Starship S20 and SuperHeavy booster B4 from the Boca Chica launch complex asap. I'm all for SpaceX and the benefits it brings to the South Texas area and America. Thank you Marcus K

From: [REDACTED]
Sent: Monday, November 1, 2021 3:51 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support SpaceX's Starship orbital launch attempt!!!!

From: [REDACTED]
Sent: Monday, November 1, 2021 3:40 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

LET THE SPACEX ROCKET DO THE FLIGHT! All love

From: [REDACTED]
Sent: Monday, November 1, 2021 3:33 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please reform your regulations to the current needs. The type of progress we are witnessing is unseen and we are lucky enough to have a person like Elon Musk who is willing to lead the way. There is no billionaire like him. It's humanity's chance to take advantage of him and his resources. He is a one in a hundred years! Please reform for development sake.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:15 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Attention: Stacey M. Zee Federal Aviation Administration SpaceX PEA Attached please find a letter from American Bird Conservancy detailing the need for a complete Environmental Impact Statement for the SpaceX facility and operations at Boca Chica, TX.

From: [REDACTED]
Sent: Monday, November 1, 2021 3:09 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

My wife Patricia and I own properties in Cameron County located approximately 5.3 miles as the crow flies, on Long Island Village in Port Isabel, Texas. I have been fishing in the Laguna Madre and the South Bay area near Boca Chica for approximately 40 years. We routinely fish in South Bay near the launch site. Since we can see the SpaceX orbital launch facility from our porch, we have followed with great interest all of the developments at the SpaceX facility. We are very much in favor of the SpaceX starship orbital launch facility. I believe that SpaceX has shown itself to be an excellent steward of the environment and will continue to be an asset to the community going forward. As I recall, during the terrible blizzard that we recently experienced in Texas, SpaceX personnel single-handedly rescued over 800 Ridley sea turtles that would surely have perished but for their efforts. Also, Elon Musk personally furnished a huge electric generator to provide electricity to warm the sea turtle facility on South Padre Island during this terrible blizzard. I have no doubt that any environmental impact on Boca Chica will be negligible. Furthermore, I believe that should any unforeseen effects from SpaceX operations occur in the immediate environment at Boca Chica, that SpaceX will step up and remediate any negative effects. Mr. Musk has already shown how a tunnel could be built from S. Padre Island to Boca Chica to help remedy transportation to the beach and alleviate traffic on Highway 4. As an attorney in private practice and a life long space enthusiast, I marvel at the incredible pace of innovation that SpaceX has accomplished in just a few short years. I recall watching the Apollo mission that landed men on the moon in 1969 and then also watching the entire U.S. manned Spacecraft program come to a complete halt for nearly 40 years largely because of the way it was being done was prohibitively expensive. Mr. Musk has revolutionized space travel. He is brining the cost down to a fraction of what it used to cost. Starship will bring the cost savings down much more. Given the fact that SpaceX has accomplished what many professionals have pronounced as 'impossible' I feel that we owe it to Mr. Musk and SpaceX to allow the orbital launch of Starship to proceed without further delay. I feel that it will not only benefit the citizens of the United States, but mankind in general.

From: [REDACTED]
Sent: Monday, November 1, 2021 3:03 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

As someone who is approaching 73 years of age I have lived through all of the space age starting with Sputnik. I think SpaceX's Starship and Super Heavy Booster are the most exciting and forward thinking efforts since the Apollo missions and their engineering. Please consider allowing SpaceX to launch Starship as soon as possible. Thank you. Charlie Heath

From: [REDACTED]
Sent: Monday, November 1, 2021 2:56 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Best regard. Boca Chica will benefit from all the scientific and technological development that the launches of the Starship rockets will generate and thus we will be able to take better care of Boca Chica and its surroundings. The local and national economy will also improve enormously. Thank you for your time. Yuya.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:41 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Space exploration is necessary for human survival, the development of science, the protection of planet earth and the environment. We can only protect our planet earth and the environment including Boca Chica if we go to the stars and generate scientific and technological advances to take better care of our planet and that includes Boca Chica in Texas. Thanks. Luz del Mar

From: [REDACTED]
Sent: Monday, November 1, 2021 2:38 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Ms. Stacey Zee, Over the course of the next few weeks/months, you and many others at the FAA will sift through hundreds or even thousands of emails just like this one, commenting on the construction of SpaceX's Boca Chica launch site. You will receive hundreds of the same thing, people who go on about how this project should not be stopped as it is vital to the future of humanity, etc., etc., etc. You will also receive dozens of the opposite extreme, people who voice their opposition to the project, who copy/paste a template of the same rhetoric, change up a thing or two, and hit send. I'm sure it's all so tiring. Many of these opponents, I have noticed, are people who have a personal vendetta against the CEO, or have a financial interest in one of his companies, or both. On October 20, I attended the second virtual public hearing and gave some concrete examples on why I think the project should be approved by refuting such people's rhetoric. I ask that you take both of my oral and my written comments here into account. I would like to take some space in this email to offer a personal reflection of my experience and why I think the project should be approved. Never before has a project been watched so intensely. Some spaceflight-oriented YouTube channels have cameras on the ground filming the action at Boca Chica every day, others are talented artists and graphic designers who create beautiful renders and depictions of a rocket that many consider to be science fiction. Countless memes, comics, videos, documents, and discussions have circulated the internet. Starship is undoubtedly an important cultural icon among the spaceflight community, and it is known partially to the general public as well. Young men and women have been inspired to pursue careers in science, technology, engineering, and math. Yet, a select few people, dripping with hatred, want to tear it down for the sole reason of hating one man. What does this accomplish? Rule of law? Mitigation of impacts to the environment? Our politicians in Washington and numerous other corporate entities are corrupt to the bone and play a significant role in hurting the environment. Instead of working to expose these entities, they selfishly choose to tear down a work that is a symbol of achievement, progress, and inspiration for many. What detractors want is attention, not rule of law or protection of the environment. People in support of this project, by contrast, have things to look forward to. Working for something larger than yourself is a vital aspect of progress, and that is what this project will accomplish. In tearing it down, the launch site, already under construction, will sit idle. The cameras and video feed will stop, the comics and jokes, renders and art, that will stop too. Then what? What becomes of the YouTube channels and artists who make a career out of this thing, or the community that has so much joy and inspiration bottled up inside them? Does hatred of one man warrant this to die out? I humbly ask you to look past the seething hatred of detractors and instead look to the future. This is why I implore you to expedite a finding of no significant impact for SpaceX's Boca Chica launch site. Thank you for taking the time to read my email, and I wish you and SpaceX the best of luck. Sincerely, Ian Williams

From: [REDACTED]
Sent: Monday, November 1, 2021 2:38 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please let progress continue!!!

From: [REDACTED]
Sent: Monday, November 1, 2021 2:37 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hello, What SpaceX does is going to change the future of human being on the earth! Starship is going to take human being towards space exploring, discovering what we couldn't do before. It is very important! Please permit SpaceX launch Starship on time. Thank you! Jan

From: [REDACTED]
Sent: Monday, November 1, 2021 2:35 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I believe SpaceX should be given full approval for their current proposal to build and operate a launch base site for the Starship Superheavy rocket in Cameron County TX. SpaceX has already revolutionized space travel by significantly reducing the cost of putting cargo and passengers into Earth orbit through the Falcon 9 and Falcon Heavy rockets by utilizing partial reusability via a first stage that lands through rocket propulsion. Their aim with the Starship rocket is to further revolutionize Americans' access to space by designing a fully and rapidly reusable rocket, a rocket that lands both the first and second stages for rapid reuse. This level of reusability as never happened within rocketry, and yet SpaceX has already proven they have the kind of expertise to make such a fundamental shift in rocket science and design possible. It's hard to overstate how much the future of humanity can and will change once access to space becomes significantly more affordable. Starbase, SpaceX's proposed launch site in Texas, would become the first space port in the history of humanity. Humans will someday use the port to travel to earth's orbit and beyond to the Moon and Mars. Should the FAA approve this launch site America will become the first country in the world to expand and colonize other worlds. No longer would humanity be bound to a single world, where world war or natural catastrophe could strike at any time, destroying the entire human civilization. The future of humanity hinges upon your approval of this proposal. With the construction of Starbase the amount of jobs in the local area will significantly increase, the local economy will significantly improve. SpaceX will put south Texas on the map as the place to go for aspiring engineers and space pioneers from all around America and the world. The benefits of this space port more than outweigh any negatives.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:34 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I would like to support the Starship prototyping and testing. bringing the Starship into Orbit is necessary for a better Future and solution to help our Planet and fight against climate change the solution is not only on our earth it is in Space too with big solar pannels in space a and with mining Asteroids and to discover new things about our Universe about life and where we coming from and to learn how we could be better Humans and for this Future we need the Starship and the technological achivement that goes along with it.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:33 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Starship and Starbase represent the beginning of a new era. An era of a great future for humanity, planet earth, science, space exploration, the environment, technology, medicine and the survival of the human race. Sant

From: [REDACTED]
Sent: Monday, November 1, 2021 2:28 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

SpaceX has enough resources to move and free its self from the restrictions placed on it, Plenty of Islands in the Pacific or other countries that will welcome them with open arms.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:19 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hola, hey es una gran oportunidad de hacer la vida multi planetaria, por favor envió todo mi apoyo para la autorización del primer intento de vuelo orbital de la nave StarShip de SpaceX.

Translation: Hello, hey, it's a great opportunity to have a multi-planetary life, please send all my support for the authorization of the first attempt to fly the SpaceX StarShip spacecraft.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:18 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

FAA, please let SpaceX continue with their Star Ship program with no delay. They will do what is right to make it better than expected by you. Thanks. Pal Fruzsi Revesz from Connecticut.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:17 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support licensing for Starship launches from the Boca Chica launch site. SpaceX is a major part of America technological innovation, and a strong American space industry will help ensure that humanity's access to space is guided by principles of liberal democracy and free enterprise. Environmental protection concerns must be considered differently in light of the fact that humanity is still in the early stages of space exploration. Instead of trying to hamstring the private space industry from the start, it would be wiser to allow launches at a moderate cadence so that we get the benefit of real-life experimentation and observation of environmental impacts. This experience will better inform future regulatory actions as the space industry grows. Regardless, I believe we will find that the environmental impacts of Starship launches from Boca Chica are minor in comparison to the economic and political benefits to America. Kyle Bogosian

From: [REDACTED]
Sent: Monday, November 1, 2021 2:16 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

FAA, please let SpaceX continue with their Star Ship program with no delay. They will do what is right to make it better than expected by you. Thanks. Pal James Revesz from Connecticut.

From: [REDACTED]
Sent: Monday, November 1, 2021 2:14 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please let starship flies! For humanity sake

From: [REDACTED]
Sent: Monday, November 1, 2021 2:12 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA Official: I am deeply concerned about the impacts on wildlife and people from SpaceX operations in Boca Chica, where the company's Starship/Super Heavy (aka 420-Rocket) project is underway. Kennedy space center in Florida is well equipped to handle these kind of launch activities. The wildlife refuge near Kennedy space center is a shell of what it used to be. We do not want the same thing happen in Bocha Chica. Elon Musk's 420-rocket requires 4500 tons of fuel (liquid oxygen and Methane). A launch failure will have the destructive power of a kiloton range nuclear bomb, which SpaceX thinks is OK! Elon Musk considers rocket explosions good publicity. Even a successful launch, will rattle, shake and roll everything within Kilometers (420-Rocket's 32 Raptor engine burns 21.5 tons of fuel every second! - twice the rate of Saturn V rocket which took men to the Moon more than half century ago). Colonizing a dead planet (Mars), is Musk's fantasy! Destroying a living planet for the sake of colonizing a dead one is not progress. Texas coast lines have been ravaged by petrochemical industry for decades. Bocha Chica is one the few remaining areas that offers refuge for wildlife and people who choose to live a good simple life. FAA approval of SpaceX projects, will pave the way for a massive industrial complex that requires 250 – 300 Megawatt power station, Kilometers of pipelines, and Natural gas (Methane) extraction via fracking. SpaceX/Musk purchased bankrupt Sanchez Energy's fracking equipment last year for the purpose of Methane extraction. All these operations, are a big source of greenhouse (CO2) emissions. FAA is the last stand between Musk/SpaceX and destruction of a fragile ecosystem and a way of life. I strongly urge FAA, not to approve SpaceX' s current operation and future expansion. Regards, Manucher Baybordi Washington, DC

From: [REDACTED]
Sent: Monday, November 1, 2021 1:54 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

As a NASA supporter, space exploration enthusiast and environmentalist who cares about life's sustainability on Earth, I am humbly asking the government agencies including FAA to grant SpaceX an approval to build "Starbase" at Boca Chica, TX, do experimental tests and eventually in future launch rockets into the space. In my believe, the positive aspects of their operations and humanity-goals outweigh the negative impacts that could potentially occurs during their work/operations, which with a proper set of oversee/site inspections can be limited even more. SpaceX main goal is to provide the cost effective transportation into the Earth orbit and beyond, allowing for a better understanding of our world and better protection of our beloved planet Earth. Respectfully, Civil/Structural Engineer Arkadiusz Kula with Family wife Ania Kula, and our teenage daughters Dominika Kula, Emilia Kula and Natalia Kula Home address: [REDACTED] cell phone: [REDACTED] (resending my comments since I have not included previously my personal identifying information)

From: [REDACTED]
Sent: Monday, November 1, 2021 1:49 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I fully support SpaceX activities at Boca Chica, TX. All humans will benefit from the work being conducted there and there is no better place in the US in which to launch rockets and conserve energy as being the closest point to the equator in the US with a sparse population allowing SpaceX to utilize the centripetal force for the Earth's rotation and expend less fuel.

