



**US Army Corps
of Engineers®**

Joe Pool Lake 2018 Master Plan

Trinity River Basin
Mountain Creek, Texas
Dallas, Ellis, and Tarrant Counties

7 **EXECUTIVE SUMMARY**
8 **Joe Pool Lake Master Plan**

9 U.S. Army Corps of Engineers

10 Prepared by the Regional Planning and Environmental Center (RPEC)

11 July 2018
12

13 **PURPOSE**

14 The revision of the 1981 Joe Pool *Lake Master Plan* (hereafter Plan or Master
15 Plan) is a framework built collaboratively to guide appropriate stewardship of U.S.
16 Army Corps of Engineers (USACE) administered resources at Joe Pool Lake over the
17 next 25 years. The 1981 Master Plan for Joe Pool Lake was the original Master Plan
18 and has never been revised. The 1981 Plan has served well past its intended 25-year
19 planning horizon. The lake and dam's primary purposes are flood risk management
20 and water conservation. In addition to these primary missions, USACE has an
21 inherent mission of environmental stewardship of project lands and works closely with
22 Texas Parks & Wildlife Department (TPWD) and the City of Grand Prairie to provide
23 regionally important outdoor recreation opportunities. Joe Pool Lake has a water
24 surface of 6,707 acres at the normal, or conservation pool elevation of 522.0 feet
25 National Geodetic Vertical Datum 1929 (NGVD). Approximately 8,686 acres of
26 Federal land lie above the conservation pool with a shoreline of approximately 60
27 miles. Joe Pool Dam and Lake Project is one of eight major flood control projects that
28 are an integral part of the USACE plan for flood control and water conservation in the
29 Trinity River Basin. This Plan and supporting documentation provides an inventory,
30 analysis, goals, objectives, and recommendations for USACE lands and waters at Joe
31 Pool Lake, Texas.
32

33 **PUBLIC INPUT**

34 To ensure a balance between operational, environmental, and recreational
35 outcomes, public and agency input toward the Master Plan was obtained. An
36 Environmental Assessment (EA) was completed in conjunction with the Master Plan to
37 evaluate the impacts of alternatives and can be found in Appendix B.
38

39 Approximately 54 individuals, not including USACE personnel, attended the
40 public scoping meeting held at the onset of the process on 23 May 2017 for the Joe
41 Pool Lake Master Plan Revision. During the initial 30-day comment period, a total of 6
42 written comments were received from stakeholders and the public at large. In addition
43 to the initial public meeting, follow-up workshops were held with TPWD and the City of
44 Grand Prairie. The comments resulting from the initial public meeting and workshops
45 were invaluable in preparing the draft revision of the Plan.
46

47 A public meeting to announce the availability of the final draft Master Plan and
48 EA was held on 31 July 2018 followed by a 30-day public comment period.

49 persons attended the meeting and [redacted] comments were received. All comments and
 50 USACE responses will be recorded in Chapter 7 of the Plan.

51 **RECOMMENDATIONS**

52 The following land classifications changes (detailed in Chapter 8, Table 8.1)
 53 were a result of the inventory, analysis, and synthesis of data, documents, and public
 54 and agency input. In general, all USACE land at Joe Pool Lake was reclassified either
 55 by a change in nomenclature required by regulation or changes needed to identify
 56 actual and projected use. The acreage of the conservation pool and USACE land lying
 57 above the conservation pool was measured using Geographical Information System
 58 (GIS) technology. This software allows for more finely tuned measurements and thus
 59 stated acres may vary from official land acquisition records and acreage figures
 60 published in the 1981 Master Plan. A more detailed summary of changes and
 61 rationale can be found in Chapter 8.

62
 63 Table ES.1 Change from Prior Land Classification to New Land Classification

Prior Land Classifications (1981)	Acres	New Land Classifications	Acres
Project Operations	309	Project Operations	308
Recreation – High Use	3,236	High Density Recreation	4,139
Recreation – High Use/Interim Wildlife	1,756		
Separable Recreation Lands	1,475		1,475
		Environmentally Sensitive Areas	1,507
Recreation/Wildlife Management – Low Use	3360	Multiple Resource Management - Low Density Recreation	482
		Multiple Resource Management – Vegetative Management	157
		Multiple Resource Management – Wildlife Management	2,095
Permanent pool	7,470 ¹	Permanent pool	6,707
Flowage Easement	1,904	Flowage Easement	1,904

64 ¹The 7,470 acre figure has been used as the conservation pool acreage for many years, but more refined
 65 measurements performed as part of the revision of the 1981 Master Plan indicates the conservation pool is 6,707 acres.
 66

67 **PLAN ORGANIZATION**

68 Chapter 1 of the Master Plan presents an overall introduction of Joe Pool Lake.
 69 Chapter 2 consists of an inventory and analysis of project resources. Chapters 3 and

70 4 lay out management goals, resource objectives, and land allocation and
71 classification. Chapter 5 is the resource plan that identifies how project lands will be
72 managed through a resource use plan for each land use classification. This includes
73 current and projected park facility needs, an analysis of existing and anticipated
74 resource use, and anticipated influences on overall project operation and
75 management. Park maps produced by TPWD and Grand Prairie for their respective
76 developed parks are provided in Chapter 5. Chapter 6 details topics that are unique to
77 Joe Pool Lake. Chapter 7 identifies the public involvement efforts and stakeholder
78 input gathered for the development of the Master Plan, and Chapter 8 gives a
79 summary of the changes in land classification from the previous master plan to the
80 present one. Finally, the appendices include information and supporting documents
81 for this Master Plan revision, including Land Classification and Park Plate Maps
82 (Appendix A).
83

84 An Environmental Assessment analyzed alternative management scenarios for
85 Joe Pool Lake and has been prepared in accordance with the National Environmental
86 Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental
87 Quality; and USACE regulations, including Engineer Regulation 200-2-2: Procedures
88 for Implementing NEPA. The EA is a separate document that informs this Master Plan
89 and can be found in its entirety in Appendix B.
90

91 The EA evaluated two alternatives as follows: 1) No Action Alternative, and 2)
92 Proposed Action. The EA analyzed the potential impact these alternatives would have
93 on the natural, cultural, and human environments. The Master Plan is conceptual and
94 broad in nature, and any action proposed in the plan that would result in significant
95 disturbance to natural resources or result in significant public interest would require
96 additional NEPA documentation at the time the action takes place.
97

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CHAPTER 1 - INTRODUCTION

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302

303 1.1 GENERAL OVERVIEW

304 Joe Pool Dam is located at river mile (RM) 11.2 on Mountain Creek, a tributary to
305 the West Fork of the Trinity River. The damsite is located in Dallas County, about 10
306 miles southwest of the city of Dallas and adjacent to the city of Grand Prairie. The lake
307 extends from Dallas County into Tarrant and Ellis counties (Figure 1). The construction
308 of Joe Pool Dam began on 6 December 1979 and was completed in May 1986,
309 deliberate impoundment began on 7 January 1986.

310
311 Joe Pool Dam and Lake Project is an integral part of the USACE plan for flood
312 control and water conservation in the Trinity River Basin. The plan presently consists of
313 eight major flood control projects, known as Benbrook Dam, Bardwell Dam, Grapevine
314 Dam, Joe Pool Dam, Lavon Dam, Lewisville Dam, Navarro Mills Dam, and Ray Roberts
315 Dam. The eight flood control projects in the Trinity River system control approximately
316 1,591,300 acre-feet (ac-ft) of flood control area. Joe Pool controls 232 square miles of
317 drainage area. USACE operates and maintains the dam and associated facilities, and
318 administers the Federal lands and flowage easements comprising the project through a
319 combination of direct management and leases for park and recreation purposes.

320
321 The Trinity River Authority of Texas (TRA), an agency of the State of Texas,
322 serves as the local sponsor for Joe Pool Lake. A water supply storage contract with the
323 TRA was approved 15 June 1977 for 100 percent (142,900 ac-ft) of the conservation
324 storage below elevation 522.0 feet NGVD. TRA assists federal, state, regional and local
325 entities in developing water supply and wastewater projects based on the needs of their
326 populations. In addition to Joe Pool Lake, TRA serves as the local sponsor for several
327 other USACE projects including Bardwell Lake, Navarro Mills Lake, and the Wallisville
328 Saltwater Barrier.

329
330 The Master Plan is intended to serve as a comprehensive land and recreation
331 management guide with an effective life of approximately 25 years. The focus of the
332 Plan is to guide the stewardship of natural and cultural resources, and make provision
333 for outdoor recreation facilities and opportunities on federal land associated with Joe
334 Pool Lake. The Master Plan identifies conceptual types and levels of activities, but does
335 not include designs, project sites, or estimated costs. All actions carried out by USACE,
336 other agencies, and individuals granted leases to USACE lands must be consistent with
337 the Master Plan. The Plan does not address the flood risk management, or water supply
338 purposes of Joe Pool Lake (see the USACE Water Control Manual for Joe Pool Lake for
339 a description of these project purposes). The Joe Pool Lake Master Plan was last
340 updated in 1981, which is well past the intended planning horizon.

341

342 **1.2 PROJECT AUTHORIZATION**

343 Joe Pool Lake was authorized for construction in 1965 as a multi-purpose
344 reservoir for flood control, water conservation, recreation, and fish and wildlife
345 management as contained in the River and Harbor Act of 1965 (Public Law [PL] 89-
346 298), in accordance with the total plan of improvement for the Trinity River as outlined in
347 House Document 276 (89th Congress, 1st Session). Originally known as Lakeview Lake,
348 the name was changed on December 31, 1982 by PL 97-400 in honor of the former
349 U.S. Congressman Joe Richard Pool from Dallas, Texas, who served in the U.S. House
350 of Representatives from January 1963 through July 1968. Construction of Joe Pool
351 Dam began December 6, 1979, and was completed in May 1986. Deliberate
352 impoundment began in January 1986 and the conservation pool was filled in May 1989.

353 **1.3 PROJECT PURPOSE**

354 Joe Pool Lake is a multipurpose water resources project designed and operated
355 by USACE for the primary purposes of flood risk management and water conservation
356 within the Trinity River Basin. USACE administers the surrounding federal lands and
357 water surface to provide a variety of public, outdoor recreation opportunities. All
358 recreation facilities on Federal land at Joe Pool Lake are currently leased to and
359 operated and maintained by Texas Parks & Wildlife Department (TPWD) at Cedar Hill
360 State Park, and Grand Prairie at numerous other park areas. Grand Prairie currently
361 operates Lynn Creek, Loyd and Britton Parks and has a park and recreation lease on
362 four additional parcels that are currently undeveloped. Lynn Creek Marina is operated
363 by a private concessionaire in Lynn Creek Park through a sublease agreement with
364 Grand Prairie. USACE also administers the Federal lands and water surface at Joe Pool
365 Lake for environmental stewardship purposes either directly or through the lease
366 agreements with TPWD and Grand Prairie. Refer to map JP18MP-OM-01 in Appendix A
367 for an overview of the lands managed by each managing entity. Environmental
368 stewardship of Federal lands is carried out to recognize and protect important fish and
369 wildlife habitats and species.

370 **1.4 MASTER PLAN PURPOSE AND SCOPE**

371 The Joe Pool Lake Master Plan is the living, flexible, long-term strategic land-use
372 management document that guides the comprehensive management and development
373 of all the project's recreational, natural, and cultural resources. Under the guidance
374 published in Engineering Regulation (ER) 1130-2-550 Change 7, and the accompanying
375 Engineer Pamphlet (EP) 1130-2-550 Change 5, the Plan guides the efficient and cost-
376 effective development, management, and use of project lands. It is a dynamic tool that
377 provides for the responsible stewardship and sustainability of the project's resources for
378 the benefit of present and future generations. The Plan works in tandem with the
379 Operational Management Plan (OMP), which is the task oriented implementation tool for
380 the resource objectives and development needs identified in the Master Plan. The
381 Master Plan guides and articulates the USACE responsibilities pursuant to federal laws.
382 The USACE vision for the future management of the natural resources and recreation
383 program at Joe Pool Lake is set forth as follows:
384

385 *“The land, water and recreational resources of Joe Pool Lake will be*
386 *managed to protect, conserve, and sustain natural and cultural*
387 *resources, especially environmentally sensitive resources, and provide*
388 *outdoor recreation opportunities that complement overall project*
389 *purposes for the benefit of present and future generations.”*

390
391 It is important to note what the Master Plan does not address. Details of design;
392 management and administration; and implementation are not addressed here, but are
393 covered in the Joe Pool Lake OMP. In addition, the Master Plan does not address the
394 specifics of regional water quality, shoreline management (a term used to describe
395 primarily vegetation modification by neighboring landowners), or water level
396 management, nor does it address the operation and maintenance of prime project
397 operations facilities such as the dam embankment, gate control outlet, and spillway.
398 Additionally, the Plan does not address the flood risk management or water
399 conservation purposes of Joe Pool Lake with respect to management of the water level
400 in the lake (see the USACE Water Control Manual for Joe Pool Lake for a description of
401 these project purposes).

402
403 The master planning process encompasses the examination and analysis of
404 past, present, and future environmental, recreational and socioeconomic conditions and
405 trends. Within a generalized conceptual framework, the process focuses on the
406 following four primary components:

- 407
- 408 • Regional and ecosystem needs
- 409 • Project resource capabilities and suitabilities
- 410 • Expressed public interests that are compatible with Joe Pool Lake’s
- 411 authorized purposes
- 412 • Environmental sustainability elements
- 413

414 The Joe Pool Lake Master Plan, originally published in 1979 as Design
415 Memorandum (DM) 11, then revised as DM 11 in February 1981, was sufficient for prior
416 land use planning and management, but many changes are affecting the region.
417 Outdoor recreation trends, regional land use, population, current legislative
418 requirements, and USACE management policy have evolved. Increased urbanization,
419 fragmentation of wildlife habitat, impacts of climate change, and the growing demand for
420 recreational access and natural resources management has affected the region and Joe
421 Pool Lake. In response to these escalating pressures, a full revision of the 1981 Master
422 Plan is required. The Master Plan revision will update land classifications, include new
423 resource management objectives, and describe future plans proposed by key partners
424 including TPWD and Grand Prairie. The Plan will also inform the management of wildlife
425 and other resource lands for the next 25 years.

427 **1.5 BRIEF WATERSHED AND PROJECT DESCRIPTION**

428 Joe Pool Lake is located in the Mountain Creek watershed in the Upper Trinity
429 River Basin. The headwaters of Mountain Creek begin in the northern part of Johnson
430 County in north central Texas and flow north and northeasterly until it joins the West
431 Fork of the Trinity River at river mile 507.8. The watershed is southwest of Dallas,
432 Texas and comprises portions of Johnson, Ellis, Tarrant, and Dallas Counties. It is
433 roughly 37 miles long, with a maximum width of about 16 miles, and contains a total
434 area of 304 square miles, of which 232 square miles drain into Joe Pool Lake.

435
436 Two major left-bank tributaries drain the western part of the Mountain Creek
437 watershed. Walnut Creek joins Mountain Creek just upstream of Joe Pool Dam, while
438 Fish Creek drains into Mountain Creek Lake, which is located approximately 7 miles
439 downstream of Joe Pool Dam. The dam at Mountain Creek Lake is owned and operated
440 by Texas Utilities Electric Company. Minor left-bank tributaries that flow into Mountain
441 Creek are Cottonwood Creek and Lynn Creek. Minor right-bank tributaries that flow into
442 Mountain Creek are O'Guinn Creek, Artesian Creek, John Penn Branch, Baggett
443 Branch, and Hollings Branch. Flow between Mountain Creek Dam and Joe Pool Dam, is
444 affected by backwater from Mountain Creek Lake. Downstream from Mountain Creek
445 Dam flows are affected by backwater from the West Fork of the Trinity River.

446
447 Joe Pool Dam consists of a rolled earthfill embankment, a saddle dam, an
448 uncontrolled broad crested spillway, outlet works, low flow system, and flood gates. The
449 total length of the dam is 24,340 feet. The outlet works consist of an approach channel,
450 intake structure with trash rack and gates, flood conduit, low flow conduit, stilling basin,
451 and a discharge channel. The intake tower is located in the lake upstream from the dam
452 embankment station. A 10.5 feet diameter flood conduit running from the tower passes
453 through the embankment and is 660 feet long from the intake tower to the stilling basin
454 portal.

455
456 The total area acquired in fee simple was 15,067 acres. Flowage easements
457 were required for 1,904 acres in the upper reaches of the reservoir, which would be
458 subject to induced backwater flooding. Land up to elevation 541.0 NGVD, 5 feet above
459 the top of the flood control pool, was acquired in fee simple to allow for the operation of
460 Joe Pool Lake. Where the taking line at this elevation was not at least 300 horizontal
461 feet from the flood control pool, the line was reset to provide a minimum ownership
462 width of 300 feet. At the normal or conservation pool elevation of 522.0 NGVD, the lake
463 has approximately 60 shoreline miles and a surface area of 6,707 acres.

464
465 There are eight public parks currently designated at Joe Pool Lake, four of which
466 are undeveloped. One of the parks, Cedar Hill State Park, is operated and maintained
467 by the Texas Park and Wildlife Department and frequently records one of the highest
468 annual visitations of any state park in Texas. The other seven parks are leased to the
469 City of Grand Prairie.

470



Figure 1.1 Vicinity Map of Joe Pool Lake

471
472

473

474 **1.6 DESCRIPTION OF RESERVOIR**

475 Joe Pool Lake is, by comparison to many USACE lakes, a small to medium size
 476 reservoir with a normal or conservation pool of 6,707 surface acres at elevation 522.0
 477 NGVD. The depth of the lake near the outlet works is approximately 65 feet, but depths
 478 decrease as one moves south from the dam. The top of the flood control pool is
 479 elevation 536.0 NGVD and the uncontrolled spillway crest is at elevation 541.0 NGVD.
 480 The lake was designed to allow the accumulation of 38,000 acre-feet of sediment during
 481 the 100 year life of the reservoir, but as of the date of this Master Plan, no
 482 sedimentation surveys have been conducted to determine the degree of sediment

483 accumulation. See Table 1.2 for pertinent project data. The northeast shoreline of the
484 lake is the home of 1,943-acre Cedar Hill State Park. This shoreline is a remarkable
485 topographic feature and is the point of convergence for two ecosystems, the blackland
486 prairie to the west and the rugged limestone escarpment to the east. The limestone
487 escarpment rises to elevation 850 NGVD and is reminiscent of the Texas hill country.
488 The remainder of the perimeter lands around the lake have less dramatic topography
489 and are dominated by old agricultural fields interspersed with small streams and
490 drainages.
491

492 **1.7 PROJECT ACCESS**

493 Joe Pool Lake is easily accessed by several primary, secondary and tertiary
494 roads. The two main east-west access highways include Interstate Highway (IH) 20
495 located only two miles north of the dam and U.S. (US) Route 287 that crosses flowage
496 easement adjacent to Mountain Creek in the upper reaches of the lake. State Highway
497 (SH) 360 and US Route 67 provide north-south access on the west and east side of the
498 lake respectively. Lakeridge Parkway provides convenient access to Lynn Creek Park
499 and the south end of Cedar Hill State Park. Belt Line Road provides good access to the
500 north end of Cedar Hill State Park.
501

502 The North Central Texas Council of Governments (NCTCOG) coordinates with
503 cities, counties and transportation partners to plan road, transit, bicycle and pedestrian
504 transportation improvements for 16 counties comprising the NCTCOG and serves as
505 the Metropolitan Planning Organization for the Dallas-Fort Worth Area. NCTCOG's
506 Mobility 2040 plan was used as a reference document for this Master Plan. Items
507 recommended for implementation in the Mobility 2040 plan that are of significance to
508 the area surrounding Joe Pool Lake include the following:
509

- 510 • Widening Lakeridge Parkway, a regionally important arterial, from the
511 current 2 lanes to 6 lanes by 2040
- 512 • Widening Camp Wisdom Road, a regionally important arterial, from the
513 current 2 lanes to 4 lanes by 2040
- 514 • Construction of light rail lines that roughly parallel US 287 on the south
515 side of the lake and US 67 on the east side of the lake
- 516 • Addition of new or additional toll road capacity to SH 360 on the west
517 side of the lake
- 518 • Adding links to the Regional Veloweb that will serve the area encircling
519 Joe Pool Lake.

520
521 National USACE policy set forth in ER 1130-2-550, Appendix H, states that
522 USACE lands will, in most cases, only be made available for roads that are regional
523 arterials or freeways (as defined in ER 1130-2-550). All other types of proposed roads,
524 including driveways and alleys, are generally not permitted on USACE lands. The
525 proposed expansion or widening of existing roadways on USACE lands will be
526 considered on a case-by-case basis.
527

528 **1.8 PRIOR DESIGN MEMORANDA**

529 Design Memorandums were prepared from 1968 thru 1985 setting forth design
 530 criteria for all aspects of the project including the prime flood risk management facilities,
 531 real estate acquisition, road and utility relocations, reservoir clearing, and the master
 532 plan for recreation development and land management. A few supplements and project
 533 related reports and manuals were added after 1985. Table 1.1 lists the Design
 534 Memoranda as well as other manuals and reports for Joe Pool Lake.
 535
 536

Table 1.1 Design Memoranda, Manuals and Reports – Joe Pool Lake

	Title	Date
1.	Lakeview Lake - Design Memorandum No. 1 - Hydrology - Supplement No. 1 - Supplement No. 2 - Supplement No. 3 - Supplement No. 4	October 1968 November 1969 September 1974 January 1979 January 1979
2.	Lakeview Lake - Design Memorandum No. 5 - Site Selection	November 1968
3.	Lakeview Lake - Design Memorandum No. 3 - Availability of Materials	February 1969
4.	Lakeview Lake - Design Memorandum No. 4 - General - Supplement No. 1 - Supplement No. 2 - Supplement No. 3	December 1969 October 1970 September 1974 March 1979
5.	Design Memorandum No. 5 - Real Estate Lands for Construction and Reservoir Areas	December 1969
6.	Design Memorandum No. 6 - Land Requirements Plan - Public Use	January 1970
7.	Design Memorandum No. 7 - Project Buildings, Overlook, and Access Road	November 1970
8.	Design Memorandum No. 7 - Project Building, Overlook, Access Road, and Recreation Facilities (revised) - Supplement No. 1 - Supplement No. 2 - Supplement No. 2 (revised) - Supplement No. 3	January 1979 April 1982 May 1983 July 1984 April 1987
9.	Design Memorandum No. 8 - Relocation of Texas State FM Road 1382 - Supplement No. 1	July 1971 October 1978
10.	Design Memorandum No. 9 - Embankment and Spillway - Supplement No. 1	April 1980 April 1981
11.	Design Memorandum No. 10 - Relocations - Dam Construction Area	March 1975
12.	Design Memorandum No. 11 - Master Plan	June 1979
13.	Design Memorandum No. 11 - Master Plan (revised)	February 1981

	Title	Date
	- Supplement No. 1 - Supplement No. 2	November 1984 July 1989
14.	Design Memorandum No. 12 - Relocate TESCO Electric Transmission Lines - Lakeview Lake area	June 1984
15.	Design Memorandum No. 12 - Relocate TESCO Electric Transmission Lines - Lakeview Lake area	June 1984
16.	Design Memorandum No. 13 - Relocate TESCO Electric Transmission Lines - Lakeview Lake area	July 1983
17.	Design Memorandum No. 14 - Relocate SW Bell Telephone Lines - Lakeview Lake area	August 1984
18.	Design Memorandum No. 15 - Relocate T.P. & L Transmission Lines - Lakeview Lake area	August 1982
19.	Design Memorandum No. 16 - Relocation of City Streets and County Roads - Supplement No. 1 - Supplement No. 2	April 1980 August 1982 May 1984
20.	Design Memorandum No. 19 - Southern Pacific Railroad Relocation	February 1981
21.	Design Memorandum No. 20 - Mobil Oil Pipeline Relocation	December 1980
22.	Design Memorandum No. 21 - Lone Star Gas Pipeline Relocation	December 1980
23.	Design Memorandum No. 22 - Relocation of FM Road 661 - Supplement No. 1	January 1980 July 1984
24.	Design Memorandum No. 23 - Clearing and Sedimentation and Degradation Ranges	March 1983
25.	Design Memorandum No. 24 - Outlet Works - Supplement No. 1 (Initial Embankment)	November 1978 February 1979
26.	Design Memorandum No. 25 - Recreation Facilities	December 1982
27.	Design Memorandum No. 26 - Sewer Treatment Plant Relocation	June 1983
28.	Design Memorandum No. 27 - Relocate Tarrant County Water Control & Improvement District No. 1 Pipeline Facilities	March 1983
29.	Design Memorandum No. 28 - Relocation of Hill County Electric CO-OP Distribution Facilities in Joe Pool Lake area	February 1983
30.	Design Memorandum No. 29 - Reservoir Filling Plan	November 1985
31.	Report on Restudy of Authorized Lakeview Lake (Mountain Creek Watershed)	June 1973
32.	Environmental Enhancement Theme Alternatives (Draft)	June 1978
33.	Joe Pool Lake - Completion of Embankment and Spillway	February 1988

	Title	Date
34.	Joe Pool Lake - Operation and Maintenance Manual	September 1991
35.	Joe Pool Lake - Flood Emergency Plan	September 1993

Source: USACE

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539

DRAFT

540 **1.9 PERTINENT PROJECT INFORMATION**

541 The following table provides pertinent information regarding key reservoir
 542 elevations and storage capacity at Joe Pool Lake.

543 **Table 1.2 Elevations and Water Storage Capacity**
 544

Feature	Elevation (Feet NGVD)	Lake Area (Acres)	Storage (Acre-Feet)	Runoff (inches)
Top of Dam	564.4	–	–	–
Maximum Design Water Surface Elevation (1979 Study)	559.4	18,600	642,400	51.92
Spillway Crest (1979 Study)	541.0	12,470	362,700	29.31
Top of the Flood Control Pool (1979 Study)	536.0	10,940	304,000	24.57
Top of the Conservation Pool (1979 Study)	522.0	7,470	176,900	14.30
Sediment Reserve	–	–	38,000	–
Maximum Tailwater	474.9	–	–	–
Streambed	456.0	–	0	–

545 Source: USACE
 546
 547

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CHAPTER 2 - PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

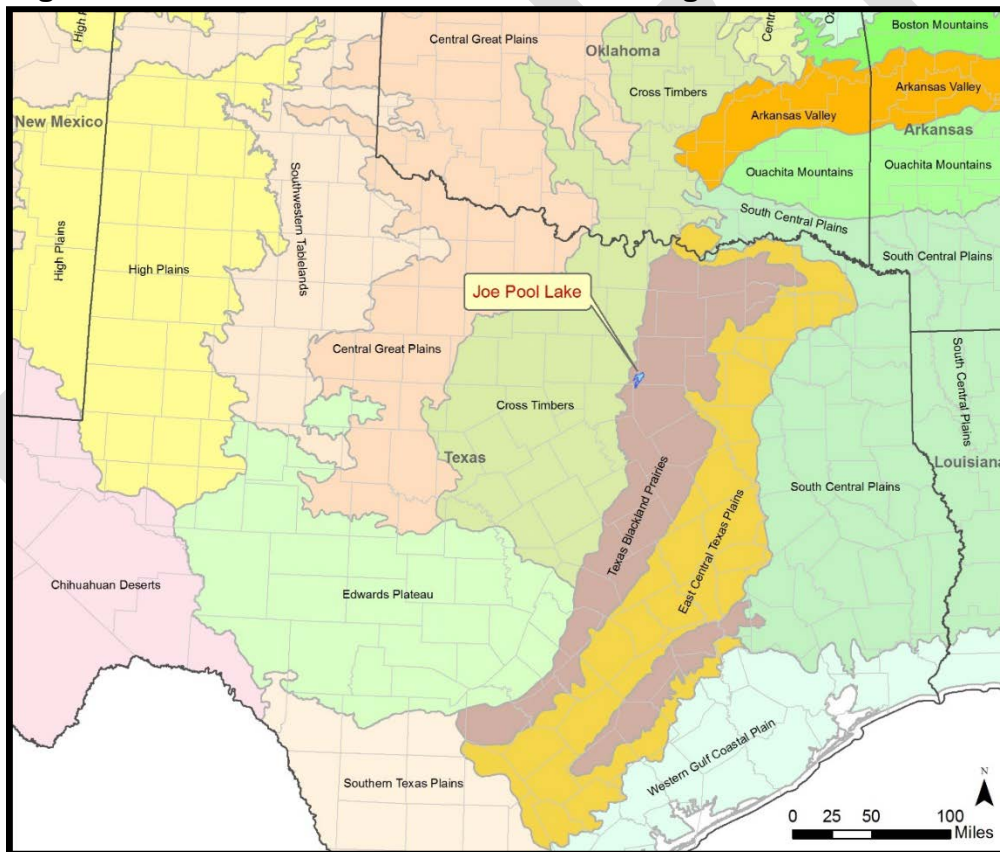
551 2.1 PHYSIOGRAPHIC SETTING

552 2.1.1 Ecoregion Overview

553 Joe Pool Lake is in the Texas Blackland Prairies ecoregion characterized by fine-
554 textured, clayey soils and predominantly prairie vegetation and is divided into distinct
555 Northern and Southern regions. Joe Pool Lake is located in the Northern Blackland
556 Prairie, which stretches over 300 miles from Sherman in the north to San Antonio in the
557 south. Prairie vegetation includes various grasses and forbs, while the bottomland
558 hardwood forests is predominantly oak and other hardwood trees. Elevations range
559 from approximately 95 to 850 NGVD.

560
561

Figure 2.1 Joe Pool Lake within Texas Ecoregions



Source: EPA

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Before Anglo settlement, the region was habitat for bison, pronghorn antelope, mountain lion, bobcat, ocelot, black bear, collared peccary, deer, coyote, fox, badger, river otter, and many species of birds. Much of the original prairie and forest has been

568 converted to cropland and pasture or cleared for urbanization, with less than one
 569 percent of the original vegetation remaining today.

570

571 2.1.2 Climate

572 Located at the intersection of Dallas, Tarrant, and Ellis counties, the local climate
 573 is a warm, temperate, humid, subtropical climate. Summers are usually hot and often
 574 humid during the day and warm at night, while winter temperatures are normally mild
 575 with short durations of freezing temperatures. The average annual temperature is 66
 576 degrees (°) Fahrenheit (F), while average low and high temperatures range from 37°F in
 577 January to 96°F in August. The lowest minimum-recorded temperature is -8°F and the
 578 highest maximum 113°F. The area has an average of 332 frost-free days, while the
 579 growing season between the last and first frost averages 247 days; but this can vary
 580 significantly from year to year. The average first freeze occurs in late-November and the
 581 average last freeze occurs in mid-March. The area is prone to extreme weather
 582 including hailstorms and tornados.

583

584 **Table 2.1 Temperature**

Temperature Period of Record 1981-2010	
Average Low January Temperature	36°F
Average High August Temperature	96°F
Average Annual Temperature	66°F
Average Days With Temperature ≤ 32°	33 days
Average Days With Temperature ≥ 100°	18 days

585 Source: Weather.gov

586

587 Annual precipitation for Joe Pool Lake is 36.1 inches per year. Although
 588 precipitation can occur during every month of the year, more precipitation typically
 589 occurs during spring and fall with May averaging the most precipitation. The region
 590 averages 1.7 inches of snowfall annually, but many years receive very little to no
 591 measurable snowfall. Rainfall can occur through short rainstorms or even torrential
 592 thunderstorms delivering over 5 inches of rain in a 24-hour period. Those torrential
 593 storms, when combined with poorly draining soil, can lead to significant runoff and a
 594 threat of flooding.

595

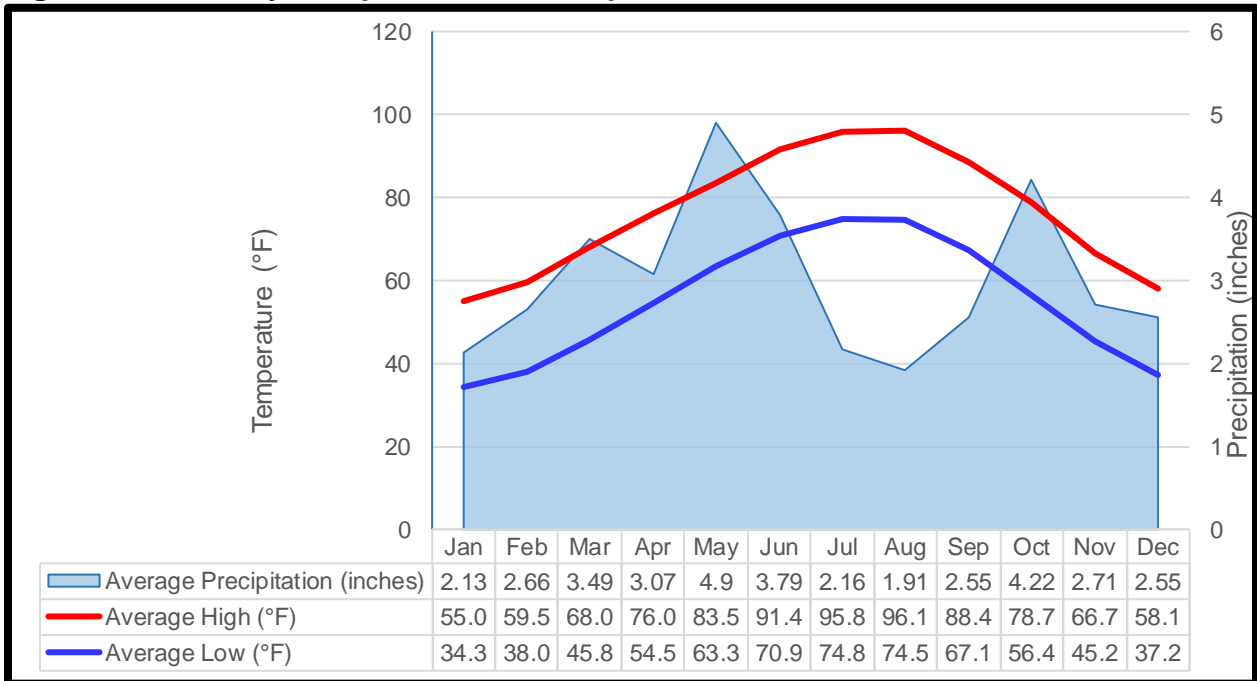
596 **Table 2.2 Precipitation**

Precipitation Period of Record 1921-2010	
Mean Annual Precipitation	36.1 inches
Maximum Annual Precipitation	62.6 inches (2015)
Minimum Annual Precipitation	17.9 inches (1921)
Maximum Monthly Rainfall	17.6 inches (Apr 1922)
Maximum 24-Hour Rainfall	5.9 inches (Oct 1959)
Average Annual Snowfall	1.7 inches
Maximum Snowfall (by Season)	17.6 inches (1977-1978)

597 Source: Weather.gov and USACE Water Control Manual

598

599 **Figure 2.2 Monthly Temperature & Precipitation**

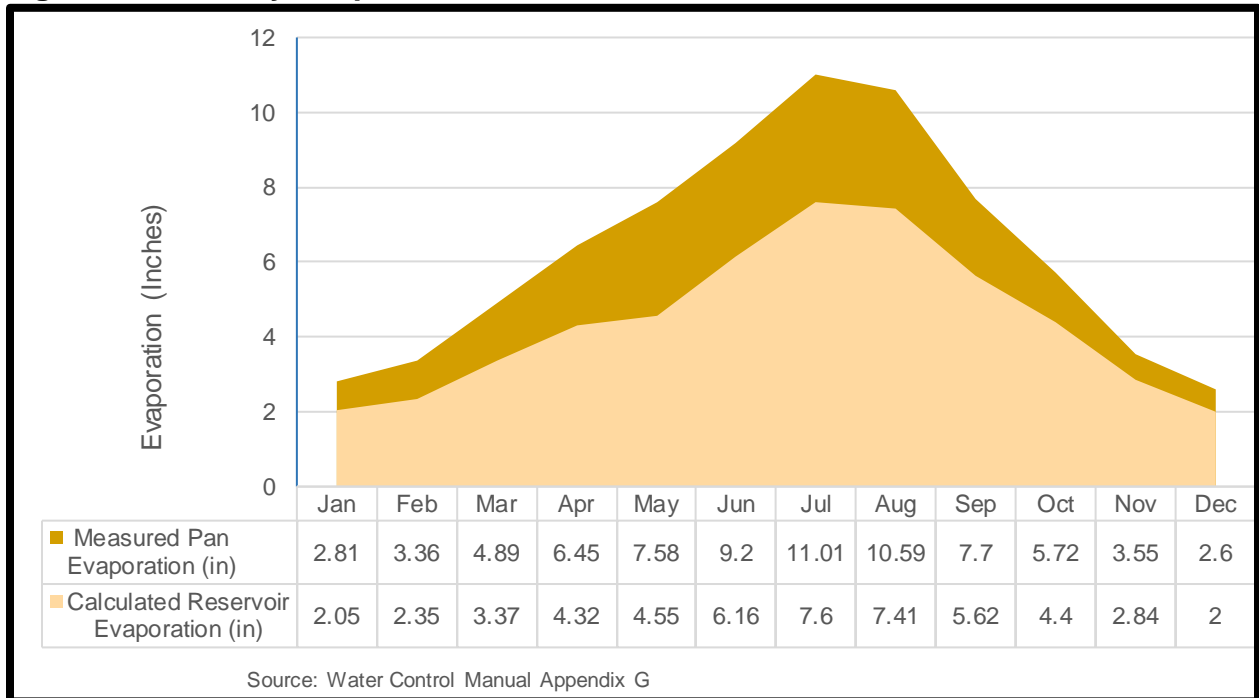


Source: NOAA & National Weather Service

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Evaporation data has been collected at Joe Pool Lake with an evaporation pan from 1989 to present. Average annual evaporation from the lake is about 54 inches. The highest recorded pan evaporation was in 2011 at 96.89 inches, while the lowest recorded pan evaporation was 63.6 in 1992. The evaporation pan has a higher rate of evaporation than the lake, so a coefficient is used to estimate the actual lake evaporation. The major factors affecting the rate of evaporation are temperature, humidity, and wind.

612 **Figure 2.3 Monthly Evaporation**



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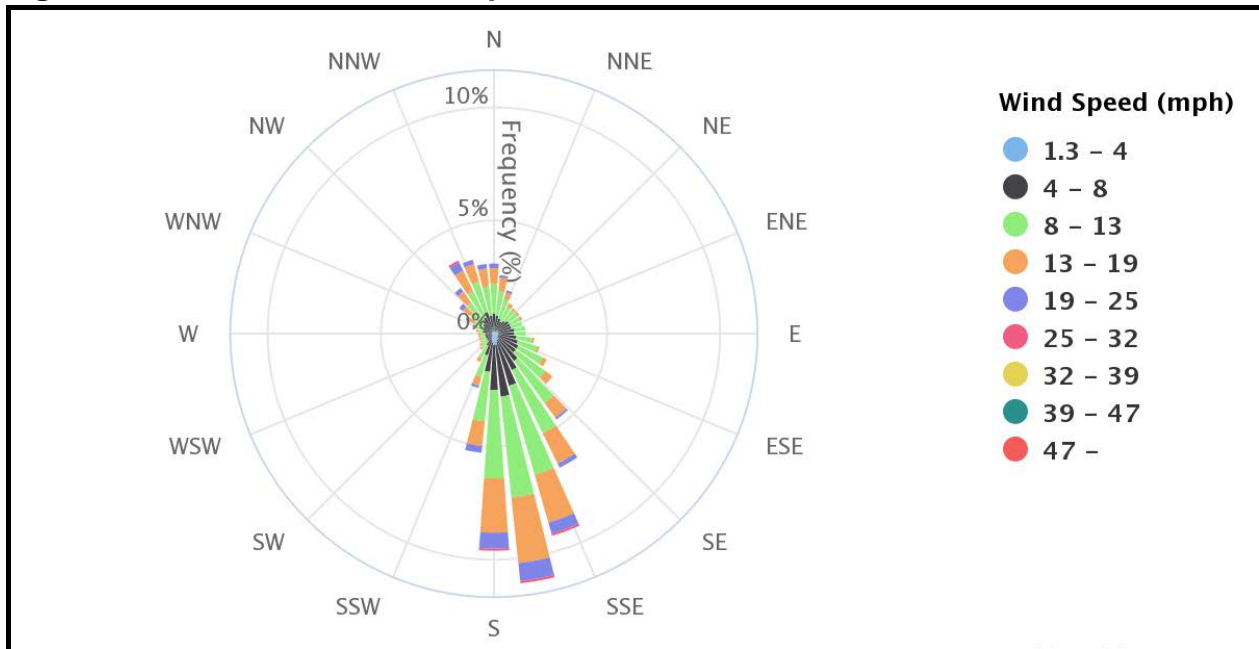
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622

The prevailing winds over the watershed are from the south during the spring, summer, and fall months, while northerly winds prevail during the winter months. Severe winds have been experienced near Joe Pool Lake. Gusts up to 110 miles per hour were recorded near the National Weather Service Station in Lilian, approximately 20 miles southwest of the dam site on 23 April 2003. Tornadoes are rare within the watershed, but have been known to occur within Dallas, Ellis, and Tarrant Counties.

623 **Figure 2.4 Wind Direction and Speed**



624 Source MRCC Cli-MATE Tool, [Wind Rose from Arlington Station, 1997-2017

625
626
627 The topic of worldwide climate change, including the causes and extent,
628 continues to be studied by the scientific community and world governments. In the
629 United States, two Executive Orders, EO 13514 and EO 13653, as well as the
630 President’s Climate Action Plan (CAP) set forth requirements to be met by Federal
631 agencies. These requirements range from preparing general preparedness plans to
632 meeting specific goals to conserve energy and reduce greenhouse gas emissions.
633 USACE has prepared an Adaptation Plan in response to the Executive Orders and
634 CAP. The Adaptation Plan includes the following USACE policy statement:

635
636 “It is the policy of USACE to integrate climate change preparedness and
637 resilience planning and actions in all activities for the purpose of enhancing the
638 resilience of our built and natural water-resource infrastructure and the
639 effectiveness of our military support mission, and to reduce the potential
640 vulnerabilities of that infrastructure and those missions to the effects of climate
641 change and variability.”

642
643 2.1.3 Geology

644 The geology around Joe Pool Lake is primarily composed of three named
645 geologic formations: Alluvium, Fluvial Terrace Deposits, and Eagle Ford Group. The
646 oldest shale and limestone layers were laid down during the Cretaceous Period, while
647 the gravel, clay, sand, and silt were laid down periodically since the Cretaceous Period.
648 The alluvium formation is from more recent alluvial sedimentary deposits from the local
649 creeks which feed into the Trinity River. The following are descriptions of each
650 formation:

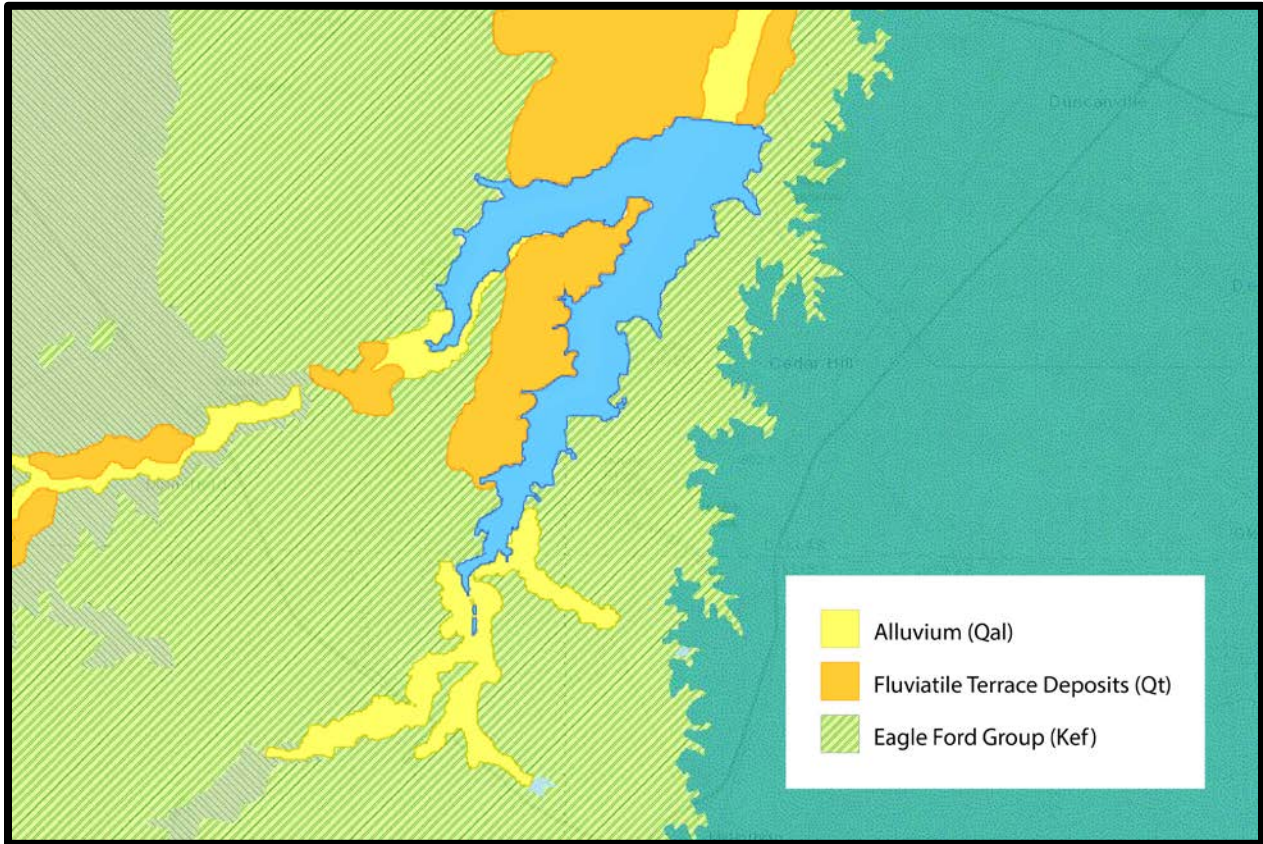
651 Alluvium (USGS symbol Qal): The alluvium formation is composed of mostly
652 flood-plain deposits including indistinct low terrace deposits; gravel, sand, silt, silty clay,
653 and various forms of organic matter. It was formed during the Quaternary Period, which
654 is the last 2.6 million years, and specifically the Holocene Epoch, which is the most
655 recent 11,700 years of that period.
656

657 Fluviate Terrace Deposits (USGS symbol Qt): This formation was formed
658 during the Quaternary Period which includes the last 2.6 million years, but periodically
659 during the Pleistocene Epoch, which ranges from 2.6 million years ago until 11,700
660 years ago. The Fluviate Terrace Deposits are mostly gravel, sand, silt, and clay; which
661 often form well-defined layers of different ages separated by solid lines.
662

663 Eagle Ford Group (USGS symbol Kef): The Eagle Ford Group was formed in the
664 late Cretaceous Period, between 66 million and 100 million years ago. The formation is
665 part of the Gulfian Series, which was deposited when the area was inundated by the
666 Gulf of Mexico. The deposits include a range of sandstone, limestone, and shale;
667 bituminous, selenitic, with calcareous concretions and large septaria; sandstone and
668 sandy limestone in the upper parts, platy, burrowed, medium to dark gray. The
669 formation ranges in thickness from 200-300 feet thick, and often contain marine fossils
670 from the Cretaceous Period. Overlying the Eagle Ford along the eastern margin of the
671 park is the Austin Formation. The Austin consists of well-indurated layers of chalk which
672 form the impressive White Rock Escarpment. Only a small portion of the park exhibits
673 exposures of the Austin Chalk.
674

675 The region is known to have natural resources including oil and natural gas, and
676 those mostly in the Eagle Ford Group. Hydrocarbons are mostly found in less
677 permeable layers which are normally retrieved through hydraulic fracturing and
678 horizontal drilling. Section 2.2 discusses natural resources in more detail.
679

680 **Figure 2.5 Soils Map for Joe Pool Lake**



681 Source: USGS Texas Geology Map

682
683
684 2.1.4 Topography

685 Joe Pool Lake and its tributaries are located in the floodplains and Low Terraces
686 subdivisions of the Northern Blackland Prairies ecoregion, which have nearly flat plains
687 to gently rolling hills with a few shallow tributary valleys. The combination of minimal
688 grade changes and poorly draining, clay-filled soils often led to thousands of gilgai,
689 which are small depressions containing pools of shallow water. Much of the original
690 topography has been modified for agriculture and later urban growth. Walnut Creek
691 drops from an elevation of 760 NGVD at its source to 456 NGVD at the base of Joe
692 Pool dam, and the creek continues toward its confluence with the West Fork at 390
693 NGVD. To the east of the lake are several bluffs that range in elevation from 750 to 800
694 NGVD.

695
696
697 2.1.5 Hydrology and Groundwater

698 The Trinity River Basin is the third largest river basin in Texas by average volume
699 and the largest river basin that both begins and ends in the state. The Trinity River
700 provides water to over half of the state's population, serving two major population
701 centers: Dallas/Fort Worth in the north and Houston in the South. The basin has an
702 overall length of 360 miles, where the Trinity River meanders a total of 715 miles before

703 draining into the Galveston Bay and estuary system, a very productive ecosystem and
704 commercial fishery. Within the Mountain Creek subwatershed, Walnut Creek was
705 impounded to form Joe Pool Lake, while Mountain Creek and several minor creeks also
706 drain into to the lake. Below the dam, Mountain Creek continues to flow northeast
707 towards Mountain Creek Lake and eventually into the West Fork of the Trinity River.
708

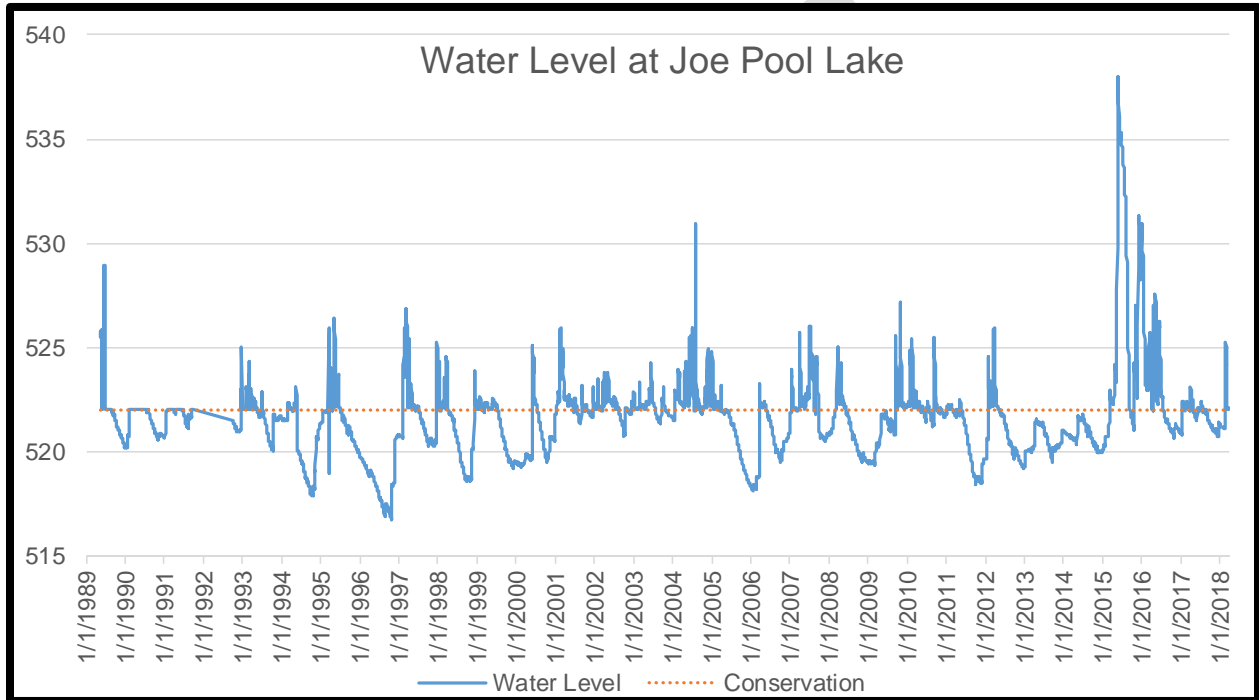
709 Deep below Joe Pool Lake lies the Trinity Aquifer, a major aquifer, and
710 specifically the Woodbine (subcrop) aquifer, which is a minor aquifer. Water in the
711 aquifer is very fresh with slight to moderate salinity and dissolved solids. The aquifer
712 discharges to several natural springs on the western edge of the aquifer, but most
713 springs discharge at less than 10 cubic feet per second. The aquifer is one of the most
714 extensive and highly used groundwater resources in the state, and is used primarily as
715 a municipal water source, but also for irrigation, livestock, and other domestic uses.
716 Recently, the aquifer has suffered some of the state's worst water level declines, both
717 lowering the depth and reducing the pressure of water within the aquifer. This has been
718 due to recent droughts combined with increasing pumping for municipal water use. The
719 regional water planning group has recommended that municipalities start developing
720 other water sources, including increasing surface water use as municipal demand for
721 water is expected to increase. The Trinity River Authority of Texas (TRA) has contracted
722 with USACE for all water supply storage in Joe Pool Lake and has committed all water
723 supply to the cities of Cedar Hill, Grand Prairie, Midlothian and Duncanville. TRA, in
724 cooperation with Cedar Hill, Grand Prairie and Duncanville constructed a water intake
725 structure on the east side of the lake, but has not yet activated the structure. Currently,
726 only the city of Midlothian is withdrawing water from the lake.
727

728 The Mountain Creek watershed is subject to three general types of flood-
729 producing rainfall: thunderstorms, frontal rainfall, and tropical weather patterns. The
730 topography, soils, and typical rainfall patterns of the watershed lead to rapid runoff and
731 flash floods. Floods can occur frequently and at almost any time of year. Generally, the
732 highest 24-hour and monthly precipitation periods have occurred during major regional
733 thunderstorms. However, there are some instances of heavy precipitation resulting from
734 local thunderstorms. Mountain Creek's large floods are generally long-duration type
735 having two or more peaks spaced as close as ten days apart. However, it is possible
736 that large peak (sharp rise in water level over a shorter period) and volume floods (more
737 gradual rise in water level over a longer period) could occur in about two weeks in
738 duration.
739

740 Impounding of water in Joe Pool Lake began on 7 January 1986. The
741 conservation pool was first filled to 522 NGVD on 18 May 1989, and the water level is
742 documented in Figure 2.6. Just shortly thereafter, the lake would be challenged with
743 significant rainfall over the next six weeks, leading to a record high pool on 26 June
744 1989 at 528.97 NGVD. That record would stand until 31 July 2004 when storms raised
745 the pool height to 530.95 NGVD. That record would again last until the pool height
746 reached 538.03 NGVD on 30 May 2015. May through July of 2015 saw continued
747 rainfall which kept the water level well above the conservation pool, not returning to 522
748 NGVD until 13 September. Just two months later, the area again saw significant rainfall

749 in November and into December, leading to a new surge to 531.29 NGVD on 9
 750 December. Although this was not a new record, the short period between significant
 751 storms producing very high pool levels has proven the importance and effectiveness of
 752 Joe Pool Lake in flood risk management. The flood damages prevented in the Mountain
 753 Creek basin by Joe Pool Dam and Lake during fiscal year 2015 were estimated to be
 754 \$281,995,300. The cumulative damages prevented since the completion of the project
 755 in 1986 through 2015 are \$4,229,725,900, and the average is \$141 million per year.
 756 Most of the damages prevented are along the Trinity River through Dallas, Texas.

757
 758 **Figure 2.6 Water Level at Joe Pool Lake**



759 The region has experienced several dry periods and droughts since Joe Pool
 760 Lake was impounded causing the water level to fall far below the conservation pool on
 761 several occasions. On 30 September 1994 the lake experienced its first significant
 762 drawdown when the level reached 517.99 NGVD (83.8% of conservation pool). From
 763 July 1995 through February 1997, the area experienced a prolonged drought, causing
 764 the pool to drop to 516.77 NGVD (79.1%) on 20 October 1996; with the pool not
 765 recovering to 522 NGVD (100%) until 2 February 1997. These and other significantly
 766 low water levels at Joe Pool Lake are documented in Table 2.3.

