Appendix A

Cumulative Effects Study Area Figures by Resources

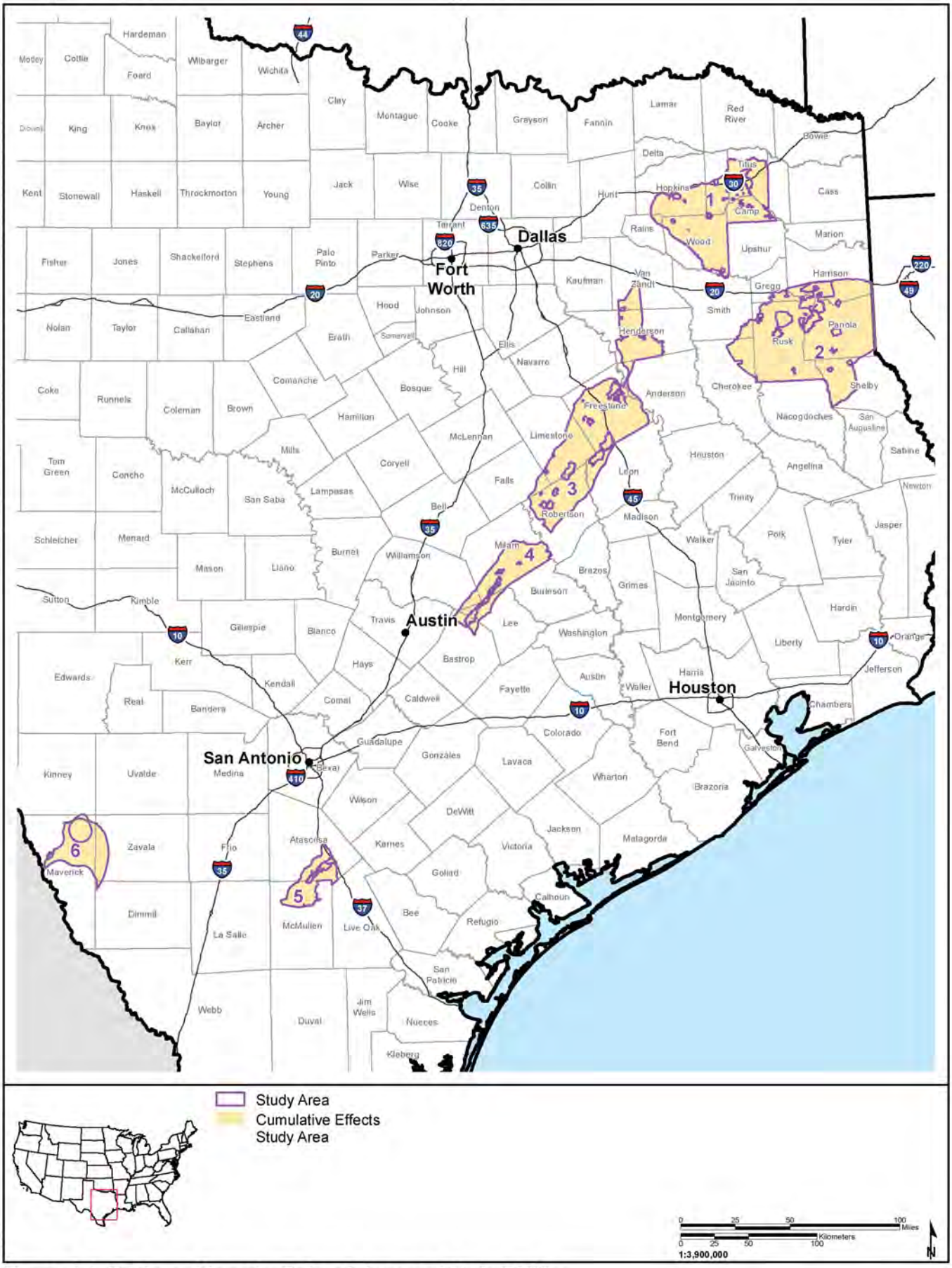

Figure A-1 Geology, Minerals, Paleontology, and Soils CESAs

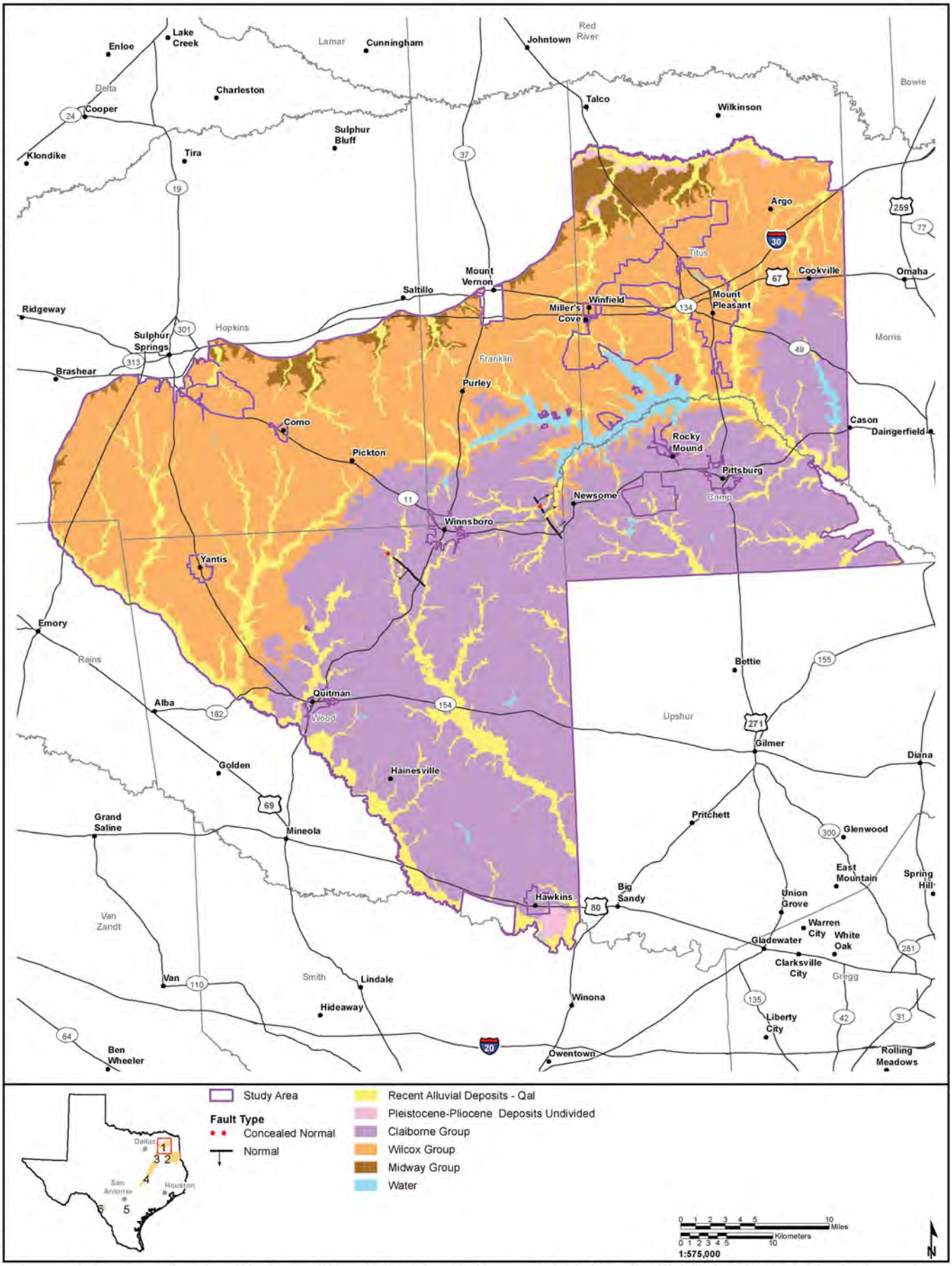

Figure A-2 Groundwater, Waters of the U.S., Vegetation, and Fish and Wildlife CESA for Study Area 1

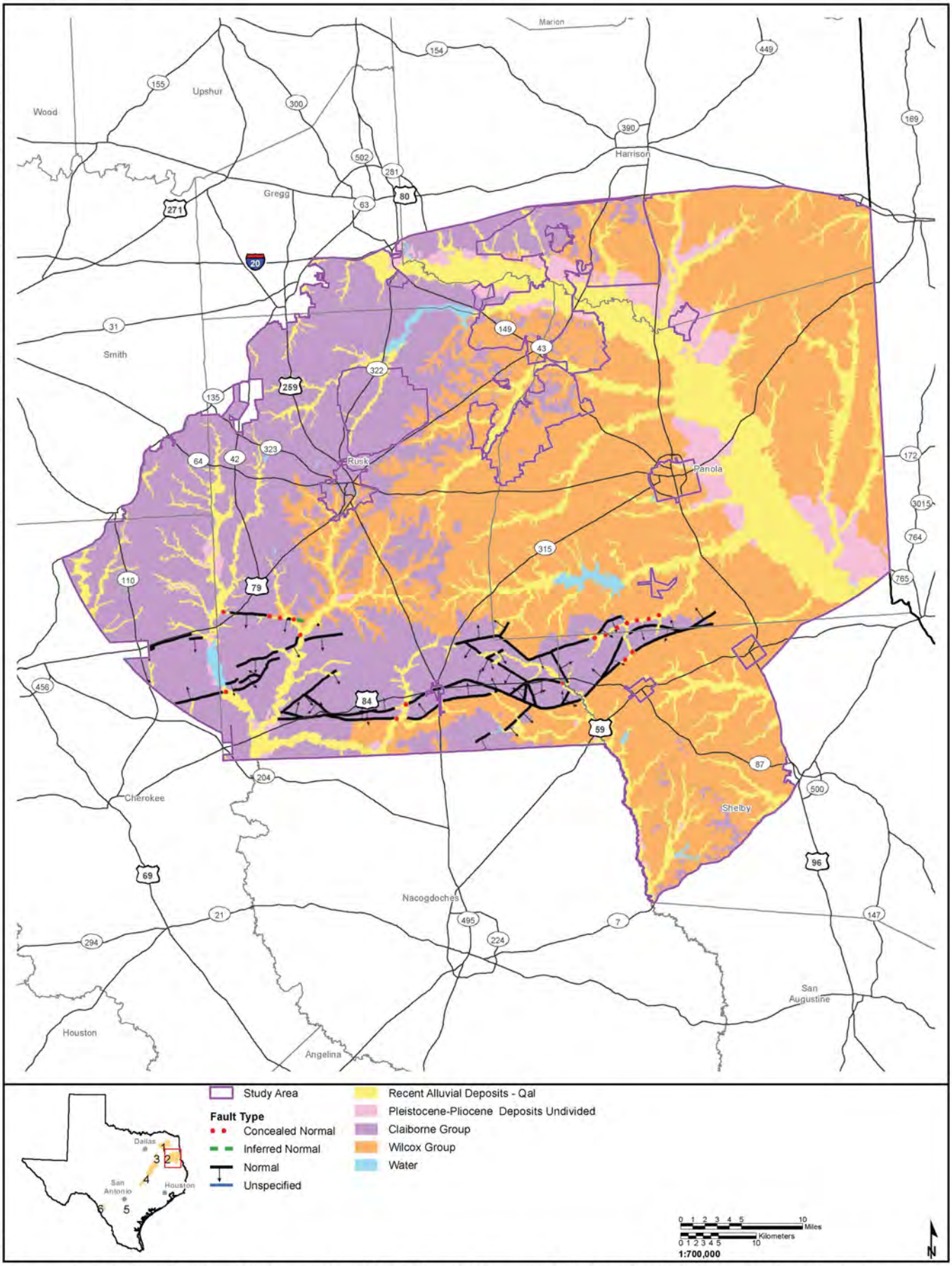

Figure A-3 Groundwater, Waters of the U.S., Vegetation, and Fish and Wildlife CESA for Study Area 2

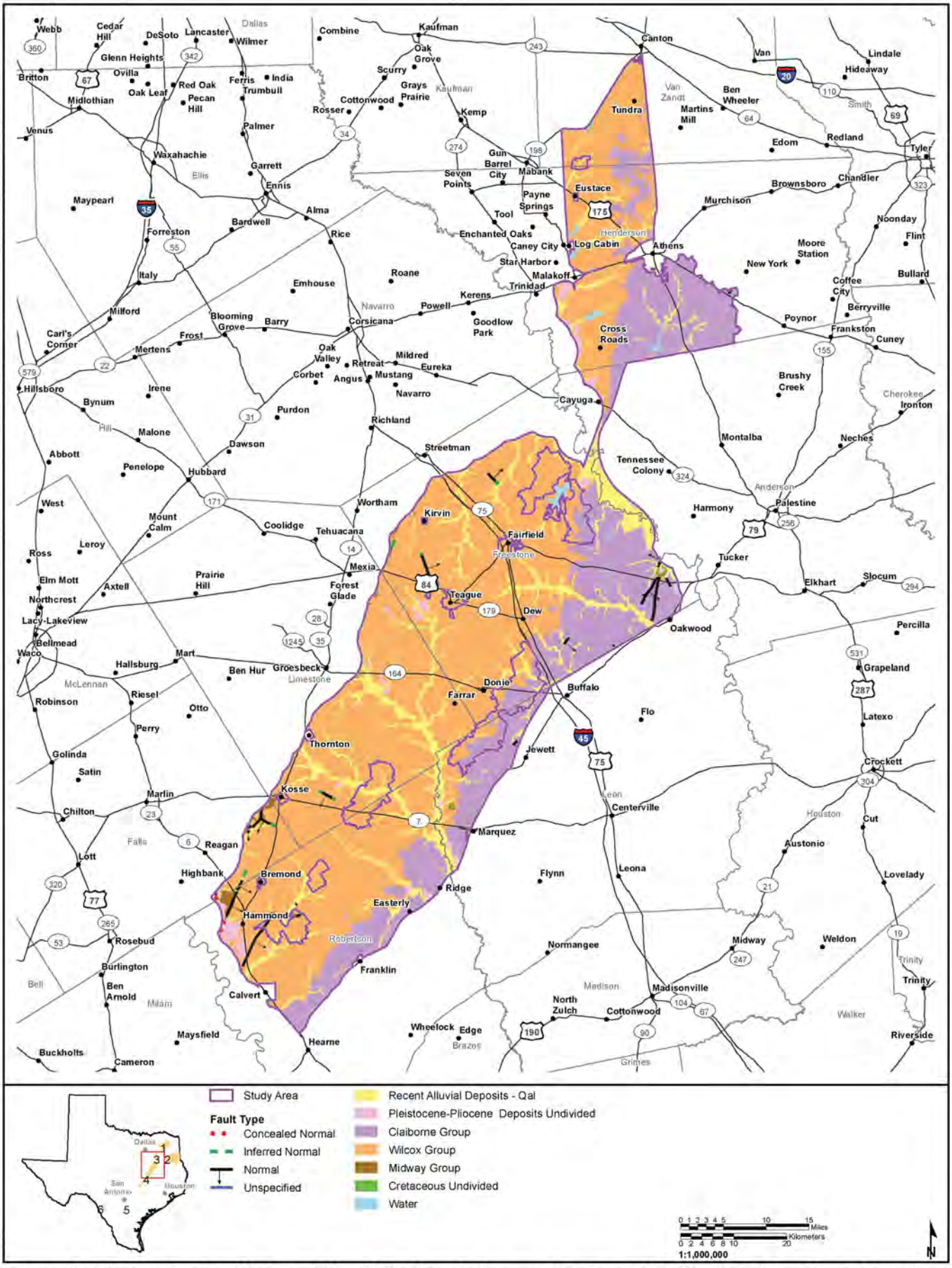

Figure A-4 Groundwater, Waters of the U.S., Vegetation, and Fish and Wildlife CESA for Study Area 3

