



Project Name: **I-10 Managed Lanes**

CSJ(s): **0271-06-117**

County(ies): **Harris, Waller, and Fort Bend Counties**

Date Analysis Completed: **03/23/2022**

Prepared by: **Brittney Daniels**

<If the project is assigned to TxDOT by FHWA, retain the following sentence; if not, delete it>

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 requires an environmental assessment (EA) or environmental impact statement (EIS), and therefore must be coordinated with TPWD under the 2021 TxDOT/TPWD MOU.
- This project is a categorical exclusion (CE)-level project; therefore coordination with TPWD under the 2021 TxDOT/TPWD MOU is not required; however, it will be coordinated with TPWD under the 2021 TxDOT/TPWD MOU at the TxDOT district's discretion.



- This project is a categorical exclusion (CE)-level project; therefore coordination with TPWD under the 2021 TxDOT/TPWD MOU is not required and it will not be coordinated with TPWD under 2021 TxDOT/TPWD MOU at the TxDOT district's discretion.

For any project that will be coordinated with TPWD, completed the **Documentation of Texas Parks and Wildlife Department Best Management Practices Form**.

For more information regarding TPWD Coordination, see **ENV's Guidance: TPWD Coordination Under the 2021 Memorandum of Understanding**.

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)



Species Analysis Form

- Karst Zone Maps
- Ecological Mapping System of Texas (EMST)
- Site Visit
- Species Expert Consulted
- Species Habitat or Presence/absence Survey
- Other: _____

SPECIES ANALYSIS SPREADSHEET: Project Information Sheet

Project Name:	I-10 Managed Lanes
CSJ(s):	0271-04-070, 0271-05-025, & 0271-06-117
TxDOT District: (Click dropdown arrow to select a District from List)	Houston
County(ies): (Click dropdown arrow to select each county)	Harris, Fort Bend, Waller
Prepared by: (Full Name)	Lauren Munoz
Date Completed: (m/d/yyyy)	3/18/2021

TxDOT ENV Spreadsheet Template date: March 18, 2021.

SPECIES ANALYSIS SUMMARY
Project Name: IH 10 Managed Lanes
CSJ(s): 0271-04-070, 0271-05-025, 0271-06-117

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?
Fort Bend, Harris, Waller	Amphibians	Houston Toad	<i>Anaxyrus (Bufo) houstonensis</i>	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 (<i>Pinus taeda</i>) and post oak (<i>Quercus stellata</i>) are common overstory species.	N	The species is considered extirpated from the project area. The USFWS does not include the Houston toad on their IPAC list of federally Endangered or Threatened species for any of the counties in the project area. TPWD's information page on the Houston toad (https://tpwd.texas.gov/huntwild/wild/species/htoad/) confirm that the project counties are not currently habitat for the Houston toad.	E	No effect	E	No impact	The species is extirpated from the project area and project counties are not currently within the range of the Houston toad; therefore, this project will have no effect on the species.	N
Fort Bend	Birds	Attwater's Greater Prairie-chicken	<i>Tympanuchus cupido attwateri</i>	The species historically occurred throughout the Gulf Coast prairies from the Texas-Louisiana border south to the Rio Grande, but it is now restricted to narrow bands along the Texas coast, a few off-shore islands, and three remnant inland populations. Optimal habitat consists of well-drained grasslands with a high diversity of weeds, shrubs, and grasses comprising a variety of canopy cover, high vegetation density, and available surface water in the summer. During the breeding season, areas with short grasses and less than 25 percent leaf litter are utilized for nesting. During the summer, individuals utilize areas with shade from weeds, tall grasses, and shrubs. During the winter, individuals are found in moderate to heavy cover of grasses and forbs at least 6 inches in height.	N	No open prairies of mostly thick grass one to three feet tall occur in the project area. This species also has populations occurring on managed lands, none of which occur within the project area.	E	No effect	E	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N

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Fort Bend, Harris, Waller	Birds	Black Rail	<i>Laterallus jamaicensis</i>	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 (<i>Spartina</i> sp.), spikegrasses (<i>Distichlis</i> sp.), and needlerush (<i>Juncus</i> sp.), or, in more upland saltbush communities along marsh edges. Typical freshwater habitat includes species such as cattail (<i>Typha</i>) and bulrush (<i>Scirpus</i> sp.). Non-breeding habitat is thought to be similar to breeding habitat.	N	Brackish or freshwater marshes, ponds, and wet meadows do not exist within the project area.	T	No effect	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N
Fort Bend, Harris, Waller	Birds	Least Tern - Migratory	<i>Sternula (=Sterna) antillarum</i>	The interior population (subspecies <i>athalassos</i>) 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/A	The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Least Tern is not expected to regularly occur and any use of this habitat would be incidental.	—	N/A	E	No impact	The project area does not contain suitable breeding or wintering habitat for the Least Tern.	N