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778 **Table 2.3 Low Water Levels below 90% Capacity at Joe Pool Lake**

Date	Elevation (Feet, NGVD)	Percent of Capacity
30 September 1994	517.99	83.8
4 April 1996	518.83	87.0
27 August 1996	516.87	79.5
20 October 1996	516.77	79.1
10 October 1998	518.55	85.9
8 December 1999	519.21	88.6
4 February 2000	519.35	89.1
15 October 2000	519.51	89.7
21 January 2006	518.08	84.1
24 February 2006	518.19	84.5
9 October 2006	519.50	89.7
4 January 2009	519.46	89.5
4 March 2009	519.36	89.1
8 October 2011	518.46	85.6
24 December 2012	519.19	88.4
19 September 2103	519.52	89.8

Source: Water Control Manual and waterdatafortexas.org & TWDB

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2.1.6 Soils (Soil Taxonomy)

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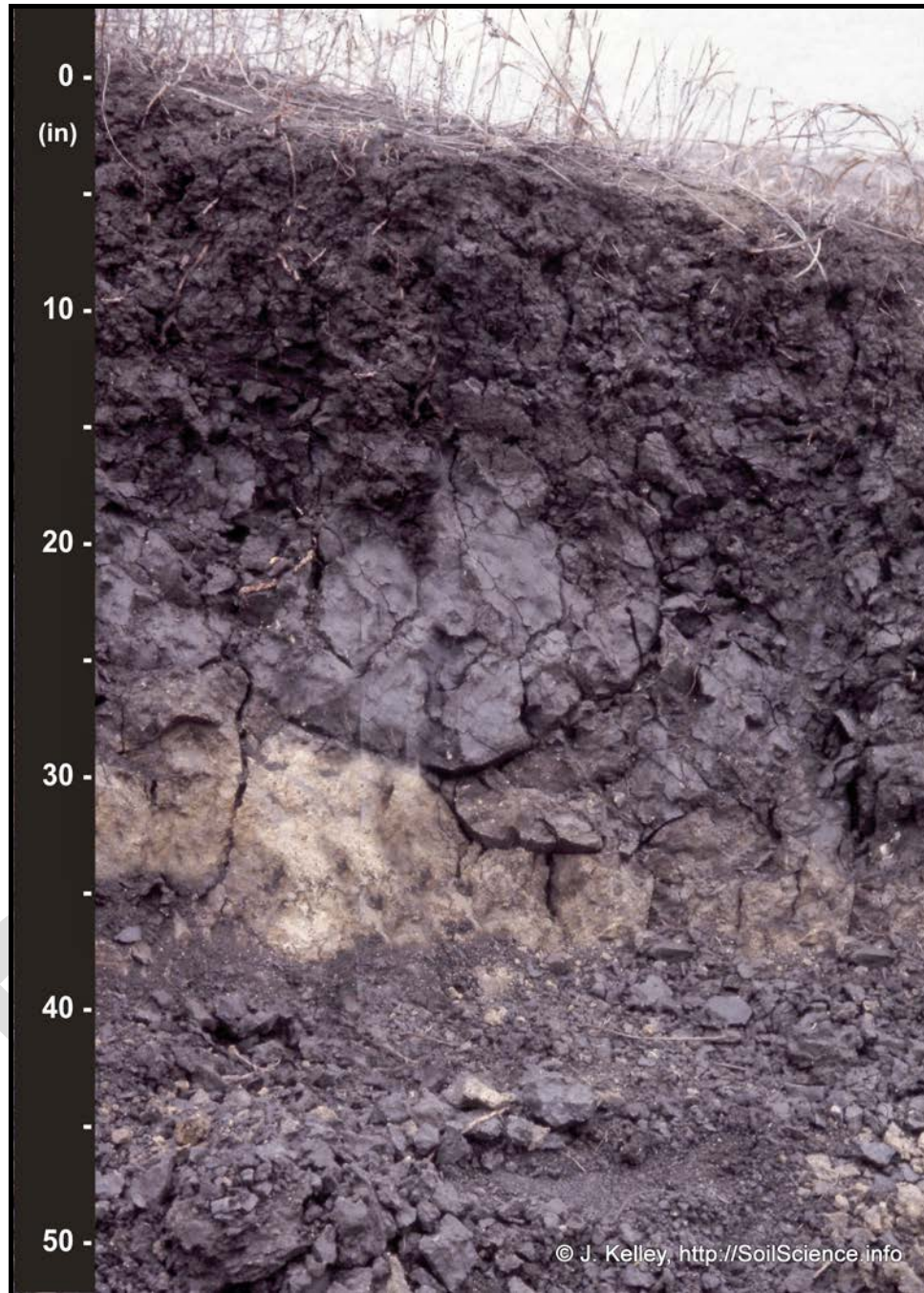
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The main soil series around Joe Pool Lake is the Houston Black Series which is very thick and normally found on level to slightly sloping areas, is slowly permeable, and contains dark, fine, sticky clay, as seen in Figure 2.7. The highly expansive clays are classified as Vertisols, which shrink and swell with changes in moisture content. As the soil swells it becomes less permeable, leading to ponding in level areas and increased runoff where there is a slope. When dry, the soil can develop deep fissures due to the shrinkage. The soil often holds many nutrients for plants including calcium, magnesium, and potassium. While Houston Black soil originally contained native prairie vegetation, the soil has been used for modern agriculture, growing sorghum, cotton, corn, grains, and forage grasses.

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Figure 2.7 Houston Black Clay, by John A. Kelley, USDA Natural Resources Conservation Service



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A soil survey by the Natural Resource Conservation Service (NRCS) shows there are seven out of the eight possible general classifications (Classes I through Class VIII) occurring in the reservoir area, although most is one of five classifications (Class II through VI). The erosion hazards and limitations for use increase as the class number increases. Class I has few limitations, whereas Class VIII has many. The soil class data for project lands is provided in Table 2.4. This data is compiled by the NRCS and is a standard component of natural resources inventories on USACE lands. This, and other

805 inventory data, is recorded in the USACE Operations and Maintenance Business
 806 Information Link (OMBIL).

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 808

Table 2.4 NRCS/USDA Soil Classification

Class	Acreage	Percentage	Description
I	0	0.0%	Class I (1) soils have slight limitations that restrict their use.
II	2,021	26.3%	Class II (2) soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
III	2,080	27.1%	Class III (3) soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
IV	562	7.3%	Class IV (4) soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
V	1,008	13.1%	Class V (5) soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
VI	2,027	26.4%	Class VI (6) soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.
VII	21	<0.1%	Class VII (7) soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.
VIII	3	<0.1%	Class VIII (8) soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for esthetic purposes.

809 Source: OMBIL; Class descriptions from NRCS/USDA
 810

811 **2.2 ECOREGION AND NATURAL RESOURCE ANALYSIS**

812 2.2.1 Natural Resource Stewardship and Analysis

813 The natural resources present at Joe Pool Lake include the water, wetlands, soil,
 814 vegetation, and fish and wildlife, including those species listed as endangered or
 815 threatened by the U.S. Fish and Wildlife Service (USFWS) and the state of Texas. The
 816 stewardship of natural resources adheres to ecosystem management principles as
 817 described in the USACE regulations ER and EP 1130-2-540. Effective stewardship is
 818 imperative to the sustainability and use of project resources. The ecoregion and the
 819 local natural resources are described in further detail in the following section.

820
 821 As part of the master planning process, USACE completed a habitat study for the
 822 Environmental Assessment (EA, located in Appendix B) based on Texas Parks and

823 Wildlife Department’s (TPWD) Wildlife Habitat Appraisal Procedure (WHAP). The
 824 WHAP was developed to allow a qualitative and holistic evaluation of wildlife habitat for
 825 a particular location without requiring significant time for field work or compiling data. A
 826 total of 69 points were surveyed from the known major habitat types throughout USACE
 827 lands around the lake to assess the quality of the habitat around Joe Pool Lake. The
 828 WHAP noted just three points with very high quality habitat, which support riparian and
 829 mixed forest habitats with very high diversity. The WHAP also noted five point with high
 830 scores indicating quality habitat with good diversity. Some of those sites were also
 831 associated with ongoing conservation and restoration efforts, while surrounding areas
 832 are also undergoing habitat succession. The results of the WHAP provided critical data
 833 to identify unique, diverse, or sensitive environments around the lake for the EA as well
 834 as updating land classifications for this master plan. The WHAP Report is included in
 835 Appendix C.
 836

837 2.2.2 Vegetative Resources

838 USACE regulations and policy require a basic inventory of the vegetation at all
 839 operational projects. This inventory, referred to in EP 1130-2-540 as a Level 1
 840 inventory, classifies the vegetation in accordance with the National Vegetation
 841 Classification System (NVCS) down to the Sub-Class level which is a very broad
 842 classification level. The inventory data, presented in Table 2.5 is recorded in the
 843 USACE national database referred to as OMBIL and is useful in providing a general
 844 characterization of the vegetation on all operational projects. Daily management of
 845 USACE lands requires more detailed knowledge of the vegetation down to the
 846 Association level within the NVCS, and for most management prescriptions, down to the
 847 individual species level of dominant vegetation.
 848

849 **Table 2.5 Vegetation Classification and Acres at Joe Pool Lake**

Order	Class	Sub-class	Total Sub-Class Acreage	Sustainable Acres	Transitioning Acres	Total Condition Acres
Non-Vegetated	Non-Vegetated	Non-Vegetated	6,707	6,707	0	6,707
Herb Dominated	Herbaceous Vegetation	Hydromorphic Rooted Vegetation	19	19	0	19
Herb Dominated	Herbaceous Vegetation	Perennial Graminoid Vegetation (Grassland)	1,091	1,091	100	1,191
Tree Dominated	Closed Tree Canopy	Deciduous Closed Tree Canopy	2,043	2,043	0	2,043

Order	Class	Sub-class	Total Sub-Class Acreage	Sustainable Acres	Transitioning Acres	Total Condition Acres
Tree Dominated	Closed Tree Canopy	Evergreen Forest	77	77	0	77
Tree Dominated	Closed Tree Canopy	Mixed Evergreen-Deciduous Closed Tree Canopy	67	67	0	67
Tree Dominated	Open Tree Canopy	Deciduous Open Tree Canopy	4,325	4,325	0	7,325

Source: OMBIL Report Project Site Vegetation Classification and Condition Records for Fiscal Year 2017

The Texas Blackland Prairies ecoregion originally contained a diverse range of prairie species including little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardi*), yellow Indiangrass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), eastern gamagrass (*Tripsacum dactyloides*), tall dropseed (*Sporobolus compositus*), asters (*Aster spp.*), prairie bluet (*Stenaria nigricans*), prairie clovers (*Dalea spp.*), and coneflowers (*Echinacea spp.*). Bottomland hardwood forests are not as prevalent, but where they occur contain bur oak (*Quercus macrocarpa*), Shumard oak (*Quercus shumardii*), post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), green ash (*Fraxinus pennsylvanica*), pecan (*Carya illinoensis*), cedar elm (*Ulmus crassifolia*), American elm (*Ulmus americana*), Winged elm (*Ulmus alata*), sweetgum (*Liquidambar styraciflua*), sugar hackberry (*Celtis laevigata*), and eastern cottonwood (*Populus deltoides*). Some slopes and upland forests support honey mesquite (*Prosopis glandulosa*) and several cedars and junipers (*Juniperus spp.*), and have become more prevalent due to the absence of regular fires. The acreage for types of vegetation classes at Joe Pool Lake are described in Table 2.6.

Table 2.6 Average, Maximum, and Minimum Total WHAP Scores per Habitat Type

Habitat Type	Average Total Score	Maximum Total Score	Minimum Total Score
Deciduous Forest	55	75	38
Mixed Forest	56	82	40
Riparian Forest	60	85	40
Grassland	61	79	38

2.2.3 Wetlands

Typically, the National Wetlands Inventory (NWI) established by US Fish and Wildlife Service (USFWS) is used to identify wetland types in a project area. However, the available dataset for the Joe Pool project area was mapped prior to impoundment and

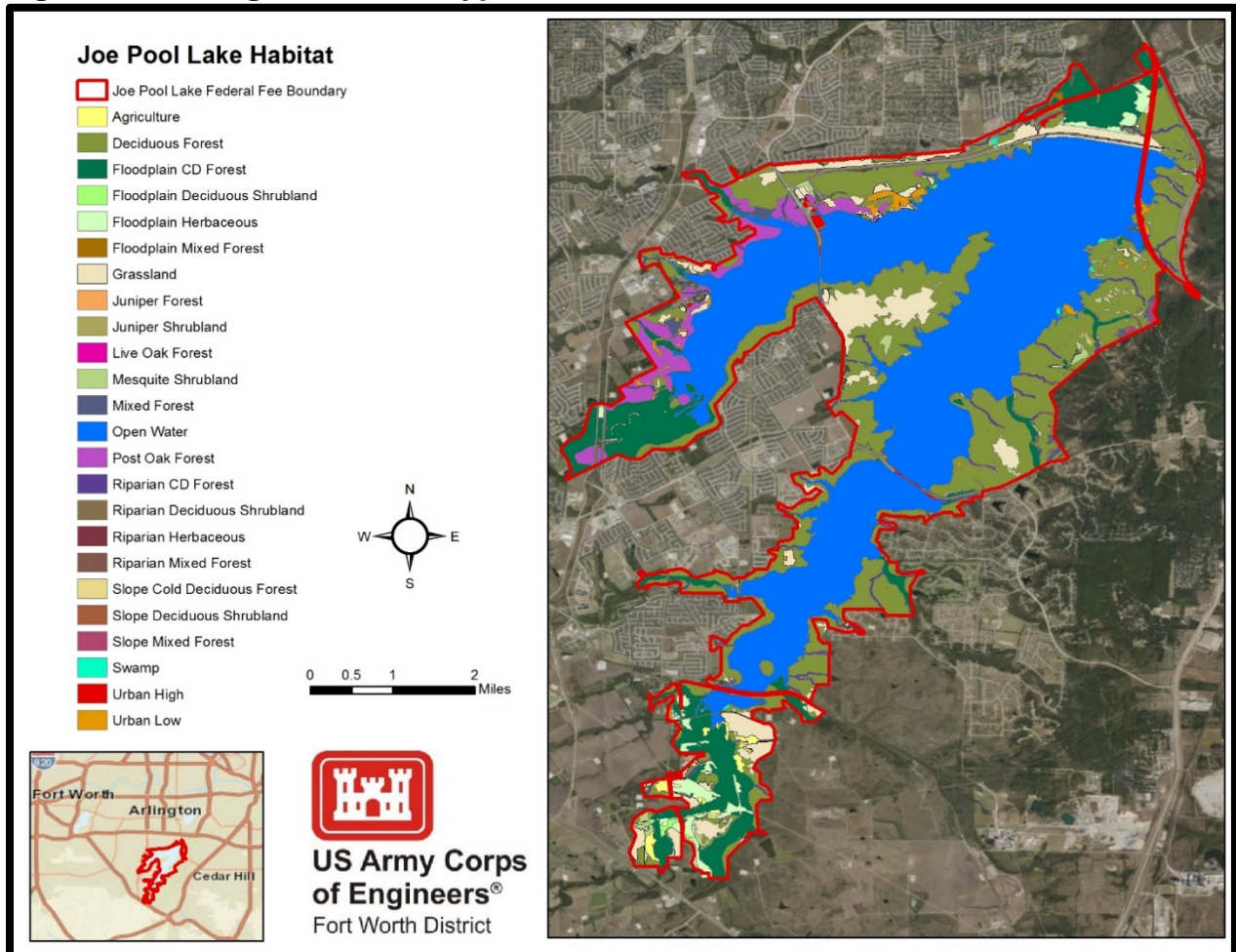
874 does not reflect the current conditions. Therefore, NWI was not used to identify and
875 calculate wetland acreage with the fee boundary of the project. Instead, the Ecological
876 Mapping System (EMS) developed by Texas Parks and Wildlife (TPWD) was used.
877 Using the TPWD's EMS mapping, wetlands are delineated as swamps and the lake is
878 shown as open water. At Joe Pool Lake 18.65 acres are mapped as swamp wetlands
879 and 6,582.93 acres are shown as open water. Figure 2.8 displays the ecological habitat
880 types at Joe Pool Lake based on EMS including wetland habitat types.

881
882 Some of the wetlands described in the EMS qualify as Waters of the United
883 States as defined within the Clean Water Act (CWA), and jurisdiction is addressed by
884 the USACE and United States Environmental Protection Agency (EPA). Wetlands are a
885 subset of the waters of the United States that may be subject to regulation under
886 Section 404 of the CWA (40 CFR 230.3).

887
888

DRAFT

889 **Figure 2.8 Ecological Habitat Types at Joe Pool Lake**



890
891 Source: TPWD Ecological Mapping Service

892
893 **2.2.4 Fish and Wildlife Resources**

894 Joe Pool Lake provides habitat for an abundance of fish species, providing
895 fishing opportunities from the shoreline, boats, and fishing platforms at the marina.
896 Predominant fish species in the lake are largemouth bass (*Micropterus salmoides*),
897 channel catfish (*Ictalurus punctatus*), white crappie (*Pomoxis annularis*), and white bass
898 (*Morone chrysops*). Other less prominent species include black, yellow, and striped
899 bass; carp; blue and hybrid catfish; gar; and sunfish. Several species have been
900 stocked periodically since 1981 with bass and catfish being the most popular. There is
901 significant fishing pressure at the lake, since it is located within one of the most
902 populated urban metro areas in the United States. TPWD has set special size
903 restrictions for largemouth bass at Joe Pool Lake.

904
905 Many of the undeveloped opens spaces provide habitat for wildlife including
906 coyotes (*Canis latrans*), bobcats (*Lynx rufus*), eastern cottontail rabbit (*Sylvilagus
907 floridanus.*), fox squirrel (*Sciurus niger*), nine-banded armadillo (*Dasypus
908 novemcinctus*), striped skunks (*Mephitis mephitis*), and raccoons (*Procyon lotor*). The
909 area also provides habitat for a diverse range of birds and acts as a stopover for

910 migratory birds. The entire USACE land holding at Joe Pool is located within the
 911 corporate city limits of Dallas, Grand Prairie, Cedar Hill, and Mansfield. Due to the
 912 proximity to urban development, hunting is prohibited at Joe Pool Lake.

913

914 2.2.5 Threatened and Endangered Species

915 Threatened species are those which are likely to become endangered within the
 916 foreseeable future. Endangered species are in danger of extinction throughout all or a
 917 significant portion of their range. Section 7(a)(2) of the Endangered Species Act
 918 requires federal agencies to ensure that any action authorized, funded, or carried out by
 919 such agency is not likely to: (1) jeopardize the continued existence of any endangered
 920 or threatened species or (2) result in the destruction or adverse modification of critical
 921 habitat. The term, "jeopardize the continued existence of", means to reduce appreciably
 922 the likelihood of both the survival and recovery of listed species in the wild by reducing
 923 the species' reproduction, numbers, or distribution. Jeopardy opinions must present
 924 reasonable evidence that the project will jeopardize the continued existence of the listed
 925 species or result in destruction or adverse modification of critical habitat. Federally-listed
 926 threatened and endangered species having potential to occur on USACE lands and
 927 waters at Joe Pool Lake are listed in Table 2.7.

928

929 **Table 2.7 USFWS List of Threatened and Endangered Species That May Occur**
 930 **Within Joe Pool Lake Federal Fee Boundary**

Species Name (common name)	Species Name (scientific name)	Federal Status	Habitat Type	Occurrence
Least Tern	<i>Sterna antillarum</i>	Endangered	Open waters, rivers, shorelines, and sandbars.	Potential
Piping Plover	<i>Charadrius melodus</i>	Threatened	Open waters, rivers, lakes, estuaries, marshes, swamps, shorelines, and sandbars.	Potential
Whooping Crane	<i>Grus americana</i>	Endangered	Marshes, shallow lakes, lagoons, salt flats, grain and stubble fields, and barrier islands.	Potential
Black-capped Vireo	<i>Vireo atricapilla</i>	Endangered	Low lying bushy scrub oak and juniper on rocky rugged terrain	Rare
Golden-cheeked Warbler	<i>Dendroica chrysoparia</i>	Endangered	Old-growth and mature regrowth Ashe juniper-oak woodlands in rocky terrain.	Rare

931

932 In addition to those federally endangered species, there are also many
 933 threatened and vulnerable species, most of which are migratory birds which could
 934 include stopovers at Joe Pool Lake. The species and their potential presence are
 935 documented in detail in the Information for Planning and Consultation (IPaC) report by
 936 the US Fish & Wildlife Service (USFWS). TPWD also lists threatened and endangered
 937 species within the state as shown in Table 2.8. Additionally, TPWD also lists Species of
 938 Greatest Conservation Need (SGCN) for the Texas Blackland Prairie Ecoregion. The
 939 SGCN list is provided in Appendix C.

940
 941 **Table 2.8 TPWD List of Threatened and Endangered Species That May Occur**
 942 **Within the Joe Pool Lake Federal Fee Boundary**

Common Name	Scientific Name	Type	Listing Status
Alligator snapping turtle	<i>Macrochelys temminckii</i>	Reptile	Threatened
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	Bird	Threatened
Black-capped Vireo	<i>Vireo atricapilla</i>	Bird	Endangered
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>	Bird	Endangered
Gray wolf	<i>Canis lupus</i>	Mammal	Endangered
Interior Least Tern	<i>Sterna antillarum athalassos</i>	Bird	Endangered
Louisiana pigtoe	<i>Pleurobema riddellii</i>	Mollusk	Threatened
Peregrine Falcon	<i>Falco peregrinus</i>	Bird	Threatened
Piping Plover	<i>Charadrius melodus</i>	Bird	Threatened
Red wolf	<i>Canis rufus</i>	Mammal	Endangered
Sandbank pocketbook	<i>Lampsilis satura</i>	Mollusk	Threatened
Shovelnose sturgeon	<i>Scaphirhynchus platorynchus</i>	Fish	Threatened
Texas heelsplitter	<i>Potamilus amphichaenus</i>	Mollusk	Threatened
Texas horned lizard	<i>Phrynosoma cornutum</i>	Reptile	Threatened
Texas pigtoe	<i>Fusconaia askewi</i>	Mollusk	Threatened
Timber rattlesnake	<i>Crotalus horridus</i>	Reptile	Threatened
White-faced Ibis	<i>Plegadis chihi</i>	Bird	Threatened
Whooping Crane	<i>Grus americana</i>	Bird	Endangered
Wood Stork	<i>Mycteria americana</i>	Bird	Threatened

943
 944 2.2.6 Invasive Species

945 An invasive species is defined as a plant or animal that is non-native (or native
 946 nuisance) to an ecosystem and whose introduction causes, or is likely to cause,
 947 economic and/or environmental harm, or harm to human health. Invasive species can
 948 thrive in areas beyond their normal range of dispersal. These species are
 949 characteristically adaptable, aggressive, and have high reproductive capacity. Their
 950 vigor, along with a lack of natural enemies or controls, often leads to outbreak
 951 populations with some level of negative effects on native plants, animals, and
 952 ecosystem functions. They are often associated with disturbed ecosystems and human
 953 developments.

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Because several metropolitan areas are located in the Texas Blackland Prairie ecoregion, it has led to a greater number of invasive species than most other regions of the state. Feral and free-ranging pets (cats and dogs in particular) have made a significant impact on populations of small mammals, reptiles, and birds. Across the entire ecosystem, feral hogs (*Sus scrofa*) have decimated several fragile habitats and can change topography and worsen erosion in areas with large hog populations.

Other invasive animals include red imported fire ants (RIFA, *Solenopsis invicta*), several species of introduced fish (including released baitfish and species associated with “aquarium dumping”), house sparrows (*Passer domesticus*), common starlings (*Sturnus vulgaris*), and mollusks including zebra mussels (*Dreissena polymorpha*). Although native, cowbirds (*Molothrus ater*) have become problematic due to their expanding range associated with agriculture and human development. The close proximity to urban landscaping has led to many common landscape plants becoming aggressive colonizers and become invasive at Joe Pool Lake. Table 2.9 lists many of the invasive species found at Joe Pool Lake. Other species are currently being researched for their invasive characteristics, while there may be debate on whether other species should be considered invasive.

Table 2.9 Invasive Species

Common Name	Scientific Name	Status	Type
Bahiagrass	<i>Paspalum notatum</i>	Non-native	Plant
Bermuda Grass	<i>Cynodon dactylon</i>	Non-native	Plant
Brown-headed Cowbirds	<i>Molothrus ater</i>	Native aggressive	Animal
Chinaberry	<i>Melia azedarach</i>	Non-native	Plant
Chinese Tallow	<i>Tridica sebifera</i>	Non-native	Plant
Common Starling	<i>Sturnus vulgaris</i>	Non-native	Animal
Feral Cats	<i>Felis silvestris</i>	Non-native	Animal
Feral Hogs	<i>Sus scrofa</i>	Non-native	Animal
Giant Reed	<i>Arundo donax</i>	Non-native	Plant
Giant Salvinia	<i>Salvinia molesta</i>	Non-native	Plant
Heavenly bamboo	<i>Nandina domestica</i>	Non-native	Plant
House Sparrow	<i>Passer domesticus</i>	Non-native	Animal
Hydrilla	<i>Hydrilla verticillata</i>	Non-native	Plant
Johnsongrass	<i>Sorghum halepense</i>	Non-native	Plant
Juniper & Cypress	<i>Juniperus spp.</i>	Native aggressive	Plant
King Ranch Bluestem (KR)	<i>Bothriochloa ischaemum</i> var. <i>songarica</i>	Non-native	Plant
Mediterranean Mustard	<i>Hirschfeldia incana</i>	Non-native	Plant
Honey Mesquite	<i>Prosopis glandulosa</i>	Native aggressive	Plant
Pincushions	<i>Scabiosa atropurpurea</i>	Non-native	Plant
Privet	<i>Ligustrum spp. (several)</i>	Non-native	Plant

Common Name	Scientific Name	Status	Type
Red Imported Fire Ants (RIFA)	<i>Solenopsis invicta</i>	Non-native	Animal
Tree of Heaven	<i>Ailanthus altissima</i>	Non-native	Plant
Water hyacinth	<i>Eichhornia crassipes</i>	Non-native	Plant
Whitebrush	<i>Aloysia grati</i>	Native aggressive	Plant
Yellow Sour Clover	<i>Melilotus indicus</i>	Non-native	Plant
Zebra Mussel	<i>Dreissena polymorpha</i>	Non-native	Animal

Source: Texas Conservation Action Plan: Texas Blackland Prairies Ecoregion Handbook August 2012

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2.2.7 Interpretation and Visual Qualities (Visual and Scenic Resources)

Joe Pool Lake includes many acres of scenic shorelines, lake views, and wildlife viewing areas providing high visual and scenic qualities. Some areas are admired for their scenic attractiveness (intrinsic scenic beauty that evokes a positive response), scenic integrity (wholeness of landscape character), and landscape visibility (how many people view the landscape and for what reasons and how long). Because Joe Pool Lake is located near several large cities, people come from local urban communities to enjoy the scenic and naturalistic views offered at the lake. Some areas have been designated as Wildlife and Vegetative Management or Environmentally Sensitive Areas to preserve specific animal, plant, or environmental features which also add to the scenic qualities at the lake. Nearby parks have been designed to access the lake, allow access to hiking trails, and take advantage of scenic qualities at the lake and surrounding areas.

Joe Pool Lake is located in the Cedar Hill area, which is a unique convergence of local geography and habitats. The rolling tallgrass prairie and its black, clay soil clash with the rugged limestone escarpment. The park is reminiscent of the Texas Hill Country, providing many naturalistic views and giving visitors an escape from the surrounding urban communities. The linear nature of the lake gives unique views of the limestone shorelines with both near and distant views of forests, prairies, and parks.

Adjacent landowners are informed that removing trees to obtain a view of the lake not only destroys wildlife habitat but also lowers the scenic quality of the shoreline when viewed by the general public from the water surface. Additionally, reasonable measures must be taken to ensure that damage to the natural landscape from invasive species and catastrophic wildfire are minimized. Vegetative management, mowing permits, debris removal, and other shoreline issues are addressed by the shoreline policy.

1010 2.2.8 Mineral and Timber

1011 Minerals

1012 Oil and natural gas are the principal minerals known to exist in the region
1013 surrounding Joe Pool Lake. Since the late 1990's and continuing today, active drilling
1014 for natural gas in the Barnett Shale formation has comprised the majority of mineral
1015 exploration near the lake. Currently, there are no well surface locations on USACE
1016 property, but several well surface locations outside USACE property have multiple well
1017 bores that extend horizontally under USACE property, including under the water
1018 surface. This is typical for most wells in the region wherein natural gas is retrieved
1019 through a process of horizontal drilling and hydraulic fracturing. Most of the surface well
1020 sites are located to the west of the lake. There are also several gas pipelines in the
1021 region, three of which cross Corps property. See Figure 2.9 for a map of existing oil and
1022 natural gas activity at Joe Pool Lake.

1023
1024 During acquisition of lands for Joe Pool Lake, only relatively small areas of the
1025 mineral estate were acquired. Those areas include the mineral estate immediately
1026 under and adjacent to the dam which were acquired to protect the structural integrity of
1027 the dam and associated prime facilities, as well as a few isolated tracts upstream from
1028 the dam. The majority of the mineral estate underlying the lake remains in private
1029 ownership. However, virtually all of the private minerals underlying the lake were
1030 subordinated by USACE to the extent that occupation of federally-owned surface for the
1031 purpose of mineral extraction is not allowed. As of the date of this Master Plan, no
1032 waivers of this subordination have been granted. In addition to this strong subordination
1033 of the mineral estate, USACE has implemented a "no hydraulic fracturing" zone around
1034 each dam operated and maintained by USACE. This zone is typically 3,000 horizontal
1035 feet from the toe of the dam, but in the case of Joe Pool Lake, the zone extends 4,000
1036 horizontal feet. USACE also monitors proposed locations of waste water injection wells
1037 where contaminated water from drilling and hydraulic fracturing operations are injected
1038 deep within the earth.

1039
1040 On several USACE tracts remote from the dam where the mineral estate was
1041 acquired by USACE, the minerals were leased to a private operator. As with all
1042 federally-owned minerals, the lease was issued by the Department of Interior, Bureau of
1043 Land Management, and contains protective stipulations required by USACE, including
1044 the stipulation that no surface occupancy is allowed. The single lease in question is set
1045 to expire in 2020.

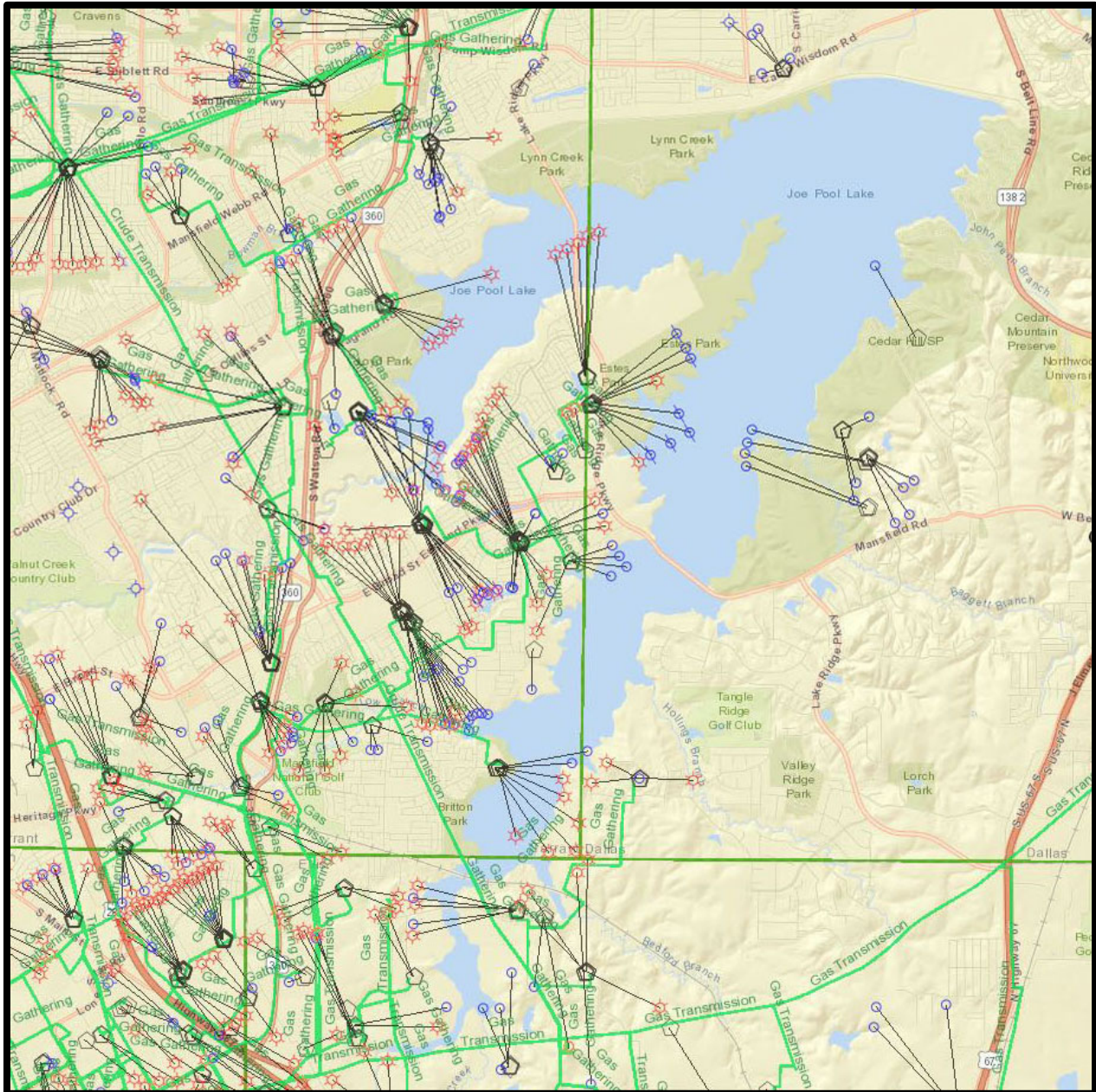
1046
1047 Timber

1048 Joe Pool Lake is not located in a region having viable commercial timber
1049 resources. The woodlands that exist on USACE lands have value primarily as wildlife
1050 habitat and as an aesthetic resource, but have no commercial timber value.

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Figure 2.9 Natural Gas Wells and Pipelines Around Joe Pool Lake



Source: Texas Railroad Commission Public GIS Viewer

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2.2.9 Water Usage and Quality

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Municipal water from Joe Pool Lake is managed by the TRA who uses the lake for water storage. TRA has committed all of the water supply to Cedar Hill, Duncanville, Grand Prairie, and the Midlothian Water District. TRA diverts 17,000 acre-feet annually for those cities, who are entitled to water in the following percentages, as water availability allows: Cedar Hill 43.21%, Midlothian 39.19%, Grand Prairie 10.56%, and Duncanville 7.04%. Cedar Hill, Duncanville, and Grand Prairie contracted with TRA to construct a water intake structure and pump station at Joe Pool Lake as part of the Lakeview Regional Water Supply Project. The initial infrastructure was completed

1069 before impounding water in the lake, since it would have been cost prohibitive after
1070 impoundment, but has never been placed in service. The project will be further
1071 developed when additional demand for drinking water makes it necessary. Currently,
1072 only the city of Midlothian has an active water intake on USACE land in the southern
1073 end of Cedar Hill State Park. [Source TRA]
1074

1075 According to the 2014 Texas Commission on Environmental Quality (TCEQ)
1076 Report, there were no water quality issues with the exception of “Screening Level of
1077 Concern” for Nitrate. All other monitored parameters were classified as either “Fully
1078 Supporting” their designated uses of public water supply and fish consumption, “No
1079 Concern,” or “Not assessed.” The EPA released a water body report and water quality
1080 assessment in 2014. Designated uses of the lake were assessed, and all of them were
1081 found to be “good.” Earlier USGS reports from 2007 assessed various biological and
1082 chemical parameters. The sampling results indicate that the levels of the various
1083 biological and chemical constituents monitored are generally within the criteria set by
1084 the Texas Department of Water Resources, and does not have any present or potential
1085 water quality problems.
1086

1087 2.2.10 Sedimentation and Shoreline Erosion [From WCM]

1088 There are 25 sedimentation ranges in the Joe Pool Lake area. Sedimentation
1089 ranges are areas that have been designated to monitor the rate of sedimentation and
1090 the location of sediment deposits. The ranges cross the lake normal to the original
1091 stream flow as practical. The elevations and locations of the monuments are referenced
1092 to appropriate datum systems established by other Federal agencies. Monuments are
1093 used at multiple locations for future survey at common reference points. There are 4
1094 degradation ranges downstream of Joe Pool Dam, each range consists of two or more
1095 permanent monuments, to be used in sediment surveys.
1096

1097 In 1982, the Joe Pool Lake watershed was largely rural, with over 95 percent of
1098 the watershed classified as cropland, pasture, range, or forest. However, since 1999
1099 urbanization has been expanding rapidly around the lake area. On the basis of historical
1100 sedimentation in Mountain Creek Lake and predicted upstream development, Joe Pool
1101 Lake was designed to store 38,000 acre-feet of sediment in its 100-year lifetime. This
1102 38,000 acre-feet is equivalent to an average sediment production of 1.64 acre-feet per
1103 square mile per year over the NGVD. It is estimated that 34,000 acre-feet of sediment
1104 will be deposited below elevation 522.0 NGVD and the remaining 4,000 acre-feet
1105 between elevations 522.0 and 536.0 NGVD. A schedule prepared in the Office of the
1106 Division Engineer, SWD indicates that resurveys were planned for about 5-year
1107 intervals. However, currently no sediment surveys have been completed since the
1108 construction of Joe Pool Dam and Lake.
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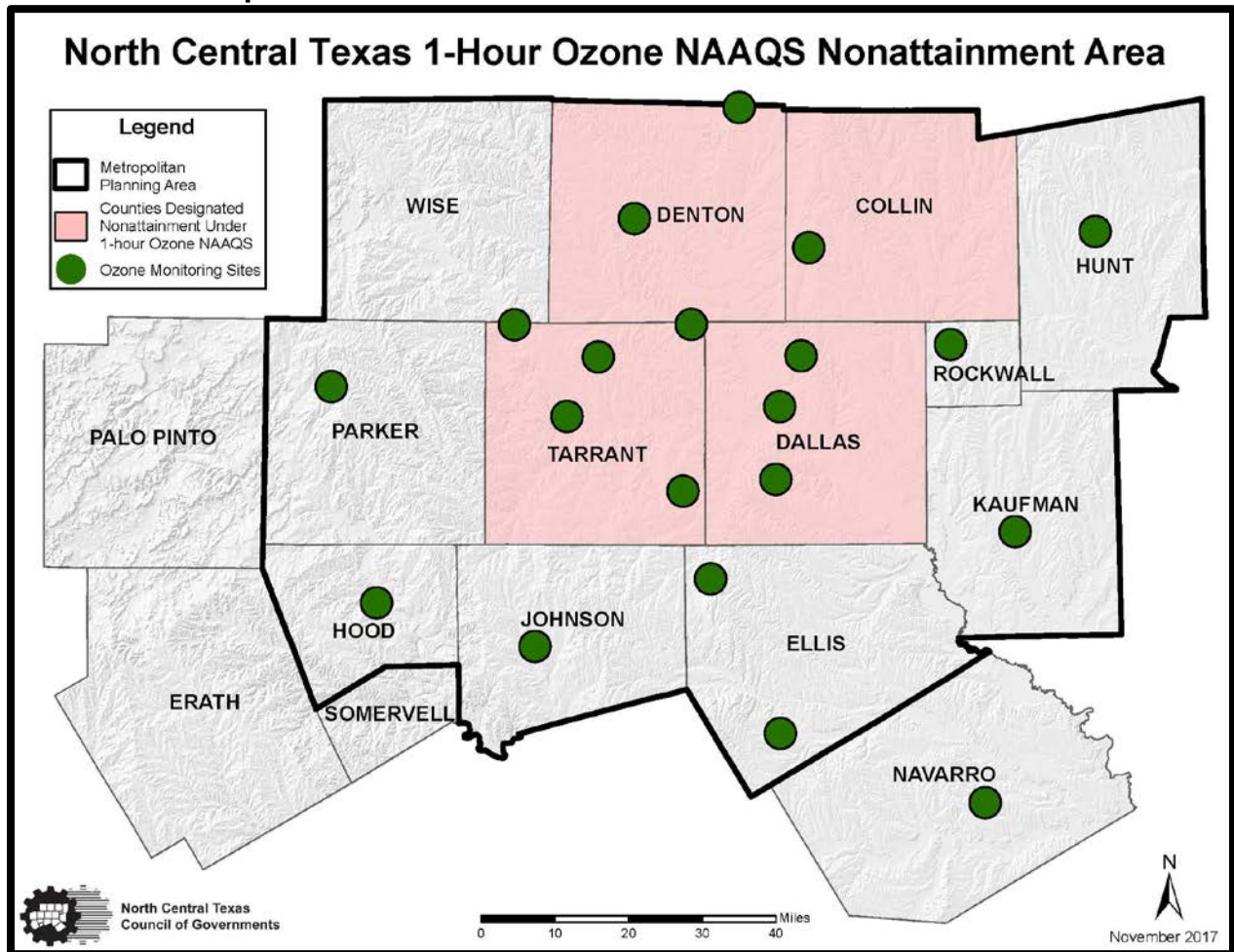
1110 2.2.11 Air Quality

1111 In 2012, the US Environmental Protection Agency (EPA) designated the North
1112 Central Texas region as a nonattainment area for the pollutant ozone in accordance
1113 with the 1997 eight-hour ozone National Ambient Air Quality Standards (NAAQS). A

1114 nonattainment area is an area considered to have air quality worse than the NAAQS as
 1115 defined in the Clean Air Act. These standards are designed to protect human and
 1116 environmental health, and ground-level ozone is monitored and targeted for reductions
 1117 due to its potentially harmful effects. The counties included in the North Central Texas
 1118 nonattainment area are Wise, Denton, Collin, Hunt, Parker, Tarrant, Dallas, Rockwell,
 1119 Kaufman, Hood, Johnson, and Ellis, as shown on the map in Figure 2.10.

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Figure 2.10 North Central Texas Nonattainment Area/ Dallas-Fort Worth Metropolitan Area



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In order to receive some forms of federal assistance, nonattainment areas must have a State Implementation Plan (SIP) to reduce ozone to levels compliant with the NAAQS and have EPA reviews every five years. Four main sources of ozone-causing emissions include on-road mobile sources like cars and trucks, non-road mobile sources like construction equipment, point sources like electricity-generating utilities and industrial boilers, and area sources like solvent use and agriculture. The Dallas-Fort Worth area SIP includes programs to get older cars off the road, technologies to clean up vehicles already on the road, and education programs so that citizens can do their part in improving air quality in Northern Texas. For more information about what individuals and businesses can do to clean the air, visit the Air North Texas website

1135 There are no air monitoring stations on USACE property at Joe Pool Lake, but
1136 there are several nearby operated by the Texas Commission on Environmental Quality
1137 (TCEQ). Those stations monitor for Nitric Oxide (NO), Nitrogen Dioxide (NO₂), other
1138 Nitrogen Oxides (NO_x), Ozone (O₃), PM_{2.5}, as well as weather and climate data.
1139 TCEQ also collects air samples at several natural gas well sites around Joe Pool Lake
1140 and also across the entire region. Because Joe Pool Lake is located within an urban
1141 area, all monitored substances can reach moderate levels on occasion, normally when
1142 weather patterns cause the air to stagnate. TCEQ's Air Quality Index (AQI) is based on
1143 ozone and PM_{2.5} levels, and sometimes reaches "unhealthy for sensitive groups,"
1144 which could affect people with asthma and those with prolonged or heavy outdoor
1145 exertion. The AQI occasionally reaches "unhealthy" levels, but rarely reaches "very
1146 unhealthy" or "hazardous" levels, and would likely be related to fires or unusual
1147 atmospheric events. The region is also prone to "very high" pollen counts for much of
1148 the year, affecting those with allergies and allergy-related asthma. The tree canopy and
1149 other vegetation around Joe Pool Lake help to mitigate local air pollution by absorbing
1150 carbon dioxide (CO₂), filtering airborne particulates and other airborne pollutants, and
1151 modulating local temperatures influencing the urban heat island effect.
1152

1153 In conducting routine operations and maintenance activities at Joe Pool Lake, the
1154 USACE will comply with all Federal, state, and local laws governing air quality and will
1155 implement Best Management Practices (BMPs) to protect air quality. Prescribed fire is a
1156 useful land management tool for improving native prairie and certain forested areas and
1157 will be conducted in accordance with the Texas Administrative Code, Section
1158 111.211(1). Statutory requirements governing prescribed fire and other types of outdoor
1159 burning are explained in the TCEQ publication "Outdoor Burning in Texas" available on
1160 the TCEQ website. USACE guidance for wildland fire management is set forth in EP
1161 1130-2-540.
1162

1163 **2.3 CULTURAL RESOURCES**

1164 2.3.1 Prehistoric

1165 The earliest well-documented evidence of human occupation in North Central
1166 Texas dates to about 12,000 years before present (B.P.). Prehistory is divided generally
1167 into three broad time periods: Paleo-Indian (12,000-8,500 B.P.), Archaic (8,500-1,250
1168 B.P.), and Late Prehistoric (1,250-300 B.P.).
1169

1170 Evidence for Paleo-Indian period occupation is relatively rare in the Joe Pool
1171 Lake area, and is known primarily from distinctive projectile point styles dating to this
1172 time period found in surface collections or in mixed multi-component sites. It is likely
1173 that intact Paleo-Indian camp sites may be buried deeply beneath Holocene floodplain
1174 alluvium, as was the case with the Aubrey Clovis site on the Elm Fork Trinity River.
1175 Evidence suggests that the region was occupied by small groups of highly mobile
1176 hunter-gatherers that traveled over very large territories. Traditionally thought of as big-
1177 game hunters of mammoth and bison, more recent evidence indicates Paleo-Indians
1178 exploited a much broader range of animal and plant resources.
1179

1180 The Archaic period is divided into Early (8,500-6,000 B.P.), Middle (6,000-3,500
1181 B.P.), and Late (3,500-1,250 B.P.) sub periods. During this long time period, a
1182 generalized hunting and gathering subsistence strategy is indicated. Trends through
1183 time suggest increasing population density and decreasing group mobility within smaller
1184 territories. Sites with Late Archaic components are well represented in the Joe Pool
1185 Lake area and in North Central Texas generally.

1186
1187 The Late Prehistoric Period (1,250-300 B.P.) is marked by the presence of the
1188 bow and arrow and pottery. During the early portion of this time span, subsistence
1189 strategies remained similar to those of the preceding Late Archaic. By around 800 B.P.,
1190 there is evidence for maize horticulture and house structures indicating a more
1191 sedentary occupation at the Cobb-Pool Site (41DL148) at Joe Pool Lake. Pottery from
1192 Cobb-Pool includes plain and decorated grog-tempered specimens in the Caddo
1193 ceramic tradition. It is unclear whether this pottery was made locally or represents trade
1194 with East Texas Caddo groups. Plain, shell-tempered pottery is also found at Joe Pool
1195 Lake sites and is thought to show connections with southern plains groups to the north
1196 and west. This shell-tempered pottery is generally thought to date to the late portion of
1197 the Late Prehistoric period (after ca. 600 B.P.) when bison hunting became more
1198 important.

1199 1200 2.3.2 Historic

1201 Local tradition holds that Native Americans of the Caddo Nation inhabited the
1202 Joe Pool Lake area prior to the arrival of the first white settlers in the early 1840s. The
1203 majority of these early settlers were farmers operating small family farms growing
1204 mainly wheat and corn. Dallas County was created out of Navarro County in 1845, and
1205 Tarrant and Ellis Counties followed in 1849. The population grew steadily between the
1206 1840s and 1870s. After the Civil War, cotton farming became an important agricultural
1207 activity in the region and tenant farming was a major social institution. The arrival of the
1208 railroads in the early 1870s allowed farmers access to markets and led to a major
1209 increase in the number of farms. Many of the historic resources at Joe Pool Lake are
1210 the archeological remains of house sites and farmsteads dating from the late 19th
1211 century through the mid-20th century. The Anderson Farm home, once located on land
1212 that is now Cedar Hill State Park, is shown in Photo 2.1.

1213 1214 2.3.3 Previous Investigations at Joe Pool Lake

1215 The initial archeological investigation at Joe Pool Lake was a survey conducted
1216 by Southern Methodist University (SMU) in 1977 and 1978. During that survey, 40
1217 archeological sites were recorded (15 prehistoric, 23 historic, and two with both
1218 prehistoric and historic components). In 1979 and 1980, SMU conducted test
1219 excavations at 16 prehistoric sites. Also in 1979 and 1980, 23 historic period sites were
1220 investigated by crews from North Texas State University.

1221 In 1985 and 1986, SMU conducted data recovery investigations at five prehistoric
1222 sites and 13 historic sites. During this same period, SMU located and recorded 12
1223 historic home sites based on locations shown on historic maps. Limited survey work
1224 since then has added to the number of known archeological sites.

1225 2.3.4 Recorded Cultural Resources

1226 Currently, 60 archeological sites have been recorded at Joe Pool Lake. Seven of
1227 these sites have been determined eligible for the National Register of Historic Places
1228 (NRHP), and 44 sites have been determined ineligible. The remaining nine sites have
1229 not yet been evaluated for NRHP eligibility. The surveys of the 1970s were not
1230 systematic and may not be considered adequate by current standards.
1231

1232 2.3.5 Long-term Objectives for Cultural Resources

1233 As funding allows, a Cultural Resources Management Plan (CRMP) shall be
1234 developed and incorporated into the Operational Management Plan in accordance with
1235 EP 1130-2-540. The purpose of the CRMP is to provide a comprehensive program to
1236 direct the historic preservation activities and objectives at Joe Pool Lake. Completion of
1237 a full inventory of cultural resources at Joe Pool Lake is a long-term objective that is
1238 needed for compliance with Section 110 of the National Historic Preservation Act
1239 (NHPA). All currently known sites with unknown eligibility and newly recorded sites must
1240 be evaluated to determine their eligibility for the NRHP. In accordance with Section 106
1241 of the NHPA, any proposed ground-disturbing activities or projects, such as those
1242 described in this master plan or as may be proposed in the future by others for right-of-
1243 way easements, will require cultural resource surveys to locate and evaluate historic
1244 and prehistoric resources. Resources determined eligible for the NRHP must be
1245 protected from proposed project impacts, or the impacts must be mitigated. All future
1246 cultural resource investigations at Joe Pool Lake must be coordinated with the State
1247 Historic Preservation Officer and federally-recognized Tribes to insure compliance with
1248 the National Historic Preservation Act, the Archaeological Resources Protection Act,
1249 and the Native American Graves Protection and Repatriation Act
1250
1251

1252 **Photo 2.1 Old Anderson farm homestead once located on land that is now Cedar**
1253 **Hill State Park**



1254
1255 Photo Courtesy of TPWD
1256

1257 **2.4 DEMOGRAPHIC AND ECONOMIC ANALYSIS**

1258 2.4.1 Current Demographics and Economics Trends and Analysis

1259 Located near the center of the Dallas-Fort Worth Metropolitan Statistical Area,
1260 Joe Pool Lake is a regional resource, with most visitors coming from nearby urban
1261 communities. Located primarily within the southwest portion of Dallas County and
1262 extending into Ellis and Tarrant Counties, the primary zone of interest for the socio-
1263 economic analysis of Joe Pool Lake is defined as those counties surrounding the lake,
1264 which are Dallas, Ellis, Johnson, and Tarrant Counties, all in Texas.

1265 1266 2.4.2 Population

1267 The zone of interest's population makes up almost 18% of the total population of
1268 Texas. From 2016 to 2045, the population in the zone of interest is expected to increase
1269 from 4.8 million to 6.3 million, an annual growth rate of 1%. By comparison, the
1270 population of Texas is projected to increase at a rate of 1.2% per year during that same
1271 timeframe, and the national growth rate is expected to be 0.6% per year. All counties
1272 within the zone of interest are projected to have positive growth, with Ellis and Johnson

1273 Counties growing the fastest at an annual rate of 1.8% and 1.4%, respectively. Within
 1274 the zone of interest, 53% live in Dallas County, 41% in Tarrant County, and
 1275 approximately 3% in both Ellis and Johnson Counties.
 1276
 1277

Table 2.10 Population Estimates and 2045 Projections, 2000 and 2016

Geographical Area	2000 Population Estimate	2016 Population Estimate	2045 Population Projection
Texas	20,851,820	26,956,435	38,499,538
Dallas County	2,218,899	2,513,054	3,198,694
Ellis County	111,360	160,225	267,465
Johnson County	126,811	157,544	239,104
Tarrant County	1,446,219	1,947,529	2,642,486
Zone of Interest Total	3,903,289	4,778,352	6,347,749

1278 Source: U.S. Census Bureau, Population Division (2000 Estimate); U.S. Census Bureau, 2012-2016
 1279 American Community Survey 5-Year Estimates (2016 Estimate); Texas State Data Center, The University
 1280 of Texas at San Antonio (2045 Projections)
 1281

1282 The distribution of the population among gender, as shown in Table 2.11, is
 1283 approximately 49.6% male and 50.4% female in the zone of interest, which is the same
 1284 as the overall gender distribution in Texas.
 1285
 1286

Table 2.11 Percent of Population Estimate by Gender, 2016

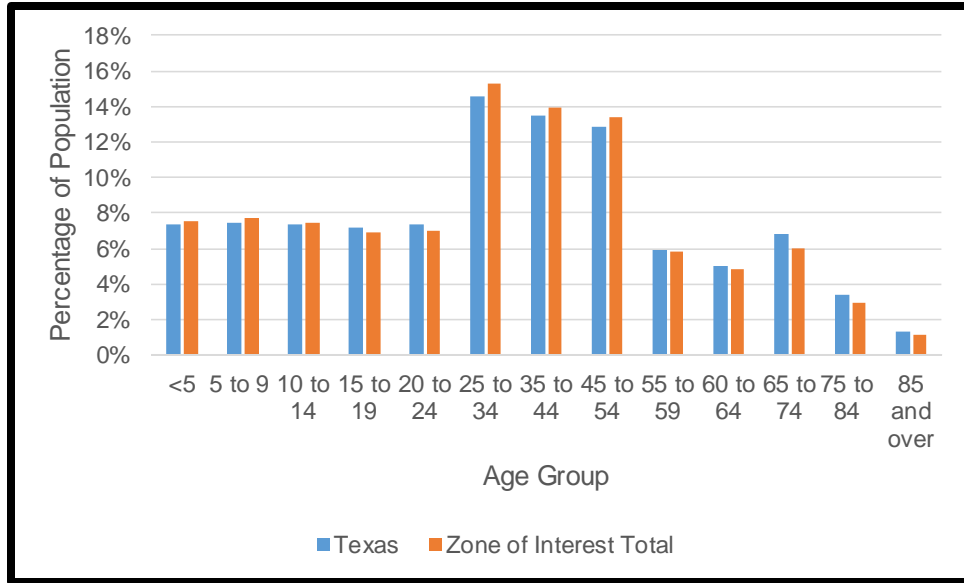
Geographical Area	Male	Female
Texas	13,379,165	13,577,270
Dallas County	1,238,199	1,274,855
Ellis County	79,024	81,201
Johnson County	78,506	79,038
Tarrant County	953,334	994,195
Zone of Interest Total	2,349,063	2,429,289

1287 Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate)
 1288

1289 The distribution of age groups is very similar between the zone of interest and
 1290 the state of Texas, with less than a percentage difference between the two in each age
 1291 category. Figure 2.9 shows the population by age group of the zone of interest
 1292 compared to Texas, and Figure 2.10 shows the zone of interest's population by age
 1293 group in 2016 compared to the projections for 2045. The forecast shows that the
 1294 population ages 0 to 59 will decrease while ages 60 and over will increase between
 1295 2016 and 2045.
 1296
 1297
 1298
 1299

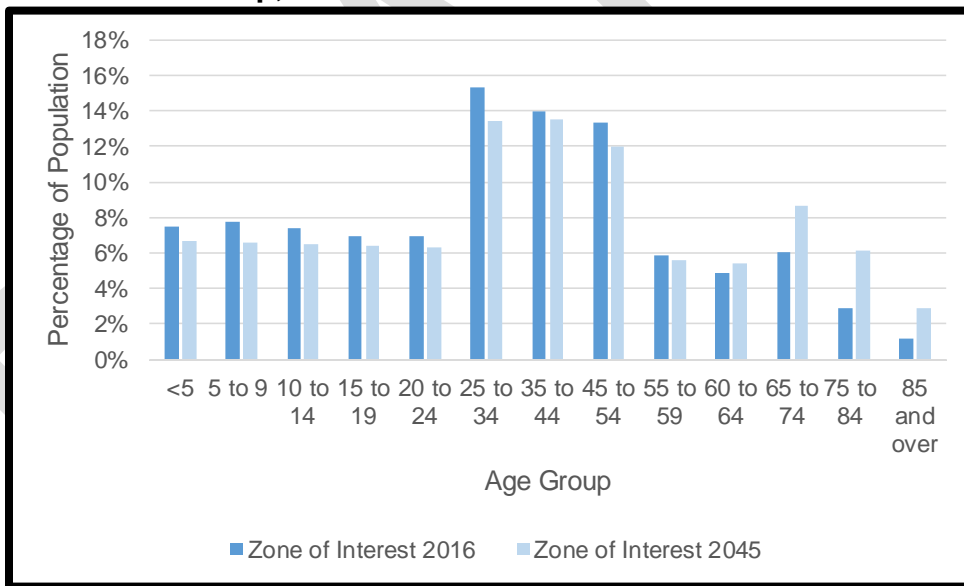
Figure 2.11 Percent of Population by Age Group, 2016

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1301
1302
1303
1304
1305



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate)

Figure 2.12 Population Estimate and 2045 Projection by Age Group, 2016



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate); Texas State Data Center, The University of Texas at San Antonio (2045 Projections)

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Joe Pool Lakes' zone of interest holds a racially and ethnically diverse population. The population in the zone of interest, displayed in Table 2.12, and further described in Figure 2.11, is approximately 41% White, 18% Black, 34% Hispanic or Latino, 5% Asian, and 2% two or more races. The other race categories account for less than 1% each of the population. By comparison, the state's population is approximately 43% White, 12% Black, 39% Hispanic or Latino, 4% Asian, and 2% two or more races. Figure 2.11 shows the 2016 estimate and the 2045 projections of race/ethnicity in the

1318 zone of interest distributed between four categories, White, Black, Hispanic or Latino,
 1319 and Other. The two graphs in Figure 2.11 show that the Hispanic or Latino and the other
 1320 categories are expected to increase by 16% and 2% respectively in the zone of interest,
 1321 while the White category decreases by 17% and the Black category decreases by 1%.

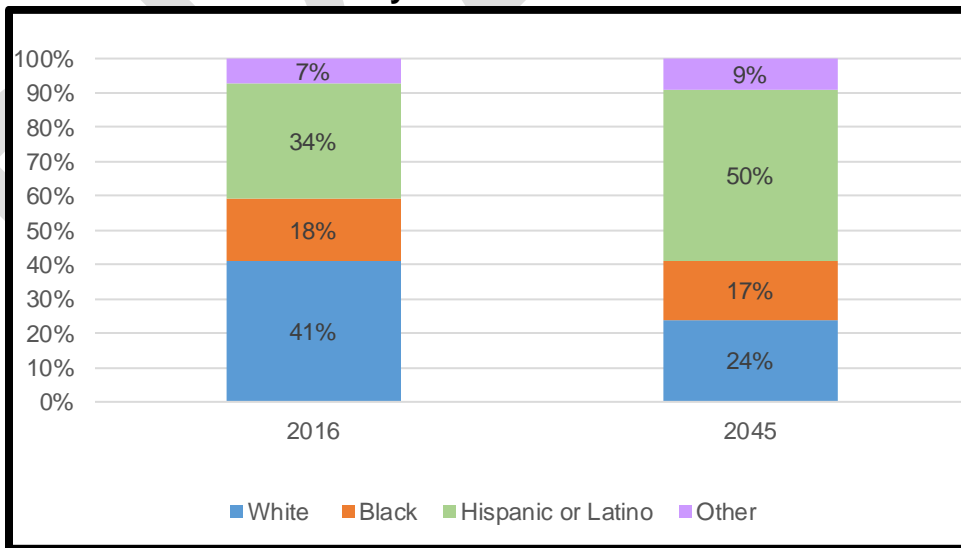
1322
 1323 **Table 2.12 2016 Population Estimate by Race/Hispanic Origin**

Area	White	Black	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some other race alone	Two or more races	Hispanic or Latino
Texas	11,705,684	3,134,962	63,336	1,161,742	18,990	35,509	423,062	10,413,150
Dallas County	774,653	554,464	4,234	144,440	1,163	3,916	42,335	987,849
Ellis County	101,530	14,506	354	1,050	59	98	2,494	40,134
Johnson County	117,123	3,919	693	1,152	623	89	2,810	31,135
Tarrant County	957,988	298,394	5,227	97,150	3,133	2,570	41,120	541,947
Zone of Interest Total	1,951,294	871,283	10,508	243,792	4,978	6,673	88,759	1,601,065

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate)

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 1325
 1326
 1327
 1328

Figure 2.13 Zone of Interest Population Estimate and Projection by Race/Ethnicity



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate); Texas State Data Center, The University of Texas at San Antonio (2045 Projections)

1329
 1330
 1331
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 1333

1334 2.4.3 Education

1335 Table 2.13 displays the highest level of education attained by the population
 1336 ages 25 and over. In the zone of interest, 9% of the population have less than a 9th
 1337 grade education, and another 9% have between a 9th and 12th grade education; 24%
 1338 have a high school diploma or equivalent, and another 22% have some college and no
 1339 degree; 6% have an Associate’s degree; 19% have a Bachelor’s degree; and 10% have
 1340 a graduate or professional degree. This distribution is similar to Texas, where 9% of the
 1341 population have less than a 9th grade education; another 9% have between a 9th and
 1342 12th grade education; 25% have at least a high school diploma or equivalent; 22% have
 1343 some college; 7% have an Associate’s degree; 18% have a Bachelor’s degree; and
 1344 10% have a graduate or professional degree.