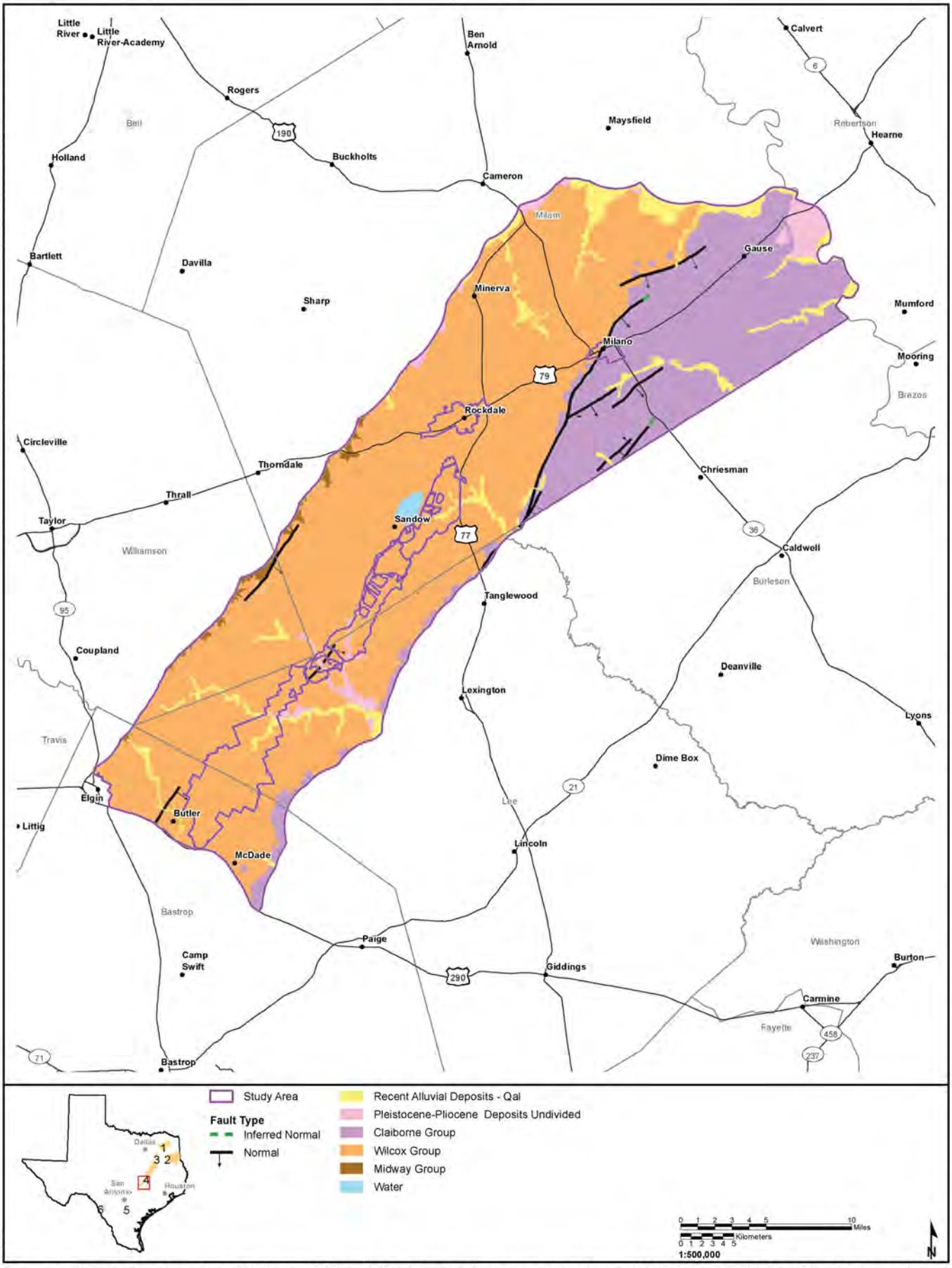

Figure A-5 Groundwater, Waters of the U.S., Vegetation, and Fish and Wildlife CESA for Study Area 4

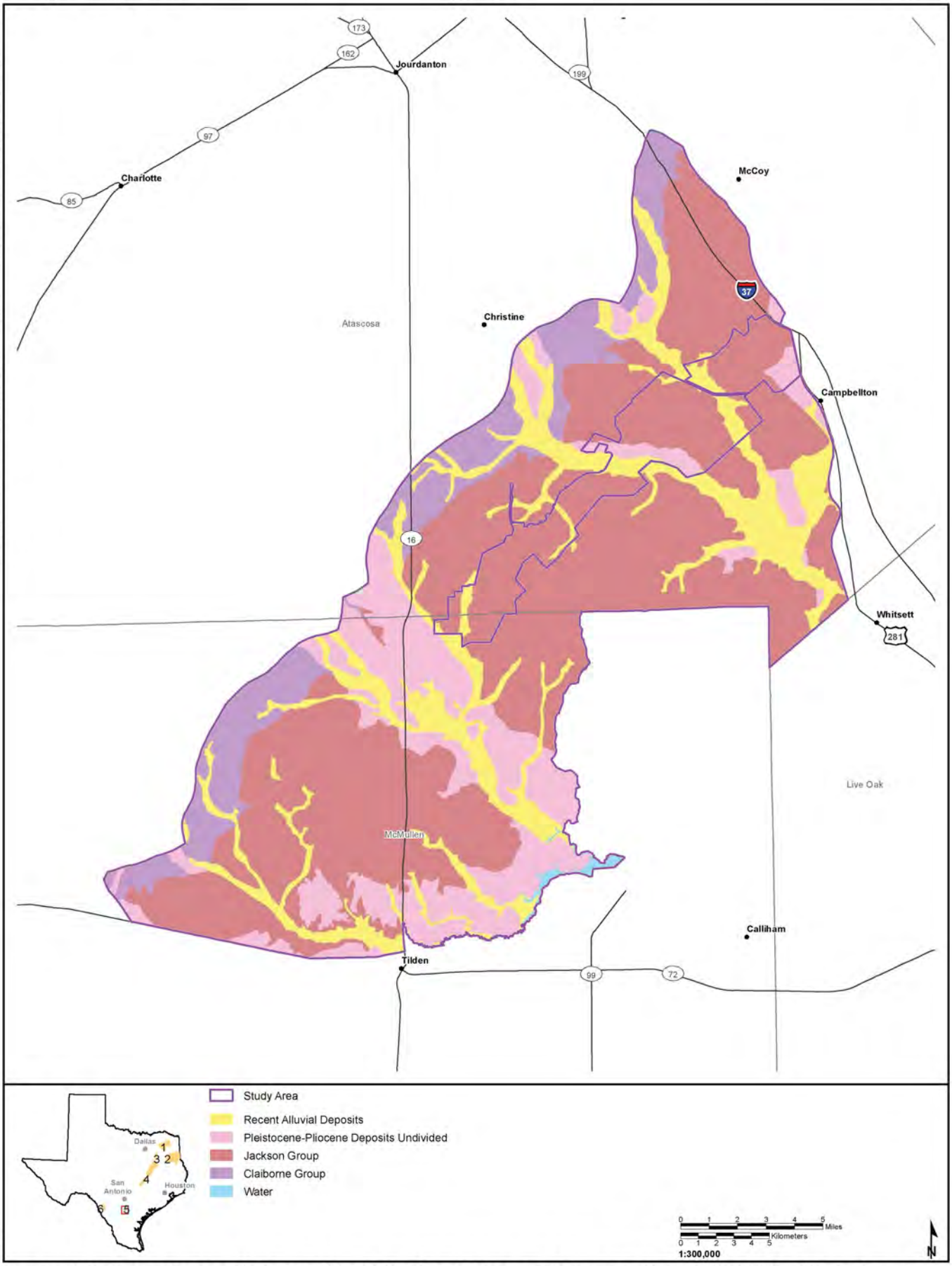

Figure A-6 Groundwater, Waters of the U.S., Vegetation, and Fish and Wildlife CESA for Study Area 5

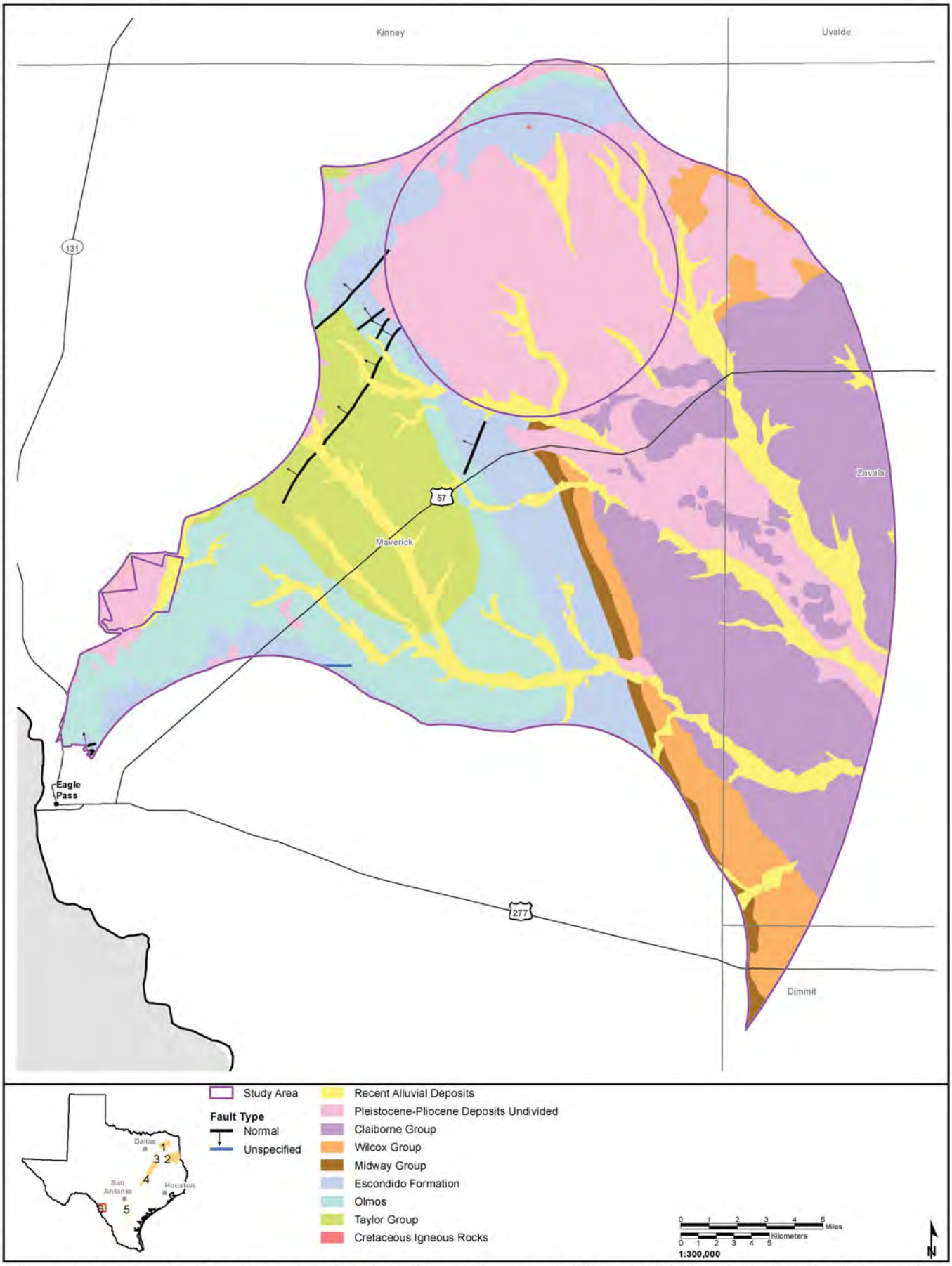

Figure A-7 Groundwater, Waters of the U.S., Vegetation, and Fish and Wildlife CESA for Study Area 6