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Fort Bend	Birds	Piping Plover - Migratory	<i>Charadrius melodus</i>	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/A	The list of federally threatened and endangered species indicates that based on the project location within the migratory route, effects to Piping Plover only need be considered for wind energy projects. The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Piping Plover is not expected to regularly occur and any use of this habitat would be incidental.	T	No effect	T	No impact	The project is not a wind energy project within the migratory route and does not contain suitable breeding and wintering habitat for the Piping Plover.	N
Harris	Birds	Piping Plover - Coastal	<i>Charadrius melodus (Coastal)</i>	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	Beaches, ephemeral sand flats, salt marshes, and lagoons do not exist within the project ROW.	T	No effect	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N

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Waller	Birds	Piping Plover - Migratory	<i>Charadrius melodus</i>	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/A	The list of federally threatened and endangered species indicates that based on the project location within the migratory route, effects to Piping Plover only need be considered for wind energy projects. The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Piping Plover is not expected to regularly occur and any use of this habitat would be incidental.	T	No effect	T	No impact	The project is not a wind energy project within the migratory route and does not contain suitable breeding and wintering habitat for the Piping Plover.	N
Fort Bend	Birds	Red Knot - Migratory	<i>Calidris canutus rufa</i>	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/A	The list of federally threatened and endangered species indicates that based on the project location within the migratory route, effects to Red Knot only need be considered for wind energy projects. The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Red Knot is not expected to regularly occur and any use of this habitat would be incidental.	T	No effect	T	No impact	The project is not a wind energy project within the migratory route and does not contain suitable breeding and wintering habitat for the Red Knot.	N

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Harris	Birds	Red Knot - Coastal	<i>Calidris canutus rufa (Coastal)</i>	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	No seacoasts on tidal flats, beaches, herbaceous wetlands, or tidal flat/shore exist within the project area.	T	No effect	T	No impact	There is not suitable habitat present within or adjacent to the proposed project.	N
Waller	Birds	Red Knot - Migratory	<i>Calidris canutus rufa</i>	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/A	The list of federally threatened and endangered species indicates that based on the project location within the migratory route, effects to Red Knot only need be considered for wind energy projects. The project area is outside the breeding and wintering range of this species. Although suitable stopover habitat may be present, Red Knot is not expected to regularly occur and any use of this habitat would be incidental.	T	No effect	T	No impact	The project is not a wind energy project within the migratory route and does not contain suitable breeding and wintering habitat for the Red Knot.	N
Harris, Waller	Birds	Red-cockaded Woodpecker	<i>Picoides borealis</i>	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 (<i>Pinus palustris</i>), when it occurs, but will also utilize shortleaf (<i>P. echinata</i>) and loblolly pine (<i>P. taeda</i>). 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	No pine forests with mature trees occur within the project area. The USFWS does not include the Red-cockaded Woodpecker on their IPAC list of federally Endangered or Threatened species for the project area.	E	No effect	E	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N

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Fort Bend, Harris, Waller	Birds	Reddish Egret	<i>Egretta rufescens</i>	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 [<i>Prosopis glandulosa</i>], yucca [<i>Yucca</i> sp.], or prickly-pear [<i>Opuntia</i> 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	No coastal habitats including mud tidal flats, salt ponds, lagoons, or open mangrove communities do not exist within the project area.	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N
Fort Bend, Harris, Waller	Birds	Swallow-tailed Kite	<i>Elanoides forficatus</i>	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 (<i>Taxodium distichum</i>), water oak (<i>Quercus nigra</i>), or cottonwood (<i>Populus deltoides</i>).	N	Bottomland forests, cypress swamps, and freshwater marshes do not exist within the project area.	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project. Species is a potential migrant.	N
Fort Bend, Harris, Waller	Birds	White-faced Ibis	<i>Plegadis chihi</i>	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 (<i>Scirpus</i> sp.) or reeds, or on floating mats.	N	No freshwater marshes, sloughs, or irrigated rice fields occur within the project area.	—	N/A	T	No impact	There is no suitable habitat present within or adjacent to the proposed project.	N
Fort Bend, Harris, Waller	Birds	White-tailed Hawk	<i>Buteo albicaudatus</i>	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 (<i>Prosopis glandulosa</i>), hackberry (<i>Celtis laevigata</i>), and oak (<i>Quercus</i> 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	No prairies, cordgrass flats, savannas, or live oak scrub occur within the project area.	—	N/A	T	No impact	Species may occur in undeveloped areas adjacent to the project area. No preferred habitat would be impacted by the proposed project.	N