1345
1346

**Table 2.13 2016 Population Estimate by Highest Level of Educational Attainment,
Population 25 Years of Age and Older**

Area	Population 25 years and over	Less than 9th grade	9th to 12th grade, no diploma	High school graduate (includes equivalency)	Some college, no degree	Associate's degree	Bachelor's degree	Graduate or professional degree
Texas	17,085,128	1,519,768	1,496,184	4,286,126	3,821,713	1,160,660	3,158,468	1,642,209
Dallas County	1,590,088	182,829	166,605	358,305	320,726	89,634	301,964	170,025
Ellis County	101,769	7,038	8,639	29,032	26,974	7,751	15,912	6,423
Johnson County	102,285	6,479	10,074	33,763	26,063	7,756	13,109	5,041
Tarrant County	1,235,550	85,203	97,340	292,563	292,244	88,458	255,467	124,275
Zone of Interest Total	3,029,692	281,549	282,658	713,663	666,007	193,599	586,452	305,764

1349 Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate)

1350

1351 2.4.4 Households, Income, Employment, Poverty

1352 Table 2.14 displays the number of households and average household size in
 1353 2016. There were approximately 9.3 million households in the state of Texas with an
 1354 average household size of 2.84 in 2016. The zone of interest contained approximately
 1355 1.7 million of those homes with an average household size of 2.66.
 1356

1357 **Table 2.14 2016 Households and Household Size**

Geographic Area	Total Households	Average Household Size
Texas	9,289,554	2.84
Dallas County	894,542	2.77
Ellis County	53,803	2.94
Johnson County	53,880	2.87
Tarrant County	682,967	2.82
Zone of Interest Total	1,685,192	2.66

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate)

1358
 1359 As shown in Table 2.15, the median household income in the zone of interest
 1360 ranged from \$51,411 in Dallas County to \$64,382 in Ellis County in 2016, as displayed
 1361 in Table 8. Per capita income in the zone of interest was \$28,922 in 2016, which was
 1362 slightly higher than the state of Texas, which had a per capita income of \$27,828.
 1363

1364 **Table 2.15 2016 Median and Per Capita Income**

Geographic Area	Median Household Income	Per Capita Income
Texas	\$54,727	\$27,828
Dallas County	\$51,411	\$28,552
Ellis County	\$64,382	\$27,313
Johnson County	\$59,095	\$25,721
Tarrant County	\$60,373	\$29,791
Zone of Interest Total	N/A	\$28,922

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate)

1365
 1366 The civilian labor force in the zone of interest accounts approximately 19% of the
 1367 civilian labor force of the state of Texas. As shown in Table 2.16, the zone of interest
 1368 had an unemployment rate of 4.0% in 2016, lower than that of the state of Texas, which
 1369 had an unemployment rate of 4.6% that same year. The unemployment rate in each of
 1370 the counties in the zone of interest were lower than that of Texas, ranging from 3.8% in
 1371 Ellis County to 4.3% in Johnson County.
 1372

1373
 1374

1375 **Table 2.16 Labor Force, Employment and Unemployment Rates, 2016 Annual**
 1376 **Averages**

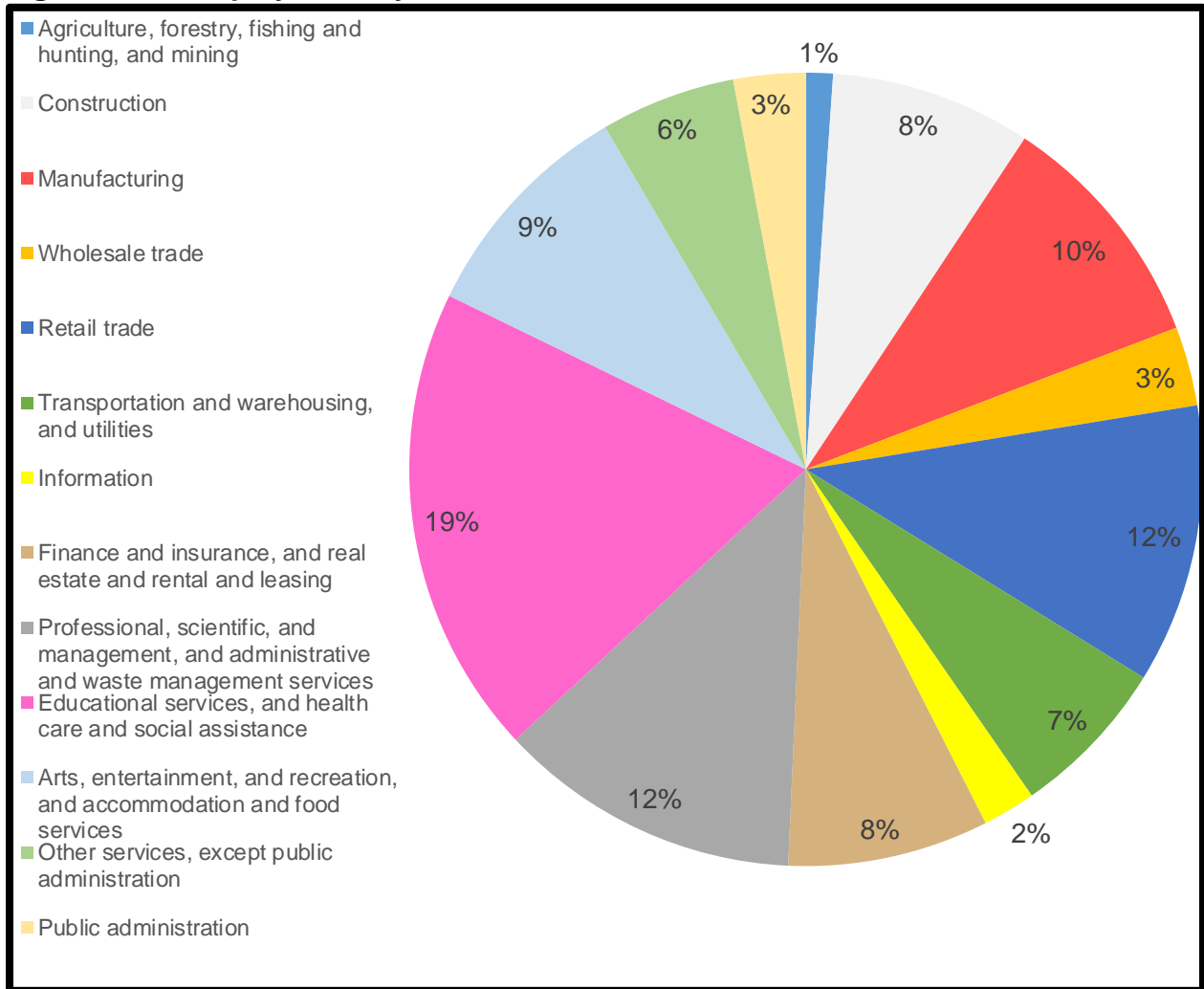
Facilities	Civilian Labor Force	Number Employed	Number Unemployed	Unemployment Rate
Texas	13,294,000	12,688,000	606,000	4.6%
Dallas County	1,305,202	1,253,334	51,868	4.0%
Ellis County	83,699	80,557	3,142	3.8%
Johnson County	75,584	72,299	3,285	4.3%
Tarrant County	1,008,020	968,246	39,774	3.9%
Zone of Interest Total	2,472,505	2,374,436	98,069	4.0%

Source: Bureau of Labor Statistics, Current Population Survey (State estimate), LAUS (County estimates)

1377
 1378 Employment by sector is presented in Figure 2.12, which shows that the largest
 1379 percentage of the zone of interest is employed in the Educational services, and health
 1380 care and social assistance sector at 19%, followed by 12% in the Professional,
 1381 scientific, and management, and administrative and waste management services
 1382 sector, 12% in Retail Trade, 10% in Manufacturing, 9% in the Arts, entertainment, and
 1383 recreation, and accommodation and food services sector, 8% each in the Construction
 1384 sector and the Finance and insurance, and real estate and rental and leasing sector,
 1385 7% in the Transportation and warehousing, and utilities sector, and 6% in Other
 1386 services, except public administration. The remainder of the employment sectors each
 1387 comprise less than 5% of the zone of interest's labor force.
 1388
 1389

1390

Figure 2.14 Employment by Sector in Joe Pool Zone of Interest



1391

1392

Source: Bureau of Labor Statistics, Current Population Survey (State estimate), LAUS (County estimates)

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The growth rate in each employment sector was predicted in the local Workforce Development Area (WDA) between 2014 and 2024. Ellis and Johnson Counties both fall in to the North Central WDA, while Dallas and Tarrant Counties each have their own WDA. Projected industry growth for each of the WDAs is expected to grow in each sector with the exception of agriculture, forestry, fishing and hunting, and mining, which is expected to see negative growth. When considering all three WDAs as a whole, the most growth is anticipated in the Construction sector, followed by the Educational services, and health care and social assistance sector, then the Professional scientific, and management, and administrative and waste management sector, and finally the Arts, entertainment, and recreation, and accommodation and food services sector.

Table 2.17 displays the percentage of persons and families whose incomes fell below the poverty level in the past twelve months as of 2016. In the zone of interest as a whole, a similar percentage of people (16.4%) had incomes below the poverty level when compared to the state, which had 16.7% of people below the poverty level. Dallas

1409 County had the most persons with incomes below the poverty level at 18.6%, followed
 1410 by Tarrant County at 14.4%, Johnson County at 12.1%, and Ellis County at 11%. In
 1411 terms of families below the poverty level, the only county with a greater percentage of
 1412 poverty than the state of Texas was Dallas County, which had 15.2% of families below
 1413 the poverty level. The remainder of the counties in the zone of interest had between
 1414 8.5% and 10.9% of families below the poverty level in 2016.

1415
 1416 **Table 2.17 Percent of Families and People Whose Income in the Past 12 Months is**
 1417 **Below the Poverty Level (2016)**

Geographic Area	All Persons	All Families
Texas	16.7%	13.0%
Dallas County	18.6%	15.2%
Ellis County	11.0%	8.5%
Johnson County	12.1%	9.2%
Tarrant County	14.4%	10.9%
Zone of Interest Total	16.4%	N/A

1418 Source: Bureau of Labor Statistics, Current Population Survey (State estimate), LAUS (County estimates)

1419

1420 2.4.5 Economic Impact

1421 The Mountain Creek watershed is predominantly urban, with an economy based
 1422 on trade, transportation, utilities, professional business service, education, and
 1423 healthcare. The watershed is located within the Dallas-Fort Worth Metropolitan
 1424 Statistical Area, with most of the economic activity occurring in the more populated
 1425 Dallas and Tarrant Counties. Several sectors are typically heavy consumers of water
 1426 including municipal, agriculture and livestock, steam-electric, mining, manufacturing,
 1427 professional, scientific and technical services, health care and social assistance,
 1428 accommodation and food services, and military installations.

1429

1430 The money spent by visitors to USACE lakes on trip expenses adds to the local
 1431 and national economies by supporting jobs and generating income. In 2016, there were
 1432 nearly 1.1 million visits (person-trips) to Joe Pool Lake. Visitor spending represents a
 1433 sizable component of the economy in many communities around USACE lakes. Within
 1434 30 miles of the lake, visitors spent an additional \$27.1 million with \$19.7 million coming
 1435 from retail sales. This spending led to an additional 250 jobs and \$7.8 million in labor
 1436 income. Predicted population growth in the surrounding counties would likely lead to
 1437 increased economic benefits to the surrounding communities for years to come.

1438

1439 2.4.6 Social, Economic, and Environmental Benefits

1440 USACE recognized the importance of Joe Pool Lake and the activities on
 1441 USACE lands and waters as being an important part of the local economy. Besides the
 1442 obvious economic savings through flood risk management and development
 1443 advantages through water supply, businesses can see investment opportunities, and
 1444 people are drawn to the natural areas surrounding USACE lakes, as is evidenced by the
 1445 growing number of residents adjacent to USACE properties. Nationally, USACE lakes
 1446 attract about 335 million recreation visits every year, with direct economic benefits on

1447 local economies within a 30 mile radius. The following information in Table 2.18
 1448 describes some of the extended social, environmental, and economic benefits of Belton
 1449 Lake for surrounding communities in 2016. By providing opportunities for active
 1450 recreation, Corps lakes help combat one of the most significant of the nation's health
 1451 problems: lack of physical activity. Recreational programs and activities at Corps lakes
 1452 also help strengthen family ties and friendships; provide opportunities for children to
 1453 develop personal skills, social values, and self-esteem; and increase water safety.

1454
 1455 **Table 2.18 Social Benefits at Joe Pool Lake in FY 2016**

Facilities in FY 2016	Visits (person-trips) in FY 2016
6 recreation areas	1,053,706 in total
315 picnic sites	247,279 picnickers
576 camping sites	51,879 campers
7 playgrounds	152,187 swimmers
4 swimming areas	119,680 water skiers
7 number of trails	125,339 boaters
36 trail miles	416,005 sightseers
7 boat ramps	643,605 fishermen
807 marina slips	106,227 others

1456 Source: USACE

1457
 1458 There have also been many economic benefits to the nation and economy at Joe
 1459 Pool Lake. The money spent by visitors to Corps lakes on trip expenses adds to the
 1460 local and national economies by supporting jobs and generating income. Visitor
 1461 spending represents a sizable component of the economy in many communities around
 1462 Corps lakes as summarized in Table 2.19.

1463
 1464 **Table 2.19 Social Benefits at Joe Pool Lake in FY 2016**

Visitation per year resulted in:	With multiplier effects, visitor trip spending resulted in:
<ul style="list-style-type: none"> • \$27,117,358 in visitor spending within 30 miles of the Corps lake. • \$19,777,062 in sales within 30 miles of the Corps lake. • 250 jobs within 30 miles of the Corps lake. • \$7,833,401 in labor income within 30 miles of the Corps lake. • \$10,944,220 in value added within 30 miles of the Corps lake. • \$7,724,719 in National Economic Development Benefits. 	<ul style="list-style-type: none"> • \$33,482,021 in total spending. • \$34,917,481 in total sales. • 337 jobs. • \$13,257,077 in labor income. • \$20,095,423 in value added (wages & salaries, payroll benefits, profits, rents, and indirect business taxes).

1465 Source: USACE

1466
 1467 Joe Pool Lake as also provided environmental benefits to the local community by
 1468 providing access to local residents. Recreation experiences increase motivation to learn
 1469 more about the environment; understanding and awareness of environmental issues;

1470 and sensitivity to the environment. The land acres, water acres, and shoreline miles are
1471 summarized in Table 2.20.

1472

1473 **Table 2.20 Environmental Resource Summary in FY 2016**

Resources in FY 2016
<ul style="list-style-type: none">• 8,686 land acres above the conservation pool elevation of 522.0 NGVD• 6,707 surface water acres• 60 shoreline miles

1474

1475 **2.5 RECREATION FACILITIES, ACTIVITIES, AND NEEDS**

1476 The initial development of outdoor recreation facilities at Joe Pool Lake was
1477 addressed in the 1981 Master Plan for Lakeview Lake (now Joe Pool Lake), Design
1478 Memorandum (DM) No. 11. Supplement No. 1 to the Master Plan was added in March
1479 1985 providing plans for Lakeview State Park (now Cedar Hill State Park). These two
1480 documents laid out a robust plan for the comprehensive management of the lake's
1481 lands and water surface including plans for a significant investment in outdoor
1482 recreation facilities that were cost-shared between USACE, TPWD, and the TRA. A
1483 lease between USACE and TRA was executed in 1988 authorizing TRA to manage
1484 1,879 acres for park and recreation purposes. This lease was supplemented over the
1485 years bringing the total acreage of land included in the lease to 2,925 acres. Legislation
1486 was passed in 2000 allowing the Secretary of the Army to transfer TRA's non-federal
1487 sponsorship of the recreation program at Joe Pool Lake from TRA to the city of Grand
1488 Prairie, Texas. Shortly following the passage of the legislation, the lease with TRA was
1489 supplemented to name the City of Grand Prairie the new lessee. One public marina
1490 operates on the lake under a sublease agreement with the City of Grand Prairie.

1491

1492 In 1982, 1,885 acres was leased to TPWD for development of what is now Cedar
1493 Hill State Park. The state park opened for public use in 1991. In January 2014, an
1494 additional 58 acres was added to the state park lease to extend the park boundary to
1495 the north encompassing the hike/bike trailhead used by pedestrians and bicyclists for
1496 access to the road across the top of Joe Pool Dam.

1497

1498 USACE has a limited role in directly managing outdoor recreation at the lake. This
1499 role consists of managing pedestrian use of the service road across the top of the dam,
1500 fishing use adjacent to the stilling basin area and along Mountain Creek below the dam,
1501 cooperative management of the water surface as it relates to boating activity, and
1502 managing general pedestrian access to lands that are not leased to Grand Prairie or
1503 TPWD. Many USACE lakes provide public hunting opportunities, but due to the very
1504 urban nature of Joe Pool Lake, public hunting has never been allowed. There are no
1505 plans to lift the prohibition on public hunting.

1506

1507 The following factors contribute to the importance of Joe Pool Lake as a recreational
1508 area:

- 1509 • Centrally located in the Dallas-Fort Worth metropolitan area. By road, the Joe Pool
1510 Lake Dam is located 19 miles from downtown Dallas and 28 miles from downtown
1511 Fort Worth
- 1512 • Large, full service state park operated by TPWD
- 1513 • Full service campgrounds, day-use areas, and group lodging facilities operated
1514 by Grand Prairie
- 1515 • Full service marina and easily accessible boat ramps

1517 2.5.1 Zone of Influence

1518 The zone of influence for Joe Pool Lake as it relates to this Master Plan includes
1519 Dallas, Tarrant, Ellis, and Johnson Counties.

1521 2.5.2 Visitation Profile

1522 The majority of visitors to Joe Pool Lake come from within the zone of influence.
1523 An examination of approximately 34,000 zip codes collected by the City of Grand Prairie
1524 in their Loyd Park campground during the time frame of 2013 through 2017 revealed
1525 that only about 8.2% of zip codes were from out-of-state and most of the remaining 92%
1526 traveled a relatively short distance varying from approximately 1 to 30 miles. Table 2.21
1527 provides examples of the percentage of campers coming from several cities that either
1528 adjoin Federal property or are very nearby. Many campers come from numerous zip
1529 codes within the cities of Dallas and Fort Worth, but no attempt was made to list those.

1530
1531 **Table 2.21 Point of Origin for Campers in Loyd Park**

ZIP CODE	PERCENT OF CAMPERS
76010 thru 76019 (Arlington, TX)	
76001 thru 76007 (Arlington, TX)	17.5%
75050 thru 75054 (Grand Prairie TX)	11.3%
76063 (Mansfield, TX)	6.7%
76028 (Burleson, TX)	2.5%
75060 thru 75063 (Irving, TX)	2.3%
75104 (Cedar Hill, TX)	1.3%

1532 Source: Grand Prairie

1533
1534 USACE tracks visitation at Joe Pool Lake by tabulating information provided by
1535 TPWD and Grand Prairie as well as maintaining a traffic counter at the Overlook where
1536 TPWD and USACE have shared recreational management responsibilities. Refer to
1537 Table 2.22 for the total number of visits recorded for each area for 2016 which was a
1538 year without extreme lake conditions of drought or flooding.

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1546 **Table 2.22 Joe Pool Lake Visitation - 2016**

Area	Visits
Britton Park	8,099
Cedar Hill State Park	185,034
Dispersed Use - Total	455,620
Loyd Park	163,358
Lynn Creek Park	208,945
Lynn Creek Marina	20,676
Overlook	11,974
Grand Total	1,053,706

1547

1548 2.5.3 Recreation Areas and Facilities

1549 The primary outdoor recreation facilities at Joe Pool Lake are operated by TPWD
 1550 in Cedar Hill State Park and by the City of Grand Prairie in Lynn Creek, Loyd, and
 1551 Britton Parks. USACE provides recreational opportunities by managing pedestrian traffic
 1552 on the road across the top of Joe Pool Dam and fishing access to the stilling basin area.
 1553 Table 2.23 provides a brief summary of the primary recreation facilities operated by
 1554 TPWD and the city of Grand Prairie.

1555

1556 **Table 2.23 Facilities Provided by TPWD and City of Grand Prairie**

Facilities	TPWD	
	Cedar Hill State Park	Grand Prairie
Walk-in Campsites	30	None
Campsites:electric and water	200	213 – Loyd Park
Campsites: electric, water and sewer	150	None
Picnic Sites	Yes – Varies with lake level	100 – Lynn Creek Park
Lodge	None	One with 18 rooms
Cabins	None	9 – Loyd Park
Group shelters	1	2 - Lynn Creek; 2 - Loyd
Bike Trail	Yes – Mountain Bikes	Yes – Lynn Creek and Loyd
Hike Trail	Yes	Yes – Lynn Creek and Loyd
Paddle Trail	No	Yes – Loyd Park
Boat Ramp	2	Yes – Lynn Creek (2), Loyd (1), and Britton (1)
Swimming Beach	1	1 – Lynn Creek, 1- Loyd
Interpretive Site	Yes	No

1557

1558 2.5.4 Recreational Analysis - Trends

1559 The 2012 Texas Outdoor Recreation Plan (TORP) published by TPWD is a
 1560 comprehensive recreational demand study completed by Texas Parks and Wildlife.

1561 Some of the information in the TORP was extracted directly from the National Survey on
 1562 Recreation and the Environment (NSRE) and reports generated by the USFWS.
 1563 The TORP pointed out the top five needs within all park systems in the state as
 1564 identified by professional recreation providers and by Texas citizens. Tables 2.24
 1565 through 2.27 and Figure 2.14 are a summary from the TORP and are provided to
 1566 illustrate general trends in outdoor recreation.

1567
 1568 As seen in Table 2.5.4, the top five recreational facilities needs in Texas focus on
 1569 walking, hiking, biking, and wildlife observations. As population grow and urban
 1570 environments expand, this trend is expected to continue. Having a regional resource
 1571 like Canyon Lake can provide these amenities to the rapidly expanding populations of
 1572 San Antonio, Houston, and Austin

1573
 1574 **Table 2.24 Top Five Recreation Facilities Needed by Texas Citizens – TORP 2012**

Top 5 Facilities Needed Now In Local Parks by Texas Citizens	
Unpaved trails for walking and hiking	43.6%
Natural park area/open space	31.8%
Mountain bike trails	31.4%
Paved trails for walking, hiking, biking, skating	30.1%
Wildlife/nature observation sites	27.8%

1575 Source: NSRE; TORP 2012

1576
 1577 Interest in watercraft sports such as boating, canoeing and kayaking continue to
 1578 hold strong interest in recreation. Table 2.25 illustrates that over 35% of the population
 1579 surveyed participate in boating activities. Canoeing and Kayaking are seeing an
 1580 increase in participation amongst those surveyed.

1581
 1582 **Table 2.25 Percent of Population Participating in Recreational Boating in the U.S.**

Percent of Population Participating in Recreational Boating in the U.S.				
	1982-1983	1994-1995	1999-2001	2005-2009
Boating	28.0%	37.8%	36.3%	35.6%
Canoeing/Kayaking	8.0%	9.5%	11.5%	12.4%

1583 Source: Cordell & Green, National Survey on Recreation and the Environment, Texas Reports 1994-95,
 1584 2000-01 and 2006-09, 2009; TORP – 2012

1585
 1586 While participation in hunting and fishing show stable growth across those
 1587 surveyed, there is a large jump in the population of people who are participating in the
 1588 more passive activity of wildlife watching. As seen in Table 2.26, from 2001 to 2006
 1589 almost a million more people reported participating in this activity.

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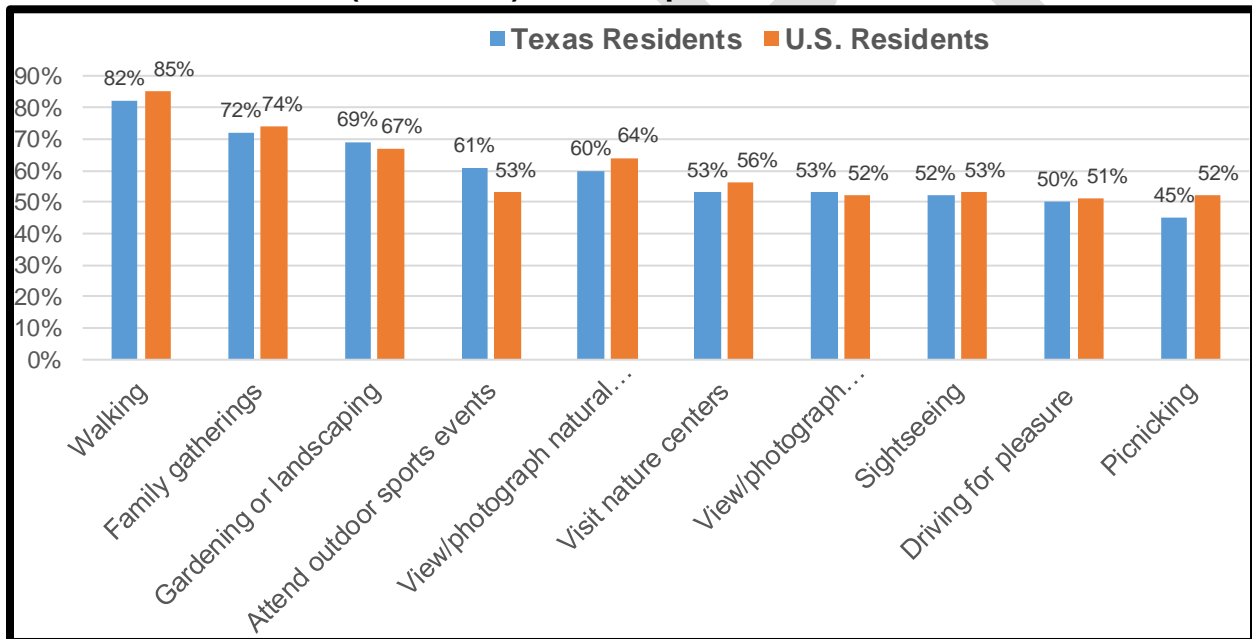
Table 2.26 Participation in Hunting, Fishing, and Wildlife Watching in Texas

Participation in Hunting, Fishing and Wildlife Watching in Texas (Residents and Non-Residents, 16 years and older)				
Texas	Fishing	Hunting	Wildlife Watching	Total Participants (Fishing + Hunting + Wildlife Watching)
1996 Survey	2.5 million	829 thousand	3.6 million	4.7 million
2001 Survey	2.4 million	1.2 million	3.2 million	4.9 million
2006 Survey	2.5 million	1.1 million	4.2 million	6.0 million

1598 Source: 1996, 2001, 2006 National Survey of Fishing, Hunting and Wildlife-Associated Recreation for
1599 Texas, USFWS; TORP 2012

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Figure 2.15 Participation Rates of Texas Residents (2006-2009) versus U.S. Residents (2005-2009) in the Top 10 Outdoor Recreation Activities



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Source: NSRE; TORP 2012

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As illustrated in Figure 2. 13, Texas and the US are very similar, with more participation in walking and family gatherings, for which the facilities at Joe Pool Lake can and do accommodate. No specific survey has been conducted at Joe Pool Lake to determine the ethnic/racial makeup of visitors, but the TORP provides an indication of White/Non-Hispanic versus Hispanics who participate in the top 10 outdoor recreation activities in Texas. Table 2.27 illustrates a slightly larger population of Hispanic respondents participate in many outdoor recreation activities typically available at Joe Pool Lake, including walking for pleasure and family gatherings.

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Table 2.27 Comparison of Participation Rates of White/Non-Hispanics, Versus Hispanics in the Top 10 Outdoor Recreation Activities in Texas 2006-2009

ACTIVITY	White/Non-Hispanics	Hispanics
Walking for Pleasure	81.1%	83.4%
Family Gatherings	66.6%	75.8%
Gardening or Landscaping	66.3%	76.3%
Attend Outdoor Sports Events Outdoors	57.3%	68.4%
View/Photograph Natural Scenery	63.3%	57.2%
Visit Outdoor Nature Centers	49.8%	58.4%
View/Photograph Wildflowers	59.3%	49.0%
Sightseeing	54.1%	49.6%
Driving for Pleasure	53.6%	49.4%
Picnicking	43.4%	47.7%

1619 Source: NSRE; TORP 2012

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In addition to the trends information provided by the 2012 TORP and NSRE, the City of Grand Prairie published a parks master plan in 2016 for their entire city parks system including what they refer to as the Lake Parks leased from USACE at Joe Pool Lake. The city gathered public input for their master plan by hosting 8 public meetings and conducting a survey. Approximately 280 individuals attended the public meetings and 741 surveys were completed by households and returned. The public input gathered by the city indicated that Lynn Creek Park is the most visited park within the city's park system with 33% of those responding indicating they had visited the park. Loyd Park was the fifth most visited park with approximately 14% of respondents having visited the park. The city's survey indicated a need for facilities that was very similar to the needs indicated by all Texans in Table 2.24. The city's survey indicated the following needs:

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- 64% indicated a need for more walking and hiking trails
- 53% indicated a need for more natural areas and nature parks
- 51% indicated a need for more neighborhood parks
- 45% indicated a need for more paved bike trails
- 45% indicated a need for more picnic shelters and areas

1639 **2.6 REAL ESTATE**

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Land acquisition for Joe Pool Lake followed the 1971 joint policy that applies to both Department of Interior and USACE water resources projects. Land up to elevation 541.0 feet NGVD, 5 feet above the top of the flood control pool, was acquired in fee simple to allow for the operation of Joe Pool Lake. Where the taking line at this elevation was not at least 300 feet from the flood control pool, the line was reset to provide a minimum taking width of 300 feet.

1647 The area acquired in fee simple title at Joe Pool Lake was 15,067 acres, which
 1648 includes land for construction of the dam and for the operation and maintenance of the
 1649 project and public use areas. In addition to the fee land acquisition, approximately 1,904
 1650 acres of flowage easement was acquired in the upper reaches of several tributaries up
 1651 to elevation 541.0 NGVD. The flowage easement estate conveys to the Government the
 1652 right to periodically inundate the land for project operations purposes and to prevent
 1653 human habitation on the easement or placement of fill material and changing contours
 1654 in a manner that would reduce flood storage capacity.

1656 Urban expansion in the cities of Grand Prairie, Cedar Hill and Mansfield have
 1657 almost completely surrounded Joe Pool Lake. The road and utility network serving the
 1658 expansion has resulted in numerous real estate outgrants on USACE fee and flowage
 1659 easement lands. A summary of existing outgrants is provided as follows:

Table 2.28 Listing of Outgrants at Joe Pool Lake

Leases:	5
TRA water intake	1
TRA water treatment plant site	1
TPWD park lease	1
Grand Prairie park lease	1
BLM oil and gas lease	1
Easements:	60
Sewer/water/storm drainage	33
Gas pipeline	6
Road	4
Electric	12
Trail	1
Utility cable	2
Railroad tracks	1
Bridge	1
Licenses	3
Office space	1
Temporary construction	1
Water structure	1
Other (consents/roe, etc.)	30
Sewer/water/storm drainage	11
Electric	2
Roadway	1
Unknown	2
Swimming pool	2
Gas pipeline	4
Archeological	1
Trail	1
Pond	2
Right of entry	1
Fence	1
Other	1
Bridge	1

1662
1663 Some lands were acquired subject to existing easements which are not recorded in the
1664 permanent real estate outgrant database.
1665

1666 **2.7 PERTINENT PUBLIC LAWS**

1667 Numerous public laws apply directly or indirectly to the management of Federal land
1668 at Joe Pool Lake. Listed below are several key public laws that are most frequently
1669 referenced in planning and operational documents. Refer to Appendix D for a more
1670 comprehensive listing.
1671

- 1672 • Public Law 78-534, Flood Control Act of 1944. - Section 4 of the act as last
1673 amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to
1674 construct, maintain, and operate public parks and recreational facilities in reservoir
1675 areas and to grant leases and licenses for lands, including facilities, preferably to
1676 Federal, State or local governmental agencies.
1677
- 1678 • Public Law 85-624, Fish and Wildlife Coordination Act 1958. - This act as amended
1679 in 1965 sets down the general policy that fish and wildlife conservation shall receive
1680 equal consideration with other project purposes and be coordinated with other
1681 features of water resource development programs. Opportunities for improving fish
1682 and wildlife resources and adverse effects on these resources shall be examined
1683 along with other purposes which might be served by water resources development.
1684
- 1685 • Public Law 86-717, Forest Conservation. - This act provides for the protection of
1686 forest and other vegetative cover for reservoir areas under this jurisdiction of the
1687 Secretary of the Army and the Chief of Engineers.
1688
- 1689 • Public Law 89-72, Federal Water Project Recreation Act of 1965. - This act requires
1690 that not less than one-half the separable costs of developing recreational facilities
1691 and all operation and maintenance costs at Federal reservoir projects shall be borne
1692 by a non-Federal public body. A HQUSACE/OMB implementation policy made these
1693 provisions applicable to projects completed prior to 1965.
1694
- 1695 • Public Law 91-190, National Environmental Policy Act of 1969 (NEPA). – NEPA
1696 declared it a national policy to encourage productive and enjoyable harmony
1697 between man and his environment, and for other purposes. Specifically, it declared a
1698 “continuing policy of the Federal Government... to use all practicable means and
1699 measures...to foster and promote the general welfare, to create conditions under
1700 which man and nature can exist in productive harmony, and fulfill the social,
1701 economic, and other requirements of present and future generations of Americans.”
1702 Section 102 authorized and directed that, to the fullest extent possible, the policies,
1703 regulations and public law of the United States shall be interpreted and administered
1704 in accordance with the policies of the Act. It is Section 102 that requires
1705 consideration of environmental impacts associated with Federal actions. Section 101

1706 of NEPA requires the federal government to use all practicable means to create and
1707 maintain conditions under which man and nature can exist in productive harmony.
1708

1709 Specifically, Section 101 of the National Environmental Policy Act declares:

- 1710 ○ Fulfill the responsibilities of each generation as trustee of the environment for
1711 succeeding generations;
- 1712 ○ Assure for all Americans safe, healthful, productive, and aesthetically and
1713 culturally pleasing surroundings;
- 1714 ○ Attain the widest range of beneficial uses of the environment without degradation
1715 risk to health or safety or other undesirable and unintended consequences;
- 1716 ○ Preserve important historic, cultural, and natural aspects of our national heritage
1717 and maintain wherever possible an environment which supports diversity and
1718 variety of individual choice;
- 1719 ○ Achieve a balance between population and resource use which will permit high
1720 standards of living and a wide sharing of life's amenities: and
- 1721 ○ Enhance the quality of renewable resources and approach the maximum
1722 attainable recycling of depletable resources.

1723

- 1724 ● PL 89-665, Historic Preservation Act of 1966. - This act provides for: (1) an
1725 expanded National Register of significant sites and objects; (2) matching grants to
1726 states undertaking historic and archeological resource inventories; and (3) a
1727 program of grants-in aid to the National Trust for Historic Preservation; and (4) the
1728 establishment of an Advisory Council on Historic Preservation. Section 106 requires
1729 that the President's Advisory Council on Historic Preservation have an opportunity to
1730 comment on any undertaking which adversely affects properties listed, nominated,
1731 or considered important enough to be included on the National Register of Historic
1732 Places.

1733

- 1734 ● PL 101-601, Native American Graves Protection and Repatriation Act (16 November
1735 1990), requires Federal agencies to return Native American human remains and
1736 cultural items, including funerary objects and sacred objects, to their respective
1737 peoples.

CHAPTER 3 - RESOURCE GOALS AND OBJECTIVES

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1740 3.1 INTRODUCTION

1741 This chapter sets forth goals and objectives necessary to achieve the USACE
1742 vision for the future of Joe Pool Lake. The terms “goal” and “objective” are often
1743 defined as synonymous, but in the context of this Master Plan goals express the
1744 overall desired end state of the Master Plan whereas resource objectives are specific
1745 task-oriented actions necessary to achieve the overall Master Plan goals.
1746

1747 3.2 RESOURCE GOALS

1748 The following statements, paraphrased from *EP 1130-2-550*, Chapter 3, express
1749 the goals for the Joe Pool Lake Master Plan:

1750

1751 **GOAL A.** Provide the best management practices to respond to regional needs,
1752 resource capabilities and capacities, and expressed public interests
1753 consistent with authorized project purposes.

1754

1755 **GOAL B.** Protect and manage project natural and cultural resources through
1756 sustainable environmental stewardship programs.

1757

1758 **GOAL C.** Provide public outdoor recreation opportunities that support project
1759 purposes and public interests while sustaining project natural resources.

1760

1761 **GOAL D.** Recognize the unique qualities, characteristics, and potentials of the project.

1762

1763 **GOAL E.** Provide consistency and compatibility with national objectives and other
1764 State and regional goals and programs.

1765

1766 In addition to the above goals, USACE management activities are guided by
1767 USACE-wide Environmental Operating Principles as follows:

1768

- 1769 • Strive to achieve environmental sustainability. An environment maintained in a
1770 healthy, diverse, and sustainable condition is necessary to support life.
- 1771 • Recognize the interdependence of life and the physical environment. Proactively
1772 consider environmental consequences of USACE programs and act accordingly
1773 in all appropriate circumstances.
- 1774 • Seek balance and synergy among human development activities and natural
1775 systems by designing economic and environmental solutions that support and
1776 reinforce one another.

- 1777 • Continue to accept corporate responsibility and accountability under the law for
1778 activities and decisions under our control that impact human health and welfare
1779 and the continued viability of natural systems.
- 1780 • Seek ways and means to assess and mitigate cumulative impacts to the
1781 environment; bring systems approaches to the full life cycle of our processes and
1782 work.
- 1783 • Build and share an integrated scientific, economic, and social knowledge base
1784 that supports a greater understanding of the environment and impacts of our
1785 work.
- 1786 • Respect the views of individuals and groups interested in USACE activities; listen
1787 to them actively, and learn from their perspective in the search to find innovative
1788 win-win solutions to the nation's problems that also protect and enhance the
1789 environment.
1790

1791 3.3 RESOURCE OBJECTIVES

1792 Resource objectives are clearly written statements that respond to identified
1793 issues and that specify measurable and attainable activities for resource development
1794 and/or management of the lands and waters under the jurisdiction of the Fort Worth
1795 District, Joe Pool Lake Project Office. The objectives stated in this Master Plan support
1796 the goals of the Master Plan, USACE Environmental Operating Principles (EOPs), and
1797 applicable national performance measures. They are consistent with authorized project
1798 purposes, Federal laws and directives, regional needs, resource capabilities, and they
1799 consider public input. Recreational and natural resources carrying capacities are also
1800 accounted for during development of the objectives found in this Master Plan. Regional
1801 and State planning documents including TPWD's Texas Conservation Action Plan
1802 (TCAP) and TORP are monitored for applicability to Joe Pool Lake. Finally, these
1803 objectives are consistent with the management objectives of Texas Parks and Wildlife
1804 Department at Cedar Hill State Park, and with the management objectives of the City of
1805 Grand Prairie at the seven distinct parcels of USACE land they manage under lease
1806 agreements with USACE.

1807
1808 The objectives in this master plan provide project benefits, meet public needs, and
1809 foster environmental sustainability for Joe Pool Lake to the greatest extent possible.
1810 They include recreational objectives; natural resource management objectives; visitor
1811 information; education and outreach objectives; general management objectives; and
1812 cultural resource management objectives.

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1822 **Table 3.1 Recreational Objectives**

Recreational Objectives	Goals				
	A	B	C	D	E
In cooperation with TPWD and the City of Grand Prairie, evaluate the demand for improved recreation facilities and increased public access on USACE-administered public lands and water for recreational activities (i.e. camping, walking, hiking, biking, boating, fishing, wildlife viewing, etc.) and facilities (i.e. campsites, picnic facilities, overlooks, all types of trails, boat ramps, courtesy docks, interpretive signs/exhibits, and parking lots).	*		*		
Monitor the condition and quality of day use and campground facilities within leased areas including, but not limited to: roads, sewer hook ups, potable water systems, electrical service, concrete or asphalt recreational vehicle pads, tent pads, restrooms, trails, pavilions, and park entrances.	*		*		
Monitor public use levels (with a special focus on boating congestion and marina capacity) and evaluate potential impacts from overuse and crowding. Take action to prevent/remediate overuse, conflict, and public safety concerns.	*		*		
Evaluate water surface classification and regulations with emphasis on designated quiet water or no-wake areas, natural resource protection, quality recreational opportunities, and public safety concerns.	*				
Follow the Environmental Operating Principles associated with recreational use of waterways for all water-based management activities and plans.		*	*		*
Encourage lessees to increase universally accessible facilities on Joe Pool Lake.	*		*		*
Consider flood/conservation pool elevations to address potential impact to recreational facilities (i.e. campsites, boat ramps, courtesy docks, etc.).	*	*	*	*	
Ensure consistency with USACE Recreation Strategic Plan.					*
Monitor the TCAP, the TORP, and adjacent municipality plans to insure that USACE is responsive to outdoor recreation trends, public needs and resource protection within a regional framework. All plans by others will be evaluated in light of USACE policy and operational aspects of Joe Pool Lake.					

*Denotes that the objective helps to meet the specified goal.

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Table 3.2 Natural Resource Management Objectives

Natural Resource Management Objectives	Goals:				
	A	B	C	D	E
Consider flood/conservation pool levels to ensure that natural resources are managed in ways that are compatible with primary project purposes of flood risk management and water supply.	*	*		*	
Ensure project lands are managed with preservation and conservation of natural habitat and open space as a primary objective in order to maintain availability of public open space.	*			*	
Actively manage and conserve fish and wildlife resources, especially migratory and other special status species, by implementing ecosystem management principles. Key among these principles is the use of native species adapted to the ecological region in restoration and mitigation plans.	*	*		*	*
Consider watershed approach during decision-making process.					*
Optimize resources, labor, funds, and partnerships for protection and restoration of fish and wildlife habitats.		*			*
Minimize activities that disturb the scenic beauty and aesthetics of the lake.	*	*	*	*	
Continually evaluate erosion control and sedimentation issues at Joe Pool Lake and develop alternatives to resolve the issues.	*	*			*
Address unauthorized uses of public lands such as off-road vehicle use, trash dumping, unauthorized fires, fireworks, poaching, clearing of vegetation, unauthorized trails and paths, and placement of advertising signs that create negative environmental impacts.	*	*	*	*	*
Monitor lands and waters for invasive, non-native, and aggressively spreading native species and take action to prevent and/or reduce the spread of these species. Potential invasive species of great concern are the zebra mussel, Chinese privet (<i>Ligustrum sinense</i>), and Emerald ash borer. Implement prescribed fire as a management tool to control the spread of noxious plants including Johnsongrass, King Ranch bluestem, and Ashe juniper, and to promote the vigor of native prairie grasses and forbs.	*	*		*	*

Natural Resource Management Objectives	Goals:				
	A	B	C	D	E
Protect and/or restore important native habitats such as riparian zones, wetlands, and native prairie where they occur, or historically occurred on project lands. Special emphasis should be taken to protect and/or restore special or rare plant communities, to include actions that promote butterfly and/or pollinator habitat, migratory bird habitat, and habitat for birds listed by USFWS as Birds of Conservation Concerns. Some of these habitats may be designated as Environmentally Sensitive Areas.	*	*	*	*	*
Administer the Shoreline Management Program to balance private shoreline uses (such as mowing or vegetation removal requests along the Federal property boundary, or paths to the shoreline) with wildlife habitat protection and impacts to public use.	*		*		

*Denotes that the objective helps to meet the specified goal.

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Table 3.3 Visitor Information, Education, and Outreach Objectives

Visitor Information, Education, and Outreach Objectives	Goals				
	A	B	C	D	E
Provide more opportunities for communication with lessees, agencies, special interest groups, and the general public (i.e. comment cards, updates to City Managers, web page).	*			*	*
Implement more educational, interpretive, and outreach programs at the lake office and around the lake. Topics to include: history, lake operations (flood risk management and water supply), water safety, recreation, nature, cultural resources, ecology, and USACE missions.	*	*	*	*	*
Enhance network among local, state, and federal agencies in order to exchange lake-related information for public education and management purposes.	*			*	*
Increase public awareness of special use permits or other authorizations required for special activities, organized special events, and commercial activities on public lands and waters of the lake.	*	*	*		
Capture trends concerning boating accidents and other incidents on public lands and waters and coordinate data collection with other public safety officials.	*		*	*	*
Promote USACE Water Safety message.	*		*	*	*

Visitor Information, Education, and Outreach Objectives	Goals				
	A	B	C	D	E
Educate adjacent landowners on shoreline management policies and permit processes in order to reduce encroachment actions.	*	*	*	*	*

*Denotes that the objective helps to meet the specified goal.

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Table 3.4 General Management Objectives

General Management Objectives	Goal				
	A	B	C	D	E
Maintain the USACE boundary line to ensure it is clearly marked and recognizable in all areas to reduce habitat degradation and encroachment actions.	*	*		*	
Secure sustainable funding for the shoreline management program.	*	*	*	*	*
Ensure consistency with USACE Campaign Plan (national level), IPlan (regional level), and OPlan (District level).					*
Ensure green design, construction, and operation practices, such as the Leadership in Energy and Environmental Design (LEED) criteria for government facilities, are considered as well as applicable Executive Orders.					*
Carefully manage non-recreation outgrants such as utility and road easements in accordance with national guidance set forth in ER-1130-2-550 and applicable chapters in ER 405-1-12.	*	*			*
Manage project lands and recreational programs to advance broad national climate change mitigation goals, including but not limited to climate change resilience and carbon sequestration, as set forth in Executive Order 13693 and related USACE policy.					*

*Denotes that the objective helps to meet the specified goal.

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Table 3.5 Cultural Resources Management Objectives

Cultural Resources Management Objectives	Goal				
	A	B	C	D	E
Monitor and coordinate lake development and the protection of cultural with lessees and appropriate entities.	*	*		*	*
Increase public awareness and education of regional history.		*		*	*

Cultural Resources Management Objectives	Goal				
	A	B	C	D	E
While currently no sites at Joe Pool Lake are listed on the National Register of Historic Places (NRHP), seven sites have been determined eligible and nine sites have not yet been evaluated for NRHP eligibility. The project office will ensure any future historical preservation is fully integrated into the Joe Pool Lake Master Plan and the planning decision making process (Section 106 and 110 of the National Historic Preservation Act) on public lands surrounding the lake.		*		*	*
Develop partnerships that promote and protect cultural resources at Joe Pool Lake.		*	*	*	*
Stop unauthorized use of public lands as it pertains to the illegal excavation and removal of cultural resources.		*		*	*

*Denotes that the objective helps to meet the specified goal.

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DRAFT

1843 **CHAPTER 4 - LAND ALLOCATION, LAND CLASSIFICATION,**
1844 **WATER SURFACE, AND PROJECT EASEMENT LANDS**
1845

1846 **4.1 LAND ALLOCATION**

1847 All lands at USACE water resource development projects are allocated by
1848 USACE into one of four categories in accordance with the congressionally authorized
1849 purpose for which the project lands were acquired. There are four possible categories of
1850 allocation identified in USACE regulations including Operations, Recreation, Fish and
1851 Wildlife, and Mitigation. At Joe Pool Lake, the land allocation categories that apply are
1852 Operations and Recreation. Operations allocation, is defined as those lands that are
1853 required to operate the project for the primary authorized purposes of flood risk
1854 management, hydroelectric power, and water conservation. Recreation allocation, is
1855 defined as lands acquired specially for the authorized purpose of recreation, referred to
1856 as separable recreation lands. The remaining allocations of Fish and Wildlife, and
1857 Mitigation would apply only if lands had been acquired specifically for these purposes.
1858 The entire fee simple federal estate at Joe Pool Lake is 15,067 acres of which 6,707
1859 acres is inundated at conservation pool. Of the total 15,067 acres, 1,475 acres are
1860 allocated to Recreation with the remaining 13,592 acres allocated to Project Operations.

1861 **4.2 LAND CLASSIFICATION**

1862 Previous versions of the Joe Pool Lake Master Plan included land classification
1863 criteria that were similar to the current criteria. These prior land classifications were
1864 based more on projected need than on actual experience, which resulted in some areas
1865 being classified for a type of use that has not, or is not likely to occur. Additionally, in the
1866 37 years since the previous Master Plan was published, wildlife habitat values,
1867 surrounding land use, and regional recreation trends have changed giving rise to the
1868 need for revised classifications. Refer to Table 8.1 in Chapter 8 for a summary of land
1869 classification changes from the prior classifications to the current classifications.
1869

1870 4.2.1 Current Land and Water Surface Classifications

1871 USACE regulations require project lands and waters to be classified in
1872 accordance with the primary use for which project lands are managed. There are six
1873 categories of classification identified in USACE regulations including:
1874

- 1875 • Project Operations
- 1876 • High Density Recreation
- 1877 • Mitigation
- 1878 • Environmentally Sensitive Areas
- 1879 • Multiple Resource Management Lands
- 1880 • Water Surface
- 1881

1882 The land and water surface classifications for Joe Pool Lake were established
1883 after taking into account public comments, input from key stakeholders including elected
1884 officials, city and county governments, and lessees operating on USACE land.
1885 Additionally, public comment, wildlife habitat values, and the trends analysis provided in
1886 TPWD's TORP and TCAP were also used in decision making. Maps showing the
1887 various land classifications can be found in Appendix A. Each of the land classifications,
1888 including the acreage and description of allowable uses is described in the following
1889 paragraphs.

1890 4.2.2 Project Operations

1891 This classification includes the lands managed for operation of the dam, project
1892 office, and maintenance yards, all of which must be maintained to carry out the
1893 authorized purpose of flood risk management. In addition to the operational activities
1894 taking place on these lands, limited recreational use may be allowed for activities such
1895 as public access to the road on top of the dam. Regardless of any limited recreation use
1896 allowed on these lands, the primary classification of Project Operations will take
1897 precedent over other uses. There are 308 acres of Project Operations land specifically
1898 managed for this purpose.

1899 4.2.3 High Density Recreation (HDR)

1900 These are lands developed for intensive recreational activities for the visiting
1901 public including day use areas, campgrounds, marinas and related concession areas.
1902 Recreation development by lessees operating on USACE lands must follow policy
1903 guidance contained in USACE regulations at ER 1130-2-550, Chapter 16. That policy
1904 includes the following statement:

1905
1906 *“The primary rationale for any future recreation development must be*
1907 *dependent on the project’s natural or other resources. This dependency is*
1908 *typically reflected in facilities that accommodate or support water-based*
1909 *activities, overnight use, and day use such as marinas, campgrounds, picnic*
1910 *areas, trails, swimming beaches, boat launching ramps, and comprehensive*
1911 *resort facilities. Examples that do not rely on the project’s natural or other*
1912 *resources include theme parks or ride-type attractions, sports or concert*
1913 *stadiums, and standalone facilities such as restaurants, bars, motels, hotels,*
1914 *non-transient trailers, and golf courses. Normally, the recreation facilities that*
1915 *are dependent on the project’s natural or other resources, and accommodate*
1916 *or support water-based activities, overnight use, and day use, are approved*
1917 *first as primary facilities followed by those facilities that support them. Any*
1918 *support facilities (e.g., playgrounds, multipurpose sports fields, overnight*
1919 *facilities, restaurants, camp stores, bait shops, comfort stations, and boat*
1920 *repair facilities) must also enhance the recreation experience, be dependent*
1921 *on the resource-based facilities, and be secondary to the original intent of*
1922 *the recreation development...”*

1923
1924 Lands classified for High Density Recreation are suitable for the development of
1925 comprehensive resorts. The regulation cited above defines Comprehensive Resort as
1926 follows:

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“Typically, multi-faceted developments with facilities such as marinas, lodging, conference centers, golf courses, tennis courts, restaurants, and other similar facilities.”

At Joe Pool Lake, prior land classifications included a number of areas under the high density recreation classification. Several of these areas, including Cedar Hill State Park, Loyd Park, and portions of Lynn Creek and Britton Parks were developed during the construction phase of the overall project, while additional areas were selected for future development with the intent to manage the areas for wildlife in the interim. Using public, agency, and lessee input, the planning team changed the classification of some of these lands to reflect current and projected outdoor recreation needs and trends. At Joe Pool Lake there are 4,139 acres classified as High Density Recreation land. Refer to Table 2.23 for a listing of the recreation facilities currently provided at the four developed parks mentioned above. Each of the High Density Recreation areas is described briefly in Chapter 5 of this Plan.

4.2.4 Mitigation

This classification is used only for lands allocated for mitigation for the purpose of offsetting losses associated with the development of the project. There are no lands at Joe Pool Lake with this classification.

4.2.5 Environmentally Sensitive Areas (ESA)

These are areas where scientific, ecological, cultural, and aesthetic features have been identified. At Joe Pool Lake several distinct areas have been classified as Environmentally Sensitive Areas (ESA), primarily for the protection of sensitive habitats or cultural resources. Each of these areas is discussed in Chapter 5 of this Plan and illustrated on the maps in Appendix A. There are 1,507 acres classified as ESA at Joe Pool Lake.

4.2.6 Multiple Resource Management Lands (MRML)

This classification is divided into four sub-classifications identified as: Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. A given tract of land may be classified using one or more of these sub-classifications but the primary sub classification should reflect the dominant use of the land. Typically, Multiple Resource Management Lands support only passive, non-intrusive uses with very limited facilities or infrastructure. Where needed, some areas may require basic facilities that include, but are not limited to minimal parking space, a small boat ramp, and/or primitive sanitary facilities. There are 2,732 acres of land under this classification at Joe Pool Lake. The following paragraphs list each of the sub-classifications, and the number of acres and primary uses of each.

4.2.6.1 Low Density Recreation (LDR). These are lands that may support passive public recreational use (e.g., fishing, hunting, wildlife viewing, natural surface trails, hiking, etc.). Under prior land classifications, numerous areas were classified to support “low use” recreation and wildlife management. The planning process resulted in most of these areas be reclassified as either LDR or Wildlife

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Management. In general, the relatively narrow tracts that have shoreline along the main body of the lake and are located immediately adjacent to residential areas have been reclassified as LDR. There are 482 acres under this classification at Joe Pool Lake.

4.2.6.2 Wildlife Management (WM). This land classification applies to those lands managed primarily for the conservation of fish and wildlife habitat. These lands generally include comparatively large contiguous parcels, most of which are located within the flood pool of the lake. Passive recreation uses such as natural surface trails, fishing, hunting, and wildlife observation are compatible with this classification unless restrictions are necessary to protect sensitive species or to promote public safety. There are 2,095 acres of land included in this classification at Joe Pool Lake.

4.2.6.3 Vegetative Management (VM). These are lands designated for stewardship of forest, prairie, and other native vegetative cover. Passive recreation activities previously described may be allowed in these areas. There are 157 acres of land included in this classification at Joe Pool Lake. Photo 4.1 provides a before and after picture of an area in Cedar Hill State Park that is periodically burned to promote native prairie.

Photo 4.1 Before and after picture of an area in Cedar Hill State Park that is periodically burned to encourage establishment of native prairie.



Photo courtesy of TPWD

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4.2.6.4 Future or Inactive Recreation. These are lands with site characteristics compatible with High Density Recreation development. Prior land classifications at Joe Pool Lake identified several tracts for future high density recreation

2002 development. One such area was in Lynn Creek Park where development is
2003 already underway. The remaining tracts are leased to the City of Grand Prairie
2004 who has requested the classification be changed to High Density Recreation.
2005 The City projects that these tracts will be developed within the 25-year planning
2006 horizon of this Master Plan. There are no areas classified as Future or Inactive
2007 Recreation.
2008

2009 4.2.7 Water Surface

2010 USACE regulations specify four possible sub-categories of water surface
2011 classification. These classifications are intended to promote public safety, protect
2012 resources, or protect project operational features such as the dam and spillway. These
2013 areas are typically marked by USACE or lessees with navigational or informational
2014 buoys or signs, or are denoted on public maps and brochures. The Water Surface
2015 Classification map can be found in Appendix A of this Plan. The four sub-categories of
2016 water surface classification include:
2017

- 2018 • Restricted. Restricted water surface includes those areas where recreational
2019 boating is prohibited or restricted for project operations, safety, and security
2020 purposes. The areas include the water surface immediately surrounding the
2021 gate control tower upstream of the Joe Pool Lake Dam as well as around the
2022 TRA and City of Midlothian water intake towers and designated swim
2023 beaches at Joe Pool Lake parks. There are 24 acres of restricted water
2024 surface at Joe Pool Lake.
2025
- 2026 • Designated No-Wake. Designated No-Wake areas are intended to protect
2027 environmentally sensitive shorelines and improve boating safety near key
2028 recreational water access areas such as boat ramps. There are 7 boat ramps
2029 and one marina at Joe Pool Lake where no-wake restrictions are in place for
2030 reasons of public safety and protection of property. There are 103 acres of
2031 designated no-wake water surface at Joe Pool Lake.
2032
- 2033 • Fish and Wildlife Sanctuary. This water surface classification applies to areas
2034 with annual or seasonal restrictions to protect fish and wildlife species during
2035 periods of migration, resting, feeding, nesting, and/or spawning. Joe Pool
2036 Lake has no water surface areas designated as a Fish and Wildlife
2037 Sanctuary.
2038
- 2039 • Open Recreation. Open Recreation includes all water surface areas available
2040 for year round or seasonal water-based recreational use. This classification
2041 encompasses the majority of the lake water surface and is open to general
2042 recreational boating. Boaters are advised through maps and brochures, or
2043 signs at boat ramps and marinas, that navigational hazards, including areas
2044 where standing dead timber may be present as depicted on the land and
2045 water surface classification maps in Appendix A, may be present at any time
2046 and at any location in these areas. Operation of a boat in these areas is at the

2047 owner's risk. Specific navigational hazards may or may not be marked with a
 2048 buoy. There are 6,580 acres of open recreation water surface at Joe Pool
 2049 Lake.
 2050

2051 Future management of the water surface includes the maintenance of warning,
 2052 information, and regulatory buoys as well as routine water safety patrols during peak
 2053 use periods.