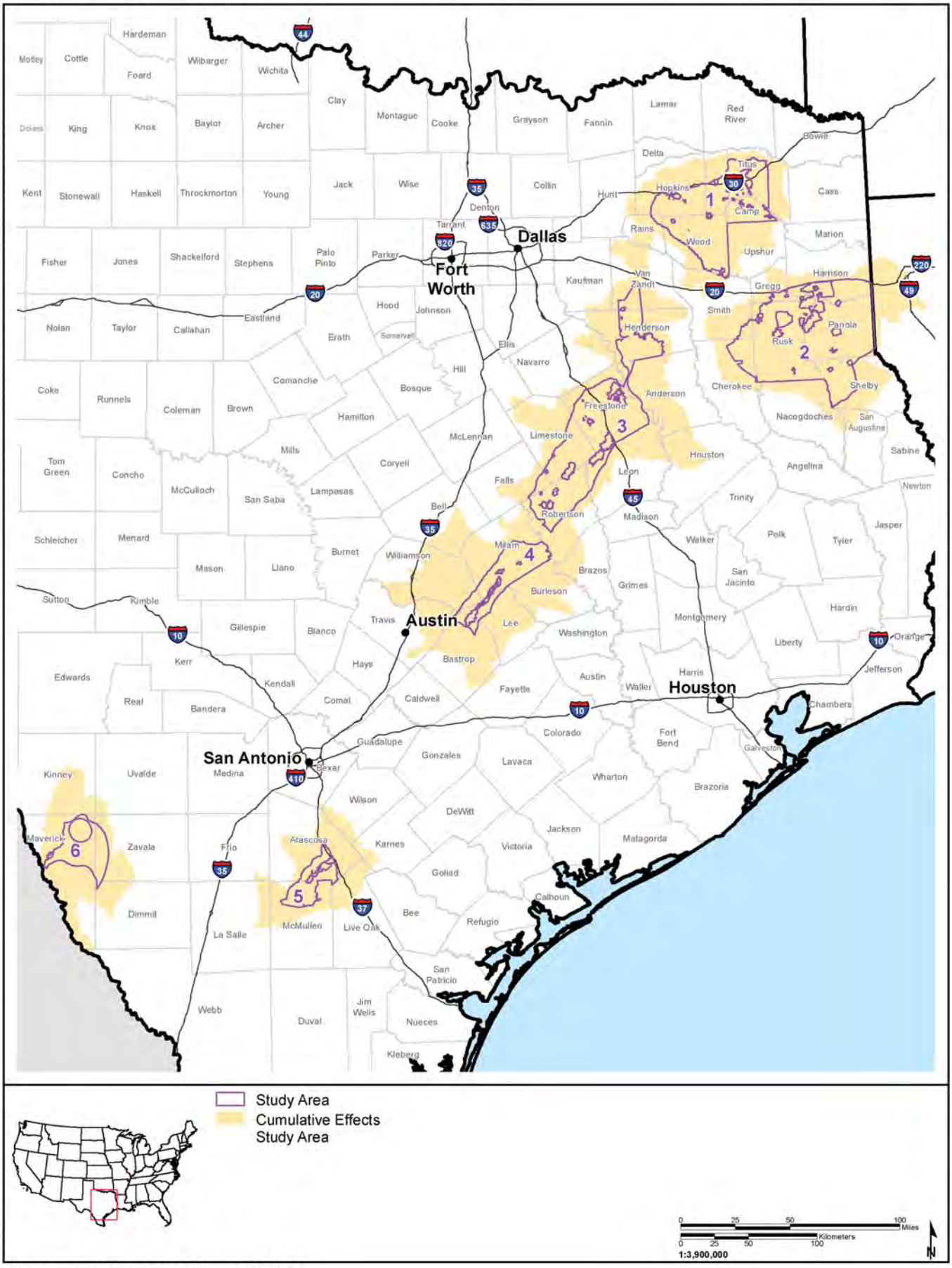

Figure A-8 Surface Water CESAs

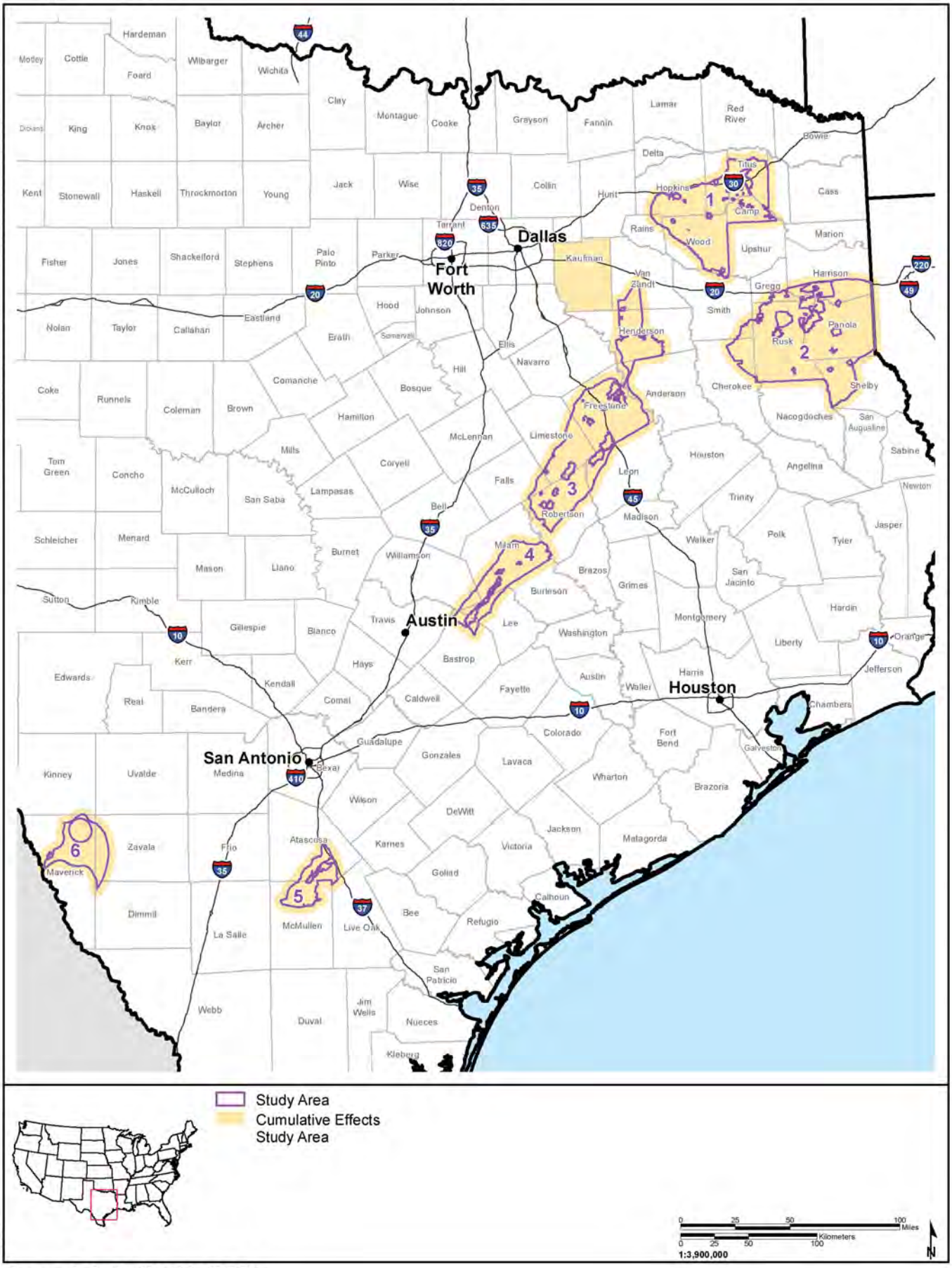

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Figure A-9 Air Quality CESA

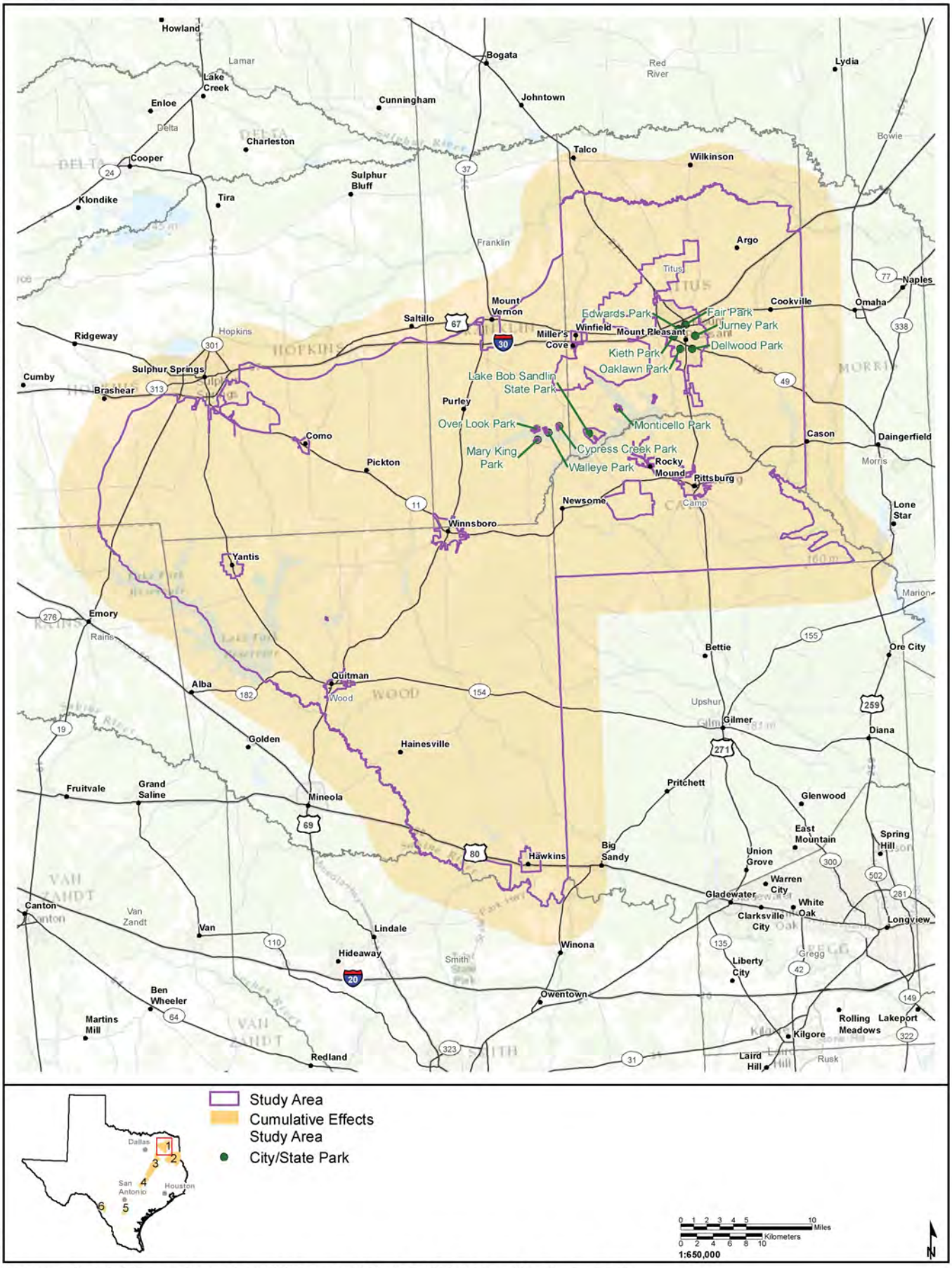

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Figure A-10 Recreation, Land Use, and Noise CESA for Study Area 1

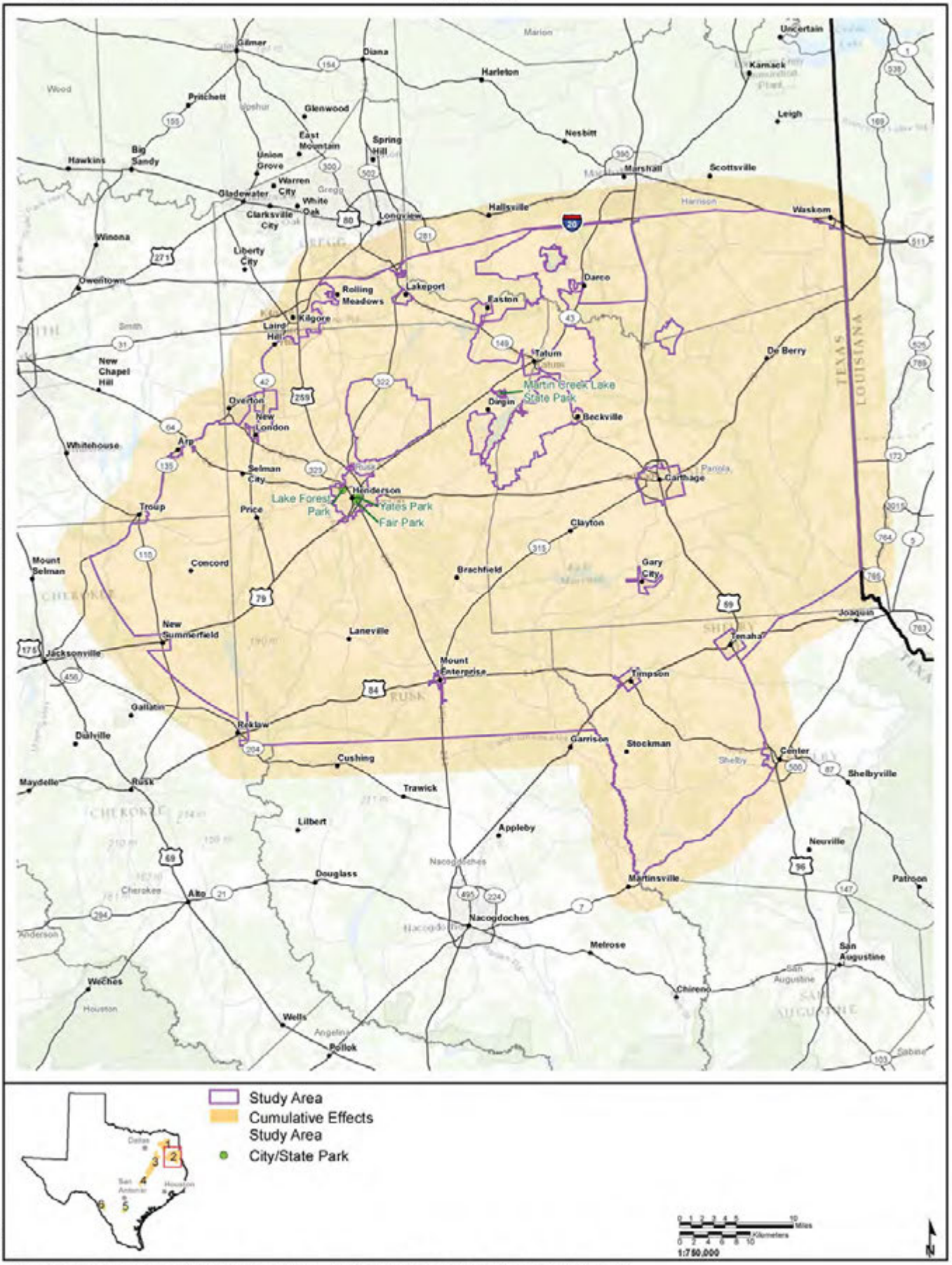

Figure A-11 Recreation, Land Use, and Noise CESA for Study Area 2

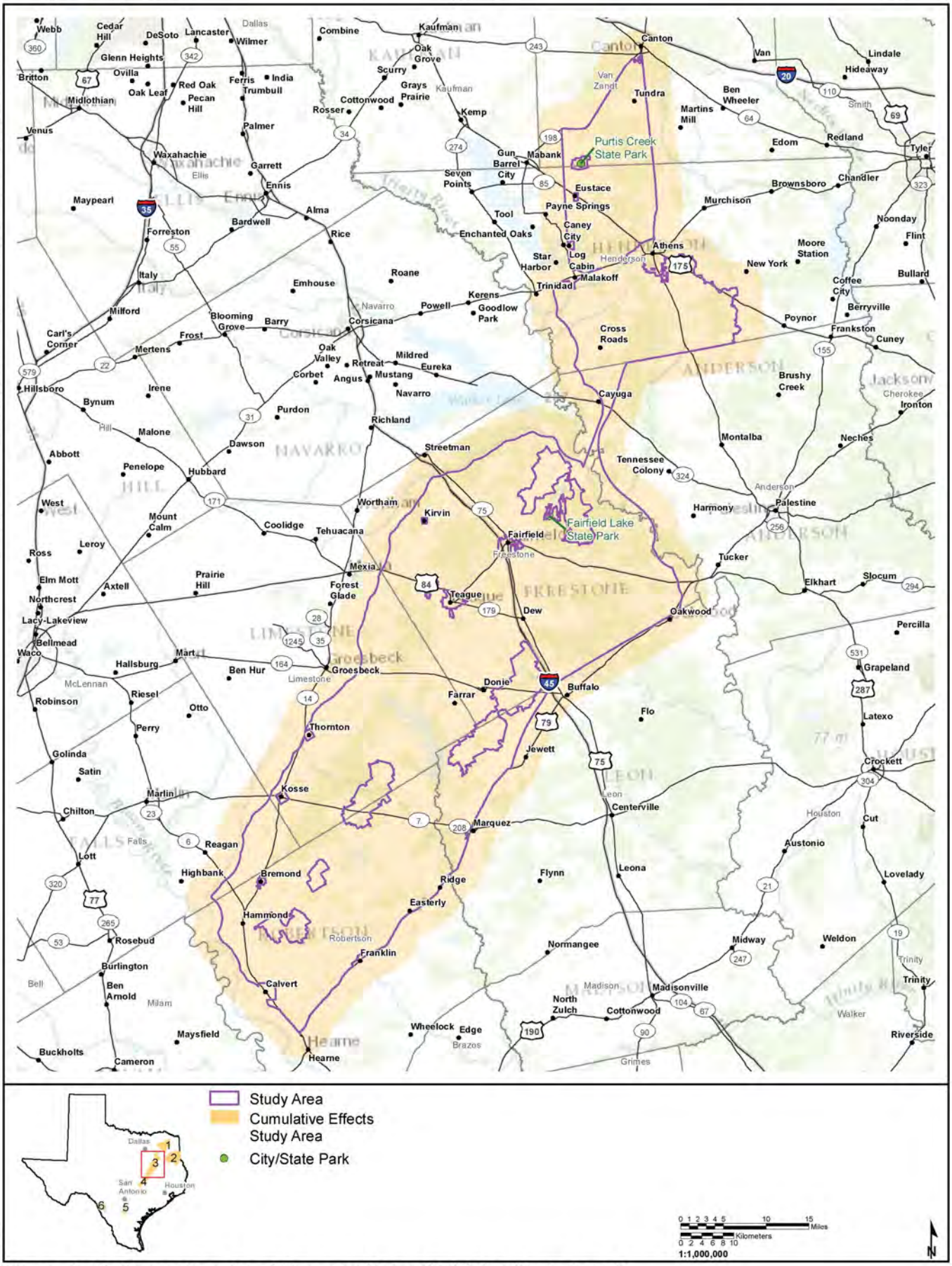

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Figure A-12 Recreation, Land Use, and Noise CESA for Study Area 3

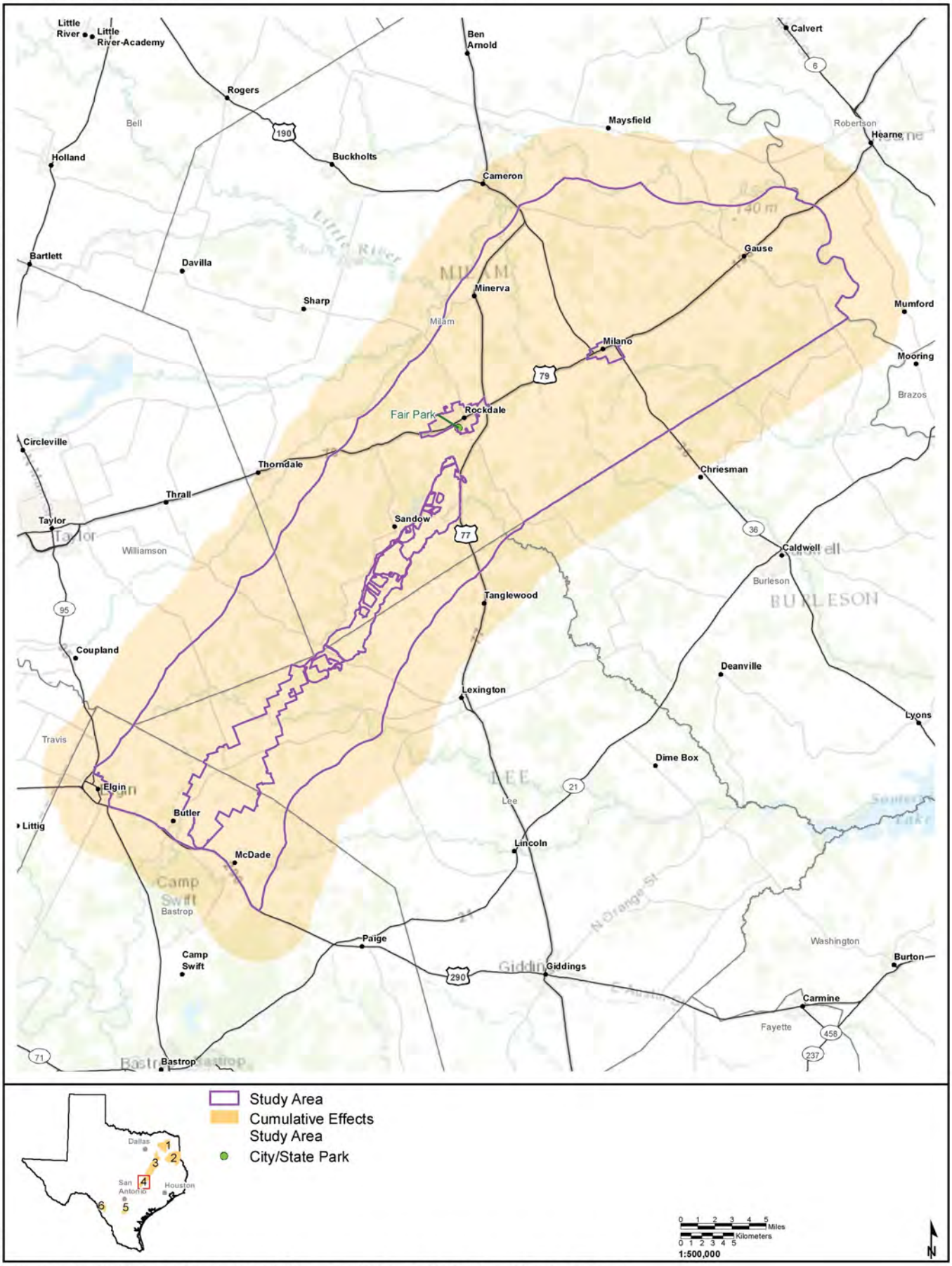

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Figure A-13 Recreation, Land Use, and Noise CESA for Study Area 4

