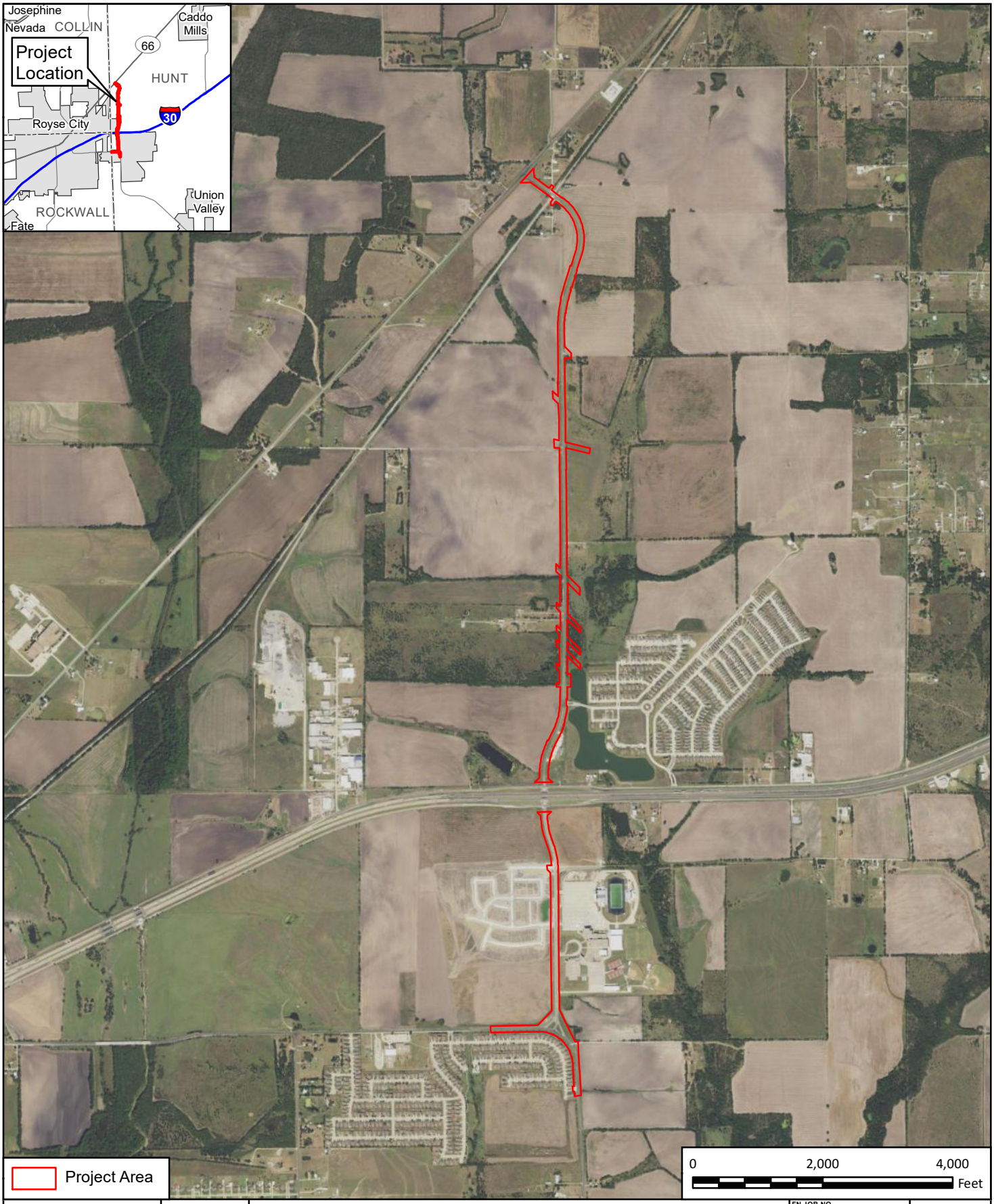
Attachment 1

Aerial Map



FREESE AND NICHOLS
4055 International Plaza, Suite 200
Fort Worth, TX 76109 - 4895
Phone - (817) 735 - 7300

N W E S

HUNT COUNTY

1.5 FM 2642 (FM 35 to SH 66)

Aerial Overview Map

FN JOB NO	HUC17463
FILE NAME	1_Aerial Overview_8x11.mxd
DATE	12/12/2018
SCALE	1:24,000
DESIGNED	HHM
DRAFTED	HHM

1

FIGURE

Path: H:\ENVIRONMENTAL\Final_Exhibits\MSAT\1_Aerial Overview_8x11.mxd

NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Attachment 2

USFWS T&E List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
Phone: (817) 277-1100 Fax: (817) 277-1129
http://www.fws.gov/southwest/es/arlingtontexas/
http://www.fws.gov/southwest/es/EndangeredSpecies/lists/

In Reply Refer To: December 03, 2018
Consultation Code: 02ETAR00-2019-SLI-0365
Event Code: 02ETAR00-2019-E-00800
Project Name: FM2642 - Hunt Country Transportation Project

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

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, which may occur within the boundary of your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For Federal actions other than major construction activities, the Service suggests that a biological evaluation (similar to a Biological Assessment) be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a direct or indirect result of the proposed action, and the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/

eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

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

This species list is provided by:

Arlington Ecological Services Field Office
2005 Ne Green Oaks Blvd
Suite 140
Arlington, TX 76006-6247
(817) 277-1100

Project Summary

Consultation Code: 02ETAR00-2019-SLI-0365

Event Code: 02ETAR00-2019-E-00800

Project Name: FM2642 - Hunt Country Transportation Project

Project Type: TRANSPORTATION

Project Description: Roadway Widening

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/32.98932030905733N96.29221149677213W

Counties: Hunt, TX

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

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

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

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

---

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

Birds

NAME	STATUS
Least Tern *Sterna antillarum* Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot *Calidris canutus rufa* No critical habitat has been designated for this species. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Critical habitats

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

Attachment 3

TPWD T&E List

HUNT COUNTY

AMPHIBIANS

		Federal Status	State Status
Southern Crawfish Frog	*Lithobates areolatus areolatus*		

The Southern Crawfish Frog can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Although this species can be difficult to detect due to its reclusive nature, the call of breeding males can be heard over great distances. Eggs are laid and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland – Conifer.

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Bald Eagle	*Haliaeetus leucocephalus*	DL	T

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

Henslow's Sparrow	*Ammodramus henslowii*		

wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking

Interior Least Tern	*Sternula antillarum athalassos*	LE	E

The subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

HUNT COUNTY

BIRDS

		Federal Status	State Status
Piping Plover	*Charadrius melodus*	LT	T

wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats

Red Knot	*Calidris canutus rufa*	LT	

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

Sprague's Pipit	*Anthus spragueii*		

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

White-faced Ibis	*Plegadis chihi*		T

prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats

Whooping Crane	*Grus americana*	LE	E

potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties

Wood Stork	*Mycteria americana*		T

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

CRUSTACEANS

		Federal Status	State Status
A crayfish	*Procambarus steigmani*		

burrower in long-grass prairie; all animals were collected with traps, thus there is no knowledge of depths of burrows; herbivore; crepuscular, nocturnal

HUNT COUNTY

FISHES

		Federal Status	State Status
Ironcolor shiner	*Notropis chalybaeus*		

Big Cypress Bayou and Sabine River basins; spawns April-September, eggs sink to bottom of pool; pools and slow runs of low gradient small acidic streams with sandy substrate and clear well vegetated water; feeds mainly on small insects, ingested plant material not digested

Orangebelly darter	*Etheostoma radiosum*		

Red through Angelina River basins; just headwaters ranging from high gradient streams to more sluggish lowland streams, gravel and rubble riffles preferred; eggs buried in gravel and riffle raceways, post-larvae live in quiet water, move into progressively faster water as they mature, young feed mostly on copepods and cladocerans, adults on mayfly and fly larvae, spawn late February through mid-April in eastern Texas

Taillight shiner	*Notropis maculatus*		

Sulfur River and Big Cypress Bayou; mostly headwaters, typically large sluggish, mud-bottomed small to large streams and lakes, usually with some aquatic vegetation; spawns March-October in backwaters and pools; feeds mainly on insect larva and cladocerans, also algae

INSECTS

		Federal Status	State Status
Sage sphinx moth	*Lintneria eremitoides*		

desert, grassland; sandy prairie or desert with sage; caterpillars feed on leaves of sage; adults emerge late spring or summer, but little information available; immatures develop directly to the pupal stage probably in 5-7 weeks, and pupae overwinter underground

MAMMALS

		Federal Status	State Status
Plains spotted skunk	*Spilogale putorius interrupta*		

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

Red wolf	*Canis rufus*	LE	E

extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairies

MOLLUSKS

		Federal Status	State Status
Louisiana pigtoe	*Pleurobema riddellii*		T

streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel; not generally known from impoundments; Sabine, Neches, and Trinity (historic) River basins

Southern hickorynut	*Obovaria jacksoniana*		T

medium sized gravel substrates with low to moderate current; Neches, Sabine, and Cypress river basins

Texas heelsplitter	*Potamilus amphichaenus*		T

quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins

HUNT COUNTY

MOLLUSKS

		Federal Status	State Status
Texas pigtoe	*Fusconaia askewi*		T

rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures; east Texas River basins, Sulphur River, Cypress Creek, Sabine through Trinity rivers as well as San Jacinto River

REPTILES

		Federal Status	State Status
Alligator snapping turtle	*Macrochelys temminckii*		T

perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water; sometimes enters brackish coastal waters; usually in water with mud bottom and abundant aquatic vegetation; may migrate several miles along rivers; active March-October; breeds April-October

Texas garter snake *Thamnophis sirtalis annectens*

wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August

Texas horned lizard *Phrynosoma cornutum* T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

Timber rattlesnake *Crotalus horridus* T

swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto

PLANTS

		Federal Status	State Status
Topeka purple-coneflower	*Echinacea atrorubens*		

GLOBAL RANK: G3; Occurring mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides; Perennial; Flowering Jan-June; Fruiting Jan-May

Attachment 4

Species Impact Table

CSJ: 2658-01-013; FM 2642 Widening, Royse City, TX
Species Impact Table for Hunt Co.

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
Birds						
Southern Crawfish Frog Lithobates areolatus areolatus	—	—	Can be found in abandoned crawfish holes and small mammal burrows. This species inhabits moist meadows, pasturelands, pine scrub, and river flood plains. This species spends nearly all of its time in burrows and only leaves the burrow area to breed. Eggs are laid, and larvae develop in temporary water such as flooded fields, ditches, farm ponds and small lakes. Habitat: Shallow water, Herbaceous Wetland, Riparian, Temporary Pool, Cropland/hedgerow, Grassland/herbaceous, Suburban/orchard, Woodland – Conifer.	Yes. Habitat present in project area.	May impact/ Not likely to adversely impact	No individuals identified during survey of project area.
American Peregrine Falcon Falco peregrinus anatum	DL	T	Year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges	Potential migrant through area. No nesting habitat present in project area.	No impact	No tall cliff eyries located within project area.

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			such as lake shores, coastlines, and barrier islands.			
Arctic Peregrine Falcon Falco peregrinus tundrius	DL	—	Migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.	Potential migrant through area.	No impact	No lake shores, coastlines, or barrier islands located within project area.
Bald Eagle Haliaeetus leucocephalus	DL	T	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	No habitat present in project area.	No impact	No tall trees or cliffs located within project area.
Henslow's Sparrow Ammodramus henslowii	—	—	Wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along with vines and brambles; a key component is bare ground for running/walking.	Yes. Habitat present in project area.	No impact	Only wintering habitat present. Impacts not anticipated; species does not nest in Texas; No individuals identified during survey of project area.
Interior Least Tern Sterna antillarum athalassos	LE (Wind Energy Projects only)	E	Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also known to nest on man-made	No habitat present in project area.	No effect	Project is not a wind energy project.

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony			
Peregrine Falcon Falco peregrinus	DL	T	Both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	No habitat present in project area.	No impact	No tall cliff eyries, lake shores, coastlines, or barrier islands located within project area.
Piping Plover Charadrius melodus	LT (Wind Energy Projects only)	T	Wintering migrant along the Texas Gulf Coast; beaches and bayside mud or salt flats	No habitat present in project area	No effect	Project is not a wind energy project.
Red Knot Calidris canutus rufa	LT (Wind Energy Projects Only)	___	Migrate long distances in flocks northward through the contiguous United States mainly April-June, southward July-October. Prefers the shoreline of coast and bays and also uses mudflats during rare inland encounters. Habitat: Primarily seacoasts on tidal flats	No habitat present in project area	No effect	Project is not a wind energy project.

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			and beaches, herbaceous wetland, and Tidal flat/shore.			
Sprague's Pipit Anthus spragueii	—	—	Only in Texas during migration and winter, mid-September to early April; short to medium distance, diurnal migrant' strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges	No habitat present in project area	No impact	No native upland prairie located within project area.
White-faced Ibis Plegadis chihi	—	T	Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats	No habitat present in project area.	No impact	No marshes, sloughs, or rice fields located within project area.
Whooping Crane Grus americana	LE	E	Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio Counties	No habitat present in project area.	No effect	No stopover habitat present within project area.
Wood Stork Mycteria americana	—	T	Forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water. Usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries). Breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even	No habitat present in project area.	No impact	No prairie ponds, flooded fields, ditches, or standing water located within the project area.

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			those associated with forested areas; formerly nested in Texas, but no breeding records since 1960.			
Crustaceans						
Parkhill Prairie crayfish Procambarus steigmani	—	—	Burrower in long-grass prairie. All animals were collected with traps, thus there is no knowledge of depths of burrows. Herbivore, crepuscular, nocturnal.	No habitat present in project area	No impact	No long-grass prairie within project area.
Fishes						
Ironcolor shiner Notropis chalybaeus	—	—	Inhabits Big Cypress Bayou and Sabine River basins. Spawns April-September. Eggs sink to bottom of pool. Pools and slow runs of low gradient and small acidic streams with sandy substrate and clear well vegetated water. Feeds mainly on small insects, ingested plant material not digested.	No habitat present in project area	No impact	No clear, well vegetated streams within the project area.
Orangebelly darter Etheostoma radiosum	—	—	Inhabits Red through Angelina River basins. Inhabits headwaters ranging from high gradient streams to more sluggish lowland streams, gravel and rubble riffles preferred. Eggs buried in gravel and riffle raceways, post-larvae live in quiet water, move into progressively faster water as they mature, young feed mostly on copepods and cladocerans, adults on mayfly and fly larvae.	No habitat present in project area	No impact	No headwater streams with gravel/rubble substrate within the project area.

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			Spawn late February through mid-April in eastern Texas.			
Taillight shiner Notropis maculatus	—	—	Inhabits Sulfur River and Big Cypress Bayou. Mostly inhabits headwaters, typically large sluggish, mud-bottomed small to large streams and lakes, usually with some aquatic vegetation; spawns March-October in backwaters and pools; feeds mainly on insect larva and cladocerans, also algae.	No habitat present in project area	No impact	Project is not within Sulfur River or Big Cypress Bayou headwaters.
Insects						
Sage sphinx moth Lintneria eremitoides	—	—	Inhabits deserts and grassland; sandy prairie or desert with sage. Caterpillars feed on leaves of sage. Adults emerge late spring or summer, but little information available. Immatures develop directly to the pupal stage probably in 5-7 weeks, and pupae overwinter underground.	No habitat present in project area	No impact	No sandy prairie or desert with sage within the project area.
Mammals						
Plains Spotted Skunk Spilogale putorius interrupta	—	—	Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie	Yes. Habitat present in project area.	May impact/ Not likely to adversely impact	No individuals identified during survey of project area.
Red Wolf Canis rufus	LE	E	Extirpated; formerly known throughout eastern half of Texas in brushy and forested	No habitat present in	No effect	Extirpated; no brushy areas, forested areas, or coastal prairies located

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			areas, as well as coastal prairies	project area.		within project area.
Mollusks						
Louisiana pigtoe Pleurobema riddellii	—	T	Inhabits streams and moderate-size rivers, usually flowing water on substrates of mud, sand, and gravel. Not generally known from impoundments. Sabine, Neches, and Trinity (historic) River basins	No habitat present in project area.	No impact	No streams or rivers with sufficient flow to provide quality habitat within project area.
Southern hickorynut Obovaria jacksoniana	—	T	Medium sized gravel substrates with low to moderate current. Neches, Sabine, and Cypress river basins.	No habitat present in project area.	No impact	No streams or rivers with sufficient flow to provide quality habitat within project area.
Texas heelsplitter Potamilus amphichaenus	—	T	Quiet waters in mud or sand and also in reservoirs. Sabine, Neches, and Trinity River basins.	No habitat present in project area.	No impact	No streams or rivers with sufficient flow to provide quality habitat within project area.
Texas Pigtoe Fusconaia askewi	—	T	Inhabits rivers with mixed mud, sand, and fine gravel in protected areas associated with fallen trees or other structures. East Texas River basins, Sulphur River, Cypress Creek, Sabine through Trinity rivers as well as San Jacinto River	No habitat present in project area	No impact	No streams or rivers with sufficient flow to provide quality habitat within project area.
Reptiles						
Alligator snapping turtle Macrochelys temminckii	—	T	Inhabits perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near deep running water. Sometimes enters brackish coastal	Yes. Habitat present in project area.	May impact/ Not likely to adversely impact	No individuals identified during survey of project area.