2054 4.2.8 Recreational Seaplane Operations

2055 Seaplane restrictions are part of Title 36 Code of Federal Regulations. At Joe Pool
 2056 Lake and other USACE lakes across the nation, areas where recreational seaplane
 2057 operations are prohibited were established through public meetings and environmental
 2058 assessments circa 1980. The seaplane policy for USACE Fort Worth District is found in
 2059 the Notice to Seaplane Pilots (see Appendix E), which lays out the general restrictions
 2060 as well as lake-specific restrictions for seaplane operation. Seaplane operations at Joe
 2061 Pool Lake are generally prohibited in all areas west of the Lakeridge Parkway Bridges
 2062 and within 500 feet of structures such as bridges and the dam. Once on the water,
 2063 seaplanes are considered to be water vessels and fall under guidelines for watercraft.
 2064

2065 Table 4.1 provides a summary of land classifications at Joe Pool Lake. Acreages
 2066 were calculated by historical and GIS data. A map representing these areas can be
 2067 found in Appendix A.
 2068
 2069
 2070

Table 4.1 Land Classification Acres at Joe Pool Lake

CLASSIFICATION	ACRES
Project Operations	308
High Density Recreation	4,139
Environmental Sensitive Areas	1,507
Multiple Resource Managed Lands - Low Density Recreation	482
Multiple Resource Managed Lands - Wildlife Management	2,095
Multiple Resource Managed Lands - Vegetative Management	157
Multiple Resource Managed Lands - Future/Inactive Recreation Areas	0
Water Surface: Restricted	24
Water Surface: Designated No-Wake	103
Water Surface: Fish and Wildlife Sanctuary	0
Water Surface: Open Recreation	6,580

2071 Note: Acreages were measured using GIS technology and may vary from the official land acquisition
 2072 records. Acreage varies depending on changes in lake levels, sedimentation and shoreline erosion. Total
 2073 Water Surface: 6,707 acres - Miles of Shoreline: 60 miles
 2074

2075 **4.3 PROJECT EASEMENT LANDS**

2076 Project Easement Lands are primarily lands on which easement interests were
 2077 acquired. Fee title was not acquired on these lands, but the easement interests
 2078 convey to the Federal government certain rights to use and/or restrict the use of the

2079 land for specific purposes. Easement lands are typically classified as Operations
2080 Easement, Flowage Easement, and/or Conservation Easement. At Joe Pool Lake,
2081 flowage easement lands exist for one primary purpose. A flowage easement, in
2082 general, grants to the government the perpetual right to temporarily flood/inundate
2083 private land during flood risk management operations and to prohibit activities on the
2084 flowage easement that would interfere with flood risk management operations such
2085 as placement of fill material or construction of habitable structures. There are 1,904
2086 acres of flowage easements lands at Joe Pool Lake.
2087

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CHAPTER 5 - RESOURCE PLAN

2088
2089

2090 **5.1 MANAGEMENT BY CLASSIFICATION**

2091 This chapter describes the management plans for each land use classification
2092 within the Master Plan. The classifications that exist at Joe Pool Lake are Project
2093 Operations (PO), High Density Recreation (HDR), Environmentally Sensitive Area
2094 (ESA), and Multiple Resource Management Lands (MRML) on which a predominant
2095 use is specified including Low Density Recreation (LDR), Vegetative Management (VM)
2096 and Wildlife Management (WM). The water surface is also classified into sub-
2097 classifications of Restricted, Designated No Wake, and Open Recreation. The
2098 management plans describe how these project lands and water surface will be
2099 managed in broad terms. A more descriptive plan for managing these lands can be
2100 found in the Joe Pool Lake OMP or the park master plans prepared by TPWD or the
2101 City of Grand Prairie. Acreages shown for the various land classifications was
2102 calculated using GIS technology and may not agree with lease documents, prior
2103 publications, or official land acquisition records.
2104

2105 **5.2 PROJECT OPERATIONS**

2106 The Project Operations (PO) classification is land associated with the dam,
2107 spillway, levees, lake office, maintenance facilities, and other areas managed solely for
2108 the operation and fulfillment of the primary mission of the project. There are 308 acres
2109 of lands under this classification, all of which are managed by the USACE. Public
2110 pedestrian traffic is currently allowed on the operational service road that traverses the
2111 top of the dam. This recreational public use is considered by USACE to be incidental to
2112 operational needs and is subject to termination if necessary for project operational
2113 purposes. USACE currently has no plans to curtail this recreational use, but future dam
2114 maintenance needs or security concerns could result in cessation of this use. The
2115 stilling basin includes walkways to accommodate fishing, and pedestrian access to the
2116 stilling basin area is currently allowed from the access gate on Camp Wisdom Road to
2117 the stilling basin. This recreational use is also considered by USACE to be incidental to
2118 operational needs and could be curtailed in the future to accommodate operational or
2119 security requirements. The management plan for the PO lands is to continue providing
2120 physical security necessary to ensure sustained operations of the dam and related
2121 facilities including restricting public access in hazardous locations near the dam and
2122 spillway.
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Photo 5.1 Construction of Joe Pool Dam, early 1980s



USACE Photo

2131
2132

2133 **5.3 HIGH DENSITY RECREATION**

2134 Joe Pool Lake has 4,139 acres classified as High Density Recreation (HDR).
 2135 These lands are referred to as parks and are developed, or suitable to be developed, for
 2136 intensive recreational activities for the visiting public including day use areas,
 2137 campgrounds and commercial concessions within the areas classified as HDR. Other
 2138 land classifications exist within designated parks including ESA, MRML-WM, MRML-
 2139 LDR, and MRML-VM lands. As of the date of publication of this Master Plan, the City of
 2140 Grand Prairie has seven distinct areas under lease from USACE, three of which are
 2141 wholly or partly developed. TPWD has one large parcel, Cedar Hill State Park (formerly
 2142 Lakeview State Park), under lease.

2143
 2144 The initial development of recreation facilities at Joe Pool Lake was cost shared
 2145 through contractual agreements between USACE and TRA for the HDR lands currently
 2146 leased to and operated by the City of Grand Prairie, and between USACE and TPWD
 2147 for the development of Cedar Hill State Park. With the exception of commercial
 2148 concession areas operated under sublease arrangements with either the City of Grand
 2149 Prairie or TPWD, any future development, and all operations and maintenance costs
 2150 associated with these HDR lands is the responsibility of TPWD and the City of Grand
 2151 Prairie for their respective leased areas. USACE reviews requests from lessees and
 2152 ensures compliance with applicable laws and regulations for proposed and on-going
 2153 activities in all leased HDR areas. USACE works with partners to ensure that recreation
 2154 areas are managed and operated in accordance with the objectives prescribed in
 2155 Chapter 3. USACE is responsible for passive recreation uses occurring on project lands
 2156 that are not leased to others.

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National USACE policy set forth in ER 1130-2-550, Chapter 16, limits recreation development on USACE lands to those activities that are dependent on a project’s natural resources and typically includes water-based activities, overnight use and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps and comprehensive resorts. Examples of activities that are not dependent on a project’s natural resources include, athletic fields for organized sports, theme parks or ride-type attractions, sports or concert stadiums, and stand-alone facilities such as restaurants, bars, motels, hotels, and golf courses.

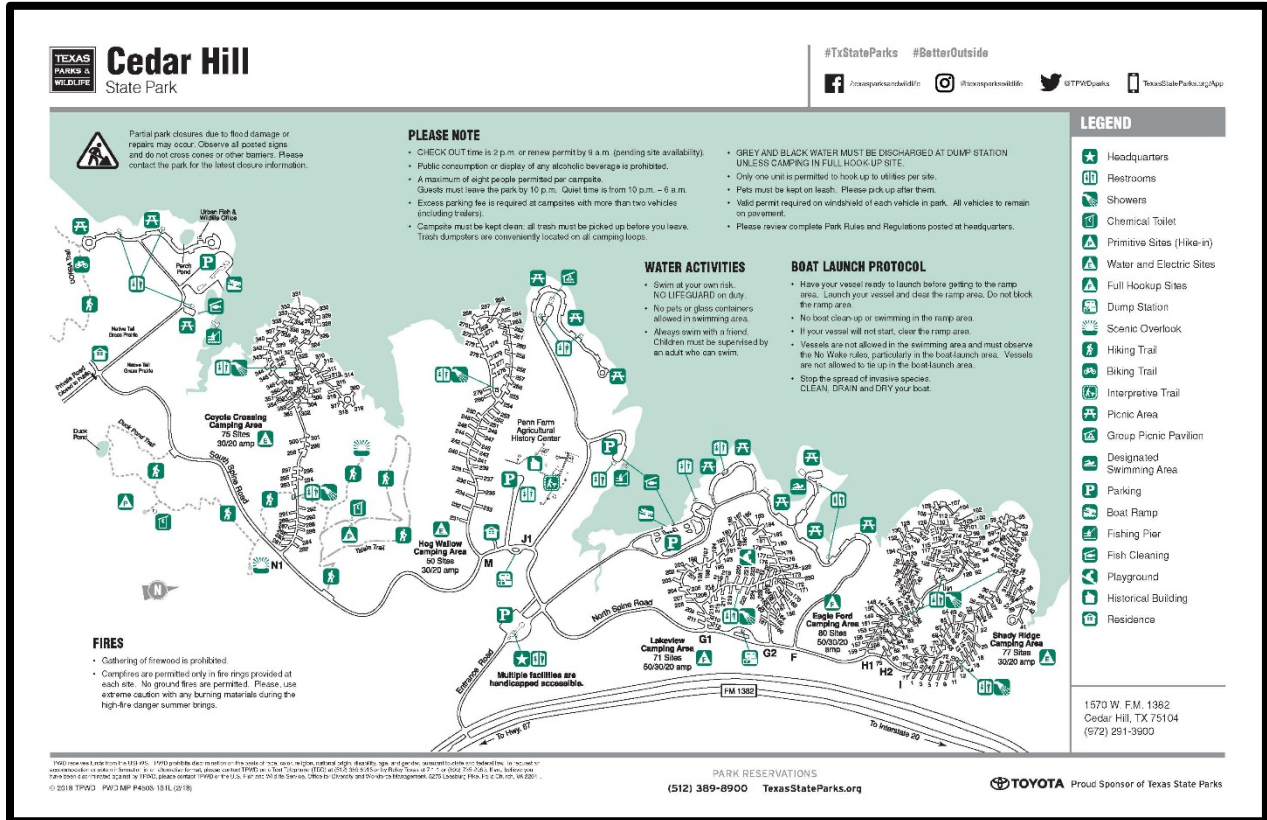
The currently developed parks operated by TPWD and the City of Grand Prairie are listed in Chapter 2 in Table 2.23. The primary recreation facilities offered in each park are listed in the table.

5.3.1 The current developed parks at Joe Pool Lake consist of the following:

Cedar Hill State Park (CHSP): This large and comprehensive park is located on approximately 1,943 acres along the northeastern shore of Joe Pool Lake. The park is oriented in a northeast/southwest direction and is approximately 5 miles long and varies in width from 1.3 miles to .5 miles. The northeastern half of the park is highly developed with campsites, day use facilities, and the Penn Farm Agricultural History Center, whereas the southwestern half of the park is largely undeveloped but is traversed by three off-road bicycle trails. CHSP is one of the largest and most heavily used state parks in the state park system. Its central location in the Dallas-Fort Worth metropolitan area provides easy access to a very large and growing population. See Figure 5.1 for a map of the developed portion of Cedar Hill State Park.

In workshops and site visits with TPWD park staff, it was explained by TPWD that the current management priority for the park is to repair extensive flood damage that occurred during the high pool elevations of 2015 and 2016. The flooding severely affected several areas in the park and planning is underway for a major redevelopment of the large 25+ year old day use area in and around the current swimming beach. This effort is funded and completion anticipated during 2021. Numerous campsites and day use sites were affected by the flooding and are being repaired or relocated. The park has ample acreage for additional development, but there are currently no definite plans for expansion.

For a number of years, a commercial marina operated under a sublease agreement with TPWD in the north end of the park. The marina closed, and all facilities were removed in 2017. TPWD intends to retain the authorization to place another marina on the lake at some future date, but no definite plans have been made.



2204
2205 Source: TPWD

2206
2207 City of Grand Prairie Parks

2208
2209 The City of Grand Prairie has a lease agreement with USACE for seven distinct
2210 parcels including the following: Lynn Creek Park, Loyd Park, Britton Park, Estes Park,
2211 Low Branch Park, Pleasant Valley Park and Camp Wisdom Park. Three of the parks are
2212 partly or wholly developed: Lynn Creek, Loyd, and Britton: the remaining four are
2213 undeveloped.

2214
2215 The City has provided USACE conceptual development proposals for each of
2216 their leased parks for the time period 2014-2019. Some proposed items have been
2217 approved and are in place such as cabins and a lodge facility in Loyd Park, and natural
2218 surface trails in the western portion Lynn Creek Park. Other items have not been
2219 approved due to the need for additional review and/or conflicts with USACE policy noted
2220 above. Inclusion of conceptual development proposals in this Plan does not convey
2221 approval of any given item. Each proposal ultimately requires specific written approval
2222 from USACE, and depending on the complexity of a given action may require separate
2223 documentation pursuant to the National Environmental Policy Act (NEPA) in the form of
2224 an Environmental Assessment. Each of the developed parks are described as follows:

2225
2226 Lynn Creek Park: This gate-controlled, 778-acre park serves primarily day users
2227 and marina patrons. The park is easily accessed from Lakeridge Parkway and from

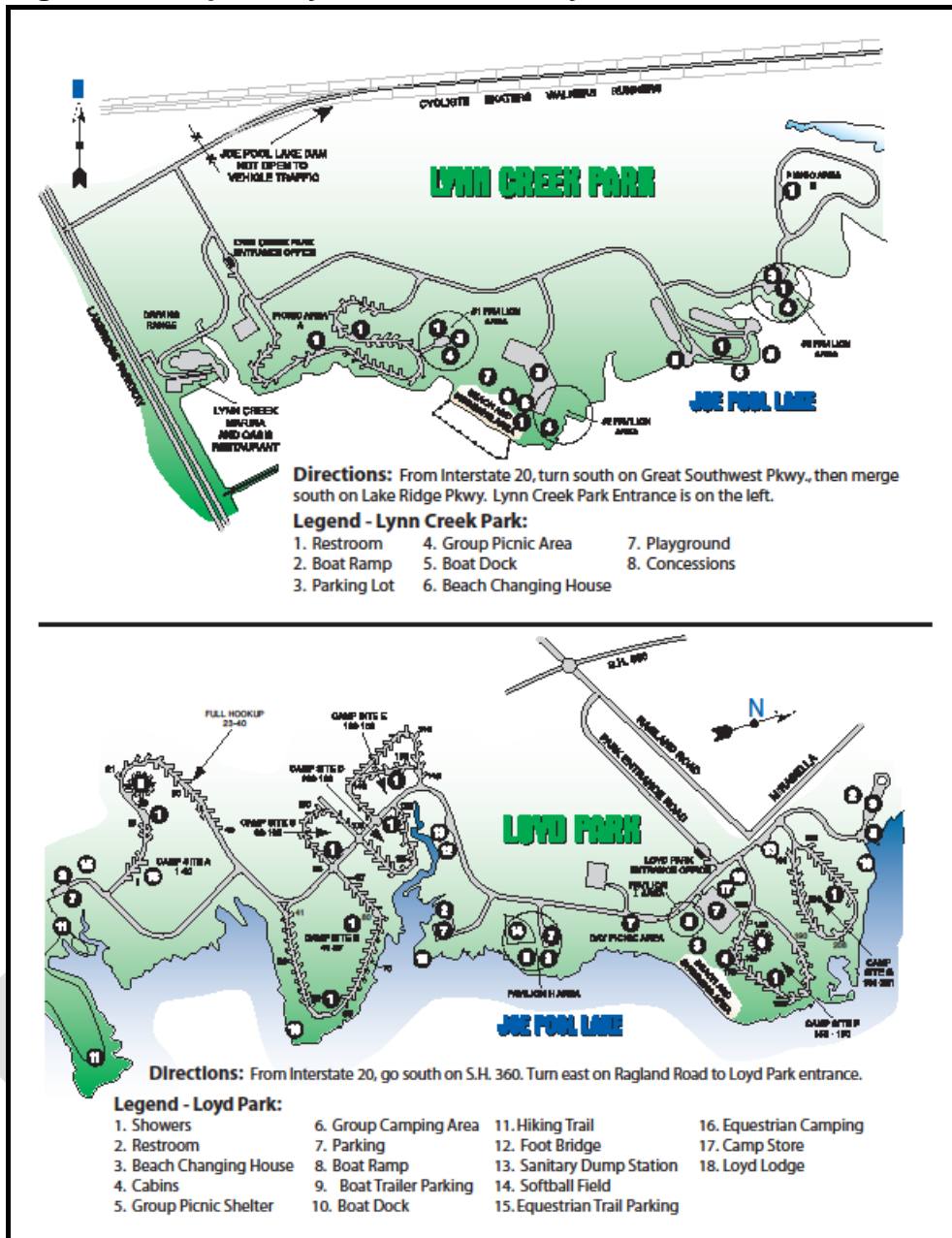
2228 Highway 360 by way of Mildred Walker Parkway. Approximately the eastern two-thirds
2229 of the park is developed with numerous picnic sites, pavilions, a swimming beach, three
2230 boat ramps (one at the marina), and a playground. A walking trail is also maintained in
2231 the eastern portion of the park, and walkers and bicyclists are currently able to access
2232 the road on top of the dam from within the park. The western third of the park is largely
2233 undeveloped, but walking trails and a trailhead are located north of Mildred Walker
2234 Parkway. Lynn Creek Marina, including a full service restaurant are conveniently
2235 located adjacent to Lakeridge Parkway. The marina is operated under a sublease
2236 agreement with the City of Grand Prairie. Also present in the park is a city-operated fire
2237 and police station and a small city office complex. This type of city infrastructure is
2238 generally not allowed in park areas, but authorization was granted as part of the lease
2239 transfer from TRA to the City of Grand Prairie.

2240
2241 Future plans for Lynn Creek Park that appear compatible with USACE policy
2242 include a variety of actions aimed at enhancing the visitor experience. Examples of
2243 proposed actions include expansion of lake-oriented day use facilities, a large multi-use
2244 pavilion, fish cleaning station, children’s playground, paddle craft rentals, and
2245 concessions in high use areas.

2246
2247 Loyd Park: This gate-controlled, 743- acre park serves primarily campers. The
2248 park is fully developed with campsites; several cabins and a lodge with 15 bedrooms,
2249 full kitchen and a meeting room; camp store; and paddle craft rentals. Walnut Creek and
2250 associated riparian woodlands is located within the park and is classified as an
2251 Environmentally Sensitive area. Hiking paths and a paddle trail on Walnut Creek are
2252 within the ESA and are an important park amenity. Future plans for Loyd Park described
2253 by the City of Grand Prairie include additional full service campsites, additional cabin-
2254 type structures, a new gatehouse, existing campsite upgrades, pavilions, and a fish
2255 cleaning station. A map of Loyd Park and the developed portion of Lynn Creek Park is
2256 provided at Figure 5.2.

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Figure 5.2 Maps of Lynn Creek and Loyd Parks



Source: City of Grand Prairie

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Britton Park: This 115-acre park serves as a boat ramp location in the upper end of the Mountain Creek arm of Joe Pool Lake. The ramp has two lanes, and the park is open to bank fishing. A self-pay station is provided in the park. Approximately 87 acres of the park located north of the boat ramp complex is classified as MRML-WM. This 87-acre portion would be suitable for natural surface pedestrian trails. Future developments proposed by the City of Grand Prairie include picnic sites, natural surface trails, and a park attendant site. A map of Britton Park is provided in Appendix A.

2287 Undeveloped Parks

2288

2289 The four undeveloped parks currently leased to the City of Grand Prairie include Camp
2290 Wisdom Park, Estes Park, Low Branch Park, and Pleasant Valley Park. Each of these
2291 parks are described as follows:

2292

2293 Camp Wisdom Park: This 186-acre park is located downstream from the dam at the
2294 intersection of FM 1382 and Camp Wisdom Road. The park acreage includes 98 acres
2295 of HDR land and 91 acres of LDR land. The City of Grand Prairie has expressed
2296 interest in expanding the acreage of this park to include USACE land located southeast
2297 of the current park boundary up to the FM 1382 and the access road leading to the
2298 USACE lake office. The expansion area is currently classified as MRML – WM and
2299 would remain under that classification if added to the current lease. Future development
2300 proposed by the city includes an equestrian facility.

2301

2302

2303 Estes Park: Estes Park has been slated for development of a comprehensive resort
2304 facility dating back to the original 1981 Master Plan. The City of Grand Prairie is
2305 currently soliciting proposals from developers to place a comprehensive resort on the
2306 peninsula. Earlier attempts to develop Estes Park, first by TRA and then by Grand
2307 Prairie did not attract a developer, but the city is hopeful that current socioeconomic
2308 conditions will bring success. Land classification changes made as part of this Plan
2309 expanded Estes Park from 1,057 acres to 1,234 acres. Currently, the City of Grand
2310 Prairie holds a lease for the original 1,057 acres and intends to pursue a lease
2311 amendment to expand their lease to the full 1,234 acres. USACE will coordinate closely
2312 with the city as plans are reviewed for the resort development and possible lease
2313 expansion. The city's 2016 park master plan calls for development of the resort in Estes
2314 Park within the ten year planning horizon of the plan.

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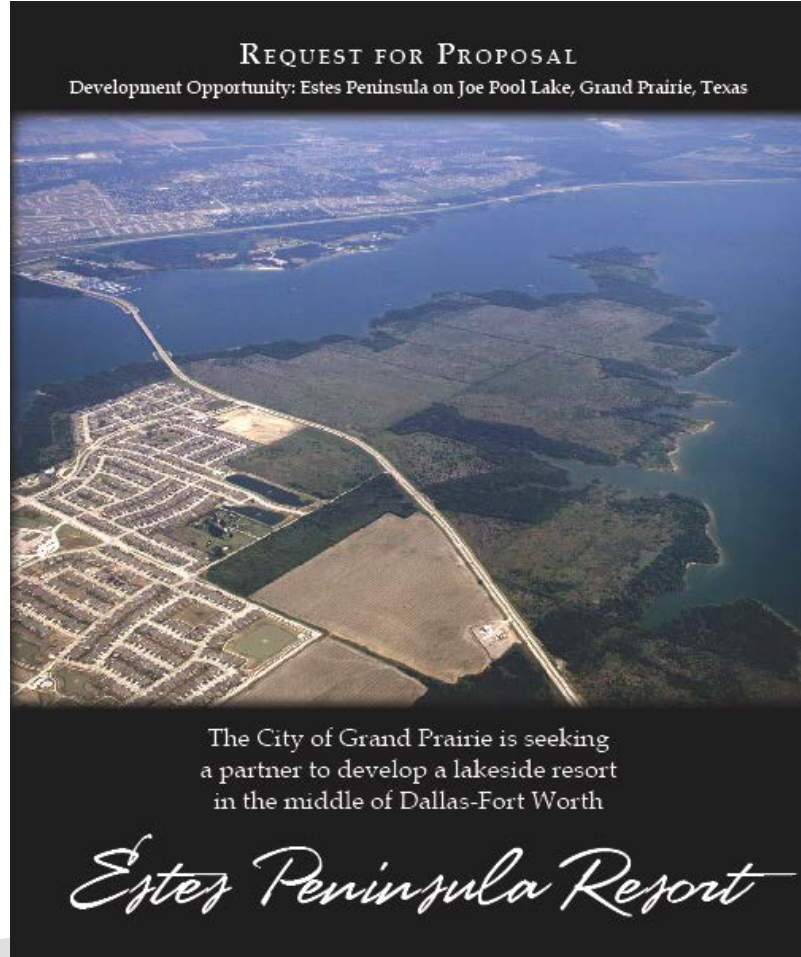
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Figure 5.3 Cover Page of Request for Proposals to Develop Estes Park



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Source: City of Grand Prairie

Low Branch Park: This 129-acre park is located south of Lakeridge Parkway on the west side of the Mountain Creek arm of the lake. The city has no immediate plans to develop the park. Fifteen acres of this park is currently being utilized as a radio control aircraft field.

Pleasant Valley Park: This 265-acre Park is located south of Lakeridge Parkway on the east side of the Mountain Creek arm of the lake. The park includes a 69-acre ESA located on a riparian corridor on the east side of the park. The city's 2016 master plan calls for the park to be developed within the plan's 10-year planning horizon to have a neighborhood park atmosphere with some level of typical lakeside development.

A map showing the location of Camp Wisdom, Estes, Low Branch, Britton, and Pleasant Valley Parks is provided in Appendix A.

2353 **5.4 MITIGATION**

2354 This classification is used for lands that were acquired specifically for the
2355 purpose of offsetting losses associated with development of the project. There are no
2356 acres at Joe Pool Lake under this classification.
2357

2358 **5.5 ENVIRONMENTALLY SENSITIVE AREAS**

2359 Eight areas totaling approximately 1,507 acres at Joe Pool Lake were selected
2360 by the planning team for classification as ESA. The results of the Wildlife Habitat
2361 Appraisal Procedure conducted on October 2-5, 2017, were used, in part, to assist in
2362 determining which areas should be classified as ESA. Other factors, including public
2363 and stakeholder comment, the presence of cultural resources, presence of species of
2364 conservation concern, and visual esthetics were also included in the selection of ESA
2365 areas. By definition, these areas are to be protected from intense development or
2366 disturbance from future land use actions such as utility or road easements. Passive
2367 public use such as natural surface trails, bank fishing, and nature study are appropriate
2368 for these areas.
2369

2370 Each of these areas are numbered on the land classification maps in Appendix
2371 A. Table 5.1 provides a listing of the ESA areas, including habitat type, acreage, WHAP
2372 scores and a location description. Each area, including future management priorities, is
2373 briefly described as follows:
2374

- 2375 • ESA 1 – Mountain Creek Riparian Area. This 87-acre ESA is the riparian
2376 corridor along the left and right banks of Mountain Creek discharge
2377 channel below Joe Pool Dam. The area has high habitat value in
2378 downstream areas but the entire area is anticipated to gradually improve
2379 over time. Supplemental tree plantings to increase the percentage of hard
2380 mast producing trees, as well as control of any invasive species such as
2381 Chinese privet, are management priorities for the area. The discharge
2382 channel was excavated by USACE through the woodlands below the dam
2383 and is maintained by USACE. While USACE will endeavor to protect the
2384 habitat integrity of the ESA, maintenance of the channel may require
2385 periodic disturbance of the area.
2386
- 2387 • ESA 2 – Shoreline West of Gate Control Tower. This comparatively small,
2388 10-acre parcel is located west of the USACE gate control tower. No
2389 WHAP sample points were placed in this area and the primary value of the
2390 site is related to the presence of cultural resources. Protection of this area
2391 from disturbance is a priority. Passive use of the area for natural surface
2392 trails and bank fishing are appropriate. The area is managed by USACE.
2393
- 2394 • ESA 3 – Buffer Along Downstream Toe of Dam. This comparatively
2395 narrow, 114-acre strip of land is parallel to the downstream toe of Joe Pool
2396 Dam. The area consists of transitioning old agricultural fields and serves
2397 as an important buffer between the dam and nearby residential

2398 development. The area is periodically utilized for mitigation plantings
2399 associated with various real estate outgrant actions. Improving the wildlife
2400 habitat value of the area through supplemental plantings, and maintaining
2401 the area as a visual and esthetic buffer are priorities for this area. The
2402 area is managed by USACE.
2403

2404 • ESA 4 – Lynn Creek Riparian Corridor. This small 15-acre area is a
2405 riparian corridor on both banks of Lynn Creek in the extreme west end of
2406 Lynn Creek Park. No WHAP points were placed in the area, but the area
2407 exhibits potential for high habitat value and serves to filter surface water
2408 runoff before it enters Joe Pool Lake. The area is part of Lynn Creek Park
2409 and is managed by the City of Grand Prairie. USACE can work
2410 cooperatively with the city to improve the wildlife habitat value of the area.
2411 Passive use such as natural surface trails and general pedestrian access
2412 are appropriate for the area.
2413

2414 • ESA 5 – Walnut Creek Riparian Corridor. This 580-acre area consists
2415 primarily of relatively undisturbed bottomland hardwood habitat where
2416 Walnut Creek enters Federal land. The area is part of Loyd Park operated
2417 by the City of Grand Prairie and is utilized for natural surface trails. The
2418 Walnut Creek channel is promoted by Grand Prairie as a paddle trail. The
2419 entire area has high wildlife habitat value and serves as a filter for surface
2420 water runoff. USACE can work cooperatively with the city to maintain and
2421 improve the area for wildlife habitat.
2422

2423 • ESA 6 – Low Branch Riparian Corridor. This 120-acre area is a riparian
2424 corridor on both banks of Low Branch. The area has relatively high wildlife
2425 habitat value and serves as a filter for surface water runoff. Supplemental
2426 plantings to improve wildlife habitat values, and control of invasive species
2427 are management priorities. Passive use of the area for natural surface
2428 trails and nature study are appropriate for the area. The area is managed
2429 by USACE.
2430

2431 • ESA 7 – Pleasant Valley Riparian Corridor. This relatively narrow, 69-acre
2432 parcel is part of Pleasant Valley Park leased to the City of Grand Prairie.
2433 The area has relatively high wildlife habitat value and serves as a filter for
2434 surface water runoff. USACE can work cooperatively with the city to
2435 improve wildlife habitat values on the area.
2436

2437 • ESA 8 – Cedar Hill State Park ESA Parcels. This 512-acre area is a
2438 collection of numerous parcels within Cedar Hill State Park and was
2439 mapped by TPWD personnel. The areas were selected to emphasize the
2440 high wildlife habitat value of riparian corridors as well as the known
2441 cultural resources within the park. TPWD intends to implement wildlife
2442 habitat improvement measures on the parcels and will continue to protect

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the integrity of cultural resource sites. Passive use in the form of natural surface trails and nature study is appropriate.

Table 5.1 ESA Listing

ESA Area Number¹	Acres	WHAP Scores Per Sample Point Number	Location/Description
1 – RBLH	87	Point 66 (.75)	Mountain Creek Riparian Corridor Below Dam
2 - NA	10	NA	Shoreline West of Gate Control Tower
3 - DF	114	Point 64 (.49)	Buffer Along Downstream Toe of Dam West of Spillway
4 - RBLH	15	NA	Lynn Creek Riparian Corridor
5 - RBLH	580	Point 50 (.81)	Walnut Creek Riparian Corridor Upstream and Downstream from Highway 360
6 - RBLH	120	Point 37 (.68)	Low Branch Riparian Corridor
7 - DF	69	Point 16 (.75)	Riparian Corridor on East side of Pleasant Valley Park
8 – RBLH and DF	512	22 Total Points	Cedar Hill State Park – Five Distinct Parcels and One Cluster of Several Parcels

¹RBLH – Riparian Bottomland Hardwoods; DF-Deciduous Forest;

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Photo 5.2 ESA # 5: Walnut Creek Riparian Area



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2454 **5.6 MULTIPLE RESOURCE MANAGEMENT LANDS**

2455 Multiple Resource Management Lands at Joe Pool Lake are organized into three
2456 sub-classifications. These sub-classifications are Low Density Recreation, Wildlife
2457 Management, and Vegetative Management. The following is a description of each sub-
2458 classification's resource objectives, acreages, and description of use.

2459

- 2460 • Low Density Recreation. These lands are generally narrow parcels of land that
2461 are adjacent to private residential developments. Future management of these
2462 lands calls for maintaining a healthy, ecologically adapted vegetative cover to
2463 reduce erosion and improve aesthetics. Prevention of unauthorized use such as
2464 trespass or encroachments is an important management objective for all USACE
2465 lands, but is especially important for those lands in close proximity to private
2466 development. These lands are typically open to the public, including adjacent
2467 landowners, for pedestrian traffic and are frequently used by adjacent
2468 landowners for access to the shoreline near their homes. Adjacent landowners
2469 may apply for a permit to mow a meandering path to the shoreline, and if
2470 conditions warrant, may apply for a permit to mow a narrow strip along the
2471 USACE boundary line as a precaution against wildfire. The general public may
2472 use these lands for bank fishing, hiking, and for access to the shoreline. Future
2473 uses may include additional designated natural surface hike and bike trails.

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There are 482 acres classified as Low Density Recreation. With the exception of 91 acres of LDR land located in Camp Wisdom Park and leased to the City of Grand Prairie, all LDR lands are managed by USACE.

- Wildlife Management. These are lands designated primarily for the stewardship of fish and wildlife resources, but are open to passive recreation use such as natural surface trails, hiking, and nature study. There are currently 2,095 acres under this classification and with the exception of 87 acres in Britton Park that are leased to the City of Grand Prairie, these lands are managed by USACE. The majority of these lands are prior agricultural fields and management priority will be to restore these lands to support native vegetation adapted to soil type and elevation with respect to the flood control pool. Where topography, soil type, and hydrology are suitable, areas within the Mountain Creek floodplain may be selected for wetland development.
- Vegetative Management. These are lands that have native vegetative types considered to be sensitive and needing special classification to ensure protection. At Joe Pool Lake, TPWD has selected several parcels within Cedar Hill State Park to be placed in this classification. The parcels were selected to recognize current and future native prairie restoration efforts. Efforts to date have required clearing of woody species on select parcels that are good candidates for prairie restoration. These areas are periodically burned to promote the native grasses and forbs already present on the sites. Currently there are 157 acres classified for the primary use of Vegetative Management, all within CHSP.

Photo 5.3 Prescription burn to promote native grasses and forbs in Cedar Hill State Park.



Photo courtesy of TPWD

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Photo 5.4 Prairie restoration site following removal of woody species and prescription burning, Cedar Hill State Park



USACE Photo

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- Future/Inactive Recreation Areas. These are areas with site characteristics compatible with potential future recreational development or recreation are that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources. There are no acres classified under this sub-classification at Joe Pool Lake.

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2516 **5.7 WATER SURFACE**

2517 At conservation pool level of 522.0 NGVD there are 6,707 acres of surface water.
2518 Buoys are managed by USACE, Grand Prairie, TPWD, the City of Midlothian, and TRA
2519 in their respective areas. These buoys help mark hazards, swim beaches, boats keep-
2520 out, and no-wake areas.

- Restricted. Restricted areas are around swim beaches, public water supply intakes and near the USACE gate control tower on the dam. Vessels are not allowed to enter Restricted water surface. Water surface zoned as restricted totals approximately 24 acres.
- Designated No-wake. No-wake areas are located near boat launch areas for the safety of launching and loading boats or personal watercraft, and in areas where boats approach marinas. At Joe Pool Lake, no-wake buoys are posted along the Lakeridge Parkway bridges. Growing interest in paddle boats indicates a possible need for designated no-wake areas where paddle boats can be operated without competing with motorized vessels. The City of Grand Prairie maintains a paddle

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2531 trail that originates at the south end of Loyd Park and proceeds up Walnut Creek.
2532 In Cedar Hill State Park, TPWD offers training classes in the use of kayaks.
2533 USACE is open to the concept of paddle trails and will work with interested
2534 parties to fulfill this need. Currently, approximately 103 total acres of Joe Pool
2535 Lake is designated for no-wake.

2536 • Fish and Wildlife Sanctuary. These areas are managed with annual or seasonal
2537 restrictions to protect fish and wildlife species during periods of migration, resting,
2538 feeding, nesting, and/or spawning. There are no water surface acres under this
2539 classification at Joe Pool Lake.

2540 • Open Recreation. The remaining lake area not in the above classifications is
2541 open to recreational use. No specific zoning exists for these areas, but the buoy
2542 system mentioned above is in place to help aid in public safety. During the
2543 construction phase of Joe Pool Lake, timber and man-made structures were
2544 cleared in the majority of the lake area lying below the conservation pool
2545 elevation of 522.0 feet NGVD. In select areas, only man-made structures were
2546 removed but timber was allowed to remain standing to provide structure for fish
2547 populations. As a result, standing dead timber exists over approximately 1,777
2548 acres of the lake water surface. These uncleared areas are depicted on the land
2549 and water surface classification maps in Appendix A. These uncleared areas, as
2550 well as areas where the timber was cleared, are included in the Open Recreation
2551 designation. It is incumbent on boaters to be aware of lake conditions and to
2552 operate vessels responsibly. Approximately 6,580 acres of Joe Pool Lake is
2553 classified for Open Recreation.

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Photo 5.5 Kayak training class in Cedar Hill State Park.



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Photo courtesy of TPWD

2558
2559 Future Management of the Water Surface. Future management of the water surface
2560 includes the maintenance of warning, information, and regulatory buoys as well as
2561 routine water safety patrols during peak use periods. Currently water safety patrols are
2562 conducted by the City of Grand Prairie, TPWD Game Wardens, and USACE Park
2563 Rangers. USACE hopes to conduct a comprehensive Recreational Boating Study at Joe
2564 Pool Lake at some date in the future. See Chapter 6 for a full discussion of the need for
2565 a Recreational Boating Study.
2566

2567 **5.8 TRAILS**

2568 Each managing entity at Joe Pool Lake; USACE, TPWD, and the City of Grand
2569 Prairie; provide trail opportunities to some degree. As of the date of this Plan, USACE
2570 allows walkers and bicyclists on the service road on top of the dam, TPWD provides
2571 nature trails, hiking trails, and mountain biking trails within CHSP (see Figure 5-2), and
2572 Grand Prairie provides hiking trails in Lynn Creek Park and Loyd Park. Each entity, as
2573 well as other potential partners have expressed a common interest in pursuing a multi-
2574 agency / multi-partner trail that would circumnavigate the lake. Such a trail would likely
2575 traverse on and off Federal land and would require use of all USACE land
2576 classifications. USACE supports this concept and will work with partners in the future to
2577 achieve this ambitious plan. Several lake projects within the USACE Fort Worth District
2578 have similar trail opportunities. Grapevine Lake is a good example where the majority of
2579 the lake perimeter is currently traversed by hike/bike/and equestrian trails that are
2580 managed by multiple entities including volunteer groups such as the Dallas Off-Road
2581 Bicycle Association and the Texas Equestrian Trail Riders Association. Based on the
2582 level of public use occurring on existing trails at nearby USACE lakes, a trail
2583 circumnavigating Joe Pool Lake would be heavily used.
2584

CHAPTER 6 - SPECIAL TOPICS/ISSUES/CONSIDERATIONS

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2589

2590 6.1 UTILITY CORRIDORS

2591 USACE policy encourages the establishment of designated corridors on project lands,
2592 where feasible, to serve as the preferred location for future outgrants such as
2593 easements for roads or utility lines. After obtaining public input and examining the
2594 location of existing roads and utility lines on project lands, USACE determined that only
2595 utility corridors would be designated at Joe Pool Lake.
2596

2597 The following seven utility corridors have been designated across USACE land at
2598 Joe Pool Lake with each corridor incorporating and/or running parallel to an existing
2599 easement. These corridors are shown on map number JP18MP-OU-01 provided in
2600 Appendix A. Future use of these corridors, where the corridor is limited to or
2601 incorporates an existing easement, would in most cases require prior approval of those
2602 entities that have legal rights to the easement. Some existing easements at Joe Pool
2603 Lake, such as the TRA sewer line that runs through Loyd Park, and the Cedar Hill
2604 sewer line that runs through portions of Cedar Hill State Park, have not been designated
2605 as corridors. These non-corridor easements may be used for placement of additional
2606 utilities by the grantee holding the easement, but only for purposes which directly serve
2607 the grantee or are of direct benefit to the Government. Expansion or widening of
2608 existing non-corridor easements will generally not be permitted.
2609

2610 Corridor 1

2611 This corridor is approximately 11,700 feet long and includes the existing right-of-way for
2612 West Camp Wisdom Road plus an additional 15 feet on both sides of the right-of-way
2613 where it crosses or is adjacent to Federal land. Use of this corridor is restricted to
2614 installation of underground utilities using directional boring. USACE may waive the
2615 boring restriction in areas that are not classified as an Environmentally Sensitive Area. If
2616 the right-of-way of West Camp Wisdom Road is widened at a future date, the corridor
2617 will be restricted to the width of the new right-of-way.
2618

2619 Corridor 2

2620 This corridor is approximately 25,000 feet long and includes the existing right-of-way for
2621 Lakeridge Parkway plus an additional 15 feet on both sides of the right-of-way where it
2622 crosses or is adjacent to Federal land. Future use of this corridor is restricted to
2623 installation of underground utilities using directional boring. USACE may waive the
2624 requirement for boring if circumstances warrant. Use of the corridor at bridge locations
2625 may include attaching utility lines to the bridge (if allowed by Texas Department of
2626 Transportation (TXDOT) or the City of Grand Prairie), or placement/burial on the lake
2627 bottom. The north end of this corridor crosses the west end of Joe Pool Dam. Use of
2628 this portion of the corridor will require extensive review by USACE and approval is not
2629 guaranteed.
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Corridor 3

This corridor is approximately 4,380 feet long and includes the existing right-of-way of Mildred Walker Parkway where it crosses Federal land. Use of this corridor is restricted to underground utilities installed by directional boring. The boring requirement may be waived pending review by USACE and the City of Grand Prairie. If circumstance warrant, utility lines may be attached to the bridge over Lynn Creek (contingent on City of Grand Prairie approval).

Corridor 4

This corridor is approximately 3,900 feet long and includes the existing right-of-way of State Highway 360 on both sides of the highway. Use of this corridor is restricted to underground utilities. The crossing of Walnut Creek must be by subsurface directional boring.

Corridor 5

This corridor is approximately 6,870 feet long and includes the existing right-of-way of FM 661 plus an additional 15 feet on both sides of the right-of-way where it crosses or is adjacent to Federal land. If the right-of-way is expanded in the future, use of the corridor will be restricted to the expanded right-of-way.

Corridor 6

This corridor is approximately 4,930 feet long and includes the right of way of an existing underground pipeline plus an additional 15 feet on either side of the pipeline. Use of the corridor is restricted to underground utilities.

Corridor 7

This corridor is approximately 1,200 feet long and includes the existing right-of-way of a sewer line that is partly underground and partly above ground. Use of the corridor is restricted to underground utilities.

6.2 SHORELINE MANAGEMENT POLICY

On December 13, 1974 the USACE published a new regulation, ER 1130-2-406, in the Federal Register entitled “Civil Works Projects: Lakeshore Management.” This regulation was published as Part 327.30 of Chapter III, Title 36 of the Code of Federal Regulations. A subsequent change to the regulation was published in the Federal Register on October 31, 1990, incorporating the results of recent legislation and changing the name to “Shoreline Management at Civil Works Projects.” The focus of this regulation is to establish national policy, guidelines, and administrative procedures for management of certain private uses of Federal lands administered by USACE. A key requirement in the regulation is that private shoreline uses, as defined in the regulation, are not allowed at lakes where no such private uses existed as of December 13, 1974. Joe Pool Lake was constructed in the 1980s, thus private shoreline uses are not allowed.

2678 The private uses described in the regulation primarily include privately-owned
2679 floating facilities such as floating boat docks, fixed or movable piers, and vegetation
2680 modification activities such as plantings, mowing, and selective removal of shrubs and
2681 trees to the extent that exclusive benefits accrue to an individual or group and the
2682 general public is denied use of public lands or waters. Not included in the above
2683 definition are certain limited private activities that do not provide exclusive benefits to an
2684 individual or group, nor preclude general public use. These limited private activities may
2685 be allowed at Joe Pool Lake by written shoreline use permit for reasons of public safety,
2686 erosion control, benefits to wildlife, or to provide reasonable pedestrian access to the
2687 shoreline. USACE regulations at ER 1130-2-406 requires the preparation of a Shoreline
2688 Management Policy Statement (SMPS) for those lakes that were constructed or
2689 became operational after December 13, 1974. In response to this requirement a SMPS
2690 was prepared for Joe Pool Lake after the lake became operational in 1986.

2691
2692 In 2012, an administrative update to the Joe Pool Lake Shoreline Management
2693 Policy was prepared to incorporate current terminology and to ensure compliance and
2694 compatibility with the most current versions of ER 1130-2-406 and ER 1130-2-540, as
2695 well as Fort Worth District policy decisions related to shoreline management. One of the
2696 primary reasons for the administrative update was to incorporate language that supports
2697 the USACE natural resources mission statement to “manage and conserve natural
2698 resources consistent with ecosystem management principles” as set forth in ER 1130-2-
2699 540.

2700
2701 The purpose of the SMPS is to set forth the policy and procedures by which
2702 USACE manages certain private uses of public lands at Joe Pool Lake. Private uses
2703 that accrue exclusive benefits to an individual are not allowed at Joe Pool Lake. The
2704 non-exclusive private uses that may be authorized by written permit from USACE
2705 include mowing and removal of underbrush to the extent needed for protection from
2706 wildfire and limited clearing to provide a pedestrian access path from private property to
2707 the shoreline. These non-exclusive uses may not be authorized in all areas and are
2708 subject to restrictions set forth in the SMPS. Inquiries regarding the SMPS at Joe Pool
2709 Lake should be directed to the USACE office at Joe Pool Lake.

2710

2711 **6.3 RECREATIONAL BOATING STUDY**

2712 In 2002, the Fort Worth District adopted a policy governing water-related
2713 recreation development that has the potential to affect the degree of boating traffic on
2714 the water surface of all Fort Worth District lakes. In brief terms, the policy established a
2715 target capacity of 22 surface acres of boatable water surface for each vessel on the
2716 water during peak use periods. Using the number of boat ramp parking spaces, wet
2717 storage slips, and dry stacked storage slips as a basis for calculating potential boating
2718 activity, USACE can determine whether a proposed addition of parking spaces or
2719 storage slips has the potential to exceed the target capacity. Based on boat counts
2720 conducted by the City of Grand Prairie on peak use days in 2012 on Joe Pool Lake,
2721 USACE has determined that boating traffic on peak use days has exceeded the target
2722 capacity. However, no interviews or stakeholder surveys were conducted in 2012, and

2723 that information is a factor in making decisions related to boating capacity. In view of the
2724 known high level of boating traffic, USACE would require a comprehensive water-
2725 related recreation boating study prior to making a decision to approve or deny a
2726 proposal for additional slips or boat ramp parking spaces at Joe Pool Lake. An
2727 exception to this requirement is the possible placement of a commercial marina in
2728 Cedar Hill State Park to replace a marina that operated for several years in the park, but
2729 was removed from the lake in 2017. Adequate funding was not available to conduct a
2730 Recreational Boating Study (RBS) during preparation of this Master Plan. If and when
2731 funding is available a RBS will be conducted and the findings incorporated into the
2732 Master Plan.

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CHAPTER 7 - PUBLIC AND AGENCY COORDINATION

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2740 7.1 PUBLIC AND AGENCY COORDINATION OVERVIEW

2741 The USACE is dedicated to serving the public interests in support of the overall
2742 development of land uses related to land management for cultural, natural, and
2743 recreational resources of Joe Pool Lake. An integral part of this effort is gathering public
2744 comment and engaging stakeholders in the process of planning. USACE policy
2745 guidance in ER and EP 1130-2-550 requires thorough public involvement and agency
2746 coordination throughout the master plan revision process including any associated
2747 NEPA process. Public involvement is especially important at Joe Pool Lake to ensure
2748 that future management actions are both environmentally sustainable and responsive to
2749 public outdoor recreation needs in a region, which is experiencing rapid population
2750 growth. The following milestones provide a brief look at the overall process of revising
2751 the Joe Pool Lake Master Plan.
2752

2753 The USACE began planning to revise the Joe Pool Lake Master Plan in January
2754 of 2015. The objectives for the master plan revision are to (1) update land classifications
2755 to reflect changes in USACE land management policies since 1981, prepare new
2756 resource objectives, and revise the Master Plan to reflect new agency requirements for
2757 master plan documents in accordance with ER 1130-2-550, Change 7, January 30,
2758 2013 and EP 1130-2-550, Change 5, January 30, 2013.
2759

- 2760 • May 2015 – USACE submits budget package to initiate a Master Plan revision at
2761 Joe Pool Lake in October 2016.
- 2762 • December 2016 – USACE holds internal meetings to initiate master plan revision
2763 process.
- 2764 • January – May 2017 – USACE gathers preliminary information to initiate revision.
- 2765 • 23 May 2017 - Initial public scoping meeting held in Grand Prairie to announce
2766 initiation of the revision process and to request public input.
- 2767 • June – October 2017 – Public comments considered and preparation of draft MP
2768 initiated.
- 2769 • 2-6 October 2017 – USACE, TPWD, and USFWS conduct wildlife habitat evaluation
2770 field work on Joe Pool Lake project lands.
- 2771 • November 2017 – January 2018 – USACE conducts workshops with City of Grand
2772 Prairie and TPWD to discuss land classifications and future development plans.
- 2773 • February – June 2018 – Work continues on draft MP. Lake Manager and planning
2774 staff continue meeting with key stakeholders to personally inform them of the master
2775 plan process.
- 2776 • July 2018 – Public meeting scheduled to announce the final draft MP.

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2779 **7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS**

2780 The first action was a scheduled public scoping meeting providing an avenue for
2781 public and agency stakeholders to ask questions and provide comments. The public
2782 scoping meeting was held on 23 May 2017 at the Summit Activity Center, 2975
2783 Esplanade, Grand Prairie, TX 75052. The Fort Worth District placed advertisements on
2784 the USACE webpage, social media, and print publications two weeks prior to the public
2785 scoping meeting.

2786 **Photo 7.1 Joe Pool Lake Master Plan Public Scoping Meeting – May 23, 2017**
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2790 USACE employees hosted the meeting, which was conducted in an open format.
2791 Participants were asked to sign in at a table where staff provided the participants with
2792 information regarding the structure of the scoping meeting and comment forms. After
2793 signing in, participants were directed to be seated in the auditorium and a slide
2794 presentation was presented by the Project Manager for the Master Plan Revision
2795 Project Delivery Team (PDT) to convey information about the following topics:

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- Public Involvement Process
 - Project Overview
 - Overview of the NEPA process
 - Master Plan and current land classifications
 - How to Submit Comments
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2802
2803 At the conclusion of the presentation USACE representatives were available to
2804 answer questions and receive written comments at information tables. Interested

2805 persons had the opportunity to comment about the project using a variety of methods,
 2806 including the following:

- 2807
- 2808 • Filling out a comment form at the open house
- 2809 • Taking a comment form home to be returned at a later date
- 2810 • Submitting a comment using electronic mail
- 2811 • Submitting a comment and mailing it in on letterhead or choice of paper

2812
 2813 In total, approximately 54 individuals, not including USACE personnel, attended
 2814 the 23 May 2017 public scoping meeting for elected officials, the public at large, interest
 2815 groups, partner agencies, other government agencies, and businesses. Among the
 2816 attendees were U.S. and State representatives, TPWD, city of Grand Prairie, city of
 2817 Cedar Hill, city of Mansfield, city of Midlothian, Dallas County, Dallas Off Road Bicycle
 2818 Association, and numerous citizens. A total of 6 written comments were received
 2819 following this public scoping meeting. Much like national forests or parks, Joe Pool Lake
 2820 is a Federally-owned and managed public property. It is USACE goal to be a good
 2821 neighbor as well as steward of the public interest as it concerns Joe Pool Lake. As
 2822 such, USACE is bound to the equal enforcement of policies and rules for this publically
 2823 held national asset. Table 7.1 gives a summary list of the comments received during
 2824 and following the initial scoping comment period for the master plan, as well as the
 2825 USACE response.

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 2827
 2828 **Table 7.1 Public Comments from 23 May 2017 Public Scoping Meeting**

COMMENT	USACE RESPONSE
Comments from Texas Parks and Wildlife Department	
TPWD recommended referring to the Texas Conservation Action Plan - Texas Blackland Prairies Ecoregion (TCAP) as well as the RTEST and TXNDD websites for listings of sensitive species that may occur on USACE lands at Joe Pool Lake.	Agree. The TCAP, TXNDD and the Ecological Mapping System, all developed and maintained by TPWD were used extensively in preparing the Master Plan and accompanying EA. Lists of Species of Greatest Conservation Need (SGCN) are provided in Appendix C of the Master Plan.
TPWD recommended the MP include natural resources inventories and monitoring goals to identify habitat changes over time.	Agree. USACE has completed a very basic inventory of vegetation at Joe Pool Lake to guide future management. Additionally, preparation of the Master Plan revision included completion of a Wildlife Habitat Evaluation using the Wildlife Habitat Appraisal Procedure (WHAP) developed by TPWD. The

COMMENT	USACE RESPONSE
	<p>results of the WHAP was used in land classification decision making and future management direction.</p>
<p>TPWD recommended incorporation of pollinator conservation into the Master Plan.</p>	<p>Agree. USACE has included a natural resources management objective in Chapter 3 directing that special attention be given to butterfly and pollinator habitat. Additionally, USACE, TPWD and the City of Grand Prairie have collaborated to designate key wildlife habitat as Environmentally Sensitive Areas, and Multiple Resource Management Lands that place emphasis on Wildlife and Vegetative Management on USACE lands that are leased to TPWD (Cedar Hill State Park) and the City of Grand Prairie.</p>
<p>TPWD recommended USACE should identify if there is a need for additional boat ramps or if the lake already meets a maximum safe boating use capacity.</p>	<p>Agree. USACE has a Water Related Recreation Development Policy that is intended to balance the level of boating traffic with acres of boatable water on peak use recreational days. As stated in the Master Plan, a 2012 boat count at Joe Pool Lake indicated a level of boating traffic that may be unsafe or that prevents an enjoyable boating experience. USACE hopes to conduct a comprehensive recreational boating survey in 2019 to confirm the level of boating traffic and gauge public opinion. Until that survey is completed, no additional boat ramps or boat ramp parking spaces will be permitted at Joe Pool Lake. Additionally, no new wet slips beyond the number that has been previously authorized at marinas will be permitted.</p>

COMMENT	USACE RESPONSE
<p>TPWD recommends that USACE take an active role in working with the marina to ensure the inspection of incoming boats to prevent the introduction of zebra mussels in Joe Pool Lake.</p>	<p>USACE is actively engaged in providing educational materials to marina operators with the goal of preventing unintended introduction of zebra mussels. TPWD Inland Fisheries Department is also very active in providing educational materials and conducting periodic boat inspections at boat ramps throughout the state in areas where introduction of zebra mussels is a probability. In general, marina operators in Texas are well aware of the threat posed by zebra mussels and are doing their part to prevent introduction.</p>
<p>Comments from the City of Grand Prairie</p>	
<p>The City of Grand Prairie recommended that all seven parcels of USACE land that the city leases for park and recreation purposes be reclassified as High Density Recreation with the exception of several parcels of key wildlife habitat that should be classified as Environmentally Sensitive Areas, or for Wildlife Management.</p>	<p>Agree. USACE and Grand Prairie met and communicated over a period of several months to reach consensus on the classification of USACE lands that are included in the city's lease. USACE is confident that the final classifications meet both recreational needs and environmental stewardship objectives.</p>
<p>The City proposed a land classification "swap" to include changing some Wildlife Management lands adjacent to Estes Park to High Density Recreation and at the same time change some High Density Recreation land in Britton Park to Wildlife Management.</p>	<p>Agree. The land classification "swap" will benefit both the recreation and the environmental stewardship management objectives at Joe Pool Lake.</p>
<p>The City noted that if a second marina is proposed at Joe Pool Lake, the city wants to be involved in the process.</p>	<p>Agreed. The Joe Pool Lake Marina was removed from the lake in 2017. The marina operated under a sublease agreement with TPWD in Cedar Hill State Park. TPWD has no immediate plans to replace the marina but has requested to retain authority to replace the marina at a future date within the state park.</p>

COMMENT	USACE RESPONSE
Comments from the Public at Large	
Protect remaining natural areas and greenspace. No resort, no more zoning for homes or commercial development. Grow existing natural areas to compliment environmental needs.	Agree in part. The reclassification of USACE lands resulted in designation of 1,507 acres of Environmentally Sensitive Areas at several locations throughout the project. One of the largest contiguous areas is part of Loyd Park and takes in the bottomland forests on both sides of Walnut Creek. Other ESAs are intended to protect riparian corridors with high wildlife habitat value. The original master plan called for development of a lakeside resort in Estes Park. The park is leased to Grand Prairie and the city is seeking proposals to develop a portion of the park into a comprehensive resort. The city's own Lake Parks master plan dated 2016 calls for a mix of development, promotion of trails, and protection of natural areas.
We use the road across the dam for hiking and biking and are concerned about the safety hazard posed by cracks in the road surface.	The road across the dam is a primarily a service road for dam access and maintenance. Currently the road is closed to public access due to a combination of cracks in the road surface and minor slides that have occurred in the dam itself. When repair of the slides and cracks is complete, USACE will evaluate continued public access to the road.
Repair of 2015 flood damage in Cedar Hill State Park should be partly funded by USACE.	In accordance with the lease agreement between USACE and TPWD, all maintenance and repair of facilities in Cedar Hill State Park is the responsibility of TPWD.
USACE should pursue a direct lease with a new marina/restaurant in Cedar Hill State Park in order to allow the marina/restaurant to sell alcoholic beverages. TPWD does not allow the sale of alcoholic beverages within state parks and no restaurant or marina will	USACE has no plans to pursue a direct lease for a marina/restaurant at Joe Pool Lake. TPWD may pursue such a lease in the future and it is true that they do not allow the sale of alcoholic beverages within the state park.

COMMENT	USACE RESPONSE
survive financially unless allowed to sell alcohol.	

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2832 **7.3 PUBLIC AND AGENCY REVIEW OF DRAFT MP, EA, AND FONSI**

2833 **Note: This section to be completed following the final public meeting.**

2834 The final draft Master Plan and Environmental Assessment was made available
2835 for public and agency review online beginning (date), then was presented at a public
2836 meeting held on (date) at the Summit Activity Center, 2975 Esplanade, Grand Prairie,
2837 TX 75052

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2840 **Table 7.2 - Public Comments from (date) Public Meeting to Announce the Final**
2841 **Draft of the Joe Pool Lake Master Plan**

COMMENT	USACE RESPONSE

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Copies of letters received from governmental entities are included in the EA. Upon incorporation of public comment into the draft Master Plan, EA and FONSI, final versions were prepared and signed by the District Engineer for implementation. The final version is posted on the District website.