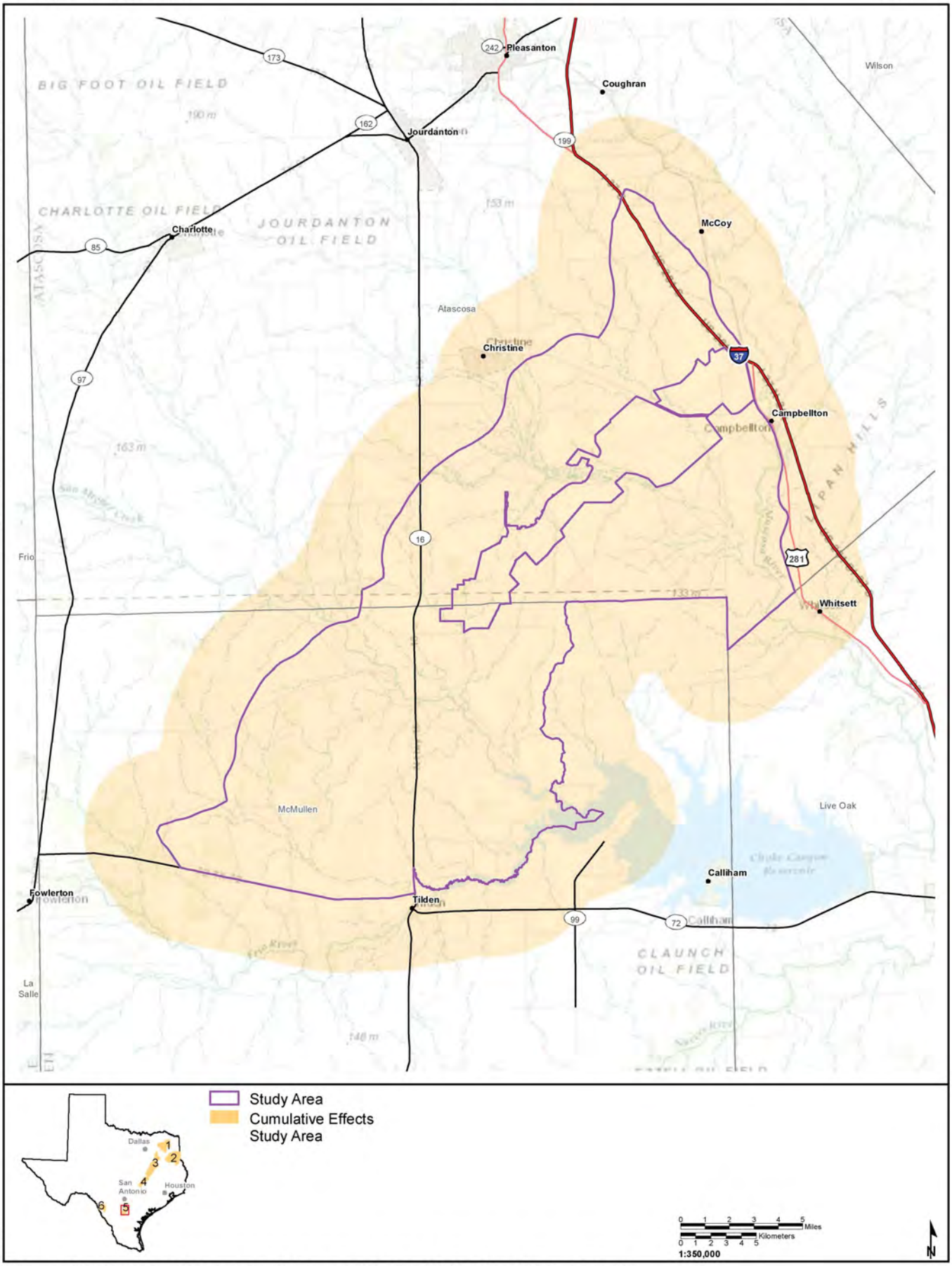

Figure A-14 Recreation, Land Use, and Noise CESA for Study Area 5

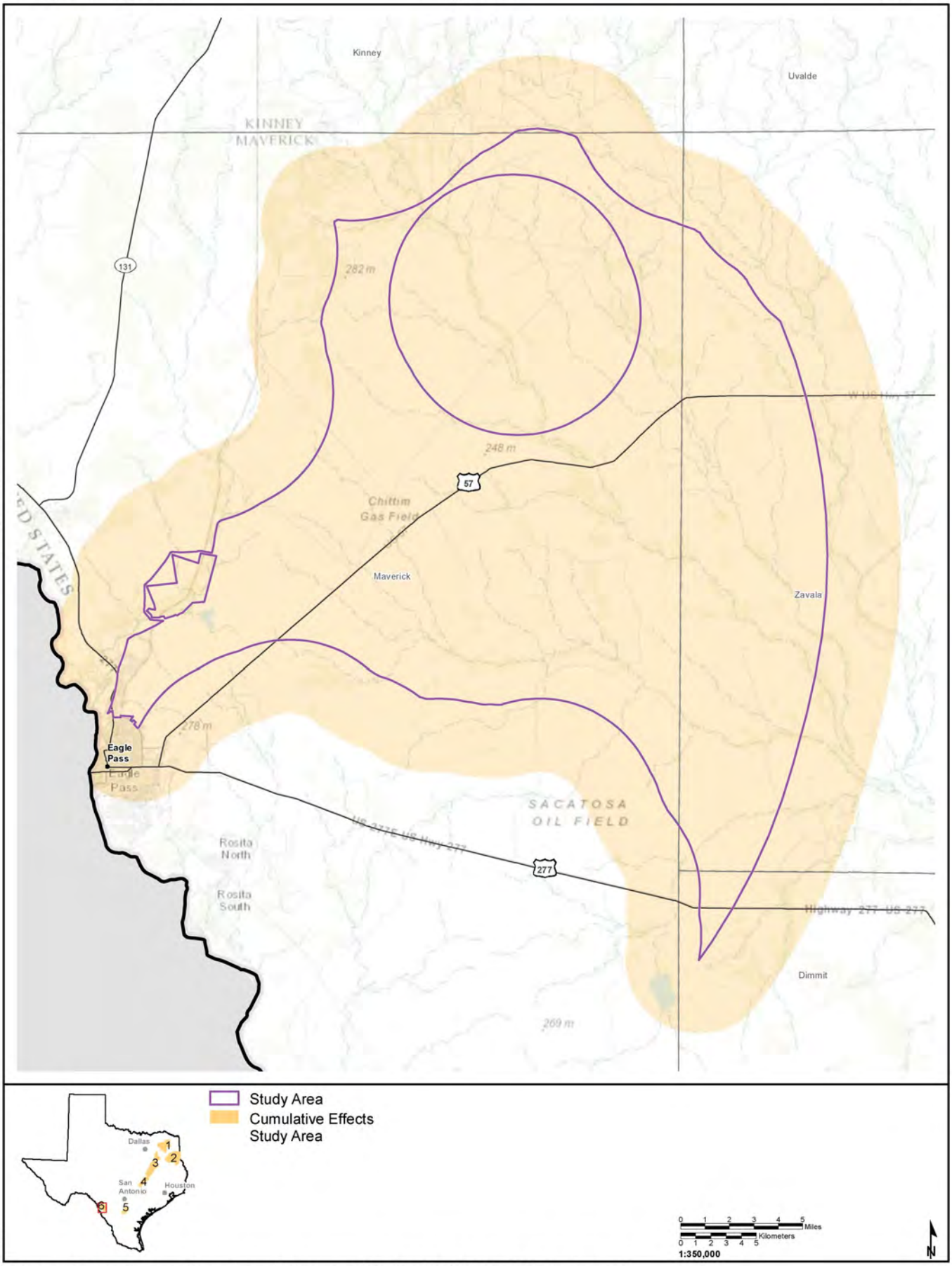

Figure A-15 Recreation, Land Use, and Noise CESA for Study Area 6

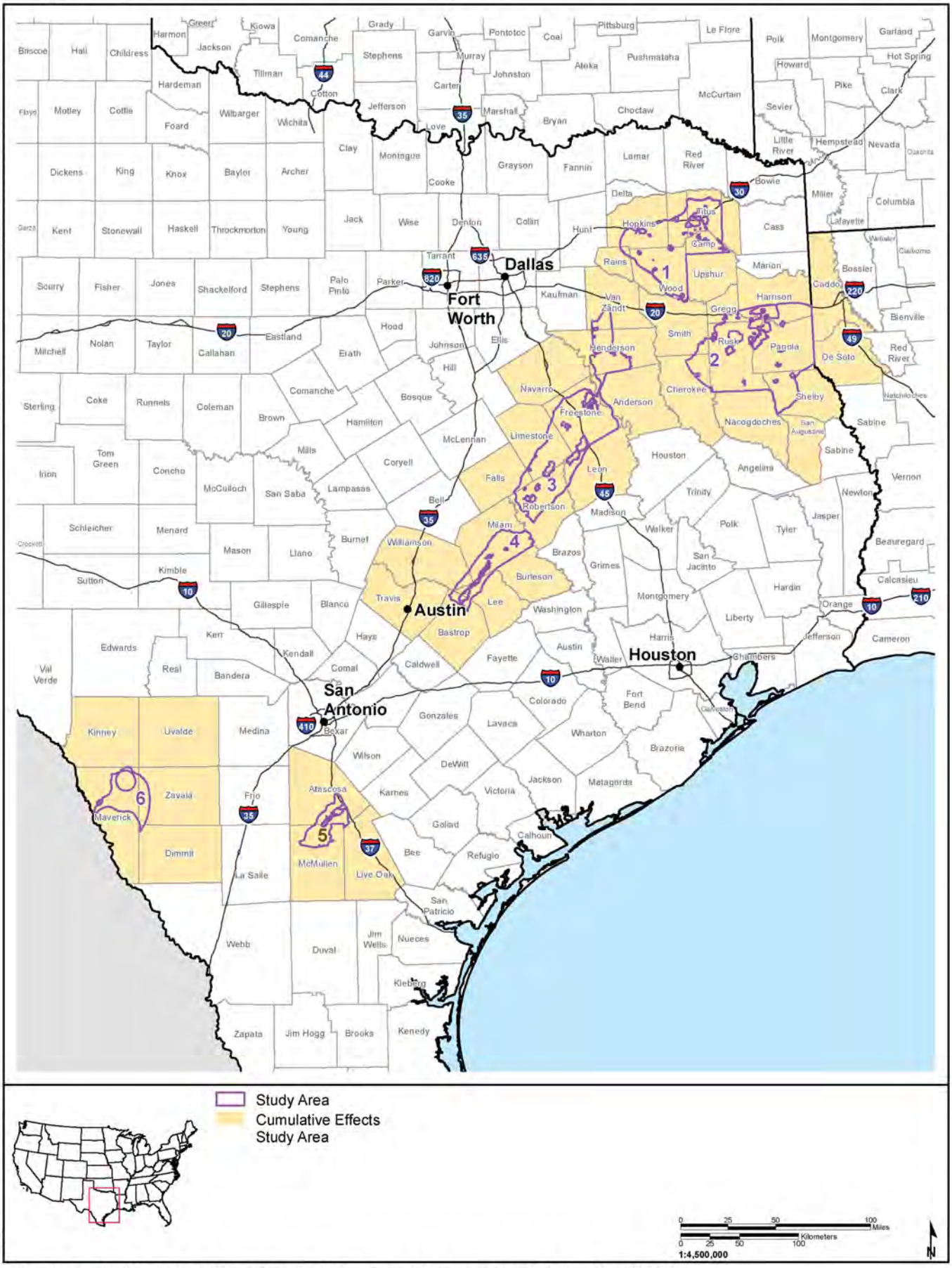

Figure A-16 Social and Economic Values and Environmental Justice CESAs

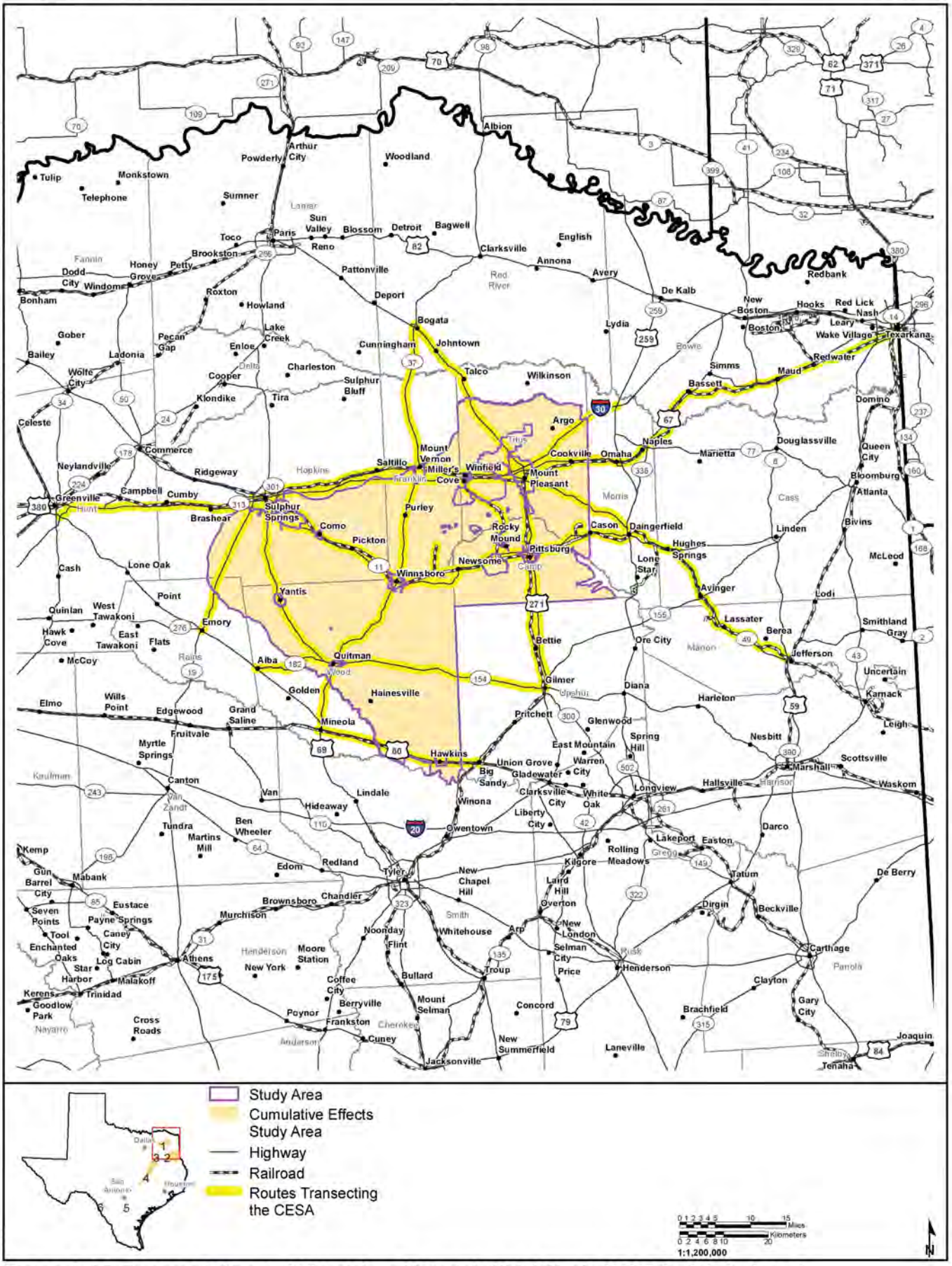

Figure A-17 Transportation and Hazardous Materials/Solid Waste CESA for Study Area 1