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Fort Bend, Harris, Waller	Birds	Whooping Crane	<i>Grus americana</i>	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	No large rivers, marshes, lakes, or playas within the project area.	E	No effect	E	No impact	There is no suitable habitat present within or adjacent to the proposed project. The project location is outside of the critical habitat.	N
Fort Bend, Harris, Waller	Birds	Wood Stork	<i>Mycteria americana</i>	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).	Y	There is suitable habitat present in ditches and other shallow standing water throughout the proposed project.	—	N/A	T	No impact	The species is a potential migrant; however, no nesting habitat occurs in the project area and any use would be incidental. No rookeries occur in the project area. Bird BMPs would be implemented.	N
Harris	Fishes	Dwarf Seahorse	<i>Hippocampus zosterae</i>	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	Seagrass beds, mangrove roots, and algal mats are not located within the proposed project area.	C	No effect	—	N/A	There is no suitable habitat present within or adjacent to the proposed project.	N
Harris	Fishes	Gulf Sturgeon	<i>Acipenser oxyrinchus desotoi</i>	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 substrate (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	Large coastal rivers, Gulf waters, estuaries, and bays are not located within the proposed project area.	T	No effect	—	N/A	There is no suitable habitat within the project area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N

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Harris	Fishes	Nassau Grouper	<i>Epinephelus striatus</i>	The Nassau grouper inhabits reefs in the southern Gulf of Mexico and throughout the Caribbean 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	Reefs, seagrass beds, and seawalls are not located within the proposed project area.	T	No effect	—	N/A	There is no suitable habitat within the project area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N
Waller	Fishes	Sharpnose Shiner	<i>Notropis oxyrhynchus</i>	The species is likely extirpated from the lower and middle portions of the Brazos River, currently known only from the upper Brazos River above Possum Kingdom Reservoir. The species is typically found in medium to large rivers, and occasionally in smaller tributaries, with moderate current rates. It prefers sand and gravel runs, but also occasionally occurs in sand- and mud-bottomed pools. It has high thermal, low dissolved oxygen, and high salinity tolerances.	N	Current ranges is limited to above Possum Kingdom Reservoir on the Brazos River. No large turbid rivers occur within the project area.	E	No effect	E	No impact	There is no suitable habitat present within the project area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N
Fort Bend, Waller	Fishes	Smalleye Shiner	<i>Notropis buccula</i>	The species is likely extirpated from the lower and middle portions of the Brazos River, currently known only from the upper Brazos River above Possum Kingdom Reservoir. The species is common in river channels and side channels with water of moderate depth and current. It is typically found in broad channels with high turbidity and constant shifting sand substrate, or occasionally silt substrate. It is most frequently found using the center of the channel, avoiding the shallow depth and slow velocity of the stream edges.	N	Current ranges is limited to above Possum Kingdom Reservoir on the Brazos River. No rivers of moderate depth and current occur within the project area.	E	No effect	E	No impact	There is no suitable habitat present within the project area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N
Harris	Fishes	Smalltooth Sawfish	<i>Pristis pectinata</i>	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	The Flower Garden Banks National Marine Sanctuary, inshore coastal waters, lagoons, and estuaries do not occur within the project area.	E	No effect	E	No impact	There is no suitable habitat present within the project area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N
Harris	Fishes	Western Creek Chubsucker	<i>Erimyzon claviformis</i>	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	While creeks and small streams are present within the project area, the project is not located between the Red River and San Jacinto River	—	N/A	T	No impact	There is no suitable habitat within the project area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N

SPECIES ANALYSIS SUMMARY
Project Name: IH 10 Managed Lanes
CSJ(s): 0271-04-070, 0271-05-025, 0271-06-117