CHAPTER 8 - SUMMARY OF RECOMMENDATIONS

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2853 8.1 SUMMARY OVERVIEW

2854 The preparation of the Joe Pool Lake Master Plan followed the new USACE
2855 master planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 13
2856 January 2013. Three major requirements set forth in the new guidance include (1)
2857 the preparation of contemporary Resource Objectives, (2) Classification of project
2858 lands using the newly approved classification standards, and (3) the preparation of a
2859 Resource Plan describing in broad terms how the land in each of the land
2860 classifications will be managed into the foreseeable future. Additional important
2861 requirements include rigorous public involvement throughout the process, and
2862 consideration of regional recreation and natural resource management priorities
2863 identified by other federal, state, and municipal authorities. The study team
2864 endeavored to follow this guidance to prepare a master plan that will provide for
2865 enhanced recreational opportunities for the public, improve environmental quality,
2866 and foster a management philosophy that promotes partnerships and the success of
2867 each stakeholder involved in the management of the lands and surface waters of
2868 Joe Pool Lake. Factors considered in the Plan were identified through public
2869 involvement and review of statewide planning documents including TPWD's 2018
2870 and 2012 TORP (synonymous with SCORP) and the TCAP – Texas Blackland
2871 Prairies Ecoregion. Also reviewed was the 2016 Parks, Recreation, and Open Space
2872 Master Plan prepared by the City of Grand Prairie for their city parks system which
2873 includes the Lake Parks leased from USACE at Joe Pool Lake. This Master Plan will
2874 ensure the long-term sustainability of the outdoor recreation program and natural
2875 resources associated with Joe Pool Lake.
2876

2877 8.2 LAND CLASSIFICATION PROPOSALS

2878 A key component in preparing this Master Plan was examining prior land
2879 classifications and addressing the needed transition to the new land classification
2880 standards. During the public involvement process USACE sought public input into
2881 whether, besides the simple change in nomenclature, a shift in land classification
2882 was desired (for example, should lands with a recreation classification be
2883 reclassified to a wildlife classification or vice versa.). Chapter 7 of the Plan describes
2884 the public input process.
2885

2886 A total of 6 written comments were received following the 23 May 2017 public
2887 scoping meeting. Several comments specifically addressed land classification.
2888 Additional comments and recommendations concerning land classification were
2889 obtained from TPWD and the City of Grand Prairie following workshops with these
2890 entities in January 2018 and Dec 2017, respectively. The input from the public,
2891 TPWD, and City of Grand Prairie, as well as information in the TORP and TCAP
2892 described in Section 8.1 was used by the planning team to prepare a land

2893 reclassification proposal for Joe Pool Lake. All changes reflect historic and projected
 2894 public use and new guidance from ER 1130-2-550 and EP 1130-2-550. A summary
 2895 of acreage changes from prior land classifications to the current classifications is
 2896 provided in Table 8.1, and key decision points in the reclassification of project lands
 2897 are presented in Table 8.2.
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Table 8.1 - Change from Prior Land Classification to New Land Classification¹

Prior Land Classifications (1981)	Acres	New Land Classifications	Acres
Project Operations	309	Project Operations	308
Recreation – High Use	3,236	High Density Recreation	4,139
Recreation – High Use/Interim Wildlife	1,756		
Separable Recreation Lands ²	1,475	Separable Recreation Lands	1,475
		Environmentally Sensitive Areas	1,507
Recreation/Wildlife Management – Low Use	3,360	Multiple Resource Management - Low Density Recreation	482
		Multiple Resource Management – Vegetative Management	157
		Multiple Resource Management – Wildlife Management	2,095
Permanent pool	7,470	Permanent pool	6,707
Flowage Easement	1,904	Flowage Easement	1,904

2901 ***Note:** ¹The new land classification acreage figures were measured using GIS technology and may
 2902 vary slightly from prior classifications, and from official land acquisition records. Also, with the
 2903 exception of the Project Operations classification, there is no direct relationship between the prior
 2904 land classifications and the new land classifications.

2905 ²Separable Recreation Lands is not a land classification but is required by USACE regulations to be
 2906 described in project Master Plans. Separable Recreation Lands are those lands acquired only for the
 2907 purpose of recreation and are otherwise not required for the successful operation of Joe Pool Lake for
 2908 the primary missions of flood risk management and water conservation. The acreage of Separable
 2909 Recreation Lands is included in the acreage totals for Recreation – High Use, and Recreation – High
 2910 Use/Interim Wildlife under the prior classifications.

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Table 8.2 Reclassification Proposals

Proposal	Description	Justification
Project Operations (PO)	<p>Lands classified as PO lands were reclassified as follows:</p> <ul style="list-style-type: none"> ○ 7 acres surrounding the uncontrolled spillway was changed from Recreation – High Use to Project Operations ○ 10 acres of Project Operations land was changed to ESA. 	<p>The uncontrolled spillway is a major operational facility and must be classified as Project Operations. Recreational fishing at the uncontrolled spillway is an incidental use subservient to the primary purpose of the spillway. The 124 acres included 10 acres west of the gate control tower changed to ESA to recognize important cultural resources, and 114 acres along the western downstream toe of the dam to serve as a buffer next to residential areas and to recognize current and future mitigation plantings.</p>
High Density Recreation (HDR)	<p>Most lands under the prior classification of Recreational – High Use were converted to the new and similar classification of High Density Recreation but were reduced from 4,992 acres to 4,139 acres through the following reclassifications:</p> <ul style="list-style-type: none"> ○ 7 acres at uncontrolled spillway changed to PO ○ 291 acres in Loyd Park and 512 acres of CHSP changed to ESA ○ 157 acres changed from Recreation – High Use to 	<p>Each of these changes were needed to recognize project operational needs (7 acres), high habitat values, important vegetation values, and cultural resource values (1,021 acres), and future high density recreation needs (275 acres). These classification changes will have little to no effect on current or future public use.</p>

Proposal	Description	Justification
	<p>Vegetative Management in CHSP</p> <ul style="list-style-type: none"> ○ 87 acres of Britton Park changed to MRML-WM ○ 69 acres of Pleasant Valley Park changed to ESA ○ 275 acres of Recreation/Wildlife Management – Low Use changed to HDR ((area to be added to Estes Park (177-acres) and HDR portion of Camp Wisdom Park (98-acres)) ○ 5 acres of west portion of Lynn Creek Park changed to ESA 	
<p>Environmentally Sensitive Areas (ESA)</p>	<p>The classification of 1,507 acres as Environmentally Sensitive Areas resulted from the following land classification changes:</p> <ul style="list-style-type: none"> ○ 291 acres of Loyd Park and 512 acres of CHSP from Recreation – High Use to ESA. ○ 10 acres of PO lands to ESA ○ 635 acres of Recreation/Wildlife Management – Low Use to ESA ○ 69 acres of Recreation – High Use / Interim Wildlife (Pleasant Valley Park) to ESA 	<p>These classification changes were necessary to recognize those areas at the project having the highest ecological value, areas serving as filters for surface water runoff, and areas having high cultural resource values. Reclassification to ESA status will have little to no effect on current or projected public use. Lands classified as ESA are given the highest order of protection among possible land classifications.</p>
<p>MRML – Low Density Recreation (LDR)</p>	<p>Approximately 482 acres of former Recreation / Wildlife Management – Low Use</p>	<p>This classification change was primarily a change in nomenclature from old to</p>

Proposal	Description	Justification
	<p>was reclassified as MRML – Low Density Recreation. The parcels that were changed included a 91 acre portion of undeveloped Camp Wisdom Park and five distinct additional parcels consisting primarily of narrow shoreline parcels located immediately adjacent to private property</p>	<p>new. However, given the configuration of the parcels in question as well as their historic and anticipated use, the MRML – LDR classification is the most appropriate.</p>
<p>MRML – Vegetative Management (VM)</p>	<p>Approximately 157 acres of former Recreation – High Use lands was reclassified to MRML - VM</p>	<p>This reclassification involves several distinct parcels in CHSP where TPWD is restoring native blackland prairie habitat</p>
<p>MRML – Wildlife Management (WM)</p>	<p>Approximately 2,095 acres were reclassified as MRML – WM. This reclassification was accomplished through the following actions:</p> <ul style="list-style-type: none"> ○ 2008 acres of Recreation / Wildlife Management – Low Use changed to MRML- WM ○ 87 acres of Recreation – High Use / Interim Wildlife (north end of Britton Park) changed to MRML- WM ○ 482 acres of Recreation / Wildlife Management – Low Use changed to LDR ○ 114 acres of Recreation / Wildlife Management – Low Use changed to ESA ○ 189 acres of Recreation / Wildlife 	<p>The reclassification of 2008 acres was simply a change in nomenclature from old to new. The 87 acre change resulted in the northern, undeveloped portion of Britton Park being permanently changed to MRML – WM. The 482 acre change to LDR was needed as explained above under the MRML- LDR classification. The 114 acres change to ESA is a parcel parallel to the western downstream toe of the dam that is needed as a visual buffer and is used for mitigation plantings. The 189 acre change to HDR and LDR was needed to recognize properly classify Camp Wisdom Park. The 87-acre parcel is a riparian corridor along the outlet channel below Joe Pool Dam.</p>

Proposal	Description	Justification
	<p>Management – Low Use changed to HDR and MRML – LDR</p> <ul style="list-style-type: none"> ○ 87 acres of Recreation / Wildlife Management – Low Use Changed to ESA 	
Water Surface	<p>The classification of 6,707 acres of water surface of the lake at the conservation pool elevation is as follows:</p> <ul style="list-style-type: none"> • 24 acres of Restricted water surface at Joe Pool Lake include the water surface in front of the intake structure at the control tower at Joe Pool Dam and designated swimming areas in Lynn Creek Park and CHSP. Buoys mark the line in front of the dam. Keep-out buoys and floating barrier pipes mark the designated swimming areas in each park. • 103 acres of Designated No-Wake areas are in place near the 7 boat ramps, along Lakeridge Parkway bridges, and at the marina. <p>There are 6,580 acres of Open Recreation water surface at Joe Pool Lake.</p>	<p>Restricted and Designated No-Wake areas are necessary for public safety reasons. The Water Use Plan in the 1981 Master Plan designated the upper, portions of the Mountain Creek and Walnut Creek arms of the lake as a “Low Speed Boating Area”, but these area are now included in the Open Recreation classification. It is incumbent on boaters to operate their vessel safely in these uncleared areas. The classification of water surfaces will have no effect on current or projected public use</p>

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Note: The land classification changes described in this table are the result of changes to 23 individual parcels of land ranging from a few acres to more than 100 hundred acres. Acreages were measured using GIS technology. The acreage numbers provided are approximate.

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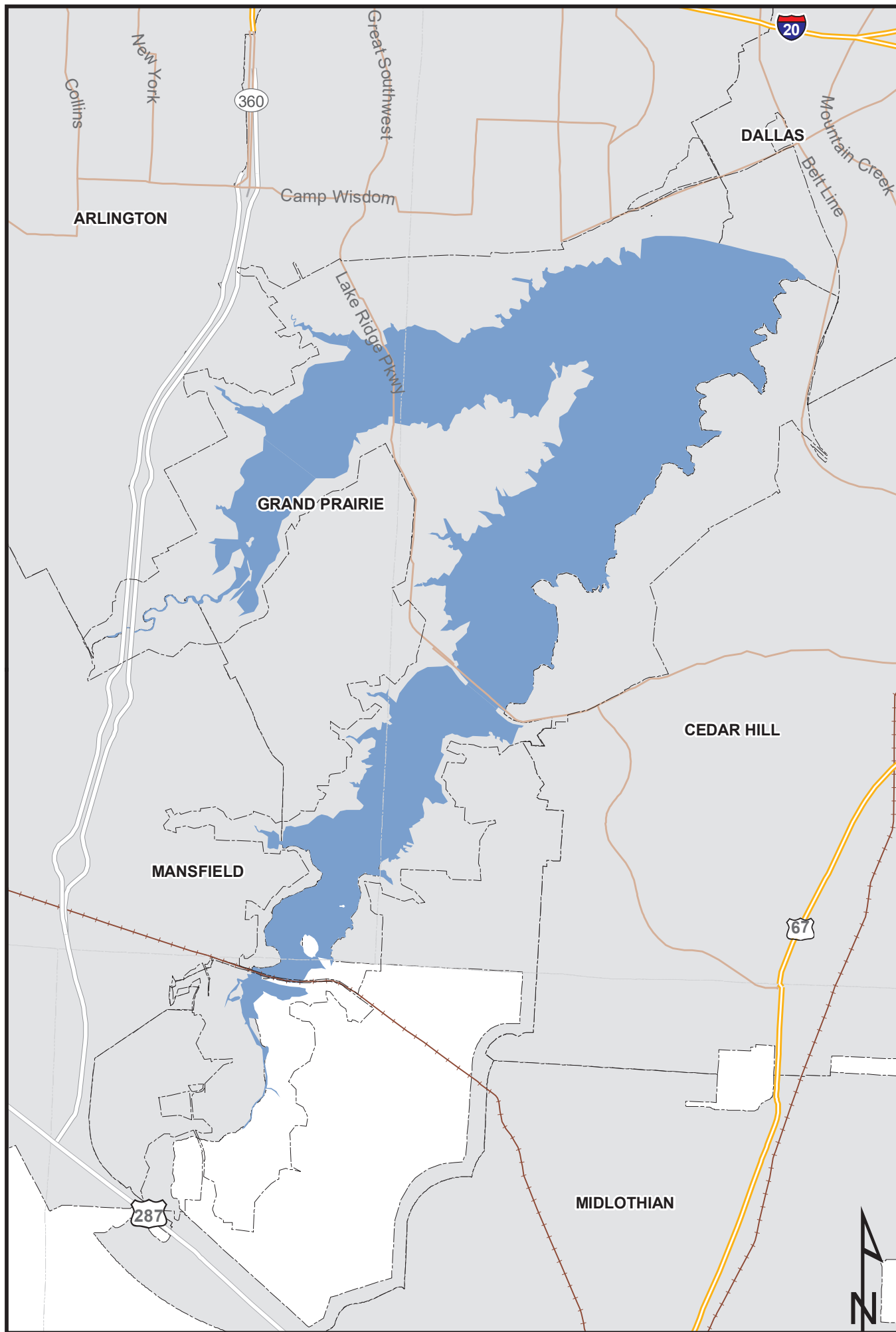
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**APPENDIX A - LAND CLASSIFICATION, MANAGING AGENCIES,
AND RECREATION MAPS**

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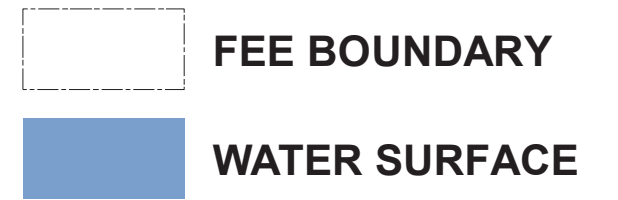
INDEX TO MASTER PLAN MAPS


GENERAL

MAP NO.	TITLE
JP18MP-OI-00	PROJECT LOCATION & INDEX TO MAPS
JP18MP-OU-01	UTILITY CORRIDOR MAP
JP18MP-OR-01	RECREATIONAL MAP
JP18MP-OM-01	LAND MANAGING ENTITIES

LAND CLASSIFICATION

MAP NO.	TITLE
JP18MP-OC-00	LAND CLASSIFICATION INDEX (SHEET 00)
JP18MP-OC-01	LAND CLASSIFICATION (SHEET 01)
JP18MP-OC-02	LAND CLASSIFICATION (SHEET 02)
JP18MP-OC-03	LAND CLASSIFICATION (SHEET 03)
JP18MP-OC-04	LAND CLASSIFICATION (SHEET 04)
JP18MP-OC-05	LAND CLASSIFICATION (SHEET 05)
JP18MP-OC-06	LAND CLASSIFICATION (SHEET 06)
JP18MP-OC-07	LAND CLASSIFICATION (SHEET 07)
JP18MP-OC-08	LAND CLASSIFICATION (SHEET 08)
JP18MP-OC-09	LAND CLASSIFICATION (SHEET 09)






**U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT**

JOE POOL LAKE

JOE POOL LAKE MASTER PLAN

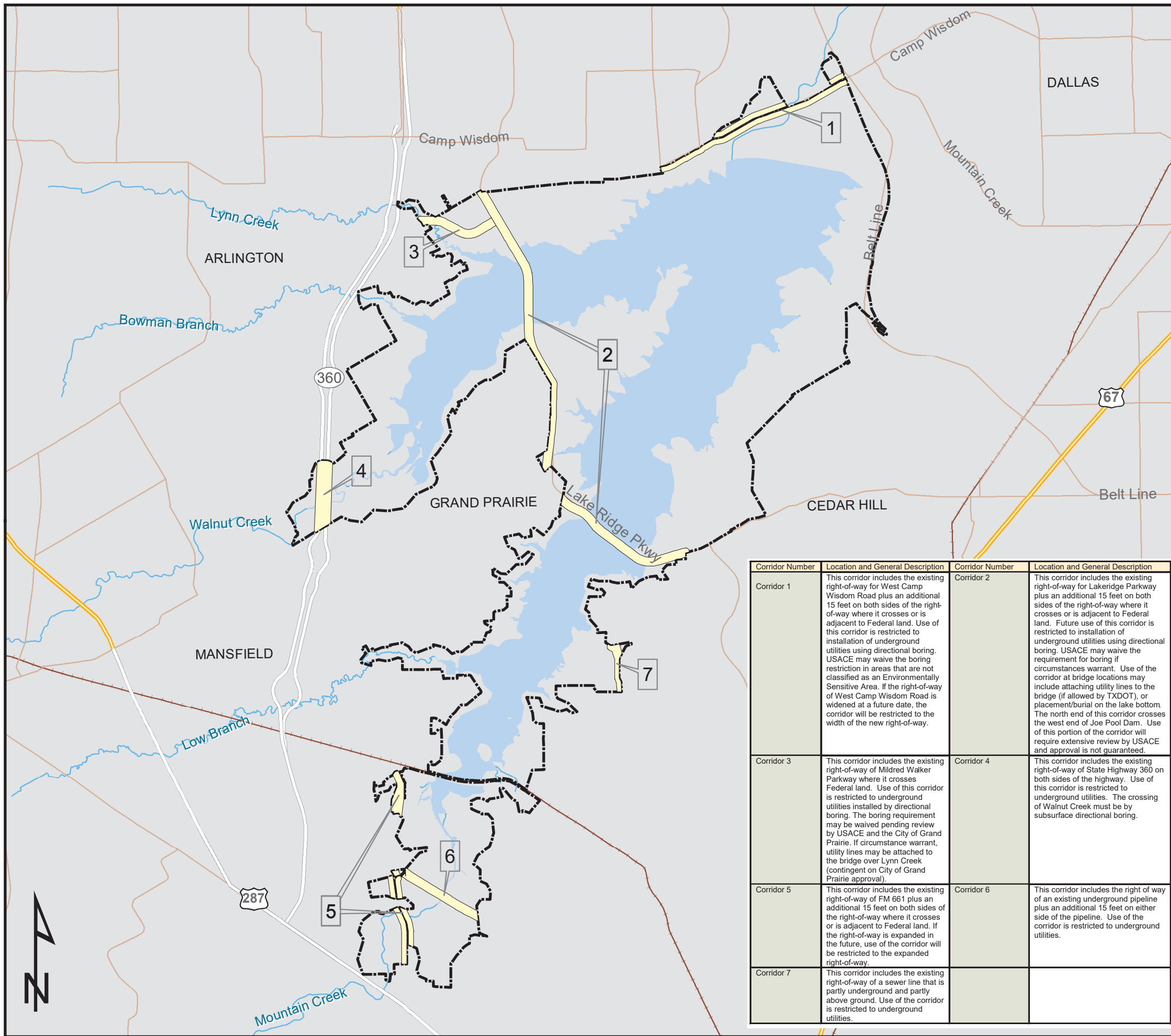
PROJECT LOCATION AND INDEX





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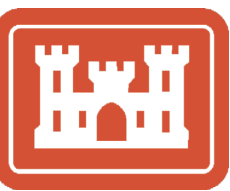
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 UTILITY CORRIDOR
 PROJECT BOUNDARY

Corridor Number	Location and General Description	Corridor Number	Location and General Description
Corridor 1	This corridor includes the existing right-of-way for West Camp Wisdom Road plus an additional 15 feet on both sides of the right-of-way where it crosses or is adjacent to Federal land. Use of this corridor is restricted to installation of underground utilities using directional boring. USACE may waive the boring restriction in areas that are not classified as an Environmentally Sensitive Area. If the right-of-way of West Camp Wisdom Road is widened at a future date, the corridor will be restricted to the width of the new right-of-way.	Corridor 2	This corridor includes the existing right-of-way for Lakeridge Parkway plus an additional 15 feet on both sides of the right-of-way where it crosses or is adjacent to Federal land. Future use of this corridor is restricted to installation of underground utilities using directional boring. USACE may waive the requirement for boring if circumstances warrant. Use of the corridor at bridge locations may include attaching utility lines to the bridge (if allowed by TXDOT), or placement/burial on the lake bottom. The north end of this corridor crosses the west end of Joe Pool Dam. Use of this portion of the corridor will require extensive review by USACE and approval is not guaranteed.
Corridor 3	This corridor includes the existing right-of-way of Mildred Walker Parkway where it crosses Federal land. Use of this corridor is restricted to underground utilities installed by directional boring. The boring requirement may be waived pending review by USACE and the City of Grand Prairie. If circumstance warrant, utility lines may be attached to the bridge over Lynn Creek (contingent on City of Grand Prairie approval).	Corridor 4	This corridor includes the existing right-of-way of State Highway 360 on both sides of the highway. Use of this corridor is restricted to underground utilities. The crossing of Walnut Creek must be by subsurface directional boring.
Corridor 5	This corridor includes the existing right-of-way of FM 661 plus an additional 15 feet on both sides of the right-of-way where it crosses or is adjacent to Federal land. If the right-of-way is expanded in the future, use of the corridor will be restricted to the expanded right-of-way.	Corridor 6	This corridor includes the right of way of an existing underground pipeline plus an additional 15 feet on either side of the pipeline. Use of the corridor is restricted to underground utilities.
Corridor 7	This corridor includes the existing right-of-way of a sewer line that is partly underground and partly above ground. Use of the corridor is restricted to underground utilities.		



**U.S. ARMY CORPS
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FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

JOE POOL LAKE MASTER PLAN

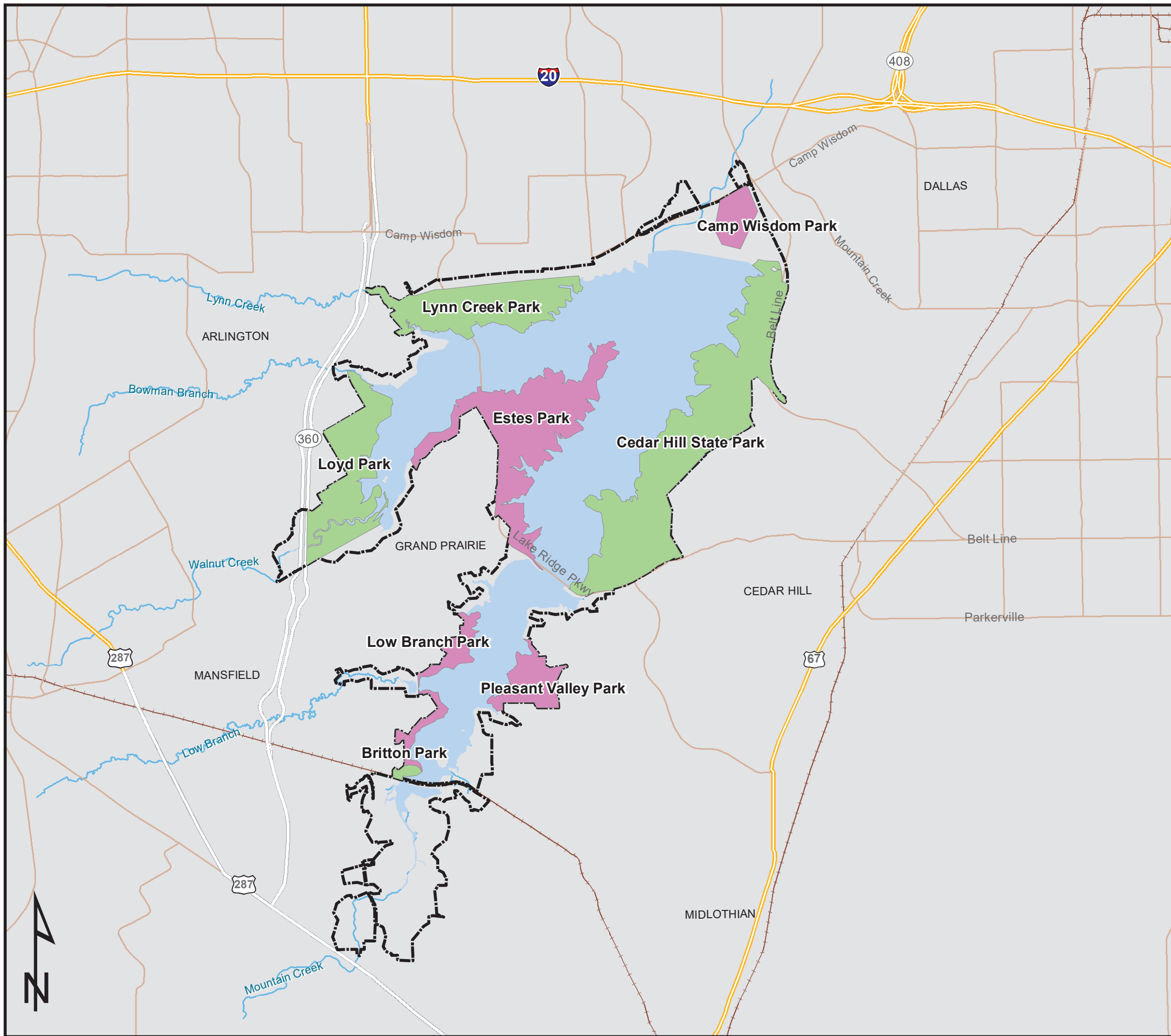
UTILITY CORRIDOR MAP







0 1 2 3 MILES

DATE: JULY 2018	MAP NO. JP18MP-OU-01
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-  PROJECT BOUNDARY
- RECREATION AREAS
-  DEVELOPED
-  UNDEVELOPED



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FORT WORTH DISTRICT

JOE POOL LAKE

JOE POOL LAKE

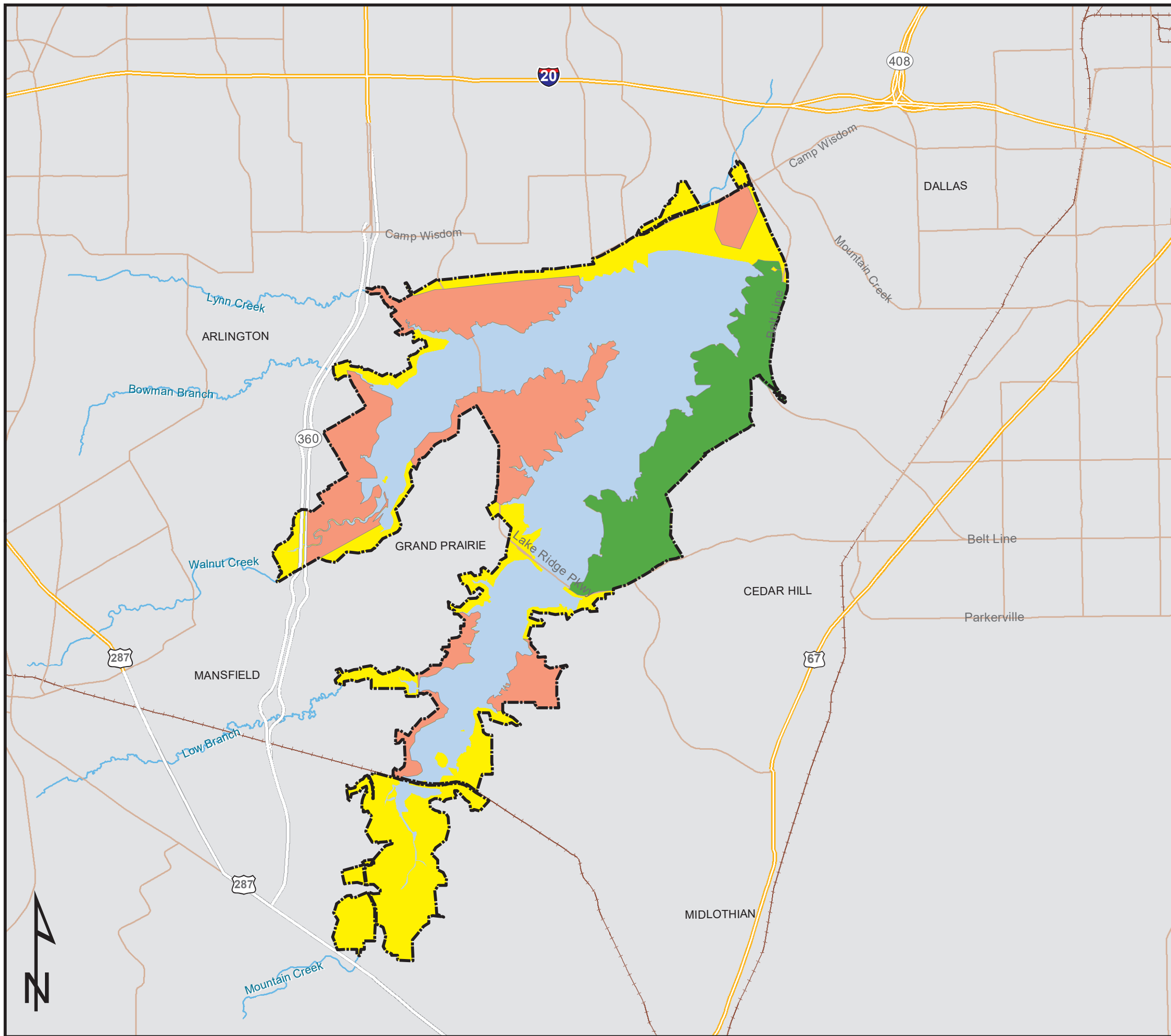
JOE POOL LAKE MASTER PLAN





PARK DEVELOPMENT STATUS

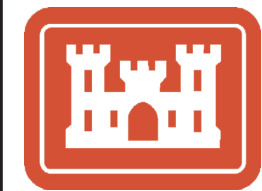


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DATE: JULY 2018	MAP NO. JP18MP-OR-01
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-  Project Boundary
-  U.S. ARMY CORPS OF ENGINEERS
-  TEXAS PARKS AND WILDLIFE
-  CITY OF GRAND PRAIRIE



U.S. ARMY CORPS OF ENGINEERS
FORT WORTH DISTRICT

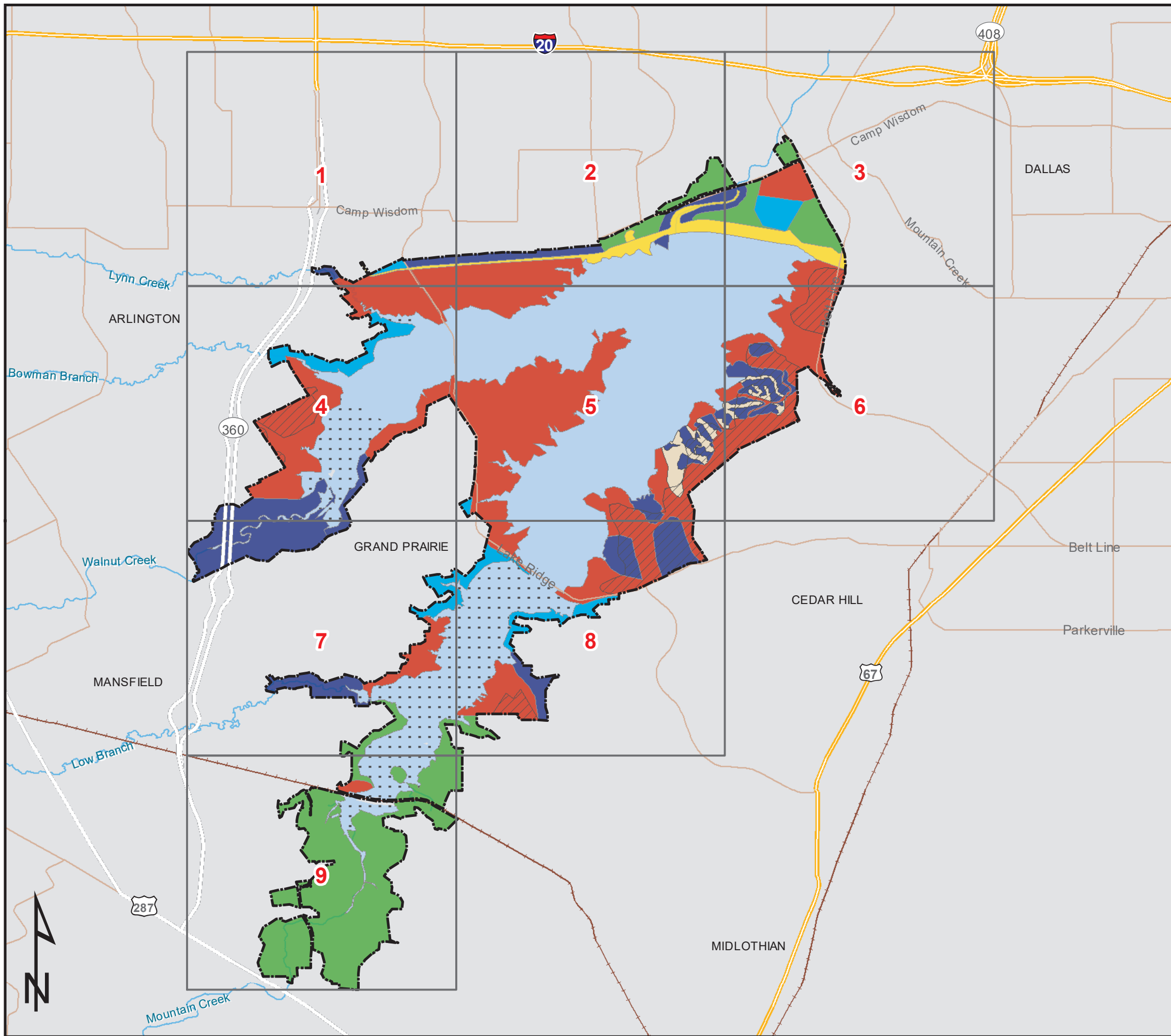
JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE
 JOE POOL LAKE MASTER PLAN
 LAND MANAGING ENTITIES



DATE:
 JULY 2018

MAP NO.
 JP18MP-OM-01



-  PROJECT BOUNDARY
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
-  ENVIRONMENTALLY SENSITIVE AREA
-  LOW DENSITY RECREATION
-  VEGETATIVE MANAGEMENT
-  WILDLIFE MANAGEMENT
-  UNCLEARED WATER SURFACE
-  WATER SURFACE



**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE

JOE POOL LAKE

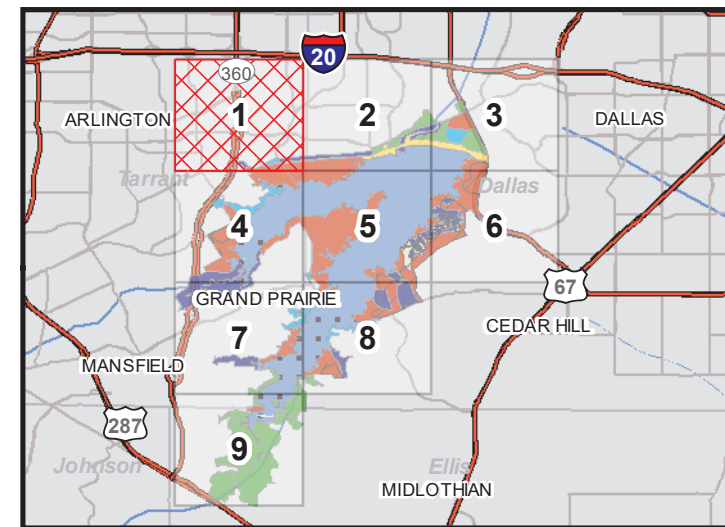
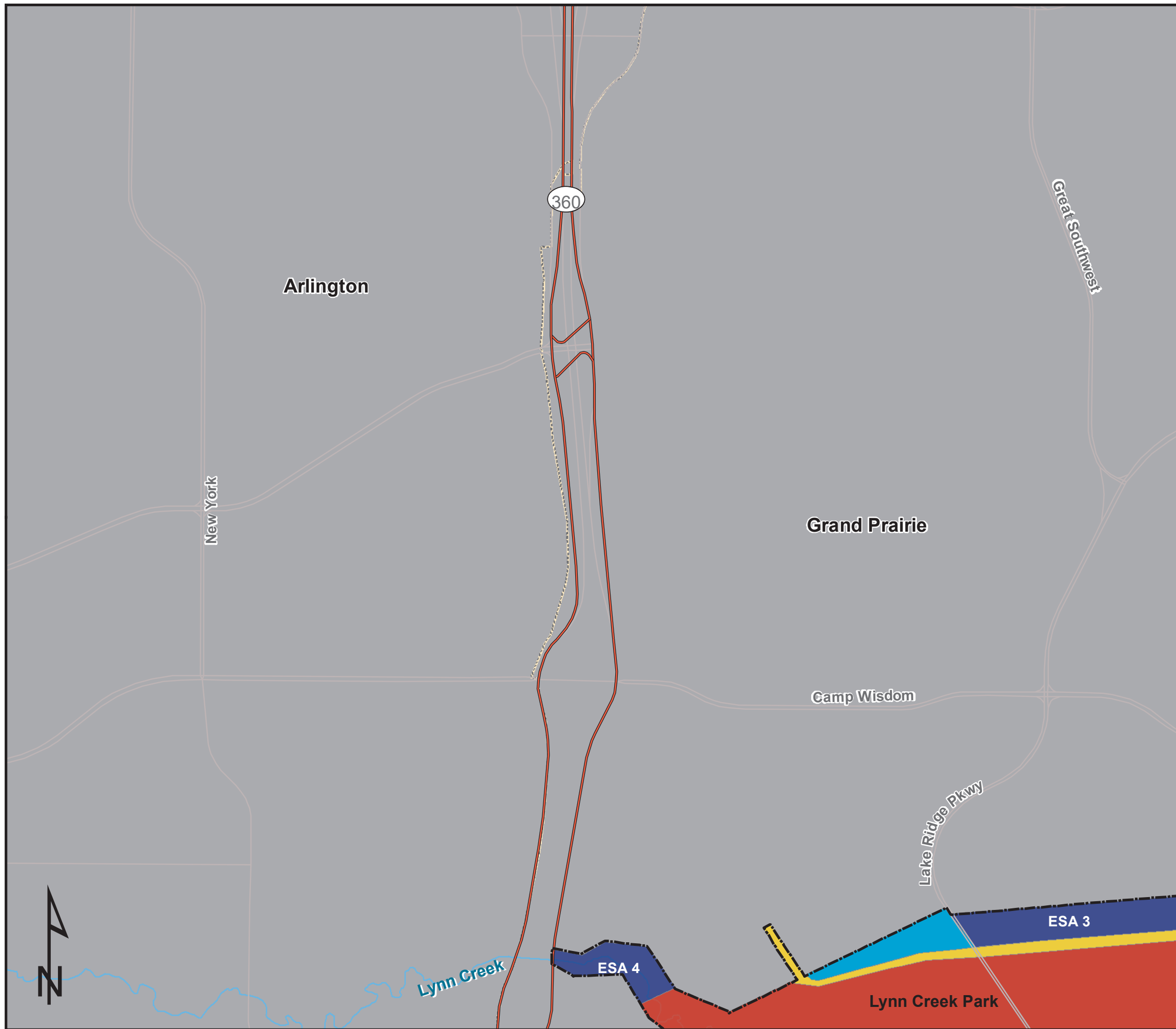
JOE POOL LAKE MASTER PLAN














LAND CLASSIFICATION INDEX (SHEET 00)



0 1 2 3 MILES

DATE: JULY 2018	MAP NO. JP18MP-OC-00
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
-  ENVIRONMENTALLY SENSITIVE AREA
-  LOW DENSITY RECREATION
-  VEGETATIVE MANAGEMENT
-  WILDLIFE MANAGEMENT
- WATER SURFACE**
-  OPEN RECREATION
-  NO WAKE
-  RESTRICTED



**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

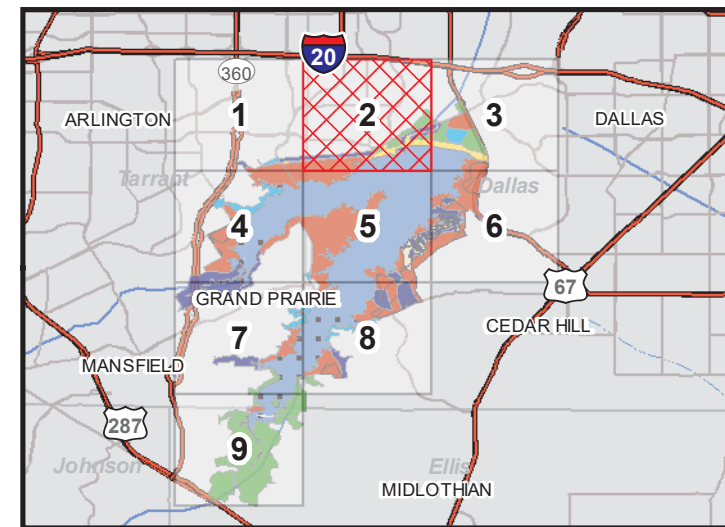
JOE POOL LAKE MASTER PLAN













LAND CLASSIFICATION (SHEET 01)



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FEET

DATE: JULY 2018	MAP NO. JP18MP-OC-01
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
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-  HIGH DENSITY RECREATION
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- WATER SURFACE**
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-  RESTRICTED



**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

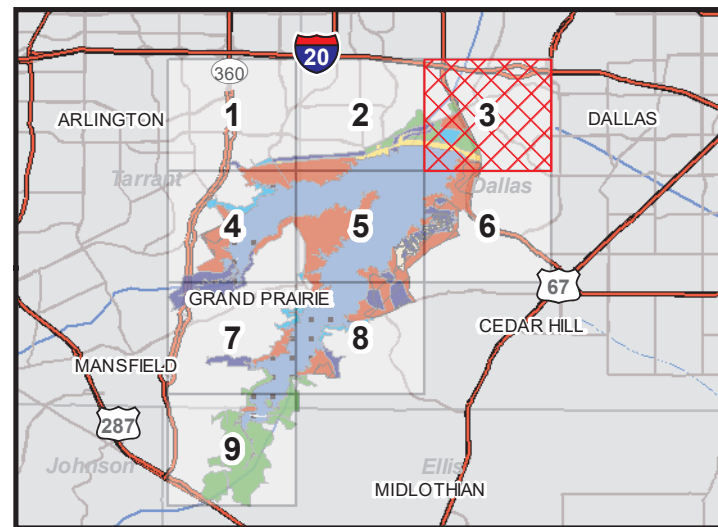
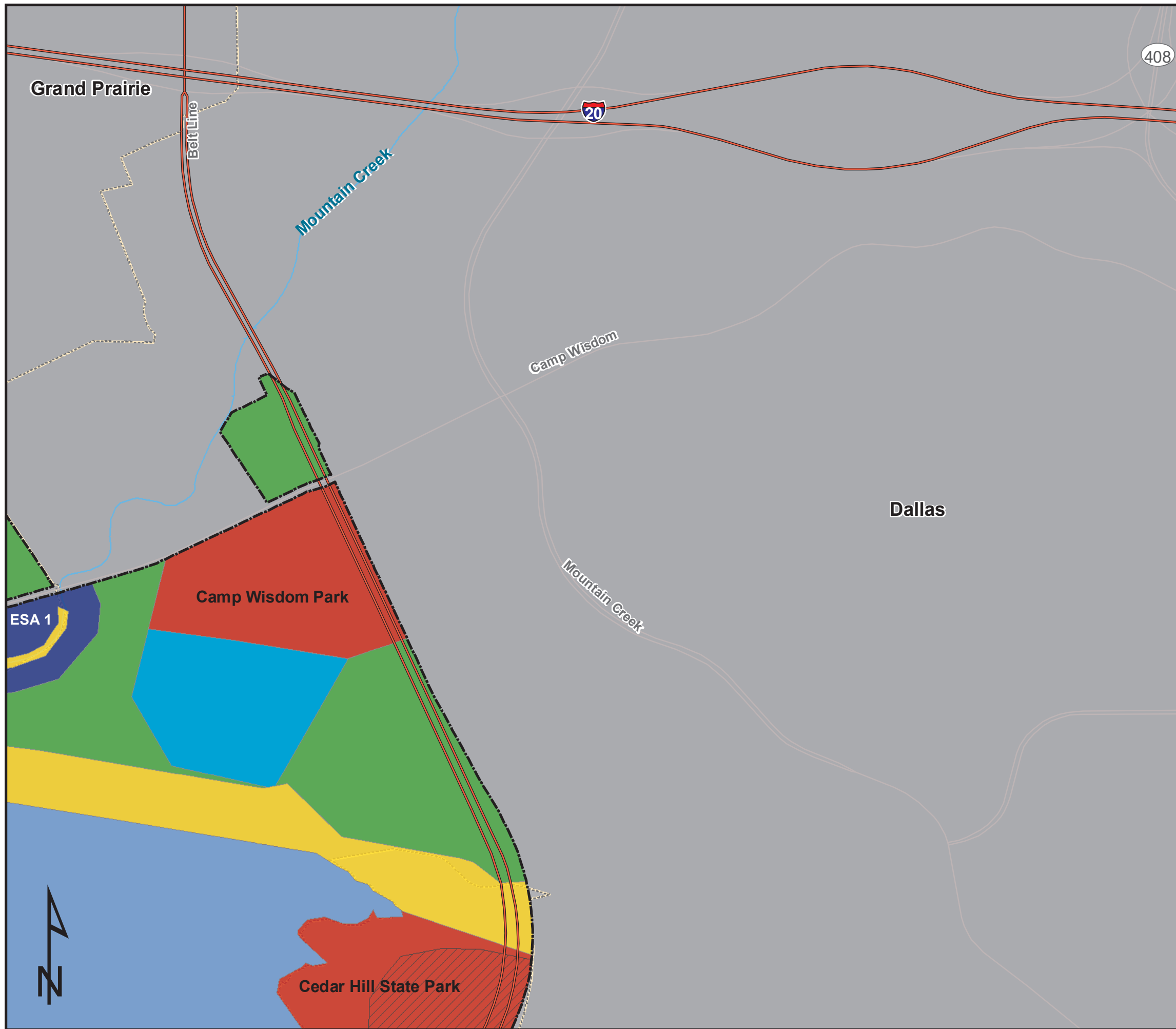
JOE POOL LAKE MASTER PLAN












LAND CLASSIFICATION (SHEET 02)



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DATE: JULY 2018	MAP NO. JP18MP-OC-02
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
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-  WILDLIFE MANAGEMENT
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**U.S. ARMY CORPS
OF ENGINEERS**

FORT WORTH DISTRICT


JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

JOE POOL LAKE MASTER PLAN

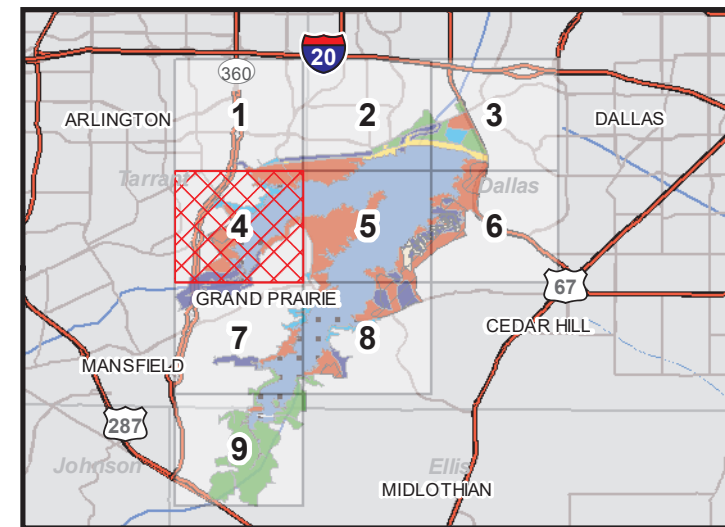
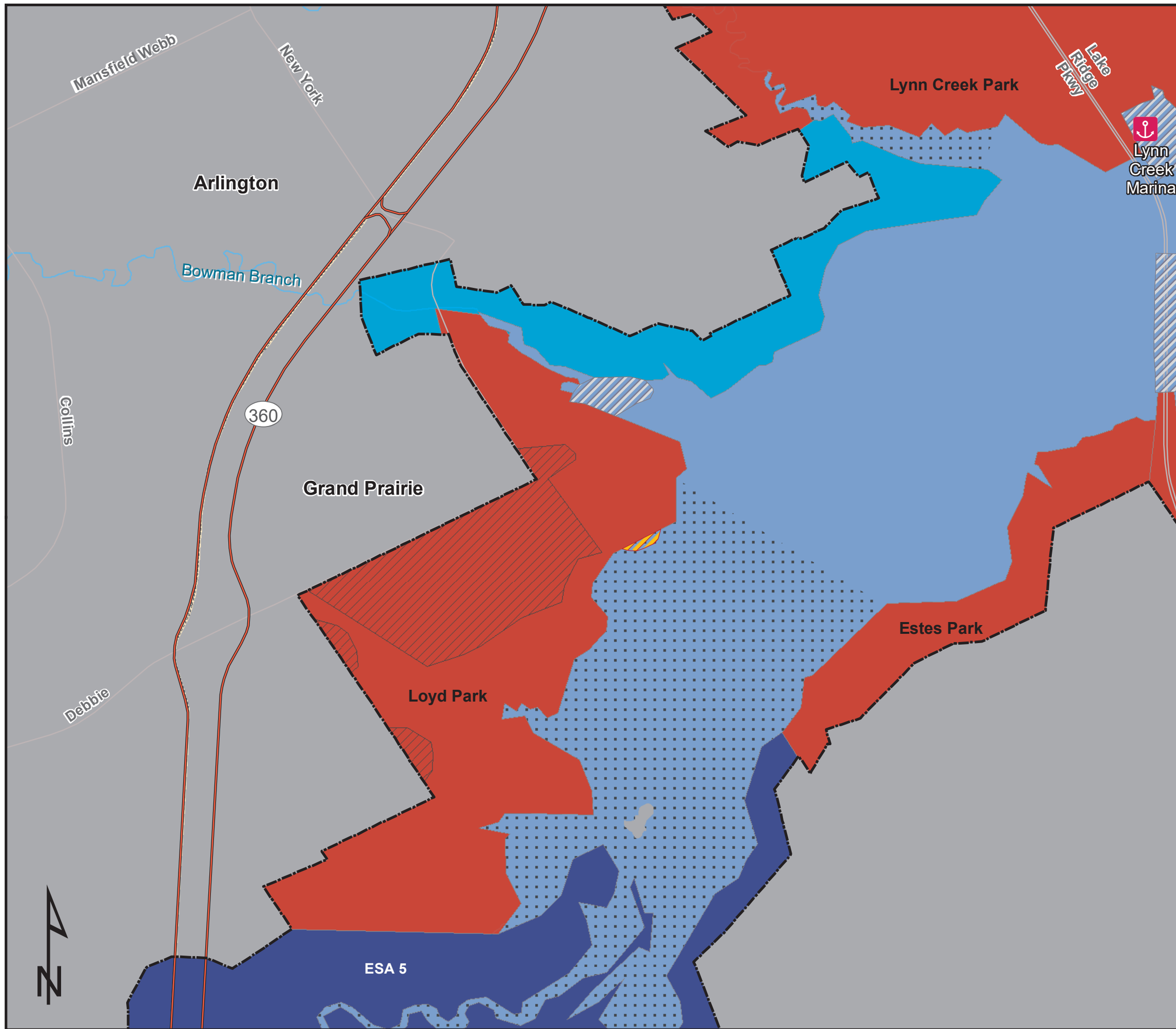
LAND CLASSIFICATION (SHEET 03)












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DATE: JULY 2018	MAP NO. JP18MP-OC-03
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
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**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

JOE POOL LAKE MASTER PLAN

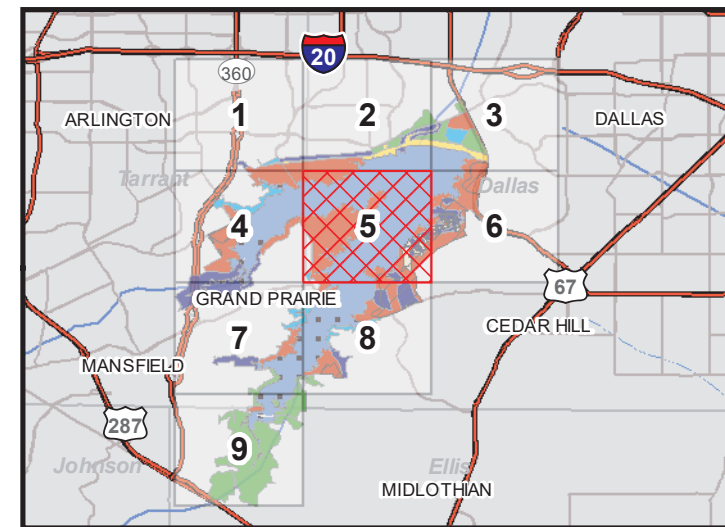
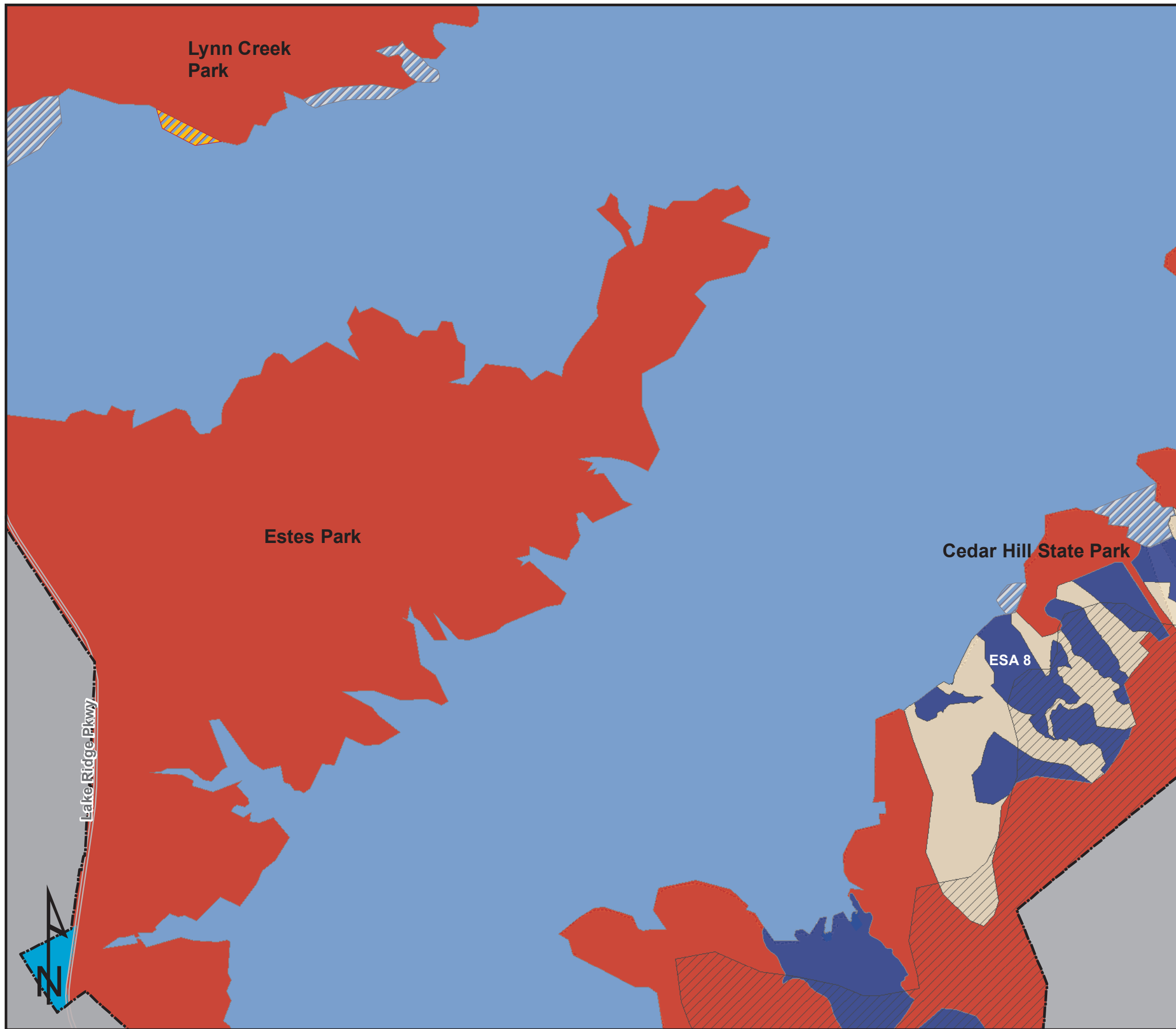
LAND CLASSIFICATION (SHEET 04)















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DATE: JULY 2018	MAP NO. JP18MP-OC-04
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
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**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