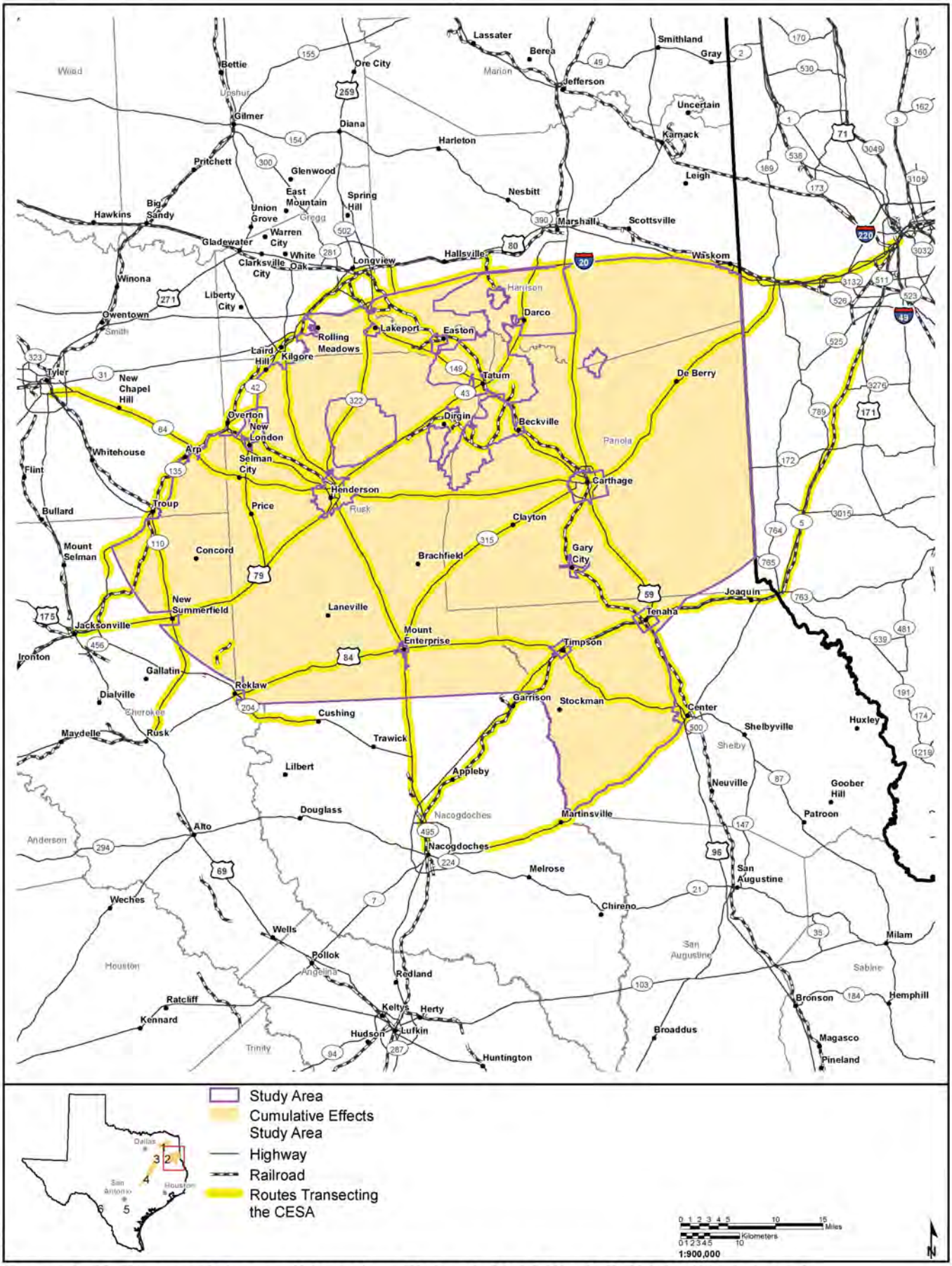

Figure A-18 Transportation and Hazardous Materials/Solid Waste CESA for Study Area 2

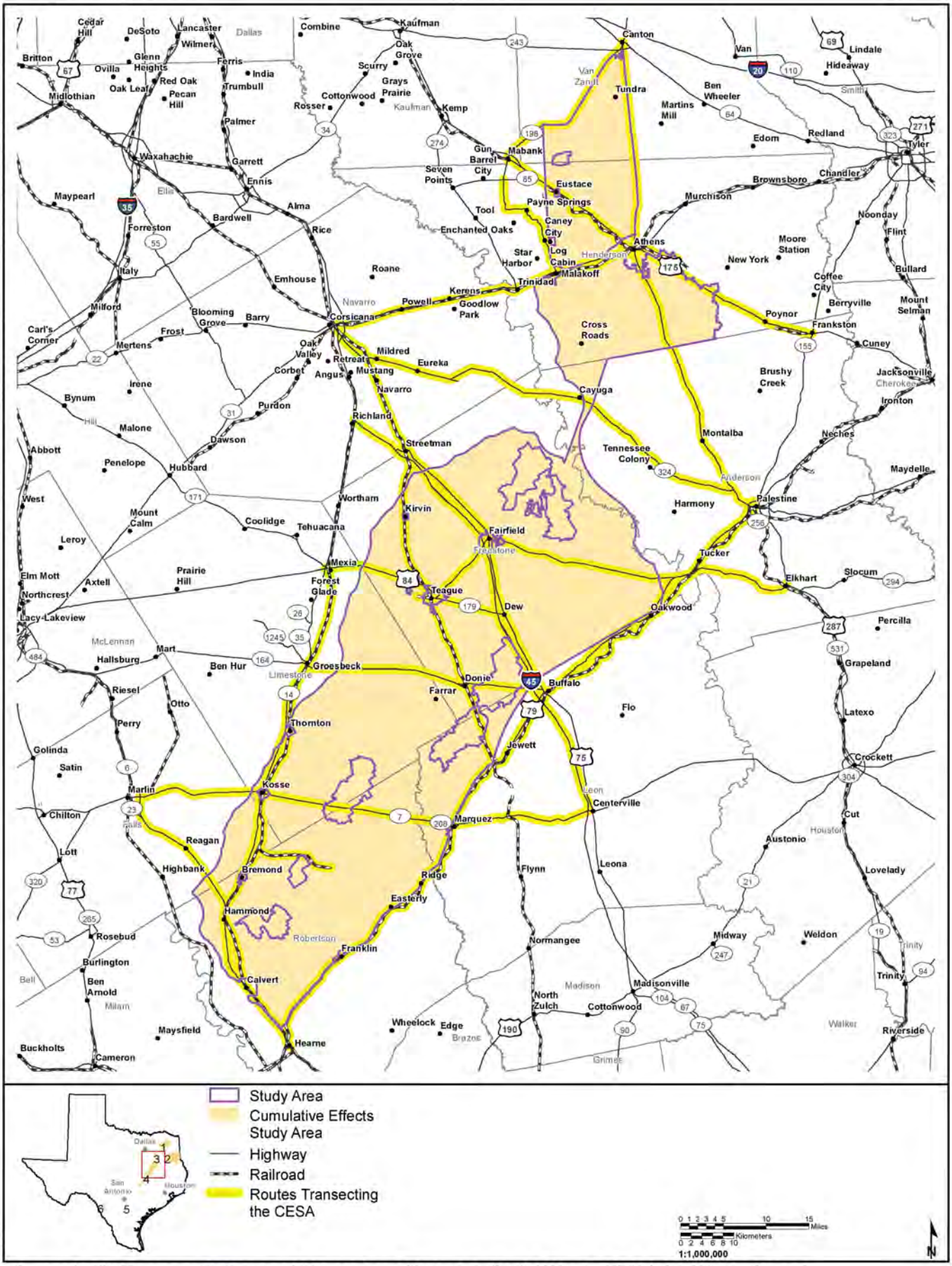

Figure A-19 Transportation and Hazardous Materials/Solid Waste CESA for Study Area 3

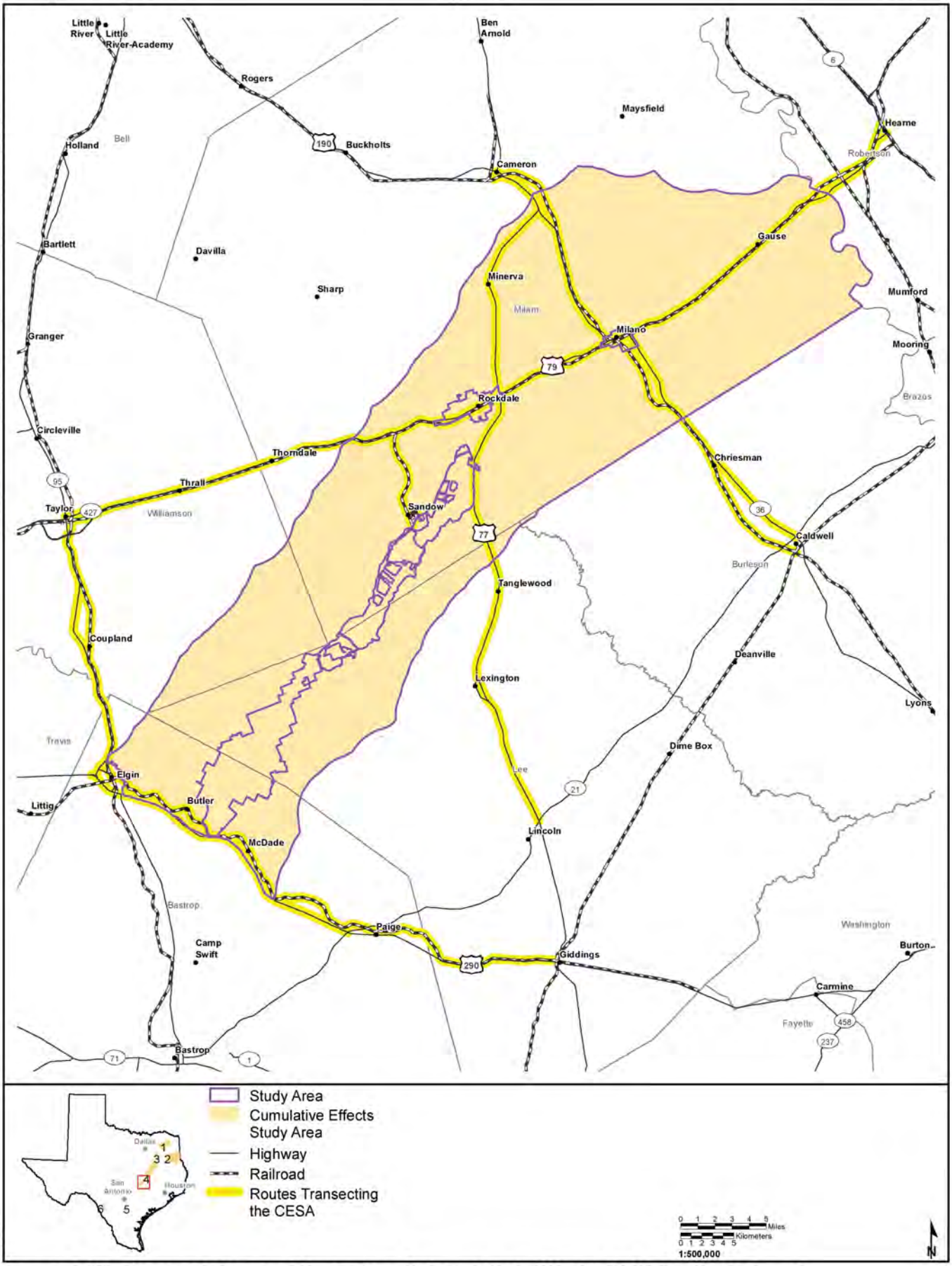

Figure A-20 Transportation and Hazardous Materials/Solid Waste CESA for Study Area 4

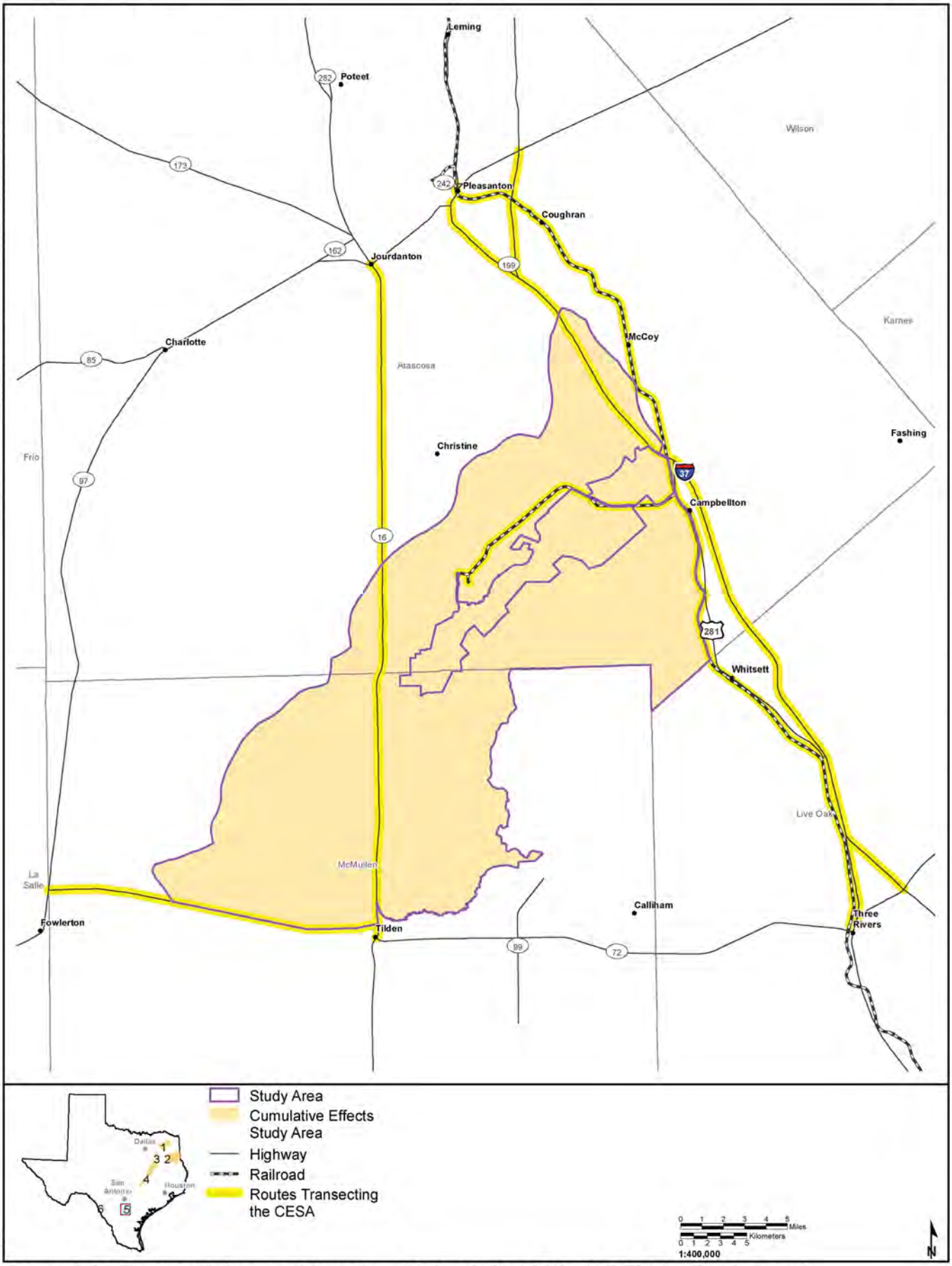

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Figure A-21 Transportation and Hazardous Materials/Solid Waste CESA for Study Area 5