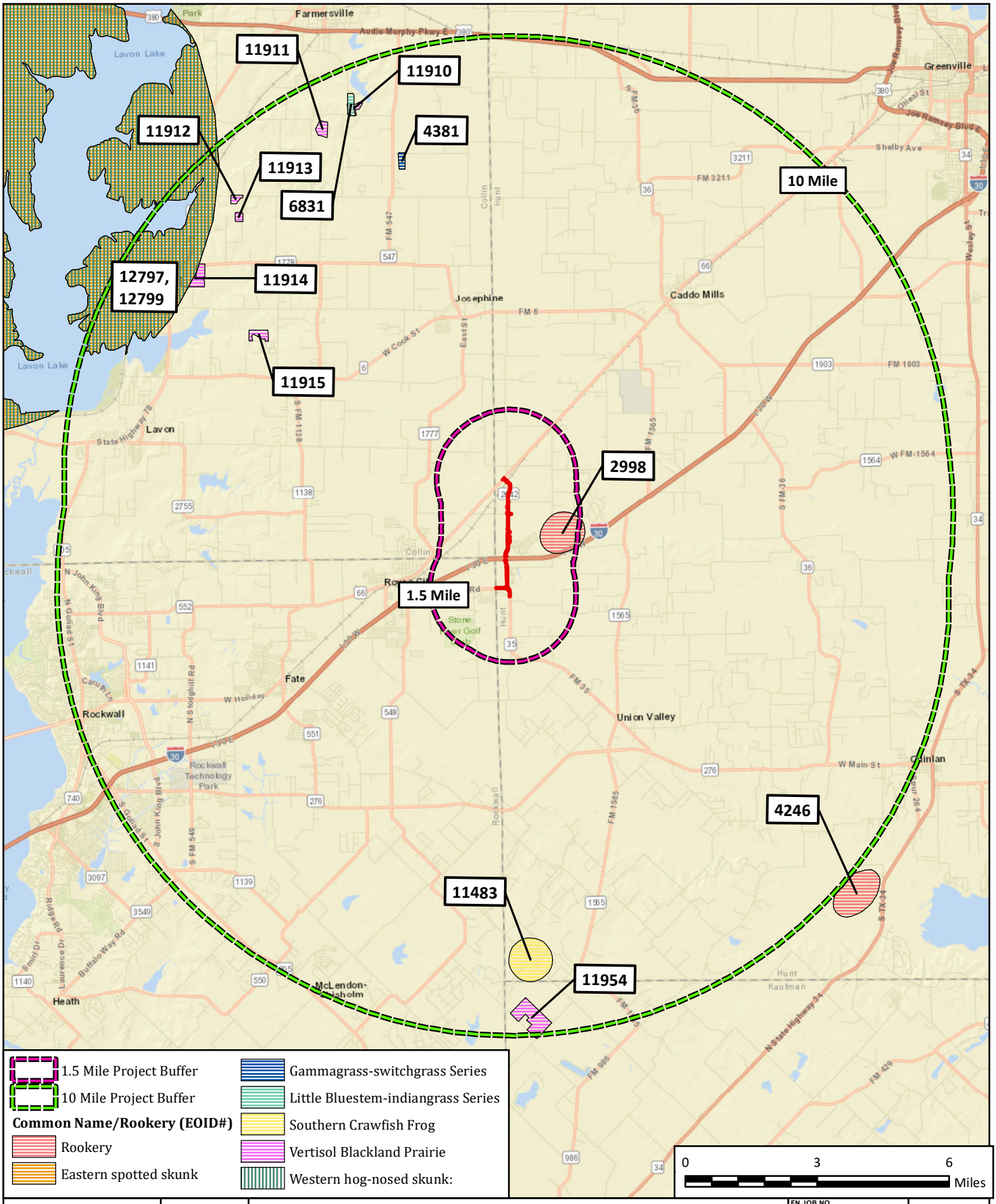
Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			waters; usually in water with mud bottom and abundant aquatic vegetation. May migrate several miles along rivers. Active March-October; breeds April-October.			
Texas Garter Snake Thamnophis sirtalis annectens	—	—	Wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August	Yes. Habitat present in project area.	May impact/ Not likely to adversely impact	No individuals identified during survey of project area.
Texas Horned Lizard Phrynosoma cornutum	—	T	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September	No habitat present in project area.	No impact	No open, arid or semi-arid habitat with sparse vegetation located within project area.
Timber Rattlesnake Crotalus horridus	—	T	Swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone bluffs, sandy soil or black clay; prefers dense ground cover, i.e. grapevines or palmetto	Yes. Habitat present in project area.	May impact/ Not likely to adversely impact	No individuals identified during survey of project area.
Plants						
Topeka purple-coneflower Echinacea atrorubens	—	—	Occurs mostly in tallgrass prairie of the southern Great Plains, in blackland prairies but also in a variety of other sites like limestone hillsides. Perennial;	No habitat present in project area	No impact	No native tallgrass prairies or limestone hillsides within project area.

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present	Species Effect	Pertinent Project Information
			Flowering Jan-June; Fruiting Jan-May.			

LE, LT - Federally Listed Endangered/Threatened
C - Federal Candidate for Listing
DL- Federally Delisted
DM- Federally Delisted, Monitoring First 5 Years
PT - Federally Proposed Threatened
E, T - State Listed Endangered/Threatened
" —" – Rare or Species of Concern, but no regulatory listing status
**Data Sources: U.S. Fish and Wildlife Service, Texas Parks and Wildlife Department (Accessed 12-3-18) and site visit/survey of project area.*

Attachment 5

NDD EOID LIST and Tracked Managed Areas



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National Diversity Data (NDD)

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FIGURE

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NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Attachment 6

NOAA EFH Mapper Printout

EFH Mapper

https://www.habitat.noaa.gov/protection/efh/efhmapper/

NOAA HABITAT CONSERVATION
NATIONAL MARINE FISHERIES SERVICE

HABITAT PROTECTION

EFH View Tool | Data Query Tool

Activate Location Query

Print This Report

EFH Data Notice: Essential Fish Habitat (EFH) is defined by textual descriptions contained in the fishery management plans developed by the regional Fishery Management Councils. In most cases mapping data can not fully represent the complexity of the habitats that make up EFH. This report should be used for general interest queries only and should not be interpreted as a definitive evaluation of EFH at this location. A location-specific evaluation of EFH for any official purposes must be performed by a regional expert. Please refer to the following links for the appropriate regional resources.

Query Results

Degrees, Minutes, Seconds: Latitude = , Longitude =
Decimal Degrees: Latitude = , Longitude =

The query location intersects with spatial data representing EFH and/or HAPCs for the following species/management units.

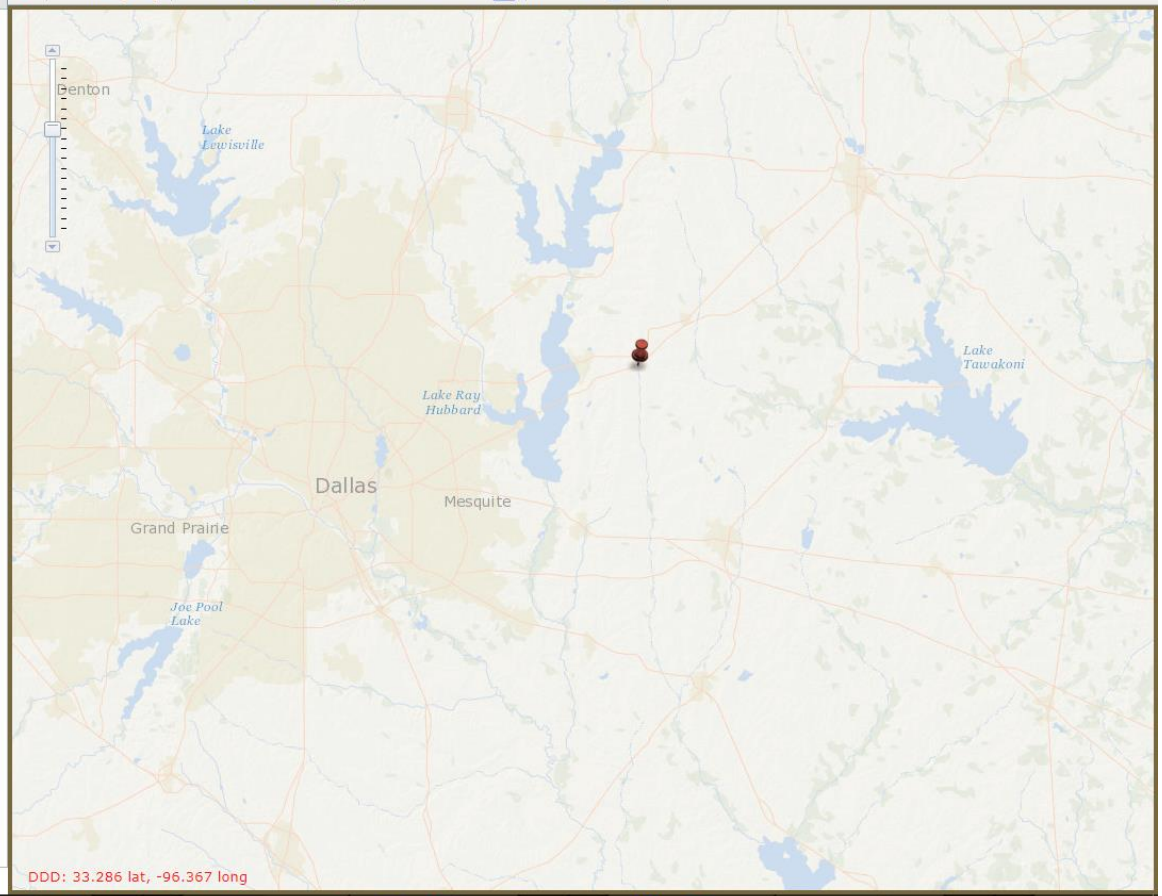
HAPCs

No Habitat Areas of Particular Concern (HAPC) were identified at the report location.

EFH Areas Protected from Fishing

No EFH Areas Protected from Fishing (EFHA) were identified at the report location.

Zoom: | Extent: | Location Query: | Help:



I'm Cortana. Ask me anything.

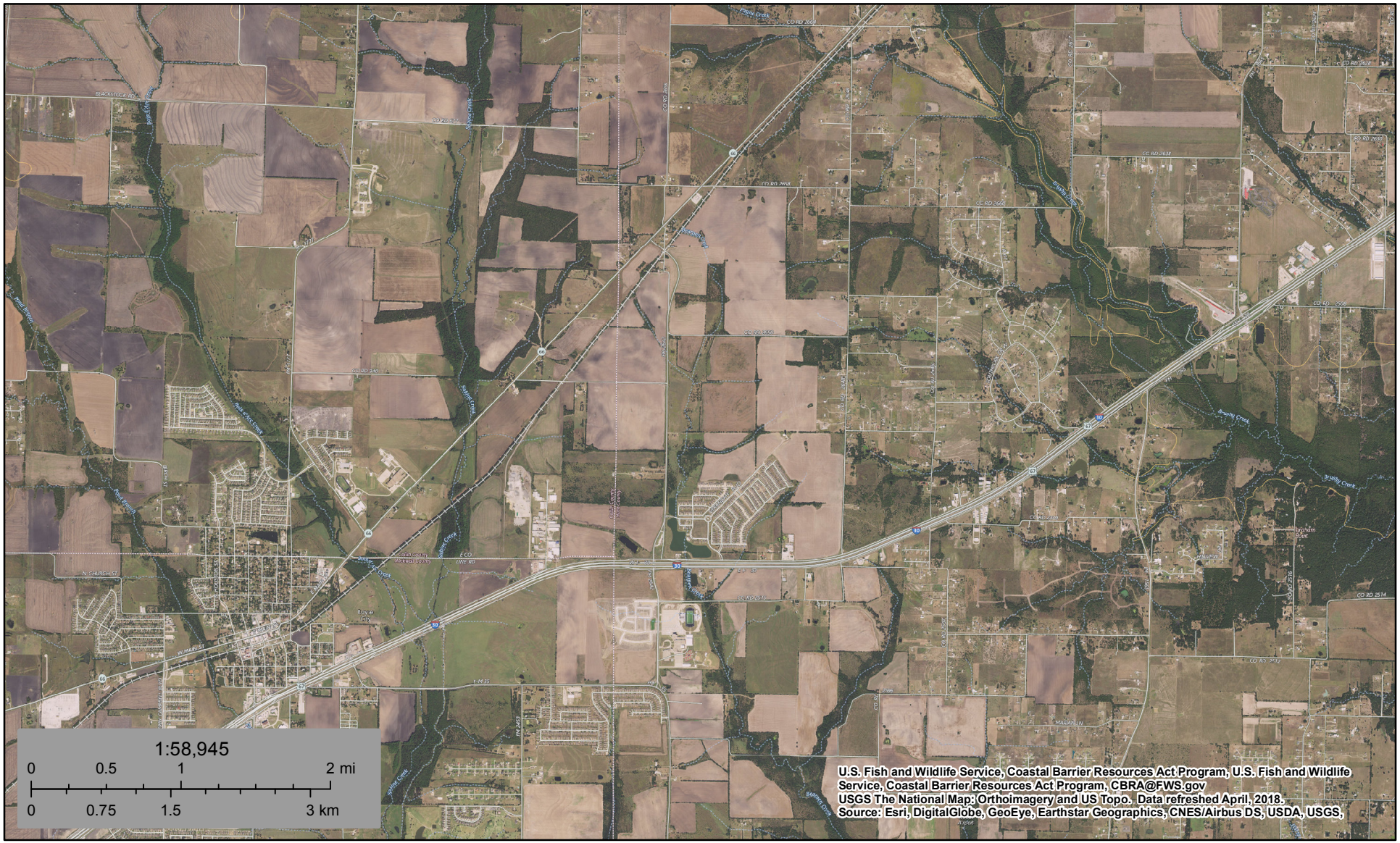
3:38 PM
1/30/2019

Attachment 7

USFWS CBRA Mapper Printout

U.S. Fish and Wildlife Service
Coastal Barrier Resources System

FM 2642 USWFS CBRA



December 18, 2018

This map is for general reference only. The Coastal Barrier Resources System (CBRS) boundaries depicted on this map are representations of the controlling CBRS boundaries, which are shown on the official maps, accessible at https://www.fws.gov/cbra/maps/index.html. All CBRS related data should be used in accordance with the layer metadata found on the CBRS Mapper website.

The CBRS Buffer Zone represents the area immediately adjacent to the CBRS boundary where users are advised to contact the Service for an official determination (http://www.fws.gov/cbra/Determinations.html) as to whether the property or project site is located "in" or "out" of the CBRS.

CBRS Units normally extend seaward out to the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS mapper.

This page was produced by the CBRS Mapper

Attachment 8

EMST Project MOU Summary Table

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FM 2642 Reconstruction

TPWD Ecoregions

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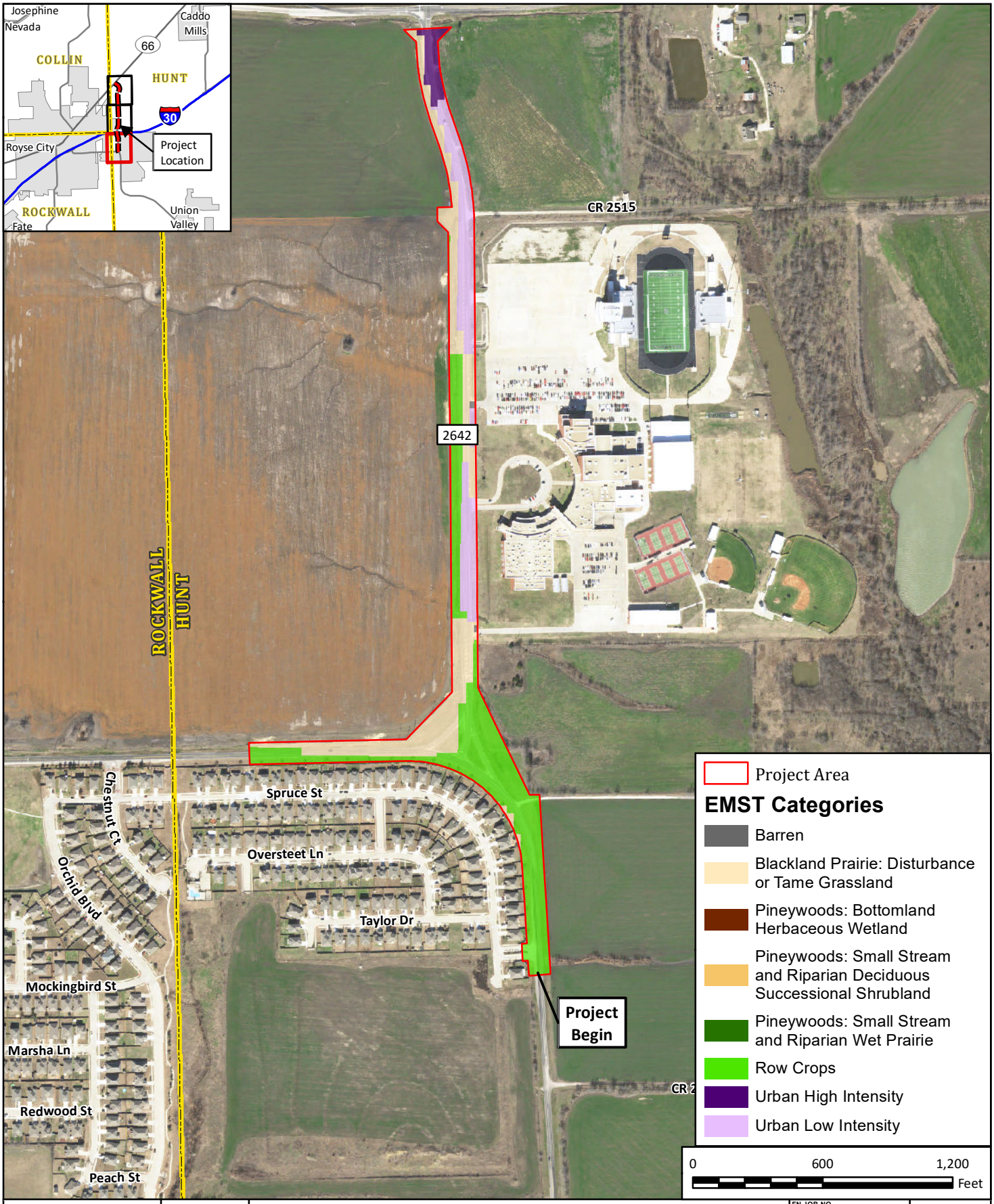
NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