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?
Fort Bend, Harris, Waller	Insects	Monarch Butterfly	<i>Danaus plexippus</i>	Found statewide. Adults are found in a variety of habitats including native prairies, pastures, open woodlands and savannas, desert scrub, roadsides, and other habitats with abundant nectar plants, including urbanized areas. Although adults may be present year round, they are primarily encountered between March and November, and are most commonly observed in the summer and fall during breeding and migration. Caterpillars are found on various species of the family Asclepiadaceae (occasionally treated as a subfamily of Apocynaceae). Common host plants in Texas include milkweeds (<i>Asclepias</i> spp.) milkweed vines (<i>Matelea</i> spp.), climbing milkweed (<i>Funastrum</i> spp.), swallowworts (<i>Cynanchum</i> spp.) and Anglepod (<i>Gonolobus suberosus</i>). Caterpillars are most frequently observed between April and September."	Y	Species may occur in pastures, roadsides, and urbanized area along the project corridor.	C	May affect	—	N/A	Suitable habitat is present within the project area.	N
Harris, Waller	Mammals	Louisiana Black Bear	<i>Ursus americanus luteolus</i>	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	No large tracts of inaccessible forested areas occur within the project area.	—	N/A	T	No impact	There is no suitable habitat present within the project area.	N
Fort Bend, Harris, Waller	Mammals	Rafinesque's Big-eared Bat	<i>Corynorhinus rafinesquii</i>	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 (<i>Nyssa sylvatica</i>), southern magnolia (<i>Magnolia grandiflora</i>), and water tupelo (<i>Nyssa aquatica</i>). It also roosts in caves and man-made structures such as bridges, culverts, and abandoned buildings.	Y	No bottomland hardwoods are within the project area; however, bridges and culverts are present.	—	N/A	T	May impact	Species may roost in bridges and culverts within the project area. Tree bat BMPs will be implemented.	N
Harris	Mammals	West Indian Manatee	<i>Trichechus manatus</i>	The West Indian Manatee is found throughout the Gulf of Mexico, Caribbean 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	No marine, coastal, or riverine habitats present within the project area.	T	No effect	T	No impact	There is no suitable habitat present within the project area.	N

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Fort Bend, Waller	Mollusks	Brazos Heelsplitter	<i>Potamilus streckeri</i>	This species of freshwater mussel was recently discovered to be an independent species. It is currently only known to occur in the Brazos River north of the impoundments of Lake Granbury and Lake Whitney, as well as north of Possum Kingdom Reservoir.	N	The Brazos River north of Lake Granbury, Lake Whitney, and Possum Kingdom Reservoir does not occur within the project area.	—	N/A	T	No impact	There is no suitable habitat present within the project area.	N
Harris	Mollusks	Louisiana Pigtoe	<i>Pleurobema riddellii</i>	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	The project is not located within the Sabine, Neches, or Trinity River basins. No medium-sized rivers are within the project area.	—	N/A	T	No impact	There is no suitable habitat present within the project area.	N
Harris	Mollusks	Sandbank Pocketbook	<i>Lampsilis satura</i>	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	The project is not located within the Sabine, Neches, or Trinity River basins.	—	N/A	T	No impact	There is no suitable habitat within the project area.	N
Fort Bend, Waller	Mollusks	Texas Fawnsfoot	<i>Truncilla macrodon</i>	A freshwater mussel that is currently limited to the Brazos and Colorado River basins in Texas. The species occupies large streams to medium rivers and is intolerant to impoundment. Little is known about the species due to lack of representative specimens, however it is thought that the species prefers sand, gravel, and sandy-mud substrate in water with a moderate current. It is also found in perennial irrigation canals for rice.	N	No larger or non-impounded rivers or streams within the project area.	C	No effect	T	No impact	There is no suitable habitat present within the project area.	N
Harris	Plants	Houston Daisy	<i>Rayjacksonia aurea</i>	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	Barren saline slick spots or pimple mounds on coastal prairies are not found within the project area.	—	No effect	T	No impact	There is no suitable habitat within the project area.	N
Fort Bend, Harris	Plants	Texas Prairie Dawn-flower	<i>Hymenoxys texana</i>	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	Barren slick spots or pimple mounds are not found within the project area.	E	No effect	E	No impact	There is no suitable habitat within the project area.	N

