

**SPECIES ANALYSIS SUMMARY**  
**Project Name: US 59/US 259 North Interchange**  
**CSJ(s): 2560-01-085, 0175-07-059, 0175-07-060, 0138-06-046**

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?
Nacogdoches	Birds	Bachman's Sparrow	<i>Peucaea aestivalis</i>	Occurring in the Pineywoods of east Texas, Bachman's sparrow optimal habitat consists of fire controlled mature southern pine woodland with a well-developed grass and herb layer with limited shrub and hardwood midstory components. Suboptimal habitat known to be utilized by the species includes brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards, and remnant grasslands in the Post Oak Savannah region of Texas.	N	The proposed project area consists of primarily degraded agricultural fields. No high quality, fire controlled maintained savanna is present within or adjacent to the proposed project area.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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
Nacogdoches	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 or Take	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

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Nacogdoches	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 or Take	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
Nacogdoches	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 fire maintained pine savannas or mature longleaf pines with heart rot are present within or adjacent to the proposed project area. No active colonies are present within Nacogdoches County.	E	No effect or take	E	No impact	No suitable habitat is present within the proposed project area.	N

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Nacogdoches	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> ).	Y	The proposed project area is largely open. No bottomland forests, swamps, marshes, or large lakes are present within the proposed project area; however sightings are present on eBird for Nacogdoches County and trees used for nesting are present.	—	N/A	T	May impact	Species sightings have occurred within Nacogdoches County. The proposed project may impact the species at or in the vicinity of tall trees.	N
Nacogdoches	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, irrigated rice fields, brackish or saltwater habitats are located within the proposed project area.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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).	N	Large tracts of bald cypress or red mangrove, prairie ponds, flooded pastures, or salt water habitats are not located within the proposed project area.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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.	Y	Creeks over silt, sand, and/or gravel are present within the proposed project area.	—	N/A	T	May impact	The proposed project may impact suitable habitat at or in the vicinity of creeks.	N

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Nacogdoches	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	Open woodlands and roadsides are present within the project area.	C	May affect	—	N/A	The project may affect the monarch butterfly; however, the monarch is currently a candidate species and no consultation with USFWS is required at this time. As construction activities for this project are not anticipated to be completed prior to Fiscal Year 2024, when a listing decision for the species is anticipated, additional coordination may be required. The project should be reevaluated at that time to determine if further action is required if the species becomes proposed for federal listing.	N
Nacogdoches	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	The proposed project area is largely open. No large areas of inaccessible forest are present within the proposed project area.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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	Lowland pine and hardwood forests with some tree stands of large, mature, hollow trees and occasional snags, bridges, culverts, and abandoned buildings are present within the proposed project area.	—	N/A	T	May impact	The proposed project may impact suitable roosting habitat at or in the vicinity of pine and hardwood forests or man-made structures.	N

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Nacogdoches	Mammals	Tricolored Bat	<i>Perimyotis subflavus</i>	In Texas, Tricolored Bats may be found year round. In the spring, summer, and fall they primarily nest on leaves or bark of live and dead trees, or epiphytic vegetation such as Spanish moss ( <i>Tillandsia usneoides</i> ). They may also roost among ferns and crevices on limestone and sandstone bluffs and cliffs during this time. From late winter to early spring they may roost in culverts, abandoned buildings, and large hollow trees. In central Texas caves serve as important roost sites. Tricolored bats typically roost alone or in small groups. During the winter they may go into periods of torpor during colder temperatures however they will emerge to feed on warm evenings. Foraging habitat consists of open woodlands, riparian corridors, and forest edge.	N/A	A habitat assessment was not performed for this species.	PE	Undetermined	—	N/A	Suitable habitat may be present within the project area. Effects to the species are currently undetermined. The Tricolored bat has been proposed as a federally endangered species, and consultation with USFWS is not required at this time. If the species is listed, effects to the Tricolored Bat will be re-evaluated to determine the appropriate course of action which may include consultation with the USFWS.	N
Nacogdoches	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	Streams within the proposed project area are listed as Group 5 (Banita Creek) or ungrouped. No threatened or endangered species are anticipated to be present within these streams.	PT	No effect or take	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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	No small to large rivers are present within or adjacent to the proposed project area.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Mollusks	Southern Hickorynut	<i>Obovaria arkansasensis</i>	A freshwater mussel that is currently known from the Neches and Sabine River basins in Texas. The species occurs in small to large rivers with medium-sized gravel substrate and low to moderate current.	N	No small to large rivers are present within or adjacent to the proposed project area.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N