EMST Project MOU Summary Table

Common Name	Level III Ecoregion	MOU Habitat Acreage Threshold	EMST Acres	Field Verified EMST
Barren	Texas Blackland Prairies	None	0.04	0.00
Blackland Prairie: Disturbance or Tame Grassland	Texas Blackland Prairies	3	13.33	2.95
Native Invasive: Mesquite Shrubland	Texas Blackland Prairies	2	0.00	1.91
Pineywoods: Bottomland Herbaceous Wetland	Texas Blackland Prairies	2	0.28	0.00
Pineywoods: Small Stream and Riparian Deciduous Successional Shrubland	Texas Blackland Prairies	2	0.11	0.00
Pineywoods: Small Stream and Riparian Wet Prairie	Texas Blackland Prairies	1	0.38	0.00
Row Crops	Texas Blackland Prairies	10	23.20	2.81
Urban High Intensity	Texas Blackland Prairies	None	0.62	0.00
Urban Low Intensity	Texas Blackland Prairies	None	6.79	37.09
		Total:	***44.76***	***44.76***



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Ecological Mapping System of Texas

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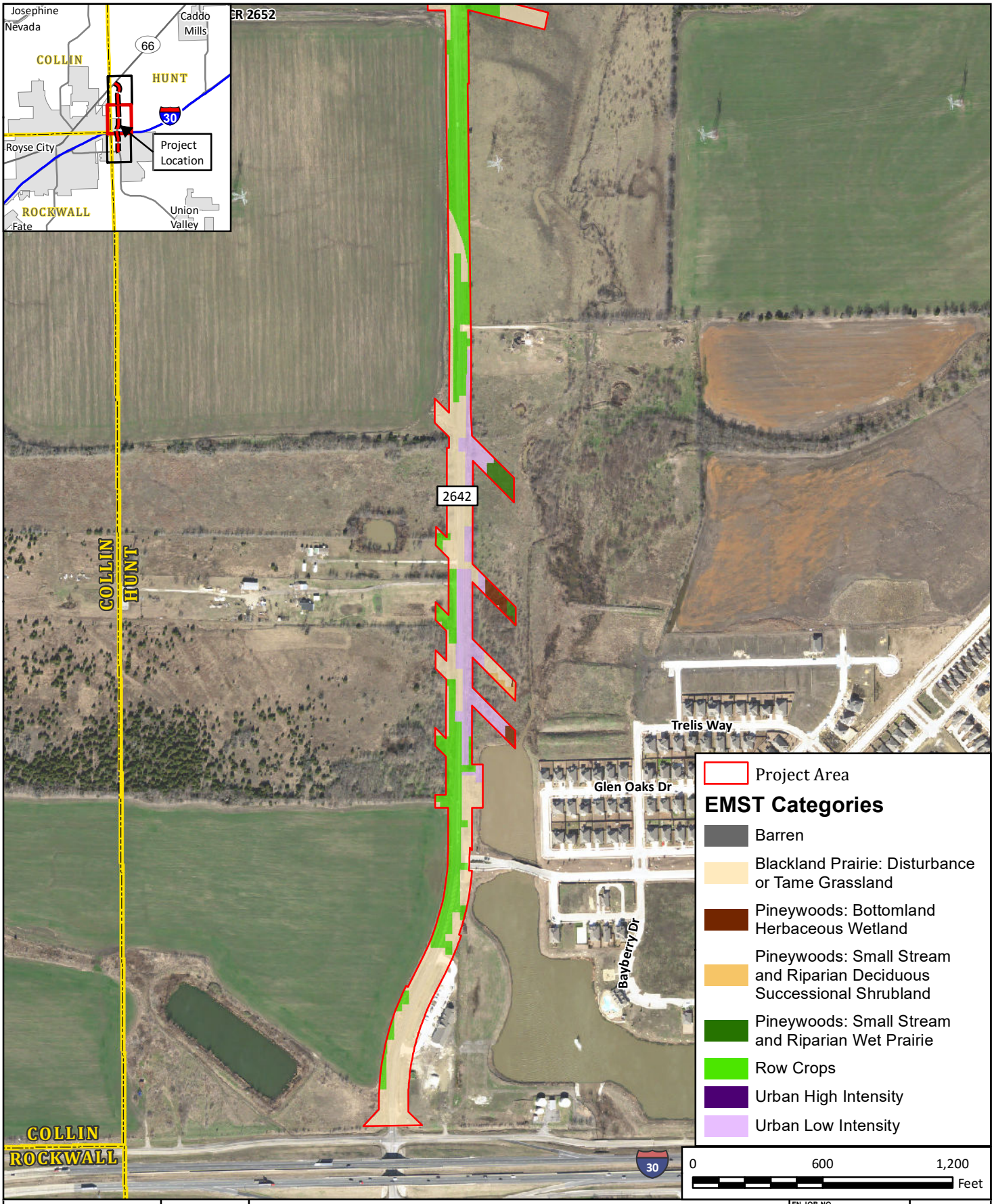

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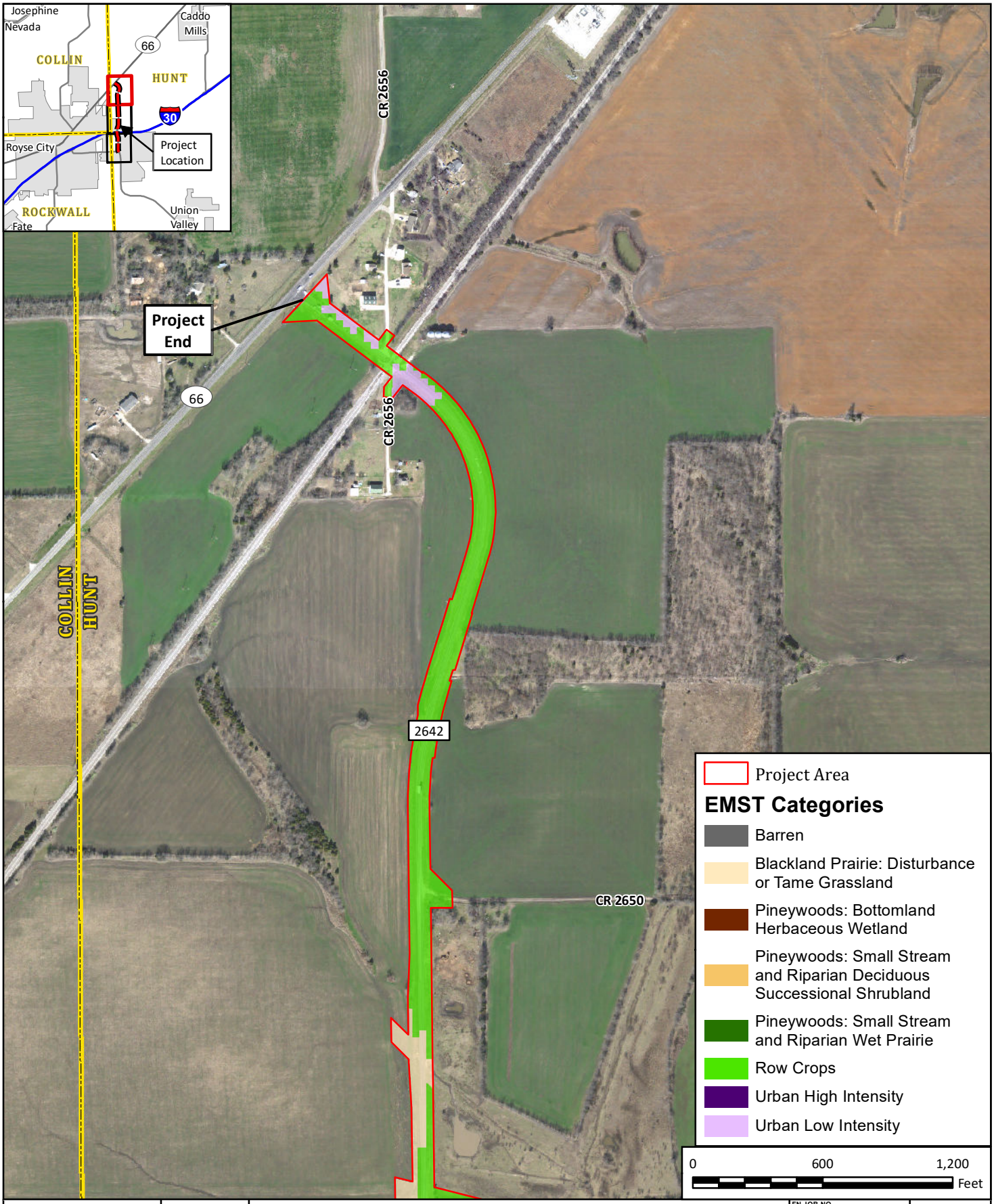

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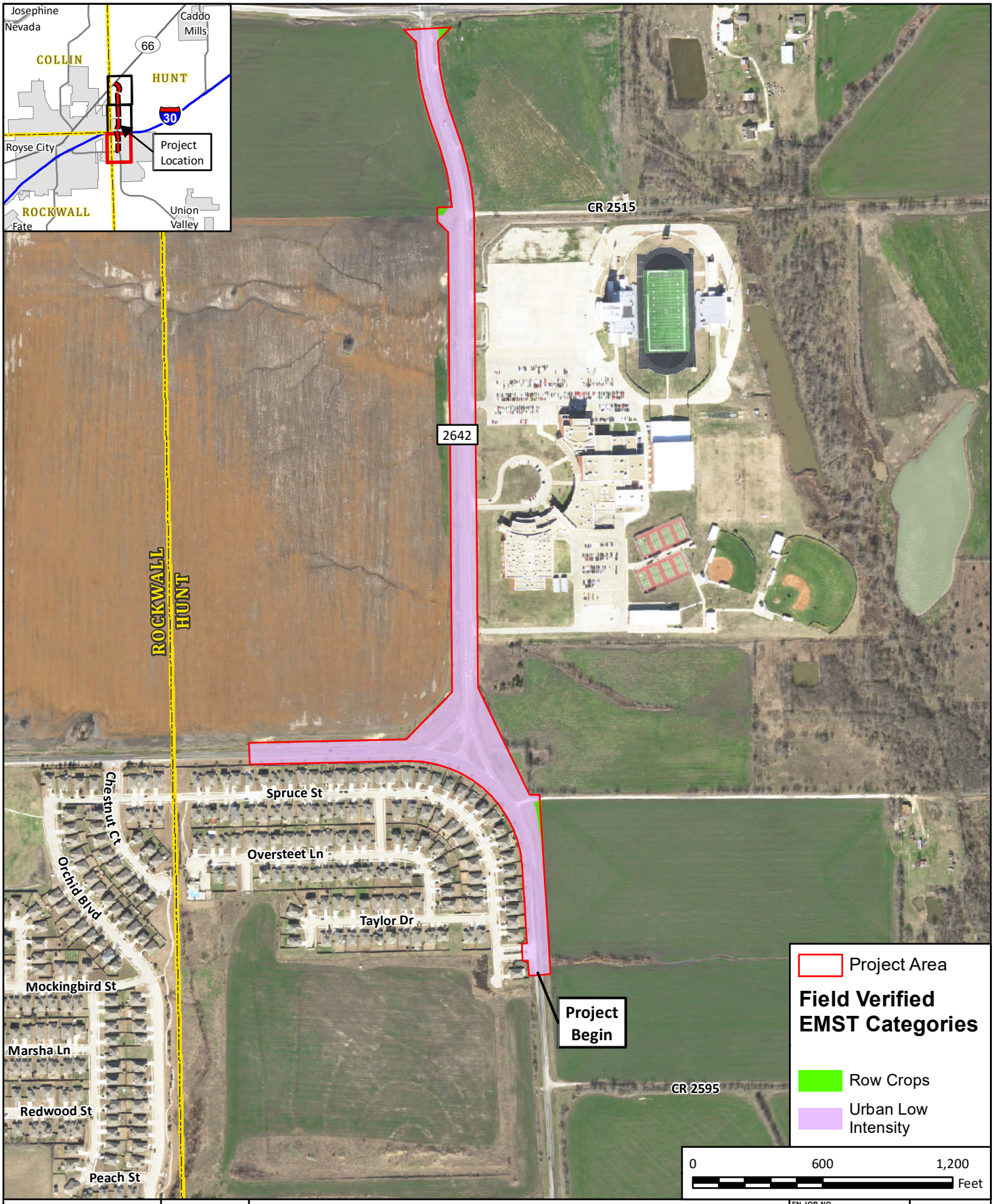

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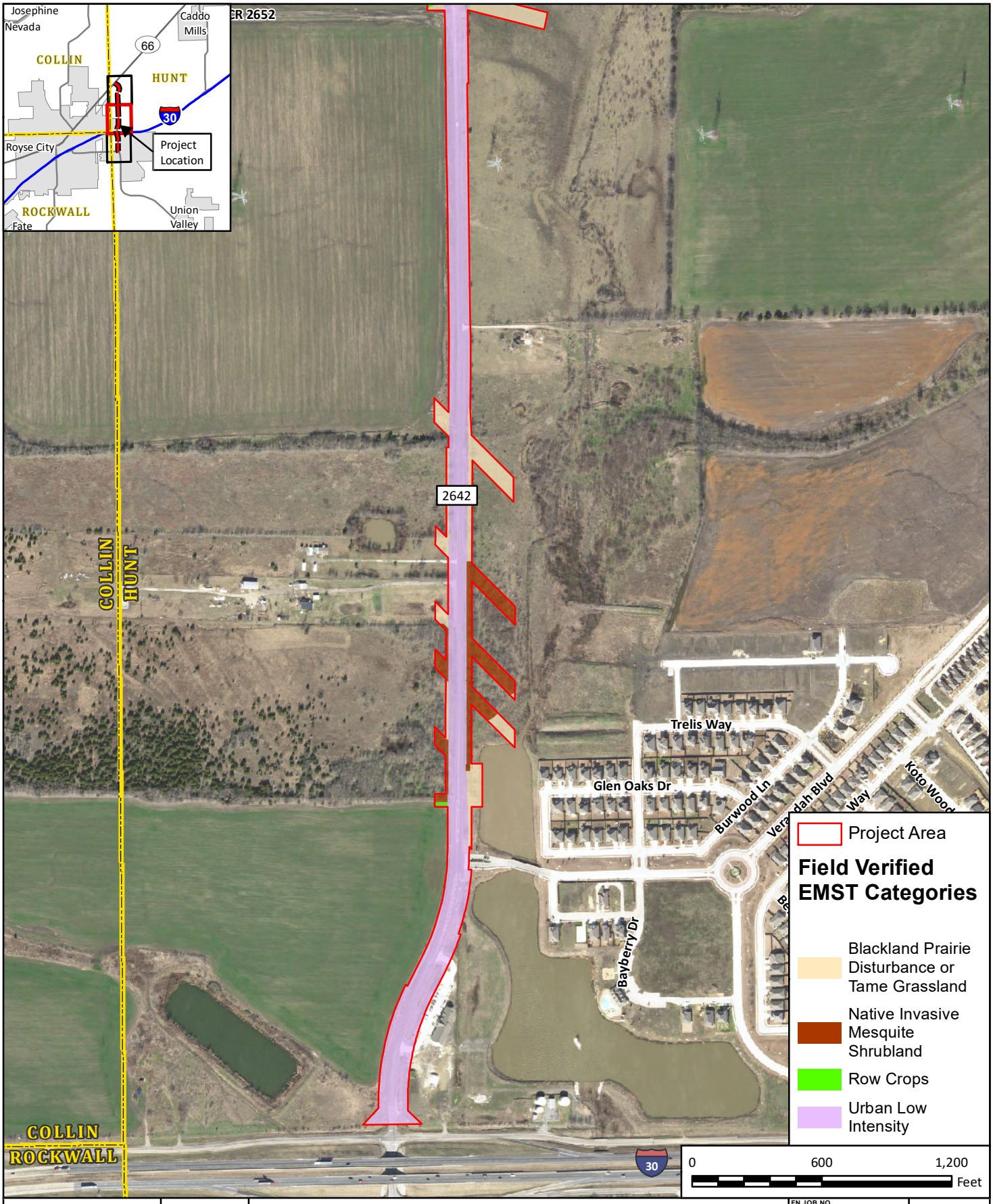