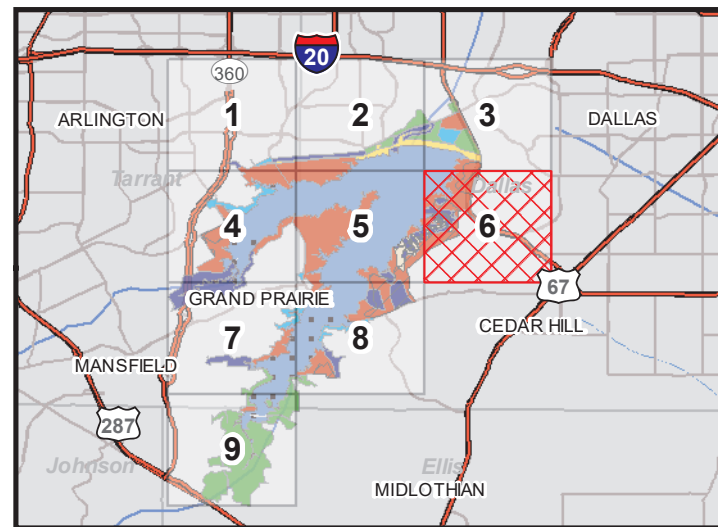
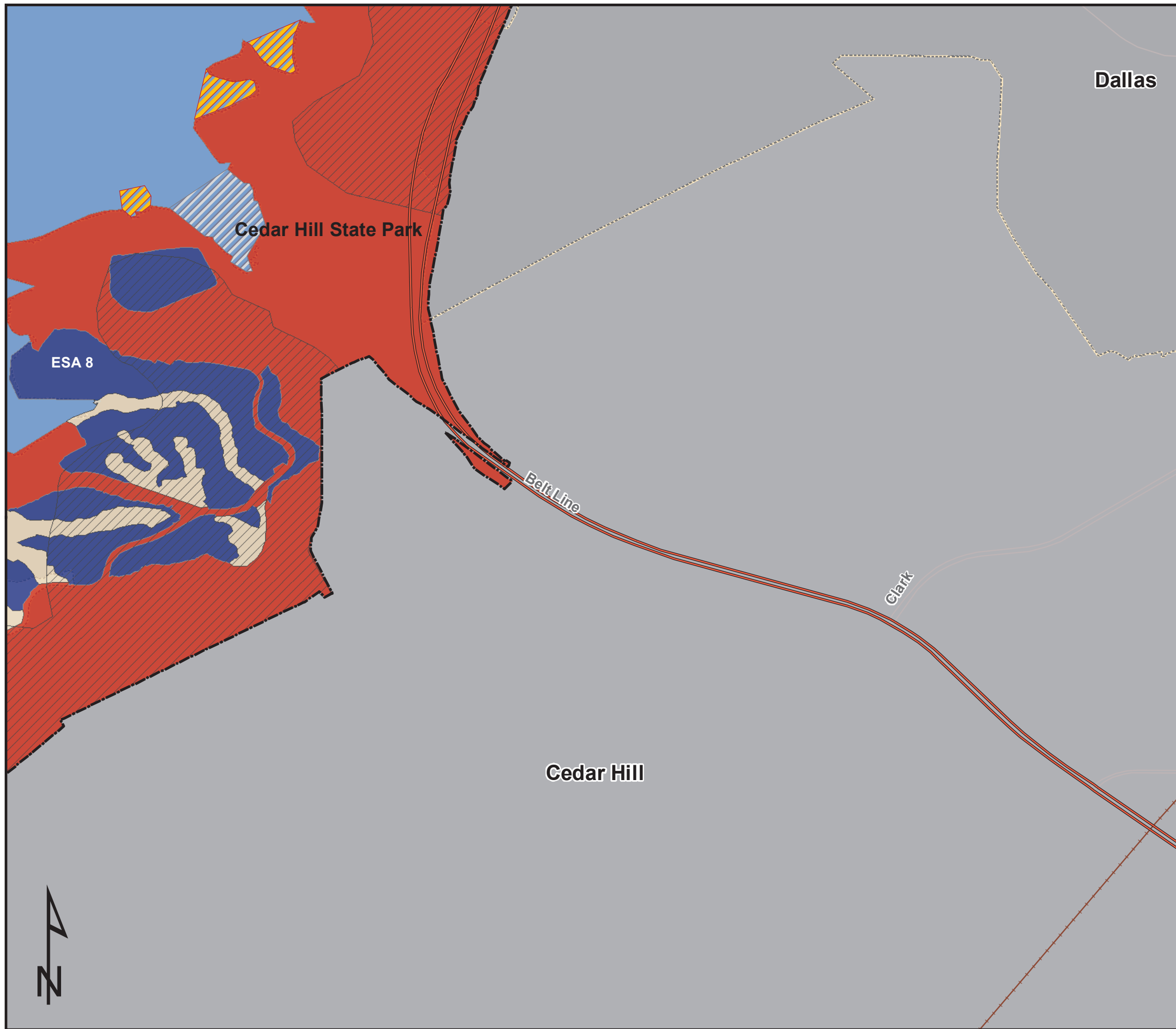
JOE POOL LAKE MASTER PLAN














LAND CLASSIFICATION (SHEET 05)



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DATE: JULY 2018	MAP NO. JP18MP-OC-05
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
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-  WILDLIFE MANAGEMENT
- WATER SURFACE**
-  OPEN RECREATION
-  NO WAKE
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**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

JOE POOL LAKE MASTER PLAN

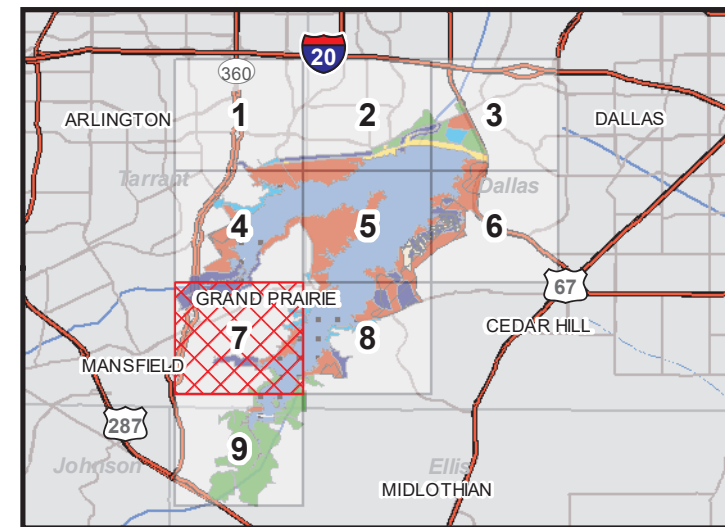
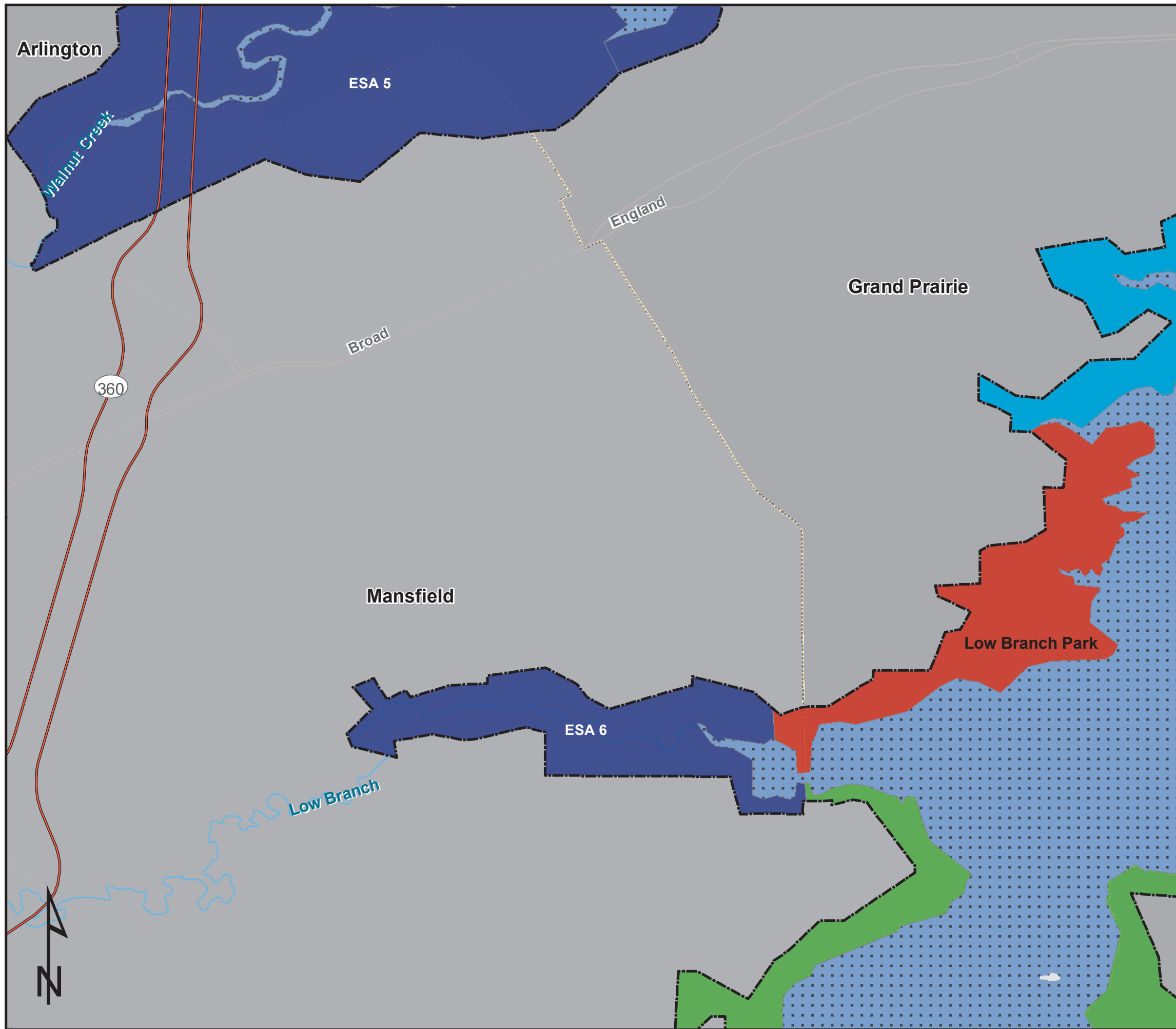
LAND CLASSIFICATION (SHEET 06)














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DATE: JULY 2018	MAP NO. JP18MP-OC-06
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
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-  HIGH DENSITY RECREATION
-  ENVIRONMENTALLY SENSITIVE AREA
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-  WILDLIFE MANAGEMENT
- WATER SURFACE**
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-  NO WAKE
-  RESTRICTED



**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

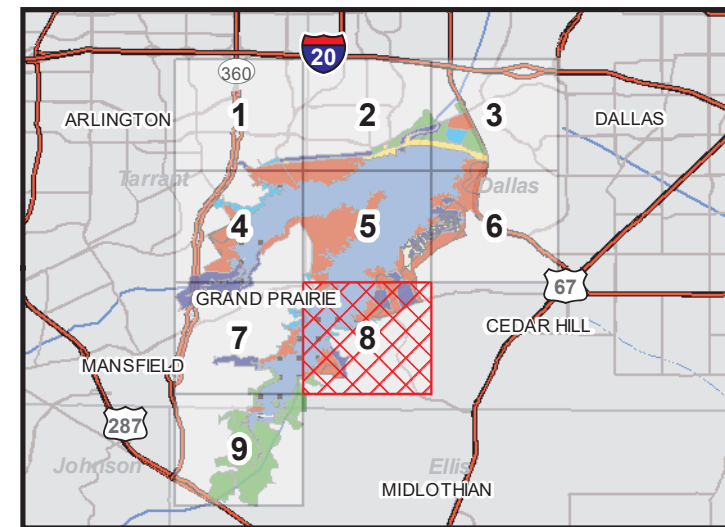
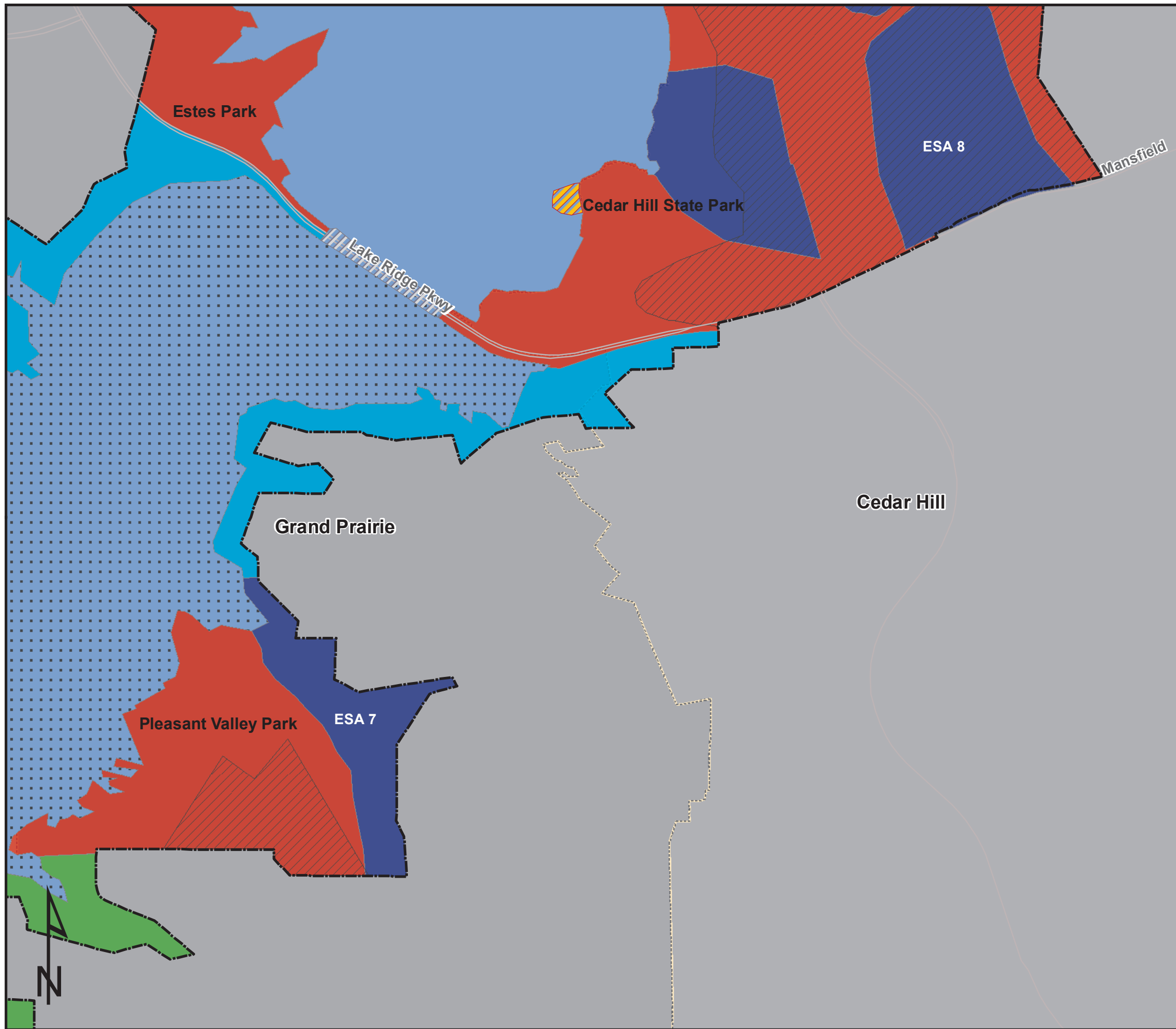
JOE POOL LAKE MASTER PLAN














LAND CLASSIFICATION (SHEET 07)



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DATE: JULY 2018	MAP NO. JP18MP-OC-07
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
-  ENVIRONMENTALLY SENSITIVE AREA
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-  WILDLIFE MANAGEMENT
- WATER SURFACE**
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-  RESTRICTED



**U.S. ARMY CORPS
OF ENGINEERS**

FORT WORTH DISTRICT


JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

JOE POOL LAKE MASTER PLAN

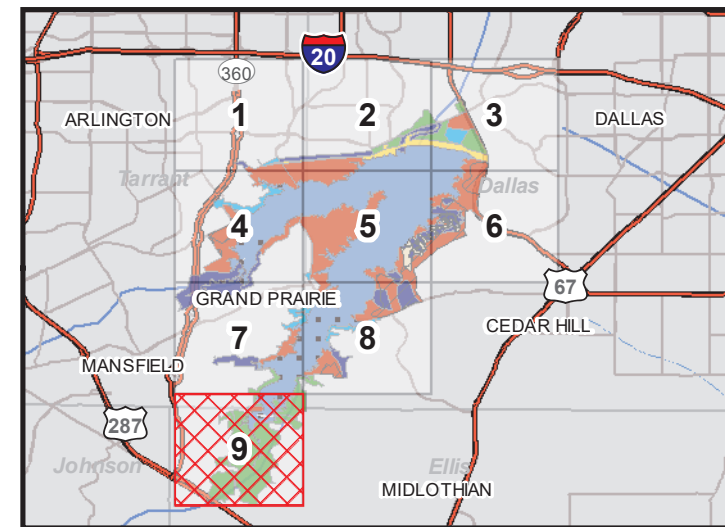
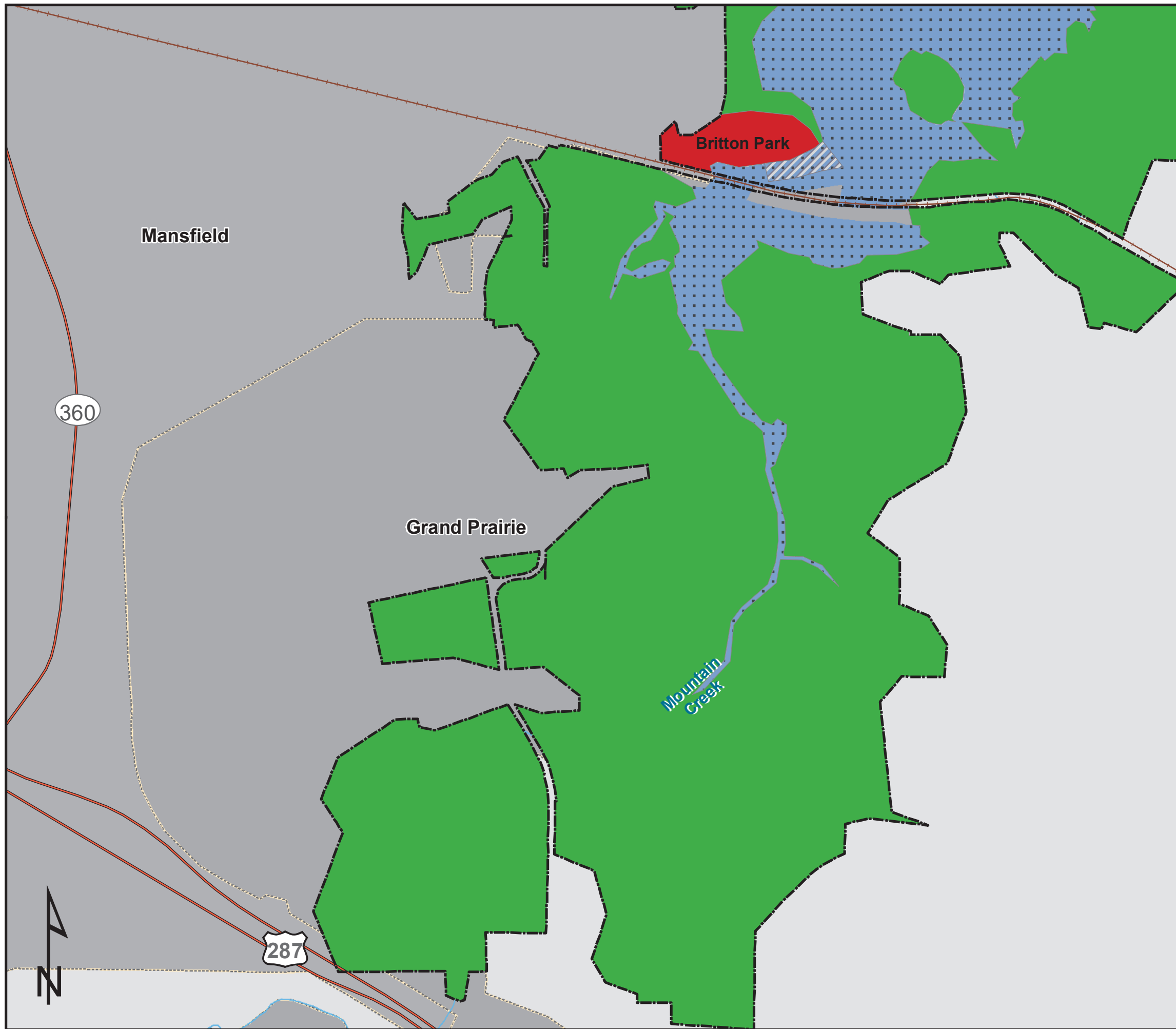
LAND CLASSIFICATION (SHEET 08)














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DATE: JULY 2018	MAP NO. JP18MP-OC-08
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-  MARINA
-  PROJECT BOUNDARY
-  UNCLEARED WATER SURFACE
- LAND CLASSIFICATION**
-  SPECIFIC RECREATION LANDS
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
-  ENVIRONMENTALLY SENSITIVE AREA
-  LOW DENSITY RECREATION
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-  WILDLIFE MANAGEMENT
- WATER SURFACE**
-  OPEN RECREATION
-  NO WAKE
-  RESTRICTED



**U.S. ARMY CORPS
OF ENGINEERS**


FORT WORTH DISTRICT

JOE POOL LAKE MOUNTAIN CREEK, TEXAS

JOE POOL LAKE

JOE POOL LAKE MASTER PLAN

LAND CLASSIFICATION (SHEET 09)



DATE: JULY 2018	MAP NO. JP18MP-OC-09
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**APPENDIX B - NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)
DOCUMENTATION**

DRAFT

Draft

Environmental Assessment for the JOE POOL LAKE Master Plan

Trinity River Basin, Mountain Creek Watershed
Dallas, Tarrant, and Ellis Counties, Texas



July 2018



**US Army Corps
of Engineers** ®
Fort Worth District

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**Draft FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT FOR THE
JOE POOL LAKE MASTER PLAN
Dallas, Tarrant, and Ellis Counties, Texas**

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In accordance with the National Environmental Policy Act of 1969, including guidelines in 33 Code of Federal Regulations Part 230, the Fort Worth District and the Regional Planning and Environmental Center (RPEC) of the U.S. Army Corps of Engineers (USACE) have assessed the potential impacts of the Joe Pool Lake Master Plan revision (2018 Master Plan).

The 2018 Master Plan (MP) is a revision of the 1981 MP that was the original MP for the project. The revised MP will provide guidance for stewardship of natural resources and management of long-term public access to, and use of, the natural resources of Joe Pool Lake and Dam, including the land use classification of the USACE-managed lands. The Master Plan provides a comprehensive description of the project, a discussion of factors influencing resource management and development, new resource management objectives, the resource plan describing how project lands and waters will be managed, an identification and discussion of special topics, a synopsis of public involvement and input into the planning process, and descriptions of existing development.

Under the No Action Alternative, the USACE would take no action, which means the Master Plan would not be revised. With this alternative, no new resources analysis or land use reclassifications would occur. The operation and management of Joe Pool Lake would continue as outlined in the current Master Plan.

The Proposed Action includes Master Plan Revisions, coordination with the public, and updates to comply with the USACE regulation and guidance, and reflects changes in land management and the land uses that have occurred since 1981. Land classifications were refined to meet authorized project purposes and current natural resource and recreation management objectives that are compatible with regional goals, recognize outdoor recreation trends, and are responsive to public comment. Required land and water surface classification changes associated with the Proposed Action include the following:

Land Classification	Proposed Action Description	Justification
Project Operations (PO)	Lands classified as PO were reclassified as follows: <ul style="list-style-type: none"> • 7 acres around uncontrolled spillway to PO from Recreational – High Use • 10 acres of PO lands to ESA 	All lands classified as PO are managed and used primarily in support of critical operational requirements related to the primary missions of flood risk management and water conservation. The 308 acres now classified as PO is sufficient for current and future operational requirements. The reclassification of 10 acres of PO lands west of the gate control tower to ESA was for cultural resources protection. Reclassification of PO lands will have no effect on current or projected public use.
High Density Recreation (HDR)	Most lands under the prior classification of Recreational – High Use were converted to the new HDR classification, but were reduced from	The acres reclassified from Rec – High Use and Rec – Low Use reflect the current and future use of those lands.

Land Classification	Proposed Action Description	Justification
	<p>4,992 acres to 4,139 acres through the following reclassifications:</p> <ul style="list-style-type: none"> • 7 acres west of the uncontrolled spillway to PO • 291 acres in Loyd Park, 512 acres in Cedar Hill State Park, 69 acres in Pleasant Valley Park, and 5 acres in Lynn Creek Park from Rec – High Use to ESA • 157 acres changed to MRML – Vegetation Management in Cedar Hill State Park • 87 acres of Britton park to MRML-Wildlife Management • 275 acres to HDR from Rec/Wildlife Management – Low Use 	<p>The acres reclassified to PO, ESA, and MRML-VM, and MRML- WM were done to: 1) protect to support critical operations requirements; 2) protect high quality ecological and cultural resources; and 3) to protect high quality, native vegetation and high quality habitat values.</p>
<p>Environmentally Sensitive Areas (ESAs)</p>	<p>The classification of 1,507 acres as ESA resulted from the following land classification changes:</p> <ul style="list-style-type: none"> • 291 acres (Loyd Park), 512 acres (Cedar Hill State Park), 5 acres (Lynn Creek Park), and 69 acres (Pleasant Valley Park) from Rec – High Use • 10 acres from PO • 635 acres from Rec/Wildlife Management – Low Use 	<p>Lands classified as ESA are given the highest order of protection among possible land classifications. The classification change was necessary to recognize areas at the project having the highest ecological value for protection of important habitat, unique views, and cultural and/or archeological sites. The ESA designation for these areas may require a change in management and may have an effect on current or projected public use.</p>
<p>Multiple Resource Management Lands (MRML) -- Low Density Recreation (LDR)</p>	<p>Approximately 482 acres of former Rec/Wildlife Management – Low Use was reclassified as MRML – LDR.</p> <ul style="list-style-type: none"> • 91 acres of undeveloped lands at Camp Wisdom Park • 126 acres in 5 distinct parcels of narrow shoreline tracts located immediately adjacent to private property 	<p>This classification change was primarily a change in nomenclature from old to new. However, given the configuration of the parcels in question as well as their historic and anticipated use, the MRML – LDR classification is the most appropriate.</p>
<p>MRML -- Wildlife Management (WM)</p>	<p>The classification of 2,095 acres of MRML – Wildlife Management resulted from the following land classification changes:</p> <ul style="list-style-type: none"> • 2,008 acres from Rec/Wildlife Management – Low Use • 87 acres from Rec – High Use (north end of Britton Park) • 482 acres changed to LDR • 201 acres changed to ESA • 189 acres changed to HDR and MRML – LDR 	<p>The reclassification of 2,008 acres was simply a change in nomenclature from old to new with the remaining 87 acres resulting from an undeveloped portion of Britton Park being permanently changed from Rec – High to MRML – WM. The 482 acre change to LDR was needed as explained above under the MRML-LDR classification. The 201 acres change to ESA Include a 114 acre parcel parallel to the western downstream toe of the dam that is needed as a visual buffer and is used for mitigation</p>

Land Classification	Proposed Action Description	Justification
		plantings and an 87 acre parcel of riparian corridor along the outlet channel below Joe Pool Dam. The 189 acre change to HDR and LDR was needed to recognize and properly classify Camp Wisdom Park.
MRML – Vegetation Management (VM)	The classification MRML – Vegetation Management acres resulted from reclassification of: <ul style="list-style-type: none"> • 157 acres of former Rec – High Use lands 	This reclassification involves several distinct parcels in Cedar Hill State Park where TPWD is restoring native, blackland prairie habitat.
MRML – Future/Inactive Recreation Area	No acres were classified as Future/Inactive Recreation areas.	
Utility Corridors	Seven utility corridors have been designated across USACE lands at Joe Pool Lake. See Section 6.1 of the 2018 Master Plan for more details of the specific corridors and map number JP18MP-OU-01 in Appendix A of the 2018 MP for the locations.	USACE policy encourages the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. Use of these designated corridors reduces adverse habitat impacts and fragmentation by keeping adverse impacts associated with utility crossings within designated boundaries.
Surface Water Classification	Proposed Action Description	Justification
Restricted	Reclassification of 24 acres to Restricted include the surface water in front of the intake structure at the control tower at Joe Pool Dam and designated swimming areas in Lynn Creek and Cedar Hill State parks.	Restricted waters are areas where recreational boating is prohibited or restricted for reasons of project operations, safety and security, such as near swim beaches and the dam.
Designated – No Wake	Reclassification of 103 acres of surface water to Designated No-Wake in areas near the 7 boat ramps, along Lakeridge Parkway bridges, and at the marina.	Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access such as boat ramps.
Fish and Wildlife Sanctuary	There are no acres of surface water surface under a Fish and Wildlife Sanctuary classification at Joe Pool Lake.	
Open Recreation	A total of 6,580 acres is classified as Open Recreation at Joe Pool Lake.	Open recreation includes all water surface available for year around or seasonal water-based recreation use.

*The land classification changes described in this table are the result of changes to 23 individual parcels of land ranging from a few acres to more than 100 hundred acres. Acreages were measured using geographic information system (GIS) technology. The acreage numbers provided are approximate.
Source: USACE 2018.

78 The Proposed Action was chosen because it would meet regional goals associated with
79 good stewardship of land and water resources, would meet regional recreation goals, and would
80 allow for continued use and development of project lands without violating national policies or
81 public laws.

82 The EA and comments received from other agencies have been used to determine whether
83 the Proposed Action requires the preparation of an Environmental Impact Statement (EIS). All
84 environmental, social, and economic factors that are relevant to the recommended alternative
85 were considered in this assessment. These include, but are not limited to, climate and climate
86 change, environmental justice, cultural resources, air quality, visual aesthetics, prime farmland,
87 water quality, wild and scenic rivers, wetlands, fish and wildlife, invasive species, migratory
88 birds, recreational fisheries, and threatened and endangered species.

89 It is my finding, based on the EA, that the revision of the Master Plan for Joe Pool Lake will
90 have no significant adverse impact on the environment and will not constitute a major Federal
91 action significantly affecting the quality of the human environment. Therefore, an EIS will not be
92 prepared.

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Date

Calvin C. Hudson II
Colonel, U.S. Army
District Commander

98

100 This Environmental Assessment (EA) evaluates the potential environmental and socioeconomic
 101 impacts of the 2018 Joe Pool Lake Master Plan revision. This EA will facilitate the decision
 102 process regarding the Proposed Action and alternatives.
 103

104 *SECTION 1 INTRODUCTION* of the Proposed Action summarizes the purpose of and
 105 need for the Proposed Action, provides relevant background information,
 106 and describes the scope of the EA.
 107

108 *SECTION 2 PROPOSED ACTION AND ALTERNATIVES* examines alternatives for
 109 implementing the Proposed Action and describes the recommended
 110 alternative.
 111

112 *SECTION 3 AFFECTED ENVIRONMENT* describes the existing environmental and
 113 socioeconomic setting.
 114

115 *ENVIRONMENTAL CONSEQUENCES* identifies the potential
 116 environmental and socioeconomic effects of implementing the Proposed
 117 Action and alternatives.
 118

119 *MITIGATION* summarizes mitigation actions required to enable a Finding
 120 of No Significant Impact for the Proposed Action.
 121

122 *SECTION 4 CUMULATIVE IMPACTS* describes the impact on the environment that
 123 may result from the incremental impact of the action when added to other
 124 past, present, and reasonably foreseeable actions.
 125

126 *SECTION 5 COMPLIANCE WITH ENVIRONMENTAL LAWS* provides a listing of
 127 environmental protection statutes and other environmental requirements.
 128

129 *SECTION 6 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF*
 130 *RESOURCES* identifies any irreversible and irretrievable commitments of
 131 resources that would be involved in the Proposed Action should it be
 132 implemented.
 133

134 *SECTION 7 PUBLIC AND AGENCY COORDINATION* provides a listing of individuals
 135 and agencies consulted during preparation of the EA.
 136

137 *SECTION 8 REFERENCES* provides bibliographical information for cited sources.
 138

139 *SECTION 9 ACRONYMS/ABBREVIATIONS*

141 *SECTION 10 LIST OF PREPARERS* identifies persons who prepared the document
 142 and their areas of expertise.
 143

144 *ADDENDUM A NEPA Coordination and Scoping*
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314 **Draft ENVIRONMENTAL ASSESSMENT**

315 **Master Plan**

316 **Joe Pool Lake**
317 **Dallas, Tarrant, and Ellis Counties, Texas**

318 **SECTION 1:INTRODUCTION**

322 This Environmental Assessment (EA) has been prepared by the United States Army Corps
323 of Engineers (USACE) to evaluate the proposed 2018 Joe Pool Lake Master Plan (MP). A
324 Master Plan is a programmatic document that is subject to evaluation under the National
325 Environmental Policy Act (NEPA) of 1969, (Public Law [PL] 91-190). This EA is an assessment
326 of potential impacts that could result with the implementation of either the No Action or
327 Proposed Action and has been prepared in accordance with 33 Code of Federal Regulations
328 (CFR) Part 230 and the Council on Environmental Quality (CEQ) Regulations (40 CFR 1500-
329 1508), as reflected in the USACE Engineering Regulation, ER 200-2-2.

330 A Master Plan is a strategic land use management plan that provides direction to the orderly
331 development, administration, maintenance, preservation, enhancement, and management of all
332 natural, cultural and recreational resources of a USACE water resource project, which includes
333 all government-owned lands in and around a reservoir. It is a vital tool for responsible
334 stewardship and sustainability of the project's natural and cultural resources, as well as the
335 provision of outdoor recreation facilities and opportunities on Federal lands associated with Joe
336 Pool Lake for the benefit of present and future generations. A Master Plan identifies conceptual
337 types and levels of activities, but does not include designs, project sites, or estimated costs. All
338 actions carried out by USACE, other agencies, and individuals granted leases to USACE lands
339 must be consistent with the Master Plan. Therefore, the Master Plan must be kept current in
340 order to provide effective guidance in USACE decision-making. The original Joe Pool Lake
341 Master Plan was approved in 1981 and has not been updated since.

342 **1.1 PROJECT DESCRIPTION**

343 Joe Pool Dam is located at river mile (RM) 11.2 on Mountain Creek, a tributary to the West
344 Fork of the Trinity River. The damsite is located in Dallas County, about 10 miles southwest of
345 the city of Dallas and adjacent to the city of Grand Prairie. The lake extends from Dallas County
346 into Tarrant and Ellis counties (Figure 1-1). Joe Pool Lake is located in the Mountain Creek
347 watershed in the Upper Trinity River Basin. The headwaters of Mountain Creek begin in the
348 northern part of Johnson County in North Central Texas and flow north and northeasterly until it
349 joins the West Fork of the Trinity River at RM 507.8. The watershed is southwest of Dallas,
350 Texas and comprises portions of Johnson, Ellis, Tarrant, and Dallas Counties. It is roughly 37
351 miles long, with a maximum width of about 16 miles, and contains total area of 304 square
352 miles, of which 232 square miles drain into Joe Pool Lake.

353 Two major left-bank tributaries drain the western part of the Mountain Creek watershed.
354 Walnut Creek joins Mountain Creek just upstream of Joe Pool Dam, while Fish Creek drains into
355 Mountain Creek Lake, which is located roughly 7 miles downstream of Joe Pool Dam. Minor left-
356 bank tributaries that flow into Mountain Creek are Cottonwood Creek and Lynn Creek. Minor
357 right-bank tributaries that flow into Mountain Creek are O' Guinn Creek, Artesian Creek, John
358 Penn Branch, Baggett Branch, and Hollings Branch. Flow between Mountain Creek Dam and
359 Joe Pool Dam, is affected by backwater from Mountain Creek Lake. Downstream from Mountain
360 Creek Dam flows are affected by backwater from the West Fork of the Trinity River.

361
362 Joe Pool Lake was authorized for construction in 1965 as a multi-purpose reservoir for flood
363 control, water conservation, recreation and fish and wildlife as contained in the River and Harbor
364 Act of 1965 (PL 89-298, in accordance with the total plan of improvement for the Trinity River as
365 outlined in House Document 276 (89th Congress, 1st Session). Originally known as Lakeview
366 Lake, the name was changed on December 31, 1982 by PL 97-400 in honor of the former U.S.
367 Congressman Joe Richard Pool from Dallas, Texas, who served in the U.S. House of
368 Representatives from January 1963 through July 1968. Construction of Joe Pool Dam began
369 December 6, 1979, and was completed in May 1986. Deliberate impoundment began in January
370 1986 and the conservation pool was filled in May 1989.

371 Joe Pool Dam and Lake Project is an integral part of the USACE plan for flood control and
372 water conservation in the Trinity River Basin. The plan presently consists of eight major flood
373 control projects, known as Benbrook Dam, Bardwell Dam, Grapevine Dam, Joe Pool Dam,
374 Lavon Dam, Lewisville Dam, Navarro Mills Dam, and Ray Roberts Dam. The eight flood control
375 projects in the Trinity River system control approximately 1,591,300 acre-feet of flood control
376 area. Joe Pool controls 232 square miles of drainage area.

377 **1.2 PURPOSE OF AND NEED FOR THE ACTION**

378 The purpose of the Proposed Action is to ensure that the conservation and sustainability of
379 the land, water, and recreational resources on Joe Pool Lake are in compliance with applicable
380 environmental laws and regulations and to maintain quality lands for future public use. The 2018
381 MP is intended to serve as a comprehensive land and recreation management plan with an
382 effective life of approximately 25 years.

383 The Master Plan must be kept current in order to provide effective guidance in decision-
384 making that responds to changing regional and local needs, resource capabilities and
385 suitabilities, and expressed public interests consistent with authorized project purposes and
386 pertinent legislation and regulations. The current Joe Pool Lake Master Plan is over 35 years
387 old and does not currently reflect ecological, socio-political, and socio-demographic changes
388 that are currently affecting Joe Pool Lake, or those changes anticipated to occur through 2043.
389 Changes in outdoor recreation trends, regional land use, population, current legislative
390 requirements and USACE management policy have indicated the need to revise the plan.
391 Additionally, increasing fragmentation of wildlife habitat, national policies related to climate
392 change and growing demand for recreational access and protection of natural resources are all
393 factors affecting Joe Pool Lake and project's region in general. In response to these continually
394 evolving trends, the USACE determined that a full revision of the 1981 plan is needed.

395 The following factors may influence reevaluation of management practices and land uses:

- 396 • Changes in national policies or public law mandates;
- 397 • Operations and maintenance budget allocations;
- 398 • Recreation area closures;
- 399 • Facility and infrastructure improvements;
- 400 • Cooperative agreements with stakeholder agencies (such as Texas Parks and
401 Wildlife Department [TPWD] and the U.S. Fish and Wildlife Service [USFWS]) to
402 operate and maintain public lands; and
- 403 • Evolving public concerns.

404 **1.3 SCOPE OF THE ACTION**

405 This EA was prepared to evaluate existing conditions and potential impacts of proposed
406 alternatives associated with the implementation of the 2018 Master Plan. The alternative

407 considerations were formulated with special attention given to revised land classifications, new
408 resource management objectives, and a conceptual resource plan for each land classification
409 category. This EA was prepared pursuant to the National Environmental Policy Act (NEPA),

410
411 **Figure 1-1. Location Map**



412
413
414 Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR]
415 1500–1517), and the USACE implementing regulations, Policy and Procedures for
416 Implementing NEPA, ER 200-2-2 (USACE, 1988).

417 The typical focus of NEPA compliance consists of environmental impact assessments for
418 individual projects, rather than for long-range plans. However, application of NEPA to more

419 strategic decisions not only meets the Council on Environmental Quality (CEQ) implementing
420 regulations (CEQ 2005) and USACE regulations for implementing NEPA (USACE 1988), but
421 also allows the USACE to consider the environmental consequences of its actions long before
422 any physical activity is implemented. Multiple benefits can be derived from such early
423 consideration. Effective and early NEPA integration with the master planning process can
424 significantly increase the usefulness of the 2018 MP to the decision maker.

425 **SECTION 2:PROPOSED ACTION AND ALTERNATIVES**

426 The purpose and need of the proposed action is to revise the 1989 Master Plan so that it is
427 compliant with current USACE regulations and guidance, incorporates public needs, and
428 recognizes surrounding land use and recreational trends. As part of this process, which includes
429 public outreach and comment, two alternatives were developed for evaluation, including a No
430 Action Alternative and a Proposed Action Alternative. The alternatives were developed using
431 land classifications that indicate the primary use for which project lands would be managed.
432 USACE regulations specify five possible categories of land classification: Project Operations
433 (PO), High Density Recreation (HDR), Mitigation, Environmentally Sensitive Areas (ESA), and
434 Multiple Resource Managed Lands (MRML). MRML are divided into four subcategories: Low
435 Density Recreation (MRML-LDR), Wildlife Management (MRML-WM), Vegetation Management
436 (MRML-VM), and Inactive/Future Recreation (MRML-IFR) Areas.

437 USACE guidance recommends the establishment of resource goals and objectives for
438 purposes of development, conservation, and management of natural, cultural, and man-made
439 resources at a project. Goals describe the desired end state of overall management efforts,
440 whereas resource objectives are specific task-oriented actions necessary to achieve the overall
441 2018 Master Plan goals. Goals and objectives are guidelines for obtaining maximum public
442 benefits while minimizing adverse impacts on the environment and are developed in accordance
443 with 1) authorized project purposes, 2) applicable laws and regulations; 3) resource capabilities
444 and suitabilities; 4) regional needs; 5) other governmental plans and programs; and 6)
445 expressed public desires. The five project-wide management goals established for Joe Pool
446 Lake that were used in determining the Proposed Action, as well as the nationwide USACE
447 Environmental Operating Principles, are discussed in detail Chapter 3: Resource Goals and
448 Objectives of the 2018 Master Plan and are incorporated herein by reference (USACE, 2018).

449 The goals for Joe Pool Lake Master Plan include the following:

- 450 • Goal A: Provide the best management practices (BMPs) to respond to regional
451 needs, resource capabilities and capacities, and expressed public interests
452 consistent with authorized project purposes.
- 453 • Goal B: Protect and manage project natural and cultural resources through
454 sustainable environmental stewardship programs.
- 455 • Goal C: Provide public outdoor recreation opportunities that support project purposes
456 and public interests while sustaining project natural resources.
- 457 • Goal D: Recognize the unique qualities, characteristics, and potentials of the project.
- 458 • Goal E: Provide consistency and compatibility with natural objectives and other state
459 and regional goals and programs.

460 In addition to the above goals, USACE management activities are also guided by USACE-
461 wide Environmental Operating Principles as follows:

- 462 • Strive to achieve environmental sustainability. An environment maintained in a
463 healthy, diverse and sustainable condition is necessary to support life.

- 464 • Recognize the interdependence of life and the physical environment. Proactively
465 consider environmental consequences of USACE programs and act accordingly in all
466 appropriate circumstances.
- 467 • Seek balance and synergy among human development activities and natural
468 systems by designing economic and environmental solutions that support and
469 reinforce one another.
- 470 • Continue to accept corporate responsibility and accountability under the law for
471 activities and decisions under our control that impact human health and welfare and
472 the continued viability of natural systems.
- 473 • Seek ways and means to assess and mitigate cumulative impacts on the
474 environment; bring systems approaches to the full life cycle of our processes and
475 work.
- 476 • Build and share an integrated scientific, economic, and social knowledge base that
477 supports a greater understanding of the environment and impacts of our work.
- 478 • Respect the views of individuals and groups interested in USACE activities; listen to
479 them actively, and learn from their perspective in the search to find innovative win-
480 win solutions to the nation's problems that also protect and enhance the
481 environment.

482 Specific resource objectives to accomplish these goals can be found in Chapter 3 of the
483 2018 MP.

484 USACE will not address dam operations or water management of Joe Pool Lake under
485 either the No Action or Proposed Action alternatives. Water management, which includes flood
486 risk management and dam operations, is established in the Trinity River Basin Master Reservoir
487 Regulation Manual and the Joe Pool Lake Water Control Manual.

488 **2.1 ALTERNATIVE 1: NO ACTION**

489 Under the No Action Alternative, the USACE would not approve the adoption or
490 implementation of the 2018 MP. Instead the USACE would continue to manage Joe Pool Lake's
491 natural resources as set forth in the 1981 MP. The 1981 Master Plan would continue to provide
492 the only source of comprehensive management guidelines and philosophy. However, the 1981
493 Master Plan is out of date and does not reflect the current ecological, socio-political, or socio-
494 demographic conditions of Joe Pool Lake or those that are anticipated to occur through 2043.

495 The No Action Alternative, while it does not meet the purpose and need, serves as a
496 benchmark of existing conditions against which Federal actions can be evaluated, and,
497 therefore, is included in this EA pursuant to CEQ regulations 40 CFR § 1502.14(d)).

498 **2.2 ALTERNATIVE 2: PROPOSED ACTION**

499 Under the Proposed Action, the USACE proposes to adopt and implement the 2018 MP,
500 which guides and articulates USACE responsibilities pursuant to Federal laws to preserve,
501 conserve, restore, maintain, manage, and develop the land, water, and associated resources.
502 The 2018 MP would replace the 1981 MP and provide an up-to-date management plan that
503 follows current Federal laws and regulations while sustaining the project's natural resources and
504 providing recreational opportunities for the next 25 years. The Proposed Action would meet
505 regional goals associated with good stewardship of land, water, and recreational resources;
506 address identified recreational trends; and allow for continued use and development of project
507 lands without violating national policies or public laws.

508 The 2018 MP proposes to classify all Federal land lying above elevation 522.0 NGVD29 into
509 management classification categories. These management classification categories would allow
510 uses of Federal property that meet the definition of the assigned category and ensure the

511 protection of natural resources and environmental stewardship while allowing maximum public
 512 enjoyment of the lake's resources.

513 The proposed land classification categories are defined as follows:

- 514 • Project Operations: Lands required for the dam, spillway, switchyard, levees, dikes,
 515 offices, maintenance facilities, and other areas used solely for the operation of Joe
 516 Pool Lake.
- 517 • High Density Recreation: Lands developed for the intensive recreational activities for
 518 the visiting public including day use and campgrounds. These areas could also be for
 519 commercial concessions and quasi-public development.
- 520 • Environmentally Sensitive Areas: Areas where scientific, ecological, cultural, or
 521 aesthetic features have been identified.
- 522 • Multiple Resource Management Lands (MRML): Allows for the designation of a
 523 predominate use with the understanding that other compatible uses may also occur
 524 on these lands.
 - 525 ○ MRML Low Density Recreation: Lands with minimal development or
 526 infrastructure that support passive recreational use (primitive camping,
 527 fishing, hunting, trails, wildlife viewing, etc.).
 - 528 ○ MRML Wildlife Management: Lands designated for stewardship of fish and
 529 wildlife resources.
 - 530 ○ MRML Vegetation Management: Lands designated for stewardship of
 531 vegetative resources.
 - 532 ○ MRML Inactive/Future Recreation:
- 533 • Surface Water: Allows for surface water zones.
 - 534 ○ Restricted: Water areas restricted for Joe Pool Lake operations, safety, and
 535 security.
 - 536 ○ Designated No-Wake: Water areas to protect environmentally sensitive
 537 shoreline areas and recreational water access areas from disturbance and
 538 areas to protect public safety.
 - 539 ○ Open Recreation: Water areas available for year-round or seasonal water-
 540 based recreational use.

541 Table 2-1 shows the proposed classifications and acres contained in each classification,
 542 Table 2-2 shows the water surface classifications, and Table 2-3 provides the justification for the
 543 proposed reclassification.

544 **Table 2-1. Proposed Joe Pool Lake Land Classifications**

1981 Land Classifications	Acres	Proposed New Land Classifications	Acres ¹
Operations and Maintenance	309	Project Operations (PO)	308
Recreational Areas	3,236	High Density Recreation (HDR)	4,139
Recreation – High Use/Interim Wildlife	1,756		
Separable Recreation Lands ²	1,475	Separable Recreation Lands ²	1,475
		Environmentally Sensitive Areas (ESA)	1,507
Recreation/Wildlife Management – Low Use	3,360	Multiple Resource Management - Low Density Recreation (MRML-LDR)	482
		Multiple Resource Management – Vegetation Management (MRML-VM)	155

		Multiple Resource Management – Wildlife Management (MRML-WM)	2,095
Permanent Pool	7,470 ³	Permanent Pool	6,707
Flowage Easement	1,904	Flowage Easement	1,940

545 *Note: ¹The new land classification acreage figures were measured using GIS technology and may vary slightly from
546 prior to new classifications, and from official land acquisition records. Also, with the exception of the PO classification,
547 there is no direct relationship between the prior land classifications and the new land classifications.

548 ²Separable Recreation Lands is not a land classification but is required by USACE regulations to be described in
549 project Master Plans. Separable Recreation Lands are those lands acquired only for the purpose of recreation and
550 are otherwise not required for the successful operation of Joe Pool Lake for the primary missions of flood risk
551 management and water conservation. The acreage of Separable Recreation Lands is included in the acreage totals
552 for Recreation – High Use, and Recreation – High Use/Interim Wildlife under the prior classifications.

553 ³Prior to this Master Plan revision, the permanent pool had been measured as containing 7,470 surface acres at
554 elevation 522.0 NGVD29. Measurements using GIS technology were employed in the Master Plan revision and
555 determined that the pool contained 6,707 surface water acres. Source: USACE 2018
556
557
558

Table 2-2. Proposed Joe Pool Lake Surface Water Classifications

Classification	Acres
Surface Water: Restricted	24
Surface Water: Designated No-Wake	103
Surface Water: Open Recreation	6.580
Surface Water: Fish and Wildlife Sanctuary	0

559 Source: USACE 2018
560
561
562

Table 2-3. Justification for the Proposed Land Reclassifications

Land Classification	Proposed Action Description	Justification
Project Operations (PO)	Lands classified as PO were reclassified as follows: <ul style="list-style-type: none"> • 7 acres around uncontrolled spillway to PO from Recreational – High Use • 10 acres of PO lands to ESA 	All lands classified as PO are managed and used primarily in support of critical operational requirements related to the primary missions of flood risk management and water conservation. The 308 acres now classified as PO is sufficient for current and future operational requirements. The reclassification of 10 acres of PO lands west of the gate control tower to ESA was for cultural resources protection. Reclassification of PO lands will have no effect on current or projected public use.
High Density Recreation (HDR)	Most lands under the prior classification of Recreational – High Use were converted to the new HDR classification, but were reduced from 4,992 acres to 4,139 acres through the following reclassifications:	The acres reclassified from Rec – High Use and Rec – Low Use reflect the current and future use of those lands. The acres reclassified to PO, ESA, MRML-WM, and MRML-VM were done to: 1) protect to support

Land Classification	Proposed Action Description	Justification
High Density Recreation, continued	<ul style="list-style-type: none"> • 7 acres west of the uncontrolled spillway to PO • 291 acres in Loyd Park, 512 acres in Cedar Hill State Park, 69 acres in Pleasant Valley Park, and 5 acres in Lynn Creek Park from Rec - High Use to ESA • 157 acres changed to MRML – Vegetation Management (VM) in Cedar Hill State Park • 87 acres in Britton Park to MRML – Wildlife Management (WM) • 275 acres to HDR from Rec/Wildlife Management – Low Use 	critical operations requirements; 2) protect high quality ecological and cultural resources; and 3) protect high quality, native vegetation and high quality habitat values.
Environmentally Sensitive Areas (ESAs)	<p>The classification of 1,507 acres as ESA resulted from the following land classification changes:</p> <ul style="list-style-type: none"> • 291 acres (Loyd Park), 512 acres (Cedar Hill State Park), 5 acres (Lynn Creek Park), and 69 acres (Pleasant Valley Park) from Rec – High Use • 10 acres from PO • 635 acres from Rec/Wildlife Management – Low Use 	Lands classified as ESA are given the highest order of protection among possible land classifications. The classification change was necessary to recognize areas at the project having the highest ecological value for protection of important habitat, unique views, and cultural and/or archeological sites. The ESA designation for these areas may require a change in management and may have an effect on current or projected public use.
MRML -- Low Density Recreation (LDR)	<p>Approximately 482 acres of former Rec/Wildlife Management – Low Use was reclassified as MRML – LDR, including:</p> <ul style="list-style-type: none"> • 91 acres of undeveloped lands at Camp Wisdom Park • 126 acres in 5 distinct parcels of narrow shoreline tracts located immediately adjacent to private property 	This classification change was primarily a change in nomenclature from old to new. However, given the configuration of the parcels in question as well as their historic and anticipated use, the MRML – LDR classification is the most appropriate.
MRML -- Wildlife Management (WM)	<p>The classification of 2,095 acres of MRML – Wildlife Management resulted from the following land classification changes:</p> <ul style="list-style-type: none"> • 2,008 acres from Rec/Wildlife Management – Low Use • 87 acres from Rec – High Use (north end of Britton Park) • 482 acres changed to LDR • 201 acres changed to ESA • 189 acres changed to HDR and MRML - LDR 	The reclassification of 2,008 acres was simply a change in nomenclature from old to new with the remaining 87 acres resulting from an undeveloped portion of Britton Park being permanently changed from Rec – High to MRML – WM. The 482 acre change to LDR was needed as explained above under the MRML-LDR classification. The 201 acres change to ESA include a 114-acre parcel parallel to the western downstream toe of the dam that is needed as a visual buffer and is used for mitigation plantings and an 87-

Land Classification	Proposed Action Description	Justification
		acre parcel of riparian corridor along the outlet channel below Joe Pool Dam. The 189 acre change to HDR and LDR was needed to recognize and properly classify Camp Wisdom Park.
MRML – Vegetation Management (VM)	The classification MRML – VM acres resulted from reclassification of: <ul style="list-style-type: none"> • 157 acres of former Rec – High Use lands 	This reclassification involves several distinct parcels in Cedar Hill State Park where TPWD is restoring native, blackland prairie habitat
MRML – Future/Inactive Recreation Area	No acres were classified as Future/Inactive Recreation areas.	
Utility Corridors	Seven utility corridors have been designated across USACE lands at Joe Pool Lake. See Section 6.1 of the 2018 Master Plan for more details of the specific corridors and map number JP18MP-OU-01 in Appendix A of the 2018 MP for the locations.	USACE policy encourages the establishment of designated corridors on project lands, where feasible, to serve as the preferred location for future outgrants such as easements for roads or utility lines. Use of these designated corridors reduces adverse habitat impacts and fragmentation by keeping adverse impacts associated with utility crossings within designated boundaries.

563 * The land classification changes described in this table are the result of changes to several individual parcels of land
564 ranging from a few acres to several hundred acres. Acreages were measured using geographic information system
565 (GIS) technology. The acreage numbers provided are approximate. Source: USACE 2018

566 **2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER**
567 **CONSIDERATION**

568 Other alternatives to the Proposed Action were initially considered as part of the scoping
569 process for this EA. However, none met the purpose of and need for the Proposed Action or the
570 current USACE regulations and guidance. Furthermore, no other alternatives addressed public
571 concerns. Therefore, no other alternatives are being carried forward for analysis in this EA.

572 **SECTION 3:AFFECTED ENVIRONMENT AND CONSEQUENCES**

573 This section of the EA describes the natural and human environments that exist at the
574 project and the potential impacts of the No Action and Proposed Action alternatives, outlined in
575 Section 2 of this document. Only those issues that have the potential to be affected by any of
576 the alternatives are described, per CEQ guidance (40 CFR § 1501.7 [3]). Some topics are
577 limited in scope due to the lack of direct effect from the Proposed Action on the resource or
578 because that particular resource is not located within the project area. For example, no body of
579 water in the Joe Pool Lake watershed is designated as a Federally Wild or Scenic River, so this
580 resource will not be discussed.

581 Impacts (consequence or effect) can be either beneficial or adverse and can be either
582 directly related to the action or indirectly caused by the action. Direct effects are caused by the
583 action and occur at the same time and place (40 CFR § 1508.8 [a]). Indirect effects are caused
584 by the action and are later in time or further removed in distance but are still reasonably

585 foreseeable (40 CFR § 1508.8 [b]). As discussed in this section, the alternatives may create
586 temporary (less than 1 year), short-term (up to 3 years), long-term (3 to 10 years following the
587 master plan revision), or permanent effects.

588 Whether an impact is significant depends on the context in which the impact occurs and the
589 intensity of the impact (40 CFR § 1508.27). The context refers to the setting in which the impact
590 occurs and may include society as a whole, the affected region, the affected interests, and the
591 locality. Impacts on each resource can vary in degree or magnitude from a slightly noticeable
592 change to a total change in the environment. For the purpose of this analysis, the intensity of
593 impacts would be classified as negligible, minor, moderate, or major. The intensity thresholds
594 are defined as follows:

- 595 • Negligible: A resource would not be affected or the effects would be at or below the
596 level of detection, and changes would not be of any measurable or perceptible
597 consequence.
- 598 • Minor: Effects on a resource would be detectable, although the effects would be
599 localized, small, and of little consequence to the sustainability of the resource.
600 Mitigation measures, if needed to offset adverse effects, would be simple and
601 achievable.
- 602 • Moderate: Effects on a resource would be readily detectable, long-term, localized,
603 and measurable. Mitigation measures, if needed to offset adverse effects, would be
604 extensive and likely achievable.
- 605 • Major: Effects on a resource would be obvious and long-term, and would have
606 substantial consequences on a regional scale. Mitigation measures to offset the
607 adverse effects would be required and extensive, and success of the mitigation
608 measures would not be guaranteed.

609 3.1 LAND USE

610 Joe Pool Lake was originally authorized by the River and Harbor Act of 1965. Construction
611 of the Joe Pool Lake Dam and Lake (formerly Lakeview Reservoir) began in December 1979
612 and was completed in May 1986. Real estate acquisition records show the total project area at
613 Joe Pool Lake encompasses 16,971 acres. Of this total area, 15,067 acres were acquired in fee
614 simple title by USACE, while a total of 1,904 acres were acquired for a perpetual Flowage
615 Easement. When the pool elevation is at the normal or conservation pool elevation of 522.0
616 NGVD29, the lake has a surface area of 6,707 acres based on the refined measurements
617 developed using geographical information systems (GIS) technology for the 2018 MP.

618 The USACE lands presently associated with Joe Pool Lake are listed in the 1981 MP as
619 follows:

- 620 • 309 acres of land managed as operations and maintenance
- 621 • 3,236 acres of land managed as high use recreational areas; of which:
 - 622 ○ 1,756 acres of land is managed as recreation – High Use/Interim Wildlife
623 Management, and
 - 624 ○ 1,475 acres are separable recreation lands
- 625 • 3,360 acres of land managed as Recreation/Wildlife Management – Low Use

626 USACE has a limited role in directly managing outdoor recreation at Joe Pool Lake. This
627 role consists of managing pedestrian use of the road across the top of the dam, fishing use
628 adjacent to the stilling basin area and along Mountain Creek below the dam, cooperative
629 management of the water surface as it relates to boating activity, and managing general
630 pedestrian access to lands that are not leased to non-federal entities.