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Harris	Reptiles	Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	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.	N	No deep running waters occur within the project area.	—	N/A	T	No impact	There is no suitable habitat within the project area.	N
Harris	Reptiles	Green Sea Turtle	<i>Chelonia mydas</i>	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	Marine environments are not present within the project area.	E	No effect	T	No impact	There is no suitable habitat within the project area.	N
Harris	Reptiles	Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	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	Marine environments are not present within the project area.	E	No effect	E	No impact	There is no suitable habitat within the project area.	N

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Harris	Reptiles	Kemp's Ridley Sea Turtle	<i>Lepidochelys kempii</i>	This species occurs in the western Atlantic Ocean, Gulf of Mexico, and Caribbean 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	Marine environments are not present within the project area.	E	No effect	E	No impact	There is no suitable habitat within the project area.	N
Harris	Reptiles	Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Leatherback sea turtles 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 of 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	Marine environments are not present within the project area.	E	No effect	E	No impact	There is no suitable habitat within the project area.	N

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Harris	Reptiles	Loggerhead Sea Turtle	<i>Caretta caretta</i>	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	Marine environments are not present within the project area.	T	No effect	T	No impact	There is no suitable habitat within the project area.	N
Fort Bend, Harris, Waller	Reptiles	Texas Horned Lizard	<i>Phrynosoma cornutum</i>	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	No arid areas with sparse vegetation occur within the project area.	—	N/A	T	No impact	There is no suitable habitat within the project area.	N
Harris	Marine Species	N/A	N/A	If the project occurs within or adjacent to coastal waters including, but not limited to bays, inlets, and estuaries, an analysis of marine species is required. Select "Y" in the "Suitable Habitat Present" column if this condition applies and proceed to the Marine Species tab in this spreadsheet. If this condition does not apply, select "N" in the "Suitable Habitat Present" column and no further analysis of marine species is required.	N	N/A	—	N/A	—	N/A	N/A	N/A

SPECIES ANALYSIS SUMMARY (SGCN)
 Project Name: IH 10 Managed Lanes
 CSJ(s): 0271-04-070, 0271-05-025, 0271-06-117

County	Taxon	Common Name	Scientific Name	Habitat	Suitable Habitat Present?	Explanation for determination regarding suitable habitat	Impact Determination for SGCNs	Explanation for Impact Determination	Presence/ Absence survey conducted?
Fort Bend, Harris, Waller	Amphibians	Woodhouse's toad	<i>Anaxyrus woodhousii</i>	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.	Y	Forested areas, creeks, and streams are present within the project area which could provide suitable habitat.	May impact	Potential habitat is present in the project area. Amphibian BMPs would be implemented.	N
Fort Bend, Harris, Waller	Amphibians	Southern crawfish frog	<i>Lithobates areolatus areolatus</i>	Terrestrial and aquatic: The terrestrial habitat is primarily grassland and can vary from pasture to intact prairie; it can also include small prairies in the middle of large forested areas. Aquatic habitat is any body of water but preferred habitat is ephemeral wetlands.	Y	Agricultural land within the project area may provide suitable terrestrial habitat. Additionally, there are streams and wetlands throughout the length of the proposed project that would provide suitable aquatic habitat.	May impact	Potential habitat is present in the project area. Amphibian BMPs would be implemented.	N
Fort Bend, Harris, Waller	Amphibians	Strecker's chorus frog	<i>Pseudacris streckeri</i>	Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.	Y	Wooded floodplains are present in the project area along Snake Creek.	May impact	Potential habitat is present in the project area. Amphibian BMPs would be implemented.	N
Fort Bend, Harris, Waller	Birds	Western burrowing owl	<i>Athene cunicularia hypugaea</i>	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	Y	Vacant lots near human habitation are present within the project area.	May impact	Potential habitat is present in the project area. Bird BMPs would be implemented.	N
Harris, Waller	Birds	Mountain plover	<i>Charadrius montanus</i>	Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous	N	High plains and shortgrass prairie are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris, Waller	Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	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	N	Rivers, large lakes, tall trees, or cliffs are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris, Waller	Birds	Franklin's gull	<i>Leucophaeus pipixcan</i>	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.	Y	While there are no lake shores or islands, there are wetlands within the project area which the species may use to roost for the night while migrating through Texas.	No impact	While there is suitable habitat present for the species to roost overnight, any presence in the project area would be considered incidental during migration.	N
Harris	Crustaceans	Houston burrowing crayfish	<i>Fallicambarus houstonensis</i>	All species in the genus Fallicambarus 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).	Y	Temporary pools within herbaceous wetlands are present within the project area.	May impact	Potential habitat is present in the project area.	N