From: [REDACTED]
Sent: Sunday, October 31, 2021 9:02 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please make the Starship Launch happen, obviously NASA has partnered with SpaceX for a reason. They are top of the space race and top of technology not only for space but for much more. These flights and projects that Elon and his team are working on will benefit this country and the economic side very efficiently. But he is also for the people. Many millionaires/Billionaires are not for the people. If he is for the people then we are for him. Please open your eyes and know that this is helping the human life on this planet and soon multiple planets. Enjoy your day and If you want some doge I will share some of mine just to spread the love. This is more than just a rocket to space. This is far much more. Whoever reads this... I hope you are for the people :)

From: [REDACTED]
Sent: Monday, November 1, 2021 1:44 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hello, I would like to support approval for PEA - Programmatic Environmental Assessment for the SpaceX Starship/Super Heavy Launch Vehicle Program at the SpaceX Boca Chica Launch Site in Cameron County, Texas. I live in Minnesota. In July 2021 I had an opportunity to visit Boca Chica, including the beach. I think environmental impact of the SpaceX operation is and will be minimal. On the other hand, the SpaceX mission is important for the USA and all of humanity. Best regards Josef Chlachula

From: [REDACTED]
Sent: Monday, November 1, 2021 6:59 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

There is absolutely no legitimate reason to prohibit Space X from its orbital test next month. As much as I may not agree with Musk on several issues, he has done so much to revolutionize the space industry and develop it into a truly viable American based industry. For Starship to succeed it is vital that it has an opportunity to conduct this crucial test and by so many accounts, Space X has performed admirably, in accordance with federal, state and local laws. When debris was scattered early on after unsuccessful attempts, it was dutifully retrieved so as not to sully the natural environment, and many Boca Chica residents have embraced Space X's presence. This is a pivotal moment for us, as a country and as a species. Space has the potential to alleviate some of the stresses on our own planet and extend the dreams of our forebears and search ever forward, pushing new boundaries and exploring the unknown. Space has been ignored too long and our agencies and traditional companies around it have become mired in outdated process and become fat at the teat of the taxpayer (of which I am one), whilst showing minimal progress. Musk has short-circuited that, and I believe a great number of these 'complaints' are frankly due to jealousy and come from bad-faith participants. Where is the outcry over Blue Origin wanting to fill in over 10 acres of wetlands for rocket testing? The frustration with Musk and SpaceX has at its genesis their notion that we don't have to use the old ways, plod along, and suffer interminable development times; that quality products can be built with innovation and dedication and that is turning the question of space exploration on its head. I urge you to issue permission without any qualifications for their tests next month. Respectfully, Hanya E Poczynok

From: [REDACTED]
Sent: Monday, November 1, 2021 1:43 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Rockets! Moon! Yeah!!!

From: [REDACTED]
Sent: Monday, November 1, 2021 1:42 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I want to see the big rockets go to space !!

From: [REDACTED]
Sent: Monday, November 1, 2021 1:40 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

As a NASA supporter, space exploration enthusiast and environmentalist who cares about life's sustainability on Earth, I am humbly asking the government agencies including FAA to grant SpaceX an approval to build "Starbase" at Boca Chica, TX, do experimental tests and eventually in future launch rockets into the space. In my believe, the positive aspects of their operations and humanity-goals outweigh the negative impacts that could potentially occurs during their work/operations, which with a proper set of oversee/site inspections can be limited even more. SpaceX main goal is to provide the cost effective transportation into the Earth orbit and beyond, allowing for a better understanding of our world and better protection of our beloved planet Earth. Respectfully, Arkadiusz Kula with Ania Kula, and teenage daughters Dominika Kula, Emilia Kula and Natalia Kula

From: [REDACTED]
Sent: Monday, November 1, 2021 1:37 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am sure that Space X has the resources and the ability to know the environmental impact that can be caused by the launch's and by so doing , they can take the precautions and steps to reduce it to the best of their abilities. One of which is working with y'all's agency and all the other agency's required as they have hitherto done.

From: [REDACTED]
Sent: Monday, November 1, 2021 1:35 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I will be succinct. Starship is too important to the future of our species to end up tangled in legal, bureaucratic red tape. There are countless factors which could, and given enough time inevitably will, put the existence of humanity in jeopardy. We need outposts of life in the sky. We need contingency. It is for these reasons, as well as a general love of science and a firm believer that curiosity and exploration is the pillar of what our species has gotten right, that I join with the masses, and humbly request as a tax paying, sensible citizen, with the best interest of all mankind, that the development of Starship be green-lit by the FAA, for not only this launch, but that they be given every possible support by the FAA so that the ultimate vision of SpaceX can be seen through to the end, for the good of us all.

From: [REDACTED]
Sent: Monday, November 1, 2021 1:33 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

As an anthropologist, I object strongly to the use of Boca Chica for SpaceX's maneuvers. It is destructive of an important religious site. As an environmentalist, I object because Boca Chica is smack dab in the middle of some of the richest wildlife habitat in North America - particularly that of migratory birds which are being destroyed at an alarming rate! Please DO NOT ALLOW SpaceX activities to take place there are nearby! Audrey Steiner, PhD

From: [REDACTED]
Sent: Monday, November 1, 2021 1:32 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I fully support the establishment of a « starbase » in Boca Chica, TX

From: [REDACTED]
Sent: Monday, November 1, 2021 1:28 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

[REDACTED] Save RGV Bill Berg, Agent [REDACTED]
 www.savergv.org November 1, 2021 Ms. Stacy Zee, SpaceX PEA c/o ICF 9300 Lee Highway Fairfax, VA 22031
 Email: SpaceXBocaChica@icf.com Dear Ms. Zee, Board of Directors Patrick Anderson Bill Berg Mary Angela
 Branch Jim Chapman Maria Galasso Martha Pena Molly Smith [REDACTED] Save RGV hereby submits the following
 comments regarding the Draft Programmatic Environmental Assessment for the Boca Chica Texas SpaceX
 Starship/Super Heavy Launch Vehicle Program (Draft PEA.) Incorporated in the State of Texas, Save RGV is a non-
 profit corporation organized for educational and environmental advocacy to promote environmental justice and
 sustainability primarily in the Rio Grande Valley. Members of Save RGV primarily reside in Cameron County,
 Texas. We request that all comments received during the draft PEA comment period be published and included
 as an Appendix to the Final PEA. NEED FOR AN EIS AND ACCOUNTING FOR ALL INFRASTRUCTURE, OPERATIONS,
 AND CUMULATIVE IMPACT (NOT JUST AN EA) The FAA's NEPA procedures implementing the National
 Environmental Policy Act define when a Supplemental Environmental Impact Statement (EIS) is needed, or not.
 This was cited in the FAA's 2014 SpaceX EIS. [FAA Order 1050.1F, Section 9-2] "A Supplemental EIS is not needed
 if: [REDACTED] 1 / [REDACTED] 1. "The proposed Action conforms to plans or projects for which a prior EIS has been filed and there
 are no substantial changes in the Proposed Action that are relevant to environmental concerns." SpaceX has in
 fact never launched a Falcon 9 or Falcon Heavy rocket from Boca Chica and now has no plans to do so. It has
 instead turned its site and activities into something unrecognizable in the original 2014 EIS and Record of
 Decision (ROD); a large and expanding complex to manufacture, fabricate, assemble and test the Starship and
 Super Heavy booster rocket in addition to producing fuel and power for the Starship and Super Heavy
 operations (e.g. power plant, gas extraction, gas delivery, gas treatment, gas liquefaction). The Starship and
 Super Heavy booster together will be larger than the approved Falcon 9 and Falcon Heavy by an order of
 magnitude, standing 39 stories tall, with 16 million lbs. of propellants, nearly 50% more than NASA's Saturn V
 rocket used to launch moon-landing missions. Round-the-clock experimental testing has already increased
 significantly. SpaceX has enlarged its footprint (and they plan to expand further) by increasing
 its acreage, its number of buildings, its number of employees and contractors, its hours of beach and refuge closure,
 and its number of static test firings and pressure tests. All these events significantly increase environmental
 impacts and none of them were analyzed in the original EIS. Additionally, in the short time since SpaceX has
 conducted operations at the Boca Chica site, there have been multiple explosions that disrupted resident's lives,
 scattered fuel laden rocket debris and caused wildfires that have consumed more than 100 acres of sensitive
 native habitat on national wildlife refuge land. These serious impacts illustrate how critical it is for the FAA to
 initiate a new EIS process, and for federal regulators to exercise meaningful, legally required oversight. 2. "Data
 and analysis contained in the previous EIS are still substantially valid and there are no significant new
 circumstances or information relevant to environmental concerns and bearings on the Proposed Action or its
 impacts." Most of the 2014 data and analysis is now not only invalid but wrong and misleading and significantly
 out of date by over seven years. The construction, testing and firing of the massive Starship and Super Heavy
 Booster will have much greater impacts than the rockets approved in the 2014 EIS. Because of the very
 substantial and significant changes to the 2 / [REDACTED] actions taking place at Boca Chica, virtually all the impact
 analysis in the 2014 EIS is now out of date and inaccurate. Specifically, new analysis needs to be prepared for the
 significant effects that are occurring, such as noise, light, frequency of events, fires and explosions, larger areas

of direct and indirect impacts (most likely to include the towns of South Padre Island, Port Isabel, Long Island Village and the permitted but not yet built liquefied natural gas (LNG) export terminals on the Brownsville Ship Channel namely Texas LNG and Rio Grande LNG, and the proposed Jupiter MLP crude upgrader facility and off-shore VLCC loading terminals, the storage of much more highly volatile rocket propellant that is more explosive, has greater impacts to wildlife, wetlands, vegetation and endangered and threatened species, and increased denial of public access to marine recreation and Boca Chica beach. Under economic impacts another issue is missing entirely. The latest license for the Starship tests requires \$198 million in third party liability, and federal indemnification for losses beyond that. This is higher than is required for any Falcon 9 or Falcon Heavy launch from Vandenberg AFB or Kennedy/Cape Canaveral, suggesting a far larger risk zone than was included in the FEIS or ROD. This probably doesn't include liability for the potential \$20 billion LNG terminals and LNG tankers that will likely be in the expanded risk zone, nor the proposed Centurion condensate upgrader facility with offshore export loading terminals. This list is by no means comprehensive. 3. "All pertinent conditions and requirements of the prior approval have, or will be, met in the current actions." The FAA has done an inadequate job in ensuring SpaceX compliance with many of the conditions in its 2014 Record of Decision. One example is the closure of State Highway 4 and Boca Chica beach, which was to be limited to no more than 180 hours per year. Within the first six months of 2021, closures exceeded 225 hours, often with confusing and inadequate prior notifications and last-minute changes, cancellations and revocations. Nevertheless, SpaceX now wants to nearly triple its beach closure "quota" with no opportunity for public discussion and comment. To increasingly deny access to eight miles of public beach, state parkland and national wildlife refuge is a significant human impact and needs to be addressed, particularly as much of the experimental engine and rocket testing could be done at a safer and less public testing location elsewhere. Given the wholly 3 / [REDACTED] different purpose of the project, FAA, as part of the Supplemental EIS, needs to revisit the alternatives evaluation. TIERED REVIEWS All elements to SpaceX proposals (identified in 2-1 p. 9) are, according to SpaceX's purpose and need, essential to SpaceX's Starship/Super Heavy operations. However, in the PEA Section 2.1: Proposed Federal Action, it states, "Detailed information about some of the launch-related infrastructure (e.g., exact location and design) is not currently available." Therefore, the draft PEA makes assumptions about these unknowns. It also states, "The FAA may conduct environmental reviews of additional proposed launch and reentry sites if SpaceX further develops proposals. Such reviews may be tiered off this PEA as appropriate." The practice of FAA "tier reviews" that allows further SpaceX expansion is a loophole that avoids additional environmental review, project scrutiny, and public comment. This loophole of tiered analysis to avoid environmental reviews, has been used since 2014 and it violates the standards of NEPA. It is not a sustainable method of accountability. According to FAA's order 1050.1F, "NEPA compliance and other environmental responsibilities are integral components of that mission. The FAA is responsible for complying with the procedures and policies of NEPA and other environmental laws, regulations, and orders applicable to FAA actions." (p. 1-2).1 The FAA should not "tier" reviews simply because information is not currently available from SpaceX. Due to the fact that elements like the power plant, gas treatment, and liquefaction are critical to the development and operations of the Starship and Super Heavy, all elements must be analyzed collectively as opposed to a tiered analysis. Launch/landing locations also need to be determined conclusively. An EIS is needed to determine, with specificity, all of SpaceX's plans and to accurately account for the cumulative impacts of all of SpaceX's proposals of the Starship/Super Heavy program in order to avoid, minimize, and mitigate impacts. 1