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Nacogdoches	Mollusks	Texas Heelsplitter	<i>Potamilus amphichaenus</i>	A freshwater mussel currently known from the Trinity, Neches, and Sabine River basins. The species occurs in small streams to medium rivers with sand or mud substrate. It is found in flowing water but not in riffles or shoals. It prefers quiet waters and can be found in reservoirs.	N	Streams within the proposed project area are listed as Group 5 (Banita Creek) or ungrouped. No threatened or endangered species are anticipated to be present within these streams.	PE	No effect or take	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Mollusks	Texas Pigtoe	<i>Fusconaia askewi</i>	A freshwater mussel endemic to the Neches and Sabine River basins in Texas. The species occurs in medium to large rivers with mixed mud, sand, and fine gravel substrate in areas protected from swift currents by fallen trees or other structures.	N	No medium to large rivers are present within or adjacent to the proposed project area.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Plants	Neches River Rose-mallow	<i>Hibiscus dasycalyx</i>	This perennial herb is limited to a few small populations in east Texas. It occurs in on the edges of woodlands in open marshy habitats on seasonally wet alluvial soils (generally flooded in late winter and early spring, and dry in late summer), most often found near standing water rather than flowing water.	N	Species is endemic to Houston and Trinity Counties. Records within Nacogdoches County are considered erroneous.	T	No effect or harm	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Plants	Texas Golden Gladecress	<i>Leavenworthia texana</i>	This winter annual is endemic to Sabine and San Augustine counties in east Texas. It occurs in edaphically influenced herbaceous communities on shallow, calcareous soils in vernal moist to wet glades on glauconite or ironstone outcrops of the Weches Formation.	N	Herbaceous communities in vernal moist/wet glades are not present within the proposed project area.	E	No effect or harm	E	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Reptiles	Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	Occurs in drainages east of the Brazos River where it inhabits perennial water bodies such as the deep water of sluggish rivers, canals, lakes, and oxbows, along with swamps, bayous. This highly aquatic species spends the majority of its time on the bottom of water bodies with abundant woody debris that serves as refugia. The presence of woody riparian vegetation is an important component of the waterbodies where the species may be found.	N	Banita Creek, a perennial stream, is present within the proposed project area; however, it has a shallow water depth and lacks woody debris required by the species.	PT	No effect or take	T	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Reptiles	Louisiana Pine Snake	<i>Pituophis ruthveni</i> (EX)	The species occurs in the pineywoods of east Texas in longleaf pine savannah with substantial herbaceous ground cover, and pine-oak sandhills interspersed with moist bottomlands. Pocket gophers ( <i>Geomys breviceps</i> ) are an essential component of the snake habitat. They create burrow systems where the snakes are most frequently found and are a major source of food for the species.	N/A	There are no recent Louisiana Pine Snake records from Nacogdoches County, where USFWS considers the species extirpated.	T	No effect or take	T	No impact	The species is extirpated from Nacogdoches County	N

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Nacogdoches	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	Open habitats with sparse vegetation and arid regions are not present within the proposed project area. No observations of the species have been made in Nacogdoches County in recent decades and the species is considered to be extirpated from Nacogdoches County.	—	N/A	T	No impact	No suitable habitat is present within the proposed project area.	N