631 USACE does not operate or manage any of the designated High Density Recreation areas
632 at Joe Pool Lake. The High Density Recreation areas are leased to non-Federal partners. In the
633 case of Joe Pool Lake, the major lessees are the City of Grand Prairie and Texas Parks and
634 Wildlife Department (TPWD). TPWD has one large parcel under lease and the City of Grand
635 Prairie has seven distinct areas under lease. The non-Federal lessees are responsible for the
636 operation and maintenance of their leased areas; USACE does not provide direct maintenance
637 within any of the leased locations, but it may occasionally lend support where appropriate. The
638 USACE reviews requests and ensures compliance with applicable laws and regulations for
639 proposed activities in all leased High Density Recreation areas. The high density recreation
640 areas have been broken down into those leased to TPWD – Cedar Hill State Park and those
641 leased to the City of Grand Prairie – Loyd, Lynn Creek, and Britton parks and four undeveloped
642 park areas. The following is a description of each park:

643 **Cedar Hill State Park** (CHSP) – Located on the east side of Joe Pool Lake between the
644 Dam and the City of Cedar Hill, Cedar Hill State Park covers approximately 1,943 acres. The
645 northeastern half of the park is highly developed with campsites, day use facilities, and the Penn
646 Farm Agricultural History Center. The southwestern half is largely undeveloped, but is
647 crisscrossed by three off-road bicycle trails. CHSP is one of the largest and most heavily used
648 state parks in the Texas state park system. Park amenities include 30 walk-in campsites, 200
649 campsites with water and electric service, 150 campsites with water, electric and sewer hook-
650 ups, hike and bike trails, swimming beach, picnic tables, 1 picnic pavilion (group shelter), and 2
651 boat ramps. Cedar Hill State Park also manages the Overlook at Joe Pool Dam, which has trail
652 heads and restrooms, and provides an overview of Joe Pool Lake.

653 **Loyd Park** – Located on the west shore of Joe Pool Lake, Loyd Park covers about 791
654 acres of native Texas landscape. Park amenities include private campsites with water electric
655 service; several cabins; a 4-lane boat ramp; boat dock; swimming beach; hike and bike trails;
656 kayak and canoe rentals; golf cart and bicycle rentals; camp store; a lodge with 15 bedrooms, a
657 full kitchen and a meeting room; and 2 picnic pavilions (group shelters).

658 **Lynn Creek Park** – Located on the northwest shore of Joe Pool Lake, this park covers
659 about 778 acres. Park amenities include a white sand swimming beach, playground, restrooms,
660 showers, two boat ramps with 4-lanes each, a concession stand, almost 100 picnic sites, 2
661 group picnic pavilions, and a sand volleyball court. Also present in the park is a city-operated
662 fire and police station and a small city office complex. This type of city infrastructure is generally
663 not allowed in park areas, but authorization was granted as part of the lease transfer from the
664 Trinity River Authority (TRA) to the City of Grand Prairie.

665 • Lynn Creek Marina – Located within Lynn Creek Park and contains 514 wet slips, 40
666 dry storage slips, a ships store and service center, and “the Oasis”, a 450 seat
667 restaurant.

668 **Britton Park** – Britton Park is a self-pay park roughly 115 acres that serves as a boat ramp
669 location in the upper end of the Mountain Creek arm of Joe Pool Lake. The ramp has two lanes
670 and the park is open to bank fishing.

671

672 **Undeveloped Parks**

673 The four undeveloped parks currently leased to the City of Grand Prairie include Camp Wisdom
674 Park, Estes Park, Low Branch Park, and Pleasant Valley Park. Each of these parks are
675 described as follows:

676 Camp Wisdom Park: This 186-acre undeveloped park is located downstream of the dam.
677 The City of Grand Prairie has expressed interest in expanding the acreage of this park to
678 include USACE land located southeast of the current park boundary up to the FM 1382 and the
679 access road leading to the USACE lake office. Proposed park amenities may include an
680 equestrian facility, along with equestrian related retail support facilities to provide a wide range
681 of goods and services to park users. Also proposed is a multi-field athletic complex, which may
682 include development of a youth and adult sports field complex consisting of baseball fields,
683 softball fields, soccer fields, volleyball, and multipurpose courts and associated support facilities.
684 It should be noted that organized sports athletic fields and facilities are contrary to current
685 USACE policy and would not be approved

686 Estes Park: Estes Park has been slated for development of a comprehensive resort facility
687 dating back to the original 1981 Master Plan. The City of Grand Prairie is currently soliciting
688 proposals from developers to place a comprehensive resort on the peninsula. Earlier attempts
689 to develop Estes Park, first by TRA and then by Grand Prairie were not successful, but the city
690 is hopeful that current socioeconomic conditions will bring success. The park originally
691 encompassed 1,057 acres and is expanded to 1,234 acres by land classification changes made
692 as part of the revisions proposed in the 2018 MP. The city has expressed interest in amending
693 their current lease to include the additional acres added by revision of the MP.

694 Low Branch Park: This roughly 129-acre park is located on the west side of the Mountain
695 Creek arm of the lake. The city has no immediate plans to develop the park. Fifteen acres of this
696 park is currently being utilized as a radio control aircraft field.

697 Pleasant Valley Park: This 265-acre park is located on the east side of the Mountain Creek
698 arm of the lake. The city's 2016 master plan calls for the park to be developed within the plan's
699 10-year planning horizon to have a neighborhood park atmosphere with some level of typical
700 lakeside development.

701 **3.1.1 Alternative 1: No Action**

702 The No Action Alternative for Joe Pool Lake is defined as the USACE taking no action,
703 which means the MP would not be revised. No new resources analysis, resources management
704 objectives, or land-use classifications would occur. The operation and maintenance of USACE
705 lands at Joe Pool Lake would continue as outlined in the existing MP. Although this alternative
706 does not result in a MP that meets current regulations and guidance, there would be no
707 significant impacts on land uses on Joe Pool Lake lands.

708 **3.1.2 Alternative 2: Proposed Action**

709 The objectives for revising the Joe Pool Lake MP were to describe current and foreseeable
710 land uses, taking into account expressed public opinion, regional trends, and USACE policies
711 that have evolved to meet day-to-day operational needs. The USACE intends to continue to
712 lease recreation lands at Joe Pool Lake to non-federal partners, who are anticipated to maintain
713 and improve existing facilities with potential plans for future expansion.

714 The changes required for the Proposed Action were developed to help fulfill regional goals
715 associated with good stewardship of land and water resources that would allow for continued
716 use and development of project lands. With the combination of continued HDR and LDR land
717 classifications along with ESAs, VM, and WM coupled with the designation of utility corridors,

718 land use changes are expected to be minimal at Joe Pool Lake. Therefore, implementation of
719 the Proposed Action would not result in significant impacts on land uses on project lands.

720 **3.2 WATER RESOURCES**

721 Surface Water

722 Joe Pool Lake is located in the Mountain Creek watershed in the Upper Trinity River Basin.
723 The headwaters of Mountain Creek begin in the northern part of Johnson County in North
724 Central Texas and flow north and northeasterly until it joins the West Fork of the Trinity River at
725 RM 507.8. The watershed is southwest of Dallas, Texas and comprises portions of Johnson,
726 Ellis, Tarrant, and Dallas Counties. It is roughly 37 miles long, with a maximum width of about
727 16 miles, and contains a total area of 304 square miles, of which 232 square miles drain into
728 Joe Pool Lake.

729 Two major left-bank tributaries drain the western part of the Mountain Creek watershed.
730 Walnut Creek joins Mountain Creek just upstream of Joe Pool Dam, while Fish Creek drains into
731 Mountain Creek Lake, which is located roughly 7 miles downstream of Joe Pool Dam. Minor left-
732 bank tributaries that flow into Mountain Creek are Cottonwood Creek and Lynn Creek. Minor
733 right-bank tributaries that flow into Mountain Creek are O' Guinn Creek, Artesian Creek, John
734 Penn Branch, Baggett Branch, and Hollings Branch. Numerous additional intermittent and
735 ephemeral streams feed into the major and minor tributaries of the watershed as well as into
736 Joe Pool Lake.

737 Wetlands

738 Waters of the United States are defined within the Clean Water Act (CWA), and jurisdiction
739 is addressed by the USACE and United States Environmental Protection Agency (USEPA).
740 Wetlands are a subset of the waters of the United States that may be subject to regulation
741 under Section 404 of the CWA (40 CFR 230.3). Wetlands are those areas inundated or
742 saturated by surface or groundwater at a frequency and duration sufficient to support, and that
743 under normal circumstances do support, a prevalence of vegetation typically adapted for life in
744 saturated soil conditions.

745 Typically, the National Wetlands Inventory (NWI) established by US Fish and Wildlife
746 Service (USFWS) is used to identify wetland types in a project area. However, the available
747 dataset for the Joe Pool project area was mapped prior to impoundment and does not reflect the
748 current conditions. Therefore, NWI was not used to identify and calculate wetland acreage with
749 the fee boundary of the project. Instead, the Ecological Mapping System (EMS) developed by
750 Texas Parks and Wildlife (TPWD) was used. Using the TPWD's EMS mapping, wetlands are
751 delineated as swamps and the lake is shown as open water. Table 3-1 provides the acres of
752 open water and swamp habitats and Figure 3-1 displays the ecological habitat types at Joe Pool
753 Lake based on EMS.

754 **Table 3-1. Total Acres of Wetland and Open Water at Joe Pool Lake**

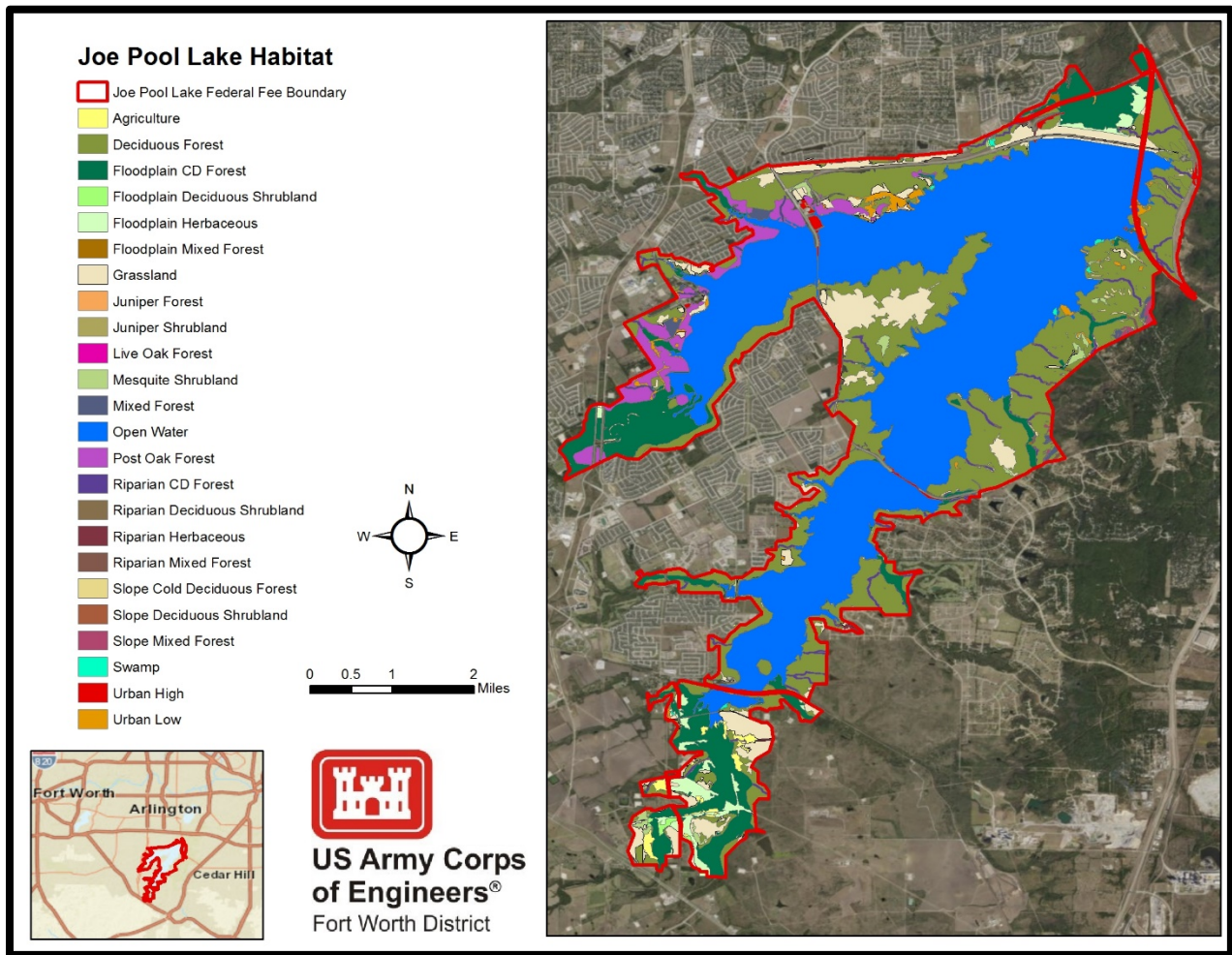
Wetland Type	EMS Acres
Open Water	6,582.93*
Swamp (Wetland)	18.65
TOTAL ACRES of Water Resources	6,601.57

755 Source: TPWD 2018

756

757

758 **Figure 3-1. Ecological Habitat Types at Joe Pool Lake**



759

760 Source: TPWD, 2018

761

762 **Groundwater**

763 Deep below Joe Pool Lake lies the Trinity and Woodbine aquifers. The Trinity Aquifer
 764 extends across much of the central and northeastern portion of Texas. This major aquifer is
 765 composed of several smaller aquifers contained within the Trinity Group including: the Antlers,
 766 Glen Rose, Paluxy, Twin Mountains, Travis Peak, Hensell, and Hosston. The Paluxy and Twin
 767 Mountains aquifers of the Trinity Group occur within the Study Area. The Paluxy Aquifer is
 768 composed of sandstone, mudstone, and limestone, and the Twin Mountains Aquifer consists of
 769 sand with interbedded clay, limestone, dolomite, and gravel. Their combined freshwater
 770 saturated thickness averages about 600 feet in North Texas.

771 The Trinity Aquifer is one of the most extensive and highly used groundwater resources in
 772 Texas. Although its primary use is for municipalities, it is also used for irrigation, livestock, and
 773 other domestic purposes. Some of the state's largest water level declines, ranging from 350 to
 774 more than 1,000 feet, have occurred in counties along the Interstate 35 corridor from McLennan
 775 County to Grayson County. These declines are primarily attributed to municipal pumping, but
 776 they have slowed over the past decade as a result of increasing reliance on surface water.

777 The Woodbine is a minor aquifer located in northeast Texas. The aquifer overlies the Trinity
778 Aquifer and consists of sandstone interbedded with shale and clay that form three distinct water-
779 bearing zones. The Woodbine Aquifer reaches 600 feet in thickness in subsurface areas and
780 serves as a water supply resource to the region. Historically, abundant springs and seeps were
781 documented along with artesian pressures as early as the late 1800s by the first drillers to
782 penetrate the Eagle Ford Shale and encounter the Woodbine. Wells drilled throughout the
783 region were free flowing at hundreds of gallons per minute (gpm) for many years until increased
784 groundwater withdrawal reduced artesian conditions. After the construction of multiple surface
785 water reservoirs, and increased surface water supply options, the reduced use of groundwater
786 has resulted in a partial return of higher water levels and artesian pressures in the Woodbine.
787 The Woodbine is confined to semi-confined beneath the Eagle Ford Shale.

788 Hydrology

789 The Mountain Creek sub-watershed is subject to three general types of flood-producing rainfall
790 events: thunderstorms, frontal rainfall, and tropical cyclones. The topography, soils, and typical
791 rainfall patterns of the watershed lead to rapid and sharp crested flood hydrographs. Floods occur
792 frequently and can occur at any time of year. Generally, the highest 24-hour and monthly
793 precipitation periods have occurred during major thunderstorm events. However, there are some
794 instances where heavy precipitation results from localized thunderstorms or rain events.

795 Joe Pool Dam and Lake are an integral part of the USACE plan for flood control and water
796 conservation in the Trinity River Basin. The plan presently consists of eight major USACE flood
797 control projects - Benbrook Dam, Bardwell Dam, Grapevine Dam, Joe Pool Dam, Lavon Dam,
798 Lewisville Dam, Navarro Mills Dam, and Ray Roberts Dam. The eight USACE dam projects in the
799 Trinity River system work in concert to control approximately 1,591,300 acre-feet (ac-ft) of flood
800 control area. Specifically, Joe Pool Lake has a flood control pool capable of storing 304,000 ac-ft
801 between elevation 522.0 and 536.0 NGVD29. Once the water elevation reaches 541.0 NGVD29
802 and fills an additional 362,700 ac-ft of storage space, water overtops the spillway and is
803 uncontrollably released downstream. The pool of record occurred on May 30, 2015 with an
804 elevation of 538.03 NGVD29.

805 Water Quality

806 Existing water quality is affected by rainfall and associated stormwater flows originating from
807 residential, commercial, and industrial point and nonpoint sources from properties upstream and
808 downstream of the dam and reservoir. These stormwater flows have increased over time as a
809 result of increased urbanization and development.

810 TCEQ sets and implements standards for surface water quality to improve and maintain the
811 quality of water in the state based on various beneficial use categories for the water body. The
812 Texas Integrated Report of Surface Water Quality, which is a requirement of the federal Clean
813 Water Act Sections 305(b) and 303(d), evaluates the quality of surface waters in Texas and
814 identifies those that do not meet uses and criteria defined in the Texas Surface Water Quality
815 Standards (TSWQS). The Texas Integrated Report describes the status of Texas' natural
816 waters based on historical data and assigns waterways to various categories depending on the
817 extent to which they attain the TSWQS.

818 Water bodies are divided into and evaluated by defined, classified segments. Assessment of
819 each beneficial use for each classified segment is accomplished by applying several
820 assessment methods. These methods often have several criteria or screening levels that are
821 used to evaluate assessment parameters. Use attainment assessment methods are used to
822 determine use support and concerns for near-nonattainment. Water quality concerns are

823 determined based on a defined amount of exceedance of screening levels and potential lack of
 824 information in data sets used to evaluate various parameters.

825 According to the 2014 Texas Integrated Report of Surface Water Quality, all segments
 826 located within the Study Area (3-2) are classified as Category 2. Category 2 is defined as: some
 827 standards are attained; no evidence that nonattainment of any standard will occur in the near
 828 future; and insufficient or no data and information are available to determine if the remaining
 829 standards are attained (TCEQ 2015).

830 The 2014 Texas Integrated Report Water Bodies with Concerns for Use Attainment and
 831 Screening Levels identifies two of the six segments within the project as having some level of
 832 concern for various parameters. Of the two concerns, one segment (0838C Walnut Creek) is
 833 listed as a 5b impaired water on the 2014 Texas 303(d) List (TCEQ 2015). This segment was
 834 first listed in 2006 for bacteria (E. Coli). A 5b listing indicates that a review of the standards for
 835 one or more parameters, in this case bacteria, will be conducted before a management strategy
 836 is selected, including the possible revision of the TSWQS. Table 3-2 provides a listing of
 837 parameters of concern by water body segment within the Study Area.

838 **Table 3-2. Water Body Segments within the Study Area Identified in the 2014 Texas**
 839 **Integrated Report of Surface Water Quality**

Water Body Segment	Location	Parameter of Concern	Level of Concern*	Water Body Use of Concern
0838 – Joe Pool Lake	From Joe Pool Dam in Dallas County up to the normal pool elevation of 522 feet (impounds Mountain Creek)	Nitrate	CS	General
0838A – Mountain Creek	Ten mile stretch of Mountain Creek running upstream from US 287 in Ellis Co., to confluence with Fish Spring Branch in Johnson County.	All parameters are fully supporting (FS), no concern (NC), or not assessed (NA) for the water body use.		
0838B – Sugar Creek	A 1.6 mile stretch of Sugar Creek running upstream from Tarrant/Dallas County line, to just upstream of Britton Road in Mansfield, Tarrant County.	All parameters are fully supporting (FS), no concern (NC), or not assessed (NA) for the water body use.		
0838C – Walnut Creek	From the confluence with Joe Pool Lake up to the headwaters at Spring Street in Burleson.	E. Coli	NS	Recreation
0838D – Hollings Branch	Hollings Branch from the confluence of the Mountain Creek arm of Joe Pool Lake upstream to the headwater 500 m downstream of US 67 in Midlothian	All parameters are fully supporting (FS), no concern (NC), or not assessed (NA) for the water body use.		
0838E – Soap Creek	Soap Creek from the confluence of the Mountain Creek arm of Joe Pool Lake upstream to the headwater 6.6 km (3.98 miles) upstream of Midlothian	All parameters are fully supporting (FS), no concern (NC), or not assessed (NA) for the water body use.		

840 Notes: * CS = Concern - screening levels indicate marginal water quality for parameter by concern assessment
 841 methods; NS = Not supporting use.

842 The Texas Department of State Health Services (DSHS) Seafood and Aquatic Life Group
 843 purpose is to address and prevent/reduce any disease causing agent from occurring that can be
 844 transferred from aquatic life to humans within the State of Texas. As of January 2018, no fish

845 consumption advisories have been issued for Joe Pool Lake or the Trinity River within the Joe
846 Pool Lake Federal Fee Boundary by the Texas (DSHS 2018).

847 Groundwater

848 In general, groundwater quality in the Trinity Aquifer is fresh but very hard in the outcrop.
849 Total dissolved solids (TDS) increase from less than 1,000 milligrams per liter in the east and
850 southeast to between 1,000 and 5,000 milligrams per liter, or slightly to moderately saline, as
851 the depth of the aquifer increases. Sulfate and chloride concentrations also tend to increase
852 with depth.

853 The lower zones of the Woodbine aquifer typically yield the most water, whereas the upper
854 zone yields limited water that tends to be very high in iron. In general, water to a depth of 1,500
855 feet is fresh, containing less than 1,000 milligrams per liter of TDS. Water at depths below 1,500
856 feet is slightly to moderately saline, containing from 1,000 to 4,000 milligrams per liter of TDS.

857 **3.2.1 Alternative 1: No Action**

858 There would be no impacts on water resources as a result of implementing the No Action
859 Alternative, since there would be no change to the existing Master Plan.

860 **3.2.2 Alternative 2: Proposed Action**

861 The reclassifications and resource management objectives required for the Proposed Action
862 would allow land management and land uses to be compatible with the goals of good
863 stewardship of water resources (e.g., conservation of emergent wetlands, erosion control, and
864 maintaining good water quality); therefore, there would be no significant adverse impacts on
865 water resources.

866 **3.3 CLIMATE**

867 Joe Pool Lake lies in the north central part of the state of Texas. The region has a warm,
868 temperate, continental climate with cool winters and hot humid summers. Tropical maritime air
869 masses from the Gulf of Mexico play a dominant role in the climate from late spring through
870 early fall, while polar air masses determine the winter climate. The mean annual temperature as
871 measured at Joe Pool Lake is 69.2 degrees (°) Fahrenheit (F) between 1984 and 2017. The
872 average January minimum temperature is 29.6°F and the average August maximum
873 temperature is 102.8°F. The record low at Joe Pool Lake was -8°F and the record high was
874 113°F. The growing season (freeze-free period) is approximately 247 days, but can vary
875 significantly from year to year.

876 Annual precipitation averages roughly 36 inches per year, with precipitation levels generally
877 higher in the late-spring, early-summer months, peaking in May-June and lowest in November-
878 February. Minor accumulations of snowfall occur periodically during the winter months; however
879 snowfall does not contribute significantly to area precipitation or runoff. A large part of the
880 annual precipitation results from thunderstorm activity, with occasional very heavy rainfall over a
881 brief period. Thunderstorms occur throughout the year, but are more frequent in the late spring
882 and early summer. The major storms are from frontal-type storms that generally occur in the
883 spring and summer months, but major flooding can also be produced by intense rainfall
884 associated with localized thunderstorms.

885 The relative humidity typically ranges from 35% to 91% over the course of a year, rarely
886 dropping below 20% and reaching as high as 100%. The air is driest around the end of
887 July/early August timeframe and is most humid around early May, exceeding 87% three days
888 out of four. The average annual evaporation rate at Joe Pool Lake, as calculated using the
889 measured pan evaporation multiplied by the monthly pan coefficient, is about 54 inches with the

890 lowest evaporations rates occurring during the winter and greatest evaporation occurring during
891 the summer.

892 Predicted Climate Change

893 The U.S. Global Change Research Program (USGCRP) looks at potential impacts of climate
894 change globally, nationally, regionally, and by resource (e.g., water resources, ecosystems,
895 human health). Joe Pool Lake is within the Great Plains region of analysis. The Great Plains
896 region has already seen evidence of climate change in the form of rising temperatures that are
897 leading to increased demand for water and energy and impacts on agricultural practices. Over
898 the last few decades, the Great Plains have seen fewer cold days and more hot days, as well as
899 an overall increase in total precipitation. The decrease in the cold days has resulted in an
900 overall shortening of the frost-free season by one to two weeks. Within this region, there has
901 been an increase in average temperatures 1.5°F from a 1960-1970 baseline to the year 2000
902 (USGCRP 2014). In addition to more extreme rainfall, extreme heat events have also been
903 increasing. Most of the increases of heat wave severity in the U.S. are likely due to human
904 activity, with a detectable human influence in recent heat waves in the southern Great Plains
905 (USGCRP, 2014). In particular, in 2011, the State of Texas experienced a heat wave and
906 drought. The growing season and summer were both the hottest and driest on record. Extreme
907 heat events in Texas have also been occurring substantially more frequently.

908 This trend of rising temperatures and more frequent extreme events such as heat waves,
909 drought, and heavy rainfall is predicted to continue into the future (USGCRP 2014). The
910 USGCRP looks at two potential future conditions as part of its predictive modeling process.
911 Under conditions of lower greenhouse gas (GHG) emissions, the average temperature in the
912 Great Plains region may increase as much as 4°F by 2020, 6°F by 2050, and 8°F by 2090 from
913 averages observed in 2000. Under conditions of higher continuous GHG emissions, the
914 potential increase is greater in the long-term, and may be as much as 13.5°F by 2090.

915 **3.3.1 Alternative 1: No Action**

916 The No Action Alternative would not result in any change in management of Joe Pool project
917 land. Implementation of the 1981 MP would have no impact (beneficial or adverse) on existing
918 or future climate conditions. Current policy (Executive Orders [EO] 13693 and 13783, and
919 related USACE policy) requires project lands and recreational programs be managed in a way
920 that advances broad national climate change mitigation goals including, but not limited to,
921 climate change resilience and carbon sequestration. These policies would continue to be
922 implemented under this alternative.

923 **3.3.2 Alternative 2: Proposed Action**

924 The 2018 MP does not recommend any activities that would result in a change (beneficial or
925 adverse) in GHG emissions; therefore adoption and implementation of the Joe Pool Lake MP
926 would have no impact on the existing climate of the study area nor would it exacerbate future
927 climate conditions. Management under the 2018 MP would also follow current policy to meet
928 climate change goals as described for the No Action Alternative. Ground disturbing activities
929 that arise from guidance from this document would go through the NEPA and design process
930 prior to implementation. It is during that time, that impacts to the climate would be analyzed for
931 those ground disturbing activities.

932 **3.4 AIR QUALITY**

933 The U.S. Environmental Protection Agency (USEPA) established nationwide air quality
934 standards to protect public health and welfare in 1971. The State of Texas has adopted the
935 National Ambient Air Quality Standards (NAAQS) as the state's air quality criteria. NAAQS

936 standards specify maximum permissible short- and long-term and concentrations of various air
937 contaminants including primary and secondary standards for six criteria pollutants: Ozone (O₃),
938 Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Oxide (NO), particulate matter (PM₁₀
939 and PM_{2.5}), and Lead (Pb). If the concentrations of one or more criteria pollutants in a
940 geographic area is found to exceed the regulated “threshold” level for one or more of the
941 NAAQS, the area may be classified as a non-attainment area. Areas with concentrations that
942 are below the established NAAQS levels are considered either attainment or unclassifiable
943 areas.

944 Joe Pool Lake is located within the Metropolitan Dallas-Fort Worth Air Quality Control
945 Region (AQCR). The DFW AQCR is in attainment for all criteria air pollutants, except for O₃. The
946 DFW non-attainment area includes 10 counties (Collin, Dallas, Denton, Ellis, Johnston,
947 Kaufman, Parker, Rockwell, Tarrant, and Wise counties) being designated nonattainment and
948 classified as moderate under the 2008 eight-hour ozone NAAQS. The attainment deadline for
949 the DFW moderate non-attainment area is July 20, 2018 with a 2017 attainment year.

950 Emissions in the DFW non-attainment area come from a variety of stationary and mobile
951 sources. Approximately 70% of the region’s air pollution comes from mobile sources such as
952 cars, trucks, airplanes, construction equipment, and lawn equipment. The majority of pollutants
953 emitted from motor vehicles include VOCs, NO_x, CO, PM₁₀, and PM_{2.5}. The largest regional
954 sources of VOCs and NO_x emissions, those that contribute most to ozone levels, are non-road
955 vehicles (construction equipment, airplanes, and locomotive) and on-road vehicles (cars and
956 trucks) (TCEQ 2011).

957 **3.4.1 Alternative 1: No Action**

958 Implementation of the No Action Alternative would not result in any change to air quality in
959 the region. The 1981 MP would remain compliant with the Clean Air Act because the MP
960 includes only guidelines and does not incorporate actions which produce criteria pollutants.

961 **3.4.2 Alternative 2: Proposed Action**

962 As with the No Action Alternative, the 2018 MP would not result in any change to air
963 quality in the region. The 2018 MP does not propose any actions (i.e. ground disturbing
964 activities) that directly or indirectly produce criteria pollutants (i.e. total emissions is 0); therefore,
965 this action is compliant with the Clean Air Act and State Implementation Plan and is not subject
966 to a conformity determination because the total emissions are below *de minimus*.

967 **3.5 TOPOGRAPHY, GEOLOGY, AND SOILS**

968 Topography

969 The topography of the lands surrounding Joe Pool Lake consists of nearly flat plains to
970 gently rolling hills with a few shallow tributary valleys and broad pastures. Mountain Creek drops
971 from an elevation of about 760 feet NGVD29 at its source to 456 feet NGVD29 at the base of
972 Joe Pool Dam. The creek continues towards its confluence with the West Fork where the
973 elevation drops further to 390 feet NDVD29. To the east of the lake, a high Austin Chalk
974 limestone bluff protrudes a couple hundred feet above the Mountain Creek river channel. The
975 highest parts of the bluff range in elevation from 750 to 850 feet NGVD29, which is the highest
976 point for miles in any direction. Much of the original rolling hill topography has been modified
977 throughout the region for agriculture and urban development.

978 Geology

979 Joe Pool Lake is located in the Gulf Coastal Plain physiographic province at the eastern
980 edge of the Eagle Ford Prairie sub-province. The regional geology reflects the various
981 depositional phases and environments that took place during three periods of pre-historical

982 geologic times. The geology around Joe Pool Lake is primarily composed of three named
 983 geologic formations: Alluvium, Fluvial Terrace Deposits, and Eagle Ford Group. See Figure 2
 984 in Section 2.1.3 of the 2018 MP. The oldest shale and limestone layers were laid down during
 985 the Cretaceous Period, while the gravel, clay, sand, and silt were laid down periodically since
 986 the Cretaceous Period.

987 The Alluvium formation is composed mostly of alluvial sedimentary deposits from local
 988 creeks consisting of indistinct low terrace deposits of gravel, sand, silt, silty clay, and various
 989 forms of organic matter that were formed during the Quaternary Period. Fluvial Terrace
 990 Deposits were also formed during the Quaternary Period and consist of mostly gravel, sand,
 991 silt, and clay terrace deposits ranging in thickness from 3 to 55 feet that overlie the Eagle Ford
 992 formation in the valley near the lake. The Eagle Ford Group is a bedrock layer comprised of
 993 mainly Upper Cretaceous clay shales of the Eagle Ford formation and has a maximum
 994 thickness at Joe Pool Dam of 225 feet.

995 Soils

996 The main soil series around Joe Pool Lake is the Houston Black Series which is very thick
 997 and normally found on level to slightly sloping areas, is slowly permeable, and contains dark,
 998 fine, sticky clay. The highly expansive clays are classified as Vertisols, which shrink and swell
 999 with changes in moisture content. As the soil swells it becomes less permeable, leading to
 1000 ponding in level areas and increased runoff where there is a slope. When dry, the soil can
 1001 develop deep fissures due to the shrinkage. The soil often holds many nutrients for plants
 1002 including calcium, magnesium, and potassium. While Houston Black soil originally contained
 1003 native prairie vegetation, Houston Black soil has been used to grow sorghum, cotton, corn,
 1004 grains, and forage grasses.

1005 The Natural Resource Conservation Service (NRCS) Web Soil Survey (2018) reports 36 soil
 1006 types occurring within the Joe Pool Lake project land boundary. Table 3-3 shows the acreage
 1007 associated with each soil type in the project area. Figure 3-2 shows the location of each soil
 1008 type.

1009 **Table 3-3. Total Acres of Soil Types on Joe Pool Lake Project Lands**

Soil Type	Number of Acres
Altoga silty clay	98.06
Altoga silty clay loam	110.12
Altoga soils	26.36
Arents	10.15
Austin-Lewisville complex	1.33
Axtell fine sandy loam	6.00
Bastsil fine sandy loam	299.44
Branyon clay	666.57
Burleson clay	10.49
Chatt silty clay	41.27
Crockett fine sandy loam	243.02
Crosstell fine sandy loam	2.62
Eddy clay loam	1.16
Eddy-Whitewright complex	34.09
Ellis and Heiden clay	79.12

Soil Type	Number of Acres
Ferris clay	194.52
Ferris-Heiden complex	901.18
Frio silt clay	49.58
Gravel pits	3.04
Gullied land	11.77
Heiden and Ellis clays	1.50
Heiden clay	1,274.07
Heiden-Ferris complex	14.25
Houston Black clay	655.62
Lewisville silty clay	247.42
Navo clay loam	233.37
Normangee clay loam	3.05
Ovan clay	531.83
Pulexas fine sandy loam	194.37
Silawa fine sandy loam	405.43
Sunev clay loam	91.98
Trinity clay	750.94
Vertel clay	811.77
Whitesboro loam	280.51
Whitewright loam	65.69
Wilson clay loam	348.02
Total	15,286.98

1010

1011 Prime Farmland

1012 As required by Section 1541(b) of the Farmland Protection Policy Act (FPPA) of 1980 and
1013 1995, 7 U.S.C. 4202(b), federal and state agencies, as well as projects funded with federal
1014 funds, are required to (a) use the criteria to identify and take into account the adverse effects of
1015 their programs on the preservation of farmland, (b) consider alternative actions, as appropriate,
1016 that could lessen adverse effects, and (c) ensure that their programs, to the extent practicable,
1017 are compatible with state and units of local government and private programs and policies to
1018 protect farmland.

1019 There are several soil types in the study area that are considered prime farmland soils or
1020 soils associated with farmlands of state importance. However, the lands represented by these
1021 soil types have not been used for farming since the lands were acquired prior to the initiation of
1022 construction of Joe Pool Reservoir in December 1979.

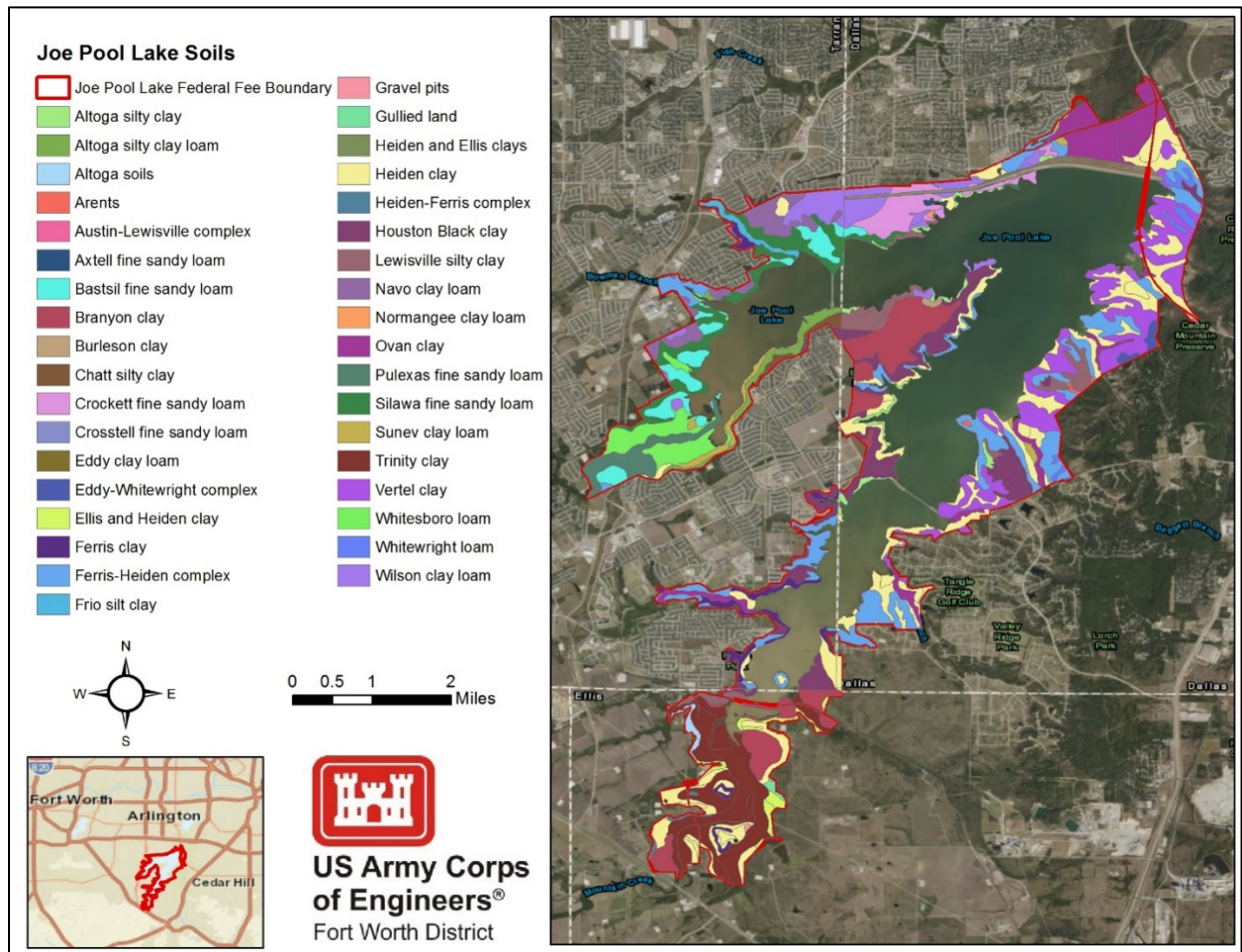
1023 **3.5.1 Alternative 1: No Action**

1024 The No Action Alternative does not involve any activities that would contribute to changes in
1025 existing conditions, so there would be no short- or long-term, minor, moderate, or major,
1026 beneficial, or adverse impacts on topography, geology, soils, or prime farmland as a result of
1027 implementing the No Action Alternative.

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1030 **Figure 3-2. Soil Types on Joe Pool Lake Project Lands.**



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3.5.2 Alternative 2: Proposed Action

1035 Topography, geology, and soils were considered during the refining process of land
1036 reclassifications for the 2018 MP. Some lands under the prior classification of Recreation-High
1037 Use were reclassified to the new and similar classification of HDR, but total acreage was
1038 reduced from 4,992 acres to 4,139 acres. This reduction is solely based on the realization that
1039 the amount of acreage originally planned for intensive recreation use per the 1981 MP
1040 significantly exceeded the amount necessary to meet public needs and was excessive and not
1041 being fully utilized. Areas currently developed as park would continue to operate as parks and
1042 no change would occur. However, some of the lands designated as Recreation – High Use
1043 would be reclassified to Wildlife Management and Environmentally Sensitive Areas to better
1044 reflect historic use patterns and current land management efforts. The conversion of these lands
1045 would have no effect on current or projected public use. Therefore, under the Proposed Action,
1046 there would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts
1047 on topography, geology, soils, or prime farmland as a result of implementing the 2018 MP.

1048

1049 **3.6 NATURAL RESOURCES**

1050 Operational civil works projects administered by USACE are required, with few exceptions,
1051 to prepare an inventory of natural resources. The basic inventory required is referred to within
1052 USACE regulations (ER and EP 1130-2-540) as a Level One Inventory. This inventory includes
1053 the following: vegetation in accordance with the National Vegetation Classification System
1054 through the sub-class level; assessment of the potential presence of special status species
1055 including but not limited to Federal and state listed endangered and threatened species,
1056 migratory species, and birds of conservation concern listed by the USFWS; land (soils)
1057 capability classes in accordance with NRCS soil surveys; and wetlands, which are previously
1058 discussed in Section 3.2. In addition to the data from the Level One Inventories, a Habitat
1059 Assessment was conducted on October 2-5, 2017 at Joe Pool Lake by an interagency team of
1060 TPWD, USFWS, and USACE biologists, foresters, and park rangers using the TPWD's Wildlife
1061 Habitat Appraisal Procedure (WHAP) to assist in the preparation of the 2018 MP. A total of 69
1062 data collection sites were selected using aerial photography and knowledge of the Joe Pool
1063 Lake staff. The four major habitat types that were selected and assessed were Mixed Forest,
1064 Deciduous Forest, Riparian Forest, and Grassland. The WHAP assessment report is included
1065 as Appendix E of the 2018 MP.

1066 Vegetation

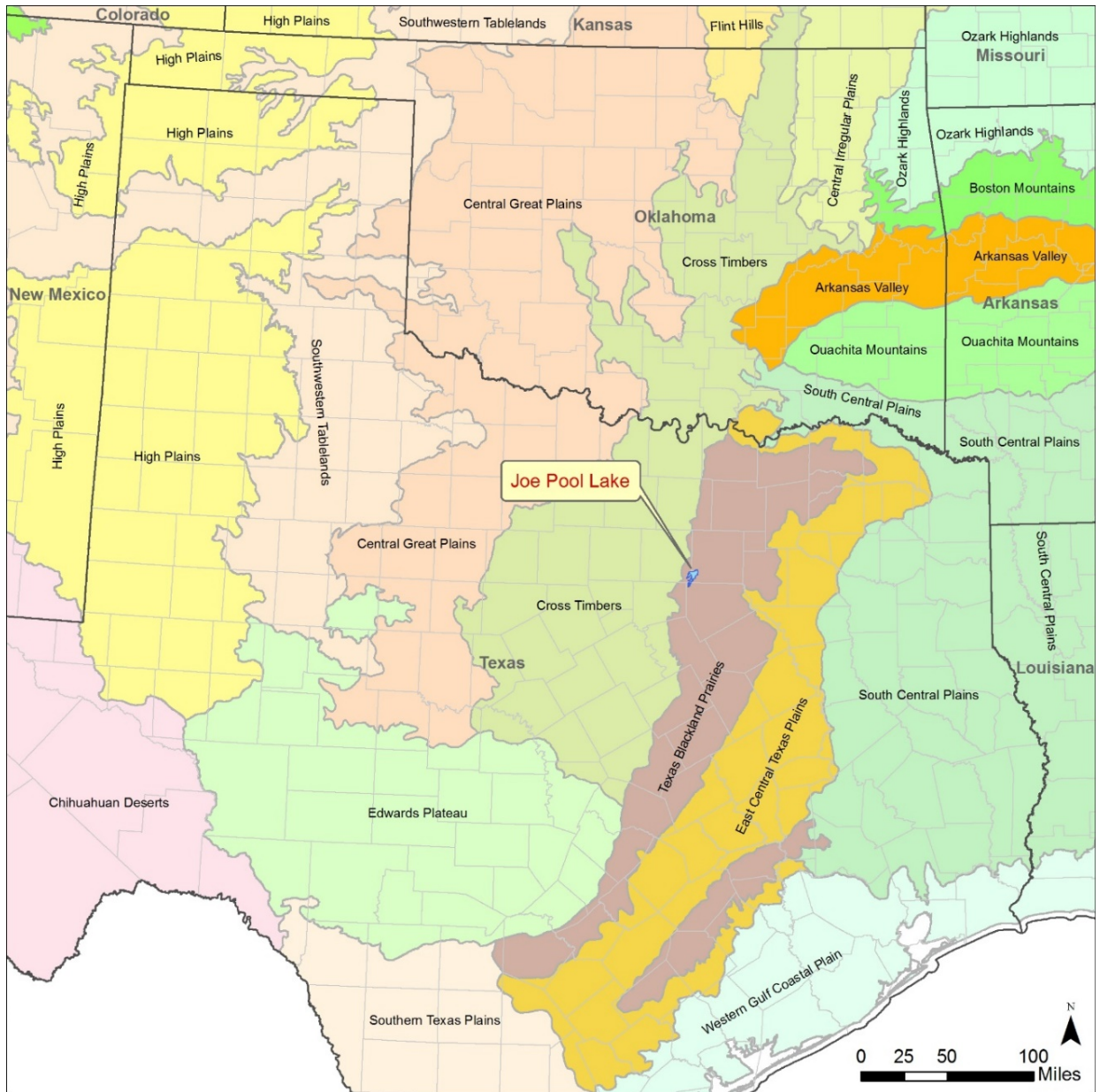
1067 Joe Pool Lake is located within the Texas Blackland Prairies ecological region, which is a
1068 disjunct ecoregion located in central Texas. The largest section of the ecoregion is mostly south
1069 to north trending, starting at San Antonio and nearly reaching the Oklahoma border north and
1070 northeast of Dallas. The other part of the Texas Blackland Prairies trends southwest to
1071 northeast, starting slightly southeast of San Antonio. This smaller, more southeastern located
1072 part of the ecoregion is commonly called the Fayette Prairie. The entire Texas Blackland
1073 Prairies ecoregion covers approximately 19,500 square miles (see Figure 3-3.).

1074 The land cover of the Texas Blackland Prairies at the beginning of the 19th century was
1075 predominately tallgrass prairie, with forest found primarily along stream courses and some
1076 uplands. The common grass and forb species include little bluestem (*Schizachyrium*
1077 *scoparium*), big bluestem (*Andropogon gerardi*), yellow Indiangrass (*Sorghastrum nutans*),
1078 switchgrass (*Panicum virgatum*), eastern gamagrass (*Tripsacum dactyloides*), tall dropseed
1079 (*Sporobolus compositus*), asters (*Aster spp.*), prairie bluet (*Stenaria nigricans*), prairie clovers
1080 (*Dalea spp.*), and coneflowers (*Echinacea spp.*). Bottomland hardwoods forest are not as
1081 prevalent, but where they occur common species include bur oak (*Quercus macrocarpa*),
1082 Shumard oak (*Quercus shumardii*), post oak (*Quercus stellata*), blackjack oak (*Quercus*
1083 *marilandica*), green ash (*Fraxinus pennsylvanica*), pecan (*Carya illinoensis*), cedar elm (*Ulmus*
1084 *crassifolia*), American elm (*Ulmus americana*), winged elm (*Ulmus alata*), sweetgum
1085 (*Liquidambar styraciflua*), sugar hackberry (*Celtis laevigata*), and eastern cottonwood (*Populus*
1086 *deltoides*). Slopes and upland forests support mesquites (*Prosopis laevigata*) and several
1087 cedars and junipers (*Juniperus spp.*), and have become more prevalent due to the absence of
1088 regular fires.

1089 Five of the most populous metropolitan areas of Texas are located in part or entirely in the
1090 Texas Blackland Prairie ecoregion. The close proximity to urban and suburban landscapes has
1091 led to many plants escaping into wild plant communities, some of which have dramatically
1092 altered the ecosystems where they have spread. Common landscape plants which are
1093 aggressive colonizers and commonly escape cultivation include privet (*Ligustrum spp.*),
1094 Chinaberry (*Melia azedarach*), Heavenly bamboo (*Nandina domestica*), Pincushions (*Scabiosa*
1095 *atropurpurea*), Chinese Tallow (*Triadica sebifera*), and Tree of Heaven (*Ailanthus altissima*).
1096 Several grasses have also been identified as aggressive and/or invasive including Bermuda

1097 grass (*Cynodon dactylon*), Bahiagrass (*Paspalum notatum*), and Johnsongrass (*Sorghum*
1098 *halepense*). Giant Salvinia (*Salvinia molesta*) and water hyacinth (*Eichhornia crassipes*) are
1099 invasive aquatic plants, and have been spreading aggressively in many USACE reservoirs.
1100 Several native plants have also become problematic due to human activities including mesquite
1101 (*Prosopis glandulosa*), whitebrush (*Aloysia grati*), yaupon (*Ilex vomitoria*), and several species
1102 of juniper (*Juniperus spp.*) [Texas Conservation Action Plan: Texas Blackland Prairies
1103 Ecoregion Handbook August 2012].

1104 **Figure 3-3. Ecoregions of Texas.**



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1109 Fisheries and Wildlife Resources

1110 Joe Pool Lake provides habitat for an abundance of fish and wildlife species. Predominant
1111 fish species in the lake are largemouth bass (*Micropterus salmoides*), channel catfish (*Ictalurus*
1112 *punctatus*), white crappie (*Pomoxis annularis*), and white bass (*Morone chrysops*). Other less
1113 prominent species include black, yellow, and striped bass; carp; blue and hybrid catfish; gar;
1114 sunfish; and trout. Several species have been stocked periodically since 1981 with bass and
1115 catfish being the most popular. There is significant fishing pressure at the lake, since it is
1116 located within one of the most populated urban metro areas in the United States, leading to
1117 fairly restrictive length and bag limits for many species.

1118 Many of the undeveloped open spaces provide habitat for wildlife including coyotes (*Canis*
1119 *latrans*), bobcats (*Lynx rufus*), eastern cottontail rabbit (*Sylvilagus floridanus*), fox squirrel
1120 (*Sciurus niger*), nine-banded armadillo (*Dasypus novemcinctus*), striped skunks (*Mephitis*
1121 *mephitis*), and raccoons (*Procyon lotor*). The area also provides habitat for a diverse range of
1122 birds and acts as a stopover for migratory birds. The entire USACE land holding at Joe Pool is
1123 located within the corporate city limits of Dallas, Grand Prairie, Cedar Hill, and Mansfield. Due to
1124 the proximity to urban development, hunting is prohibited at Joe Pool Lake.

1125 **3.6.1 Alternative 1: No Action**

1126 The No Action Alternative does not involve any activities that would contribute to changes in
1127 existing conditions; therefore, no short- or long-term, major, moderate, or minor, beneficial, or
1128 adverse impacts on natural resources would be anticipated as a result of implementing the No
1129 Action Alternative.

1130 **3.6.2 Alternative 2: Proposed Action**

1131 The reclassifications, resource management objectives, and resource plan required for the
1132 Proposed Action would allow land management and land uses to be compatible with the goals
1133 of good stewardship of natural resources. The Proposed Action would allow project lands to
1134 continue supporting the USFWS and the TPWD missions associated with wildlife conservation
1135 and implementation of operational practices that would protect and enhance wildlife and fishery
1136 populations and habitat. The addition of ESA and MRML-Wildlife Management lands protects
1137 natural resources from various types of adverse impacts such as habitat fragmentation. In
1138 addition, the Proposed Action would be compatible with conservation principles and measures
1139 to protect migratory birds as mandated by EO 13186.

1140 **3.7 THREATENED AND ENDANGERED SPECIES**

1141 The Endangered Species Act was enacted to provide a program for the preservation of
1142 endangered and threatened species and to provide protection for the ecosystems upon which
1143 these species depend for their survival. USFWS is the primary agency responsible for
1144 implementing the Endangered Species Act, and is responsible for birds and other terrestrial and
1145 freshwater species. USFWS responsibilities under the Endangered Species Act include (1) the
1146 identification of threatened and endangered species; (2) the identification of critical habitats for
1147 listed species; (3) implementation of research on, and recovery efforts for, these species; and
1148 (4) consultation with other Federal agencies concerning measures to avoid harm to listed
1149 species.

1150 An endangered species is a species officially recognized by USFWS as being in danger of
1151 extinction throughout all or a significant portion of its range. A threatened species is a species
1152 likely to become endangered within the foreseeable future throughout all or a significant portion
1153 of its range. Proposed species are those that have been formally submitted to Congress for

1154 official listing as threatened or endangered. Species may be considered eligible for listing as
 1155 endangered or threatened when any of the five following criteria occur: (1) current/imminent
 1156 destruction, modification, or curtailment of their habitat or range; (2) overuse of the species for
 1157 commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4)
 1158 inadequacy of existing regulatory mechanisms; and (5) other natural or human-induced factors
 1159 affecting their continued existence.

1160 In addition, USFWS has identified species that are candidates for listing as a result of
 1161 identified threats to their continued existence. The candidate designation includes those species
 1162 for which USFWS has sufficient information to support proposals to list as endangered or
 1163 threatened under the Endangered Species Act; however, proposed rules have not yet been
 1164 issued because such actions are precluded at present by other listing activity. Although not
 1165 afforded protection by the Endangered Species Act, candidate species may be protected under
 1166 other Federal or state laws.

1167 The USFWS's Information for Planning and Consultation (IPaC) database (2018A) lists the
 1168 threatened and endangered species, and trust resources that may occur within the Joe Pool
 1169 Lake Federal Fee Boundary (see USFWS Species List and the IPAC Report in Appendix C of
 1170 the 2018 MP). Based on the IPaC report, there are 6 Federally-listed species that could be
 1171 found at Joe Pool Lake (USFWS 2018). A list of these species is presented in Table 3-4. No
 1172 Critical Habitat has been designated within or near Joe Pool Lake. The species identified as
 1173 Threatened, Endangered or Candidate Species by TPWD that are not Federally-listed are
 1174 included in Appendix C of the 2018 Master Plan as well as a list of Species of Greatest
 1175 Conservation Need (SGCN) for the Texas Blackland Prairie Ecoregion.

1176 **Table 3-4. Federally Listed Threatened & Endangered Species with Potential to Occur at**
 1177 **Joe Pool Lake**

Common Name	Scientific Name	Federal Status	State Status
Piping Plover	<i>Charadrius melodus</i>	Threatened	Threatened
Whooping Crane	<i>Grus americana</i>	Endangered	Endangered
Least Tern	<i>Sterna antillarum</i>	Endangered	Endangered
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>	Endangered	Endangered
Black-capped Vireo	<i>Vireo atricapilla</i>	Endangered	Endangered

1178 Source: USFWS 2018

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1180 The master plan revision does not entail wind energy aspects, therefore the Red Knot
 1181 (*Calidris canutus rufa*) was intentionally left out in the above table. As such, the Red Knot will
 1182 not be addressed any further concerning possible impacts to the species.

1183 Piping Plover and Least Tern preferred habitat mostly consists of open waters, rivers, lakes,
 1184 estuaries, marshes, and swamps. Typically nesting occurs on sandy to gravely substrates
 1185 including shorelines and sandbars or other areas that are near open water. Nests are usually
 1186 above the high water line and close to vegetation (USFWS 2017 A and B). Depending on lake
 1187 levels, they both may nest along the shorelines or on exposed sandbars at Joe Pool Lake.
 1188 While pockets of habitat for these two species are present on Joe Pool Lake project lands, no
 1189 sightings have occurred in recent history, therefore they are considered a potential occurrence
 1190 at Joe Pool Lake.

1191 Whooping Crane habitat consists of marshes, shallow lakes, lagoons, salt flats, grain and
 1192 stubble fields, and barrier islands (AOU 1983, Matthews and Moseley 1990) and (NatureServe
 1193 2016). While pockets of habitat for this species are present on Joe Pool Lake project lands, no

1194 sightings have occurred in recent history, therefore they are considered a potential occurrence
 1195 at Joe Pool Lake.

1196 Golden-cheeked Warbler habitat consists of old-growth and mature regrowth Ashe juniper-
 1197 oak woodlands in rocky terrain (NatureServe 2017B). While pockets of habitat for Golden-
 1198 cheeked Warbler are present on Joe Pool Lake project lands, few sightings have occurred in
 1199 recent history, therefore they are considered a rare occurrence Joe Pool Lake.

1200 Black-capped Vireo habitat consists of low lying bushy scrub oak and juniper on rocky,
 1201 rugged terrain (NatureServe 2017A). While pockets of habitat for Black-capped Vireo are
 1202 present on Joe Pool Lake project lands, few sightings have occurred in recent history, therefore
 1203 they are considered a rare occurrence within Joe Pool Lake Federal Fee Boundary.

1204 Texas Parks and Wildlife Department’s (TPWD 2018) Annotated County Lists of Rare
 1205 Species database record the threatened and endangered species that may occur on Joe Pool
 1206 project lands (see Appendix C of the 2018 MP for the full report). Table 3-5 lists these species
 1207 including their scientific name and status with TPWD.

1208 **Table 3-5. State of Texas List of Threatened and Endangered Species with Potential to**
 1209 **Occur at Joe Pool Lake.**

Species Name (common name)	Species Name (scientific name)	State Status
Peregrine Falcon	<i>Falco peregrinus</i>	T
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	T
Whooping Crane	<i>Grus americana</i>	E
Interior Least Tern	<i>Sterna antillarum athalassos</i>	E
White-faced Ibis	<i>Plegadis chihi</i>	T
Wood Stork	<i>Mycteria americana</i>	T
Piping Plover	<i>Charadrius melodus</i>	T
Black-capped Vireo	<i>Vireo atricapilla</i>	E
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>	E
Alligator snapping turtle	<i>Macrochelys temminckii</i>	T
Shovelnose sturgeon	<i>Scaphirhynchus platyrhynchus</i>	T
Red wolf	<i>Canis rufus</i>	E
Gray wolf	<i>Canis lupus</i>	E
Texas horned lizard	<i>Phrynosoma cornutum</i>	T
Timber rattlesnake	<i>Crotalus horridus</i>	T
Texas pigtoe	<i>Fusconaia askewi</i>	T
Sandbank pocketbook	<i>Lampsilis satura</i>	T
Louisiana pigtoe	<i>Pleurobema riddellii</i>	T
Texas heelsplitter	<i>Potamilus amphichaenus</i>	T

1210 Source TPWD 2018.

1211 **Texas Natural Diversity Database**

1212 The Texas Natural Diversity Database (TXNDD), administered by TPWD, manages and
1213 disseminates information on occurrence of rare species, native plant communities, and animal
1214 aggregations in Texas to help guide project planning efforts. An email was sent on January 29,
1215 2018 requesting this information for the following USGS quadrangles that encompass Joe Pool
1216 Lake project lands: Britton, Cedar Hill, Duncanville, and Arlington. USACE received the
1217 requested information from TXNDD on February 6, 2018. The next seven paragraphs will
1218 summarize the information received.