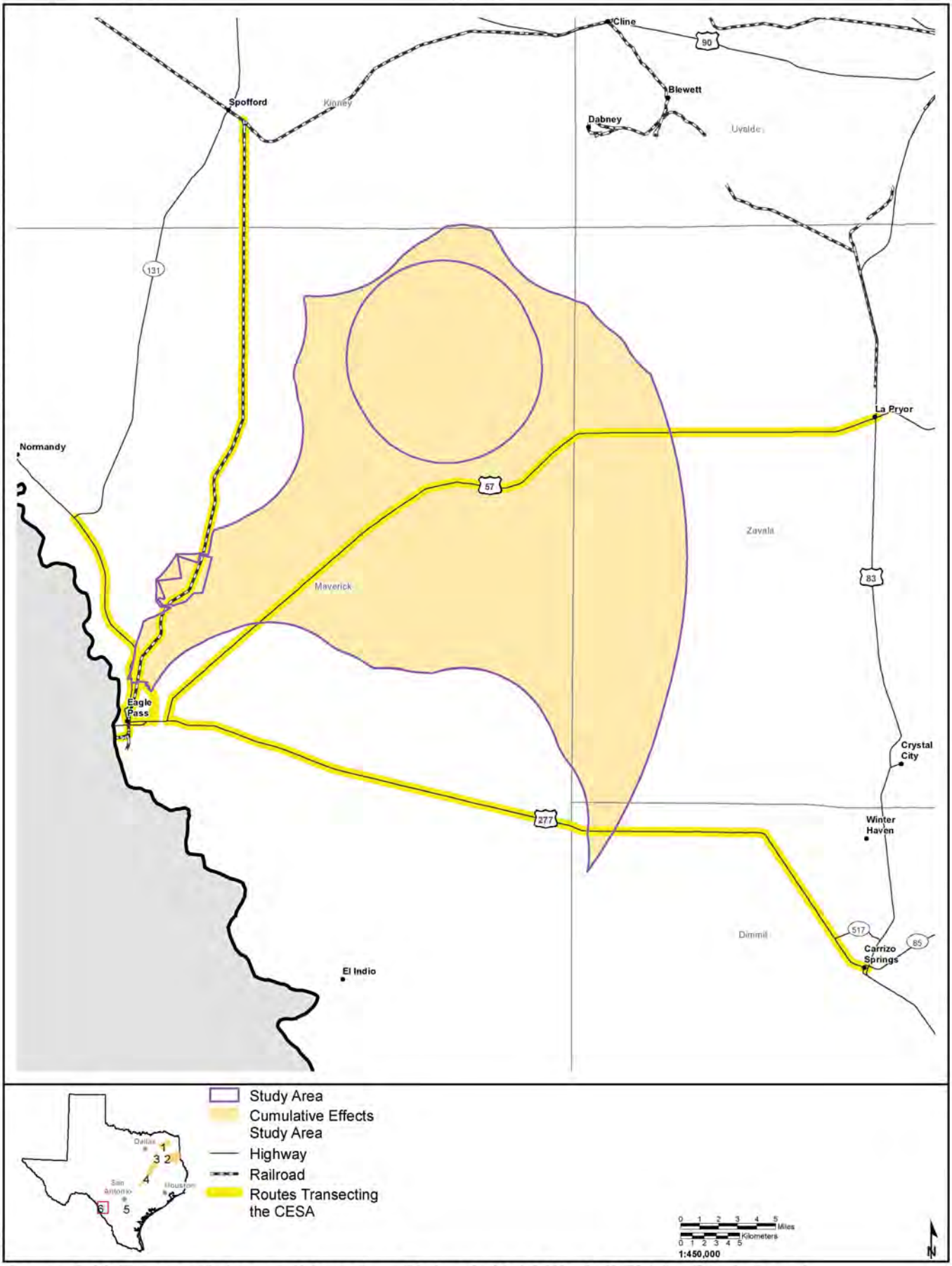

Figure A-22 Transportation and Hazardous Materials/Solid Waste CESA for Study Area 6

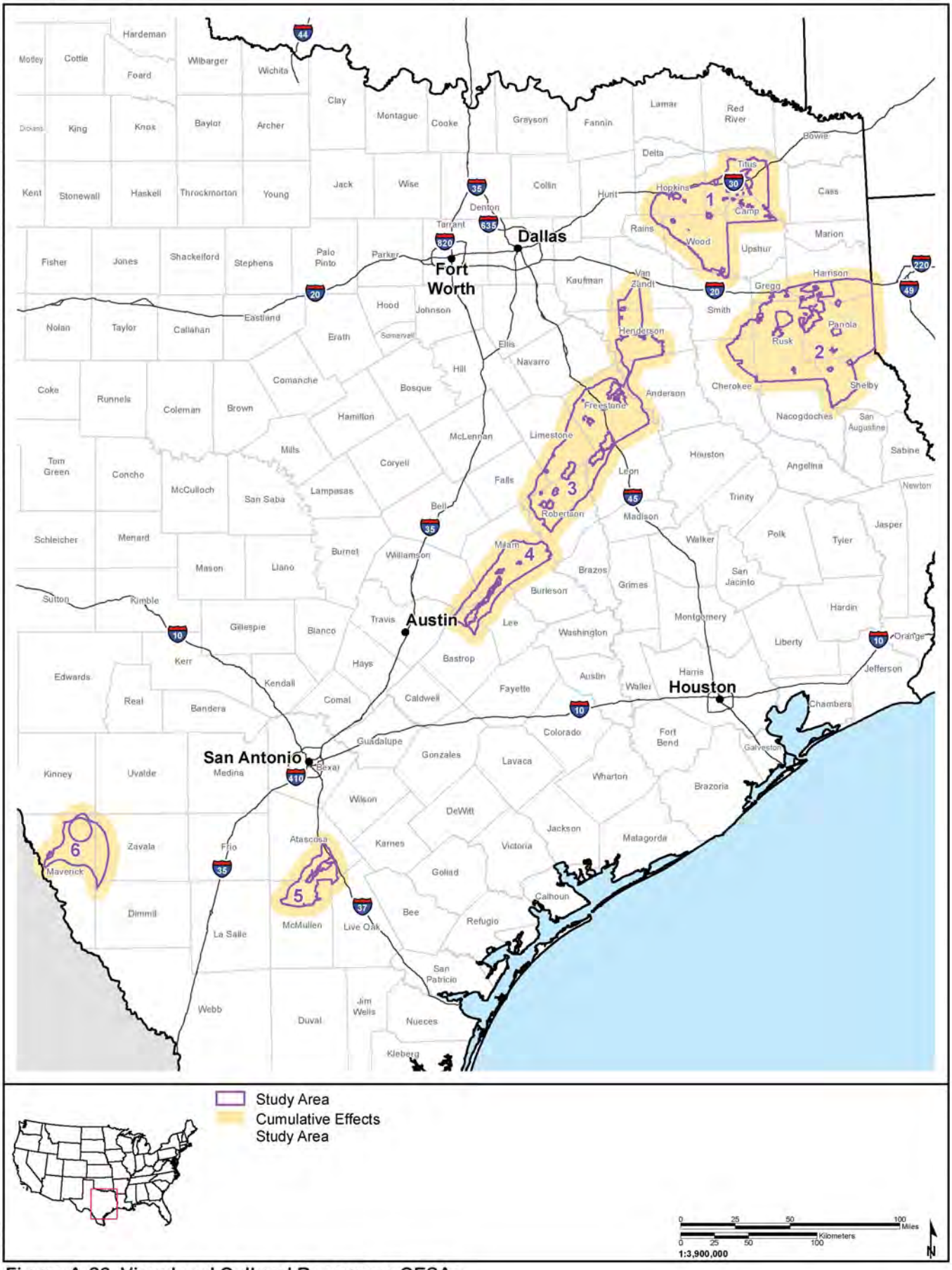

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Figure A-23 Visual and Cultural Resources CESAs

Appendix B

Fish and Wildlife Tables

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Fish					
Blackside darter (*Percina maculata*)	ST	1,2 - Y	Species occurs in the Cypress River basin with habitat consisting of clear, gravelly streams; prefers pools with some current but also occurs in riffles with varying stream velocities.	Spawning occurs from April through May in northern states. Limited information is available regarding the Texas spawning period.	TPWD 2012-2014; Lutterbie 1979
Blue sucker (*Cycleptus elongatus*)	ST	2,3,4,6 - Y	Species occurs in large rivers such as the Sabine. Bottom substrate usually consists of exposed bedrock, usually in combination with hard clay, sand, and gravel; adults winter in deep pools.	Species spawns from April through May, upstream in riffle areas when water temperatures rise.	TPWD 2012-2014; Adams et al. 2006
Bluehead shiner (*Pteronotropis hubbsi*)	ST	1,2 - N	Species occurs in Big Cypress Bayou. Habitat consists of quiet, backwater areas of small to medium-sized, sluggish streams and oxbow lakes having mud or mud-sand bottom. The water typically is tannin-stained, and heavy growth of submergent or semi-emergent vegetation often is present.	Species spawns multiple clutches from May through July.	TPWD 2012-2014; Ranvestel and Burr 2004
Creek chubsucker (*Erimyzon oblongus*)	ST	1,2,3 - Y	Species occurs in tributaries of the, Sabine, Neches, and Trinity rivers. Habitat consists of small rivers and creeks of various types; seldom in impoundments; prefers headwaters, but seldom occurs in springs; young typically in headwater rivulets or marshes.	Species spawns from March through May in river mouths or pools, riffles, lake outlets, upstream creeks.	TPWD 2012-2014; Boschung and Mayden 2004
Devils River minnow (*Dionda diaboli*)	FT, ST	6 - N	Species occurs in Rio Grande basin tributaries such as the Devils River and San Felipe, Sycamore, Pinto, and Las Moras creeks. Habitat consists of rocky runs and flowing pools.	Species spawns from January through August.	TPWD 2012-2014; TPWD 2014b

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Fountain darter (*Etheostoma fonticola*)	FE	6 - N	Species occurs in the San Marcos and Comal river systems. Habitat consists of stream floor habitats with a mix of submergent vegetation. Species requires constant water temperatures and adequate springflow.	Species spawns year round on filamentous algae and aquatic plants.	USFWS 1996
Paddlefish (*Polydon spathula*)	ST	1,2,3 - Y	Species occurs in large, free-flowing rivers, but will frequent impoundments with access to spawning sites; spawns in fast, shallow water over gravel bars; larvae may drift from reservoir to reservoir. Historically, species occurred in most major river drainages from the Trinity River basin eastward, but its range and numbers have been significantly reduced.	Species spawns from late February through late June.	TPWD 2012-2014; Hubbs et al. 1991a; Purkett 1961
Proserpine shiner (*Cyprinella proserpina*)	ST	6 - N	Species occurs in Rio Grande River basin tributaries such as the Devils and Pecos rivers and Las Moras, Pinto, and San Felipe creeks. Habitat consists of rocky runs and pools of creeks and small rivers.	Species spawns from May through September.	TPWD 2012-2014 Bonner et al. 2008; Hubbs et al. 1991b
Pallid sturgeon (*Scaphirhychus albus*)	FE	2 - Y	Species occurs in main channel, backwaters, and flood plains of large river systems such as the Mississippi River system in Louisiana. Potential habitat occurs in the Red River (Caddo Parish).	Spawning appears to occur between March and July, with lower latitude fish spawning earlier than those in the northern portion of the range. Spawning occurs every 2 to 3 years.	USFWS 2014c
Rio Grande darter (*Etheostoma grahami*)	ST	6 - Y	Species occurs in the mainstem and spring-fed tributaries of the Rio Grande and the lower Pecos River. Habitat consists of gravel and rubble riffles of creeks and small rivers.	Species spawns from late March through early June.	TPWD 2012-2014; Harrell 1980; Hubbs et al. 2008

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Rio Grande silvery minnow (*Hybognathus amarus*)	FE, EX/NE,SE	6 - N	Historically, one of the most abundant and widespread species in the Rio Grande River basin, but was extirpated in Texas. An experimental non-essential population was reintroduced on the Rio Grande in the Big Bend area from Little Box Canyon downstream to Amistad Dam. Habitat consists of pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom.	Species spawns from March through June, with a peak in May.	TPWD 2012-2014; USFWS 2008; Platania and Dudley 1999
Sharpnose shiner (*Notropis oxyrhynchus*)	PE	3,4 - N	Species occurs in the Brazos River basin upstream of Possum Kingdom Reservoir. Habitat consists of large turbid rivers, with the bottom being a combination of sand, gravel, and clay-mud.	Species breeds from April through September. Spawning is synchronized with increased stream flow.	TPWD 2012-2014; USFWS 2014a,b
Smalleye shiner (*Notropis buccula*)	PE	3,4 - N	Species occurs in the Brazos River basin upstream of Possum Kingdom Reservoir. Habitat consists of medium to large prairie streams with sandy substrate and turbid to clear warm water.	Spawning occurs from April through September. Spawning is synchronized with increased stream flow.	TPWD 2012-2014; USFWS 2014a,b
Mussels					
False spike mussel (*Quadrula mitchelli*)	ST	3,4,5 - N	Historically, this species occurred in the Rio Grande, Brazos, Colorado, and Guadalupe river basins, but is now presumed to be extirpated in Texas. Habitat consists of medium to large rivers with substrates varying from mud to mixtures of sand, gravel and cobble.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Golden orb (*Quadrula aurea*)	FC, ST	5 - N	Historically, this species occurred throughout the Guadalupe-San Antonio River and Nueces-Frio River basins. Species has been eliminated from nearly the entire Nueces-Frio River Basin. Four of nine populations appear to be stable and reproducing. Habitat consists of sand, gravel or mud substrates within lentic and lotic waters.	The reproductive period is May through August.	TPWD 2012-2014; USFWS 2013; USFWS 2011
Louisiana pigtoe (*Pleurobema riddellii*)	ST	1,2,3 - N	Historically, this species occurred in the Sabine, Neches, and Trinity river basins, but is now presumed to be extirpated in Texas. Habitat consists of streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014
Mexican fawnsfoot mussel (*Truncilla cognata*)	ST	6 - Y	Species occurs in the Rio Grande basin. Habitat consists of flowing rivers and streams with sand or gravel substrates.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014
Salina mucket (*Potamilus metnecktayi*)	ST	6 - Y	Species occurs in the Rio Grande basin. Habitat consists of lotic waters; submerged soft sediment (clay and silt) along river bank; other habitat requirements are poorly understood.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014
Sandbank pocket (*Lampsilis satura*)	ST	1,2,3 - Y	Species occurs in the Sabine and Neches rivers. Habitat consists of small to large rivers with moderate flows and swift current on gravel, gravel-sand, and sand bottoms.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Smooth pimpleback (*Quadrula houstonensis*)	FC, ST	3,4 - Y	Species occurs in the Brazos and Colorado River basins. Species is nearly eliminated from the entire Colorado river and has been eliminated in the upper Brazos River. Stable and reproducing populations appear in the lower Colorado River (CESA), Navasota River, and Yegua Creek (CESA). Habitat consists of small to moderate streams and rivers, as well as moderate size reservoirs with mixed mud, sand, and fine gravel substrates. Species tolerates very slow to moderate flow rates, and is sensitive to dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms.	The reproductive period is June through November.	TPWD 2012-2014; USFWS 2013; USFWS 2011
Southern hickorynut (*Obovaria jacksoniana*)	ST	1,2,3 - Y	Species occurs in the Neches, Sabine, and Cypress River basins. Habitat consists of medium-sized gravel substrates with low to moderate current.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014
Texas fatmucket (*Lampsilis bracteata*)	FC, ST	4 - Y	Species occurs in the Colorado River System and is extirpated from the Guadalupe River System. Populations appear in Onion Creek (CESA). Habitat consists of streams and rivers on sand, mud, and gravel substrates. Species is intolerant of impoundments, broken bedrock, and course gravel or sand in moderately flowing water.	The reproductive period is from July through October.	TPWD 2012-2014; USFWS 2011
Texas fawnsfoot (*Truncilla macrodon*)	FC, ST	3,4 - Y	Species occurs in the Brazos and Colorado River basins. Habitat likely consists of rivers and larger streams containing rice irrigation canals with sand, gravel, and perhaps sandy-mud bottoms with moderate flows. Species is intolerant of impoundments with no flow.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Texas heelsplitter (*Potamilus amphichaenus*)	ST	1,2,3 - Y	Species occurs in the Sabine, Neches, and Trinity River basins. Habitat consists of relatively quiet waters with mud or sand substrates in streams and reservoirs.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014
Texas hornshell (*Popenaias popeii*)	FC, ST	3 - Y	Species occurs in the Rio Grande basin and several rivers in Mexico. Habitat consists of ends of narrow, shallow runs over bedrock, in areas where small-grained materials collect in crevices; along river banks; and at the base of boulders. Species is not known to occur in impoundments.	The reproductive period from April through August.	TPWD 2012-2014; NautreServe 2014
Texas pigtoe (*Fusconaia askewi*)	ST	1,2,3 - Y	Species occurs in the Sabine, Trinity and San Jacinto rivers. Habitat consists of mixed mud, sand, and fine gravel substrates in protected areas associated with fallen trees or other structures.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014
Texas pimpleback (*Quadrula petrina*)	FC, ST	4 - Y	Species occurs in the Colorado and Guadalupe river basins. Habitat consists of mud, gravel and sand substrates in areas with relatively low flow conditions.	The reproductive period is June through August.	TPWD 2012-2014; Howells et al 1996a
Triangle pigtoe (*Fusconaia lananensis*)	ST	2,4 - Y	Species occurs in the Angelina River. Habitat consists of mixed mud, sand, and fine gravel substrates.	The reproductive period is in July.	TPWD 2012-2014; Howells et al 1996b
Amphibians					
Austin blind salamander (*Eurycea waterlooenis*)	FC	4 - N	Species occurs in the Barton Springs segment of the Edwards Aquifer.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014
Barton Springs salamander (*Eurycea sosorum*)	FE, SE	4 - N	Species occurs in the Barton Springs segment of the Edwards Aquifer.	Information regarding the reproductive period for this species is not available.	TPWD 2012-2014