https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf [REDACTED]4 / [REDACTED] INCREASED SCOPE & OPERATIONS LAUNCH SITES SpaceX has indicated it is considering additional launch (which includes landing for suborbital missions) and reentry locations for the Starship/Super Heavy program beyond the Boca Chica Launch Site. These launch and reentry locations are in addition to the VLA and should also be considered to be alternatives to launching/landing at the VLA. Thus, the platforms and launch locations should be fully analyzed and their impacts assessed prior to licensing. SpaceX has not planned or provided details of additional/alternative launch/reentry sites. Consequently, SpaceX is negligent in its responsibilities to avoid, minimize, and mitigate impacts of the Starship/Super Heavy program, which violates NEPA standards. LAUNCH VEHICLE PEA Section 2.1.2: Launch Vehicle. This overview appears to be lacking and inadequate per the FAA licensing code Title 14, Chapter III, Subchapter 3, Sections 450.43 Payload Review and Determination; and 450.45. Safety Review and Approval. The Falcon rockets use the proven Merlin engine, which produces 0.63 MN (146,000 lbf) of thrust. The Starship and Super Heavy use the unproven Raptor engine, which can produce

approximately 2.3 MN (520,000 lbf) of thrust. Thrust on lift-off for the Falcon Heavy is approximately 17.5 MN. Super Heavy, with all 37 engines, will have a maximum lift-off thrust of 74 meganewtons (MN). Comparison between Falcon rockets and Starship rockets

	Weight (lbs)	Thrust at Lift-off (KN)	Thrust at Lift-off (Klbf)
Falcon 9	1,100,000	5,844	1,314
Falcon Heavy	3,400,000	17,532	3,942
Starship	12,000	74,000	16,600

To convert between metric units of thrust, kilonewtons, KN, and non metric units, kilopounds force, Klbf, an online force unit converter was used. The Starship Super Heavy has over four times the thrust of the Falcon Heavy. [REDACTED] 5 / [REDACTED] The Falcon rockets use RP-1 fuel (similar to jet fuel) and liquid oxygen. The Starship and Super Heavy Rockets use liquid methane and liquid oxygen. These are very major changes from the 2014 EIS which was for 12 launches per year of the tested, approved, and reliable Falcon rocket (that was actually never even launched at Boca Chica per the 2014 EIS) to an experimental testing, launch and landing program for unapproved rockets. The Super Heavy, with over four times the launch thrust of the largest Falcon, will include expected explosions, twenty Starship launches per year, and fuel and oxidizer tank testing day and night with anticipated explosions once a month. Up to 300 hours of State Highway 4 road closures are anticipated to be required for debris removal from Boca Chica beach and neighboring wildlife refuges due to expected test failures and explosions. Such major changes are not a few tweaks to a running program that can be “tiered” on the EIS, but rather are entirely new programs that require an EIS. These major changes and many others described in the PEA and discussed below demand the scrutiny of an EIS to make sure that the fragile ecosystems that support a massive variety of wildlife, some threatened and endangered, can thrive within the radically and more threatened habitat caused by their neighbor SpaceX. PEA Section 1.1 Operational Activities, p.2-2 This section states, “In 2019 SpaceX developed the Starship technology as part of the reusable suborbital launch vehicle classification analyzed in the 2014 EIS.” However, the 2014 EIS only included a possible permit or license for Boca Chica suborbital launch vehicles smaller than Falcon 9. The Super Heavy violates that condition in the 2014 EIS. A vehicle smaller than, or equal to, the Falcon 9 first stage would carry less fuel and produce equal or less noise and light at launch than the Falcon 9. Such a vehicle would create equal or less of a disturbance to wildlife, fauna and flora, than the Falcon 9 and therefore meet the environmental requisites of the 2014 EIS. It was designed and built for the Starship prototype, and tested outside of the requirements of the original EIS. Any significant environmental impact that will be made by a new addition to what was approved in the 2014 EIS requires a new EIS. 6 / [REDACTED] TANK TESTS PEA Section 2.1.3.1: Tank Tests. “SpaceX is proposing to conduct approximately 10 tank tests a month. SpaceX estimates a 10 percent rate of anomalies during tank testing. An anomaly would result in an explosion and the spread of debris.” If SpaceX is expecting about 10 percent of tests will result in explosions, they are not anomalies. The definition of anomaly is “unexpected event.” Since one explosion is expected a month, will the noise, light, and debris from the explosion all be contained within the property line of SpaceX? If not, there is no reference in the section about discussions and sign-off by the interested parties who represent wildlife welfare and habitats. This may call for an EIS to bring the parties together. Furthermore, given the apparent lack of understanding of the outcome of the tests, it would be prudent for an EIS to be written. Additionally, this indicates additional closures not specified or calculated in the Draft closure proposal. Section 2.1.3.1 inadequately factors in the cumulative noise, lights, debris, closures, and air quality impacts of the project. DESALINATION PLANT PEA Section 2.1.4.5 p. 31 Desalination Plant. A desalination plant will pump groundwater and inject the waste brine deep underground. The entire plan description for operating the plant is fewer than 200 words, even though it involves the “installation” of two 2950 deep reinjection wells. SpaceX indicates that it will extract water from two new wells and extract water at a rate of 40 gallons per minute (gpm) and inject brine into an injection well at a rate of 15 gpm. It is not indicated if water extraction is the amount for one or both wells. SpaceX also does not indicate how often these operations will occur, nor do they disclose the use of chemicals such as copper and chlorine that are often used in the desalination process. An EIS is needed to assess impacts of these operations including, but not limited to air emissions, water quality, aquifer impacts, sound, and light, in addition to avoiding, minimizing, and mitigating impacts. NATURAL GAS PLANT PEA Section 2.1.4.10 p.32 The natural gas “pretreatment” plant for purifying the natural gas that will be used for rocket fuel and other plant needs is described in about 100 words. The power plant and liquefier are likewise very briefly described. SpaceX has not provided design plans, source of natural gas, source of gas delivery, pipeline locations (if using pipelines), or the amount of gas to be processed annually. With regard to pipelines to deliver gas, as reported by 7 / [REDACTED] Tech Crunch, SpaceX inquired about reusing a defunct natural gas pipeline running through the Lower Rio Grande

Valley National Wildlife Refuge. However, that pipeline was permanently abandoned in 2016, according to the official and state records. The official told TechCrunch that the defunct pipeline now houses fiber optic cable for a University of Texas Rio Grande Valley internet connection.² Details (e.g. location, emissions, design plans, visual impacts, etc.) of purification and liquefaction are not mentioned including, but not limited to, thermal oxidizers, heaters, flares, pipelines, and storage tanks. These elements will have impacts on environmental impact categories identified in the PEA, particularly regarding land use compatibility, air emissions, sound, visual effects, cultural resources, and biological resources. Lacking specificity, the emission total in Table 3-2 (p. 44) is not substantiated nor can it be verified. Without full disclosure of these proposals in an EIS, the impacts cannot be identified and assessed. Additionally, alternatives have not been evaluated.

POWER PLANT PEA Section 2.1.4.7 Power Plant: The 250-megawatt power plant that will generate power for activities at all SpaceX facilities, including the VLA, would normally qualify as a major new source of air pollution under the Clean Air Act. Therefore, the impacts of this plant need to be fully disclosed, analyzed, and mitigated to properly comply with NEPA. Alternatives to this proposal are not identified. If it is for electricity, even hundreds of megawatts, the electricity can be provided by SpaceX's electricity provider using the new three phase electric line to be built for SpaceX. Additionally, the source of the natural gas to feed the natural gas turbines for the power plant is not identified. Sourcing of gas is an impact that is potentially significant, especially if it requires pipelines outside the region of influence or requires a route through environmentally protected areas.

ORBITAL LAUNCHES PEA Section 2.1.3.4 Orbital Launches: There are several undetermined scenarios proposed by SpaceX, in regard to the exhaust plume. This is a new level of rocket energy discharge and needs a full EIS. SpaceX admits in Appendix G-Exhaust Plume Calculations (pp. 9-10) of the PEA that "Due to the complexity of how the 31 engines are integrated into the base of the Super 2 <https://techcrunch.com/2021/10/08/the-mystery-of-elon-musks-missing-gas/> ^{(b)(7)(D)}8 / ^{(b)(7)(D)}Heavy vehicle, there is not a simplified method to directly predict the air entrainment and exhaust burnout chemistry for the installed engines. An extensive computational fluid dynamics (CFD) analysis would likely be needed to fully address the entrainment process." This is an admitted unknown regarding a fundamental aspect of the entire program. An EIS would provide more confidence in the projections.

PEA Section 2.1.3.4: Orbital Launches. The Draft PEA references SpaceX's launch manifest is still being developed at this time. To avoid, minimize, and mitigate impacts, a draft schedule is needed to provide the public, federal, state, and local agencies to identify any conflicts in wildlife biological cycles (e.g. migrations, breeding) to ensure that impacts to wildlife are minimized during critical life cycle stages.

PEA Section 2.1.3.4: Orbital Launches. SpaceX states, during unmanned orbital launches that require expending Super Heavy or Starship, that they would not attempt recovery unless they receive reports of large debris. Because SpaceX is claiming their project is needed to achieve National Space Policy goals, FAA and cooperating agencies should ensure that SpaceX be held accountable to National Space Policy goals, one of which is to "create a safe, stable, secure, and sustainable environment for space activities, in collaboration with industry and international partners, through the development and promotion of responsible behaviors".³ FAA and NOAA must hold SpaceX accountable with regards to debris from intentional and unintentional consequences.

GROUND CLOSURES PEA Section 2.1.3.5.1 Ground Closures: For purposes of commenting on the draft PEA, we believe the Texas General Land Office (GLO) recommendation, dated January 22, 2021, during the scoping period for the EA, best describes how closure hours should be calculated. "An option is to count closure hours as the time State Highway 4 and Boca Chica Beach are publicly scheduled to be closed, unless notice of different hours or a cancellation is given at least 48 hours before the closure is scheduled to begin." The ongoing inconsistencies in process, notification, and exceedance of closure hours impede on operations of federal and state land managers, and other stakeholders, who support federal and state agencies in land and wildlife management.

³ National Space Policy of the United States of America. December 9, 2020, p5. ^{(b)(7)(D)}9 / ^{(b)(7)(D)}SODAR Section 2.1.3: Operations. This mentions SODAR (sonic detection and ranging), which operates 24/7 and "sends out a short sonic pulse every 15 minutes that can reach 92 decibels (dB) at the source..." This was omitted from the noise impacts section and needs to be addressed as it relates to cumulative impacts on beachgoers, and wildlife. This, along with the continuous lighting, increases the possibility or probability of this area being unsuitable to humans for recreation and unsuitable and discouraging, (if not fatal) to wildlife for their survival.

