Form
Species Analysis

Project Name: **Shepherd and Durham Major Investment Project**

CSJ(s): **0912-72-607**

County(ies): **Harris**

Date Analysis Completed: **August 7, 2020**

Prepared by: **Stephanie Kirschner**

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

I. Endangered Species Act

Select the appropriate statement below based on the determinations recorded in the completed project-specific species analysis spreadsheet:

☒ This project does not require consultation with or authorization from the USFWS under the Endangered Species Act.

☐ This project requires consultation with or authorization from the USFWS under the Endangered Species Act.

For a project that requires federal authorization or approval, if the completed project-specific species analysis spreadsheet indicates, “May affect,” for any species, then consultation with the USFWS is required under section 7 of the Endangered Species Act and the second checkbox above must be checked.

For more information regarding the Endangered Species Act, see **ENV’s Endangered Species Act Handbook**.

II. TPWD Coordination

Select the appropriate statement below:

☐ This project consists solely of maintenance activities that are of a type or type(s) covered by the Maintenance Program Environmental Assessment, and therefore no coordination with TPWD is required. Do not fill out a separate Tier I Site Assessment Form.

☒ This project does not consist solely of maintenance activities that are of a type or type(s) covered by the Maintenance Program Environmental Assessment, and therefore a Tier I Site Assessment is required.

III. Bald and Golden Eagle Protection Act (BGEPA)

Select the appropriate statement below:

☒ This project is not within 660 feet of an active or inactive Bald or Golden Eagle nest. Therefore, no coordination with USFWS is required.

☐ This project is within 660 feet of an active or inactive Bald or Golden Eagle nest; however, construction activities within 660 feet will not occur during the nesting season, and the project will adhere to the National Bald Eagle Management Guidelines of 2007. Therefore, no coordination with USFWS is required.

☐ This project is within 660 feet of an active or inactive Bald or Golden Eagle nest, and construction within 660 feet will occur during the nesting season or the project will not adhere to the National Bald Eagle Management Guidelines of 2007. Therefore, coordination with USFWS to obtain a Non-Purposeful Take Permit is required.

For more information regarding BGEPA, see Section 7.0 of **ENV's Ecological Resources Handbook**.

IV. Migratory Bird Protections

This project will comply with applicable provisions of the Migratory Bird Treaty Act (MBTA) and Texas Parks and Wildlife Code Title 5, Subtitle B, Chapter 64, Birds. It is the department's policy to avoid removal and destruction of active bird nests except through federal or state approved options. In addition it is the department's policy to, where appropriate and practicable:

- use measures to prevent or discourage birds from building nests on man-made structures within portions of the project area planned for construction, and
- schedule construction activities outside the typical nesting season.

For more information regarding migratory bird protections, see **ENV's Guidance: Avoiding Migratory Birds and Handling Potential Violations** and Section 3.0 of **ENV's Ecological Resources Handbook**.

V. Resources Consulted

Indicate which resources were consulted/actions were taken to make the species analysis determinations recorded in this form (DO NOT ATTACH TO THIS FORM OR UPLOAD TO ECOS ANY RESOURCES CONSULTED – JUST CHECK THE APPROPRIATE BOX(ES)):

☒ Aerial Photography ☒ Topographic Map ☒ Natural Diversity Database (NDD)
☐ Karst Zone Maps ☒ Ecological Mapping System of Texas (EMST)
☒ Site Visit ☐ Species Expert Consulted ☐ Species Habitat or Presence/absence Survey
☐ Other:_____

Tier I Site Assessment

Main CSJ: 0912-72-607
Form Prepared By: Stephanie Kirschner
Date of Evaluation: July 24, 2020
Proposed Letting Date: August 2021
☐ *Project not assigned to TxDOT under the NEPA Assignment MOU*
District(s): Houston
County(ies): Harris
Roadway Name: North Durham Drive/North Shepherd Drive
Limits From: IH-610
Limits To: IH-10
Project Description: The project will reconstruct and improve two parallel urban principal arterial roadways (one-way couplets) of four-lanes each and six streets (of various width and classification) which connect them. The purpose of this project is to address regional priorities most related to safety, state of good repair, multi-modal access, and storm water mitigation. The project will replace and upgrade all public infrastructure within the existing public right-of-way. Ultimately, this project will create a true Complete Street with superior multi-modal connectivity to the regional transit and shared use path system while providing storm water management upgrades to the greatest degree practicable.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

1. No — Is the project limited to a maintenance activity exempt from coordination?
http://txdot.gov/inside-txdot/division/environmental/maintenance-program.html

2. No — Has the project previously completed coordination with TPWD?

3. Yes — Is the project within range of a state threatened or endangered species or SGCN and suitable habitat is present?

*Explain:

Per the NDD, one State Threatened Alligator Snapping Turtle was identified somewhere in White Oak Bayou (no specific location provided) in 1974. A small section of the project alignment on Shepherd Drive (approximately 68 feet) is classified as Coastal Prairie; this is the only part of the project alignment not in an area classified as Urban High or Low Density. While the Bayou could potentially provide habitat, no project work will only be done on existing infrastructure over the Bayou and no work will take place within the Bayou.

Date TPWD County List Accessed: February 12, 2020

Date that the NDD was accessed: February 12, 2020

What agency performed the NDD search? TxDOT

What version of the NDD was used? TPWD GIS shapefiles and reports

Yes — Does the BMP PA eliminate the requirement to coordinate for all species?

*Explain:

There are two recommended BMPs for the Alligator Snapping Turtle. The first is to minimize impacts to wetland and riverine habitats; no work will take place within the Bayou, the only wetland/riverine habitat in the project area. The second recommended BMP is the Aquatic Reptile BMP. The recorded observation of the turtle was prior to 1980 (1974); the project is not a new roadway; and the project will not acquire new ROW or work within ROW in water or permanently impacting a water feature. Therefore, the requirement for coordination is eliminated.

4. No — NDD and TCAP review indicates adverse impacts to remnant vegetation?

5. No — Does the project require a NWP with PCN or IP by USACE?

6. No — Does the project include more than 200 linear feet of stream channel for each single and complete crossing of one or more of the following that is not already channelized or otherwise maintained:

7. No — Does the project contain known isolated wetlands outside the TxDOT ROW that will be directly impacted by the project?

8. No — Would the project impact at least 0.10 acre of riparian vegetation?

9. No — Does project disturb a habitat type in an area equal to or greater than the area of disturbance indicated in the Threshold Table Programmatic Agreement?

*Attach associated file of EMST output (Mapper Report or other Excel File which includes MOU Type, Ecosystem Name, Common/Vegetation Type Name) in ECOS

Excel File Name:

9.1. No — Is there a discrepancy between actual habitat(s) and EMST mapped habitat(s)?

Attach file showing discrepancy between actual and EMST mapped habitat(s).
File Name:

Is TPWD Coordination Required?

No - No coordination is required because the species trigger was met but BMPs were implemented and included in EPIC sheets

BMPs Implemented as required by BMP Programmatic Agreement (Include BMPs from the standard recommendations list.):

Minimize impacts to wetland and riverine habitats; Aquatic Reptile BMP

Suggested Attachments

Aerial Map (with delineated project boundaries)

USFWS T&E List

TPWD T&E List

Species Analysis Summary

NDD EOID List and Tracked Managed Areas (Required for TPWD Coordination)

EMST Project MOU Summary Table (Required for TPWD Coordination)

TPWD SGCN List

Photos (Required for TPWD Coordination)

Previous TPWD Coordination Documentation (if applicable)

Attachments

Attachment 1 – Species Analysis Summary Spreadsheet

Attachment 2 – Harris County Endangered Species Report

Attachment 3 – Habitat Maps

Attachment 4 – Species Maps

Attachment 5 – Project Area Photos

Attachment 6 – USFWS Consultation Letter

Attachment 1 – Species Analysis Summary Spreadsheet

SPECIES ANALYSIS SUMMARY
Project Name: Shepherd Durham Reconstruction
CSJ(s): 0912-72-607