SPECIES ANALYSIS SUMMARY (SGCN)  
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Nacogdoches	Amphibians	Eastern tiger salamander	<i>Ambystoma tigrinum</i>	Terrestrial adults generally occur under cover objects or in burrows surrounding a variety of lentic freshwater habitats, such as ponds, lakes, bottomland wetlands, or upland ephemeral pools. The specific terrestrial habitats are also varied and the occurrence of this species seems to be more closely associated with sandy, loamy or other soils which have easy burrowing properties, rather than any particular ecological system type. Requires fishless breeding pools for successful reproduction.	Y	Wetlands and ephemeral pools are located within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of wetlands and ephemeral pools.	N
Nacogdoches	Amphibians	Gulf Coast waterdog	<i>Necturus beyeri</i>	This species is associated with permanent flowing water within forested habitats, from small streams to large rivers. They are frequently associated with slow moving, sandy bottomed spring fed streams with lots of aquatic habitat such as log jams and leaf litter beds.	Y	Perennial streams are located within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of perennial streams.	N
Nacogdoches	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.	N	The proposed project area consists of degraded agricultural fields and grasslands. No known recent records of the species exist in Nacogdoches County.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Amphibians	Spotted dusky salamander	<i>Desmognathus conanti</i>	This species occurs in association with aquatic habitats in forested areas. Small, clear, spring fed streams with sandy substrate bordered with ferns and moss as well as murky, stagnant water bodies in cypress swamps, baygalls, and flood plains in bottomland forests support populations of this species.	N	No forested areas with aquatic habitats are located within the proposed project area. No observations of the species have been made in Nacogdoches County in recent decades and the species is considered to be extirpated from Nacogdoches County.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Amphibians	Strecker's chorus frog	<i>Pseudacris streckeri</i>	Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.	N	The proposed project area consists of degraded agricultural fields and grasslands. No known recent records of the species exist in Nacogdoches County.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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.	N	Recent genetic work indicates this species does not occur in East Texas.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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	No large rivers or lakes are located within the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N



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Nacogdoches	Birds	Franklin's gull	<i>Leucophaeus pipixcan</i>	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. 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.	N	The proposed project area is not along the Gulf coastline. Additionally, no lake shores or islands are present within the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Birds	Sprague's pipit	<i>Anthus spragueii</i>	The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat during migration and in winter consists of pastures and weedy fields (AOU 1983), including grasslands with dense herbaceous vegetation or grassy agricultural fields.	Y	Mixed grass prairie and disturbed grassland are present within the proposed project area. Recent records for the species exist nearby the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of mixed grass prairie and disturbed grassland.	N
Nacogdoches	Crustaceans	Blackbelted crayfish	<i>Procambarus nigrocinctus</i>	It occurs in moderately flowing small creeks. Found among rocks and accumulated debris.	Y	Moderately flowing, small creeks are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of small creeks.	N
Nacogdoches	Crustaceans	Neches crayfish	<i>Procambarus nechesae</i>	Simple burrows in temporary or semi permanent pools in roadside ditches	Y	Roadside ditches are present within the proposed project area and may provide burrowing habitat for this species.	May impact	The proposed project may impact suitable habitat at or in the vicinity of roadside ditches.	N
Nacogdoches	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	Small to moderate intermittent tributary streams and perennial streams are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of small to moderate intermittent streams when water is flowing and at perennial streams.	N
Nacogdoches	Fish	Mississippi silvery minnow	<i>Hybognathus nuchalis</i>	Found in eastern Texas streams, from the Brazos River eastward and northward to the Red River; found in moderate current; silty, muddy, or rocky substrate. In Texas, adults likely to inhabit smaller tributary streams.	Y	Small to moderate intermittent tributary streams and perennial streams, are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of small to moderate intermittent streams when water is flowing and at perennial streams.	N

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Nacogdoches	Fish	River darter	<i>Percina shumardi</i>	In Texas limited to eastern streams including Red River southward to the Neches River, and a disjunct population in the Guadalupe and San Antonio river systems east of the Balcones Escarpment. Confined to large rivers and lower parts of major tributaries; usually found in deep chutes and riffles where current is swift and bottom composed of coarse gravel or rock.	N	No large rivers, major tributaries, or perennial waters with swift currents are located within the project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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	Small to moderate intermittent tributary streams and perennial streams, are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of small to moderate intermittent streams when water is flowing and at perennial streams.	N
Nacogdoches	Insects	American bumblebee	<i>Bombus pensylvanicus</i>	Habitat description is not available at this time.		Habitat determination cannot be made for this species at this time.		Habitat requirements for this species are unknown; therefore, no impact determination can be made at this time.	N
Nacogdoches	Mammals	Big brown bat	<i>Eptesicus fuscus</i>	Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.	Y	Wooded areas and pine woodlands are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of woodlands.	N
Nacogdoches	Mammals	Eastern red bat	<i>Lasiurus borealis</i>	Red bats are migratory bats that are common across Texas. They are most common in the eastern and central parts of the state, due to their requirement of forests for foliage roosting. West Texas specimens are associated with forested areas (cottonwoods). Also common along the coastline. These bats are highly mobile, seasonally migratory, and practice a type of wandering migration". Associations with specific habitat is difficult unless specific migratory stopover sites or wintering grounds are found. Likely associated with any forested area in East.	Y	Forested areas are present near the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of forested areas.	N
Nacogdoches	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.	N	The proposed project area consists of degraded prairie and overgrown mixed pine/oak forest. No recent records for the species exist in the region.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Mammals	Hoary bat	<i>Lasiurus cinereus</i>	Hoary bats are highly migratory, high-flying bats that have been noted throughout the state. Females are known to migrate to Mexico in the winter, males tend to remain further north and may stay in Texas year-round. Commonly associated with forests (foliage roosting species) but are found in unforested parts of the state and lowland deserts. Tend to be captured over water and large, open flyways.	Y	Forests and aquatic features are present within the project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of forests and aquatic features.	N