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Harris	Fish	Alligator gar	<i>Atractosteus spatula</i>	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.	N	The Trinity River upstream of Lake Livingston is not located within the project area. Additionally, there are rivers, lakes, swamps, bayous, bays, and estuaries are found within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Harris	Fish	Saltmarsh topminnow	<i>Fundulus jenkinsi</i>	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.	N	Estuaries, saltmarsh habitats, and access to tidal creeks are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend	Fish	Silver chub	<i>Macrhybopsis storeriana</i>	Red River and Brazos River basins. Mainly restricted to large, often silty rivers. Ranges over gravel to silt substrates but found more commonly over silt or mud bottom.	N	No large, silty rivers occur within the project area. Waters present in the project area are ephemeral and perennial streams.	No impact	No suitable habitat present in or adjacent to the project area.	N
Waller	Fish	Blackspot shiner	<i>Notropis atrocaudalis</i>	Occurs from the lower Brazos River to the Sabine River drainage; Red River drainage. Small to moderate size tributary streams in runs and pools over all types of substrates.	Y	Multiple small perennial streams are present along the length of the project.	May impact	Suitable habitat is present within the preojct area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N
Harris	Fish	Sabine shiner	<i>Notropis sabinae</i>	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.	Y	Multiple small perennial streams are present along the length of the project.	May impact	Suitable habitat is present within the preojct area. Surface water quality would be protected through the use of erosion and sedimentation control BMPs.	N
Fort Bend, Harris, Waller	Fish	Silverband shiner	<i>Notropis shumardi</i>	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.	N	Waters with moderate to swift current and moderate to deep depths are present in the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N

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Harris	Fish	Southern flounder	<i>Paralichthys lethostigma</i>	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.	N	Riverine, estuarine and coastal waters with muddy, sandy, or silty substrates are not present within the project area. Waters present in the project area are ephemeral and perennial streams with deep, moderately well drained, slow permeable soils formed in loamy sediments.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris	Insects	American bumblebee	<i>Bombus pensylvanicus</i>	Habitat description is not available at this time.	Y	No habitat description is available from TPWD. Outside sources describe habitat as open farmland and grassland. Agricultural fields occur within the project area.	May impact	Potential habitat is present in the project area.	N
Harris	Insects	Bay skipper	<i>Euphyes bayensis</i>	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	N	Tidal sawgrass marshes are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris, Waller	Mammals	Western hog-nosed skunk	<i>Conepatus leuconotus</i>	Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. <i>telmalestes</i>	N	Grasslands, deserts, and rugged, rocky canyon habitats are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris, Waller	Mammals	Big brown bat	<i>Eptesicus fuscus</i>	Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.	Y	Wooded and riparian areas are present within the project area.	May impact	Potential habitat is present in the project area. Bat BMPs would be implemented.	N

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Fort Bend, Harris, Waller	Mammals	Long-tailed weasel	<i>Mustela frenata</i>	Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.	N	Brushlands, upland woods, bottomland hardwoods, and rocky desert scrub do not occur within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Harris, Waller	Mammals	Southeastern myotis bat	<i>Myotis austroriparius</i>	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.	Y	Species may roost within culverts along the length of the project.	May impact	Potential habitat is present in the project area. Bat BMPs would be implemented.	N
Fort Bend, Harris, Waller	Mammals	Big free-tailed bat	<i>Nyctinomops macrotis</i>	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	N	Canyons are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris, Waller	Mammals	Tricolored bat	<i>Perimyotis subflavus</i>	Forest, woodland and riparian areas are important. Caves are very important to this species.	N	While forested riparian areas are present within the project area, caves are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris, Waller	Mammals	Mountain lion	<i>Puma concolor</i>	Generalist; found in a wide range of habitats statewide. Found most frequently in rugged mountains & riparian zones	N	No rugged mountains exist within the project area. There is approximately 0.1 acres of riparian habitat in the project area; however overall the project is located in a rapidly developing suburban area that would not provide adequate range for this species.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris, Waller	Mammals	Eastern spotted skunk	<i>Spilogale putorius</i>	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.	Y	May occur within agricultural lands within the project area.	No impact	Suitable habitat is present within the project area. Contractors would be advised of potential occurrence in the project area, and to avoid harming the species if encountered, and to avoid unnecessary impacts to dens.	N
Fort Bend, Harris, Waller	Mammals	Swamp rabbit	<i>Sylvilagus aquaticus</i>	Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.	N	Cypress bogs and marshes are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N