County	Taxon	Common Name	Scientific Name	Habitat	Suitable Habitat Present?	Explanation for determination regarding suitable habitat	Federal Status	Effect/Take Determination for Federally Listed Species	State Status	Impact Determination for State-Listed Species	Explanation for Effect/Take and/or Impact Determination	Presence/ Absence survey conducted?
Harris	Amphibians	Houston Toad	*Anaxyrus (Bufo) houstonensis*	The species inhabits areas with deep, friable, sandy soils that contain varying degrees of overstory vegetation. There is a very strong correlation between Houston toad sites and the occurrence of deep (>40 inches) sandy soils in more or less contiguous zones of greater than 20,000 acres. All existing, known Houston toad populations occur within two separate bands of geologic formations, which contain the deepest surface sands in the region. Within Bastrop County, these formations include the Sparta Sand, Weches Formation, Queen City Sand, Recklaw Formation, and Carrizo Sand. To the southeast in Lavaca, Austin, and Colorado counties lies the other band of Houston toad habitat, which includes the Willis and Goliad formations. Vegetative cover within Houston toad habitat usually contains some degree of forested vegetation. Loblolly pine (*Pinus taeda*) and post oak (*Quercus stellata*) are common overstory species.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Birds	Black Rail	*Laterallus jamaicensis*	Black rails are year-round residents of the central and upper coast and migrants in the eastern part of the state. The species nests in salt, brackish, and freshwater marshes, pond borders, wet meadows, and wetlands with hydrophytic grass species. Water depth is an important and key habitat component, as the species typically is found where water is less than two to four centimeters deep. Other significant habitat factors may include vegetation density, distance to open water, and water regime stability. Nesting typically occurs in the highest sections of the marsh, which have mesic to hydric soils and are flooded by only the highest tides. Nests are built in areas with saturated or shallowly flooded soils and dense vegetation on damp ground, on mat of previous year's dead grasses, or over shallow water. In salt or brackish marshes, typical habitat includes dense stands of cordgrasses (*Spartina* sp.), spikegrasses (*Distichlis* sp.), and needlerush (*Juncus* sp.), or, in more upland saltbush communities along marsh edges. Typical freshwater habitat includes species such as cattail (*Typha*) and bulrush (*Scirpus* sp.). Non-breeding habitat is thought to be similar to breeding habitat.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	PT	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Birds	Least Tern	*Sternula (=Sterna) antillarum*	The interior population (subspecies *athalassos*) of the Least Tern nests on bare or sparsely vegetated sand, shell, and gravel beaches, sandbars, islands, and salt flats associated with inland rivers and reservoirs. It occasionally nests on man-made structures such as sand and gravel pits or gravel rooftops. Preferred habitat includes sand and gravel bars within a wide unobstructed river channel, or open flats along shorelines of lakes and reservoirs. Colony sites can move annually, depending on landscape disturbance and vegetation growth at established colonies. It is known to nest at three reservoirs along the Rio Grande River, on the Canadian River in the northern Panhandle, and along the Red River.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Birds	Piping Plover	*Charadrius melodus*	This migratory species overwinters in Texas, where it occurs on beaches, ephemeral sand flats, barrier islands, sand, mud, algal flats, washover passes, salt marshes, lagoons, and dunes along the Gulf Coast and adjacent offshore islands, including spoil islands in the Intracoastal Waterway. Algal flats appear to be the highest quality habitat because of their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low or very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Birds	Red Knot	*Calidris canutus rufa*	The species is a winter resident and migrant in Texas. It is primarily found in marine habitats such as sandy beaches, salt marshes, lagoons, mudflats of estuaries and bays, and mangrove swamps during winter months. It primarily occurs along the Gulf coast on tidal flats and beaches and less frequently in marshes and flooded fields. It has occasionally been observed along shorelines of large lakes and freshwater marshes.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Birds	Red-cockaded Woodpecker	*Picoides borealis*	The species is a year-round resident of the Piney Woods ecosystem of east Texas. Optimal habitat consists of pine forest with large, widely-spaced trees. It nests in cavities in mature (over 60 years old) longleaf pine (*Pinus palustris*), when it occurs, but will also utilize shortleaf (*P. echinata*) and loblolly pine (*P. taeda*). Relatively younger pines (over 30 years old) can be used for foraging. Nest cavities are excavated from living trees, taking 1 to 3 years to create. As a cooperative breeding species, nest cavities occur in clusters, with 1 to 20 cavity trees occurring over 3 to 60 acres. The clan home range is approximately 200 acres when not nesting.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Birds	Reddish Egret	*Egretta rufescens*	A year-round resident of the Texas Gulf Coast, the species inhabits saline, hypersaline, or brackish coastal habitats including barren sand or mud tidal flats, salt ponds, lagoons, and open mangrove communities. It occurs less frequently in other habitats such as coastal beaches, sparsely-vegetated freshwater marshes, and the shores of lakes and reservoirs. It nests on the ground or low in mangroves or other terrestrial vegetation (e.g. mesquite [*Prosopis glandulosa*], yucca [*Yucca* sp.], or prickly-pear [*Opuntia* sp.]) on natural islands or man-made dredge spoil islands, but it also occasionally nests on the coastal mainland. It forages in shallow water usually less than 15 centimeters deep.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Birds	Swallow-tailed Kite	*Elanoides forficatus*	This migratory species breeds in the South Central Plains of east Texas and throughout the southeastern U.S. In Texas, breeding habitat occurs between sea level and 230 meters in elevation in bottomland forests, cypress swamps, pine glades, and freshwater marshes skirting large lakes. It nests near the tops of trees that are higher than the surrounding stand, often near a clearing or the edge of a forest or woodland. It prefers to nest in pines, but occasionally uses species such as bald cypress (*Taxodium distichum*), water oak (*Quercus nigra*), or cottonwood (*Populus deltoides*).	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Birds	White-faced Ibis	*Plegadis chihi*	The species is found in the Western Gulf Coastal Plains ecoregion of Texas. Preferred habitat includes freshwater wetlands, marshes, ponds, rivers, irrigated land, and sloughs, but it occasionally forages in brackish or saltwater marshes. It nests in marshes in low trees, on the ground in bulrushes (Scirpus sp.) or reeds, or on floating mats.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Birds	White-tailed Hawk	*Buteo albicaudatus*	This year-round resident species occurs throughout the Western Gulf Coastal Plain ecoregion of Texas and less frequently farther inland in the East Central Texas Plains and South Texas Plains regions. Near the coast, preferred habitat includes prairies, cordgrass flats, and live oak scrub. Further inland it inhabits prairies, mesquite and oak savannas, and mixed savanna-chaparral. Breeding occurs within open savannas with short trees and shrubs, such as mesquite (*Prosopis glandulosa*), hackberry (*Celtis laevigata*), and oak (*Quercus* sp.), with an average height of 12 feet and canopy diameter of 18 feet. Suitable coastal prairie habitat is similar to desirable range condition for cattle grazing.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Birds	Whooping Crane	*Grus americana*	The species breeds in Canada and winters on the Texas coast at Aransas National Wildlife Refuge. During migration it typically stops to rest and feed in open bottomlands of large rivers and marshes but, like other waterbirds, it may also utilize flooded croplands, playas, large wetlands associated with lakes, small ponds, and various other aquatic features. Typical migration habitat includes sites with good horizontal visibility, water depth of 30 centimeters or less, and minimum wetland size of 0.04 hectare for roosting.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Birds	Wood Stork	*Mycteria americana*	The species breeds in Mexico, and nesting sites have not been recorded in Texas since 1960. However, post-breeding migrants disperse into Texas in the summer. Foraging habitat includes freshwater prairie ponds, flooded pastures or fields, ditches, and other shallow standing water with an open canopy, occasionally including brackish wetlands. The species typically roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries).	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Atlantic Sturgeon	*Acipenser oxyrinchus oxyrinchus*	The species is primarily found in the Atlantic from Canada to Florida, but occasionally occurs in the Gulf of Mexico. It has not been recorded off the Texas coast. It is primarily a marine species, when not breeding, but is found close to shore. It migrates to rivers and brackish water features (sometimes tidal) in the spring and fall to spawn, usually over bottoms of hard clay, rubble, gravel, and/or shell.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Dwarf Seahorse	*Hippocampus zosterae*	The dwarf seahorse is one of the smallest seahorse species and is found in seagrass beds, mangrove roots, and algal mats along the coasts of the Western Atlantic Ocean, Caribbean Sea, and Gulf of Mexico. Preferred habitat includes bays, estuaries, and lagoons. Like many seahorse species, the dwarf seahorse is nocturnal, and feeds on brine shrimp, amphipods, crustaceans, and other small organisms. Seagrass beds are important components of their habitat because they use their prehensile taila to hold on to the vegetation to keep from being swept away by ocean currents.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	C	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Fishes	Giant Manta Ray	*Manta birostris*	The giant manta ray has a world-wide distribution, but is currently limited to several highly fragmented populations. It is the largest species of ray with a wingspan of up to 29 feet. The giant manta ray is a filter feeder that forages primarily on microscopic organisms, but is known to consume some small fish. Common occurrences are in oceanic waters, offshore, and near protective coastlines. The species has been documented in the Gulf of Mexico, including juvenile nursery grounds at Flower Garden Banks National Marine Sanctuary off the coast of Texas. This species also occasionally occurs in estuarine waters near ocean inlets at potential nursery grounds.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Great Hammerhead	*Sphyrna mokarran*	This generalist species of shark preferes warm coastal waters where it occurs. However, it can be found in deep open ocean as well as shallow coastal waters. It migrates seasonally in search of ideal water tempuratures.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Gulf Sturgeon	*Acipenser oxyrinchus desotoi*	This large fish species is the only sturgeon found off the Texas coast in the Gulf of Mexico. It is an anadromous species spending warm months in large coastal rivers to spawn and cooler months in the nearshore Gulf waters, estuaries, and bays. Sporadic occurrences have been recorded along the Texas and Mexico border, around the Rio Grande. Successful spawning requires optimum conditions in water temperature, flow, and pH, as well as preferred substata (gravel, bedrock, or boulders) for egg deposits. Juveniles will typically stay within the river for 2 to 3 years before swimming out to the estuaries. Species are indiscriminate benthivores, foraging and eating anything they suck off the substratum (crabs, shrimp, amphipods, polychaete worms, mollusks, small fish, etc.).	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Fishes	Largetooth Sawfish	*Pristis pristis*	This species has the widest historic range of all the sawfish species; however, worldwide populations have decreased dramatically. Adult habitat includes inshore coastal waters, lagoons, river mouths, and estuaries, and juveniles inhabit fresh water systems that have connectivity to brackish or marine coastal systems. The species has been documented at the Flower Garden Banks National Marine Sanctuary. This species feeds on invertebrates and small fishes. Historically, the Gulf of Mexico along the Texas coast had a large population; however, the Texas coast population has dramatically decreased, and it has not been recorded off the coast of Texas since 1943.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Nassau Grouper	*Epinephelus striatus*	The Nassau grouper inhabits reefs in the southern Gulf of Mexico and throughout the Carribean Sea. It generally is found along the shoreline to depths of 100 meters. It can also be found in or near seagrass beds, cuts, rocks, pilings, and seawalls. Important nursery habitats are shallow-water sites with coral clumps covered with macroalgae.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Oceanic Whitetip Shark	*Carcharhinus longimanus*	This pelagic shark ranges from Argentina to Maine, including the Gulf of Mexico, the Pacific Ocean, and the Caribbean Sea. It is generally a surface-dwelling species, but it can also be found in water depths up to 183 meters. The oceanic whitetip shark generally remains offshore in the open ocean or along the outer continental shelf, but is occasionally found near oceanic islands. It prefers water temperatures greater than 20 degrees Celsius.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Fishes	Scalloped Hammerhead Shark	*Sphyrna lewini*	This coastal pelagic species is highly migratory and primarily inhabits deeper temperate, warm, and tropical waters worldwide. Adults of the species have been recorded along the continental shelf off Texas, the Flower Garden Banks National Marine Sanctuary, Stetson Bank, and Padre Island National Seashore. Juveniles have been recorded within nurseries in Texas coastal bays and estuaries. The females return to their natal sites, which generally include shallow nearshore waters like bays and estuaries used for nurseries. They typically feed on mackerel, herring, and sardines; however, they occasionally feed on octopus and squid.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Shortfin Mako	*Isurus oxyrinchus*	This species of shark prefers the surface of open warm seas in the Gulf of Mexico. It feeds primarily on schooling fishes like mackerels and herrings.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Shortnose Sturgeon	*Acipenser brevirostrum*	The shortnose sturgeon inhabits rivers and Atlantic coastal bays and estuaries from Canada to Florida. The species has not been documented near the Texas coast or in the Gulf of Mexico.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Fishes	Smalltooth Sawfish	*Pristis pectinata*	This anadromous species historically occurred in waters from Texas to New York. There has been a dramatic population decrease, but it still occurs in U.S waters. The species has been documented at the Flower Garden Banks National Marine Sanctuary. Adult habitat includes inshore coastal waters, lagoons, river mouths, and estuaries, and juveniles inhabit fresh water systems that have connectivity to brackish or marine coastal systems. The species feeds on invertebrates and small fishes.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Fishes	Western Creek Chubsucker	*Erimyzon claviformis*	The species is widespread in east Texas from the Red to the San Jacinto Rivers. The species occurs in pools of clear headwaters, creeks, and small rivers with silt, sand, and gravel substrates, and occasionally in lakes. It is frequently found near submergent vegetation. Spawning occurs in river mouths or pools, riffles, lake outlets, or upstream creeks.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Invertebrates	Boulder Star Coral	*Orbicella franksi*	This rare coral is endemic to the Gulf of Mexico and Caribbean Sea, specifically in areas around Florida, Bermuda, and the Bahamas. It is known to occur in the Flower Garden Banks National Marine Sanctuary which is located approximately 70 to 115 miles off the coasts of Texas and Louisiana. It is an important reef building species that forms domes, columns, and flat shelf-like colonies. Preferred habitat includes most reef environments and depths ranging from 1 to 82 meters. The species requires very specific water parameters and is highly sensitive to changes in water and air temperatures, salinity, methane gasses and carbon dioxide concentrations, light levels, ultraviolet radiation, water quality, turbulence, and sedimentation.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Invertebrates	Elkhorn Coral	*Acropora palmata*	The elkhorn coral is found in the Gulf of Mexico and Carribean Sea including Flower Garden Banks National Marine Sanctuary, which is located approximately 70 to 115 miles off the coasts of Texas and Louisiana. This coral species reproduces asexually and sexually and is found in reef environments in deeper, more protected, water depths from 5 to 20 meters and in more shallow, turbulent water at depths of 1 to 5 meters. On rare occasions, it can be found at depths of 60 meters. The tolerable water temperature range for this species is 21 to 29 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gasses and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Invertebrates	Lobed Star Coral	*Orbicella annularis*	This hermaphroditic broadcast-spawning coral grows in shallow reef systems and can found at depths up to 82 meters. The species range is from Latin America through the Gulf of Mexico, including the Flower Garden Banks National Marine Sanctuary, and extending north and east to Bermuda and the Caribbean. It is often one of the most dominant and abundant species where found. This coral species can form massive colonies, is considered a reef-builder, and provides other reef dwellers refuge from predators. The tolerable water temperature range for this species is 23 to 29 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gasses and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation. Any of these events lasting longer than a few weeks will most likely result in death.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Invertebrates	Mountainous Star Coral	*Orbicella faveolata*	The mountainous star coral occurs in shallow waters in the Gulf of Mexico and Carribean Sea. It has been documented in the Flower Garden Banks National Marine Sanctuary, which is from 70 to 115 miles off the Texas coast. This species can grow in water depths up to 40 meters. The mountainous star coral is often one of the most dominant and abundant species where found. The tolerable water temperature range for this species is 23 to 29 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gasses and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Invertebrates	Pillar Coral	*Dendrogyra cylindrus*	Pillar corals range from Latin America north through the Gulf of Mexico to the coast of Florida. This broadcast-spawning coral reproduces sexually and is found in sheltered reef environments. The species can live in water depths up to 25 meters. Corals are vulnerable to changes in water salinity, air and water temperatures, concentrations of methane gasses and carbon dioxide, light levels, increased ultraviolet radiation, high water turbulence, and burial by sedimentation.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Invertebrates	Rough Cactus Coral	*Mycetophyllia ferox*	The rough cactus coral inhabits sheltered reef environments in the Gulf of Mexico and Carribean Sea. This species can grow in water depths from 5 to 30 meters. The tolerable water temperature range for this species is 0 to 25 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to water salinity, air temperatures, methane gasses and carbon dioxide, decreased or high light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation. Any of these events lasting longer than a few weeks will most likely result in death.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Invertebrates	Staghorn Coral	*Acropora cervicornis*	The staghorn coral occurs throughout the Carribean Sea and southern Gulf of Mexico, including Flower Gardens National Marine Sanctuary. This species can grow in water depths up to 30 meters. The tolerable water temperature range for this species is 20 to 30 degrees Celsius. Temperatures outside this range, even 1-2 degrees Celsius, may cause stress to the coral and induce a bleaching event that can cause death. Corals are also vulnerable to changes in salinity, air temperatures, concentrations of methane gasses and carbon dioxide, light levels, increased ultraviolet radiation, high or increased water turbulence, and burial by sedimentation.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Blue Whale	*Balaenoptera musculus*	The blue whale is the largest animal on the planet and found in all oceans with the exception of the Arctic Ocean. Its occurrence in the Gulf of Mexico is extremely rare with only two reported strandings along the Gulf coast (Louisiana and Texas). This baleen whale feeds almost exclusively on krill and seasonally migrates between winter breeding grounds (fall and winter) and summer feeding grounds (spring and summer). Its range extends from the subtropics to the Greenland Sea with sightings off of Canada's coast, the eastern United States, and infrequently in the Caribbean and Gulf of Mexico.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Bryde's Whale	*Balaenoptera edeni*	Unlike other baleen whales, Bryde's whale is restricted to tropical, subtropical, and warm temperate waters of the Atlantic, Indian, and Pacific Oceans. Bryde's whales are smoky gray with light mottling and three distinctive parallel ridges that extend from the blowhole to the tip of the snout. Some populations are migratory while others are year-round residents. Bryde's whales feed on krill, shrimp, crabs, copepods, and schooling fish in the open ocean.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Mammals	False Killer Whale	*Pseudorca crassidens*	The false killer whale is a toothed whale that inhabits the tropical and subtropical waters of all oceans. It is usually observed in the open ocean but is found near land around oceanic islands and coasts with nearshore deep water. Two separate strandings have been documented on the Texas coast. The false killer whale generally feeds on squid and fish, but have been known to take marine mammals and other whales.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Fin Whale	*Balaenoptera physalus*	The fin whale is a cosmopolitan baleen species that is known from all oceans. It is pelagic and usually found 25 miles or more from the shore. This species migrates seasonally from high-latitude summer feeding grounds to low-latitude wintering areas. There has only been one sighting in Texas: a young whale stranded in Chambers County.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Gulf of Mexico Bryde's Whale	*Balaenoptera edeni (GoM subspecies)*	The Gulf of Mexico subspecies of Bryde's whale is the only non-migratory resident baleen whale in the Gulf of Mexico. It is found primarily near the continental shelf off the Florida panhandle. The species is not documented in Texas waters; however, strandings have occurred along the Louisiana coast. They are a pelagic species and one of the more frequently observed baleen whales in the Gulf of Mexico. It is estimated that there are fewer than 100 individuals of the subspecies, with fewer than 50 mature individuals.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Mammals	Humpback Whale	*Megaptera novaeangliae*	The humpback whale is found in all oceans up to the polar ice caps. The species follows distinct migratory patterns between summer feeding grounds in temprate regions to tropical waters during the winter breeding season. Humpback whales are a baleen species known for their exceptionally long flippers. There is only one documented occurrence of the species from the Texas coast in the early 1990's.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Killer Whale	*Orcinus orca*	The killer whale is known to occur in every ocean, but they are most commonly found in colder temperate waters. The species is the most widely distributed of all whales and dolphins. It is often found in the southern part of the Gulf of Mexico; however, one individual was sighted in waters off Port Aransas, Texas in the northern Gulf of Mexico and another stranded individual was documented on South Padre Island in Texas. The killer whale is a top predator in the marine environment.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Louisiana Black Bear	*Ursus americanus luteolus*	Historically, Louisiana black bear occurred in east Texas throughout the Western Gulf Coastal Plains ecoregion and as far west as the San Antonio River drainage basin. Habitat includes bottomland hardwood forest, brackish and freshwater marshes, salt domes, wooded spoil levees along canals, bayous, and agricultural fields. It generally requires areas with large tracts of inaccessible forest.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Mammals	North Atlantic Right Whale	*Eubalaena glacialis*	The species has worldwide distribution with known occurrences of single individuals and pods in the Gulf of Mexico, including near the Texas coast; however, reports of this species are rare. They are typically observed in pods in deeper water depths (greater than 500 feet deep); however, individuals of this species are known to hunt for prey close to shore and on occasion, beach themselves. Some pods will often reside in the same region for many years with little movement of immigration or emigration. They feed on other whales, sharks, turtles, seals, and sea birds.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Rafinesque's Big-eared Bat	*Corynorhinus rafinesquii*	This species occurs in the bottomland pine and hardwood forests of east Texas. The species is known to roost in hollow trunks of bottomland hardwoods such as black gum (*Nyssa sylvatica*), southern magnolia (*Magnolia grandiflora*), and water tupelo (*Nyssa aquatica*). It also roosts in caves and man-made structures such as bridges, culverts, and abandoned buildings.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	Sei Whale	*Balaenoptera borealis*	The sei whale is a baleen species that inhabits subtropical, temperate, and subpolar waters worldwide. It prefers deeper waters offshore where it feeds on plankton, small schooling fish, and cephalopods. This species has annual migrations from subtropical, temperate waters during the winter (breeding) to subpolar, cool waters in the summer.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Mammals	Sperm Whale	*Physeter macrocephalus*	The sperm whale is a toothed whale that ranges from Alaska south along the Pacific coast to the Pacific Islands, along the Atlantic coast from New England to Florida, and throughout the Gulf of Mexico. This species is regularly seen in the Gulf of Mexico with more than 25 individuals observed, and two individuals were tracked swimming along the Texas coastline off South Padre Island and Port Aransas, Texas. This species feeds on cuttlefish, squids, octopus, and other marine animals.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mammals	West Indian Manatee	*Trichechus manatus*	The West Indian Manatee is found throughout the Gulf of Mexico, Carribean Sea, and Western Atlantic Ocean. The species utilizes marine, brackish, and freshwater systems in subtropical and tropical coastal areas throughout its range. Preferred habitat is near shore features with sea grass and eel grass beds and access to deep water channels. In the U.S. the species is rarely documented off the Louisiana and Texas Gulf Coast during warm water months; however, the winter range, due to low tolerances for cold water, is restricted to the southern Florida peninsula. Manatees are often attracted to accessible areas where industrial plants discharge large volumes of heated wastewater. During the summer, their range expands along the Atlantic Coast and Gulf Coast, traveling by shoreline and along channels.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Mollusks	Louisiana Pigtoe	*Pleurobema riddellii*	Freshwater mussel currently found in the Sabine, Neches, and Trinity River basins in Texas. The species occurs in streams to medium-sized rivers with moderate flow. In Texas, the species has only been documented occurring in relatively shallow lotic waters with preferable substrate being sand and sand with gravel and silt. It is not generally known to tolerate impoundments.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