SPECIES ANALYSIS SUMMARY (SGCN)  
 Project Name: US 59/US 259 North Interchange  
 CSJ(s): 2560-01-085, 0175-07-059, 0175-07-060, 0138-06-046

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?
Nacogdoches	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.	Y	Upland woods, fence rows, forest edges and aquatic features are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of woodlands, fence rows and forest edges.	N
Nacogdoches	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	Riparian zones are present within the proposed project area; however, the species is unlikely to be present within the proposed project area due to a lack of contiguous suitable habitat.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Mammals	Muskrat	<i>Ondatra zibethicus</i>	Found in fresh or brackish marshes, lakes, ponds, swamps, and other bodies of slow-moving water. Most abundant in areas with cattail. Dens in bank burrow or conical house of vegetation in shallow vegetated water. It is primarily found in the Rio Grande near El Paso and in SE Texas in the Houston area.	N	Populations of the species are recorded in coastal Southeast, Texas. No recent records of the species exist in the region where the proposed project area is located.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Mammals	Northern yellow bat	<i>Lasiurus intermedius</i>	Occurs mainly along the Gulf Coast but inland specimens are not uncommon. Prefers roosting in spanish moss and in the hanging fronds of palm trees. Common where this vegetation occurs. Found near water and forages over grassy, open areas. Males usually roost solitarily, whereas females roost in groups of several individuals.	N	No palm trees with dead palm fronds or oaks with mats of spanish moss are located within or adjacent to the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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	Lowland pine and hardwood forests with large, hollow trees and buildings are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of pine and forested areas.	N
Nacogdoches	Mammals	Swamp rabbit	<i>Sylvilagus aquaticus</i>	Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.	Y	Lowland areas near water including floodplains and streams/creeks are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of lowland areas near aquatic habitat.	N
Nacogdoches	Plants	Barbed rattlesnake-root	<i>Prenanthes barbata</i>	In east Texas occurs on calciphilic hardwood terraces above floodplains, and seepage slopes, often in the company of a comparatively rich herbaceous flora; elsewhere found on prairies, barrens, and open woodlands; in calcareous substrates and in sand over clay on the Weches, Fleming, and Lissie formations; flowering August-November	N	No calciphilic hardwood terraces are located within the project area.	No impact	No suitable habitat is present within the proposed project area.	N

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Nacogdoches	Plants	Bristle nailwort	<i>Paronychia setacea</i>	Flowering vascular plant endemic to eastern southcentral Texas, occurring in sandy soils	Y	Sandy soils are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of sandy soils.	N
Nacogdoches	Plants	Clasping twistflower	<i>Streptanthus maculatus</i> ssp. <i>maculatus</i>	Primarily on seasonally moist barrens on the Weches Formation but has been found elsewhere as well (Carr 2015)	N	The proposed project area overlays the Weches Formation; however, no moist barrens are present within the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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	Y	Sandy soils, post oak woodlands and pine-oak forests are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of sandy soils, post oak woodlands, and pine-oak forests.	N
Nacogdoches	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	Y	Sand and sandy loam soils, pine savannas, pine-oak forests, and post oak woodlands are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of pine savannas, pine-oak forests, and post oak woodlands over sand and sandy loam soils.	N
Nacogdoches	Plants	Nixon's dwarf hawthorn	<i>Crataegus nananixonii</i>	Found in open upland post oak-bluejack oak, scrubby woodland, or shortleaf pine-oak woodland on the Carrizo Sands and other formations.	N	No xeric sites within deep sandy substrates are present within or adjacent to the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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	The proposed project area is composed of degraded pastures, agricultural lands, and overgrown mixed pine/oak forests. No nearby records for this species exist within or adjacent to the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Plants	Panicled 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 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	N	Acid seep forests, peat bogs, wet floodplain forests, and Saline Prairies are not present within the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N