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Harris	Plants	Paniced indigobush	<i>Amorpha paniculata</i>	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 <i>Amorpha</i> 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	N	Seep forests, peat bogs, wet floodplain forests, and seasonal wetlands near saline prairies are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Fort Bend, Harris	Plants	Awnless bluestem	<i>Bothriochloa exaristata</i>	Coastal prairies on black clay; Perennial; Flowering April-Dec; Fruiting April- Dec	N	Coastal prairies are not present within the project area. Web soil survey data shows that there is no black clay soil type within project right-of-way.	No impact	No suitable habitat present in or adjacent to the project area.	N
Harris	Plants	Oklahoma grass pink	<i>Calopogon oklahomensis</i>	Mesic, acidic, sandy to loamy prairies, pine savannas, oak woodlands, edges of bogs, and frequently mowed meadows (Goldman, Magrath & Catling 2002). Flowering March-July.	N	Pine savannas, oak woodlands, and edges of bogs are not present within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Harris	Plants	Texas windmill grass	<i>Chloris texensis</i>	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	Y	Maintained roadside vegetation may provide suitable habitat. Web soil survey data shows that sandy loam soils present throughout the project area.	May impact	Potential habitat is present in the project area.	N
Harris	Plants	Goldenwave tickseed	<i>Coreopsis intermedia</i>	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	N	Sandhills, post oak woodlands, and pine-oak forests do not occur within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Harris	Plants	Giant sharpstem umbrella-sedge	<i>Cyperus cephalanthus</i>	In Texas on saturated, fine sandy loam soils, along nearly level fringes of deep prairie depressions; also in depression 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/fruitleting May-June, August-September, and possibly other times in response to rainfall	N	Web soil survey data shows that fine sandy loam soils are present within the project; however, no deep prairie depressions or coastal prairie on heavy black clay are present in the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N

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Waller	Plants	Mohlenbrock's sedge	<i>Cyperus grayioides</i>	Deep sand and sandy loam in dry, almost barren openings in upland longleaf pine savannas, mixed pine-oak forests, and post oak woodlands; Occurs primarily in deep, periodically disturbed sandy soils in open areas maintained by factors such as wind, erosion, or fire. This species does not occur in shaded areas or in areas of high competition with other herbaceous species. Habitats include remnant sand prairies, sandy fields, sand blow outs, sandhill woodlands, pine barrens, and open barrens in which the slope is sufficient to produce sand erosion. May also occur in areas where the soils have been disturbed by logging or road construction; Perennial	N	Remnant sand prairies, sandy fields, sand blow outs, sandhill woodlands, pine barrens, and open barrens do not occur within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Waller	Plants	Topeka purple-coneflower	<i>Echinacea atrorubens</i>	Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Jan-June; Fruiting Jan-May	N	Tallgrass prairies, blackland prairies, and limestone hillsides do not occur within the project area.	No impact	No suitable habitat present in or adjacent to the project area.	N
Harris, Waller	Plants	Shinner's sunflower	<i>Helianthus occidentalis</i> ssp. <i>Plantagineus</i>	Mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South Texas Brush Country.	Y	While prairies are not present within the project area nor is the project located in the South Texas Brush Country; species may occur within the pineywoods habitat present within the project area.	May impact	Potential habitat is present in the project area.	N
Fort Bend, Harris	Plants	Corkwood	<i>Leitneria pilosa</i> ssp. <i>Pilosa</i>	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	N	Freshwater swamps are not present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Harris, Waller	Plants	Coastal gay-feather	<i>Liatris bracteata</i>	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	N	Coastal prairie grasslands do not occur within the project area.	No impact	Suitable habitat is not present within the project area.	N
Harris	Plants	Correll's false dragon-head	<i>Physostegia correllii</i>	Wet, silty clay loams on streambanks, 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	N	While creek beds, irrigation channels, and roadside drainage ditches occur within the project area, Web Soil Survey data shows that the majority of of the soil within the project area is sandy loam which is not suitable for this species.	No impact	Suitable habitat is not present within the project area.	N
Harris	Plants	South Texas false cudweed	<i>Pseudognaphalium austrotexanum</i>	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.	N	Sandy grasslands, saline flats, mesquite woodlands, shrub mottes, and gravel and silt bars are not present in the project area.	No impact	Suitable habitat is not present within the project area.	N