SAFETY, HEALTH & CLIMATE NEED OF A LAUNCH FAILURE ANALYSIS The draft PEA does not address the significant concern voiced in the January 22, 2021 FAA public scoping comments regarding the need for a launch failure analysis (PEA p. 6) Commenters pointed out the proximity of two LNG facilities (Rio Grande LNG and Texas LNG) at the Port of Brownsville that

have been in process prior to SpaceX's Starship/Super Heavy activity. The Department of Interior commented on the 2017 Written Re-Evaluation stating, "the construction of the Stargate Building and the three proposed Liquefied Natural Gas Terminals at the Port of Brownsville that have filed for a FERC permit constitutes significant new circumstances and/or information that is relevant to evaluating the cumulative effects of the expanded SpaceX project." The response in the Written Re-Evaluation stated, "The FAA disagrees with the NPS. The Stargate building and Port of Brownsville LNG facility were analyzed in the cumulative impacts chapter of the 2014 EIS. The additional infrastructure SpaceX is proposing to construct in largely the same footprint that was analyzed in the EIS does not substantially change the cumulative impacts analysis in the EIS." This was an inaccurate statement. An analysis on the impact to Rio Grande LNG and Texas LNG still remains to be analyzed by the FAA and/or the Federal Energy Regulatory Commission. The 2014 EIS referenced only one LNG project, Gulf Coast LNG Export LLC. Additionally, a cumulative analysis and launch failure analysis must also include Centurion's/Jupiter MLP's proposed crude upgrading, processing, and export facility that includes marine loading berths 6 miles off shore for the loading of barges and VLCC ships (65,000dwt Panamax sized) at 30,000 barrels per hour. The FAA and SpaceX, in the interest of public safety, must account for worst case scenarios when Starship/Super Heavy explodes 10 / 100 during launches and landings. According to the PEA, such "anomalies" are expected (and in fact have already occurred). Without a launch failure analysis, the Port of Brownsville, Port Isabel, South Padre Island, and Long Island Village, as well as the immediately adjacent wildlife refuges and state parks, cannot adequately plan for emergencies. A launch failure analysis is also needed to determine the impacts to the surrounding environment and wildlife. The Anomaly Response Plan that addresses road closures, based on the prediction of one anomaly per month, assumes that 300 hours/year (PEA p. 9), or 25 hours per anomaly, will be sufficient to clean up the area. Considering the amount of time that it took to clear the March 30, 2021, explosion that involved three Raptor engines, this is likely an underestimation of the time that roads and the beach will have to be closed for anomalies. This is in violation of the Code of Federal Regulations 450.110 Physical Containment, and 450.133 Flight Hazard Area Analysis. Additionally, the definition of the word anomaly is "something that deviates from what is standard, normal, or expected." It is therefore misleading to use the word anomaly to describe potential launch failures, operational failures or explosions that are expected during testing. AIR QUALITY/CLIMATE The Draft PEA does not include the cumulative amount of Green House Gasses (GHG) emissions from auxiliary infrastructure and operations. It should include the total emissions from all proposed launches, landings, testing, as well as emissions from construction, methane venting, the natural gas pretreatment system, the power plant, the desalination plant, vehicular traffic, and road maintenance. These contributing emissions are significant. Consequently, the PEA's greenhouse gas/global warming analysis is inadequate. If one day of the 2018 US total GHG emissions is compared to (their estimate of) the annual SpaceX operations, the SpaceX annual is 0.34%. (PEA Table 3-3. Estimated Carbon Dioxide Equivalent Emissions Comparison). It should be noted that Port Isabel Junior High is just over six miles away (PEA p. 137). Children's proximity to the SpaceX complex is glossed over in Section 3.15.3.3. A full EIS would give a more complete analysis of air quality issues for children and others with compromised health issues as well as the cumulative effects of pollutants that tend to be present in areas with lower economic opportunities. 11 / 100 ENVIRONMENTAL JUSTICE & SOCIOECONOMICS BEACH ACCESS PEA Section 3.15.4.2 Closing Boca Chica Beach is an environmental justice issue. With a population of 186,738, the 2020 census reports Brownsville residents are 95.2% Hispanic and other minorities. The median income in 2019 dollars was \$38,588, with a poverty rate of 29.3%. For many Hispanic and low-income residents of Brownsville, Boca Chica is "their" beach, as it is closer than the beaches on South Padre Island. It is easily accessible, except for the closure hours, and especially in the summer months and during holiday weekends, when traffic to/from South Padre Island routinely backs-up on State Hwy 48 and State Hwy 100. And most importantly to a low-income community, entrance to Boca Chica Beach is free compared to \$14 (March-Sept., off season \$12) per daily visit to Cameron County Beach Access 5, which allows drive-on visits and best replicates the natural beach experience at Boca Chica. Cameron County Beach Access 6 is free off-season, but requires use of a 4x4 vehicle which is not an available or affordable option for many. The other free SPI Beach Access points located behind the beachfront hotels, are not drive-on beaches and are much more challenging (in-season parking availability near access points is very, very limited) for day visitors. The approximate driving time from Brownsville to Beach Access 5 is approximately 50 minutes during the off-season and at times when there are no traffic back-ups. When traffic backs-up, driving time for the trip could extend to approximately 2.5-3 hours. The conclusion that there are other cost-free public beach access

locations within the vicinity of local communities does not accurately and appropriately consider the actual logistics involved in getting to the other beach locations, especially for a low-income minority community. The PEA lists 500 closure hours for launches and tests and an additional 300 closure hours for the clean up of anomalies (predicted to be one per month). Using this plan, the beach will be closed a considerable number of partial days, making the number of days that this Brownsville minority group of residents will be denied beach access very high. Therefore, the proposed action, which includes the closing of State Hwy 4 and Boca Chica Beach, would result in disproportionately high and adverse impacts to lower income indigenous populations who for generations have relied on access to the waters for economic and familial subsistence. 12 / ~~OBJ~~IMPACT ON INFRASTRUCTURE The Draft PEA (PEA Section 3.5, p. 52) authors admit there is structural damage potential due to orbital launch events and predicts the percent of the people from South Padre Island, Laguna Vista, and Tamaulipas, Mexico who will likely file a damage complaint: KBR assessed the potential for structural damage due to orbital launch events using the potential for structural damage claims. An applicable study of structural damage claims from rocket static firing tests indicates that, based on Maximum Unweighted Sound Level (Lmax), approximately one damage claim will result per 100 households exposed at 120 dB and one damage claim per 1,000 households exposed at 111 dB (Guest and Slone 1972). SpaceX does not, however, address possible damage to current and proposed infrastructure at the Port of Brownsville and the Brownsville Channel as is required in Code of Federal Regulations § 450.110 Physical containment. Sonic booms, in particular from Super Heavy landings will cause structural damage: Predicted overpressure levels for a Super Heavy landing range from 2.5 psf to 15 psf. Brazos Island State Park, Boca Chica Bay, Boca Chica State Park, portions of the NWR, Boca Chica Village, and Tamaulipas, Mexico would experience levels up to 15 psf. Boca Chica Beach and the southern tip of South Padre Island are within the 6.0 psf contour. South Padre Island, including residences, Port Isabel, and the Port of Brownsville ship channel are included in the 4.0 psf contour (PEA p. 57). These psf values cause “regular failures” of glass and plaster at the least, and damage to sinks, roofs, walls and water pipes at the higher levels (PEA pp. 58-9). Significantly, the single bridge from Port Isabel to South Padre Island is not mentioned in the noise damage (long and short term) assessment in Appendix B. LOCATION Section 2.1.1: Location only mentions distances from the Launch and Loading Control Center (LLCC) and the Vertical Launch Area (VLA) to Mexico, which are only 1.3 miles and 2.2 miles respectively. Full analysis of distances to closest points of populated land, (e.g. Matamoros, City of South Padre, Port Isabel, Long Island Village, Laguna Vista, Port of Brownsville), as well as South Bay Coastal Preserve is necessary information. Other necessary information is the distance to the causeway-- most importantly the highest point of the causeway, as well as data on cumulative vibrational impacts over time from launch, reentry and/or sonic booms and anomalies (explosions). This data should include projected model trajectories of debris to any portion of the causeway, drawbridges, and the ship channel. 13 / ~~OBJ~~ECONOMICS PEA Section 1.3: One of the purposes of this project is mentioned as benefiting the public interest, yet this entire section only cites U.S. Government goals of space travel and “commercial customers.” As this is taxpayer funded, the vague term commercial customers needs clarification. It further states that the goal is to encourage private sector activities through the cost effective delivery of cargo to the moon and Mars. A discussion of the scope of the private sector activities, identification of types of commercial customers, and project cost effectiveness is necessary. PEASection1.4: PublicInvolvement.(PEAp.6)Thereweretwiceasmanynegativeconcerns (than positive) that covered issues of environmental justice, social justice, public safety, constitutional rights, and cultural impacts. The positive comments were potential for jobs and economic gain, innovation in space technology and ideal southerly location. Employment data that shows fully what is or has been the economic and job growth to date, and more importantly, from the local labor force is needed, in addition to realistic projections for economic benefit to the area when costs are factored in. Airport closures: According to the document (PEA pp. 23-4), there is the possibility of airport closures. IsBrownsvillereadytorelinquishcontrolofitsflightscheduletoanoutsidecompany? Will airlines want to relocate here (to our newly expanded airport) if they know that SpaceX can mandate an airway closure and idle planes, or force flight cancelations? PEA Section 2.1.3.5.1: SpaceX identifies that the Brownsville Shipping Channel would be temporarily restricted during launches. SpaceX does not provide an estimate on the amount of time of restrictions of activity in the shipping channel. If the shipping channel restrictions undergo a similar process and procedure to what has occurred with road closures (e.g. last minute cancellations, rescheduling, etc.), potential economic impact could result. An EIS is needed to identify the cumulative socioeconomic impact on the businesses (current and proposed) and operations at the Port and the

Channel, and other economies such as charter fishing operations, and commercial fishing operations as well as tour boat operations, recreational fishing and all recreational, commercial and science research activities conducted in the bodies of water that are adjacent to and/or are enjoined by the channel. 14 / [REDACTED] Additionally, a cumulative analysis of socioeconomic impacts in a new EIS is needed to assess the impacts on: ● 3.14.4.1: Energy Supply and Consumption: SpaceX has not demonstrated they can source their own natural gas, let alone in enough quantities for their operations and in the time period of which they will operate at Boca Chica. SpaceX has not defined the total amount of natural gas they will use for their cumulative operations. It is more plausible that SpaceX will require the sourcing of gas via a pipeline connection or use of their own pipeline from Eagle Ford Shale region or elsewhere. An EIS is needed with a full disclosure of the amount of resources used to examine socioeconomic impacts. ● An EIS is needed to examine the number of new employees, available housing, the impact to the housing market, gentrification, and the pricing out of low income residents from housing and neighborhoods. Gentrification and pricing out of low income residents has been identified by the Brownsville Commissioners and Cameron County Commissioners. ECOLOGY AND WILDLIFE 2.1.1 Location: The location description is mischaracterized. The majority of adjacent surrounding land is part of the Lower Rio Grande National Wildlife Refuge, and also fails to mention the proximity of the South Bay Ecological Preserve, and near the lower Laguna Madre. The omission of protected lands surrounding the Boca Chica Launch Site undermines the recognized importance and presence of the ecology and habitat that are protected. Regulatory decisions regarding SpaceX's proposals must bear in mind and account for these protected lands surrounding SpaceX's Boca Chica Launch Site. Figure 2-2 further mischaracterizes the location. The image predates much of SpaceX's development. Current and closer aerial imagery should be used to reflect the current state of habitat and development. Considerable habitat damage has occurred since the current image was taken, most of which has been in the period between the previous EIS and the multiple addendums and Written Re-Evaluations were implemented. Section 2.1.1 inadequately describes features of the ecosystems as it states the location is characterized as having "salt flats" and low dunes. Salt flats are dried up desert lake beds. There are no salt flats at this location and the dunes are relatively high, as some can block the view of the LLCC. Tidal flats are rich in marine vegetation and support a wide range of life and 15 / [REDACTED] are considered critical habitat. To correct these misconceptions of the local ecosystems, an EIS should be done. The EPA has designated aquatic habitats at the site as Aquatic Resources of National Importance, which brings with it special procedural requirements for Clean Water Act, Section 404 permit review. This would seem to suggest that the impacts of the proposed actions may be significant as well, suggesting in turn that the FAA should prepare an EIS. On page 99 of the PEA it is stated that, "The Proposed Action would adversely affect approximately 11 acres of piping plover critical habitat in the floodplain....Unit TX-1 is 7,217 acres, and the total designated piping plover critical habitat in all of Texas is 71,053 acres. Thus the amount affected by the Proposed Action (11 acres) would make up a small percentage of all available piping plover critical habitat. Accordingly these impacts are not considered significant as the habitat loss represents only a small percentage of similar habitat located within the floodplain." This is a narrow view of the impacts on floodplains as it does not take into account the compounding of the problems for migratory and nesting birds created by the disturbances from light and noise from the whole of operations at SpaceX. The piping plover is listed as a threatened species and their habitat is also classified as critical. Both circumstances consequently mean that any impact to the piping plover, or their habitat, is significant. Impacts to the piping plover and their habitat must be avoided. PEA Section 3.9.3.1 and 3.9.3.2 Surface Water and Ground Water: The construction will cause "increased turbidity in surface waters that may smother fish eggs, aquatic insects, and oxygen producing plants, increase water temperatures, and reduce oxygen levels. Use of construction equipment could result in release of contaminants (e.g., leaks, drips, and spills of petro-chemicals) that could reach nearby waterways and adversely affect water quality. SpaceX would implement its Spill Prevention, Control, and Countermeasures (SPCC) Plan". The SPCC should be included in its entirety in an EIS. Any permit requirements applicable should also be summarized and included. Additionally, the frequency of water sampling by TCEQ Texas Surface Water Quality should be defined. In section 3.14.4.2 Natural Resources, it is stated that "SpaceX uses groundwater for various operations and for personnel use at the facilities. Potable water would either be delivered by truck or pumped from an existing on-site well at the VLA. SpaceX would install water distribution lines to distribute the potable water from the water tower to the facilities to provide potable water 16 / [REDACTED] to the area. The existing well at the VLA would draw water from the Gulf Coast Aquifer (the Chicot Aquifer)." The Chicot Aquifer in the Houston area has been pumped intensively which has resulted in "significant

water-level declines” (<https://setgcd.org/maps/>). The south end of these aquifers are already briney, mostly due to oil and gas development. At what increased rate will land subsidence occur with the increased pumping? Where is the equation that has been calculated for that proportional rate? In the original 2014 EIS, personnel levels were expected to be a single shift of 30 full-time employees working 8:00 to 5:00 except for during launch operations when there would be more. It was stated that between 2016 and 2025 the number would be 130-250. The plan for potable water to “be delivered by truck to a holding tank at the VLA or pumped from a well on the property” and the plan for a “septic system (that) would consist of a mobile above ground processing unit and holding tank” needs reevaluation for the greatly increased, multiple-shift work force. Only with an EIS, can the impact of water resource use, including Brownsville’s municipal sources, by SpaceX operations be adequately analyzed.