SPECIES ANALYSIS SUMMARY
Project Name: Shepherd Durham Reconstruction
CSJ(s): 0912-72-607

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Harris	Mollusks	Sandbank Pocketbook	*Lampsilis satura*	A freshwater mussel that is currently limited to the Upper Trinity, Neches, Sabine, and San Jacinto River basins in Texas. The species occurs in flowing small to large rivers with gravel, gravel-sand, and sand substrates. It has been observed in littoral areas with snags, gravel, or sand substrate with slow to moderate currents, as well as lotic waters in substrates of sand, silty sand, and sand and clay mixture.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Plants	Houston Daisy	*Rayjacksonia aurea*	The species is endemic to the Gulf Coastal Plain of Texas. The plant occurs on and around naturally barren or sparsely vegetated saline slick spots or pimple mounds on coastal prairies, usually on sandy to sandy loam soils, occasionally in pastures and on roadsides in similar soil types where mowing may mimic natural prairie disturbance regimes. This plant is an annual; flowering late September-November (-December).	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Plants	Johnson's Seagrass	*Halophila johnsonii*	This aquatic clonal plant species occurs only in Florida and is found in bays, estuaries, lagoons, and other relatively shallow and calm waters. It grows in patches with shallow root systems and is vulnerable to being uprooted by waves, storm events, bioturbation, or motorized vessels. This species is also vulnerable to burial by silt and sand movements.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	—	N/A	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Plants	Texas Prairie Dawn-flower	Hymenoxys texana	This annual herb is endemic to the upper Texas Gulf Coastal Plain. It occurs in grasslands within sparsely vegetated areas (slick spots) at the base of pimple mounds in association with poorly drained saline soils that are sticky when wet and powdery when dry.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Reptiles	Alligator Snapping Turtle	*Macrochelys temminckii*	Occurs in East Texas where it inhabits perennial water bodies such as the deep water of rivers, canals, lakes, and oxbows, along with swamps, bayous, and ponds near deep running water. Preferred habitat is usually in water with a mud bottom and abundant aquatic vegetation, but the species may use sand-bottomed creeks.	Y	Per the NDD, one turtle was identified somewhere in White Oak Bayou in 1974 (no specific location provided). A small section of the alignment on Shepherd Drive (approximately 68 feet) is classified as Coastal Prairie; this is the only part of the project alignment not in an area classified as Urban High or Low Density. While the Bayou could potentially provide habitat, no project work will only be done on existing infrastructure over the Bayou and no work will take place within the Bayou.	—	N/A	T	No impact	While the Bayou could potentially provide habitat, no project work will only be done on existing infrastructure over the Bayou and no work will take place within the Bayou, the only wetland/riverine habitat in the project area. The turtle was identified prior to 1980 (1974); the project is not a new roadway; and the project will not acquire new ROW or work within ROW in water or permanently impacting a water feature. Therefore, under the BMP MOU, no coordination with TPWD is required.	N

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Harris	Reptiles	Green Sea Turtle	*Chelonia mydas*	The green sea turtle inhabits tropical and subtropical seas throughout the world including the Gulf of Mexico. The species is commonly observed swimming and foraging in and along ship ports, jetties, bays, estuaries, lagoons, and marinas.This highly migratory marine species feeds in shallow waters with abundant sea grasses and algae, and builds nests on coastal beaches and sand dunes, including Padre Island in Texas, where waters are greater than 77 degrees Fahrenheit. While adult female nesting season is generally from April to September, the adult males rarely, if ever, come ashore once leaving the sand of their natal beach. The females will return to the same nesting beach and within close proximity of their previous nesting spot. Green sea turtles are abundant along the Texas coast during warm months and are known to be cold-stunned if exposed to prolonged cold-water (<50 degrees Fahrenheit). Juveniles are found year-round in nearshore and inshore waters of the gulf until reaching adulthood and sexual maturity, then migrate to new feeding grounds.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Reptiles	Hawksbill Sea Turtle	*Eretmochelys imbricata*	This omnivorous sea turtle species is found worldwide occurring predominately offshore of mainland and island shelves, where coral reef formations are present. Nesting range for the continental United States only includes Florida. Nesting season is from April to November along sandy beaches and dunes where nesting females return to their natal site and eggs hatch approximately two months after nesting occurs. Small juveniles and adults forage in neritic waters comprised of coral reefs, sea grass, algal beds, mangrove bays or creeks, or mudflats where they feed on sea sponges, sea urchins, crustaceans, mollusks, marine algae, small fish, and jelly fish.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Reptiles	Kemp's Ridley Sea Turtle	*Lepidochelys kempii*	This species occurs in the western Atlantic Ocean, Gulf of Mexico, and Carribean Sea. The females come ashore to lay eggs during daylight in synchronized fashion in very large groups. Nesting season is from May to July along sandy beaches and dunes where nesting females return to their natal site and eggs hatch approximately two months after nesting occurs. A successful nesting population occurs on Padre Island National Seashore, and nesting is documented from Mustang Island, Texas to Vera Cruz, Mexico. Post-hatchling and juvenile habitat includes mats of sargassum algae where individuals rest, hide, and forage on invertebrates and small fish within the floating algal masses. Older juveniles (approximately more than 2 years old) return to nearshore areas of the northwestern Atlantic Ocean or the Gulf of Mexico to mature to adulthood. Adult males do not return to shore and most migrate annually between breeding and feeding grounds, while some stay near nesting beaches or breeding grounds.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Reptiles	Leatherback Sea Turtle	*Dermochelys coriacea*	Leatherback sea turtles occur occur in the Pacific, Atlantic, and Indian Oceans from British Columbia and the British Isles to southern Africa, Argentina, and Australia. They prefer the open ocean and are rare visitors to the Gulf od Mexico. They are the largest species of sea turtles in the world and highly migratory.The first leatherback sea turtle nest in Texas since the 1930's was confirmed in 2008 at the Padre Island National Seashore near Corpus Christi, Texas. Florida and North Carolina also have evidence of nests within the continental United States. Females are known to nest at various beaches, typically at night, with a rare documented occurrence of nesting during the day in Florida. Eggs hatch approximately two months after nesting. Post-hatchling and juvenile habitat includes mats of sargassum algae where individuals rest, hide, and forage on soft invertebrates within the floating algal masses. Adults typically feed primarily on jelly fish and other invertebrates.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	E	No effect	E	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