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Black-spotted newt (*Notophthalmus meridionalis*)	ST	5 - Y	Species occurs in the Gulf Coastal Plain south of the San Antonio River. Habitat consists of wet areas or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions. Species aestivates in the ground during dry periods.	Species breeds in shallow ephemeral ponds from March through August.	TPWD 2012-2014; Irwin and Judd 2005; Cannatella 2014a
Georgetown (salamander (*Eurycea naufragia*)	FC	4 - N	Species occurs in Williamson County. Habitat consists of springs and waters in and around town of Georgetown.	Species breeds in the winter and early spring months.	TPWD 2012-2014; Pierce et al. 2014
Houston toad (*Anaxyrus houstonensis*)	FE, SE	3,4 - Y	Species occurs in the soils of the Sparta, Carrizo, Goliad, Queen City, Recklaw, Weches, and Willis geologic formations. Habitat consists of sandy substrate, water in pools, ephemeral pools, and stock tanks. Species burrows in soil of adjacent uplands when inactive.	Species breeds from February through June, especially after rains.	TPWD 2012-2014
Jollyville Plateau salamander (*Eurycea tonkawiae*)	FT	4 - N	Species occurs in the Jollyville Plateau and Brushy Creek area in Travis and Williamson counties. This species retains external gills and inhabits aquatic habitats (springs, spring-runs, and wet caves).	The breeding period is suspected to be March through August, based on the presence of small juveniles.	TPWD 2012-2014; Chippendale 2005
Salado Springs salamander (*Eurycea chisholmensis*)	FC	4 - N	Species occurs in the waters of the Salado Springs system along Salado Creek. Habitat consists of surface springs and subterranean waters of the spring system.	Information regarding the reproductive period is not available. The species uses aquatic habitat for breeding purposes.	TPWD 2012-2014
San Marcos salamander (*Eurycea nana*)	FE	6 - N	Species occurs near spring openings in Spring Lake and in the San Marcos river immediately below Spring lake (150m). Habitat consists of sand or gravel substrate with lush aquatic vegetation.	Species breeds year round, with peaks in May and June.	USFWS 1996

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
South Texas siren (*Siren* sp. 1)	ST	6 - N	Species occurs in southern Texas, south of Balcones Escarpment. Habitat consists of wet or sometimes wet areas, such as arroyos, canals, ditches, or even shallow depressions. Species aestivates in the ground during dry periods.	Species breeds from February through June.	TPWD 2012-2014
Texas blind salamander (*Typhlomolge rathbuni*)	FE	6 - N	Species occurs in subterranean waters of the Edwards Aquifer in Hays County. Habitat consists of water-filled cavernous areas in the San Marcos area of the Edwards Aquifer.	Information is not available on the breeding period. The species uses subterranean caves for breeding.	USFWS 1996
Reptiles					
Alligator snapping turtle (*Macrochelys temminckii*)	ST	1,2,3,4 - Y	Species occurs in perennial water bodies including deep water of rivers, canals, lakes, oxbows, swamps, bayous, and ponds near deep running water. Species is associated with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March through October.	Species breeds from April through October.	TPWD 2012-2014
Brazos River water snake (*Nerodia harteri*)	ST	3 - Y	Species occurs in the upper Brazos River drainage, with habitat consisting of shallow water and rocky substrates and rocky portions of banks.	Young are born in September and October.	TDWD 2012-2014; Cannatella 2014b
Invertebrates					
Comal Springs riffle beetle (*Heterelmis comalensis*)	FE	6 - N	Species occurs in Comal Springs and San Marcos Springs (Hays County). Habitat consists of gravel substrate and shallow riffles in spring runs	Information is not available on the breeding period.	USFWS 1997
Comal Springs dryopid beetle *Stygoparmus comalensis*	FE	6-N	Species occurs in theComal and Fern Bank springs in Hays County. The species is subterranean and does not swim.	Information is not available on the breeding period.	USFWS 1997

Table B-1 Occurrence, Habitat, and Life History Information for Federal and State Listed Fish and Aquatic Wildlife Species

Common Name (Scientific Name)	Status[1]	Potential Study Area Occurrence (Y = Yes or N = No)	Occurrence and Habitat	Life History	References
Peck's Cave amphipod (*Stygobromus* = [*stygonectes*] *pecki*)	FE	6 - N	Species occurs in the Landa Park area of the Edwards Aquifer. Habitat consists of rock and gravel crevices near spring orifices.	Information is not available on the breeding period. The species uses subterranean habitat for breeding.	USFWS 1997

[1] Status: FT = Federal threatened; FE = Federal endangered; PE = Proposed endangered; FC = Federal candidate; EX/NE = Experimental/Non-essential; ST = Texas threatened; and SE = Texas endangered.

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
Arachnids							
Bone Cave Harvestman	*Texella reyesi*	E		4	Common to all troglobites, this species spend their entire lives underground. The Bone Cave harvestman is endemic to karst formations (caves, Sinkholes, and other subterranean voids) in Travis and Williamson counties. Troglobites typically inhabit the dark zone of the cave where temperature and humidity are relatively constant. Most are usually found under rocks. Although troglobites must complete their life cycles underground, they are dependent on moisture and nutrient inputs from the surface.	No – The current range for this species is outside the analysis area. This species occurs in 69 caves (60 confirmed, 9 tentative identifications) from northern Travis to northern Williamson County, a distance of approximately 25 miles.	TPWD 2014a; USFWS 2014b, 1994
Birds							
American Peregrine Falcon	*Falco peregrinus anatum*		T	All	This species is a year-round resident and local breeder in west Texas and nests in tall cliff eyries. It is also a migrant across the state from more northern breeding areas in the U.S. and Canada and winters along the coast and farther south. The peregrine falcon occupies a wide range of habitats during migration, including urban areas and leading landscape edges (e.g., lake shores, coastlines, and barrier islands).	Yes – This species would most likely occur as a migrant through the analysis area.	TPWD 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
Bachman's Sparrow	*Aimophila aestivalis*		T	1,2,3	This species inhabits open pine woods with scattered bushes and grassy understory in the Pineywoods region. It is found within brushy or overgrown grassy hillsides, overgrown fields with thickets and brambles, grassy orchards, and remnant grasslands in the Post Oak Savannah region. Nests are constructed on the ground against grass tufts or under low shrubs. This species breeds in Texas from mid-April to late July.	Yes	Arnold 2001; TPWD 2014a
Bald Eagle	*Haliaeetus leucocephalus*		T, LA-E	1,2,3,4	This species is found primarily near rivers and large lakes. Nests are constructed in tall trees or on cliffs near water. Communal roost sites, especially in winter, are found in similar habitats.	Yes	TPWD 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
Black-capped Vireo	*Vireo atricapilla*	E	E	4,6	The black-capped vireo is a breeding resident within the analysis area. This species inhabits oak-juniper woodlands with distinctive patchy, two-layered aspects; shrub and tree layer with open, grassy spaces. This species requires foliage reaching to ground level for nesting cover. The black-capped vireo returns to the same territory, or one nearby, year after year to breed. Deciduous and broad-leaved shrubs and trees provide insects for feeding. The nesting season for this species is March to late summer.	Yes	TPWD 2012a, 2014a; USFWS 1991
Golden-cheeked Warbler	*Setophaga chrysoparia*	E	E	4,6	This species inhabits juniper-oak woodlands and is dependent on Ashe juniper (also known as cedar) for long fine bark strips used in nest construction that is only available from mature trees. Nests are placed in various trees other than Ashe juniper; however, only a few mature junipers or nearby cedar brakes can provide the necessary nest material. This species forages for insects in broad-leaved trees and shrubs. The golden-cheeked warbler is the only bird species that breeds exclusively	Yes	Coldren 2001; TPWD 2012a, 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
					in Texas. Nesting occurs from late March to early summer.		
Interior Least Tern	*Sterna antillarum athalassos*	E	E, LA-E	1,2,3,4	The interior subspecies is listed only when inland (more than 50 miles from a coastline). It nests along sand and gravel bars within braided streams and rivers; it is also know to nest on man-made structures (e.g., inland beaches, wastewater treatment plants, gravel mines, etc).	Yes – While it is unlikely that nesting interior least terns would be present within the analysis area, the species potentially may occur in limited foraging habitats in the analysis area.	TPWD 2014a; USFWS 2014b, 1990
Peregrine Falcon	*Falco peregrinus*		T	All	The peregrine falcon migrates across Texas from more northern breeding areas in the U.S. and Canada to winter along the coast and farther south. Habitat requirements are the same as those discussed above for the subspecies F. p. anatum. Because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level.	Yes – This species would most likely occur as a migrant throughout the analysis area.	TPWD 2014a
Piping Plover	*Charadrius melodus*	T	T	1,2,3	This species is a wintering migrant along the Texas Gulf Coast occupying beaches and bayside mud or salt flat habitats.	No - The analysis area is outside of the species' breeding range. No critical habitat for this species occurs within the analysis area. The piping plover is a wintering migrant along the Texas Gulf Coast. Therefore, potential for	TPWD 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
						occurrence within the project area would be considered infrequent during migration.	
Red-cockaded Woodpecker	*Picoides borealis*	E	E, LA-E	2	This species lives and forages exclusively in mature, open "park-like" pine forests. It needs older pines with sufficient heart rot present to construct its cavities. Current observations indicate cavity nests are found in older pines (60+ years) and foraging occurs in younger pines (30+ years). Within Texas, this species prefers longleaf, shortleaf, and loblolly. These species live in groups of two to six birds, although as many as nine birds have been observed. The group may consist of only a mated pair; a mated pair with their current years' offspring; or a mated pair, their current years' offspring, and helpers. Red-cockaded woodpeckers nest from April through July.	Yes	USFWS 2014b, 2003; TPWD 2014a
Red Knot	*Calidris canutus rufa*	T		All	The red know breeds in the central Canadian Arctic and migrates primarily along the Atlantic coast of North America. The Gulf of Mexico coast of Texas is one of four distinct coastal areas of the Western Hemisphere where the *C. c.*	No – The USFWS IPaC search identified this species as a concern only for wind energy projects.	USFWS 2014b, 2011

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
					rufa subspecies winter. Along the Texas coast, red knots forage on beaches, oyster reefs, and exposed bay bottoms and roost on high sand flats, reefs, and other sites protected from high tides. Within the analysis area, red knots may use key staging and stopover areas to rest and feed for both spring and fall migrations.		
Sprague's Pipit	*Anthus spragueii*	C		5, 6	This species is only present in Texas during migration and in winter from mid-September to early April. The Sprague's pipit is strongly tied to native upland prairie, can be locally common in coastal grasslands, but is uncommon to rare further west of these habitats. Additionally, the Sprague's pipit is sensitive to patch size and avoids edge habitat.	Yes	TPWD 2014a; USFWS 2014b
Swallow-tailed Kite	*Elanoides forficatus*		T	2	This species is found in lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds. It nests high in tall trees located in clearings or on forest woodland edges; usually in pine, cypress, or various deciduous trees. Breeding occurs from late February to early July.	Yes	TPWD 2014a; Tweit 2001a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
White-faced Ibis	*Plegadis chihi*		T	3	This species prefers freshwater wetlands including marshes, sloughs, and irrigated rice fields, but will use brackish and saltwater habitats. It nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats. Breeding occurs from early April to late July.	Yes – However, in Texas, this species is a rare and localized breeder inland as far north as the Panhandle.	TPWD 2014a; Telfair II 2001
White-tailed Hawk	*Buteo albicaudatus*		T	5	Near the coast, this species is found on prairies, cordgrass flats, and scrub-live oak. Further inland, it is found on prairies, mesquite and oak savannas, and mixed savanna-chaparral. Breeding occurs from March-May.	Yes	TPWD 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
Whooping Crane	*Grus americana*	E	E	3,4,5	This species would occur within the analysis area as a migrant only. During spring and fall migration, the Aransas–Wood Buffalo whooping crane population migrates through the central Great Plains. Birds from the Aransas–Wood Buffalo population depart from their wintering grounds in Texas starting in late March through the beginning of May. Fall migration typically begins in mid–September, with most birds arriving on wintering grounds between late October and mid–November. Habitat used by migrating whooping cranes includes a variety of wetlands and other habitats, including inland marshes, lakes, ponds, wet meadows and rivers, and agricultural fields.	Yes - The occurrence of this species in the analysis area would be limited to migrants from the Aransas–Wood Buffalo population to and from the wintering grounds of to the coastal marshes of Aransas, Calhoun, and Refugio counties.	Canadian Wildlife Service and USFWS 2005; TPWD 2014a; USFWS 2014b, 2011
Wood Stork	*Mycteria americana*		T	1,2,3,4,5	This species forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water. It usually roosts communally in tall snags, sometimes in association with other wading birds (i.e., active heronries). This species breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even	Yes – However, species occurrence would be limited to foraging individuals.	TPWD 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
					those associated with forested areas. There have been no breeding records since 1960 in Texas.		
Zone-tailed Hawk	*Buteo albonotatus*		T	6	This species is found in arid open country including open deciduous or pine oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains. It nests in various habitats and sites including small trees in lower desert areas, large cottonwoods in riparian areas, and mature conifers in high mountain regions. The breeding range for this species in Texas includes the Davis and Chisos mountains and along the Rio Grande and Pecos rivers. Breeding occurs from March to July.	Yes – However, species occurrence would be limited to foraging individuals.	TPWD 2014a; Tweit 2001b

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
Insects							
Coffin Cave Mold Beetle	*Batrisodes texanus*	E		4	This resident, small, cave-adapted beetle is found in small Edwards Limestone caves in Travis and northern Williamson counties. Common to all troglobites, this species spend their entire lives underground. Troglobites typically inhabit the dark zone of the cave where temperature and humidity are relatively constant. Most are usually found under rocks. Although troglobites must complete their life cycles underground, they are dependent on moisture and nutrient inputs from the surface.	No – The current range for this species is outside the analysis area.	TPWD 2014a; USFWS 2014b, 1994
Tooth Cave Ground Beetle	*Rhadine persephone*	E		4	This resident, small, cave-adapted beetle is found in small Edwards Limestone caves in Travis and northern Williamson counties. Common to all troglobites, this species spend their entire lives underground. Troglobites typically inhabit the dark zone of the cave where temperature and humidity are relatively constant. Most are usually found under rocks. Although troglobites must complete their life cycles underground, they are dependent on moisture and	No – The current range for this species is outside the analysis area.	TPWD 2014a; USFWS 2014b, 1994