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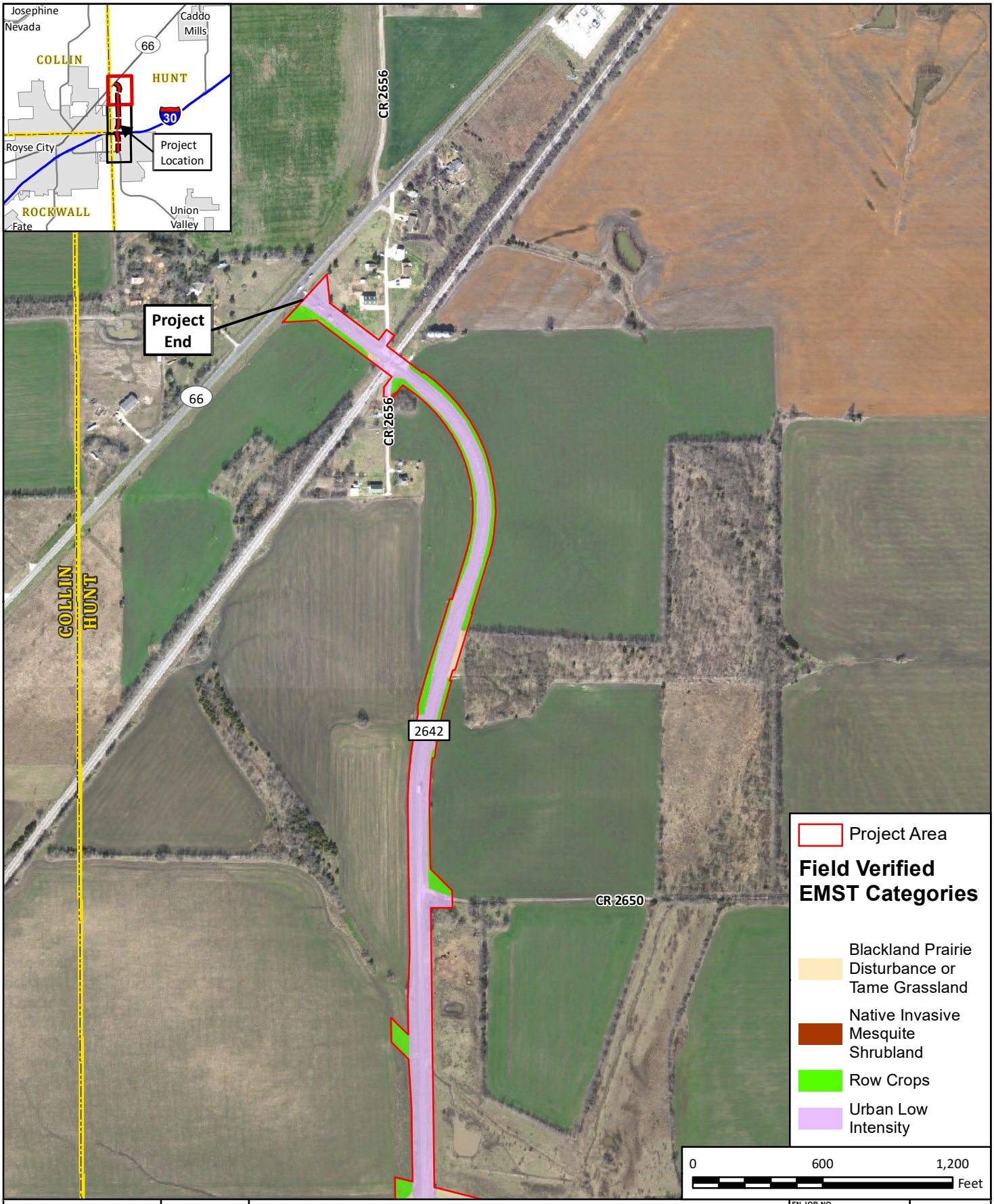

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NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

Attachment 9

TPWD SGCN List

TEXAS BLACKLAND PRAIRIES SPECIES OF GREATEST CONSERVATION NEED

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
MAMMALS						
Blarina hylophaga plumblea	Elliot's short-tailed shrew			G5T1Q	S1	Savanna/Open Woodland
Geomys attwateri	Attwater's pocket gopher			G4	S4	Shrubland
Lutra canadensis	River otter			G5	S4	Riparian
Mustela frenata	Long-tailed weasel			G5	S5	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland
Myotis austroriparius	Southeastern myotis			G3G4	S3	Caves/Karst, Forest, Riparian
Myotis velifer	Cave myotis			G5	S4	Caves/Karst,
Puma concolor	Mountain lion			G5	S2	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian
Spilogale putorius	Eastern spotted skunk			G4T	S4	Savanna/Open Woodland, Grassland
Sylvilagus aquaticus	Swamp rabbit			G5	S5	Riparian, Freshwater Wetland
Tadarida brasiliensis	Brazilian free-tailed bat			G5	S5	Cave/Karst, Artificial Refugia
Taxidea taxus	American badger			G5	S5	Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest
Ursus americanus	Black bear	SAT	T	G5	S3	Forest, Woodland, Savanna/Open Woodland, Desert Scrub, Shrubland
BIRDS						
Anas acuta	Northern Pintail			G5	S3B,S5N	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine
Colinus virginianus	Northern Bobwhite			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland
Tympanuchus cupido	Greater Prairie-Chicken (Interior)			G4	S1B	Grassland
Meleagris gallopavo	Wild Turkey			G5	S5B	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural
Ixobrychus exilis	Least Bittern			G5	S4B	Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary
Egretta thula	Snowy Egret			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic
Egretta caerulea	Little Blue Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic
Butorides virescens	Green Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic
Mycteria americana	Wood Stork		T	G4	SHB,S2N	Riverine, Freshwater wetland
Ictinia mississippiensis	Mississippi Kite			G5	S4B	Woodland, Forest, Riparian, Developed:Urban/Suburban/Rural
Haliaeetus leucocephalus	Bald Eagle			G5	S3B,S3N	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland
Circus cyaneus	Northern Harrier			G5	S2B,S3N	Grassland, Shrubland
Buteo lineatus	Red-shouldered Hawk			G5	S4B	Woodland, Forest, Riparian, Freshwater Wetland
Pluvialis dominica	American Golden-Plover			G5	S3	Grassland, Freshwater Wetland, Agricultural
Charadrius montanus	Mountain Plover	PT		G3	S2	Agricultural, Grassland
Scolopax minor	American Woodcock			G5	S2B,S3N	Woodland, Forest, Riparian
Sternula antillarum	Least Tern	LE*	E*	G4	S3B	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Marine, Developed: Industrial
Asio flammeus	Short-eared Owl			G5	S4N	Grassland, Shrubland, Agricultural
Caprimulgus carolinensis	Chuck-will's-widow			G5	S3S4B	Woodland, Forest, Riparian
Melanerpes erythrocephalus	Red-headed Woodpecker			G5	S3B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Dryocopus pileatus	Pileated Woodpecker			G5	S4B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Tyrannus forficatus	Scissor-tailed Flycatcher			G5	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed
Lanius ludovicianus	Loggerhead Shrike			G4	S4B	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed
Vireo bellii	Bell's Vireo			G5	S3B	Desert scrub, Shrubland, Riparian
Poecile carolinensis	Carolina Chickadee			G5	S5B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Thryomanes bewickii (bewickii)	Bewick's Wren			G5	S5B	Shrubland, Savanna/Open Woodland, Woodland, Developed: Urban/Suburban/Rural
Cistothorus platensis	Sedge Wren			G5	S4	Grassland, Freshwater Wetland
Hylocichla mustelina	Wood Thrush			G5	S4B	Woodland, Forest, Riparian
Anthus spragueii	Sprague's Pipit	C		G4	S3N	Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural
Dendroica dominica	Yellow-throated Warbler			G5	S4B	Woodland, Forest, Riparian
Protonotaria citrea	Prothonotary Warbler			G5	S3B	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland
Limnothlypis swainsonii	Swainson's Warbler			G4	S3B	Woodland, Forest, Riparian
Seiurus motacilla	Louisiana Waterthrush			G5	S3B	Woodland, Forest, Riparian

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
Oporornis formosus	Kentucky Warbler			G5	S3B	Woodland, Forest
Spizella pusilla	Field Sparrow			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland
Ammodramus savannarum	Grasshopper Sparrow			G5	S3B	Grassland, Agricultural
Chondestes grammacus	Lark Sparrow			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland
Ammodramus henslowii	Henslow's Sparrow			G4	S2S3N,SXB	Grassland, Savanna/Open Woodland
Ammodramus leconteii	Le Conte's Sparrow					Grassland
Zonotrichia querula	Harris's Sparrow			G5	S4	Shrubland, Agricultural
Calcarius mccownii	McCown's Longspur			G4	S4	Grassland, Agricultural
Calcarius pictus	Smith's Longspur					Grassland, Agricultural
Piranga rubra	Summer Tanager			G5	S5B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural
Passerina ciris	Painted Bunting			G5	S4B	Shrubland, Agricultural
Spiza americana	Dickcissel			G5	S4B	Grassland, Agricultural
Sturnella magna	Eastern Meadowlark			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland
Euphagus carolinus	Rusty Blackbird			G4	S3	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland
Icterus spurius	Orchard Oriole			G5	S4B	Shrubland, Savanna/Open Woodland, Woodland, Riparian
REPTILES AND AMPHIBIANS						
Anaxyrus (Bufo) woodhousii	Woodhouse's toad			G5	SU	woodland, forest, freshwater wetland
Apalone mutica	smooth softshell turtle					riparian, riverine, lacustrine, freshwater wetland
Apalone spinifera	spiny softshell turtle					riparian, riverine, lacustrine, freshwater wetland
Cheylydra serpentina	Common snapping turtle					riparina, riverine
Crotalus atrox	Western diamondback rattlesnake				S4	barren/sparse vegetation, desert scrub, grassland, shrubland, savanna, woodland, caves/karst
Crotalus horridus	Timber (Canebrake) Rattlesnake		T	G4	S4	woodland, forest, riparian
Graptemys caglei	Cagle's map turtle		T	G3	S1	riparian, riverine
Graptemys versa	Texas map turtle			G4	SU	riparian, riverine
Heterodon nasicus	Western hognosed snake					desert scrub, grassland, shrubland
Macrochelys temminckii	alligator snapping turtle		T	G3G4	S3	riparian, riverine, cultural aquatic
Ophisaurus attenuatus	western slender glass lizard					grassland, savanna
Phrynosoma cornutum	Texas horned lizard		T	G4G5	S4	desert scrub, grassland, savanna
Pseudacris streckeri	Strecker's Chorus Frog			G5	S3	grassland, savanna, woodland, riparian, cultural aquatic, freshwater wetland
Sistrurus catenatus	massasauga					grassland, barren/sparse vegetation, shrubland, coastal,
Terrapene carolina	Eastern box turtle			G5	S3	grasslands, savanna, woodland
Terrapene ornata	Ornate box turtle			G5	S3	grassland, barren/sparse vegetation, deset scrub, savanna, woodland
Thamnophis sirtalis annectans	Texas Garter Snake (Eastern/Texas/ New Mexico)			G5	S2	riparian, around lacustrine and cultural aquatic sites
Trachemys scripta	Red-eared slider					riparian, riverine, lacustrine, freshwater wetland, cultural aquatic
FRESHWATER FISHES						
Anguilla rostrata	American eel			G4	S5	streams and reservoirs in drainages connected to marine environments
Atractosteus spatula	alligator gar					channel snag, pool-snag complex, pool-edge, and pool-vegetation habitat
Cycleptus elongatus	Blue sucker		T	G3G4	S3	large, deep rivers, and deeper zones of lakes
Etheostoma fonticola	Fountain darter	LE	E	G1	S1	usually in dense beds of *Vallisneria, Elodia, Ludwigia* and other aquatic plants; substrate normally mucky
Macryhbopsis storeriana	Silver chub					over silt or mud, turbid water with very soft sand/silt substrate
Micropterus treculii	Guadalupe bass			G3	S3	small lentic environments; commonly taken in flowing water
Notropis atrocaudalis	Blackspot shiner					backwater and swiftest currents
Notropis bairdi	Red River shiner					streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation,
Notropis buccula	Small eye shiner	C		G2Q	S2	broad condition tolerances (turbidity, salinity, oxygen).
Notropis chalybaeus	Ironcolor shiner					Plain streams and rivers of low to moderate gradient; often at the upstream ends of pools, with a moderate to
Notropis oxyrhynchus	Sharpnose shiner	C		G3	S3	Moderate current velocities and depths, sand bottom
Notropis potteri	Chub shiner		T	G4	S3	turbid, flowing water with silt or sand substrate; tolerant of high salinities
Notropis shumardi	Silverband shiner					channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water
Percina apristis	Guadalupe darter					collections from the clearest waters tributary to the Guadalupe, namely spring heads and the main river west
Polyodon spathula	Paddlefish		T	G4	S3	rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if
Satan eurystomus	Widemouth blindcat		T	G1	S1	Karst: Subterranean waters
Trogloglanis pattersoni	Toothless blindcat		T	G1	S1	Karst: Subterranean waters

Scientific Name	Common Name	Status		Abundance Ranking		General Habitat Type(s) in Texas These are VERY broad habitat types as a starting place
		Federal	State	Global	State	
INVERTEBRATES						
Bombus pensylvanicus	American bumblebee			GU	SU*	Grassland, Savanna/Open Woodland
Chimarra holzenthali	Holzenthal's Philopotamid caddisfly			G1G2	S1	Riparian, Riverine
Cotinis boylei	A scarab beetle			G2*	S2*	Grassland, Shrubland, Woodland
Nicrophorus americanus	American Burying Beetle	LE		G1	S1	Grassland, Savanna/Open Woodland
Potamilus amphichaenus	Texas heelsplitter		T	G1G2	S1	Riverine
Procambarus regalis	Regal burrowing crayfish			G2G3	S2?*	Freshwater Wetland, Grassland
Procambarus steigmani	Parkhill prairie crayfish			G1G2	S1S2*	Freshwater Wetland, Grassland
Pseudocentroptiloides morihari	A mayfly			G2G3	S2?*	Riverine, Riparian
Sphinx eremitoides	Sage sphinx			G1G2	S1?*	Grassland
Susperatus tonkawa	A mayfly			G1	S1*	Riparian, Riverine
PLANTS						
Agalinis densiflora	Osage Plains false foxglove			G3	S2	Savanna/Open Woodland - Outcrops
Astragalus reflexus	Texas milk vetch			G3	S3	Savanna/Open Woodland
Calopogon oklahomensis	Oklahoma grass pink			G3	S1S2	Savanna/Open Woodland; Grassland; Freshwater Wetland
Carex edwardsiana	canyon sedge			G3G4S3S4	S3S4	Woodland (slopes above Riparian)
Carex shinnersii	Shinner's sedge			G3?	S2	Grassland
Crataegus dallasiana	Dallas hawthorn			G3Q	S3	Riparian (creeks in the Blackland Prairie)
Cuscuta exaltata	tree dodder			G3	S3	Woodland
Dalea hallii	Hall's prairie-clover			G3	S3	Savanna/Open Woodland; Grassland
Echinacea atrorubens	Topeka purple-coneflower			G3	S3	Savanna/Open Woodland
Hexalectris nitida	Glass Mountains coral-root			G3	S3	Woodland
Hexalectris warnockii	Warnock's coral-root			G2G3	S2	Woodland
Hymenoxys pygmea	Pygmy prairie dawn			G1	S1	Barren/Sparse Vegetation with Grassland matrix (saline prairie)
Liatris glandulosa	glandular gay-feather			G3	S3	Savanna/Open Woodland
Paronychia setacea	bristle nailwort			G3	S3	Savanna/Open Woodland
Phlox oklahomensis	Oklahoma phlox			G3	SH	Savanna/Open Woodland
Physaria engelmannii	Engelmann's bladderpod			G3	S3	Savanna/Open Woodland
Polygonella parksii	Parks' jointweed			G2	S2	Savanna/Open Woodland (sandhills); Grassland
Prunus texana	Texas peachbush			G3G4	S3S4	Savanna/Open Woodland; Grassland
Thalictrum texanum	Texas meadow-rue			G2	S2	Savanna/Open Woodland; Riparian (bottomland forest)
Zizania texana	Texas wild rice	LE	E	G1	S1	Riverine (spring-fed, clear, thermally constant, moderate current, sand to gravel substrate)

Attachment 10

FPPA Documentation

U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service

NRCS-CPA-106
(Rev. 1-91)

FARMLAND CONVERSION IMPACT RATING FOR CORRIDOR TYPE PROJECTS

PART I *(To be completed by Federal Agency)*	3. Date of Land Evaluation Request 12/5/18	4. Sheet 1 of 1
1. Name of Project CSJ: 2658-01-013 FM 2642 Widening From FM	5. Federal Agency Involved FHWA/TxDOT	
2. Type of Project Roadway Project	6. County and State Hunt, Texas	

PART II *(To be completed by NRCS)*	1. Date Request Received by NRCS 1/14/19	2. Person Completing Form Erin Kelly
3. Does the corridor contain prime, unique statewide or local important farmland? (If no, the FPPA does not apply - Do not complete additional parts of this form). YES ☑ NO ☐		4. Acres Irrigated / Average Farm Size
5. Major Crop(s) wheat and hay	6. Farmable Land in Government Jurisdiction Acres: N/A %	7. Amount of Farmland As Defined in FPPA Acres: 44.76 %
8. Name Of Land Evaluation System Used N/A	9. Name of Local Site Assessment System N/A	10. Date Land Evaluation Returned by NRCS 2/1/19

PART III *(To be completed by Federal Agency)*	Alternative Corridor For Segment			
	Corridor A	Corridor B	Corridor C	Corridor D
A. Total Acres To Be Converted Directly	44.76			
B. Total Acres To Be Converted Indirectly, Or To Receive Services	44.76			
C. Total Acres In Corridor	44.76			
PART IV *(To be completed by NRCS) Land Evaluation Information*				
A. Total Acres Prime And Unique Farmland	44.26			
B. Total Acres Statewide And Local Important Farmland	36,728			
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted	<0.01%			
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value	N/A			
PART V *(To be completed by NRCS) Land Evaluation Information Criterion Relative value of Farmland to Be Serviced or Converted (Scale of 0 - 100 Points)*				

PART VI *(To be completed by Federal Agency) Corridor Assessment Criteria (These criteria are explained in 7 CFR 658.5(c))*	Maximum Points				
1. Area in Nonurban Use	15	15			
2. Perimeter in Nonurban Use	10	10			
3. Percent Of Corridor Being Farmed	20	10			
4. Protection Provided By State And Local Government	20	0			
5. Size of Present Farm Unit Compared To Average	10	5			
6. Creation Of Nonfarmable Farmland	25	5			
7. Availablility Of Farm Support Services	5	0			
8. On-Farm Investments	20	0			
9. Effects Of Conversion On Farm Support Services	25	0			
10. Compatibility With Existing Agricultural Use	10	10			
TOTAL CORRIDOR ASSESSMENT POINTS	160	55	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland (From Part V)	100	0	0	0	0
Total Corridor Assessment (From Part VI above or a local site assessment)	160	55	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	55	0	0	0

1. Corridor Selected:	2. Total Acres of Farmlands to be Converted by Project:	3. Date Of Selection:	4. Was A Local Site Assessment Used?
A	44.76	1/14/19	YES ☐ NO ☑

5. Reason For Selection:

Road widening for existing minor arterial roadway. Widening will accommodate planned developments on adjacent properties.