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Harris	Reptiles	Loggerhead Sea Turtle	*Caretta caretta*	The loggerhead sea turtle is the most abundant of all sea turtle species and is found worldwide, primarily in temperate and subtropical ocean waters. In the U.S. they inhabit the Atlantic and Gulf coasts from North Carolina to Alabama; however, small populations of this species can be found on the Texas barrier islands. Nesting occurs on sandy beaches and dunes from April to September where nesting females return to their natal sites. Juveniles are primarily found in nearshore waters along the coast in bays, estuaries, brackish waters of coastal lagoons and river mouths where water temperature is above 50 degrees Fahrenheit. Both juveniles and adults forage mainly on invertebrates such as mollusks, whelks, clams, sea urchins, jellyfish, and horseshoe crabs, and occasionally fish and plant material.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	T	No effect	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N
Harris	Reptiles	Texas Horned Lizard	*Phrynosoma cornutum*	The species is found in semi-arid open areas with scattered vegetation comprised of bunchgrass, cacti, yucca, mesquite, acacia, juniper, or other woody shrubs and small trees commonly found in loose sandy or loamy soils.	N	Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	—	N/A	T	No impact	No habitat will be altered. Area is highly urbanized. The project is an alteration to an existing roadway. Per IPaC report, no suitable habitat is present. Per NDD, the are is Urban High Density and Urban Low Density and there are no element occurences.	N

Attachment 2 – Harris County Endangered Species Report

Last Update: 8/25/2020

HARRIS COUNTY

AMPHIBIANS

cajun chorus frog *Pseudacris fouquettei*

Aquatic and terrestrial: Habitats of this ground-dwelling frog are diverse and include forests, fields, swamps, marshes, irrigation ditches, and temporarily flooded areas (Bartlett and Bartlett 1999, Lemmon et al. 2008). Eggs are laid in small clusters that adhere to submerged vegetationin shallow temporary pools, ditches, and flooded areas where emergent vegetation or a grassy margin is present (Dundee and Rossman 1989).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

Houston toad *Anaxyrus houstonensis*

Terrestrial and aquatic: Primary terrestrial habitat is forests with deep sandy soils. Juveniles and adults are presumed to move through areas of less suitable soils using riparian corridors. Aquatic habitats can include any water body from a tire rut to a large lake.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

southern crawfish frog *Lithobates areolatus areolatus*

Terrestrial and aquatic: The terrestial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies ir the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S3

southern dusky salamander *Desmognathus conanti*

Aquatic and terrestrial: The vegetated riparian and aquatic zones of spring-fed, sandy bottom streams and baygalls in forested areas. Eggs are laid on land under rocks and logs close to the stream edge.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S1

Strecker's chorus frog *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Woodhouse's toad *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

BIRDS

bald eagle *Haliaeetus leucocephalus*

HARRIS COUNTY

BIRDS

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

Black Rail *Laterallus jamaicensis*

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: PT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

Franklin's gull *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

red-cockaded woodpecker *Picoides borealis*

Cavity nests in older pine (60+ years); forages in younger pine (30+ years); prefers longleaf, shortleaf, and loblolly

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2B

HARRIS COUNTY

BIRDS

reddish egret *Egretta rufescens*

Resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2B

Rufa Red Knot *Calidris canutus rufa*

Red knots migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. A small plump-bodied, short-necked shorebird that in breeding plumage, typically held from May through August, is a distinctive and unique pottery orange color. Its bill is dark, straight and, relative to other shorebirds, short-to-medium in length. After molting in late summer, this species is in a drab gray-and-white non-breeding plumage, typically held from September through April. In the non-breeding plumage, the knot might be confused with the omnipresent Sanderling. During this plumage, look for the knot's prominent pale eyebrow and whitish flanks with dark barring. The Red Knot prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Primary prey items include coquina clam (Donax spp.) on beaches and dwarf surf clam (Mulinia lateralis) in bays, at least in the Laguna Madre. Wintering Range includes- Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kennedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4T2	State Rank: S2N

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2B

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

white-tailed hawk *Buteo albicaudatus*

Near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral; breeding March-May

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S4B

HARRIS COUNTY

BIRDS

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1N

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (Taxodium distichum) or red mangrove (Rhizophora mangle); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: SHB,S2N

CRUSTACEANS

Houston burrowing crayfish *Fallicambarus houstonensis*

All species in the genus <i>Fallicambarus </i>are primary burrowers (Guiasu, 2007). It is clearly a primary burrower with 100% of adult and subadult specimens known from excavated burrows. Large numbers of juveniles were collected from Temporary pools (October through February) (Johnson, 2008).

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G2	State Rank: S3

FISH

alligator gar *Atractosteus spatula*

From the Red River to the Rio Grande (Hubbs et al. 2008); occurs in the Trinity River upstream of Lake Livingston. Found in rivers, streams, lakes, swamps, bayous, bays and estuaries typically in pools and backwater habitats. Floodplains inundated with flood waters provide spawning and nursery habitats.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

Oceanic Whitetip Shark *Carcharhinus longimanus*

Habitat description is not available at this time.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S2

HARRIS COUNTY

FISH

Sabine shiner *Notropis sabinae*

Inhabits small streams and large rivers of eastern Texas from San Jacinto drainage northward along the Gulf Coast to the Sabine River Basin; Habitat generalist with affinities for shallow, moving water and rarely found in pools and backwater areas;
closely restricted to substrate of fine, silt free sand in small creeks and rivers having slight to moderate current.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

saltmarsh topminnow *Fundulus jenkinsi*

Occupies estuaries and the edges of saltmarsh habitats along the Gulf coast in salinities of 4-20 ppt in Spartina dominated tidal creeks and wetlands (Peterson & Ross 1991; Peterson & Turner 1994; Lopez et al. 2010; and Griffith 1974). Requires access to small interconnected tidal creeks for feeding and reproduction. Spawning occurs from March to August during high tide events (Robertson Thesis, 2016). Non-migratory.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S1

Shortfin Mako Shark *Isurus oxyrinchus*

Habitat description is not available at this time.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: GNR	State Rank: S2

silverband shiner *Notropis shumardi*

In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water over silt, sand, and gravel.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

southern flounder *Paralichthys lethostigma*

This is an estuarine-dependent species that inhabits riverine, estuarine and coastal waters, and prefers muddy, sandy, or silty substrates (Reagan and Wingo 1985). Individuals can tolerate wide temperature (~5-35°C) and salinity ranges (0-60 ppt). Southern Flounder spawn in offshore waters of the Gulf of Mexico from October to February (Reagan and Wingo 1985). The oceanic larval stage is pelagic and lasts 30–60 days. Metamorphosing individuals enter estuaries and migrate towards low-salinity headwaters, where settlement occurs (Burke et al. 1991, Walsh et al. 1999). The young fish enter the bays during late winter and early spring, occupying seagrass; some may move further into coastal rivers and bayous. Juveniles remain in estuaries until the onset of sexual maturation (approximately two years), at which time they migrate out of estuaries to join adults on the inner continental shelf. Adult southern flounder leave the bays during the fall for spawning in the Gulf of Mexico. They spawn for the first time when two years old at depths of 50 to 100 feet. Although most of the adults leave the bays and enter the Gulf for spawning during the winter, some remain behind and spend winter in the bays. Those in the Gulf will reenter the bays in the spring. The spring influx is gradual and does not occur with large concentrations that characterize the fall emigration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

HARRIS COUNTY

FISH

western creek chubsucker *Erimyzon claviformis*

Eastern Texas streams from the Red River to the San Jacinto drainage. Habitat includes silt-, sand-, and gravel-bottomed pools of clear headwaters, creeks, and small rivers; often near vegetation; occasionally in lakes. Spawning occurs in river mouths or pools, riffles, lake outlets, or upstream creeks. Prefers headwaters, but seldom occurs in springs.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

INSECTS

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

bay skipper *Euphyes bayensis*

Apparently tidal sawgrass marsh only, probably covers same range of salinity as saw grass, nectarivore (butterfly), herbivore (caterpillar), larval foodplant is so far unconfirmed but is probably sawgrass, diurnal; two well separated broods apparently peaking in late May and in September which suggests the larvae may well aestivate in summer and the next brood hibernate

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S1

MAMMALS

American badger *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S3

HARRIS COUNTY

MAMMALS

blue whale *Balaenoptera musculus*

Inhabits tropical, subtropical, temperate, and subpolar waters worldwide, but are infrequently sighted in the Gulf of Mexico. They migrate seasonally between summer feeding grounds and winter breeeding grounds, but specifics vary. Commonly observed at the surface in open ocean.

Federal Status: LE | State Status: E | SGCN: N
Endemic: N | Global Rank: G3G4 | State Rank: SH

eastern red bat *Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status: | State Status: | SGCN: N
Endemic: N | Global Rank: G3G4 | State Rank: S4

eastern spotted skunk *Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G4 | State Rank: S1S3

Gulf of Mexico Bryde's Whale *Balaenoptera edeni*

Habitat description is not available at this time.

Federal Status: LE | State Status: E | SGCN: N
Endemic: N | Global Rank: G4 | State Rank: SNR

hoary bat *Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status: | State Status: | SGCN: N
Endemic: N | Global Rank: G3G4 | State Rank: S4

humpback whale *Megaptera novaeangliae*

Inhabits tropical, subtropical, temperate, and subpolar waters world wide. Migrate up to 5,000 miles between colder water (feeding grounds) and warmer water (calving grounds) each year. They will use both open ocean and coastal waters, sometimes including inshore areas such as bays, and are often found near the surface; however, this species is rare in the Gulf of Mexico. The northwest Atlantic/Gulf of Mexico distinct population segment is not considered at risk of extinction and is not listed as Endangered on the Endangered Species Act.

Federal Status: LE | State Status: | SGCN: N
Endemic: N | Global Rank: G4 | State Rank: SNR

long-tailed weasel *Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S5

HARRIS COUNTY

MAMMALS

Louisiana black bear *Ursus americanus luteolus*

Bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5T2	State Rank: SNA

Mexican free-tailed bat *Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

mink *Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

mountain lion *Puma concolor*

Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2S3

North Atlantic right whale *Eubalaena glacialis*

Inhabits subtropical and temperate waters in the northern Atlantic. Commonly found in coastal waters or clsoe to the continental shelf near the surface. They migrate from feeding grounds in cooler waters (Canada and New England) to warmer waters of the southeast US (South Carolina, Georgia, and Florida) to give birth in the fall/winter - both areas are identified as critical habitat by NOAA-NMFS. Nursery areas are in shallow, coastal waters. This species is very rare in the Gulf of Mexico and the few reported sightings are likely vagrants (Ward-Geiger etal 2011).

Federal Status: LE	State Status: E	SGCN: N
Endemic: N	Global Rank: G1	State Rank: S1

plains spotted skunk *Spilogale putorius interrupta*

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S1S3

Rafinesque's big-eared bat *Corynorhinus rafinesquii*

Historically, lowland pine and hardwood forests with large hollow trees. roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S2

HARRIS COUNTY

MAMMALS

Sei Whale *Balaenoptera borealis*

Habitat description is not available at this time.