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
					nutrient inputs from the surface.		
Mammals							
Black Bear	*Ursus americanus*	T/SA	T	1,2,3,5,6	This species occurs in bottomland hardwoods and large tracts of inaccessible forested areas.	Yes – However, occurrences of this species would be limited to transient individuals within the analysis area.	TPWD 2014a; USFWS 2014b
Gray Wolf	*Canis lupus*	E	E	6	The gray wolf was formerly known throughout the western two-thirds of Texas, occupying a range of habitats including forests, brushlands, and grasslands.	No – The species is considered to be extripated.	TPWD 2014a; USFWS 2014b
Jaguarundi	*Herpailurus yaguarondi*	E	E	5,6	This species prefers natural, undisturbed forest and thick brushlands near water. Young are sometimes born twice per year, in March and August. Jaguarundis are solitary, except during mating season or when a female is raising kittens. Little is known regarding Jaguarundi reproduction in Texas, however, the mating season in Mexico is November and December.	Yes	TPWD 2014a; USFWS 2014b, 2013
Louisiana Black Bear	*Ursus americanus luteolus*	T	T	1,2,3,4	Historically present in eastern Texas, this species currently is known to occur in Louisiana and Mississippi and, although unlikely, an occasional transient individual may wander into eastern Texas. It is possible that the Louisiana black bear	Yes – However, occurrences of this species would be limited to transient individuals within the analysis area.	NatureServe Explorer 2009; TPWD 2014a; USFWS 2014b, 1995

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
					may be increasing in numbers, and viable populations may expand into east Texas. This species occurs in bottomland hardwoods and large tracts of inaccessible forested areas.		
Margay	*Leopardus wiedii*		T	6	This species was historically found in neotropical forested areas. It was known to rest during the day in trees and forage both in trees and on the ground. The species is considered to be extripated.	No – The occurrence of this species in the analysis is extremely unlikely.	TPWD 2011
Ocelot	*Leopardus pardalis*	E	E	5,6	Typical habitat consists of mixed brush species with an interspersion of trees. Optimal habitat has at least 95 percent canopy cover of shrubs, whereas marginal habitat has 75 to 95 percent canopy cover. Preferred shrub density is where depth of vision from outside the brush line is restricted to approximately 5 feet. Tracts of at least 100 acres of isolated dense brush, or 75 acres of brush interconnected with other habitat tracts by brush corridors, are considered very important. The ocelot breeds and raises young June-November.	Yes	TPWD 2014a
Rafinesque's Big-	*Corynorhinus*		T	1,2	This species roosts in tree	Yes	TPWD 2014a;

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
Eared Bat	*rafinesquii*				cavities of bottomland hardwoods, concrete culverts, and abandoned man-made structures.		USFWS 2014b
Red Wolf	*Canis rufus*	E	E	1,2,3,5,	This species uses a wide range of habitats including open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands. This species prefers wooded, brushy areas and tallgrass prairie. The species is considered to be extripated.	No - The occurrence of this species in the analysis is extremely unlikely.	TPWD 2014a; USFWS 2014b
White-nosed Coati	*Nasua narica*		T	6	This species is found in woodlands, riparian corridors, and canyons. Most individuals in Texas are presumed to be transients from Mexico. The white-nosed coati is diurnal and crepuscular, and very sociable. This omnivor forages on the ground and in trees.	Yes	TPWD 2014a
Reptiles							
Louisiana Pine Snake	*Pituophis ruthveni*	C	T	1,2	This species is found in mixed deciduous-longleaf pine woodland ecosystems. The Louisiana pine snake breeds April-September.	Yes	TPWD 2014a; USFWS 2013
Northern Scarlet Snake	*Cemophora coccinea copei*		T	1,2,3	The northern scarlet snake prefers soft, sandy, or loamy soils for burrowing, occurring in forested areas as well as open areas such as agricultural fields	Yes	Herps of Texas 2014; TPWD 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
					and along borders of swamps and stream banks. It feeds on reptile eggs and is considered semi-fossorial with activity from April-September.		
Reticulate Collared Lizard	*Crotaphytus reticulatus*		T	5,6	This species occupies open brush-grasslands with thorn-scrub vegetation. It is usually associated with well-drained, rolling terrain of shallow gravel, caliche, or sandy soils. This species is often found on scattered flat rocks below escarpments or isolated rock outcrops among scattered clumps of prickly pear and mesquite.	Yes	TPWD 2014a
Texas Horned Lizard	*Phrynosoma cornutum*		T	All	This species occupies open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush, or scrubby trees. Soils may vary in texture from sandy to rocky. When inactive, this species burrows into soil, enters rodent burrows, or hides under rocks. Breeding occurs from March through September.	Yes	TPWD 2014a
Texas Indigo Snake	*Drymarchon melanurus erebennus*		T	5,6	This species is found in Texas south of the Guadalupe River and Balcones Escarpment. It inhabits riparian areas of thornbush-chaparral woodlands of south Texas. The indigo	Yes	TPWD 2014a

Table B-2 Occurrence, Habitat, and Life History Information for Special Status Wildlife Species

Common Name	Scientific Name	ESA Status[1]	State Status[2]	Study Area[3]	Habitat[4]	Potential to Occur	References
					snake has also been known to do well in suburban and irrigated croplands if not molested or indirectly poisoned. This species requires moist microhabitats, such as rodent burrows, for shelter.		
Texas Tortoise	*Gopherus berlandieri*		T	5,6	The preferred habitat for this species includes open brush with a grass understory. Open grasslands and bare ground are avoided. When inactive, this species occupies shallow depressions at the base of bushes or cacti; sometimes in underground burrows or under objects. The longevity of the Texas tortoise is greater than 50 years. This species is active March through November and breeds April through November.	Yes	TPWD 2014a
Timber/Canebrake Rattlesnake	*Crotalus horridus*		T	1,2,3,4	This species is associated with swamps, floodplains, upland pine and deciduous woodlands, riparian zones, and abandoned farmland with limestone bluffs, sandy soil, or black clay. This species prefers dense ground cover (i.e., grapevines or palmetto).	Yes	TPWD 2014a

[1] T – Threatened; E – Endangered; PT – Proposed as Threatened; C – Candidate; T/SA – Listed as Threatened by similarity of appearance.

[2] T – Threatened in the State of Texas; E – Endangered in the State of Texas; LA-E – Endangered in the State of Louisiana.

[3] Based on USFWS IPaC, TPWD, and LDWF county list searches.

[4] Based on habitat descriptions from TPWD (2014a) county lists.

Appendix C

Draft Programmatic Agreement

DRAFT PRELIMINARY

PROGRAMMATIC AGREEMENT AMONG THE UNITED STATES ARMY CORPS OF ENGINEERS, THE TEXAS STATE HISTORIC PRESERVATION OFFICER, {AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION} FOR THE PROPOSED EXPANSION OF COAL MINES

May 2015
Permit Number: 2010-00244

WHEREAS, the United States Army Corps of Engineers (USACE) plans to develop a Regional Environmental Impact Statement for Surface Coal and Lignite Mining (REIS) to analyze potential impacts within defined geographic regions inf Texas that may be affected by futures USACE permit decisions for future surface coal and lignite mine expansions (Mines) within the Fort Worth District; and

WHEREAS, the REIS will provide a Regulatory framework to guide the proposed expansion of Mines that may take place in phases over a number of years; and

WHEREAS, the USACE will define the Area of Potential Effects (APE) of these proposed undertakings to be all previously un-mined areas covered by the terms of the REIS; and

WHEREAS, the USACE has determined that the proposed undertakings have the potential to adversely affect historic properties, which are eligible for listing in the National Register of Historic Places (National Register), and has consulted with the Texas State Historic Preservation Officer (SHPO), {The Railroad Commission of Texas} pursuant to 36 C.F.R. Part 800, regulations implementing Section 106 of the National Historic Preservation Act (54 USC 300101); 33CFR 325 (Appendix C) Procedures for the Protection of Historic Properties; Revised Interim Guidance for Implementing Appendix C of 33 CFR Part 325 with the Revised Advisory Council on Historic Preservation Regulations at 36 CFR Part 800; Clarification of Revised Interim Guidance for Implementing Appendix C of 33 CFR 325 with the Revised Interim Advisory Council on Historic Preservation (ACHP) Regulations at 36 CFR Part 800; and

WHEREAS, the USACE, pursuant to 36 C.F.R. § 800.3(f)(2), consulted with the Choctaw Nation of Oklahoma and invited them to sign this agreement; and

WHEREAS, the public has been notified and provided an opportunity to comment on the undertaking through public meetings and comments sought under NEPA; and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), the USACE has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP has {chosen/not chosen} to participate in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii); and

WHEREAS, the Choctaw Nation of Oklahoma has requested to be a consulting party in the development of this Programmatic Agreement, and the federally unrecognized Pacuache Clan of Texas have requested consulting party status; and

NOW, THEREFORE; the USACE, {the ACHP} and the SHPO agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

Stipulations

The USACE will ensure the following stipulations are carried out concerning all historic properties affected by expansion of Mines under the REIS terms:

I. Synthesis of Previous Investigations:

A. Each mine shall develop a report summarizing and synthesizing all previous historic property work. The report shall contain:

1. Full references to all previous historic property investigations
2. Complete list of sites identified in prior work, including National Register of Historic Places status
3. Separate tabular listings for archeological sites and above-ground architecture
4. Summary of any Tribal contacts, coordination, or identified Traditional Cultural Properties (TCPs) or Traditional Cultural Landscapes
5. Maps of areas with completed historic property work
6. Maps of areas with incomplete or absent historic property inventory
7. Maps of proposed mining expansion plans with estimates of impact dates

II. Development of Individual Research Designs for Archeological Resource Identification and Assessment:

A Research Design for each Mine expansion plan shall be developed from the synthesis of previous work (Stipulation I). The RD shall incorporate the following requirements listed (below) for all work undertaken under the Programmatic Agreement on Mine expansions.

Prior to implementation of the RD, a draft RD for each Mine expansion shall be submitted for a 30 day review to the SHPO, Tribes and USACE. The RD may be revised based on the comments received. Additional review time may be requested by any reviewing party. The USACE shall be responsible for final comments and acceptance before implementation of the final RD. A copy of the final RD shall be made available to all signatories and concurring parties.

A. General.

1. Each mine is responsible for beginning phased archaeological investigations for each planned expansion unit at least two years prior to any physical mining.

2. The sequential phases of investigations are comprised of: Phase I, reconnaissance survey and background research; Phase II, archaeological investigation, testing, and assessment; Phase III, treatment avoidance, and/or protection of National Register of Historic Places eligible historic properties.

3. Standing architecture shall be treated in two phase process, as listed in Stipulation III.

4. Each mine shall develop a curation agreement with the SHPO that includes protocols for artifacts recovered at prehistoric and historic sites. This includes work on sites undertaken on property owned by the mine, as well as property leased from private landowners. The curation agreement will be reviewed and approved by the SHPO prior to any fieldwork. All resulting artifact collections, images, field notes, records, digital data, and geospatial data generated by the archaeological investigations pursuant to this PA should be curated in a state repository in accordance with 36 C.F.R. Part 79. All human remains and associated funerary objects will be treated under a separate protocol (Stipulation II(b)(d)).

5. A plan for consultation, treatment and coordination of human remains (and associated funerary objects) discoveries shall be developed prior to the beginning of any field work. The plan shall include:

a. Notification protocols from Tribes, SHPO, and USACE
b. A plan to notify Tribes that are not signatories to this agreement
c. Establishment of formal consultation with interested Tribes within 30 days of discovery
d. After SHPO and USACE review, provide the Mine a written plan to avoid, repatriate, or -curate the human remains and associated funerary objects within 60 days of discovery

III. Phased Archeological Work and Architectural Review:

For all archaeological activities and architectural assessments resulting in a written report, the SHPO, Tribes, and consulting parties will be afforded 30 calendar days after receipt of any document to comment on the documentation submitted by the USACE. Documents may then be revised considering the comments received. The USACE shall be responsible for final comments.

A. Phase I

1. For expansion areas defined in the final RD, the Mine will complete a pedestrian reconnaissance survey, including shovel-texting, augering, and backhoe trenches (as necessary) to identify archaeological sites

a. All sites recorded will be assessed, if possible, for eligibility to the NRHP. Sites that cannot be determined ineligible for the NRHP will be assessed by more detailed work in Phase II.

b. A draft report shall follow reporting standards developed by the Council of Texas Archeologists and the Antiquities Code of Texas.

c. After the final report shall be distributed to all signatory parties within 60 days of receipt by the USACE.

B. Phase II

1. Within one year of completing Phase I, the Mine will begin Phase II archaeological investigations to determine whether intact archaeological deposits are present. A testing plan which complies with Antiquities Code of Texas shall be developed with consulting parties.

a. Criteria for eligibility to the NRHP shall be applied to every site tested.

b. A draft report shall follow reporting standards developed by the Council of Texas Archeologists and the Antiquities Code of Texas.

c. The final report shall be distributed to all signatory parties to this agreement within 60 calendar days of receiving final comments from the SHPO and USACE.

C. Phase III

1. Within six months of completing Phase II, the Mine shall begin Phase three treatment of archeological and architectural sites that have been determined eligible for inclusion in the NRHP.

a. All NRHP eligible sites shall be assessed for avoidance and protection prior to any plan for excavation. Above ground architecture shall be considered for adaptive reuse where possible.

b. A draft report shall follow reporting standards developed by the Council of Texas Archeologists and the Antiquities Code of Texas.

c. The final report shall be distributed to all signatory parties to this agreement within 60 calendar days of receiving final comments from the SHPO and USACE.

D. Determination of NRHP Eligibility

1. If any archaeological resources are identified during the Phase I or II, determination of eligibility for inclusion in the National Register shall be made by applying the criteria as set forth in 36 C.F.R.§60.(4).

2. The USACE will make final determination of NRHP eligibility in consultation with the SHPO within 60 calendar days of completing Phase II.

3. If a determination of eligibility cannot be made without further testing, the resource will be treated as eligible until a final determination can be made.

4. Disputes regarding eligibility will be sent to the Keeper of the National Register in accordance with 36 C.F.R. Part 63.

IV. Architectural Resource Identification and Assessment:

A. General

1. A plan to identify and assess all above ground (standing) architecture shall be developed to coincide with Phases I and II of the archeological work.

2. Archival information, if available, shall be developed for all above ground architecture as part of the NRHP assessments

3. A plan for HABS/HAER-levels of documentation for structures found NRHP eligible

a. Standing architecture identified during Phase I and II shall be assessed for eligibility for inclusion in the NRHP by applying the criteria as set forth in 36 C.F.R.§60.(4).

b. The USACE will make final determination of NRHP eligibility in consultation with the SHPO within 60 calendar days of completing Phase II.

c. If a determination of eligibility cannot be made without further testing, the resource will be treated as eligible until a final determination can be made.

d. Disputes regarding eligibility will be sent to the Keeper of the National Register in accordance with 36 C.F.R. Part 63.

V. Dispute Resolution:

Should any signatory or concurring party to this Agreement object at any time to any actions proposed or the manner in which the terms of this Agreement are implemented, the USACE shall consult with such party to resolve the objection. If the USACE determines that such objection cannot be resolved, the USACE will:

Forward all documentation relevant to the dispute, including the USACE's proposed resolution, to the ACHP. The ACHP shall provide the USACE with its advice on the resolution of the objection within 30 calendar days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the USACE shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, signatories and concurring parties, and provide them with a copy of this written response. The USACE will then proceed according to its final decision.

If the ACHP does not provide its advice regarding the dispute within the 30 calendar day time period, the USACE may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the USACE shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories and concurring parties to the Agreement, and provide them and the ACHP with a copy of such written response.

Carry out all other actions subject to the terms of this PA that are not the subject of the dispute.

VI. Duration:

This Agreement shall be null and void if its terms are not carried out within 10 years from the date of its execution. Prior to such time, the USACE may consult with the other signatories to reconsider the terms of the Agreement and amend in accordance with this stipulation.

VII. Amendments:
This Agreement may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VIII. Termination:
If any signatory to this Agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation { }, above. If within 30 calendar days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the Agreement upon written notification to the other signatories.

Once the Agreement is terminated, and prior to work continuing on any historic property work defined by the REIS, the USACE must either (a) execute a Memorandum of Agreement pursuant to 36 C.F.R. § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. The USACE shall notify the signatories as to the course of action it will pursue.

IX. Reporting and Monitoring:
Upon execution of this PA, the USACE shall submit, via email, a bi-annual update on the status of all activities covered by this PA to consulting parties other than the ACHP and other interested parties. Updates will be submitted until all activities covered by this PA have been completed.

X. EXECUTION of this Agreement by the USACE, SHPO, {and the ACHP} and implementation of its terms evidence that the USACE has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

{Signatories}

{Concurring Parties}