Signature of Person Completing this Part: **Erin Kelly**

DATE **1/14/19**

NOTE: Complete a form for each segment with more than one Alternate Corridor

Clear Form

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor - type site or design alternative for protection as farmland along with the land evaluation information.

(1) How much land is in nonurban use within a radius of 1.0 mile from where the project is intended?
More than 90 percent - 15 points
90 to 20 percent - 14 to 1 point(s)
Less than 20 percent - 0 points

(2) How much of the perimeter of the site borders on land in nonurban use?
More than 90 percent - 10 points
90 to 20 percent - 9 to 1 point(s)
Less than 20 percent - 0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?
More than 90 percent - 20 points
90 to 20 percent - 19 to 1 point(s)
Less than 20 percent - 0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?
Site is protected - 20 points
Site is not protected - 0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County ?
(Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage or Farm Units in Operation with $1,000 or more in sales.)
As large or larger - 10 points
Below average - deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average - 9 to 0 points

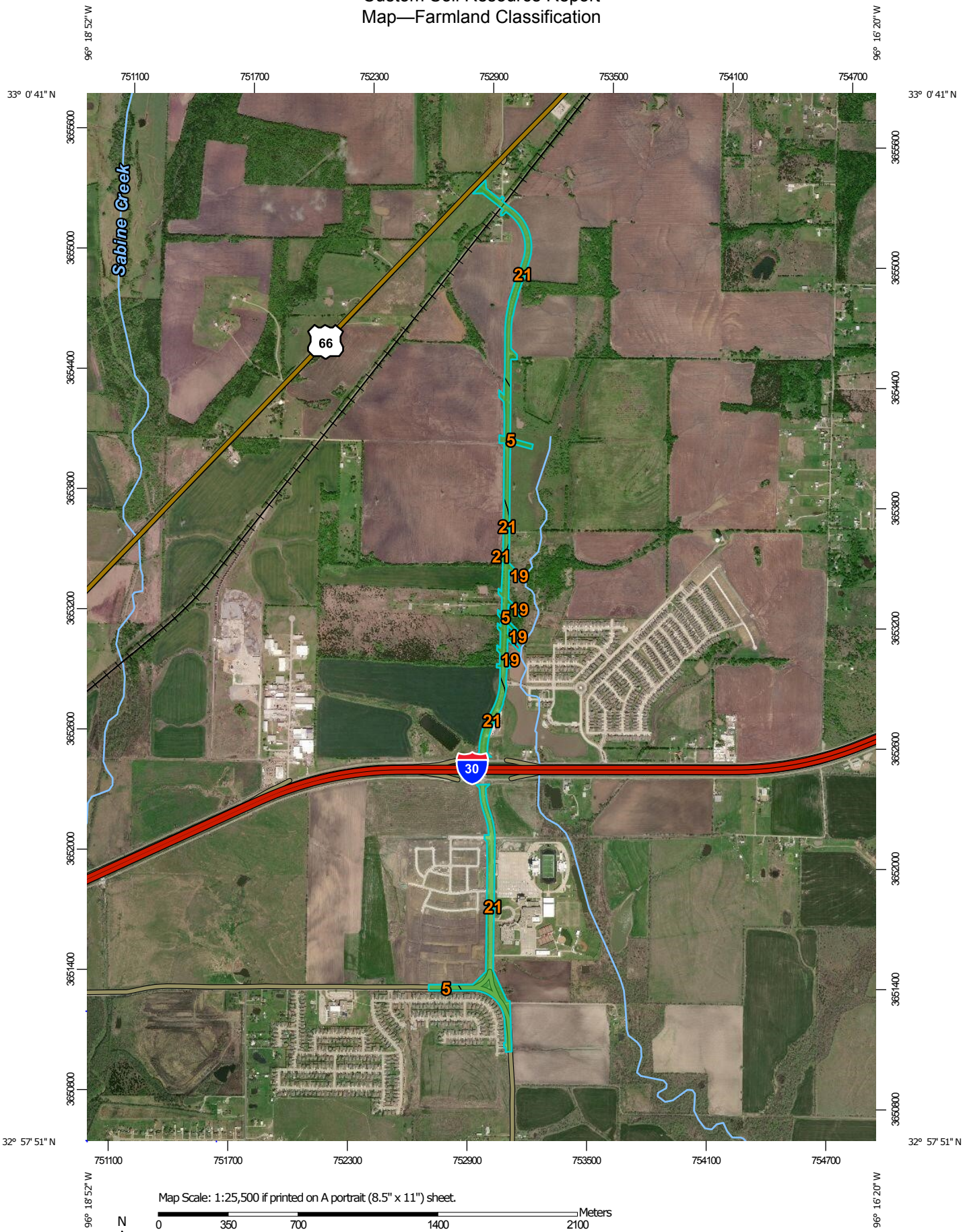
(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?
Acreage equal to more than 25 percent of acres directly converted by the project - 25 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project - 1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project - 0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?
All required services are available - 5 points
Some required services are available - 4 to 1 point(s)
No required services are available - 0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?
High amount of on-farm investment - 20 points
Moderate amount of on-farm investment - 19 to 1 point(s)
No on-farm investment - 0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?
Substantial reduction in demand for support services if the site is converted - 25 points
Some reduction in demand for support services if the site is converted - 1 to 24 point(s)
No significant reduction in demand for support services if the site is converted - 0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?
Proposed project is incompatible to existing agricultural use of surrounding farmland - 10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland - 9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland - 0 points



Map Scale: 1:25,500 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 350 700 1400 2100

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Lines

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Soil Rating Points

- Not prime farmland
- All areas are prime farmland
- Prime farmland if drained
- Prime farmland if protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated
- Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if irrigated and drained
- Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season
- Prime farmland if subsoiled, completely removing the root inhibiting soil layer
- Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
- Prime farmland if irrigated and reclaimed of excess salts and sodium
- Farmland of statewide importance
- Farmland of local importance
- Farmland of unique importance
- Not rated or not available

Water Features

MAP INFORMATION

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hunt County, Texas
Survey Area Data: Version 17, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 13, 2014—Nov 18, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
5	Burleson clay, 0 to 1 percent slopes	All areas are prime farmland	14.9	33.4%
19	Kaufman clay, 0 to 1 percent slopes, frequently flooded	Not prime farmland	0.5	1.0%
21	Leson clay, 1 to 3 percent slopes	All areas are prime farmland	29.4	65.6%
Totals for Area of Interest			**44.8**	**100.0%**

Rating Options—Farmland Classification

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

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Attachment 11

NRCS Web Soil Survey Map

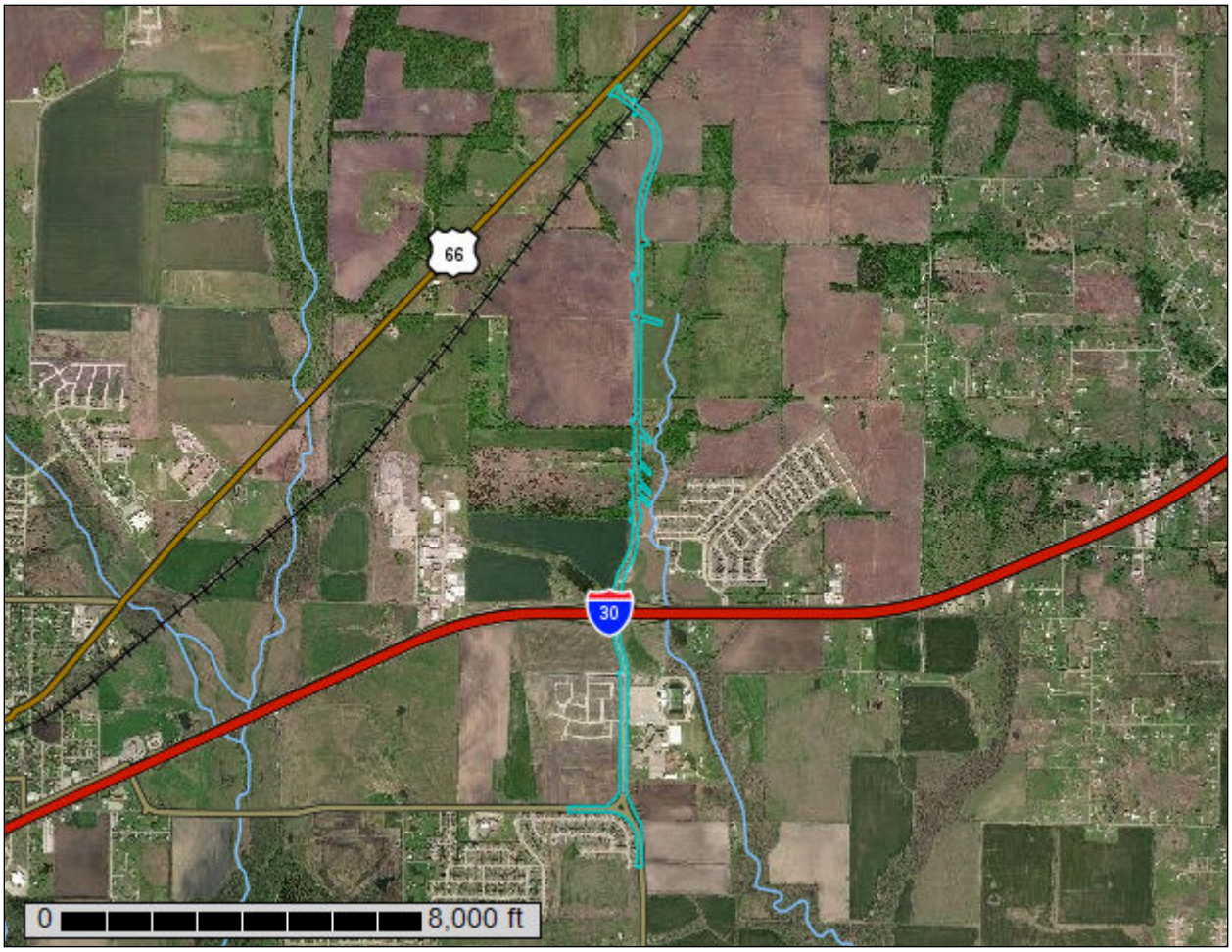
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Hunt County, Texas



January 31, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Soil Map.....9
Legend.....10
Map Unit Legend.....11
Map Unit Descriptions.....11
Hunt County, Texas.....13
5—Burleson clay, 0 to 1 percent slopes.....13
19—Kaufman clay, 0 to 1 percent slopes, frequently flooded.....14
21—Leson clay, 1 to 3 percent slopes.....16
References.....18

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

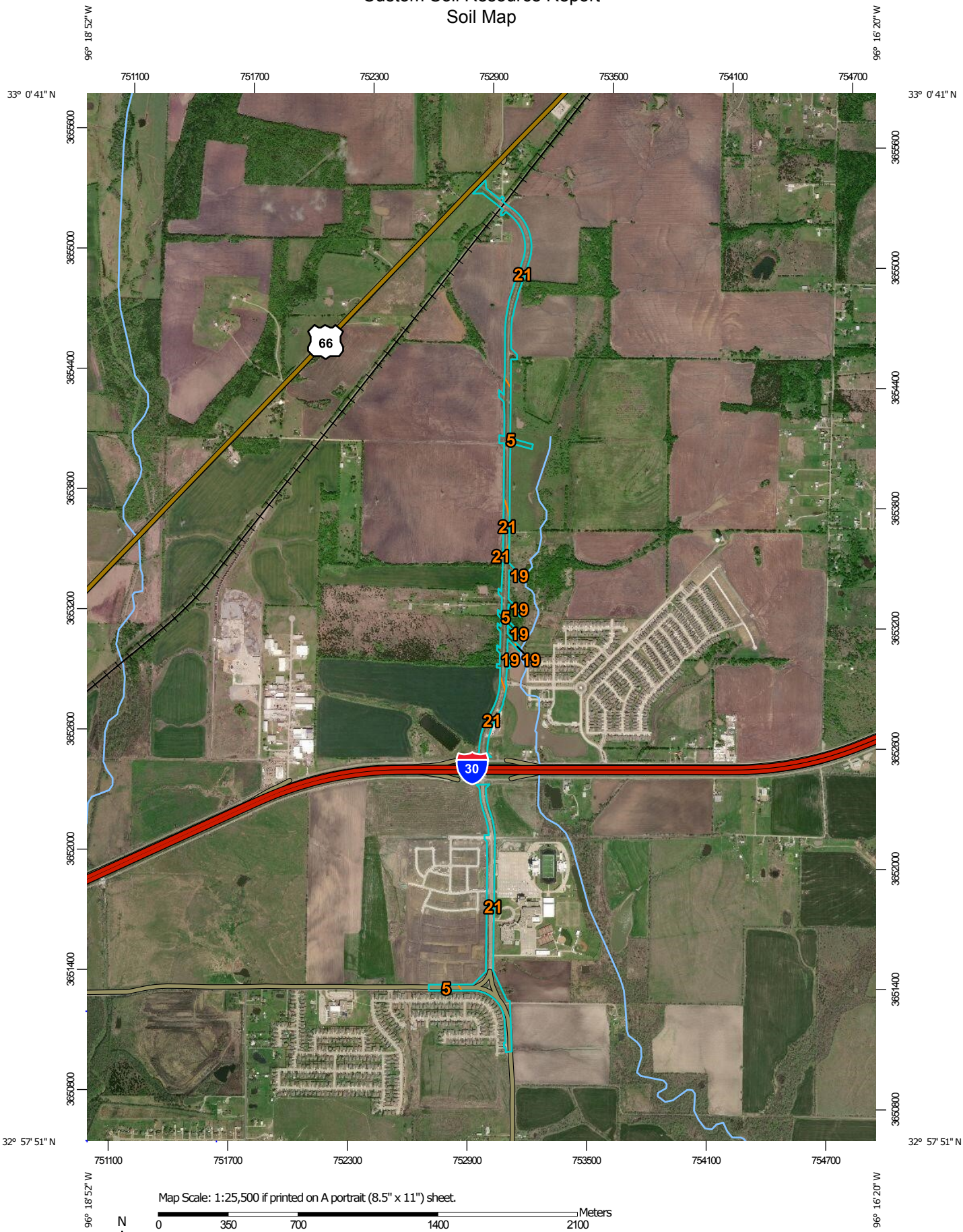
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:25,500 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 350 700 1400 2100

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Hunt County, Texas
Survey Area Data: Version 17, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 13, 2014—Nov 18, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Burleson clay, 0 to 1 percent slopes	14.9	33.4%
19	Kaufman clay, 0 to 1 percent slopes, frequently flooded	0.5	1.0%
21	Leson clay, 1 to 3 percent slopes	29.4	65.6%
Totals for Area of Interest		**44.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Hunt County, Texas

5—Burleson clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2ssg6
Elevation: 300 to 800 feet
Mean annual precipitation: 32 to 45 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 220 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Burleson and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Burleson

Setting

Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous clayey alluvium of pleistocene age derived from mixed sources

Typical profile

A - 0 to 23 inches: clay
Bss - 23 to 38 inches: clay
Bkss - 38 to 69 inches: clay
2Ck - 69 to 90 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: D
Ecological site: Southern Blackland (R086AY011TX)
Hydric soil rating: No

Minor Components

Wilson

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: Claypan Prairie (R086BY002TX)
Hydric soil rating: No

Branyon

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: Southern Blackland (R086AY011TX)
Hydric soil rating: No

19—Kaufman clay, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2wg9d
Elevation: 130 to 660 feet
Mean annual precipitation: 38 to 47 inches
Mean annual air temperature: 62 to 68 degrees F
Frost-free period: 218 to 254 days
Farmland classification: Not prime farmland

Map Unit Composition

Kaufman and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kaufman

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey alluvium derived from mudstone

Typical profile

A - 0 to 6 inches: clay
Bss1 - 6 to 69 inches: clay
Bss2 - 69 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Gypsum, maximum in profile: 5 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: Clayey Bottomland (R086AY013TX)
Hydric soil rating: Yes

Minor Components

Trinity

Percent of map unit: 10 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: Clayey Bottomland (R086AY013TX)
Hydric soil rating: Yes

Whitesboro

Percent of map unit: 4 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: Loamy Bottomland (R086AY012TX)
Hydric soil rating: No

Gladewater

Percent of map unit: 1 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: Clayey Bottomland (R086AY013TX)
Hydric soil rating: Yes

21—Leson clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: dbt6
Elevation: 350 to 750 feet
Mean annual precipitation: 34 to 44 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 230 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Leson and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Leson