Federal Status: LE | State Status: E | SGCN: N
Endemic: N | Global Rank: G3 | State Rank: SNR

southeastern myotis bat *Myotis austroriparius*

Caves are rare in Texas portion of range; buildings, hollow trees are probably important. Historically, lowland pine and hardwood forests with large hollow trees; associated with ecological communities near water. Roosts in cavity trees of bottomland hardwoods, concrete culverts, and abandoned man-made structures.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G4 | State Rank: S3

southern short-tailed shrew *Blarina carolinensis*

Found in East Texas pine forests and agricultural land. May favor areas with abundant leaf litter and fallen logs (Baumgardner et al. 1992). Nest sites are probably under logs, stumps and other debris.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S4

sperm whale *Physeter macrocephalus*

Inhabits tropical, subtropical, and temperate waters world wide, avoiding icey waters. Distribution is highly dependent on their food source (squids, sharks, skates, and fish), breeding, and composition of the pod. In general, this species migrates from north to south in the winter and south to north in the summer; however, individuals in tropical and temperate waters don't seem to migrate at all. Routinely dive to catch their prey (2,000-10,000 feet) and generally occupies water at least 3,300 feet deep near ocean trenches.

Federal Status: LE | State Status: E | SGCN: N
Endemic: N | Global Rank: G3G4 | State Rank: S1

swamp rabbit *Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S5

thirteen-lined ground squirrel *Ictidomys tridecemlineatus*

Prefers short grass prairies with deep soils for burrowing. Frequently found in grazed ranchland, mowed pastures, and golf courses.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S5

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: | State Status: | SGCN: Y
Endemic: N | Global Rank: G2G3 | State Rank: S3S4

HARRIS COUNTY

MAMMALS

western hog-nosed skunk *Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

MOLLUSKS

Louisiana Pigtoe *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1G2	State Rank: S1

Sandbank Pocketbook *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic:	Global Rank: G2?	State Rank: S1

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the waters edge.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

common garter snake *Thamnophis sirtalis*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

eastern box turtle *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

HARRIS COUNTY

REPTILES

loggerhead sea turtle *Caretta caretta*

Inhabits tropical, subtropical, and temperate waters worldwide, including the Gulf of Mexico. They migrate from feeding grounds to nesting beaches/barrier islands and some nesting does occur in Texas (April to September). Beaches that are narrow, steeply sloped, with coarse-grain sand are preffered for nesting. Newly hatched individuals depend on floating alage/seaweed for protection and foraging, which eventually transport them offshore and into open ocean. Juveniles and young adults spend their lives in open ocean, offshore before migrating to coastal areas to breed and nest. Foraging areas for adults include shallow continental shelf waters.

Federal Status: LT	State Status: T	SGCN: Y
Endemic:	Global Rank: G3	State Rank: S4

slender glass lizard *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

smooth softshell *Apalone mutica*

Aquatic: Large rivers and streams; in some areas also found in lakes and impoundments (Ernst and Barbour 1972). Usually in water with sandy or mud bottom and few aquatic plants. Often basks on sand bars and mudflats at edge of water. Eggs are laid in nests dug in high open sandbars and banks close to water, usually within 90 m of water (Fitch and Plummer 1975).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

Texas diamondback terrapin *Malaclemys terrapin littoralis*

Coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows into mud when inactive. Bay islands are important habitats. Nests on oyster shell beaches.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G4T3Q	State Rank: S2

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

timber (canebrake) rattlesnake *Crotalus horridus*

Terrestrial: Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

HARRIS COUNTY

REPTILES

Terrestrial: Ornate or western box trutles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

western hognose snake *Heterodon nasicus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

PLANTS

awnless bluestem *Bothriochloa exaristata*

Coastal prairies on black clay; Perennial; Flowering April-Dec; Fruiting April- Dec

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

coastal gay-feather *Liatris bracteata*

Coastal prairie grasslands of various types, from salty prairie on low- lying somewhat saline clay loams to upland prairie on nonsaline clayey to sandy loams; flowering in fall

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2S3

corkwood *Leitneria pilosa ssp. pilosa*

Wet or saturated silty soils along brackish or freshwater swamps and ponds and other low, poorly drained sites; flowers in early spring, fruiting as early as May

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3T2	State Rank: S2

Correll's false dragon-head *Physostegia correllii*

Wet, silty clay loams on streamsides, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creek in central Texas; flowering May-September

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2

HARRIS COUNTY

PLANTS

giant sharpstem umbrella-sedge *Cyperus cephalanthus*

In Texas on saturated, fine sandy loam soils, along nearly level fringes of deep prairie depressions; also in depressional area within coastal prairie remnant on heavy black clay; in Louisiana, most sites are coastal prairie on poorly drained sites, some on slightly elevated areas surrounded by standing shallow water, and on moderately drained sites; soils include very strongly acid to moderately alkaline silt loams and silty clay loams; flowering/fruiting May-June, August-September, and possibly other times in response to rainfall

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3?Q	State Rank: S1

goldenwave tickseed *Coreopsis intermedia*

In deep sandy soils of sandhills in openings in or along margins of post oak woodlands and pine-oak forests of east Texas; Perennial; Flowering/Fruiting May-Aug

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Houston daisy *Rayjacksonia aurea*

On and around naturally barren or sparsely vegetated saline slick spots or pimple mounds on coastal prairies, usually on sandy to sandy loam soils, occasionally in pastures and on roadsides in similar soil types where mowing may mimic natural prairie disturbance regimes; flowering late September-November (-December)

Federal Status:	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

Indianola beakrush *Rhynchospora indianolensis*

Locally abundant in cattle pastures in some areas (at least during wet years), possibly becoming a management problem in such sites; Perennial; Flowering/Fruiting April-Nov

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3Q	State Rank: S3

Oklahoma grass pink *Calopogon oklahomensis*

Mesic, acidic, sandy to loamy prairies, pine savannas, oak woodlands, edges of bogs, and frequently mowed meadows (Goldman, Magrath & Catling 2002). Flowering March-July.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S1S2

panicled indigobush *Amorpha paniculata*

A stout shrub, 3 m (9 ft) tall that grows in acid seep forests, peat bogs, wet floodplain forests, and seasonal wetlands on the edge of Saline Prairies in East Texas. It is distinguished from other Amorpha species by its fuzzy leaflets with prominent raised veins underneath, and the flower panicles, which are 8 to 16 inches long and slender, held above the foliage. Perennial; Flowering summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

HARRIS COUNTY

PLANTS

Shinner's sunflower *Helianthus occidentalis ssp. plantagineus*

Mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5T2T3 State Rank: S4

South Texas false cudweed *Pseudognaphalium austrotexanum*

In sandy grasslands on eroded area above saline flats; along edge of sendero through mesquite woodland and shrub mottes on sandy loam; on gravel and silt bars and flats in scour plain of streams (TEX-LL specimens Carr 23682, 29264, 22647, 27206). Oct-Jan, sometimes in spring.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3 State Rank: S3

Texas ladies'-tresses *Spiranthes brevilabris*

Sandy soils in moist prairies, incl. blackland/Fleming prairies, calcareous prairie pockets surrounded by pines, pine-hardwood forest, open pinelands, wetland pine savannahs/flatwoods, and dry to moist fields, meadows, and roadsides. Delicate, nearly ephemeral orchid, producing winter rosettes, flowers Feb-Apr. Historically endemic to SE coastal plain.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G1G2 State Rank: S1

Texas meadow-rue *Thalictrum texanum*

Mostly found in woodlands and woodland margins on soils with a surface layer of sandy loam, but it also occurs on prairie pimple mounds; both on uplands and creek terraces, but perhaps most common on claypan savannas; soils are very moist during its active growing season; flowering/fruiting (January-)February-May, withering by midsummer, foliage reappears in late fall(November) and may persist through the winter

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G2Q State Rank: S2

Texas prairie dawn *Hymenoxys texana*

In poorly drained, sparsely vegtated areas (slick spots) at the base of mima mounds in open grassland or almost barren areas on slightly saline soils that are sticky when wet and powdery when dry; flowering late February-early April

Federal Status: LE State Status: E SGCN: Y
Endemic: Y Global Rank: G2 State Rank: S2

Texas tauschia *Tauschia texana*

Occurs in loamy soils in deciduous forests or woodlands on river and stream terraces; Perennial; Flowering/Fruiting Feb-April

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G3 State Rank: S3

HARRIS COUNTY

PLANTS

Texas willkommia *Willkommia texana var. texana*

Mostly in sparsely vegetated shortgrass patches within taller prairies on alkaline or saline soils on the Coastal Plain (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4T3	State Rank: S3

Texas windmill grass *Chloris texensis*

Sandy to sandy loam soils in relatively bare areas in coastal prairie grassland remnants, often on roadsides where regular mowing may mimic natural prairie fire regimes; flowering in fall

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

Tharp's dropseed *Sporobolus tharpii*

Occurs on barrier islands, shores of lagoons and bays protected by the barrier islands, and on shores of a few near-coastal ponds. Plants occur at the bases of dunes, in interdune swales and sandflats, and on upper beaches. The substrate is of Holocene age.

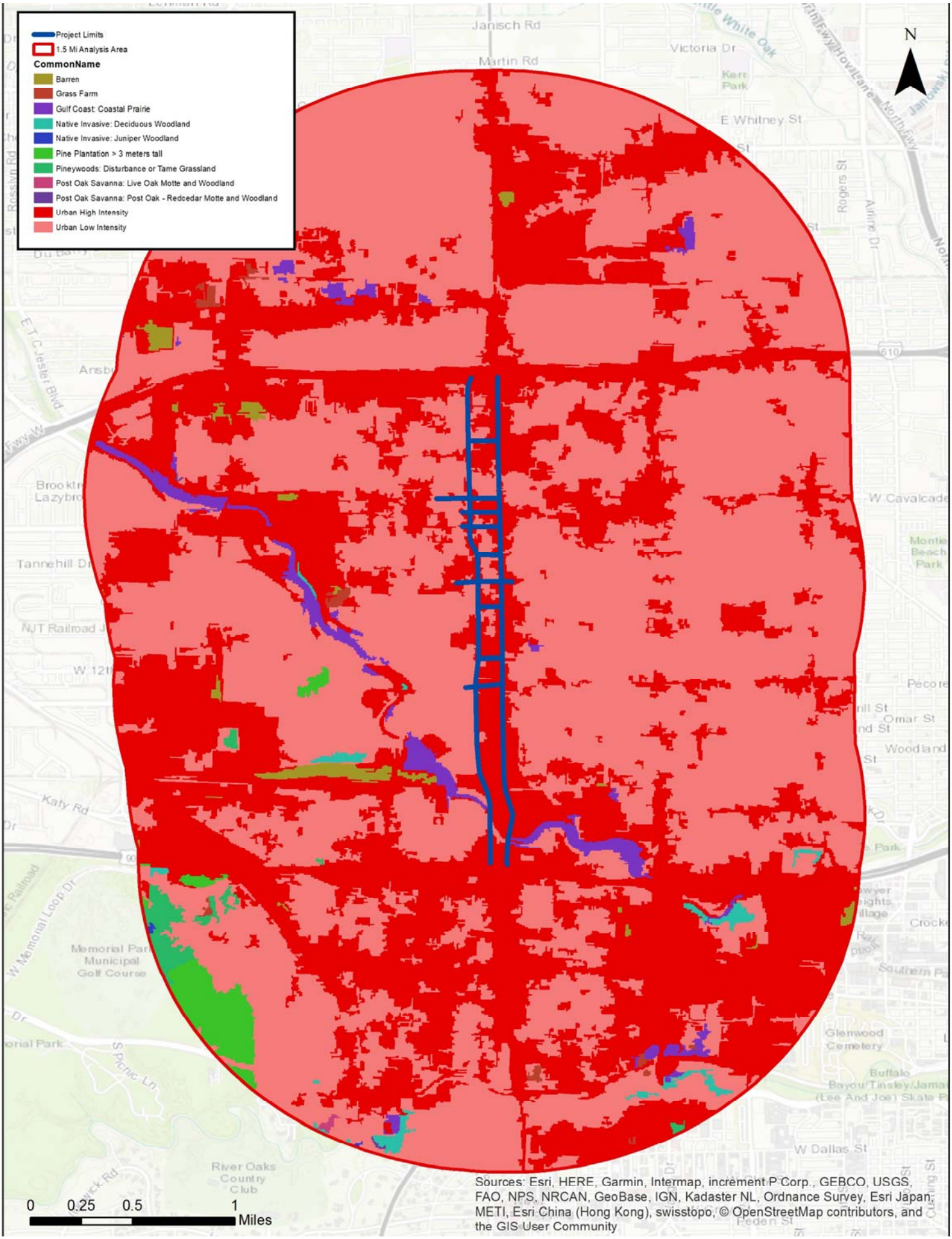
Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

threeflower broomweed *Thurovia triflora*

Near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay along drier upper margins of ecotone between between salty prairies and tidal flats; further inland associated with vegetated slick spots on prairie mima mounds; flowering September-November