Disturbance of the Rio Grande Alluvium. Alluvial soils are important as they remove sediments and nutrients flowing in the adjacent water. They can also remove other contaminants from rivers and improve water quality for downstream communities. SpaceX says this won’t be affected by pile driving, however, the PEA insufficiently analyzes this issue. The disturbance to wildlife is downplayed in the discussion of “noise-induced startle response” (PEA pp.113-114). While it is acknowledged that, “A startle response from nesting birds can result in broken eggs or cause immature young that are not flight-capable to flee the nest. Repeated nest failures could eventually trigger desertion of a nesting area.” The issue is not resolved since, “There are no mitigation measures currently available to reduce the chances of noise-induced startle responses but monitoring of select species could determine if noise was responsible for reduced reproductive success.” It then speculates that “Noise from the Proposed Action would not be expected to cause a significant impact because the noise events are infrequent and short-term and would not result in impacts at the population level.” The words infrequent and short term downplay the effects, especially when other negative effects of increased lighting and road traffic are added to the day-to-day conditions. In the Starship Noise Assessment for Operations at the Boca Chica Launch Facility found in Appendix B of the Draft PEA it states, “As mentioned, DNL is necessary for policy. The next two metrics (L_{Amax} and SEL) are A-weighted and provide a measure of the impact of individual [REDACTED]17 / [REDACTED] events. Loud individual events can pose a hearing damage hazard to people and can also cause adverse reactions by animals. Adverse animal reactions can include flight, nest abandonment, and interference with reproductive activities. The last two metrics, OASPL or L_{max} (the maximum overall sound pressure level), for individual events; and spectra, may be needed to assess potential damage to structures and adverse reaction of species whose hearing response is different from that of humans. Reported levels are A-weighted unless otherwise noted.” (p. 3 Starship Noise Assessment for Operations at the Boca Chica Launch Facility; 8/18/2021) What is not even addressed is the effect of the shock wave that will occur from the launch of the Starship. Since the integrated Starship/Super Heavy will be twice the power of the Saturn V, that would make the “noise” at launch 230 decibels. At 190 decibels a shock wave occurs. This is not noise. Sound of this magnitude will deafen anything living in the area, and for animals, deafening is fatal. An EIS is needed to assess the adverse reaction of all species. In the PEA Appendix E Section 4(f), p. 5-6, the FAA states that it is seeking input regarding the effect of road closures and other access restrictions and noise levels on the NWR. Unless an EIS is completed, how will this NWR assessment be implemented? Section 2.1.3.7: SpaceX has not coordinated closely with USFWS and TPWD for debris removal to ensure minimal damage to the tidal flats. Previous debris removal of failed Starship landings has resulted in damage to refuge areas, particularly in tidal flats. This has demonstrated either a lack of an anomaly response plan, or a failure in implementation. In coordination with applicable agencies and organizations, an anomaly response plan that includes restoration strategies for damaged areas should be completed and included in an EIS. An EA without this plan fails to identify avoidance, minimization, and mitigation of impacts to the ecology and wildlife of the surrounding NWRs, violating NEPA. Section 3.10.3.2 references the Marine Habitats and Wildlife impact assessment. This only addresses activities related to downrange recovery or landing of rockets in the Gulf of Mexico. The Essential Fish Habitat Assessment completely ignores the adjacent South Bay, which provides EFH for a wide range of commercially/recreationally important fish and shellfish. It is also considered to be a nursery area for Atlantic bottlenose dolphins. Section 3.10.4.1: An EIS is needed for SpaceX proposals particularly regarding impacts to wildlife from construction expansion of the VLA and construction of launch related infrastructure 18 / [REDACTED] such as the power plant, LNG plant, and desalination plant and impacts on wildlife. The claim that SpaceX construction would be short term is not accurate as evidenced from non-stop construction operations since initial ground breaking at the Boca Chica site. Currently, it has been reported that increased traffic (e.g. SpaceX employees, workers contracted with

SpaceX, visitors, etc.) and traffic exceeding the speed limit has led to an increase of wildlife mortality on State Hwy 4. An EIS is needed to account for all construction and operations, including a timeline of SpaceX proposals. Cooperating agencies should identify avoidance and mitigation strategies, as well as implement a plan for enforcement. To the north and south of State Hwy 4 is the Lower Rio Grande National Wildlife Refuge that provides habitat for federally Threatened or Endangered species. Without specifics of design plans and construction timelines, SpaceX's claim that construction impacts on habitats and wildlife are anticipated to be less than significant and that construction under the proposed action have a similar negligible impact is not substantiated. In reference to contracting a qualified biologist for pre/during/post construction monitoring (Section 3.10.5), SpaceX does not identify who or what entity would be contracted. Save RGV recommends USFWS and TPWD be consulted and be responsible for selecting the qualified biologist (Coastal Bend Bays and Estuaries has been used in the past). Furthermore, the monitoring, documentation, and data particularly during bird migration season, needs to be openly shared with USFWS, TPWD, and openly published and accessible to the public.

3.12.4: Environmental Consequences: The determination that the "Proposed Action is not expected to result in significant land use impacts because the Proposed Action is consistent with existing uses of land, would not change land use, and would occur according to existing plans and procedures" is not substantiated due to inadequate and missing information about proposed infrastructure and operations. An EIS is needed to determine compatibility of land use and environmental consequences. For instance, the gas treatment and liquefaction (LNG) infrastructure and operations are not fully detailed. Potential land use conflicts arise with the source of gas and delivery of gas to the power plant and LNG facility which would likely require a pipeline to go through either the Lower Rio Grande Valley National Wildlife Refuge, Boca Chica State Park, or Laguna Atascosa National Wildlife Refuge.

Section 3.9.4.3 p. 95: The determination that "the Proposed Action includes all practicable measures to minimize harm to wetlands that may result from construction" is erroneous and not substantiated. As stated in the PEA, "Construction activities could also affect adjacent wetlands 19 / [REDACTED] through ground disturbance activities and use of construction equipment" is a recognition that all practicable measures to minimize impacts have not been taken. In fact, it is admitted to in the PEA that the USACE has not yet completed its evaluation of SpaceX's proposed impacts and wetland mitigation pursuant to CWA section 404(b)(1) Guidelines (40 CFR 230) and section 404q.

PEA Section 3.10.4.1. Terrestrial Habitats and Wildlife. It is stated that the 2014 EIS speed reduction measures will be implemented to mitigate construction vehicle strikes and fatalities with wildlife. Unfortunately, the situation has gotten worse as vehicular traffic has increased. Roadkill events need to be quantified based on what has occurred so far with the current amount of vehicular construction traffic.

ALTERNATIVES The PEA should examine more alternatives, rather than just the "all or nothing" alternatives. One of the other alternatives that should be included in an EIS is moving the testing of Super Heavy to a designated large rocket testing site, such as Provo, Utah or Stennis AFB in Mississippi. The latter is where the Saturn V rocket was tested, and where the Space Launch Systems (SLS) rocket is currently being tested. Another alternative should include test launching Super Heavy offshore or from Cape Canaveral. Noted is a reference in Appendix A, page 3, indicating that NASA has already completed an environmental assessment for launching the Starship Super/Heavy at KSC "NASA.2019. Environmental Assessment for the SpaceX Starship and Super Heavy Launch Vehicle at Kennedy Space Center (KSC).4 Alternatives considered are only those pertaining to launches/landings. Alternatives to minimize impacts of other operations have not been considered. SpaceX's proposed operations include elements that are identified as necessary for their launch operations (identified in Table 2-1 p. 9) including, but not limited to, the power plant, and gas treatment and liquefaction. Alternatives to avoid, minimize and mitigate impacts from such elements of SpaceX operations have not been considered. These elements to operations need more analysis to determine impacts and alternatives, particularly the source and delivery of natural gas for the power plant and natural gas treatment and liquefaction but also for other elements such as the desalination plant. Other elemental alternatives not considered to reduce impact is off site parking lots and use of shuttle busses, carpools or vanpools. These alternatives would mitigate impacts to runoff, aquatic habitats, ongoing issues with traffic, violation of speed limits, and wildlife mortality on 4

https://netspublic.grc.nasa.gov/main/20190919_Final_EA_SpaceX_Starship.pdf p256 [REDACTED]20 / [REDACTED] State Hwy 4. The proposed parking lot could potentially impact 14 acres of seagrasses that lie within 1 km to the north. Parking lot construction could result in increased sediment loading to Boca Chica Bay, potentially resulting in increased light attenuation on the seagrass beds. Seagrasses are highly sensitive to reductions in light

availability. Dunton et al (2003) recommended no dredging within 1 km of seagrass beds in Laguna Madre. LAWS AND REGULATIONS • Table 2-1 lists elements of the proposed action. SpaceX has already been constructing some of the infrastructure prior to approval of this PEA. As one example, SpaceX has been violating this by continuing to build infrastructure including a 450 foot integration tower. NEPA is very clear that project construction cannot begin (“irretrievable and irreversible commitment of resources”) until the environmental review is done. SpaceX must be held accountable for any and all NEPA violations for unapproved/permitless construction. • SpaceX must be prohibited from operating in the Boca Chica / refuge area. 40 CFR1501.3 requires a full Environmental Impact Statement (EIS) because SpaceX’s activities violate strictly enforced federal law, the Refuge Improvement Act, which mandates that no use of the refuge is allowed if it is incompatible with purposes of refuge, which is conservation of lands for the benefit of wildlife. SpaceX’s activities are incompatible with the Refuge and must be disallowed altogether. Additionally, the Department of Transportation Act requires the consideration of natural resources during project development. 23 U.S.C. § 138 Federal regulations state that a constructive use of property protected by Section 4(f) occurs when a project does not incorporate land from a Section 4(f) property, but the project’s proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the property are substantially diminished. 23 C.F.R. § 774.15 identifies potential causes of constructive use include shifts in user population because of direct use of bordering properties, and/or non-physical intrusions such as noise, air pollution, or other effects that would substantially impair the resource’s use.” Constructive use is occurring around the SpaceX site with regards to accessibility to Boca Chica Beach, South Bay Coastal Preserve, Lower Rio Grande NWR, and Palmito 21 / [REDACTED] Ranch Battle Field, and declining nesting of certain bird species in NWR areas near SpaceX as documented by the Coastal Bend Bays and Estuary Program. Section 4 (f) requires all possible planning to minimize harm resulting from the use; this has not been practiced, documented, or evidenced on the behalf of SpaceX or in the PEA. Furthermore, an accurate determination of impact is not achievable due to lacking information on elements of SpaceX’s operations, and has thus failed to avoid, minimize, and mitigate impacts. A true and accurate finding of effects of SpaceX’s proposals under Section 4(f) and Section 106 is not possible. In all of the foregoing, FAA is overstepping its statutory authority in making a compatibility determination. That is a call that only USFWS can make, not the FAA. • The Endangered Species Act: the scope of activities vastly exceeds that to which the original biological opinion responds, since that opinion was issued for regular launches of a smaller, proven rocket only, not one in its testing and development phases, when explosions and failures are expected. • Texas Open Beaches Laws are being violated. Texas Constitution. Art. 1 sec. 33; 61 Tex. Nat. Res. Code Sec. 61.011: The public has an unrestricted right to use and a right of ingress to and egress from a public beach. Closure of Boca Chica beach and State Highway 4 for SpaceX activities, deprives the public of the use of the beach, and therefore is in violation of the constitutional rights of the people of the State of Texas. Closures are also violations of Section 4(f) of Department of Transportation Act of 1966. Letters to the FAA from the Department of the Interior, dated January 10, 2014 and October 7, 2020 identifies the ongoing issues and lack of avoidance with regards to constructive use relating to closures. • Part of the existing facility lies within Coastal Barrier Resources System Unit T12. Therefore, if this existing project includes any Federal funding, it would violate the Coastal Barrier Resources Act (CBRA). Similarly, if any Federal funding is involved in the current proposed expansion, it too would violate the Coastal Barrier Resources Act. Finally, FAA's statement that SpaceX intends to use the site to meet what it claims are official US space program goals, suggests that SpaceX intends to use the site to accomplish US government funded missions, which would appear to violate the CBRA. [REDACTED]22 / [REDACTED] Violations may include federal funding of \$14.4 million.⁵ • Even more egregious, the PEA explicitly states that it is SpaceX's intent to participate in FEMA’s National Flood Insurance Program (NFIP) (3.9.4.4 Floodplains; p. 98; 1st complete paragraph; 2nd sentence). Note that, in particular, the CBRS is intended to restrict the ability to obtain National Flood Insurance in CBRS units. The PEA must be revised to reflect this, and FAA must acknowledge that it is unacceptable for SpaceX to pursue Federal flood insurance for portions of the project that are on, or would be on, CBRS units. Regarding the following assertions, as stated in 3.9.4.4 p98: “The design engineer will certify that the design elevation will withstand the depth and velocity of 100-year flood events (hydrostatic and hydrodynamic loads), any potential increase in wind load, or any other relevant load factors. Compliance with the NFIP as well as county regulations would ensure that the construction will have no significant impacts on floodplain storage and base flood elevations”. This is not