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale

Typical profile

H1 - 0 to 6 inches: clay
H2 - 6 to 28 inches: clay
H3 - 28 to 58 inches: clay
H4 - 58 to 72 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 35 percent
Gypsum, maximum in profile: 10 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 2.0
Available water storage in profile: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Ecological site: Northern Blackland (R086AY010TX)

Hydric soil rating: No

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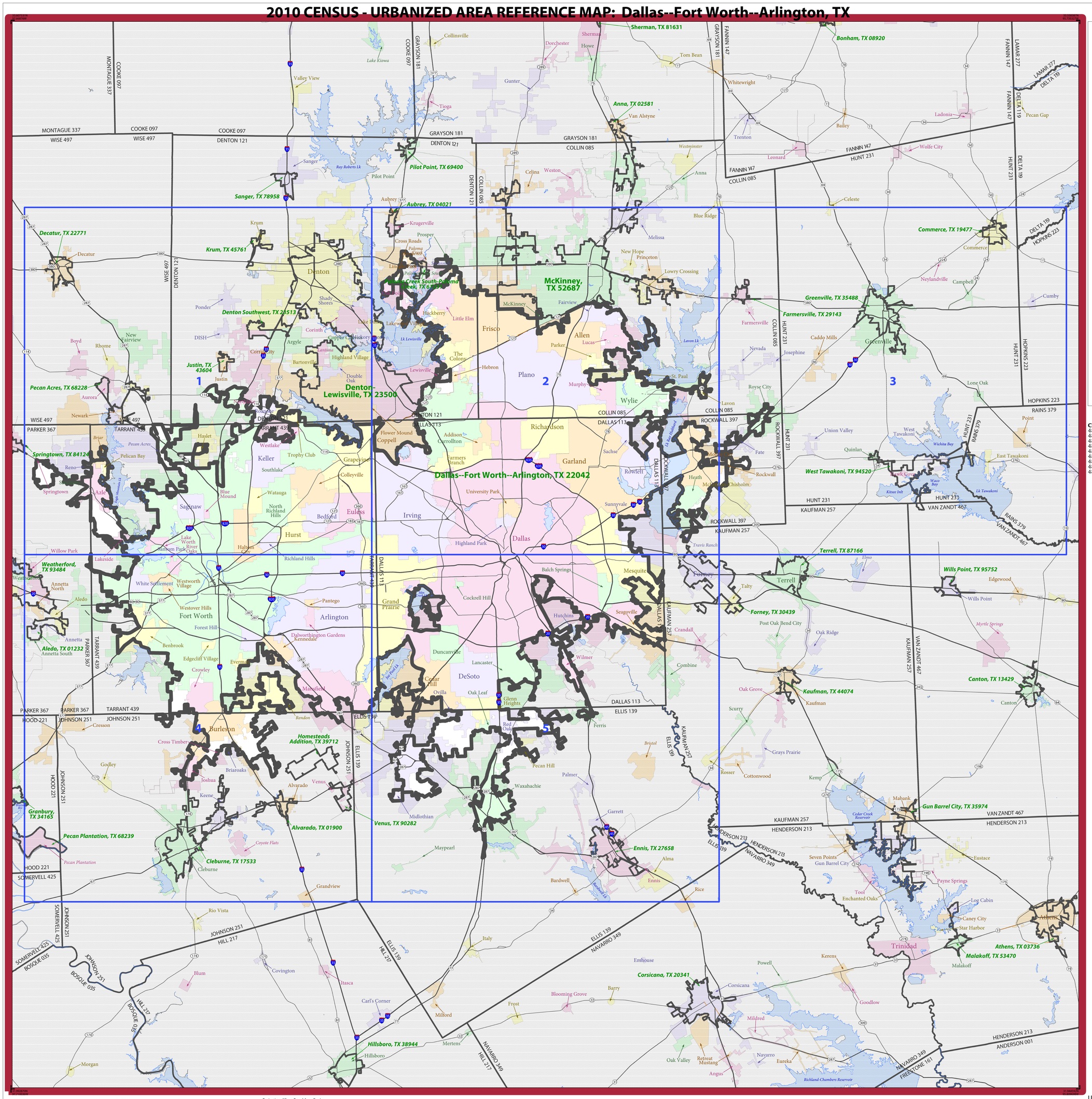
Attachment 12

Census Bureau Urbanized Area Map

2010 CENSUS - URBANIZED AREA REFERENCE MAP: Dallas--Fort Worth--Arlington, TX



LEGEND

SYMBOL DESCRIPTION	SYMBOL	LABEL STYLE
International		CANADA
Federal American Indian Reservation		L'ANSE RES 1880
Off-Reservation Trust Land		T1880
Urbanized Area		Dover, DE 24580
Urban Cluster		*Tooele, VT 88057*
State (or statistically equivalent entity)		NEW YORK 36
County (or statistically equivalent entity)		ERIE 029
Minor Civil Division (MCD) [1,2]		Bristol town 07485
Consolidated City		MILFORD 47500
Incorporated Place [1,3]		Davis 18100
Census Designated Place (CDP) [3]		*Incline Village 35100*

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Interstate	10	Water Body	Pleasant Lake
U.S. Highway	2	Military	Fort Belvoir
State Highway	4	Outside Subject Area	
Other Road	Marsh Ln		
Railroad	Southern RR		
Perennial Stream	Tumbling Cr		
Intermittent Stream	Piney Cr		

Where international, state, county, and/or MCD boundaries coincide, the map shows the boundary symbol for only the highest-ranking of these boundaries.

1 A '*' following an MCD name denotes a false MCD. A '*' following a place name indicates that a false MCD exists with the same name and FIPS code as the place; the false MCD label is not shown.

2 MCD boundaries are shown in the following states in which some or all MCDs function as general-purpose governmental units: Connecticut, Illinois, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, and Wisconsin. (Note that Illinois and Nebraska have some counties covered by nongovernmental precincts and Missouri has most counties covered by nongovernmental townships.)

3 Place label color corresponds to the place fill color.
Label colors: Davis Davis Davis Davis Davis

COUNTIES IN SUBJECT URBANIZED AREA

48085	Collin
48113	Dallas
48121	Denton
48139	Ellis
48251	Johnson
48257	Kaufman
48367	Parker
48397	Rockwall
48439	Tarrant

All legal boundaries and names are as of January 1, 2010. Urban areas are based on results from the 2010 Decennial Census. The boundaries shown on this map are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

Geographic Vintage: 2010 Census (reference date: January 1, 2010)
Data Source: U.S. Census Bureau's MAF/TIGER database (TAB10)
Map Created by Geography Division: March 10, 2012

U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Projection: Albers Equal Area Conic
Datum: NAD 83
Spheroid: GRS 80
1st Standard Parallel: 27 36 51
2nd Standard Parallel: 34 43 24
Central Meridian: -100 04 35
Latitude of Projection's Origin: 25 50 13
False Easting: 0
False Northing: 0

0 7 14 21 28 35 Kilometers
0 4 8 12 16 20 Miles
The plotted map scale is 1:245640

N W E S

United States Census Bureau

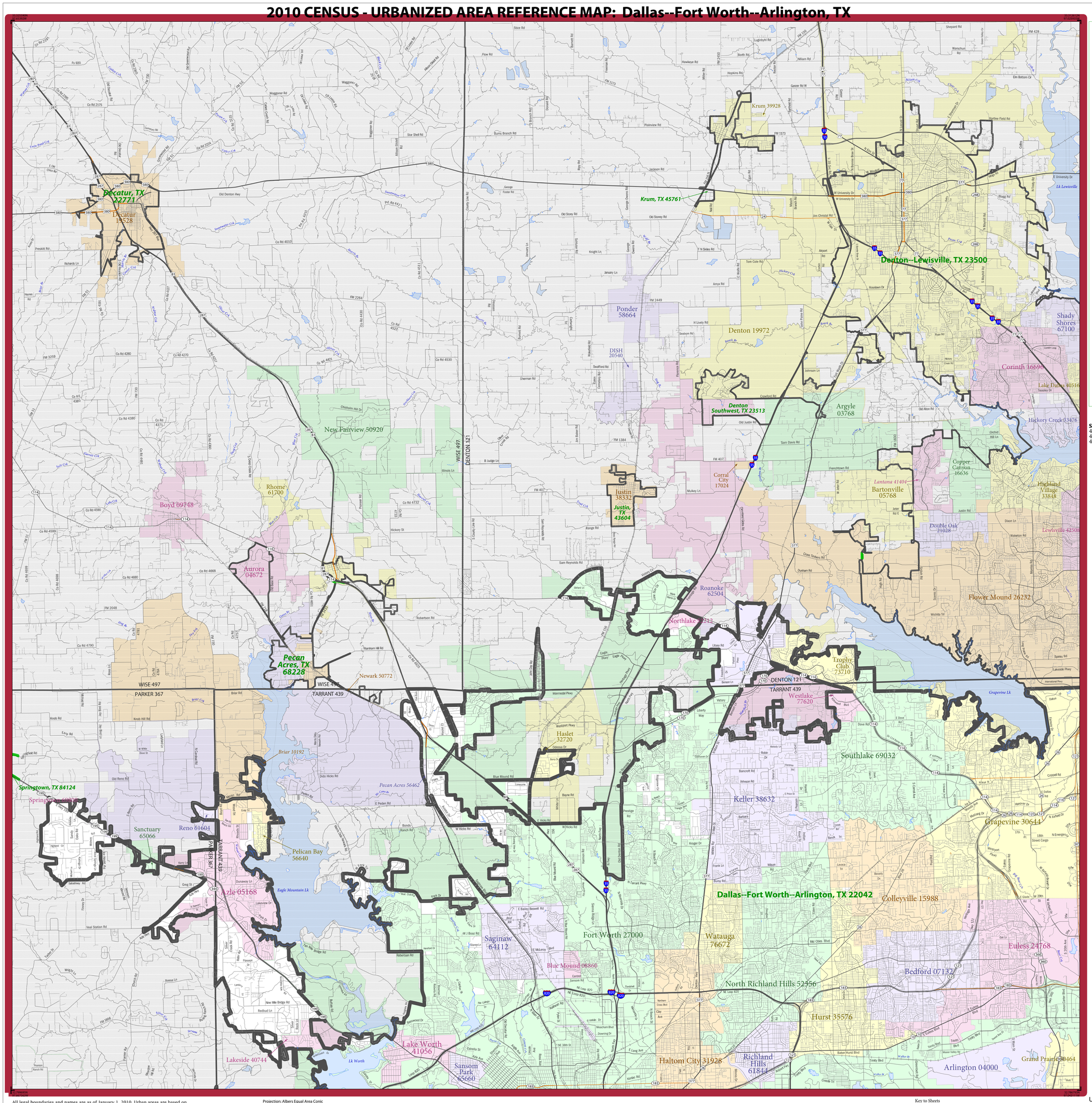
INDEX SHEET

Total Sheets: 6
- Index Sheets: 1
- Parent Sheets: 5

UA NAME: Dallas--Fort Worth--Arlington, TX
UA CODE: 22042
ENTITY TYPE: Urbanized Area (UA)
ST: Texas (48)

2010 CENSUS UA REF MAP (INDEX)
231022042000

2010 CENSUS - URBANIZED AREA REFERENCE MAP: Dallas--Fort Worth--Arlington, TX



LEGEND

SYMBOL DESCRIPTION	SYMBOL	LABEL STYLE
International		CANADA
Federal American Indian Reservation		L'ANSE RES 1880
Off-Reservation Trust Land		T1880
Urbanized Area		Dover, DE 24580
Urban Cluster		Tooele, VT 88057
State (or statistically equivalent entity)		NEW YORK 36
County (or statistically equivalent entity)		ERIE 029
Minor Civil Division (MCD) [1,2]		Bristol town 07485
Consolidated City		MILFORD 47500
Incorporated Place [1,3]		Davis 18100
Census Designated Place (CDP) [3]		Incline Village 35100

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Interstate	35	Water Body	Pleasant Lake
U.S. Highway	2	Military	Fort Belvoir
State Highway	4	Outside Subject Area	
Other Road	Marsh Ln		
Railroad	Southern RR		
Perennial Stream	Tumbling Cr		
Intermittent Stream	Piney Cr		

Where international, state, county, and/or MCD boundaries coincide, the map shows the boundary symbol for only the highest-ranking of these boundaries.

1 A '*' following an MCD name denotes a false MCD. A '*' following a place name indicates that a false MCD exists with the same name and FIPS code as the place; the false MCD label is not shown.

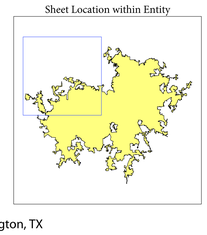
2 MCD boundaries are shown in the following states in which some or all MCDs function as general-purpose governmental units: Connecticut, Illinois, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, and Wisconsin. (Note that Illinois and Nebraska have some counties covered by nongovernmental precincts and Missouri has most counties covered by nongovernmental townships.)

3 Place label color corresponds to the place fill color.
Label colors: Davis Davis Davis Davis Davis

SUBJECT AREA COUNTIES ON MAP SHEET

48121	Denton
48367	Parker
48439	Tarrant

Sheet Location within Entity



All legal boundaries and names are as of January 1, 2010. Urban areas are based on results from the 2010 Decennial Census. The boundaries shown on this map are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

Geographic Vintage: 2010 Census (reference date: January 1, 2010)
Data Source: U.S. Census Bureau's MAF/TIGER database (TAB10)
Map Created by Geography Division: March 10, 2012

U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Projection: Albers Equal Area Conic
Datum: NAD 83
Spheroid: GRS 80
1st Standard Parallel: 27 36 51
2nd Standard Parallel: 34 43 24
Central Meridian: -100 04 35
Latitude of Projection's Origin: 25 50 13
False Easting: 0
False Northing: 0

0 2 4 6 8 10 Kilometers
0 1 2 3 4 5 Miles
The plotted map scale is 1:80000

N W E S

United States Census Bureau

Key to Sheets

	1	2
	4	5

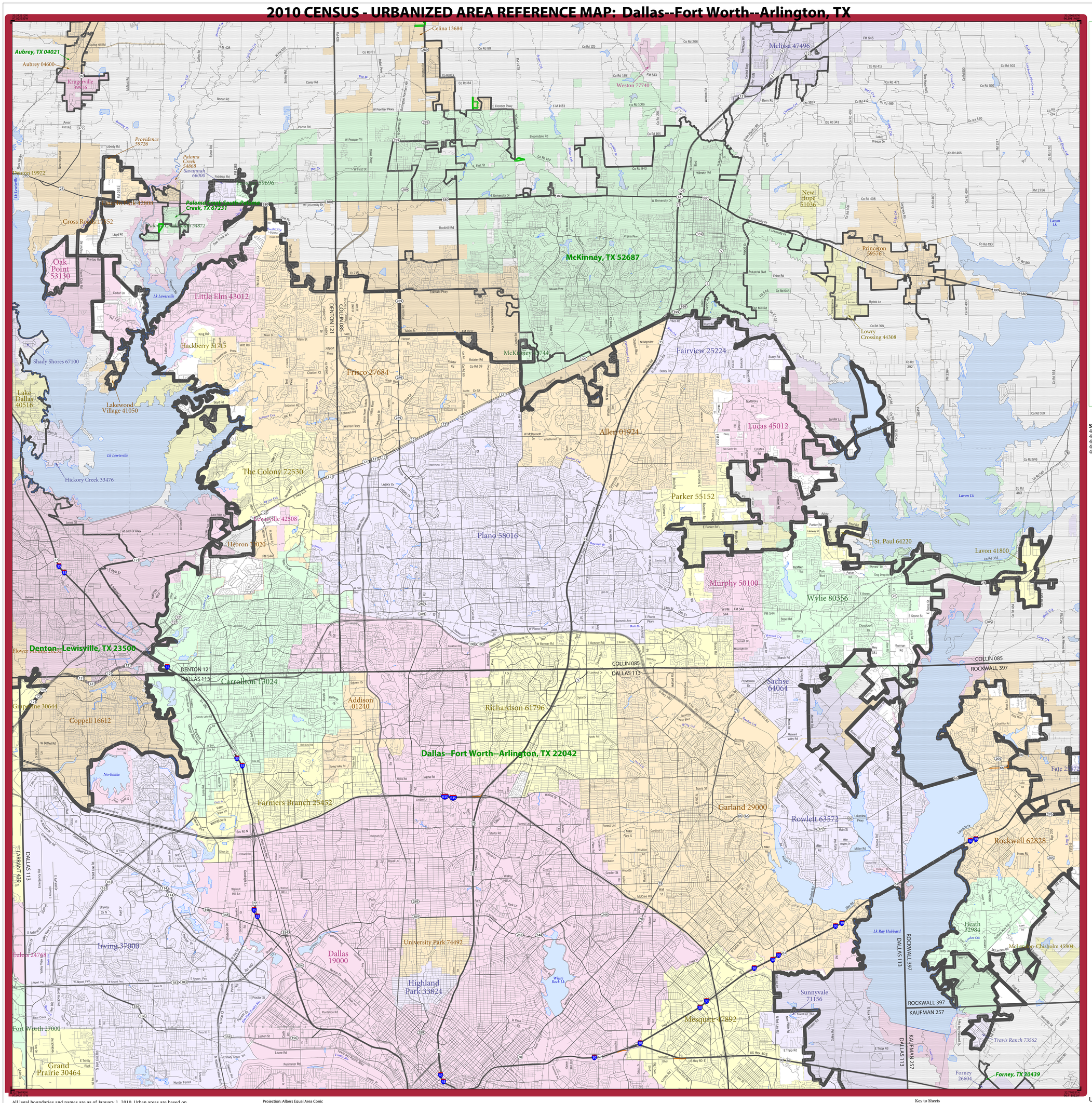
PARENT SHEET 1

Total Sheets: 6
- Index Sheets: 1
- Parent Sheets: 5

UA NAME: Dallas--Fort Worth--Arlington, TX
UA CODE: 22042
ENTITY TYPE: Urbanized Area (UA)
ST: Texas (48)