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2S3

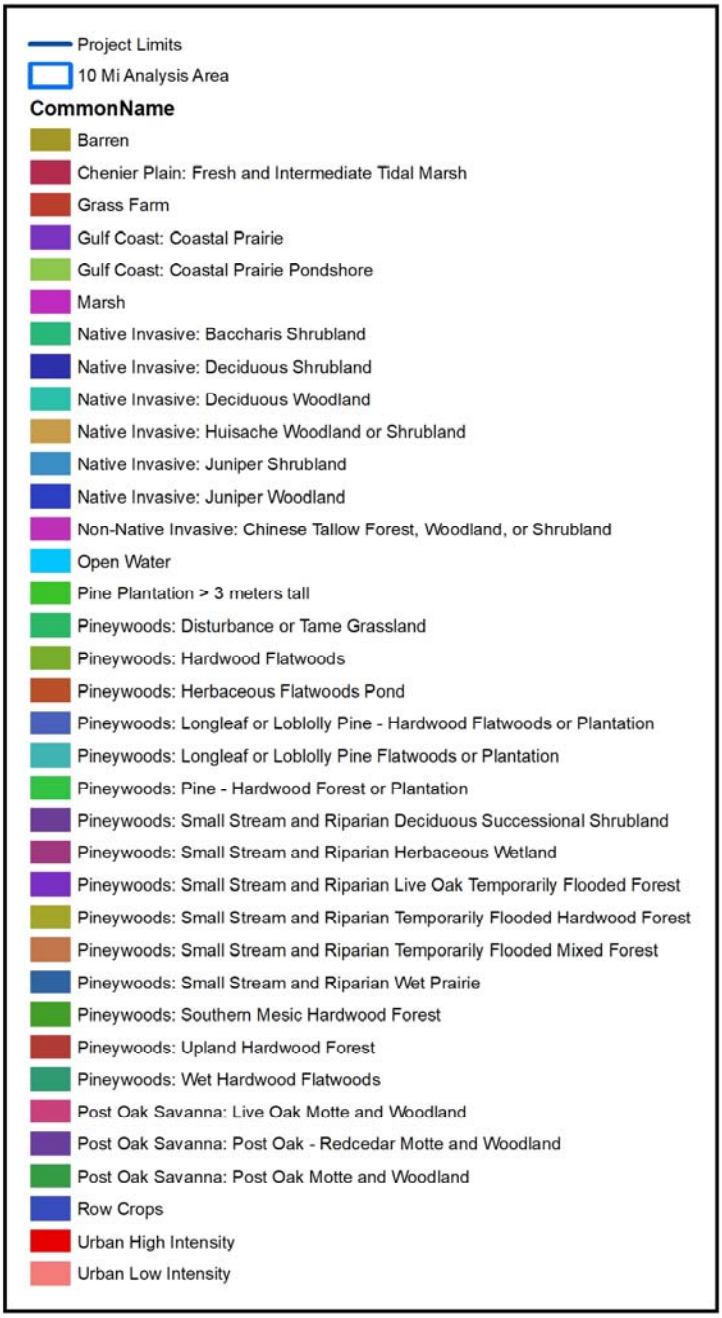
Attachment 3 – Habitat Maps

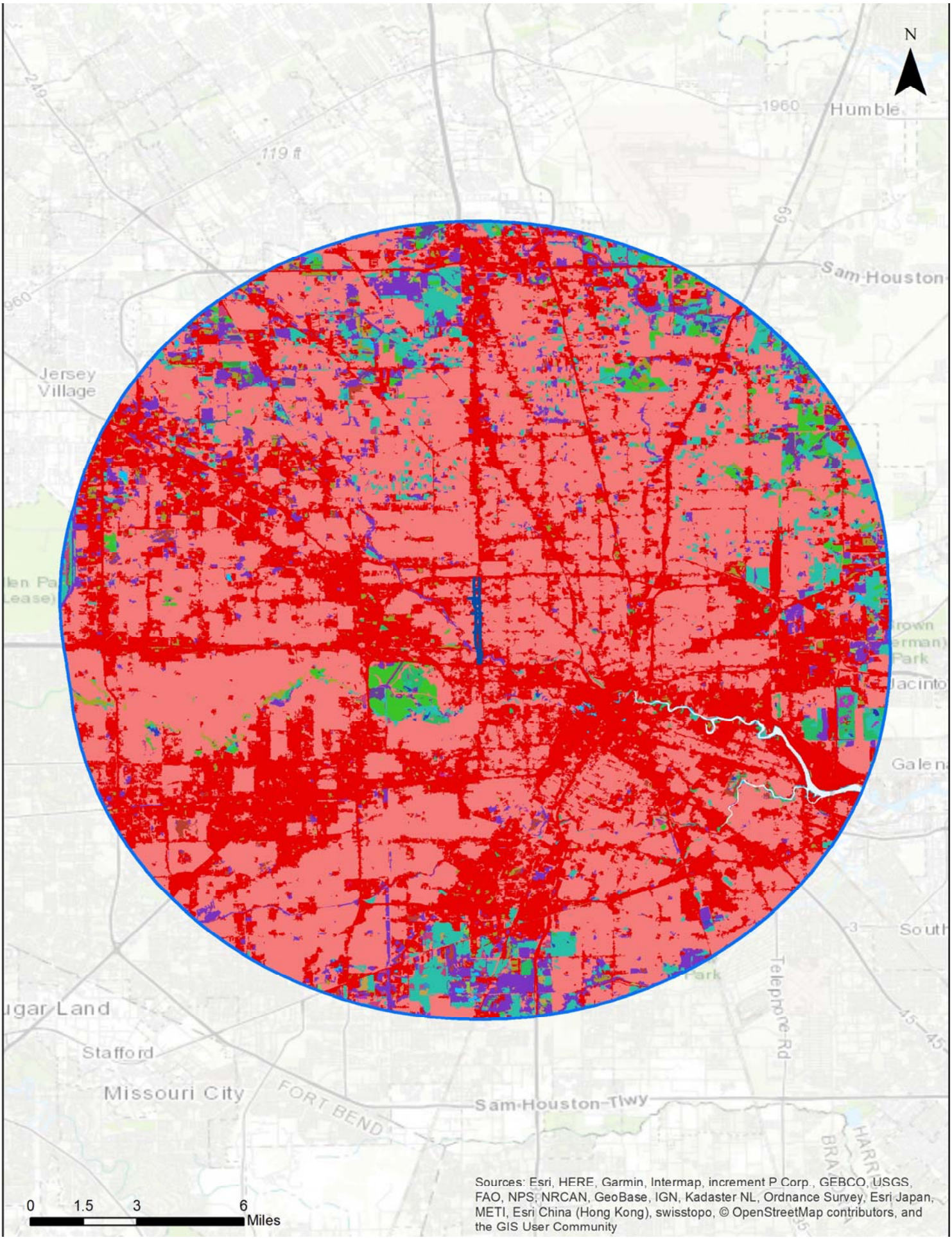

Project Limits
1.5 Mi Analysis Area
CommonName
Barren
Grass Farm
Gulf Coast: Coastal Prairie
Native Invasive: Deciduous Woodland
Native Invasive: Juniper Woodland
Pine Plantation > 3 meters tall
Pineywoods: Disturbance or Tame Grassland
Post Oak Savanna: Live Oak Motte and Woodland
Post Oak Savanna: Post Oak - Redcedar Motte and Woodland
Urban High Intensity
Urban Low Intensity
N
Janisch Rd
Martin Rd
Victoria Dr
E Whitney St
Rogers St
Airline Dr
W Cavalcade
Tannehill Dr
NJT Railroad
W 12th
Katy Rd
Memorial Park Municipal Golf Course
W Memorial Loop Dr
S Picnic Ln
River Oaks Country Club
Glenwood Cemetery
W Dallas St
Omar St
Woodland St
Pecore
Monte Beach Park
0 0.25 0.5 1
Miles
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

CommonName	EcoClass_I	EcoName	US_L4NAME	US_L3NAME	sqft	sqmi	acres
Gulf Coast: Coastal Prairie	R150AY526TX	BLACKLAND	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	3850.372	0.000138	0.088
Urban High Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	1553.364	5.57E-05	0.036
Urban High Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	1327770	0.047627	30.480
Urban Low Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	8413.044	0.000302	0.190
Urban Low Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	159.5672	5.72E-06	0.004
Urban Low Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	104.6061	3.75E-06	0.002
Urban Low Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	43760.41	0.00157	1.000
Urban Low Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	227584.1	0.008163	5.220
Urban Low Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	1244.348	4.46E-05	0.029
Urban Low Intensity	MoRAP_EcoClsID	Water	Northern Humid Gulf Coastal Prairies	Western Gulf Coastal Plain	107.5942	3.86E-06	0.002

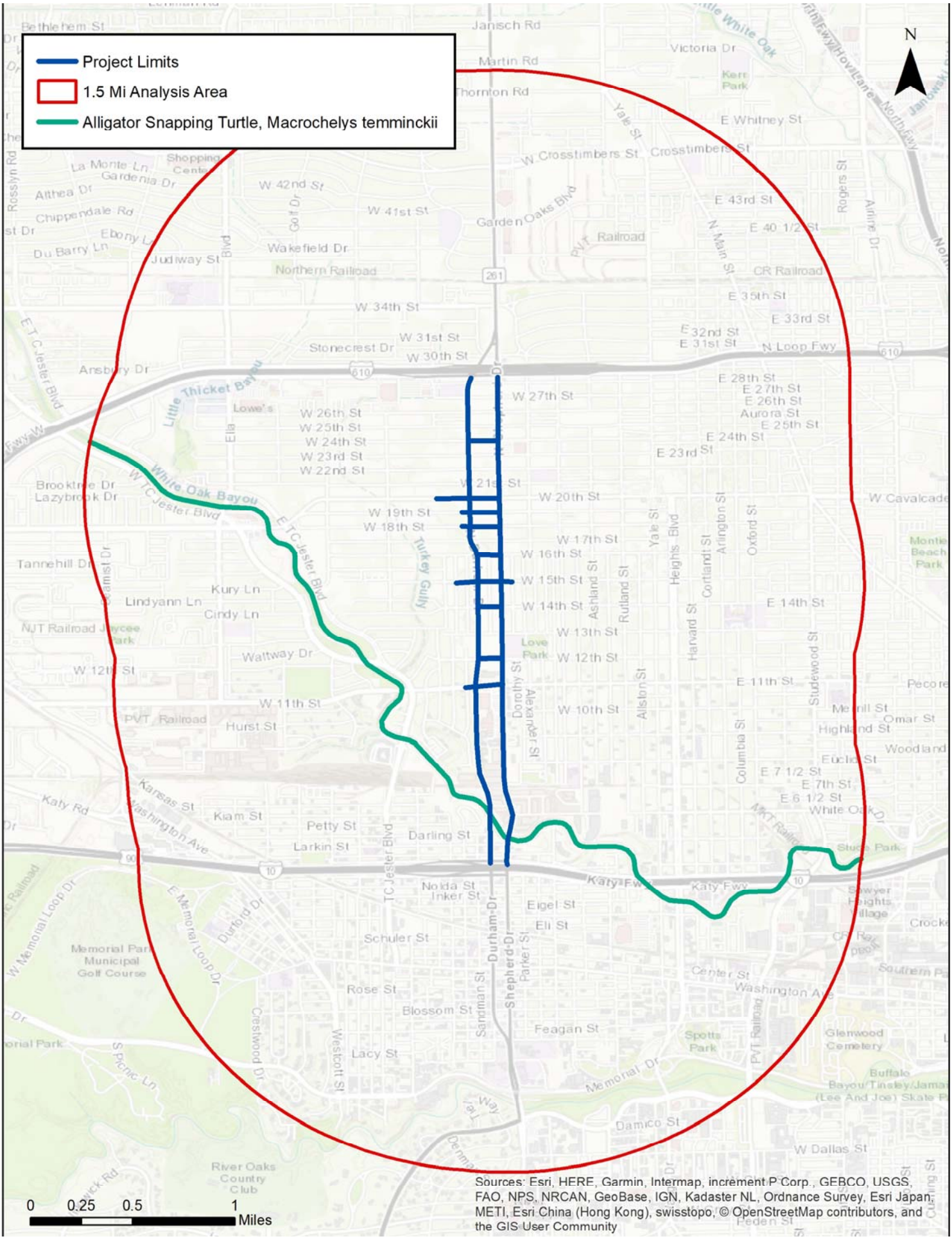
The disturbed area is in a 25 ft buffer (average distance from roadway center to edge of ROW)