possible. The close proximity to the Gulf of Mexico shoreline and the extremely low topography surrounding the site, virtually guarantee significant damage to the existing and proposed facilities during future tropical storms, due to storm surge and overwash. • 2.1.3.4 (p. 17): States SpaceX “would develop appropriate sampling protocols and water quality criteria in coordination with the Texas Commission on Environmental Quality (TCEQ).” This is not the legal process as outlined in Texas Administrative Code Chapter 307. It is TCEQ, not SpaceX, that is responsible for sampling and water quality criteria. However, SpaceX would be required to monitor discharge in accordance to permit conditions as mandated by TCEQ. SpaceX determining their own protocols regarding sampling and water quality criteria is not in accordance with Texas Administrative Code. In the absence of design plans of elements of their proposals, a full accounting and disclosure of what the stormwater pollutant load might be is lacking. An EIS is needed to account for all elements which include various types of industrial activities. • The USACE public notice for SpaceX’s current application for a Clean Water Act Section 404 permit suggests that SpaceX’s application may not be compliant with CWA Section 404(b)(1) Guidelines. SpaceX has not demonstrated required avoidance and 5 <https://spacenews.com/blue-origin-rocket-lab-spacex-ula-win-space-force-contracts-for-rocket-technology-projects/> (b)(3) / (b)(3) minimization of impacts to aquatic habitats. They have not demonstrated required consideration of alternatives. They have not demonstrated that their proposal is the Least Environmentally Damaging Practicable Alternative (LEDPA), as required by the Guidelines. Nor have they provided the public with any information regarding proposed mitigation for unavoidable impacts to aquatic habitats. • Considerations regarding alternatives are inadequate and have not been analyzed to the fullest extent as required by 2 U.S.C. 4332(E), 40 C.F.R. 1501.5(2), 40 C.F.R. 1501.5(4), Section 102(2)(E) of NEPA. OMISSIONS The following documents were referenced, but not provided in the PEA. Without access to these documents, the public can only speculate as to their existence and efficacy, and therefore makes them unenforceable. 1. Anomaly Response Plan 2. Security Plan 3. Fire Mitigation and Response Plan 4. Applicable Site Plans 5. Facility Design and Lighting Plan 6. SpaceX Roadway Closure and Traffic Control Plan 7. Flight Package Safety Data 8. Closure Notification Plan 9. Speed Monitoring Plan (at construction and operations site) 10. The Communication Process, or Plan, with the GLO, TPWD, and USFW for Debris Removal 11. Spill Prevention, Control, and Countermeasures (SPCC) Plan 12. Mitigation Plans for identified filling or destruction of wetlands 13. Stormwater Pollution Prevention Plan (SWPPP) 14. Safety Risk Analysis (missing from Draft EA) 15. Hazard Risk Analysis (missing from Draft EA) 16. Identification of the emergency response team. (Are public resources used? if so, what is the cost to Cameron County?) 24 / (b)(3) 17. The Letter of Agreement which outlines procedures and responsibilities applicable to operations including notification of launch activity; communication procedures prior to, during, and after a launch; planning for contingencies/emergencies; NOAA issuance; and any other measures necessary to protect public health and safety. Lacking the proof of existence, creation, or updates to the aforementioned plans, the prevention, response, avoidance, minimization, or mitigation to impacts cannot adequately be determined. Additionally, phrases used such as “to the extent practicable” makes plans and operations unenforceable, such as found in the PEA’s light plan. These phrases are vague, lack detail, and are open to interpretation. Due to the lack of the inclusion of the aforementioned plans and language in reference to the plans, an EIS is needed. Thank you for holding this important Public Hearing and giving the public an opportunity to comment on the Draft PEA. Respectfully, Save RGV 25 /

From: [REDACTED]
Sent: Monday, November 1, 2021 1:26 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

We love that SpaceX has come to our community. Also that we are still allowed access to the beach out there. We personally don't like to go to that beach with our family because there are no facilities also we are always concerned if anything were to happen to our kids, it is a 30 min drive for help. If we want a beach that is secluded then we just go up past beach access 5 on South Padre Island and it is almost identical to what you get out at Boca chica beach; secluded and have to pretty much have 4 wheel drive to get out there in some days. Plus there are restaurants and restrooms for beaches at SPI. Another note, yes the housing prices have gone up but they have gone up all over the country. We are glad that spacex is attracting talent to our area. And when they shop in Brownsville we benefit from the sales tax! Also I know that the school district will do all that it can to keep up with the growing demand for higher more specialized education. Please let them continue to operate and further their operations starting with this orbital launch as soon as they can. Also will y'all please consider now that there is a space force, and space travel/ tourism is already happening to create a special branch of the FAA or a department that is only focused on modern space travel with reusable rockets seeing as that is the way the technology is going. Thank you for listening to us and letting us have this opportunity to comment. Andrew Secrest

From: [REDACTED]
Sent: Monday, November 1, 2021 1:22 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am writing in support of SpaceX and an expedited review of their facility. I believe whatever local impacts might be felt are over weighed by the civilization-scale benefits that they pursue.

From: [REDACTED]
Sent: Monday, November 1, 2021 1:09 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I'm very much in favor of allowing SpaceX to launch its Starship from Boca Chica. History is being written there!

From: [REDACTED]
Sent: Monday, November 1, 2021 1:05 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

As a recent STEM graduate, it's important that the United States have a strong space presence that encourages future generations to dream about working in a future where we are constantly exploring and pushing boundaries. As history has proven, many of these ground breaking discoveries ultimately end up trickling down into innovations that help everyone. With climate change looming on the horizon of every millennial and gen z's mind, space gives everyone the opportunity to dream of an exciting future instead of dwelling on impending doom. Please allow SpaceX to continue development of the Starship program.

From: [REDACTED]
Sent: Monday, November 1, 2021 12:47 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please allow SpaceX to build the rocket factory. They have been a huge support to the local and national community. They also allow helped Texans during the winter storm of 2021.

From: [REDACTED]
Sent: Monday, November 1, 2021 12:35 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I want to convey my and my family's support for the construction and rapid utilization of SpaceX's Boca Chica facilities to drive America's presence in space and maintain leadership in this critical next phase of technology, innovation, communications and capacity to support lunar and other space missions. Boca Chica is a global first and unique to the US and represents a powerful symbolic and material advantage in America's role in shaping the global future. Please allow SpaceX to continue building and testing vehicles as soon as possible so that we can maintain the current acceleration we are seeing come from SpaceX's incredible efforts there and harness this value and foundation long into the future. Thank you! Joel Shick

From: [REDACTED]
Sent: Monday, November 1, 2021 12:33 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hi! Is it the last chance for humanity to be a multiplanetary species ! Do not miss it! Is it the last chance for America to demonstrate his technological power ! Do not miss it ! Leave Elon Musk to carry the mankind in the Univers ! If you do not make this you will be blamed by your childrens and grandchildren.

From: [REDACTED]
Sent: Monday, November 1, 2021 12:16 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please allow SpaceX Starship launch to proceed without interruption. Thank you John Baker

From: [REDACTED]
Sent: Monday, November 1, 2021 12:12 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve the launch of SpaceX's Starship orbital test flight. It is important to me and to everyone I talk to. This is critical to stay on track with the Artemis project. Thank you!

From: [REDACTED]
Sent: Monday, November 1, 2021 12:12 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

mars is so cool just let them go 😎

From: [REDACTED]
Sent: Monday, November 1, 2021 12:11 PM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Elon Musk, we believe in you !!!

From: [REDACTED]
Sent: Monday, November 1, 2021 11:55 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I fully support SpaceX's launch test of StarShip into orbit from its base in BocaChica, which will be an important event in the development of human civilization.

From: [REDACTED]
Sent: Monday, November 1, 2021 11:41 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Yes, Please let Space X keep there tower as-is and let there progress continue at Boca Chica. We need them to help reach the stars again.

From: [REDACTED]
Sent: Monday, November 1, 2021 11:39 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I very much in support what SpaceX is trying to do in Boca Chica, TX. While protection of the environment is important, I have the utmost confidence that SpaceX will be a good steward of the land that they are effecting. There are few places in the United States that this type of facility can be built so a delicate balance must be struck in order to continue to advance the human species.

From: [REDACTED]
Sent: Monday, November 1, 2021 11:33 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Starships are ment to fly.

From: [REDACTED]
Sent: Monday, November 1, 2021 11:29 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I strongly support the SpaceX Starship Program. I have spent my entire adult life working US space access programs; first with the USAF then with Lockheed Martin. During that time I witnessed the demise of Apollo, the end of the Shuttle program, and the reliance on a national adversary. The space access programs supported by NASA have been and are scientifically clumsy and break-the -bank expensive. I had lost hope that the US would regain space access leadership. Now Starship has given me renewed faith. Please throw your expertise behind this excellent program. The nation needs Starship.

From: [REDACTED]
Sent: Monday, November 1, 2021 11:22 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: spacexbocachica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hello, Please consider giving the possibility to SpaceX to launch at Boca Chica it's project of Starship. From an other point of view than others can have, if we think about it, this project will take place, one way or another. If you restrict SpaceX to test Starship at Boca Chica, the company will launch its Starships in other places, which will be a lot more detrimental to the environment. So, if we consider that SpaceX will take its project to the end, it would be a lot more environmentally friendly to accept all their requests about launching prototypes of rockets. I also want to highlight, as many others I think, that the emissions of CO2 produced by Starship are negligible compared to some industries and gasoline cars and trucks. About the waste in a potential explosion of a vehicle, I want to remember that when SN11 exploded, all the waste were collected and recycled. In conclusion, in the situation as we are today, I think giving the right to operate to SpaceX is the best solution possible to protect the environment and SpaceX is already doing all they can to protect the environment. Thanks

From: [REDACTED]
Sent: Monday, November 1, 2021 11:21 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To whom it may concern, My three-year old nephew was an astronaut this Halloween, he loves Elon Musk and knows he wants to live on Mars when he grows up. When he talks about Mars with you, it's clear he knows more about how it will be to live there than anyone - he tells me about the animals like dinosaur-elephants that live there and how his mom will make purple orange juice from the purple oranges that grow there. What are you going to tell my nephew when he learns that bureaucracy stomped out his Martian home plans? I hope you will do everything in your power to give the Starship/SuperHeavy Proposal the permits and licenses necessary for the go-ahead. My nephew Ben will send a thank-you card from his Mars address.