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Waller	Plants	Texas sandmint	<i>Rhododon ciliatus</i>	Open sandy areas in the Post Oak Belt of east-central Texas; Annual; Flowering April-Aug; Fruiting May-Aug	N	Open sandy areas in the Post Oak Belt are not present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Harris	Plants	Indianola beakrush	<i>Rhynchospora indianolensis</i>	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	Y	May occur within agricultural lands within the project area.	May impact	Potential habitat is present in the project area.	N
Fort Bend, Waller	Plants	Florida pinkroot	<i>Spigelia texana</i>	Woodlands on loamy soils; Perennial; Flowering March-Nov; Fruiting April-Nov	Y	Woodlands with sandy loam soils are present within the project area.	May impact	Potential habitat is present in the project area.	N
Harris	Plants	Texas ladies'-tresses	<i>Spiranthes brevilabris</i>	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.	N	Prairies, pinelands, and pine savannahs/flatwoods are not present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Harris	Plants	Tharp's dropseed	<i>Sporobolus tharpii</i>	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.	N	No barrier islands, lagoons, bays, near coastal ponds, dunes or sandflats are present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Fort Bend, Harris, Waller	Plants	Texas tauschia	<i>Tauschia texana</i>	Occurs in loamy soils in deciduous forests or woodlands on river and stream terraces; Perennial; Flowering/Fruiting Feb-April	Y	Deciduous woodlands with loamy soils are present within the project area.	May impact	Potential habitat is present in the project area.	N
Harris, Waller	Plants	Texas meadow-rue	<i>Thalictrum texanum</i>	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/fruitlet (January-)February-May, withering by midsummer, foliage reappears in late fall(November) and may persist through the winter	Y	Woodlands with sandy loam soils are present within the project area.	May impact	Potential habitat is present in the project area.	N
Fort Bend, Harris, Waller	Plants	Threeflower broomweed	<i>Thurovia triflora</i>	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	N	Areas of sparse vegetation, salty prairies, tidal flats, and prairie mima mounds are not present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Harris	Plants	Texas willkommia	<i>Willkommia texana</i> var. <i>texana</i>	Mostly in sparsely vegetated shortgrass patches within taller prairies on alkaline or saline soils on the Coastal Plain (Carr 2015).	N	Prairies are not present within the project area. Area is mainly developed with areas of agriculture and deciduous woodlands and pineywoods.	No impact	Suitable habitat is not present within the project area.	N

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Fort Bend, Harris, Waller	Reptiles	Smooth softshell	<i>Apalone mutica</i>	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).	N	Large rivers and streams, lakes, and impoundments are not present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Fort Bend, Harris, Waller	Reptiles	Timber (canebrake) rattlesnake	<i>Crotalus horridus</i>	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.	Y	Floodplains, deciduous woodlands, and riparian zones are present within the project area.	May impact	Suitable habitat is present in the project area. Terrestrial Reptile BMPs will be implemented.	N
Harris, Waller	Reptiles	Western hognose snake	<i>Heterodon nasicus</i>	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.	N	Mixed grass prairie, arid landscapes, and shrub encroached grasslands are not present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Harris	Reptiles	Texas diamondback terrapin	<i>Malaclemys terrapin littoralis</i>	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.	N	Coastal marshes, tidal flats, coves, estuaries, lagoons, and bay islands are not present within the project area.	No impact	Suitable habitat is not present within the project area.	N
Fort Bend, Harris, Waller	Reptiles	Slender glass lizard	<i>Ophisaurus attenuatus</i>	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.	N	Open grasslands, prairie, oak savannas, longleaf pine flatwoods, scrubby areas, and fallow fields do not occur within the project area.	No impact	Suitable habitat is not present within the project area.	N
Fort Bend, Harris, Waller	Reptiles	Eastern box turtle	<i>Terrapene carolina</i>	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 enter 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.	Y	Forested areas and agricultural fields are present within the project area.	May impact	Suitable habitat is present in the project area. Terrestrial Reptile BMPs will be implemented.	N
Fort Bend, Harris, Waller	Reptiles	Western box turtle	<i>Terrapene ornata</i>	Terrestrial: Ornate or western box turtles 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.	Y	Pastures and shallow streams are present within the project area.	May impact	Suitable habitat is present in the project area. Terrestrial Reptile BMPs will be implemented.	N