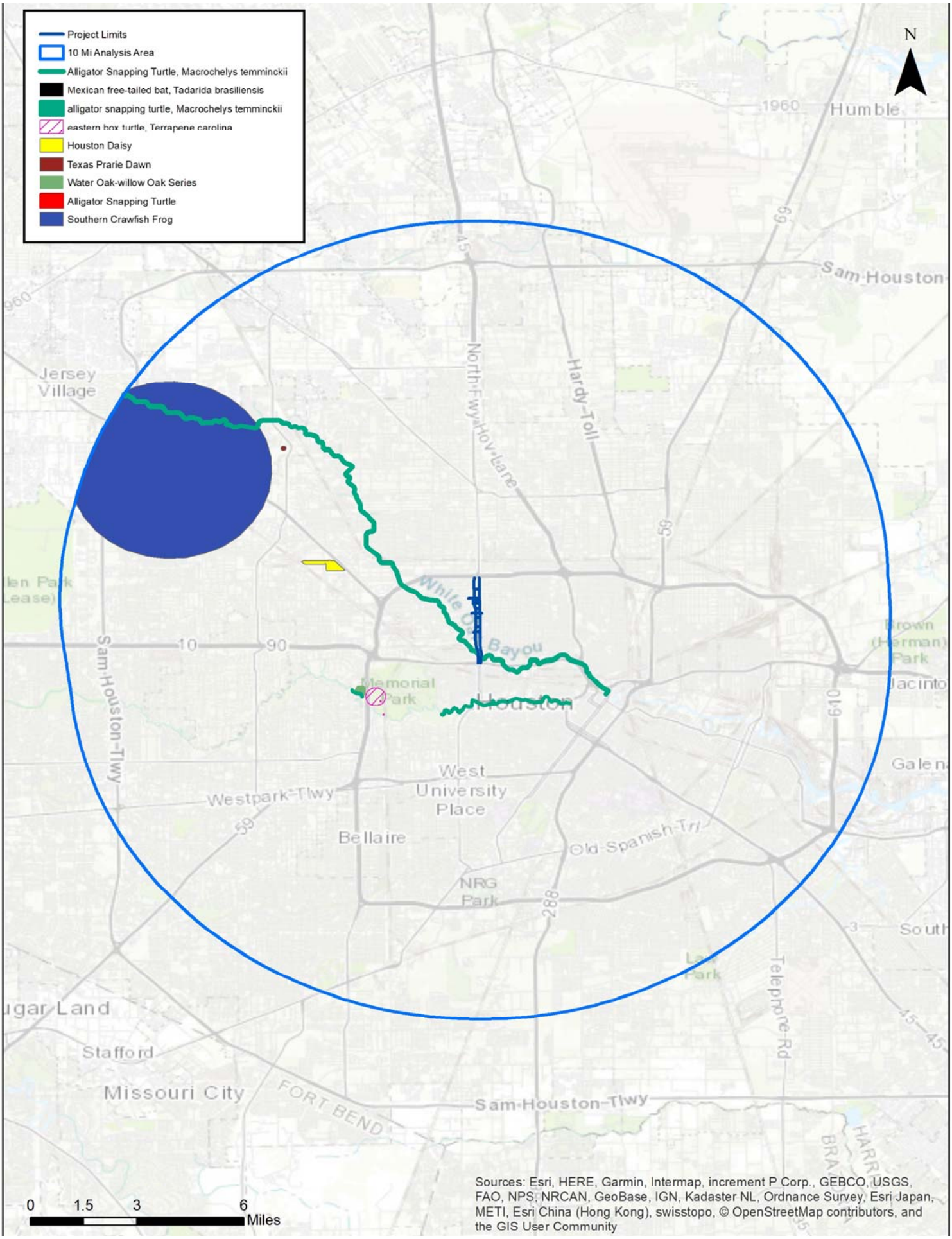
Gulf Coast: Coastal Prairie	0.088
Urban High Intensity	30.516
Urban Low Intensity	6.447


Project Limits
10 Mi Analysis Area
CommonName
Barren
Chenier Plain: Fresh and Intermediate Tidal Marsh
Grass Farm
Gulf Coast: Coastal Prairie
Gulf Coast: Coastal Prairie Pondshore
Marsh
Native Invasive: Baccharis Shrubland
Native Invasive: Deciduous Shrubland
Native Invasive: Deciduous Woodland
Native Invasive: Huisache Woodland or Shrubland
Native Invasive: Juniper Shrubland
Native Invasive: Juniper Woodland
Non-Native Invasive: Chinese Tallow Forest, Woodland, or Shrubland
Open Water
Pine Plantation > 3 meters tall
Pineywoods: Disturbance or Tame Grassland
Pineywoods: Hardwood Flatwoods
Pineywoods: Herbaceous Flatwoods Pond
Pineywoods: Longleaf or Loblolly Pine - Hardwood Flatwoods or Plantation
Pineywoods: Longleaf or Loblolly Pine Flatwoods or Plantation
Pineywoods: Pine - Hardwood Forest or Plantation
Pineywoods: Small Stream and Riparian Deciduous Successional Shrubland
Pineywoods: Small Stream and Riparian Herbaceous Wetland
Pineywoods: Small Stream and Riparian Live Oak Temporarily Flooded Forest
Pineywoods: Small Stream and Riparian Temporarily Flooded Hardwood Forest
Pineywoods: Small Stream and Riparian Temporarily Flooded Mixed Forest
Pineywoods: Small Stream and Riparian Wet Prairie
Pineywoods: Southern Mesic Hardwood Forest
Pineywoods: Upland Hardwood Forest
Pineywoods: Wet Hardwood Flatwoods
Post Oak Savanna: Live Oak Motte and Woodland
Post Oak Savanna: Post Oak - Redcedar Motte and Woodland
Post Oak Savanna: Post Oak Motte and Woodland
Row Crops
Urban High Intensity
Urban Low Intensity


N
Humble
1960
119 ft
Sam Houston
Jersey Village
Galena
Stafford
Missouri City
Sam Houston Tlwy
Telephone Rd
FORT BEND
0 1.5 3 6
Miles
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Attachment 4 – Species Maps


Project Limits
1.5 Mi Analysis Area
Alligator Snapping Turtle, Macrochelys temminckii
N
0 0.25 0.5 1
Miles
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community


Project Limits
10 Mi Analysis Area
Alligator Snapping Turtle, Macrochelys temminckii
Mexican free-tailed bat, Tadarida brasiliensis
alligator snapping turtle, Macrochelys temminckii
eastern box turtle, Terrapene carolina
Houston Daisy
Texas Prarie Dawn
Water Oak-willow Oak Series
Alligator Snapping Turtle
Southern Crawfish Frog
N
Humble
Sam Houston
Jersey Village
North Fwy Hov Lane
Hardy Toll
White Oak Bayou
Memorial Park
Houston
Sam Houston Tlwy
Westpark Tlwy
West University Place
Bellaire
Old Spanish Tri
NRG Park
Telephone Rd
Sugar Land
Stafford
Missouri City
FORT BEND
Sam Houston Tlwy
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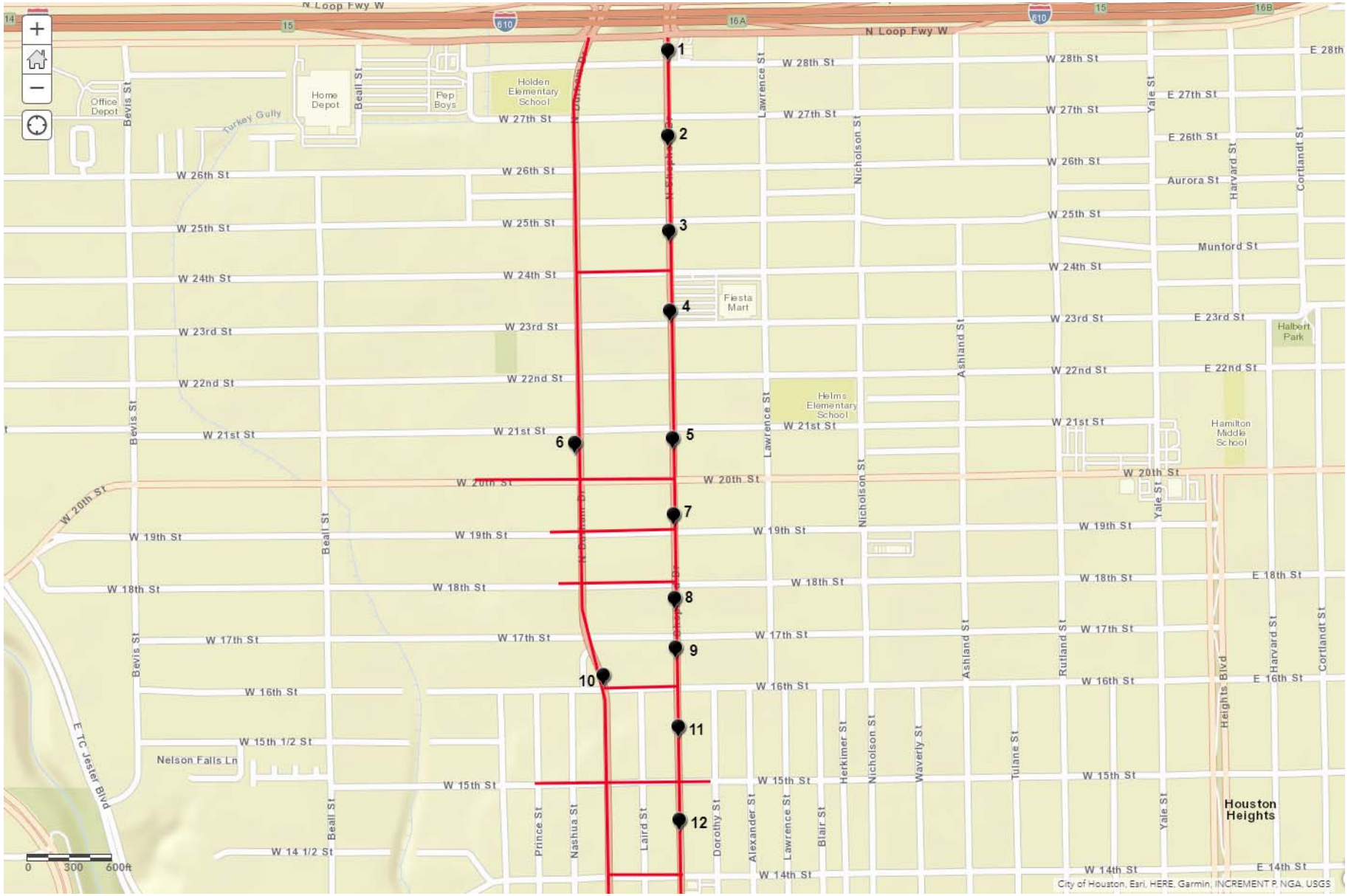
Miles
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Attachment 5 – Project Area Photos


N Loop Fwy W
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16A
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Aurora St
Munford St
E 23rd St
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Nelson Falls Ln
E TC Jester Blvd
Holden Elementary School
Home Depot
Pep Boys
Office Depot
Fiesta Mart
Helms Elementary School
Halbert Park
Hamilton Middle School
Houston Heights
Turkey Gully
Bevis St
Beall St
Lawrence St
Nicholson St
Ashland St
Yale St
Harvard St
Cortlandt St
Rutland St
Heights Blvd
Herkimer St
Waverly St
Tulane St
Prince St
Nashua St
Laird St
Dorothy St
Alexander St
Blair St
0 300 600ft
City of Houston, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