2010 CENSUS UA REF MAP (PARENT)
231022042001

2010 CENSUS - URBANIZED AREA REFERENCE MAP: Dallas--Fort Worth--Arlington, TX



LEGEND

SYMBOL DESCRIPTION	SYMBOL	LABEL STYLE
International		CANADA
Federal American Indian Reservation		L'ANSE RES 1880
Off-Reservation Trust Land		T1880
Urbanized Area		Dover, DE 24580
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State (or statistically equivalent entity)		NEW YORK 36
County (or statistically equivalent entity)		ERIE 029
Minor Civil Division (MCD) [1,2]		Bristol town 07485
Consolidated City		MILFORD 47500
Incorporated Place [1,3]		Davis 18100
Census Designated Place (CDP) [3]		*Incline Village 35100*

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Interstate	5	Water Body	Pleasant Lake
U.S. Highway	2	Military	Fort Belvoir
State Highway	4	Outside Subject Area	
Other Road	Marsh Ln		
Railroad	Southern RR		
Perennial Stream	Tumbling Cr		
Intermittent Stream	Piney Cr		

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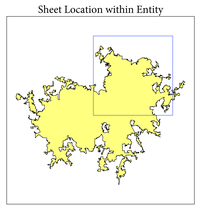
3 Place label color corresponds to the place fill color.
Label colors: Davis Davis Davis Davis Davis

SUBJECT AREA COUNTIES ON MAP SHEET

48085	Collin	48439	Tarrant
48113	Dallas		
48121	Denton		
48257	Kaufman		
48397	Rockwall		

Sheet Location within Entity



All legal boundaries and names are as of January 1, 2010. Urban areas are based on results from the 2010 Decennial Census. The boundaries shown on this map are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

Geographic Vintage: 2010 Census (reference date: January 1, 2010)
Data Source: U.S. Census Bureau's MAF/TIGER database (TAB10)
Map Created by Geography Division: March 10, 2012

U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Projection: Albers Equal Area Conic
Datum: NAD 83
Spheroid: GRS 80
1st Standard Parallel: 27 36 51
2nd Standard Parallel: 34 43 24
Central Meridian: -100 04 35
Latitude of Projection's Origin: 25 50 13
False Easting: 0
False Northing: 0

0 2 4 6 8 10 Kilometers
0 1 2 3 4 5 Miles
The plotted map scale is 1:80000

N W E S

Key to Sheets

1	2	3
4	5	

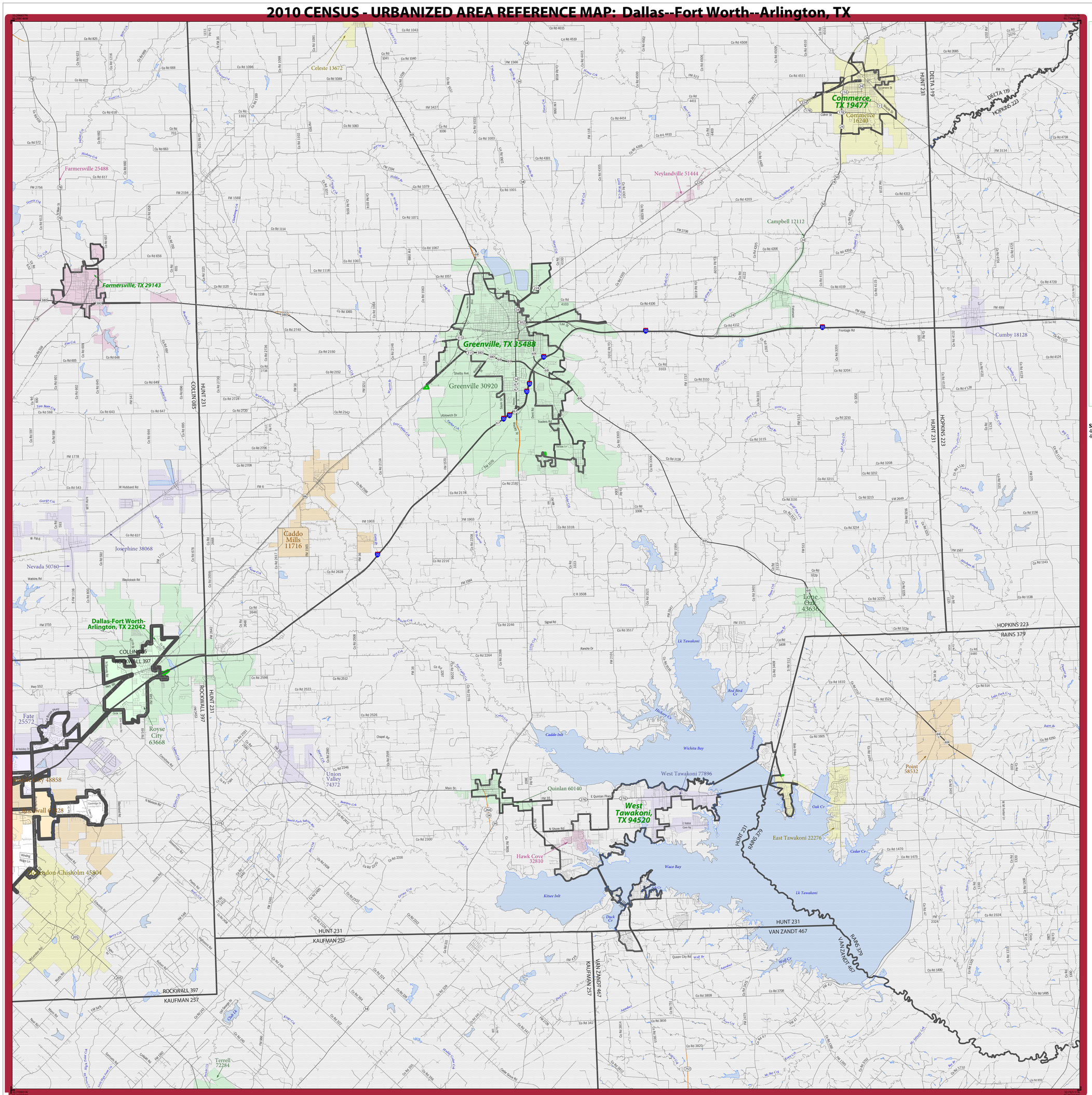
PARENT SHEET 2

Total Sheets: 6
- Index Sheets: 1
- Parent Sheets: 5

UA NAME: Dallas--Fort Worth--Arlington, TX
UA CODE: 22042
ENTITY TYPE: Urbanized Area (UA)
ST: Texas (48)

2010 CENSUS UA REF MAP (PARENT)
231022042002

2010 CENSUS - URBANIZED AREA REFERENCE MAP: Dallas--Fort Worth--Arlington, TX



LEGEND

SYMBOL DESCRIPTION	SYMBOL	LABEL STYLE
International		CANADA
Federal American Indian Reservation		L'ANSE RES 1880
Off-Reservation Trust Land		T1880
Urbanized Area		Dover, DE 24580
Urban Cluster		Tooele, VT 88057
State (or statistically equivalent entity)		NEW YORK 36
County (or statistically equivalent entity)		ERIE 029
Minor Civil Division (MCD) [1,2]		Bristol town 07485
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Incorporated Place [1,3]		Davis 18100
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DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Interstate	10	Water Body	Pleasant Lake
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State Highway	4	Outside Subject Area	
Other Road	Marsh Ln		
Railroad	Southern RR		
Perennial Stream	Tumbling Cr		
Intermittent Stream	Piney Cr		

Where international, state, county, and/or MCD boundaries coincide, the map shows the boundary symbol for only the highest-ranking of these boundaries.

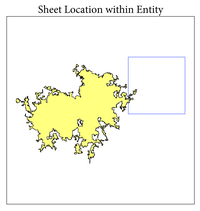
1 A '*' following an MCD name denotes a false MCD. A '*' following a place name indicates that a false MCD exists with the same name and FIPS code as the place; the false MCD label is not shown.

2 MCD boundaries are shown in the following states in which some or all MCDs function as general-purpose governmental units: Connecticut, Illinois, Indiana, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, and Wisconsin. (Note that Illinois and Nebraska have some counties covered by nongovernmental precincts and Missouri has most counties covered by nongovernmental townships.)

3 Place label color corresponds to the place fill color.
Label colors: Davis Davis Davis Davis Davis

SUBJECT AREA COUNTIES ON MAP SHEET
48085 Collin
48397 Rockwall

Sheet Location within Entity



All legal boundaries and names are as of January 1, 2010. Urban areas are based on results from the 2010 Decennial Census. The boundaries shown on this map are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

Geographic Vintage: 2010 Census (reference date: January 1, 2010)
Data Source: U.S. Census Bureau's MAF/TIGER database (TAB10)
Map Created by Geography Division: March 10, 2012

U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Projection: Albers Equal Area Conic
Datum: NAD 83
Spheroid: GRS 80
1st Standard Parallel: 27 36 51
2nd Standard Parallel: 34 43 24
Central Meridian: -100 04 35
Latitude of Projection's Origin: 25 50 13
False Easting: 0
False Northing: 0

0 2 4 6 8 10 Kilometers
0 1 2 3 4 5 Miles
The plotted map scale is 1:80000

N W E S

United States Census Bureau

Key to Sheets

2	3	
5		

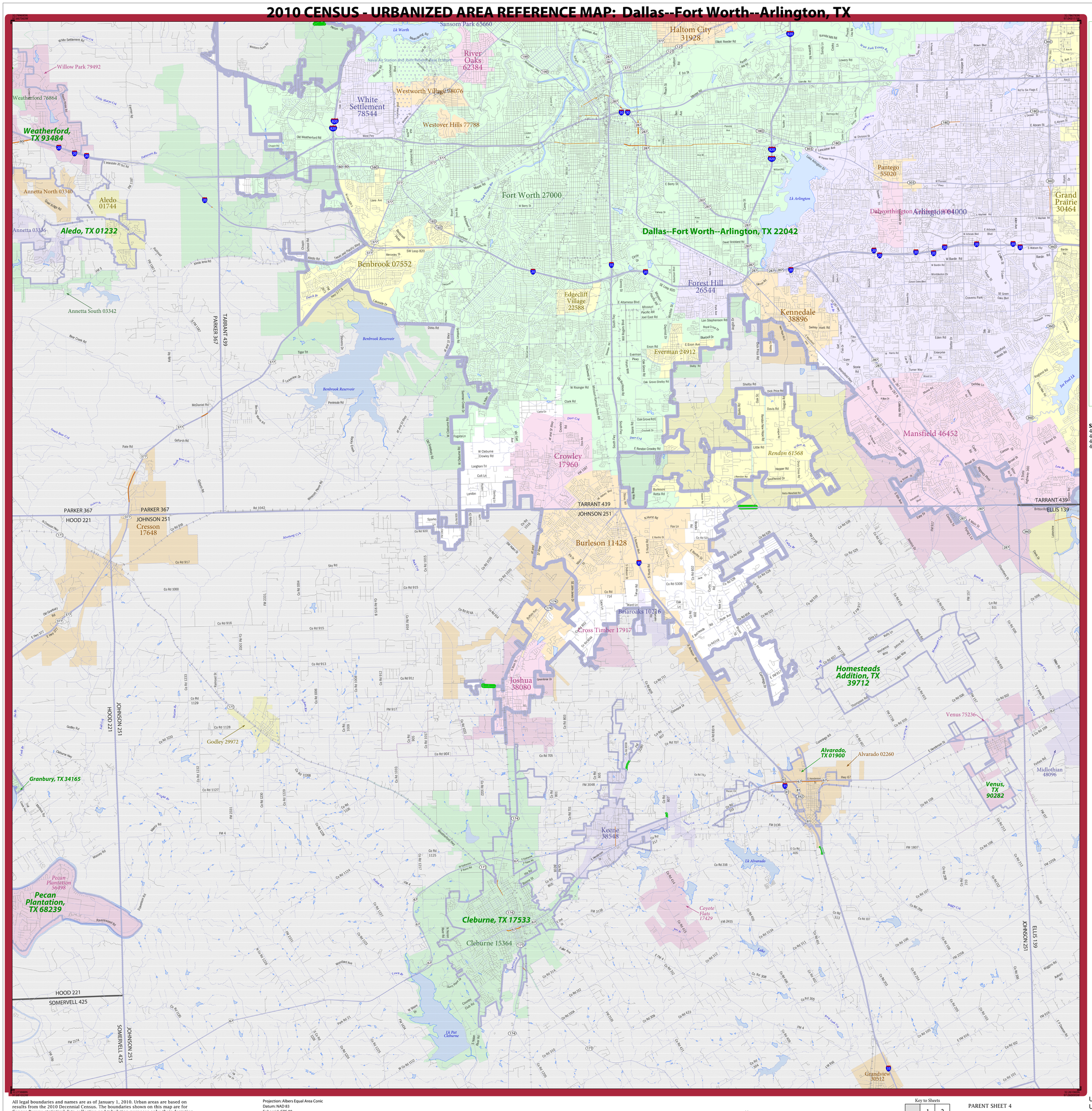
PARENT SHEET 3

Total Sheets: 6
- Index Sheets: 1
- Parent Sheets: 5

UA NAME: Dallas--Fort Worth--Arlington, TX
UA CODE: 22042
ENTITY TYPE: Urbanized Area (UA)
ST: Texas (48)

2010 CENSUS UA REF MAP (PARENT)
231022042003

2010 CENSUS - URBANIZED AREA REFERENCE MAP: Dallas--Fort Worth--Arlington, TX



LEGEND

SYMBOL DESCRIPTION	SYMBOL	LABEL STYLE
International		CANADA
Federal American Indian Reservation		L'ANSE RES 1880
Off-Reservation Trust Land		T1880
Urbanized Area		Dover, DE 24580
Urban Cluster		Tooele, VT 88057
State (or statistically equivalent entity)		NEW YORK 36
County (or statistically equivalent entity)		ERIE 029
Minor Civil Division (MCD) [1,2]		Bristol town 07485
Consolidated City		MILFORD 47500
Incorporated Place [1,3]		Davis 18100
Census Designated Place (CDP) [3]		Incline Village 35100

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Interstate	35	Water Body	Pleasant Lake
U.S. Highway	2	Military	Fort Belvoir
State Highway	4	Outside Subject Area	
Other Road	Marsh Ln		
Railroad	Southern RR		
Perennial Stream	Tumbling Cr		
Intermittent Stream	Piney Cr		

Where international, state, county, and/or MCD boundaries coincide, the map shows the boundary symbol for only the highest-ranking of these boundaries.

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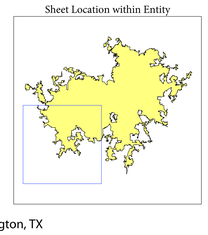
3 Place label color corresponds to the place fill color.
Label colors: Davis Davis Davis Davis Davis

SUBJECT AREA COUNTIES ON MAP SHEET

48139	Ellis
48251	Johnson
48367	Parker
48439	Tarrant

Sheet Location within Entity



All legal boundaries and names are as of January 1, 2010. Urban areas are based on results from the 2010 Decennial Census. The boundaries shown on this map are for Census Bureau statistical data collection and tabulation purposes only; their depiction and designation for statistical purposes does not constitute a determination of jurisdictional authority or rights of ownership or entitlement.