From: [REDACTED]
Sent: Monday, November 1, 2021 11:12 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support and approve SpaceX plans for their Spaceport facilities. FAA should also approve of their plans. Russell W. Davis

From: [REDACTED]
Sent: Monday, November 1, 2021 11:04 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

"I am looking forward to seeing SpaceX continue to develop Starship at it's current location down in Boca Chica TX."

From: [REDACTED]
Sent: Monday, November 1, 2021 10:55 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please just not interfere with SpaceX's plan.

From: [REDACTED]
Sent: Monday, November 1, 2021 10:52 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

This is a message to support the SpaceX Boca Chica spaceport and orbital launches from there. I believe this is critical to allow our great country to maintain it's competitive lead in the area of space launches and also to support NASA's vision of establishing a permanent base on the moon and longer term a base on Mars. This is a modern day imperative. Please allow this and give SpaceX the necessary permits. Thank you, Pravin Chatterjee

From: [REDACTED]
Sent: Monday, November 1, 2021 10:46 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hello FAA, I'm in support of innovation especially if it keeps America first, stronger and growing. SpaceX is pushing the boundaries but it has to be in a safe and sound way. FAA, please do your due diligence on SpaceX and the FAA in the hope it keep us ahead, stronger and growing. Best Regards, T. Altheme

From: [REDACTED]
Sent: Monday, November 1, 2021 10:43 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hello - Please continue to support the SpaceX mission in Boca Chica Texas. This is a very important project that will push humanity forward in its evolution into a space faring, multi planetary civilization. Understanding safety is a priority for earthlings and the environment, please continue to work with SpaceX to keep their mission moving forward in the most efficient and safe way possible. Thank you for your consideration.

From: [REDACTED]
Sent: Monday, November 1, 2021 10:02 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hey hey FAA! Last time humanity achieved something awesome was when we landed on the moon, so the logical next step into the next awesome will be to go back to the stars! What SpaceX is doing in south Texas is right on this track and stopping it would be a huge setback!

From: [REDACTED]
Sent: Monday, November 1, 2021 10:00 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To whom it may concern I am a resident of brownsville tx, I hope the FAA will authorize the first orbital launch attempt by Space X. I am happy to have them as a neighbor and believe that space X is a safe, trustworthy neighbor. I have seen first hand the prosperity and scientific innovation it has brought to my community Thank you Ramon González Gurrola

From: [REDACTED]
Sent: Monday, November 1, 2021 9:58 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please don't let government bureaucracy stand in the way of humanities progress to the stars. Commercial cost effective access to space is of primary importance to both national security, and the success of our nation. We should and can not dally calculating risk, when the risks of not acting are vastly greater, its time for the nation to lead the world into space, and that calls for bravery in the face of risk. All the paths are risky by far the riskiest is choosing not to go.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:56 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I think spacex should be allowed to fly starship because it will better the economy and make life multi planetary.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:55 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hi, I'm from Brazil and would like to inform that SpaceX is doing an amazing work to help evolve the space program in so much little time. Please, help to keep the pace with speed up authorizations. thanks.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:47 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Grant starship authorization to launch. This is an important step in humans exploration of space. There are safety factors in place and space exploration should not be held back unless deemed detrimental to the species. I doubt the fish or birds will mind much. It's not a very populated area. Please make the decision to move forward.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:39 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am supportive of insuring minimal environmental impact on the part of SpaceX. I am also more excited by their accomplishments than I have been since the Apollo missions. Please support their continued development by expedient handling of necessary oversight.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:38 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

This is American excellence before our very eyes. Look what hard work can do!

From: [REDACTED]
Sent: Monday, November 1, 2021 9:38 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am 29 years old and I represent the young generation's dreams of making this planet a much better place to live and advancing our civilization to new boundaries. I think what Elon Musk is doing is absolutely necessary to achieve this and I fully support this and I expect the U.S. and Texas government to also fully support this operation. Please approve the launch of Starship's first orbital launch. Thank you.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:32 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please do not be short sighted and allow China to control space.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:18 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please allow,

From: [REDACTED]
Sent: Monday, November 1, 2021 9:16 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve SpaceX launch's at BocaChica to accelerate space launch capability using heavy lift rockets

From: [REDACTED]
Sent: Monday, November 1, 2021 9:14 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please give SpaceX full approval for regulatory Starship orbital launches. Thank you.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:13 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am writing to give my support to SpaceX and I think the FAA should approve their application.

From: [REDACTED]
Sent: Monday, November 1, 2021 9:10 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I write to respectfully request that you let SpaceX fly their Starship. To infinite and beyond!! Thank you, Ryan Zaricki Bloomington, IN

From: [REDACTED]
Sent: Monday, November 1, 2021 9:09 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please FAA, do not stop the great development of Space X. This is the most important engineering and scientific development in history of man kind with promise to save the most important think nature developed so far: consciousness Thank you in advance, Goran Ristic <https://youtu.be/RuIXHlbBaMg> <https://youtu.be/2Pj52fa3BpE>

From: [REDACTED]
Sent: Monday, November 1, 2021 9:09 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To whom it may concern, Clear SpaceX for liftoff! It's for Science and a better Tomorrow! Sincerely, Concerned Citizen of Humanity

From: [REDACTED]
Sent: Monday, November 1, 2021 9:06 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

SpaceX is the key for interplanetary travel and exploration, please make this possible by supporting their cause

From: [REDACTED]
Sent: Monday, November 1, 2021 9:05 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am sending this email as a show of support for the endeavours of SpaceX and their affiliates. I believe all efforts should be made to further space exploration in all capacities, companies and organizations with the interest. DH

From: [REDACTED]
Sent: Monday, November 1, 2021 9:02 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am completely for SpaceX to continue on their path of extending the human race forward into space, the Moon and Mars. Please grant them permission to continue their tests at Boca Chica.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:54 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

While not postponing SpaceX's efforts for namely environmental concerns might seem rash and ill advised, in my view, the real reckless behavior would be to delay the exploration of the solar system and beyond, therefore putting ourselves at the mercy of the universe. We don't know what we don't know. Putting hurdles in the advances of the private sector in space is, in my opinion, a disservice to humanity as a whole. Thank you for giving the public the opportunity to comment on this matter, I'm sure you will make the most responsible decision given all the factors.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:53 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To FAA, I'm 68 years old. Before I die, I would like to see human landing on the planet Mars! Please make a decision soon, as swiftly as you can, to let SpaceX launch Starship to space. Yours truly, Fernando Sanchez

From: [REDACTED]
Sent: Monday, November 1, 2021 8:53 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please let SpaceX do their thing. Clearly they are competent enough and we need this progression as it seems all other aspects of humanity are regressing. They are doing more work than entire countries.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:52 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hello, I am writing today in favor of SpaceX's efforts in Boca Chica Texas. For the first time since the 50s-70s the entire world seems to be looking to the stars. The Apollo era unlocked a new level of human potential and accelerated our technology to astronomical levels. We need that push if we are to face humanity's most dire dangers (including climate change, energy, and pollution). We need Starship...not only as Americans...but as Humans. Thank you for your time, Travis Slusser

From: [REDACTED]
Sent: Monday, November 1, 2021 2:35 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

We want to see SpaceX succeed. You have a duty to ensure that everything is done safely but I would like to ask that you do not become the sole reason for a delay in the progress towards space exploration. I would like to ask that you do the best you can to support SpaceX in what it is trying to accomplish.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:47 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please grant SpaceX an orbital launch license as quickly as possible. This site is next door to Mexico, which has near zero environmental controls. We know that SpaceX will act responsibly to protect the environment as much as possible. This unique site is one of the few ideal locations to launch from in the United States and so environmental review should be waved for the interest of the US space industry and for our return to the moon.
Karl Schaffner

From: [REDACTED]
Sent: Monday, November 1, 2021 8:35 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To Whom It May Concern: The work Elon does with Space X is inspiring to me and many others every day. Please allow him to continue making progress in our quest to become an interplanetary species. Thank you, Gordon

From: [REDACTED]
Sent: Monday, November 1, 2021 8:26 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message
support spacex

From: [REDACTED]
Sent: Monday, November 1, 2021 8:24 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Let him that's all

From: [REDACTED]
Sent: Monday, November 1, 2021 8:22 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support the Starship launch. It's important to our future and the future of space exploration. Please permit.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:15 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please help SpaceX to usher us into the Space Age and secure global dominance for the next decade. Please do not slow SpaceX down as China and Russia are desperately attempting to catch up and pass the U.S.A.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:12 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

This kind of innovation = USA. There are many great countries around the world but this kind of innovation happens in USA, this is also why your country acts as a talent magnet. For sure there should be rules and regulations, especially when sending up a candle the size of a full stack starship, a tight relation with SpaceX should ensure that their innovation rate is not halted by administration.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:12 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I was disappointed to learn that the Federal Aviation Administration FAA has produced a Programmatic Environmental Assessment (PEA) instead of a full Environmental Impact Statement around the expansion of SpaceX in the Boca chica area. While I am a fan of SpaceX, it's development can't be done at the expense of wildlife in the Boca Chica area. Boca Chica is surrounded by state and federal land that protects federally threatened and endangered species, including the federally threatened piping plover and several endangered species of sea turtle and mammals. With the expansion of the company using larger rockets and developing a natural gas facility the FAA should require a full EIS rather than the faster, less comprehensive PEA that has now been produced. The PEA fails to analyze the impacts of operations on wildlife, the environment, in the local communities. The PEA also only offers two alternatives; the Preferred Alternative or a No Action Alternative. Therefore, I must support the No Action Alternative in the current assessment.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:11 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hi FAA! Please allow the proposed SpaceX Starship/Super Heavy program in Boca Chica, Texas which is low impact to environment. Instead, let's focus on the plastic waste, carbon footprint and light pollution in South Padre Island due to its tourism all year long that has a higher impact overall to the environment. Have you seen the plastic waste and cars cruising the strip during Spring Break? Oh my! Thanks FAA for doing due diligence! Much appreciated! Francis

From: [REDACTED]
Sent: Monday, November 1, 2021 8:10 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I was disappointed to learn that the Federal Aviation Administration FAA has produced a Programmatic Environmental Assessment (PEA) instead of a full Environmental Impact Statement around the expansion of SpaceX in the Boca chica area. While I am a fan of SpaceX, it's development can't be done at the expense of wildlife in the Boca Chica area. Boca Chica is surrounded by state and federal land that protects federally threatened and endangered species, including the federally threatened piping plover and several endangered species of sea turtle and mammals. With the expansion of the company using larger rockets and developing a natural gas facility the FAA should require a full EIS rather than the faster, less comprehensive PEA that has now been produced. The PEA fails to analyze the impacts of operations on wildlife, the environment, in the local communities. The PEA also only offers two alternatives; the Preferred Alternative or a No Action Alternative. Therefore, I must support the No Action Alternative in the current assessment.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:09 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve Starships first orbital launch Attempt! They are pioneering innovators that our country needs.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:08 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: [REDACTED]

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

While the success of SpaceX is exciting, it shouldn't come at the expense of wildlife, especially wildlife of conservation concern in Boca Chica. The SpaceX facility in Boca Chica is surrounded by federal and state public lands used by hundreds of thousands of individual birds of many different species throughout the year including the federally Threatened Piping Plover and Red Knot and the Endangered Northern Aplomado Falcon. These lands also support several species of sea turtle and mammals listed under the Endangered Species Act. I was especially alarmed to learn that a study done by the Coastal Bend Bays & Estuaries Program in Corpus Christi, found that the Piping Plover population in the Boca Chica region has decreased by 54% over the past 3 years (2018-2021) since SpaceX started testing and I am deeply concerned that an Environmental Impact Statement (EIS) hasn't been required in spite of major expansions in operations and infrastructure in Boca Chic since 2014 when the company was authorized to test and launch much smaller rockets than are now being proposed. In addition SpaceX is developing a natural gas facility to extract and deliver fuel to the site. Given the extent of these changes the Federal Aviation Administration should require a full EIS, rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced. The PEA fails to adequately analyze the impact of operations on wildlife, the environment, and surrounding communities. The assessment presents only two alternatives to be considered: a Preferred Alternative and a No Action Alternative. I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:02 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I fully support SpaceX growing Boca Chica into a Spaceport that shows the world that the US is the indisputable leader in this industry.