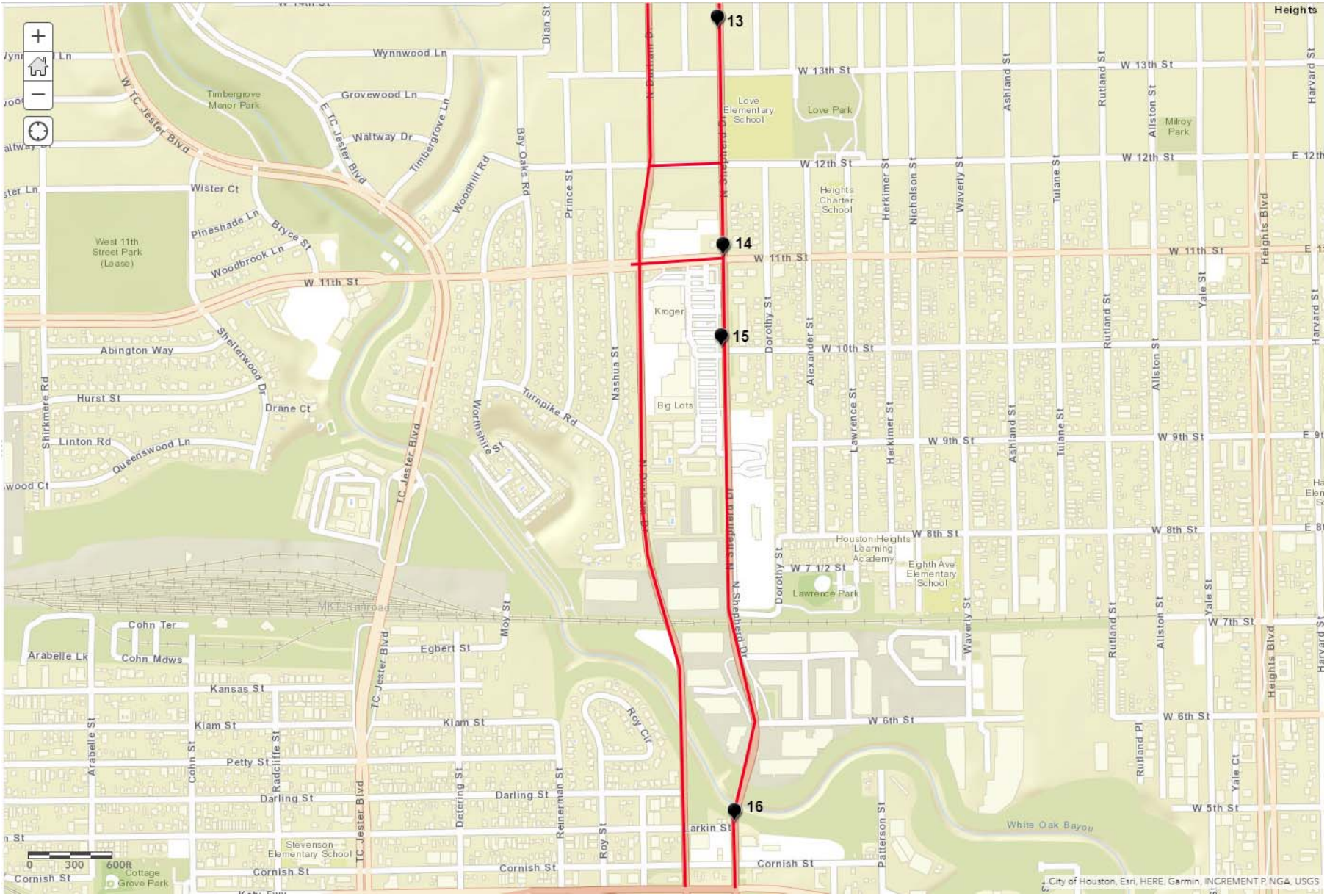
13
14
15
16
Heights
W 13th St
W 12th St
W 11th St
W 10th St
W 9th St
W 8th St
W 7 1/2 St
W 7th St
W 6th St
W 5th St
Love Elementary School
Love Park
Milroy Park
Heights Charter School
Kroger
Big Lots
Houston Heights Learning Academy
Eighth Ave Elementary School
Lawrence Park
Timbergrove Manor Park
West 11th Street Park (Lease)
Stevenson Elementary School
Cottage Grove Park
White Oak Bayou
MKT Railroad
N Shepherd Dr
W T.C. Jester Blvd
E T.C. Jester Blvd
T.C. Jester Blvd
Wynnwood Ln
Grovewood Ln
Waltway Dr
Timbergrove Ln
Woodhill Rd
Bay Oaks Rd
Prince St
Dian St
N Durham Dr
Wister Ct
Pineshade Ln
Bryce St
Woodbrook Ln
Shelterwood Dr
Abington Way
Hurst St
Drane Ct
Linton Rd
Queenswood Ln
Shirkmere Rd
Wortham St
Turnpike Rd
Nashua St
Dorothy St
Alexander St
Lawrence St
Herkimer St
Nicholson St
Waverly St
Ashland St
Tulane St
Rutland St
Allston St
Yale St
Harvard St
Heights Blvd
Cohn Ter
Arabelle Lk
Cohn Mdws
Egbert St
Moy St
Kansas St
Kiam St
Petty St
Darling St
Arabelle St
Cohn St
Radcliffe St
Detering St
Reinerman St
Roy St
Roy Cir
Larkin St
Patterson St
Rutland Pl
Yale Ct
Cornish St
0 300 600ft
City of Houston, Esri, HERE, Garmin, INCREMENT P, NGA, USGS

Photo 1: North Shepherd and West 28th

Photo 2: North Shepherd between West 26th and West 27th

Photo 3: North Shepherd between West 24th and West 25th

Photo 4: North Shepherd and West 23rd

Photo 5: North Shepherd between West 20th and West 21st

Photo 6: North Durham between West 20th and West 21st

Photo 7: North Shepherd and West 19th

Photo 8: North Shepherd between West 17th and West 18th

Photo 9: North Shepherd between West 16th and West 17th

Photo 10: North Durham and West 16th

Photo 11: North Shepherd between West 15th and West 16th

Photo 12: North Shepherd between West 14th and West 15th

Photo 13: North Shepherd between West 13th and West 14th

Photo 14: North Shepherd and West 11th

Photo 15: North Shepherd and West 10th

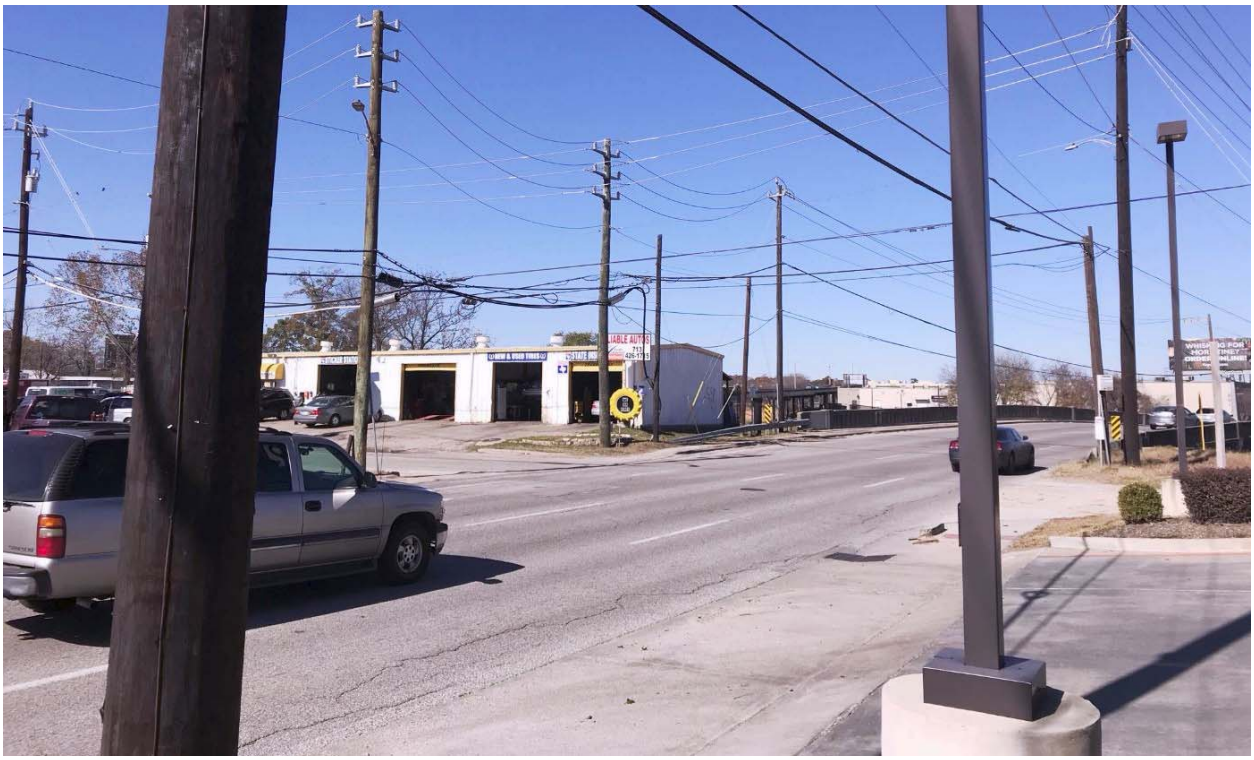

Photo 16: North Shepherd and Larkin

Attachment 6 – USFWS Consultation Letter

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
Phone: (281) 286-8282 Fax: (281) 488-5882
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

In Reply Refer To: February 11, 2020
Consultation Code: 02ETTX00-2020-SLI-1089
Event Code: 02ETTX00-2020-E-02235
Project Name: Shepherd Durham Reconstruction

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; P.O. Box 81468; Corpus Christi, Texas 78468-1468. For projects located in six counties in southern Texas (Cameron, Hidalgo, Starr, Webb, Willacy, and Zapata) please write: Santa Ana NWR, ATTN: Ecological Services Sub Office, 3325 Green Jay Road, Alamo, Texas 78516.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project.

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be

requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is not likely to adversely affect - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect - adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect - the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the

project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at: http://www.fws.gov/endangered/esa-library/pdf/HCP_Handbook.pdf

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Proposed Species and/or Proposed Critical Habitat

While consultations are required when the proposed action may affect listed species, section 7(a)(4) was added to the ESA to provide a mechanism for identifying and resolving potential conflicts between a proposed action and proposed species or proposed critical habitat at an early planning stage. The action agency should seek conference from the Service to assist the action agency in determining effects and to advise the agency on ways to avoid or minimize adverse effect to proposed species or proposed critical habitat.

Candidate Species

Candidate species are species that are being considered for possible addition to the threatened and endangered species list. They currently have no legal protection under the ESA. If you find you have potential project impacts to these species the Service would like to provide technical

assistance to help avoid or minimize adverse effects. Addressing potential impacts to these species at this stage could better provide for overall ecosystem healh in the local area and ay avert potential future listing.

Several species of freshwater mussels occur in Texas and four are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf.

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project

developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to flood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the floodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005, ext. 246, if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Texas Coastal Ecological Services Field Office
17629 El Camino Real #211
Houston, TX 77058
(281) 286-8282

Project Summary

Consultation Code: 02ETTX00-2020-SLI-1089

Event Code: 02ETTX00-2020-E-02235

Project Name: Shepherd Durham Reconstruction

Project Type: TRANSPORTATION

Project Description: Roadway, pedestrian, cyclist, and drainage improvements

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/29.795328896576713N95.41097056540644W

Counties: Harris, TX

Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
West Indian Manatee *Trichechus manatus*	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.
Species profile: https://ecos.fws.gov/ecp/species/4469

Birds

NAME	STATUS
Least Tern *Sterna antillarum*	Endangered

Population: interior pop.
No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- Wind related projects within migratory route.

Species profile: https://ecos.fws.gov/ecp/species/8505

Piping Plover *Charadrius melodus*	Threatened

Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered.
There is **final** critical habitat for this species. Your location is outside the critical habitat.
This species only needs to be considered under the following conditions:
- Wind related projects within migratory route.

Species profile: https://ecos.fws.gov/ecp/species/6039

Red Knot *Calidris canutus rufa*	Threatened

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:
- Wind related projects within migratory route.

Species profile: https://ecos.fws.gov/ecp/species/1864

Flowering Plants

NAME	STATUS
Texas Prairie Dawn-flower *Hymenoxys texana*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6471

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.