Geographic Vintage: 2010 Census (reference date: January 1, 2010)
Data Source: U.S. Census Bureau's MAF/TIGER database (TAB10)
Map Created by Geography Division: March 10, 2012

U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Projection: Albers Equal Area Conic
Datum: NAD 83
Spheroid: GRS 80
1st Standard Parallel: 27 36 51
2nd Standard Parallel: 34 43 24
Central Meridian: -100 04 35
Latitude of Projection's Origin: 25 50 13
False Easting: 0
False Northing: 0

0 2 4 6 8 10 Kilometers
0 1 2 3 4 5 Miles
The plotted map scale is 1:80000

N W E S

United States Census Bureau

Key to Sheets

	1	2
	4	5

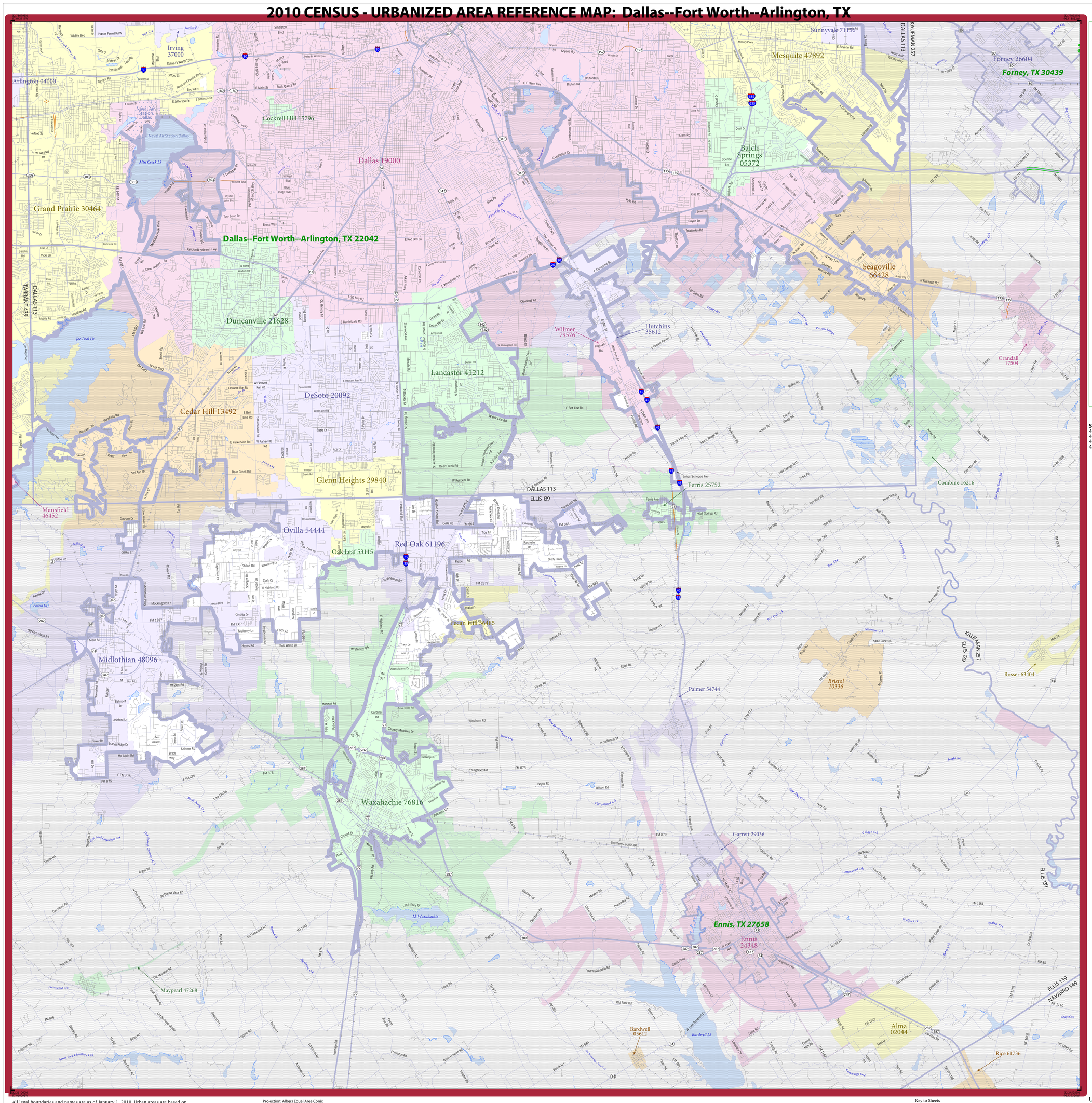
PARENT SHEET 4

Total Sheets: 6
- Index Sheets: 1
- Parent Sheets: 5

UA NAME: Dallas--Fort Worth--Arlington, TX
UA CODE: 22042
ENTITY TYPE: Urbanized Area (UA)
ST: Texas (48)

2010 CENSUS UA REF MAP (PARENT)
231022042004

2010 CENSUS - URBANIZED AREA REFERENCE MAP: Dallas--Fort Worth--Arlington, TX



LEGEND

SYMBOL DESCRIPTION	SYMBOL	LABEL STYLE
International		CANADA
Federal American Indian Reservation		L'ANSE RES 1880
Off-Reservation Trust Land		T1880
Urbanized Area		Dover, DE 24580
Urban Cluster		Tooele, VT 88057
State (or statistically equivalent entity)		NEW YORK 36
County (or statistically equivalent entity)		ERIE 029
Minor Civil Division (MCD) 1,2		Bristol town 07485
Consolidated City		MILFORD 47500
Incorporated Place 1,3		Davis 18100
Census Designated Place (CDP) 3		Incline Village 35100

DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL
Interstate	35	Water Body	Pleasant Lake
U.S. Highway	2	Military	Fort Belvoir
State Highway	4	Outside Subject Area	
Other Road	Marsh Ln		
Railroad	Southern RR		
Perennial Stream	Tumbling Cr		
Intermittent Stream	Piney Cr		

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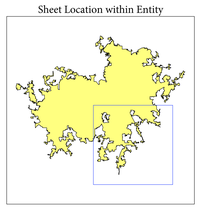
3 Place label color corresponds to the place fill color.
Label colors: Davis Davis Davis Davis Davis

SUBJECT AREA COUNTIES ON MAP SHEET

48113	Dallas
48139	Ellis
48257	Kaufman
48439	Tarrant

Sheet Location within Entity



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Geographic Vintage: 2010 Census (reference date: January 1, 2010)
Data Source: U.S. Census Bureau's MAF/TIGER database (TAB10)
Map Created by Geography Division: March 10, 2012

U.S. DEPARTMENT OF COMMERCE Economics and Statistics Administration U.S. Census Bureau

Projection: Albers Equal Area Conic
Datum: NAD 83
Spheroid: GRS 80
1st Standard Parallel: 27 36 51
2nd Standard Parallel: 34 43 24
Central Meridian: -100 04 35
Latitude of Projection's Origin: 25 50 13
False Easting: 0
False Northing: 0

0 2 4 6 8 10 Kilometers
0 1 2 3 4 5 Miles
The plotted map scale is 1:80000

N W E S

United States Census Bureau

Key to Sheets

1	2	3
4	5	

PARENT SHEET 5

Total Sheets: 6
- Index Sheets: 1
- Parent Sheets: 5

UA NAME: Dallas--Fort Worth--Arlington, TX
UA CODE: 22042
ENTITY TYPE: Urbanized Area (UA)
ST: Texas (48)

2010 CENSUS UA REF MAP (PARENT)
231022042005

Attachment 13

Landscaping Plans

Erin Kelly

From: Wayne Hartt
Sent: Friday, January 25, 2019 5:34 PM
To: Erin Kelly
Cc: Wes Wiegreffe
Subject: RE: Landscaping Plans for FM 2642

No landscaping as part of the project

Wayne P. Hartt, PE
Transportation – North Texas
Wayne.Hartt@freese.com
(972) 624-9214 Office
(239) 410-4656 Mobile
5805 Main St. Suite B
Frisco, TX 75034

From: Erin Kelly <Erin.Kelly@freese.com>
Sent: Friday, January 25, 2019 5:14 PM
To: Wayne Hartt <Wayne.Hartt@freese.com>
Cc: Wes Wiegreffe <Wes.Wiegreffe@freese.com>
Subject: Landscaping Plans for FM 2642

Hello Wayne,

I just wanted to make sure there are no landscaping plans for FM 2642. If there are plans, can you send me the link? We have to include landscaping plans as part of the Biological Evaluation Technical Report.

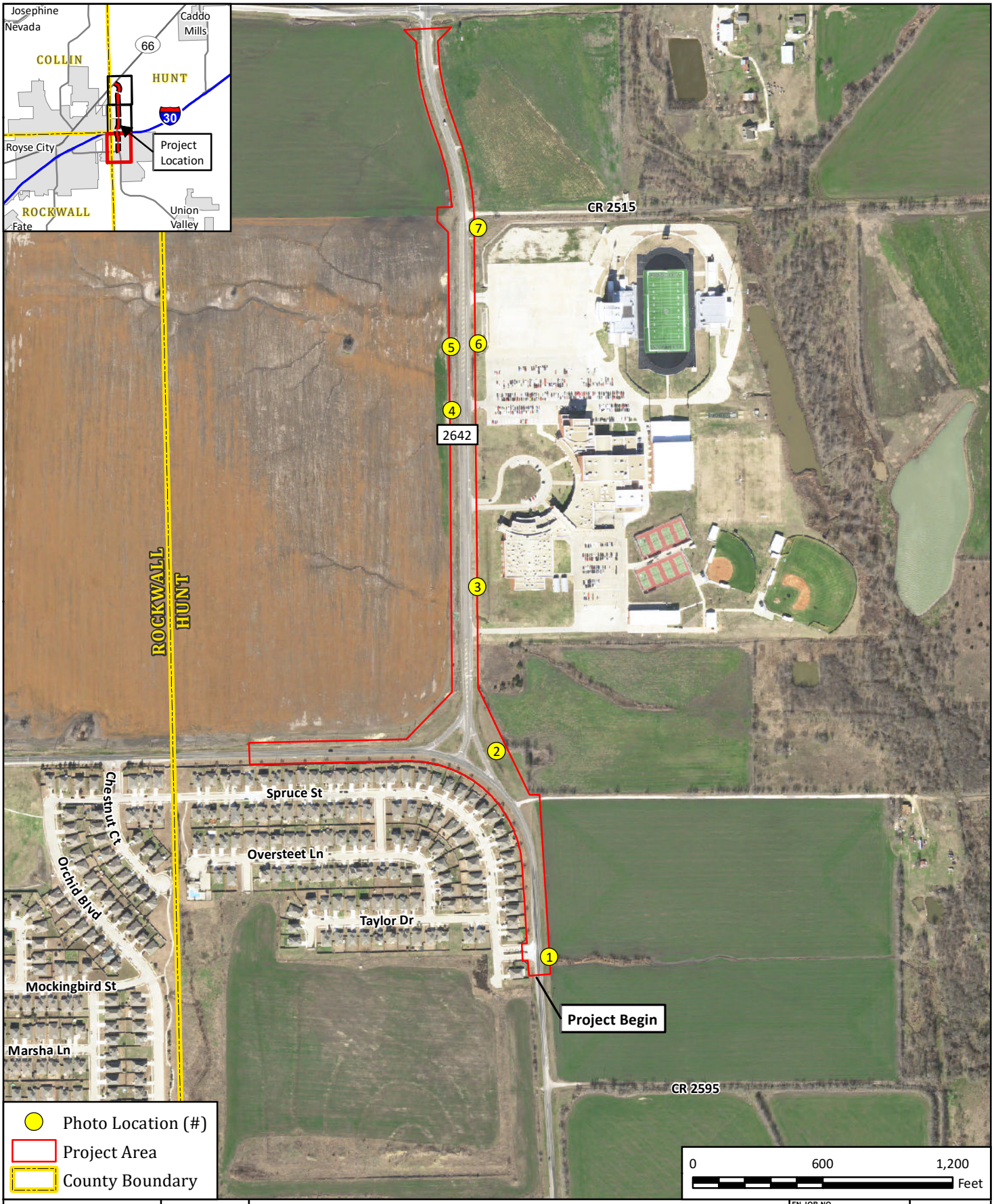
Thanks,

Erin Kelly
Environmental Scientist

Freese and Nichols, Inc.
2711 North Haskell, 32nd Floor
Dallas, Texas 75204
214-217-2274 - office
Erin.kelly@freese.com

Attachment 14

Site Photos



FREESE AND NICHOLS
4055 International Plaza, Suite 200
Fort Worth, TX 76109 - 4895
Phone - (817) 735 - 7300

N W E S

HUNT COUNTY

FM 2642 (FM 35 to SH 66)

Photo Location Map

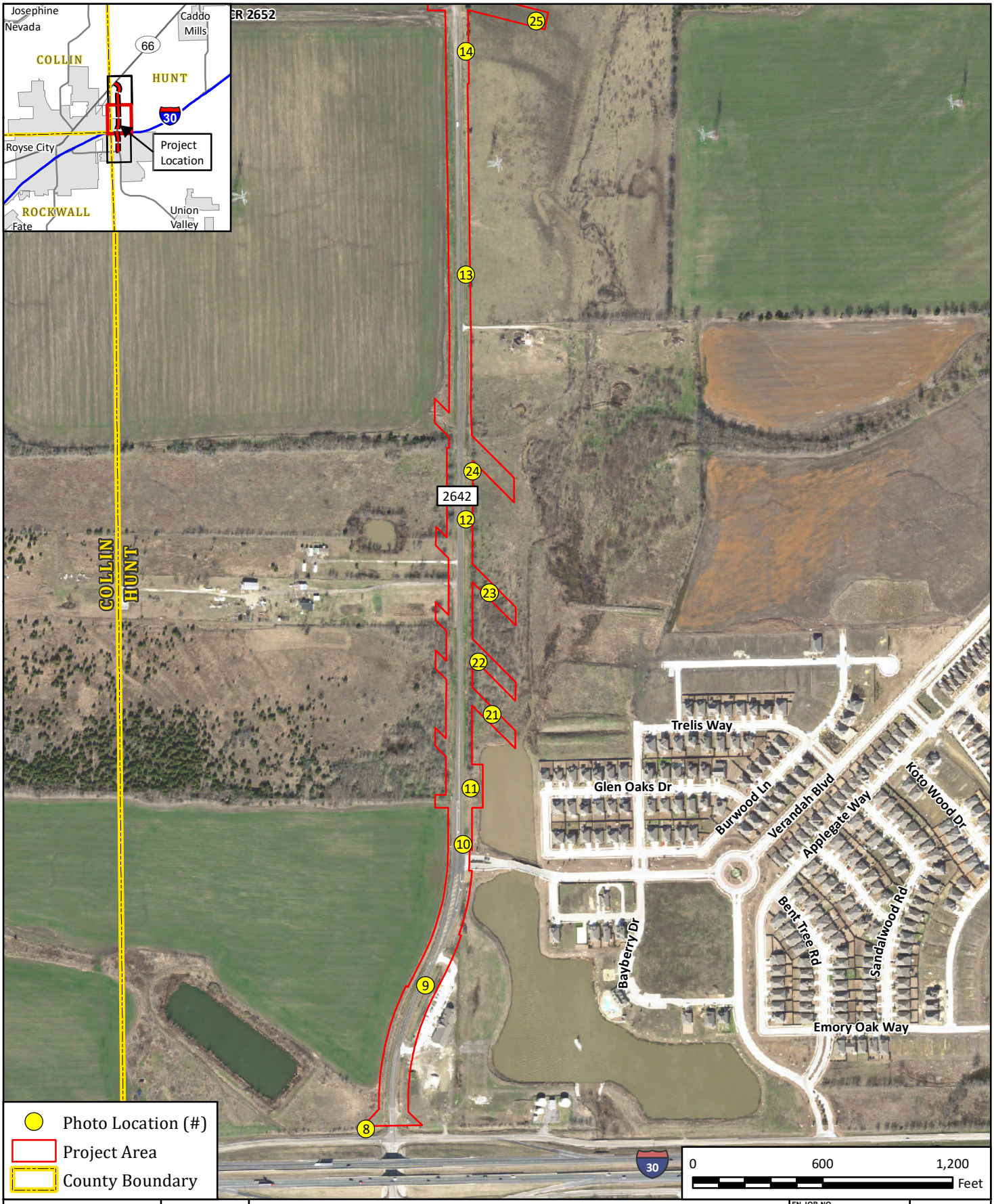
FN JOB NO	HUC17463
FILE NAME	10_Photo_Location_Map.mxd
DATE	1/14/2019
SCALE	1:7,200
DESIGNED	MK
DRAFTED	MK

4.1

FIGURE

Path: H:\ENVIRONMENTAL\Final_Exhibits\Bio_Evaluation\10_Photo_Location_Map.mxd

NAD 1983 StatePlane Texas North Central FIPS 4202 Feet



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N W E S

HUNT COUNTY

FM 2642 (FM 35 to SH 66)

Photo Location Map

FN JOB NO	HUC17463
FILE NAME	10_Photo_Location_Map.mxd
DATE	1/14/2019
SCALE	1:7,200
DESIGNED	MK
DRAFTED	MK

4.2

FIGURE

Path: H:\ENVIRONMENTAL\Final_Exhibits\Bio_Evaluation\10_Photo_Location_Map.mxd

NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

FREESE AND NICHOLS
4055 International Plaza, Suite 200
Fort Worth, TX 76109 - 4895
Phone - (817) 735 - 7300

N W E S

HUNT COUNTY

FM 2642 (FM 35 to SH 66)

Photo Location Map

FN JOB NO	HUC17463
FILE NAME	10_Photo_Location_Map.mxd
DATE	1/14/2019
SCALE	1:7,200
DESIGNED	MK
DRAFTED	MK

4.3

FIGURE

Path: H:\ENVIRONMENTAL\Final_Exhibits\Bio_Evaluation\10_Photo_Location_Map.mxd

NAD 1983 StatePlane Texas North Central FIPS 4202 Feet

1 North	
1 South	
1 East	

1 West	
2 North	
2 South	

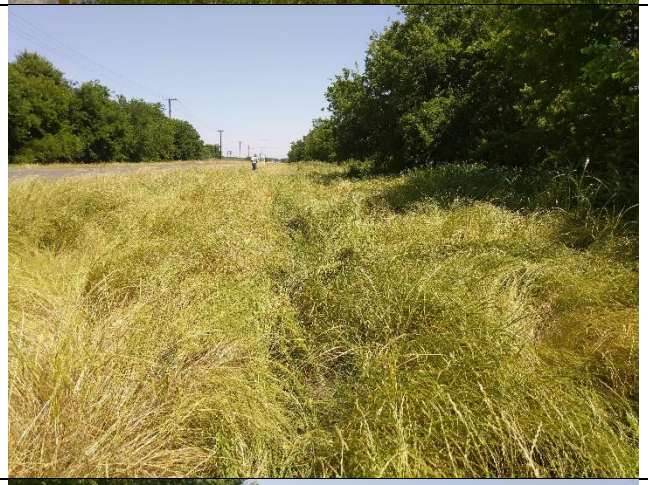
3 North	
3 South	
4 North	

4 South	
5 East	
6 West	

7 North	
7 South	
8 East	

8 South	
9 North	
9 South	

10 North	
10 South	
11 North	

11 South	
12 North	
12 South	

13 North	
13 South	
14 North	

14 South	
15 East	
15 West	

16 North	
16 South	
17 North	

17 South	
18 Northwest	
18 Southeast	

19 Northeast	
19 Southwest	
20 Northwest	

20 Southeast	
21 East	
21 West	

22 East	
22 West	
23 East	

23 West	
24 East	
24 West	

25 East	
25 West	