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Nacogdoches	Plants	Southern lady's-slipper	<i>Cypripedium kentuckiense</i>	Primarily restricted to calciphilic hardwood slope forests, mesic ravines, hardwood terraces above floodplains, and seepage slopes; flowering late March-May	N	No calciphilic hardwood forests and hardwood terraces above floodplains are present within the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Plants	Soxman's milkvetch	<i>Astragalus soxmaniorum</i>	Primarily in deep sandy soils of sandhills, fallow fields, and open scrub oak-pine woodlands; Perennial; Flowering March-June; Fruiting April-June	Y	Sandy soils and open scrub oak-pine woodlands are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of sandy soils and oak-pine woodlands.	N
Nacogdoches	Plants	Texas screwstem	<i>Bartonia paniculata ssp. texana</i>	In and around acid seeps in Pine-Oak forests on gentle slopes and baygall shrub thickets at spring heads; often on clumps of bryophytes at tree bases, on roots, and on logs; flowering September-November, can be identified in mid to late October when its in fruit	N	No baygalls, areas with saturated soils, spring fed streams, abundant fern growth or sphagnum moss clumps are present within or adjacent to the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Plants	Texas trillium	<i>Trillium texanum</i>	In or along the margins of hardwood forests on wet acid soils of bottoms and lower slopes, strongly associated with forested seeps and baygalls; flowering March-May	N	Wet acid soils and forested seeps/baygalls are not present within the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	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 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.	Y	Forests, forest-brush, and forest-field habitats are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of forests, forest-brush, and forest-field.	N
Nacogdoches	Reptiles	Prairie skink	<i>Plestiodon septentrionalis</i>	The prairie skink can occur in any native grassland habitat across the Rolling Plains, Blackland Prairie, Post Oak Savanna and Pineywoods ecoregions.	N	No recent records of the species are located within Nacogdoches County. The species is presumed extirpated from East Texas due to the presence of fire ants and remnant prairie degradation.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Reptiles	Pygmy rattlesnake	<i>Sistrurus miliarius</i>	The pygmy rattlesnake occurs in a variety of wooded habitats from bottomland coastal hardwood forests to upland savannas. The species is frequently found in association with standing water.	N	No recent records of the species are located within Nacogdoches County. No high quality mesic slope forests with mature trees are present within or adjacent to the proposed project area.	No impact	No suitable habitat is present within the proposed project area.	N

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Nacogdoches	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.	Y	Prairie, woodland edge, open woodlands, pine flatwoods, and areas near streams with sandy soils are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of prairie, woodlands, pine flatwoods, and sandy soils near streams.	N
Nacogdoches	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, upland pine, deciduous woodland, riparian zones, and sandy soils are present within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of floodplains, woodlands, riparian zones, and sandy soils.	N
Nacogdoches	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.	N	No remnant grasslands or pine savanna habitats are located within or adjacent to the proposed project area. The species is considered extirpated from the region.	No impact	No suitable habitat is present within the proposed project area.	N
Nacogdoches	Reptiles	Western chicken turtle	<i>Deirochelys reticularia miaria</i>	Aquatic and terrestrial: This species uses aquatic habitats in the late winter, spring and early summer and then terrestrial habitats the remainder of the year. Preferred aquatic habitats seem to be highly vegetated shallow wetlands with gentle slopes. Specific terrestrial habitats are not well known.	Y	Aquatic habitats and a variety of terrestrial habitats are located within the proposed project area.	May impact	The proposed project may impact suitable habitat at or in the vicinity of aquatic habitats and nearby terrestrial habitats.	N
Nacogdoches	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	No remnant grasslands or pine savanna habitats are located within or adjacent to the proposed project area. No recent records exist for the species in East Texas. The species is considered extirpated from the region.	No impact	No suitable habitat is present within the proposed project area.	N