From: [REDACTED]
Sent: Monday, November 1, 2021 8:00 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

SpaceX has demonstrated environmental responsibility in their operations at the Boca Chica site to date. Their current request provides a good plan for continuing this behavior in the future. Their work at Boca Chica and elsewhere has a REAL potential to save the American taxpayers billions of dollars and to help maintain the United States as a world leader in space exploration and utilization. They are providing high paying jobs for Americans and boosting economic development at this site and others across the country. In conclusion, the benefits far outweigh any negative impacts on the environment. I ask you to approve their request. Jesse N. Cannon III [REDACTED]

From: [REDACTED]
Sent: Monday, November 1, 2021 7:59 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I fully support granting SpaceX permission to launch Starship and Superheavy from Boca Chica, Texas. Balancing concerns for environmental and human safety against progress is always a challenging question. SpaceX has done more for the future of commercial/private space exploration--the newest and most important sector in the economy--than any other company and has the potential to create 10s of 1000s of jobs. SpaceX has not been perfect, but reasonably accountable and should be granted permission to proceed both with test firing and launches of Starship/Superheavy from Boca Chica.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:50 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Hello. I'm a citizen of India. I'm a great fan of SpaceX because of its innovative and futuristic ideas. And talking about the Starship - proposed to be fully reusable launch vehicle will be the next generation rocket. Not only by beating the records, Starship has lots of hopes. As of the Environmental Impact due to Starship program is a big deal. I agree with the impacts caused or might cause due to Starship, there may be solutions for it, as there are solutions for everything. If we were capable to land on moon only after ~70 years after the invention of first aeroplane, the day is no far for humanity to step on moon, Mars and beyond, or to live there. Starship is a futuristic and a revolutionary idea and the better way for humanity to explore the universe. And talking about the environmental impacts it can be solved as soon as possible. And if SpaceX can make a Reusable and reliable launch vehicle in just ~20 years then the day is no far to have a self sustaining launch vehicle. So PLEASE HEAR OUR VOICE TO HELP SPACEX TO OPEN THE GATEWAY TO MARS FOR YOU, ME AND TO THE HUMANITY. THANK YOU MOHAMMAD NUMAAN

From: [REDACTED]
Sent: Monday, November 1, 2021 7:50 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Allow Starship to launch from their facility in TX. They are our country's best hope for space exploration.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:50 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

re: Starship orbital flight By all means, keep it safe, but please don't stop this historical wright brothers moment.
Michael Rubini

From: [REDACTED]
Sent: Monday, November 1, 2021 7:49 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Let the man launch this amazing technological prowess in the sky !

From: [REDACTED]
Sent: Monday, November 1, 2021 7:46 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please approve SpaceX's starship launch next week so that US can catch up in the space exploration technology. US are falling behind of China and Russian in those area because of years of waste of money and delays. Now SpaceX gives us a hope we can be the first to go to mars. Thanks, Pu

From: [REDACTED]
Sent: Monday, November 1, 2021 7:45 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please let SpaceX proceed with its launch next week. This will be one of if not the biggest accomplishments in human history and a change for all humanity a change for the good of everyone.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:45 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support the SpaceX Starship first orbital launch.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:43 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA, we ask you to consider heavily the orbital launch given how if successful in a long term window it will be seen as a great leap for humanity to progress into a brighter future with commercial space flight available to civilians and even going so far to setting foot on Mars.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:42 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA, I want to offer support to SpaceX and the work they are doing at Boca Chica to advance American rocket technology with Starship. This rocket will be fully re-usable dramatically improving our ability to get to space and reducing environmental impact with having a fully re-usable rocket. Starship will drastically improve our ability to explore our solar system and improve our understanding of our own world as well as offer us opportunity to send humans back to the moon and mars. The time is now! Approve Starship for upcoming launches and provide the necessary support for this important project. Please do not get in the way of innovation and forward progress. SpaceX offers hope and inspiration to adults and children alike. The world is watching. Please support Starship and the important work going on in Boca Chica. Sincerely, Greg Johnson

From: [REDACTED]
Sent: Monday, November 1, 2021 7:39 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support Elon Musk and his program!

From: [REDACTED]
Sent: Monday, November 1, 2021 7:38 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I am writing to voice my full support of all SpaceX rocket activities down in the south padre area of Texas!

From: [REDACTED]
Sent: Monday, November 1, 2021 7:37 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I support SpaceX plan to launch Starship 20 from Starbase Boca Chica this year (2021).

From: [REDACTED]
Sent: Monday, November 1, 2021 7:36 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: spacexbocachica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

While the success of SpaceX is exciting, it shouldn't come at the expense of wildlife, especially wildlife of conservation concern in Boca Chica. The SpaceX facility in Boca Chica is surrounded by federal and state public lands used by hundreds of thousands of individual birds of many different species throughout the year including the federally Threatened Piping Plover and Red Knot and the Endangered Northern Aplomado Falcon. These lands also support several species of sea turtle and mammals listed under the Endangered Species Act. I was especially alarmed to learn that a study done by the Coastal Bend Bays & Estuaries Program in Corpus Christi, found that the Piping Plover population in the Boca Chica region has decreased by 54% over the past 3 years (2018-2021) since SpaceX started testing and I am deeply concerned that an Environmental Impact Statement (EIS) hasn't been required in spite of major expansions in operations and infrastructure in Boca Chic since 2014 when the company was authorized to test and launch much smaller rockets than are now being proposed. In addition SpaceX is developing a natural gas facility to extract and deliver fuel to the site. Given the extent of these changes the Federal Aviation Administration should require a full EIS, rather than the faster, less comprehensive Programmatic Environmental Assessment (PEA) that has now been produced. The PEA fails to adequately analyze the impact of operations on wildlife, the environment, and surrounding communities. The assessment presents only two alternatives to be considered: a Preferred Alternative and a No Action Alternative. I am submitting my support of the No Action Alternative in the current assessment. I further reiterate my request that the Administration conduct a comprehensive EIS to more fully assess environmental impacts of the SpaceX operations in Boca Chica.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:34 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: [REDACTED]

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

To FAA, as well as ones knowing the importance of space science&Exploration One living near STARBASE may not go and witness the historic "Orbital flight Test" of Starship, One may not watch the Artemis-3 Moon Landing in 2026, One may not be fond of the endless technology-spinoffs in daily lives due to NASA Yet, I, a part of Space community, respect their decision(after being sad), but ask them not to go against FAA Approval of Starbase Ops. It's not any other project. No one denies that it's the most ambitious rocket in history. I stand in support for SpaceX! Yours sincerely, Harsh

From: [REDACTED]
Sent: Monday, November 1, 2021 7:34 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

This has been by far the most inspirational project I have ever witnessed. I love NASA, but with only SLS these new missions to the moon will only last as long as China is interested in competing. A fully reusable Starship could ensure that we expand out into the universe permanently. Covid has made life depressing, but these launches really have picked me up. There's no way that SpaceX can iterate as fast as they want to at the Cape. Hopefully we'll see launches from there one day, but right now we need Boca. This could be the beginning of one of America's greatest achievements, but if the launch license isn't granted it could be a final whimper, a statement that we are no longer a superior nation. Seeing this project, knowing that we can do this, truly makes me proud to be an American. I hope it makes you proud to. Please let them launch from here.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:33 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

SpaceX is taking on the most breathtaking challenge of moving a civilization. One day, this ability might be what saves humanity, which is still the only natural intelligence discovered in the universe. No local wildlife can compete in importance with that mission. Sincerely, Michael D'Jamoos

From: [REDACTED]
Sent: Monday, November 1, 2021 5:29 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

There is little doubt that the SpaceX facility in Boca Chica is in an environmentally sensitive area, but the fact of the matter is that there is nowhere in the United States that would accommodate a launch facility for Starship that would NOT be environmentally sensitive. We have demonstrated at Cape Canaveral that we can, as a nation, create major launch complexes while protecting the environment. We have to balance the need to advance our technology with the doing the minimum possible damage to the environment: SpaceX have successfully achieved that balance in their application for the launch complex at Boca Chica.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:32 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

I write in overwhelming support of space launches from Boca Chica, Texas including and especially large rockets like the SpaceX Starship. It is essential for our survival as a species and to deal with climate change and other urgent issues.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:32 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

1st of November 2021 Suburb of Toulouse, France I would like to support SpaceX project at Boca Chica, Texas. It is true that this settlement and the launch of Starship there will cause some hurt on the wildlife. But the wildlife disappeared already from most of the coasts of this World. Such environmental studies do not exist on many parts of the world where the coast was widely modified. Fortunately or not, human being colonized the whole Planet and modified it, we need to be conscious of it and accept it also. This construction is a project for a brighter future. It inspires me a lot. SpaceX already proved that they were also able to help protecting wildlife in the region and I believe they do this not just for communication, but really because they consider themselves accountable for that. I also believe SpaceX acts in a very responsible way about the surrounding population's safety. As a software and test engineer for several years in the aeronautical field, I have always been interested in rockets, especially with the Shuttle when I was young. I was once in a job interview proposed to work in Kourou, in French Guyana, for the Ariane project. Although I was interested, I responded to my interviewer that even if there is a flight plan for a rocket, for me, this was not as an aircraft flight plan. In my point of view rocketry has always been somewhat strange to me, as being a "one shot" ship, with parts of it falling into the sea. With SpaceX and its concept of reusability, it revolutionized my opinion on rockets, and I think it re-lighted the interest in space industry for many young people. Great support from my side to SpaceX at Boca Chica! DE OLIVEIRA Norberto

From: [REDACTED]
Sent: Monday, November 1, 2021 7:22 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Allow SpaceX to continue its Starship development and testing as soon as possible. You are acting like Luddites or the Roman Catholic church in the face of Galileo's science . Yes space exploration produces carbon but if we don't progress science then it doesn't matter if we save the earth , we are just a bunch of monkeys waiting for extinction.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:21 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please support SpaceX plans

From: [REDACTED]
Sent: Monday, November 1, 2021 7:21 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Dear FAA, Thank you for the opportunity to make comments on SpaceX's draft PEA. I did read the document and have been thinking about it. First things first we should consider is that every human action affects the environment, being positively, indifferently, or negatively. That being said, to approve or not approve these actions we have to put the cost (environmentally talking) / benefits in a balance, and after calculating the pros/cons diff we may propose actions to mitigate the cons if the pros still matter. After reading the draft PEA, we can conclude that there will be environmental impacts (as all human actions do, it was expected) but these impacts are minimal and long term talking they are not exponential (like causing the extinguishing of species, as it will not happen). Talking about the benefits of SpaceX's project. Those benefits are beyond our imagination, and with sure will affect positively the entire world and humanity. Reading the draft PEA we can assume that Boca Chica is nearly the perfect place to SpaceX execute the project, as there are a lot of other places that would cause major environmental impacts such as areas near archaeological sites or areas near rivers used to supply cities with water. As I already said, all human activity affects the environment, and certainly, the benefits of SpaceX's project are bigger and worthy than the environmental effects that it will cause. Another point that is interesting to mention is that, if this license is not approved, then the project will be delayed and this will affect even our return to the moon by 2024/2025. Please consider my comment when doing the environmental review, and instead of not approving, propose changes/obligations to SpaceX. Thank you again! Erick

From: [REDACTED]
Sent: Monday, November 1, 2021 7:13 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Please allow the construction and launch of all SpaceX endeavors, Halting or slowing would be a political choice and would be seen as such. Sincerely, David Long Jr.

From: [REDACTED]
Sent: Monday, November 1, 2021 7:09 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: spacexbocachica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Marram grasses, vetches, fescues, snails, wading birds & storm-blown rare visitors, are probably present at Boca Chica. All of these, and more, are wonderfull and not unimportant but cannot be the factors that cease development of 'Starship' & 'Super-heavy'. SpaceX's wise, iterative development will, very likely, lead to a 'Greyhound bus'/'railroad' to the solar system. 'Starship', therefore, is not just another rocket & the space port is not just another set of buildings, they matter. All the nature conservancy in the world will not deliver a solution to an expanding sun so a 'Starship' program is, perhaps, a 'necessary evil' that humanity must have. If not now, when? If not Boca Chica, where?

From: [REDACTED]
Sent: Monday, November 1, 2021 6:57 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

Life is finite. Please do not hold our best minds back from accomplishing humanities largest goal of mastering space.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:55 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

FAA. Make it happen!

From: [REDACTED]
Sent: Monday, November 1, 2021 6:54 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

This email was sent through the Federal Aviation Administration's public website. You have been contacted via an email link on the following page: https://www.faa.gov/space/stakeholder_engagement/spacex_starship/

Message

We support SpaceX to reach for the stars to preserve the only source of life in the known universe. The SpaceX team is more qualified than most to recognize the impact of their efforts, both in sky and ground. We trust them to be environmentally responsible while pushing the technological edge, for the benefit of all life on Earth; not just humans. We support SpaceX and we think the FAA should as well.

From: [REDACTED]
Sent: Monday, November 1, 2021 6:53 AM
To: SpaceXBocaChica
Subject: From www.faa.gov: SpaceXBocaChica@icf.com

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Message

Please. Don't [REDACTED] this up.