1219 Near the Joe Pool Lake project lands, several locations were identified by the TXNDD to
1220 contain unique communities and species. Among these communities were those that contain
1221 the following: Hall's prairie clover (*Dalea hallii*), Warnock's coral-root (*Hexalectris warnockii*) and
1222 Plateau milkvine (*Matelea edwardsensis*). Additionally the following mixed plant communities
1223 can found: Ashe Juniper-Oak (*Juniperus ashei-quercus* spp.), Little Bluestem-Indiangrass
1224 (*Schizachyrium scoparium-Sorghastrum nutans*), and Cedar Elm-Sugarberry (*Ulmus crassifolia-*
1225 *Celtis laevigata*).

1226 In 1949, Hall's prairie clover was detected at a location on the project lands at Joe Pool
1227 Lake. The ideal habitat for this species is rocky, barren limestone and grasslands as well as
1228 scrub oak (NatureServe 2016B, Barneby, 1977). Because of this information and lack of recent
1229 sightings, the occurrence of this species on Joe Pool Lake project lands is considered rare.

1230 In 1986, Warnock's coral-root was detected at a location on the project lands at Joe Pool
1231 Lake. The ideal habitat for this species is of oak-juniper-pinyon pine (*Pinus sp.*) leaf litter.
1232 Because of this information and of recent sightings, the occurrence of this species on Joe Pool
1233 Lake project lands is not considered unusual (NatureServe 2016C).

1234 In 1995 the last recorded siting of Plateau milkvine was published. The species prefers to
1235 live in stony or gravelly soils in open woodlands, climbing on other plants (Lady Bird Johnson
1236 Wildflower Center plant database 2018). Because of this information and lack of recent
1237 sightings, the occurrence of this species on Joe Pool Lake project lands is considered rare.

1238 The TXNDD reports and the data collected from the WHAP survey confirms that Ashe
1239 Juniper-Oak, Little Bluestem-Indiangrass mixed plant communities can be found on the project
1240 lands at Joe Pool Lake; thus, the occurrence of these communities on project lands is
1241 considered common. The mixed plant community of Cedar Elm-Sugarberry reported in the
1242 TXNDD Report, confirmed from data collected for the WHAP report, is limited to a sliver of land
1243 in the northeast portion of Joe Pool Lake project lands. In the vicinity of Joe Pool Lake project
1244 lands, several patches of native blackland prairie have been recorded (TXNDD 2018).

1245 **3.7.1 Alternative 1: No Action**

1246 The No Action Alternative does not involve any activities that would contribute to changes in
1247 existing conditions; therefore, no short- or long-term, major, moderate, or minor, beneficial, or
1248 adverse impacts on threatened and endangered species would be anticipated as a result of
1249 implementing the No Action Alternative.

1250 **3.7.2 Alternative 2: Proposed Action**

1251 Under the Proposed Action, the USACE would continue cooperative management plans
1252 with the USFWS and TPWD to preserve, enhance, and protect vegetation and wildlife habitat

1253 resources. To further management opportunities and beneficially impact habitat diversity, the
 1254 reclassifications proposed in the 2018 MP include 1,507 acres as ESAs. Under this
 1255 reclassification, several land parcels previously classified as Recreation -High Use, Rec/Wildlife
 1256 Management – Low Use, and Project Operations lands were converted to ESAs in order to
 1257 recognize those areas having the highest ecological value and to ensure they are given the
 1258 highest order of protection among possible land classifications. The conversion of these lands
 1259 was supported by recommendations from the USFWS, TPWD, and the City of Grand Prairie
 1260 and would have no effect on current or projected public use. However, long-term, beneficial
 1261 impacts on natural resources could occur as a result of implementing the reclassifications
 1262 outlined in the 2018 MP. Any future activities that could potentially result in impacts on federally
 1263 listed species will be coordinated with USFWS through Section 7 of the Endangered Species
 1264 Act.

1265 **3.8 INVASIVE SPECIES**

1266 An invasive species is defined as a plant or animal that is non-native (or native nuisance) to
 1267 an ecosystem and whose introduction causes, or is likely to cause, economic and/or
 1268 environmental harm, or harm to human health. Invasive species can thrive in areas beyond their
 1269 normal range of dispersal. These species are characteristically adaptable, aggressive, and have
 1270 high reproductive capacity. Their vigor, along with a lack of natural enemies or controls, often
 1271 leads to outbreak populations with some level of negative effects on native plants, animals, and
 1272 ecosystem functions and are often associated with disturbed ecosystems and human activities.

1273 Table 3-6 lists many of the invasive and exotic species found at Joe Pool Lake. Other
 1274 species are currently being researched for their invasive characteristics, while there may be
 1275 debate on whether other species should be considered invasive.

1276 **Table 3-6. Invasive Species Found at Joe Pool Lake**

Common Name	Scientific Name	Native/Non-native
Birds		
Brown-headed cowbird	<i>Passer domesticus</i>	Non-native
Common starling (also called European starling)	<i>Stumus vulgaris</i>	Non-Native
House sparrow	<i>Molothrus ater</i>	Native aggressive
Mammals		
Feral cats	<i>Felis silvestris</i>	Non-native
Feral hog	<i>Sus scrofa</i>	Non-native
Mollusks		
Zebra mussel	<i>Dreissena polymorpha</i>	Non-native
Insects		
Red Imported Fire Ant	<i>Solenopsis invicta</i>	Non-native
Plants		
Bahiagrass	<i>Paspalum notatum</i>	Non-native
Bermudagrass	<i>Cynodon dactylon</i>	Non-native
Chinaberry	<i>Melia azedarach</i>	Non-native
Chinese Tallow Tree	<i>Triadica sebifera</i>	Non-native
Giant reed	<i>Arundo donax</i>	Non-native

Common Name	Scientific Name	Native/Non-native
Giant salvinia	<i>Salvinia molesta</i>	Non-native
Heavenly bamboo	<i>Nandina domestica</i>	Non-native
Hydrilla	<i>Hydrilla verticillata</i>	Non-native
Johnson grass	<i>Sorghum halepense</i>	Non-native
Juniper & Cypress	<i>Juniperus spp.</i>	Native aggressive
King Ranch Bluestem	<i>Bothriochloa ischaemum var. songarcia</i>	Non-native
Mediterranean mustard	<i>Hirschfeldia incana</i>	Non-native
Mesquite	<i>Prosopis glandulosa</i>	Native aggressive
Pincushions	<i>Scabiosa atropurpurea</i>	Non-native
Privet	<i>Ligustrum spp. (several)</i>	Non-native
Tree of Heaven	<i>Ailanthus altissima</i>	Non-native
Water hyacinth	<i>Eichhornia crassipes</i>	Non-native
Whitebrush	<i>Aloysia grati</i>	Native aggressive
Yellow Sour Clover	<i>Melilotus indicus</i>	Non-native

Source: Texas Conservation Action Plan: Texas Blackland Prairies Ecoregion Handbook August 2012

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Because of the large expanse of metropolitan areas located in the Texas Blackland Prairie ecoregion, it has led to a greater number of invasive species than most other regions of the state. Feral and free-ranging pets (cats and dogs, in particular) have made a significant impact on populations of small mammals, reptiles, and birds. Across the entire ecosystem, feral hogs (*Sus scrofa*) have decimated several fragile habitats and can change topography and worsen erosion in areas with large hog populations.

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Other invasive animals include red imported fire ants (RIFA, *Solenopsis invicta*), several species of introduced fish (including released baitfish and “aquarium dumping”), house sparrows (*Passer domesticus*), common starlings (*Sturnus vulgaris*), and mollusks including zebra mussels (*Dreissena polymorpha*). Although native, cowbirds (*Molothrus ater*) have become problematic due to their expanding range associated with agriculture and human development. The close proximity to urban landscaping has led to many common landscape plants becoming aggressive colonizers and become invasive at Joe Pool Lake.

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3.8.1 Alternative 1: No Action

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The No Action Alternative does not involve any activities that would contribute to changes in existing conditions, so Joe Pool Lake would continue to be managed according to the existing invasive species management practices. There would be no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts from invasive species as a result of implementing the No Action Alternative.

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3.8.2 Alternative 2: Proposed Action

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The land reclassifications, resource objectives, and resource plan required to revise the Joe Pool Lake MP are compatible with the lake’s invasive species monitoring and management practices (see Chapter 3 in 2018 MP). Therefore, invasive species would continue to be managed, and no significant adverse impacts on resources would occur as a result of implementing the 2018 MP.

1304 **3.9 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES**

1305 Cultural History Sequence

1306 The earliest known Native American civilization within the Joe Pool Lake area is
1307 documented to have occurred about 12,000 years before present. Evidence suggests that the
1308 region was occupied by small groups of highly mobile hunter-gatherers that traveled over very
1309 large territories. Traditionally thought of as big-game hunters, more recent evidence indicates
1310 Paleo-Indians exploited a much broader range of animal and plant resources.

1311 Local tradition holds that Native Americans of the Caddo Nation inhabited the Joe Pool Lake
1312 area prior to the arrival of the first white settlers in the early 1840s. The majority of these early
1313 settlers were farmers operating small family farms growing mainly wheat and corn. The
1314 population grew steadily between the 1840s and 1870s. After the Civil War, cotton farming
1315 became an important agricultural activity in the region and tenant farming was a major social
1316 institution. The arrival of the railroads in the early 1870s allowed farmers access to markets and
1317 led to a major increase in the number of farms. Many of the historic resources at Joe Pool Lake
1318 are archeological remains of house sites and farmsteads dating from the late 19th century
1319 through the mid-20th century. The cultural, historical, and archaeological resources are
1320 described in detail in Section 2.3 of the 2018 MP and are incorporated herein by reference.

1321 Previous Investigations

1322 Initial archeological surveys at Joe Pool Lake were conducted by Southern Methodist
1323 University (SMU) in 1977 and 1978. During those surveys, 40 archeological sites were recorded
1324 (15 prehistoric, 23 historic, and two with both prehistoric and historic components). In 1979 and
1325 1980, SMU conducted test excavations at 16 prehistoric sites and crews from North Texas State
1326 University investigated 23 historic period sites.

1327 In 1985 and 1986, SMU conducted data recovery investigations at five prehistoric sites and
1328 13 historic sites. During this same period, SMU located and recorded 12 historic home sites
1329 based on locations shown on historic maps. Limited survey work since then has added to the
1330 number of known archeological sites.

1331 Recorded Cultural Resources

1332 Currently, 60 archeological sites have been recorded at Joe Pool Lake. Seven of these sites
1333 have been determined eligible for the National Register of Historic Places (NRHP) and 44 sites
1334 have been determined ineligible. The remaining nine sites have not yet been evaluated for
1335 NRHP eligibility. Surveys conducted in the 1970s were not systematic and may not considered
1336 adequate by today's standards.

1337 Cultural Resource Management at Joe Pool Lake

1338 Numerous cultural resources laws establish the importance of cultural resources to our
1339 Nation's heritage. With the passage of these laws, the historical intent of Congress has been to
1340 ensure that the Federal government protects cultural resources. Stewardship of cultural
1341 resources on USACE Civil Works water resources projects is an important part of the overall
1342 Federal responsibility.

1343 As funding allows, a Cultural Resources Management Plan (CRMP) shall be developed and
1344 incorporated into the Operational Management Plan in accordance with EP 1130-2-540. The
1345 purpose of the CRMP is to provide a comprehensive program to direct the historic preservation
1346 activities and objectives at Joe Pool Lake. Completion of a full inventory of cultural resources at
1347 Joe Pool Lake is a long-term objective that is needed for compliance with Section 110 of the
1348 National Historic Preservation Act (NHPA).

1349 **3.9.1 Alternative 1: No Action**

1350 There would be no additional short- or long-term, minor, moderate, or major, beneficial, or
1351 adverse impacts on cultural, historical, or archaeological resources as a result of implementing
1352 the No Action Alternative, as there would be no changes to the existing Master Plan.

1353 **3.9.2 Alternative 2: Proposed Action**

1354 Impacts on cultural, historical, and archaeological resources were considered during the
1355 refinement processes of land reclassifications. Based on previous surveys at Joe Pool Lake, the
1356 required reclassifications, resource objectives, and resource plan would not change current
1357 cultural resource management plans or alter areas where these resources exist. All future
1358 activities would be coordinated with the State Historic Preservation Officer and federally
1359 recognized Tribes to ensure compliance with Section 106 of the NHPA, the Archaeological
1360 Resources Protection Act, and the Native American Graves Protection and Repatriation Act.
1361 Therefore, no significant adverse impacts on cultural, historical, or archaeological resources
1362 would occur as a result of implementing the 2018 MP.

1363 **3.10 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

1364 Located primarily within the southwest portion of Dallas County and extending into Tarrant
1365 and Ellis counties, the primary zone of interest (ZOI) for socio-economic analysis of Joe Pool
1366 Lake is defined as those counties surrounding the lake, which are Dallas, Ellis, Tarrant, and
1367 Johnson Counties, in north central Texas. The population, education level, employment rates,
1368 income, and household characteristics of the area are discussed in detail in Section 2.4 of the
1369 2018 MP and are incorporated herein by reference (USACE, 2018).

1370 Environmental Justice

1371 EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
1372 *Low-Income Populations*, was issued by President Clinton on 11 February 1994. It was intended
1373 to ensure that proposed Federal actions do not have disproportionately high and adverse
1374 human health and environmental effects on minority and low-income populations and to ensure
1375 greater public participation by minority and low-income populations. It requires each agency to
1376 develop an agency-wide environmental justice strategy. A Presidential Transmittal
1377 Memorandum issued with the EO states that “each Federal agency shall analyze the
1378 environmental effects, including human health, economic and social effects, of Federal actions,
1379 including effects on minority communities and low-income communities, when such analysis is
1380 required by the NEPA 42 U.S.C. section 4321, et seq.”

1381 EO 12898 does not provide guidelines as to how to determine concentrations of minority or
1382 low-income populations. However, analysis of demographic data on race and ethnicity and
1383 poverty provides information on minority and low-income populations that could be affected by
1384 the proposed actions. The U.S. Census American Community Survey provides the most recent
1385 estimates available for race, ethnicity, and poverty. Minority populations are those persons who
1386 identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native,
1387 Pacific Islander, or Other. Poverty status is used to define low-income. Poverty is defined as the
1388 number of people with income below poverty level, which was \$24,588 for a family of four in
1389 2017, according to the U.S. Census Bureau. A potential disproportionate impact may occur
1390 when the minority in the study area exceeds 50 percent or when the percent minority and/or
1391 low-income in the study area are meaningfully greater than those in the region.

1392 Protection of Children

1393 EO 13045 requires each Federal agency “to identify and assess environmental health risks
1394 and safety risks that may disproportionately affect children” and “ensure that its policies,

1395 programs, activities, and standards address disproportionate risks to children that result from
 1396 environmental health risks or safety risks.” This EO was prompted by the recognition that
 1397 children, still undergoing physiological growth and development, are more sensitive to adverse
 1398 environmental health and safety risks than adults. The potential for impacts on the health and
 1399 safety of children is greater where projects are located near residential areas. The U.S. Census
 1400 estimates show that persons under 18 years of age range from 27.3 percent of the population in
 1401 Johnson County and in the State of Texas to 27.6 percent in Dallas County, 28.0 percent in
 1402 Tarrant County, and 29.0 percent of the population in Ellis County (U.S. Census Bureau 2015d).

1403 Johnson and Ellis counties in the zone of interest have substantially lower minority
 1404 populations than the State of Texas, while Dallas and Tarrant counties are greater than the
 1405 State percentage (see Table 3-7), and all have minority populations that are below 50 percent.
 1406 In Tarrant, Johnson, and Ellis counties, the percentage of the population living in poverty and
 1407 children under 18 living in poverty is less than in the State of Texas. Dallas County’s percentage
 1408 of all ages and children under 18 living in poverty is higher than for the State of Texas.

1409 **Table 3-7. Minority and Poverty Percentages for State of Texas and Counties in the ZOI**

	Minority Population (Percent)	All Ages in Poverty (Percent)	Under 18 in Poverty (Percent)
Texas	29.6	16.7	23.9
Dallas County	46.5	18.6	28.3
Tarrant County	33.4	14.4	20.7
Johnson County	12.8	12.1	16.9
Ellis County	21.4	11.0	15.2
Zone of Interest Average Total	28.5	14.0	20.3

1410 Sources: 2016 U.S. Census Bureau Statistics

1411 **3.10.1 Alternative 1: No Action**

1412 Under the No Action Alternative, there would be no changes to the existing MP, with the
 1413 USACE, TPWD, and the City of Grand Prairie continuing to manage Joe Pool Lake’s natural
 1414 resources as set forth in the 1981 MP. There would be no short- or long-term, minor, moderate,
 1415 or major adverse impacts on socioeconomic resources. Existing beneficial socioeconomic
 1416 impacts would continue, as visitors would continue to come to the lake from surrounding areas.
 1417 In addition to camping, many visitors purchase goods such as groceries, fuel, and camping
 1418 supplies locally, eat in local restaurants, stay in local hotels and resorts, play golf at local golf
 1419 courses, and shop in local retail establishments. These activities would continue to bring
 1420 revenues to local companies, provide jobs for local residents, and generate local and state tax
 1421 revenues. There would be no disproportionately high or adverse impacts on minority or low-
 1422 income populations or children with the implementation of the No Action Alternative.

1423 **3.10.2 Alternative 2: Proposed Action**

1424 Under the Proposed Action, the land reclassifications, resources objectives, and resource
 1425 plan reflect changes in land management and land uses that have occurred since 1981. Joe
 1426 Pool Lake offers a variety of recreational opportunities for visitors. It is beneficial to the local
 1427 economy through direct and indirect job creation and local spending by visitors. Beneficial
 1428 impacts would be similar to the No Action Alternative. There would be no adverse impacts on

1429 economy in the area and no disproportionately high or adverse impacts on minority or low-
1430 income populations or children as a result of the Proposed Action.

1431 **3.11 RECREATION**

1432 Because six of the eight reservoirs in the Upper Trinity River system are located within the
1433 Dallas-Fort Worth Metroplex, the majority of the visitors to Joe Pool Lake come from within a
1434 30 mile radius, thus from Dallas, Tarrant, Ellis and Johnson counties. These visitors are a
1435 diverse group of people with a wide variety of interests. Examples of visitors include campers
1436 who utilize the City of Grand Prairie and TPWD operated campgrounds around the reservoir;
1437 adjacent residents; anglers who fish for recreation or participate in fishing tournaments; marina
1438 customers who utilize the marina on the reservoir; and day users who picnic, hike, bird watch,
1439 and bicycle. Recreational facilities, activities, and needs are discussed in detail in Section 2.5
1440 of the 2018 Master Plan.

1441 **3.11.1 Alternative 1: No Action**

1442 Under the No Action Alternative, there would be no short- or long-term, minor, moderate, or
1443 major, beneficial, or adverse impacts on recreational resources, as there would be no changes
1444 to the existing MP.

1445 **3.11.2 Alternative 2: Proposed Action**

1446 Joe Pool Lake is beneficial to the local visitors and also offers a variety of recreational
1447 opportunities. Even though the amount of acreage available for High Density and Low Density
1448 Recreation would decrease with implementation of the 2018 MP, these land reclassifications
1449 reflect changes in land management and land uses that have occurred since 1981 at Joe Pool
1450 Lake. The conversion of these lands would have no effect on current or projected public use.
1451 Therefore, no adverse impacts on area recreational resources would result from the revision of
1452 the Joe Pool Lake Master Plan.

1453 **3.12 AESTHETIC RESOURCES**

1454 Joe Pool Lake and surrounding federal lands offer public, open space value and scenic
1455 vistas that are unique to the region. Natural Resources Management objectives will continue to
1456 minimize activities which would disturb the scenic beauty and aesthetics of the lake.

1457 **3.12.1 Alternative 1: No Action**

1458 There would be no short- or long-term, minor, moderate, or major, beneficial, or adverse
1459 impacts on visual resources as a result of implementing the No Action Alternative, as there
1460 would be no changes to the existing MP.

1461 **3.12.2 Alternative 2: Proposed Action**

1462 Joe Pool Lake currently plays a pivotal role in availability of parks and open space in Dallas,
1463 Tarrant, Ellis, and Johnson counties. Even though the amount of acreage available for HDR
1464 reduces from 4,992 to 4,139 and MRML – LDR, MRML-WM, and MRML-VM from 3,360 to
1465 2,732 with implementation of the 2018 Master Plan, these land reclassifications reflect changes
1466 in land management and land uses that have occurred since 1981 at Joe Pool Lake. The
1467 conversion of these lands would have no effect on current or projected public use or visual
1468 aesthetics. Furthermore, the increase in the acreage of land classified as ESAs and MRML –
1469 Wildlife Management would protect lands that are aesthetically pleasing and available for
1470 passive recreation activity Joe Pool Lake and limit future development. Therefore, no adverse
1471 impacts on visual resources would result from implementation of the 2018 MP.

1472 **3.13 HAZARDOUS MATERIALS AND SOLID WASTE**

1473 This section describes existing conditions within the Joe Pool Lake area with regard to
1474 potential environmental contamination and the sources of releases to the environment.
1475 Contaminants could enter the Joe Pool Lake environment via air or water pathways. The
1476 highways and roads, marinas, and private residences in the vicinity of the lake could also
1477 provide sources of contaminants. There is one marina at Joe Pool Lake that provides boat
1478 fueling service. The fuel dock is regulated by the U.S. Coast Guard (USCG) with regard to spill
1479 containment and cleanup requirements. There have been no major releases of boating fuel to
1480 the lake. There are also numerous public campgrounds/resorts and recreation areas/parks
1481 around the lake that could contribute small amounts of hazardous materials and waste to the
1482 watershed. Illegal trash dumping on project lands by individuals and businesses is a persistent
1483 problem. USACE and area law enforcement officials work cooperatively to apprehend those
1484 responsible for illegal trash dumping.

1485 Golf courses, numerous private residences, and commercial facilities also surround the lake
1486 shores, and fertilizer and pesticide/herbicide use at those locations could contribute minor
1487 amounts of hazardous materials to the lake. Public trash and garbage pickup and disposal is
1488 provided for all properties around Joe Pool Lake by commercial solid waste removal
1489 contractors.

1490 **3.13.1 Alternative 1: No Action**

1491 There would be no short- or long-term, minor, moderate, or major, beneficial, or adverse
1492 impacts on hazardous, toxic, radioactive, or solid wastes as a result of implementing the No
1493 Action Alternative, as there would be no changes to the existing MP.

1494 **3.13.2 Alternative 2: Proposed Action**

1495 The land reclassifications proposed by the 2018 MP would be compatible with Joe Pool
1496 Lake's hazardous and toxic waste and solid waste management practices. Therefore, no short-
1497 or long-term, minor, moderate, or major, beneficial, or adverse impacts due to hazardous, toxic,
1498 radioactive, or solid wastes would occur as a result of implementing the 2018 MP.

1499 **3.14 HEALTH AND SAFETY**

1500 As mentioned earlier in this document, Joe Pool Lake's authorized purposes include flood
1501 risk management, water conservation, and recreation. Compatible uses incorporated in project
1502 operation management plans include conservation and fish and wildlife habitat management
1503 components. The USACE, with some assistance from the TPWD and USFWS, has established
1504 public outreach programs to educate the public on water safety and conservation of natural
1505 resources. In addition to the water safety outreach programs, the project has established
1506 recreation management practices in place to protect the public. These include safe boating and
1507 swimming regulations, and speed limit and pedestrian signs for park roads. Joe Pool Lake also
1508 has solid waste management plans in place for camping and day use areas that are maintained
1509 by the respective partners that hold the lease.

1510 **3.14.1 Alternative 1: No Action**

1511 Under the No Action Alternative, the Joe Pool MP would not be revised. No significant
1512 adverse impacts on human health or safety would be anticipated.

1513 **3.14.2 Alternative 2: Proposed Action**

1514 Under the Proposed Action, the proposed revisions to the Joe Pool Lake MP classifications
1515 of Restricted surface water (24 acres) and Designated No-Wake areas (103 acres) would
1516 maintain and in some cases, improve boating safety near the Joe Pool Dam intake structure

1517 and key recreational water access areas such as boat ramps and designated swimming areas.
1518 The project would continue to have reporting guidelines in place should water quality become a
1519 threat to public health. Existing regulations and safety programs throughout the Joe Pool Lake
1520 project area would continue to be enforced to ensure public safety. There would be no short- or
1521 long-term, minor, moderate, or major, adverse impacts on public health and safety as a result of
1522 implementing the Proposed Action.

1523 **3.15 SUMMARY OF CONSEQUENCES AND BENEFITS**

1524 Table 3-8 provides a tabular summary of the consequences and benefits for the No Action
1525 and Proposed Action alternatives for each of the 15 assessed resource categories.

1526

1527 Table 3-8. Summary of Consequences and Benefits

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Land Use	No effect on private lands. Emphasis is on protection of wildlife and environmental values on USACE land and maintaining current level of developed recreation facilities.	Fails to recognize recreation trends and regional natural resource priorities.	Recognizes recreation trends and regional natural resource priorities identified by USACE, TPWD, and public comment.	Land classification changes and new resource objectives fully recognize passive use recreation trends and regional environmental values.
Water Resources Including Groundwater, Wetlands, and Water Quality	Minor change to recognize value of wetlands.	Fails to recognize the water quality benefits of good land stewardship and need to protect wetlands.	Promotes restoration and protection of wetlands and good land stewardship.	Specific resource objective promotes restoration and protection of wetlands.
Climate	Minor change to recognize need for sustainable, energy efficient design.	Fails to promote sustainable, energy efficient design.	Promotes land management practices and design standards that promote sustainability.	Specific resource objectives promote national climate change mitigation goal. LEED standards for green design, construction, and operation activities will be employed to the extent practicable.
Climate Change and Greenhouse Gases	Same as for Climate	Same as for Climate	Same as for Climate	Same as for Climate
Air Quality	Negligible change to help reduce air emissions.	No effect	Promotes activities and goals that will help to reduce emissions	Reduces HDR and MRML-LDR acres, which in turn reduces the motor vehicle exhaust that is produced. New resource objectives also help to reduce emissions.
Topography, Geology and Soils	Minor change to place emphasis on good stewardship of land and water resources.	Fails to specifically recognize known and potential soil erosion problems.	Encourages good stewardship that would reduce existing and potential erosion.	Specific resource objectives call for stopping erosion from overuse and land disturbing activities.

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Natural Resources	Moderate benefits through land reclassification and resource objectives.	Fails to recognize ESAs, and regional priorities calling for protection of important wildlife and vegetation habitat.	Gives full recognition of sensitive resources and regional trends and priorities related to natural resources.	Reclassification of lands included 1,507 acres of ESA and an increase in lands emphasizing wildlife management.
Threatened and Endangered Species, including TXNDD species.	Moderate benefits from recognizing both federal and state-listed species.	Fails to recognize current federal and state-listed species.	Fully recognizes federal and state-listed species as well as TXNDD species listed by TPWD.	The master plan sets forth the most recent listing of federal and state-listed species and addresses on-going commitments associated with USFWS Biological Opinions.
Invasive Species	Minor change to recognize several recent and potentially aggressive invasive species.	Fails to recognize current invasive species and associated problems.	Fully recognizes current species and the need to be vigilant as new species may occur.	Specific resource objectives specify that invasive species shall be monitored and controlled as needed.
Cultural Resources	Minor change to recognize current status of cultural resources.	Included cursory information about cultural resources that is inadequate for future management and protection.	Recognizes the presence of cultural resources and places emphasis on protection and management.	Reclassification of lands and specific resource objectives were included for protection of cultural resources.
Socioeconomics and Environmental Justice	No change	No effect	No effect	No added benefit
Recreation	Moderate benefits to outdoor recreation programs.	Fails to recognize current outdoor recreation trends.	Fully recognizes current outdoor recreation trends and places special emphasis on trails.	Specific management objectives focused on outdoor recreation opportunities and trends are included.

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Aesthetic Resources	Minor benefits through land reclassification and resource objectives.	Fails to minimize activities that disturb the scenic beauty and aesthetics of the lake.	Promotes activities that limit disturbance to the scenic beauty and aesthetics of the lake.	No added benefit Specific management objectives to minimize activities that disturb the scenic beauty and aesthetics of the lake.
Hazardous, Toxic, Radioactive Wastes	Minor to moderate benefits to HTRW issues by limiting HDR usage on ESA and WM areas.	Fails to recognize current HTRW problems associated with incompatible recreation use on WM areas.	Fully recognizes compatible use activities and limits those recreational activities that would be detrimental to the designated land use classifications.	Specific management objectives focused on outdoor recreation opportunities and trends that are compatible with the designated land used classifications and limits those that are not.
Health and Safety	Minor change to promote public safety awareness.	Fails to emphasize public safety programs.	Recognizes the need for public safety programs.	Includes specific management objectives to increase water safety outreach efforts. Also, classifies 528 acres of water surface as restricted and designated no-wake for public safety purposes.

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1548 **SECTION 4: CUMULATIVE IMPACTS**

1549 The most severe environmental degradation may not result from the direct effects of any
1550 particular action, but from the combination of effects of multiple, independent actions over time.
1551 As defined in 40 CFR 1508.7 (CEQ Regulations), a cumulative effect is the impact on the
1552 environment which results from the incremental impact of the action when added to other past,
1553 present, and reasonably foreseeable future actions regardless of what agency (Federal or non-
1554 Federal) or person undertakes such other actions.

1555 By Memorandum dated June 24, 2005, from the Chairman of the CEQ to the Heads of
1556 Federal Agencies, entitled "Guidance on the Consideration of Past Actions in Cumulative
1557 Effects Analysis", CEQ made clear its interpretation that "...generally, agencies can conduct an
1558 adequate cumulative effects analysis by focusing on the current aggregate effects of past
1559 actions without delving into the historical details of individual past actions..." and that the
1560 "...CEQ regulations do not require agencies to catalogue or exhaustively list and analyze all
1561 individual past actions." This cumulative impacts analysis summarizes expected environmental
1562 impacts from the combined impacts of past, current, and reasonably foreseeable future activities
1563 affecting any part of the human or natural environments impacted by the Proposed Action.

1564 **4.1 PAST IMPACTS WITHIN THE ZONE OF INTEREST**

1565 Joe Pool Lake was authorized for construction in 1965 as a multi-purpose reservoir for flood
1566 control, water conservation, recreation and fish and wildlife as contained in the River and Harbor
1567 Act of 1965 (PL 89-298, in accordance with the total plan of improvement for the Trinity River as
1568 outlined in House Document 276 (89th Congress, 1st Session). Construction of Joe Pool Dam
1569 began December 6, 1979, and was completed in May 1986. Deliberate impoundment began in
1570 January 1986 and the conservation pool was filled in May 1989. The total project area at Joe
1571 Pool Lake encompasses 15,067 acres, including the 6,707 acres of surface water at normal
1572 pool elevation of 522.0 NGVD29. The entire 15,067 acres were acquired in fee simple title by
1573 USACE with perpetual Flowage Easements on an additional 1,904 acres up to elevation 541.0
1574 NGVD29.

1575 **4.2 CURRENT AND REASONABLY FORESEEABLE PROJECTS WITHIN AND NEAR**
1576 **THE ZONE OF INTEREST**

1577 Future management of the 1,904 acres of Flowage Easement Lands at Joe Pool Lake
1578 includes routine inspection of these areas to ensure that the Government's rights specified in
1579 the easement deeds are protected. In almost all cases, the Government acquired the right to
1580 prevent placement of fill material or habitable structures on the easement area. Placement of
1581 any structure that may interfere with the USACE flood risk management and water conservation
1582 missions may also be prohibited.

1583 The North Central Texas Council of Governments (NCTCOG) coordinates with cities,
1584 counties and transportation partners to plan road, transit, bicycle and pedestrian transportation
1585 improvements for 16 counties comprising the NCTCOG and serves as the Metropolitan
1586 Planning Organization for the Dallas-Fort Worth Area. NCTCOG's Mobility 2040 plan was used
1587 as a reference document for this Master Plan. Items recommended for implementation in the
1588 Mobility 2040 plan that are of significance to the area surrounding Joe Pool Lake include the
1589 following:

- 1590 • Widening Lakeridge Parkway, a regionally important arterial, from the current 2
1591 lanes to 6 lanes by 2040
- 1592 • Widening Camp Wisdom Road, a regionally important arterial, from the current
1593 2 lanes to 4 lanes by 2040
- 1594 • Construction of light rail lines that roughly parallel US 287 on the south side of
1595 the lake and US 67 on the east side of the lake

- 1596 • Addition of new or additional toll road capacity to SH 360 on the west side of the
1597 lake
- 1598 • Adding links to the Regional Veloweb that will serve the area encircling Joe
1599 Pool Lake.

1600 National USACE policy set forth in ER 1130-2-550, Appendix H, states that USACE lands
1601 will, in most cases, only be made available for roads that are regional arterials or freeways (as
1602 defined in ER 1130-2-550). All other types of proposed roads, including driveways and alleys,
1603 are generally not permitted on USACE lands. The proposed expansion or widening of existing
1604 roadways on USACE lands will be considered on a case-by-case basis.

1605 **4.3 ANALYSIS OF CUMULATIVE IMPACTS**

1606 Impacts on each resource were analyzed according to how other actions and projects within
1607 the zone of interest might be affected by the No Action Alternative and Proposed Action.
1608 Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in
1609 the environment. For the purpose of this analysis the intensity of impacts will be classified as
1610 negligible, minor, moderate, or major. These intensity thresholds were previously defined in
1611 Section 3.0. Moderate growth and development are expected to continue in the vicinity of Joe
1612 Pool Lake and cumulative adverse impacts on resources would not be expected when added to
1613 the impacts of activities associated with the Proposed Action or No Action Alternative. A
1614 summary of the anticipated cumulative impacts on each resource is presented below.

1615 **4.3.1 Land Use**

1616 A major impact would occur if any action is inconsistent with adopted land use plans or if an
1617 action would substantially alter those resources required for, supporting, or benefiting the
1618 current use. Land use around Joe Pool Lake has experienced little change since it is almost all
1619 urbanized. Under the No Action Alternative, land use would not change. Although the Proposed
1620 Action would result in the reclassification of project lands, the reclassifications were developed
1621 to help fulfill regional goals associated with good stewardship of land resources that would allow
1622 for continued use of project lands.

1623 Section 6.1 of the 2018 Master Plan also identifies the need and location for proposed utility
1624 corridors. The purpose of utility corridors is to condense the footprint and associate impacts of
1625 any future roads and utilities crossings on USACE lands. Therefore, cumulative impacts on land
1626 use within the area surrounding Joe Pool Lake, when combined with past and proposed actions
1627 in the region, are anticipated to be negligible.

1628 **4.3.2 Water Resources**

1629 A major impact would occur if any action is inconsistent with adopted surface water
1630 classifications or water use plans, or if an action would substantially alter those resources
1631 required for, supporting, or benefiting the current use. Joe Pool Lake was developed for flood
1632 risk management, water conservation, fish and wildlife, and recreation purposes. The
1633 reclassifications and resource objectives required to revise the Joe Pool Lake MP are
1634 compatible with water use plans and surface water classification; further, they were developed
1635 to help fulfill regional goals associated with good stewardship of water resources that would
1636 allow for continued use of water resources associated with Joe Pool Lake. Therefore,
1637 cumulative impacts on water resources within the area surrounding Joe Pool Lake, when
1638 combined with past and proposed actions in the region, are anticipated to be minor.

1639 **4.3.3 Climate**

1640 The Proposed Action would neither affect nor be affected by the climate. Therefore,
1641 implementation of the revised land use classifications in the 2018 MP, when combined with
1642 other existing and proposed projects in the region, would not result in major cumulative impacts
1643 on the climate.

1644 **4.3.4 Climate Change and GHG**

1645 Under the Proposed Action, current Jo Pool Lake project management plans and monitoring
1646 programs would not be changed. In the event that GHG emission issues become significant
1647 enough to impact the current operations at Joe Pool Lake, the 2018 MP and all associated
1648 documents would be reviewed and revised as necessary. Therefore, implementation of the
1649 2018 MP, when combined with other existing and proposed projects in the region, would result
1650 in negligible cumulative impacts on climate change or GHG.

1651 **4.3.5 Air Quality**

1652 No major highway or roadway projects are scheduled near the zone of interest for Joe Pool
1653 Lake; therefore, limiting the amount of new emissions that could potentially affect air quality
1654 within the region. The Proposed Action would not adversely impact air quality within the area.
1655 Vehicle traffic along park and area roadways and routine daily activities in nearby communities
1656 contribute to current and future emission sources; however, the impacts associated with the
1657 reclassification of lands at Joe Pool Lake under the Proposed Action would be negligible.
1658 Seasonal prescribed burning could occur on Joe Pool Lake to help maintain the blackland
1659 prairie restoration being implemented by TPWD in Cedar Hills State Park, but would have
1660 minor, negative impacts on air quality through elevated ground-level O₃ and particulate matter
1661 concentrations; however, these seasonal burns would be scheduled so that impacts are
1662 minimized. Implementation of the 2018 MP, when combined with other existing and proposed
1663 projects in the region, could result in minor adverse and beneficial cumulative impacts on air
1664 quality.

1665 **4.3.6 Topography, Geology, and Soils**

1666 A major impact could occur if a proposed future action exacerbates or promotes long-term
1667 erosion, if the soils are inappropriate for the proposed construction and would create a risk to
1668 life or property, or if there would be a substantial reduction in agricultural production or loss of
1669 Prime Farmland soils. Cumulative impacts on topography, geology, and soils within the area
1670 surrounding Joe Pool Lake, when combined with past and proposed actions in the region, are
1671 anticipated to be negligible.

1672 **4.3.7 Natural Resources**

1673 The significance threshold for natural resources would include a substantial reduction in
1674 ecological processes, communities, or populations that would threaten the long-term viability of
1675 a species or result in the substantial loss of a sensitive community that could not be offset or
1676 otherwise compensated. Past, present, and future projects are not anticipated to impact the
1677 viability of any plant species or community, rare or sensitive habitats, or wildlife. The
1678 establishment of ESA, MRML-WM, and MRML-VM areas, as well as resource objectives that
1679 favor protection and restoration of valuable natural resources will have beneficial cumulative
1680 impacts. No identified projects would threaten the viability of natural resources. Therefore, there
1681 would be major long-term beneficial impacts to natural resources resulting from the revision of
1682 the 2018 Joe Pool MP when combined with past and proposed actions in the area.

1683 **4.3.8 Threatened and Endangered Species**

1684 The Proposed Action and No Action Alternative would not adversely impact threatened,
1685 endangered and TXNDD species within the area. Should federally listed species change in the
1686 future (e.g., delisting of the Least Tern or other species or listing of new species), associated
1687 requirements will be reflected in revised land management practices in coordination with the
1688 USFWS. The USACE would continue cooperative management plans with the USFWS and
1689 TPWD to preserve, enhance, and protect critical wildlife habitat resources.

1690 No new projects are proposed for USACE lands within the Joe Pool Lake project area, and
1691 past, present, and future projects are not anticipated to impact threatened and endangered

1692 species as they will coordinated with the appropriate resource agencies. Therefore, there would
1693 be major long-term beneficial impacts on threatened and endangered species resulting from the
1694 revision of the Joe Pool Lake 1981 MP when combined with past and proposed actions in the
1695 area.

1696 **4.3.9 Invasive Species**

1697 To the extent that funding will allow, USACE will continue its proactive, cooperative
1698 herbicide treatments with TPWD and the City of Grand Prairie to control these species that
1699 affect not only the natural biological resources, but also recreational opportunities. Pesticide
1700 treatment for invasive ants will also continue. The USACE will also continue to monitor for zebra
1701 mussels and take all practicable measures to prevent them from becoming a nuisance to Joe
1702 Pool Lake.

1703 Invasive species control has and will continue to be conducted on various areas across the
1704 project lands. Implementing Best Management Practices (BMP) will help reduce the introduction
1705 and distribution of invasive species, ensuring that proposed actions in the region will not
1706 contribute to the overall cumulative impacts related to invasive species.

1707 The land reclassifications required to revise the 1981 MP are compatible with the Joe Pool
1708 Lake invasive species management practices. Therefore, there would be minor long-term
1709 beneficial impacts on reducing and preventing invasive species within the area surrounding Joe
1710 Pool Lake.

1711 **4.3.10 Cultural, Historical, and Archaeological Resources**

1712 The Proposed Action would not affect cultural resources or historic properties, as the master
1713 plan revision does not involve any ground disturbing activities. However, ESA and Wildlife
1714 Management lands provide additional protection against ground disturbances. Additionally, the
1715 proposed Utility Corridors would restrict any future pipelines, roads, or other infrastructure to
1716 already disturbed areas, further limiting impacts on cultural resources. Therefore, this action,
1717 when combined with other existing and proposed projects in the region, would not result in
1718 major cumulative impacts on cultural resources or historic properties.

1719 **4.3.11 Socioeconomics and Environmental Justice**

1720 The Proposed Action would not result in the displacement of persons (minority, low-income,
1721 children, or otherwise) as a result of implementing the reclassifications, resources objectives,
1722 and resource plan proposed in the 2018 MP. Therefore, the effects of the Proposed Action on
1723 environmental justice and the protection of children, when combined with other ongoing and
1724 proposed projects in the Joe Pool Lake area, would not be considered a major cumulative
1725 effect.

1726 **4.3.12 Recreation**

1727 Joe Pool Lake provides regionally significant outdoor recreation benefits including a variety
1728 of recreation opportunities. Even though the amount of acreage available for High Density
1729 Recreation and Low Density Recreation would decrease as a result of implementing the
1730 reclassifications, resources objectives, and resource plan proposed in the 2018 MP, these
1731 changes reflect changes in land management and historic recreation use patterns that have
1732 occurred since 1981 at Joe Pool Lake. The conversion of these lands would have no effect on
1733 current or projected public use. Therefore, the Proposed Action, when combined with other
1734 existing and proposed projects in the region, would result in negligible beneficial cumulative
1735 impacts on area recreational resources.

1736 **4.3.13 Aesthetic Resources**

1737 No impacts on visual resources would occur as a result of implementing the
1738 reclassifications, resources objectives, and resource plan proposed in the 2018 MP. The

1739 Proposed Action, especially the classification of ESAs, in conjunction with other projects in the
1740 region, would result in minor beneficial cumulative impacts on the visual resources in the Joe
1741 Pool Lake area.

1742 **4.3.14 Hazardous Materials and Solid Waste**

1743 No hazardous material or solid waste concerns would be expected with implementation of
1744 the 2018 MP; therefore, when combined with other ongoing and proposed projects in the Joe
1745 Pool Lake area, there would be no major cumulative effects on hazardous materials and solid
1746 waste.

1747 **4.3.15 Health and Safety**

1748 No health or safety risks would be created by the Proposed Action. The effects of
1749 implementing the 2018 MP, when combined with other ongoing and proposed projects in the
1750 Joe Pool Lake area, would not be considered a major cumulative effect.

1751 **SECTION 5: COMPLIANCE WITH ENVIRONMENTAL LAWS**

1752 This EA has been prepared to satisfy the requirements of all applicable environmental laws
1753 and regulations, and has been prepared in accordance with the CEQ's implementing regulations
1754 for NEPA, 40 CFR Parts 1500 – 1508, and the USACE ER 200-2-2, *Environmental Quality:
1755 Procedures for Implementing NEPA*. The revision of the 2018 MP is consistent with the
1756 USACE's Environmental Operating Principles. The following is a list of applicable environmental
1757 laws and regulations that were considered in the planning of this project and the status of
1758 compliance with each:

1759 Fish and Wildlife Coordination Act of 1958, as amended – The USACE initiated public
1760 involvement and agency scoping activities to solicit input on the 2018 MP revision process, as
1761 well as identify reclassification proposals, and identify significant issues related to the Proposed
1762 Action. Information provided by USFWS and TPWD on fish and wildlife resources has been
1763 utilized in the development of the 2018 MP.

1764 Endangered Species Act of 1973, as amended – Current lists of threatened or endangered
1765 species were compiled for the 2018 MP. There would be no adverse impacts on threatened or
1766 endangered species resulting from the revision of the 1981 MP. However, beneficial impacts,
1767 such as habitat protection, could occur as a result of the revision of the 2018 MP by
1768 classification of ESA and Vegetation Management lands.

1769 Executive Order 13186 (Migratory Bird Habitat Protection) – Sections 3a and 3e of EO
1770 13186 direct Federal agencies to evaluate the impacts of their actions on migratory birds, with
1771 emphasis on species of concern, and inform the USFWS of potential negative impacts on
1772 migratory birds. The 1981 MP revision will not result in adverse impacts on migratory birds or
1773 their habitat. Beneficial impacts could occur through protection of habitat as a result of the 2018
1774 MP revision.

1775 Migratory Bird Treaty Act, as amended – The Migratory Bird Treaty Act of 1918 extends
1776 Federal protection to migratory bird species. The nonregulated “take” of migratory birds is
1777 prohibited under this act in a manner similar to the prohibition of “take” of threatened and
1778 endangered species under the Endangered Species Act. The timing of resource management
1779 activities would be coordinated to avoid impacts on migratory and nesting birds.

1780 CWA of 1977, as amended – The Proposed Action is in compliance with all state and
1781 Federal CWA regulations and requirements and is regularly monitored by the USACE and
1782 TCEQ for water quality. A state water quality certification pursuant to Section 401 of the CWA is
1783 not required for the 2018 MP. There will be no change in the existing management of the
1784 reservoir that would impact water quality.

1785 National Historic Preservation Act (NHPA) of 1966, as amended – Compliance with the
1786 NHPA of 1966, as amended, requires identification of all properties in the project area listed in,
1787 or eligible for listing in, the NRHP. All previous surveys and site salvages were coordinated with
1788 the Texas State Historic Preservation Officer. Known sites are mapped and avoided by
1789 maintenance activities. Areas that have not undergone cultural resources surveys or evaluations
1790 will need to do so prior to any earthmoving or other potentially impacting activities.

1791 Clean Air Act of 1977, as amended – The USEPA established nationwide air quality
1792 standards to protect public health and welfare. Existing operation and management of the
1793 reservoir is compliant with the Clean Air Act and will not change with the 2018 MP revision.

1794 Farmland Protection Policy Act (FPPA) of 1980 and 1995 – The FPPA's purpose is to
1795 minimize the extent to which Federal programs contribute to the unnecessary and irreversible
1796 conversion of farmland to non-agricultural uses. There are Prime Farmland and farmland of
1797 state importance on Joe Pool Lake project lands, but these will not be significantly impacted.

1798 Executive Order 11990, Protection of Wetlands, as amended – EO 11990 requires Federal
1799 agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and
1800 enhance the natural and beneficial values of wetlands in executing Federal projects. The
1801 Proposed Action complies with EO 11990.

1802 Executive Order 11988, Floodplain Management, as amended – This EO directs Federal
1803 agencies to evaluate the potential impacts of proposed actions in floodplains. The operation and
1804 management of the existing project complies with EO 11988.

1805 CEQ Memorandum dated August 11, 1980, Prime or Unique Farmlands – Prime farmland is
1806 land that has the best combination of physical and chemical characteristics for producing food,
1807 feed, forage, fiber, and oilseed crops, and is also available for these uses. The Proposed Action
1808 would not impact Prime Farmland present on Joe Pool Lake project lands.

1809 Executive Order 12898, Environmental Justice – This EO directs Federal agencies to
1810 achieve environmental justice to the greatest extent practicable and permitted by law, and
1811 consistent with the principles set forth in the report on the National Performance Review.
1812 Agencies are required to identify and address, as appropriate, disproportionately high and
1813 adverse human health or environmental effects of its programs, policies, and activities on
1814 minority populations and low-income populations. The revisions in the 2018 MP will not result in
1815 a disproportionate adverse impact on minority or low-income population groups.

1816 **SECTION 6: IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF** 1817 **RESOURCES**

1818 NEPA requires that Federal agencies identify “any irreversible and irretrievable
1819 commitments of resources which would be involved in the Proposed Action should it be
1820 implemented” (42 U.S.C. § 4332). An irreversible commitment of resources occurs when the
1821 primary or secondary impacts of an action result in the loss of future options for a resource.
1822 Usually, this is when the action affects the use of a nonrenewable resource or it affects a
1823 renewable resource that takes a long time to regenerate. The impacts for this project from the
1824 reclassification of land would not be considered an irreversible commitment because
1825 subsequent MP revisions could result in some lands being reclassified to a prior, similar land
1826 classification. An irretrievable commitment of resources is typically associated with the loss of
1827 productivity or use of a natural resource (e.g., loss of production or harvest). No irreversible or
1828 irretrievable impacts on Federally protected species or their habitat is anticipated from
1829 implementing revisions to the Joe Pool Lake MP.

1830 **SECTION 7: PUBLIC AND AGENCY COORDINATION**

1831 In accordance with 40 CFR §§1501.7, 1503, and 1506.6, the USACE initiated public
1832 involvement and agency scoping activities to solicit input on the revision of the 1981 MP, as well
1833 as identifying reclassification proposals and significant issues related to the Proposed Action.
1834 The USACE began its public involvement process with a public scoping meeting to provide an
1835 avenue for public and agency stakeholders to ask questions and provide comments. This public
1836 scoping meeting was held on 23 May 2017 at the Summit Activity Center in Grand Prairie,
1837 Texas. The USACE, Fort Worth District, placed advertisements on the USACE webpage, social
1838 media, and print publications prior to the public scoping meeting.

1839 A second public meeting was held on July 30, 2018 at the Summit Activity Center in
1840 Grand Prairie, Texas. This meeting introduced the public to the draft MP and EA and began the
1841 30-day public review period of the EA and draft Finding of No Significant Impact (FONSI). As
1842 with the first public meeting, USACE, Fort Worth District, placed advertisements on the USACE
1843 webpage, social media, and print publications (Name).

1844 At the close of the 30-day public review period on August 29, 2018, ### public
1845 comments had been received on the EA and draft FONSI. Addendum A includes the ads
1846 published in the local newspaper, the agency coordination letters, and the distribution list for the
1847 coordination letters. The EA was coordinated with agencies having legislative and administrative
1848 responsibilities for environmental protection. A copy of the correspondence from the agencies
1849 that provided comments and planning assistance for preparation of the EA is also included in
1850 Addendum A. Please refer to Section 7.1 of the 2018 MP for a summary of comments received
1851 at the public meetings.

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2007 **SECTION 9: ACRONYMS/ABBREVIATIONS**

2008	%	Percent
2009	°	Degrees
2010	ac-ft	acre-feet
2011	AQCR	Air Quality Control Region
2012	BMP	Best Management Practice
2013	BP	Before Present
2014	CAP	Climate Action Plan
2015	CEQ	Council on Environmental Quality
2016	CFR	Code of Federal Regulations
2017	cfs	cubic feet per second
2018	CHSP	Cedar Hill State Park
2019	CO	Carbon Monoxide
2020	CO ₂	Carbon Dioxide
2021	CO ₂ e	CO ₂ -equivalent
2022	CRMP	Cultural Resources Management Plan
2023	CWA	Clean Water Act
2024	DSHS	Department of State Health Services (Texas)
2025	EA	Environmental Assessment
2026	EIS	Environmental Impact Statement
2027	EMS	Ecological Mapping System (TPWD)
2028	EO	Executive Order
2029	EP	Engineer Pamphlet
2030	ER	Engineer Regulation
2031	ERS	Environmental Radiation Surveillance
2032	ESA	Environmentally Sensitive Area
2033	F	Fahrenheit
2034	FAA	Federal Aviation Administration
2035	FONSI	Finding of No Significant Impact
2036	GHG	Greenhouse Gas
2037	GCWA	Golden-cheeked Warbler
2038	gpm	gallons per minute
2039	HDR	High Density Recreation
2040	HTRW	Hazardous, Toxic, Radioactive Wastes
2041	IFR	Inactive/Future Recreation
2042	IPAC	Information for Planning and Consultation (USFWS)
2043	LDR	Low Density Recreation
2044	MP	Master Plan
2045	MRML	Multiple Resource Management Lands
2046	msl	mean sea level
2047	NAAQS	National Ambient Air Quality Standards
2048	NCTCOG	North Central Texas Council of Governments
2049	NEPA	National Environmental Policy Act
2050	NGVD	National Geodetic Vertical Datum

2051	NHPA	National Historic Preservation Act
2052	NO	Nitrogen Oxide
2053	NRCS	Natural Resources Conservation Service
2054	NRHP	National Register of Historic Places
2055	NRRS	National Recreation Reservation Service
2056	NWI	National Wetlands Inventory (USFWS)
2057	O ₃	Ozone
2058	OAQPS	Office of Air Quality Planning and Standards
2059	Pb	Lead
2060	PCB	Polychlorinated Biphenyls
2061	PCPI	Per Capita Personal Incomes
2062	PL	Public Law
2063	PM _{2.5}	Particulate Matter Less than 2.5 Microns
2064	PM ₁₀	Particulate Matter Less than 10 Microns
2065	PO	Project Operations
2066	RM	River Mile
2067	ROD	Record of Decision
2068	RPEC	Regional Planning and Environmental Center
2069	SGCN	Species of Greatest Conservation Need
2070	SMU	Southern Methodist University
2071	SO ₂	Sulfur Dioxide
2072	SUPER	USACE Suite of Computer Programs
2073	TCAP	Texas Conservation Action Plan
2074	TCEQ	Texas Commission on Environmental Quality
2075	TCLP	Toxicity Characteristic Leaching Procedure
2076	TDS	Total Dissolved Solids
2077	TPWD	Texas Parks and Wildlife Department
2078	TSWQS	Texas Surface Water Quality Standards
2079	TXNDD	Texas Natural Diversity Database
2080	U.S.	United States
2081	U.S.C.	U.S. Code
2082	USACE	U.S. Army Corps of Engineers
2083	USCG	U.S. Coast Guard
2084	USEPA	U.S. Environmental Protection Agency
2085	USFWS	U.S. Fish and Wildlife Service
2086	USGCRP	U.S. Global Change Research Group
2087	VOC	Volatile Organic Compounds
2088	WHAP	Wildlife Habitat Appraisal Procedures
2089	WM	Wildlife Management
2090	VM	Vegetation Management
2091	ZOI	Zone of Interest

2092 **SECTION 10: LIST OF PREPARERS**

- 2093 Mandy Mcguire - Environmental Compliance Section Chief, Regional Planning and
2094 Environmental Center; Fort Worth District- 7 years of USACE experience.
- 2095 Marcia Hackett – Regional Technical Specialist, Environmental Compliance Section, Regional
2096 Planning and Environmental Center, Fort Worth District; 21 years of USACE experience.
- 2097 Paul E. Roberts - Biologist, Regional Planning and Environmental Center, Fort Worth District- 5
2098 years of USACE experience.

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**ADDENDUM A
PUBLIC AND AGENCY COORDINATION**

From: [Karen Hardin](#)
To: [Wiese, Donald N CIV \(US\)](#)
Subject: [Non-DoD Source] FW: TPWD coordination for Joe Pool Lake Master Plan Revision
Date: Thursday, July 06, 2017 2:56:54 PM

Donald Weise,

Our aquatic invasive species team member provided a comment, see below, that didn't make it into the TPWD scoping letter that I sent out June 23. Please consider her comment in your planning for Joe Pool Lake Master Plan, as feasible and applicable to USACE authority.

Thanks,

Karen Hardin

Natural Resource Specialist

Wildlife Habitat Assessment Program

Texas Parks and Wildlife Department

4200 Smith School Road

Austin, TX 78744

(903)322-5001

From: Monica McGarrity
Sent: Friday, June 23, 2017 12:55 PM
To: Karen Hardin <Karen.Hardin@tpwd.texas.gov>; Sam Kieschnick <Sam.kieschnick@tpwd.texas.gov>; Raphael Brock <Raphael.Brock@tpwd.texas.gov>; Brandon Childers <Brandon.Childers@tpwd.texas.gov>
Cc: Adam Jarrett <Adam.Jarrett@tpwd.texas.gov>; David Riskind <David.Riskind@tpwd.texas.gov>; Brian VanZee <Brian.VanZee@tpwd.texas.gov>; Beth Tragus <Beth.Tragus@tpwd.texas.gov>; Joshua Choate <Joshua.Choate@tpwd.texas.gov>; Derek Dye <Derek.Dye@tpwd.texas.gov>
Subject: RE: TPWD coordination for Joe Pool Lake Master Plan Revision

Thanks, Karen.

Although the letter does reference the 2013 Fisheries Management Survey report which makes recommendations regarding zebra mussel prevention/awareness, I wonder if we might consider adding some language to this letter to recommend that the Corps take an active role in working with marinas to encourage (or even require, if possible?) that incoming boats be inspected to help prevent introduction of zebra mussels. Assuming that marinas have some sort of a lease or permit from the Corps, they have the most leverage to encourage marina cooperation. They are

already likely working with the marinas, but it never hurts to explicitly and repeatedly request their help, in my opinion. Just a thought for your consideration.

Regards,

Monica

Monica E. McGarrity

Aquatic Invasive Species Team Leader

Inland Fisheries Division, Habitat Conservation Branch

Texas Parks and Wildlife Department

4200 Smith School Rd.

Austin, Texas 78744

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monica.mcgarrity@tpwd.texas.gov <<mailto:monica.mcgarrity@tpwd.texas.gov>>

From: Karen Hardin

Sent: Wednesday, June 21, 2017 3:22 PM

To: Sam Kieschnick <Sam.kieschnick@tpwd.texas.gov> <<mailto:Sam.kieschnick@tpwd.texas.gov>> >; Raphael Brock <Raphael.Brock@tpwd.texas.gov> <<mailto:Raphael.Brock@tpwd.texas.gov>> >; Brandon Childers <Brandon.Childers@tpwd.texas.gov> <<mailto:Brandon.Childers@tpwd.texas.gov>> >

Cc: Adam Jarrett <Adam.Jarrett@tpwd.texas.gov> <<mailto:Adam.Jarrett@tpwd.texas.gov>> >; David Riskind <David.Riskind@tpwd.texas.gov> <<mailto:David.Riskind@tpwd.texas.gov>> >; Monica McGarrity <Monica.Mcgarrity@tpwd.texas.gov> <<mailto:Monica.Mcgarrity@tpwd.texas.gov>> >; Brian VanZee <Brian.VanZee@tpwd.texas.gov> <<mailto:Brian.VanZee@tpwd.texas.gov>> >; Beth Tragus <Beth.Tragus@tpwd.texas.gov> <<mailto:Beth.Tragus@tpwd.texas.gov>> >; Joshua Choate <Joshua.Choate@tpwd.texas.gov> <<mailto:Joshua.Choate@tpwd.texas.gov>> >; Derek Dye <Derek.Dye@tpwd.texas.gov> <<mailto:Derek.Dye@tpwd.texas.gov>> >

Subject: RE: TPWD coordination for Joe Pool Lake Master Plan Revision

All,

Attached is my draft letter that I plan to send out June 23.

Let me know if you have anything to add or edit.



Life's better outside.®

June 23, 2017

Mr. Don Wiese
CESWF-PEC-PM
Natural Resources Manager
U.S. Army Corps of Engineers
P.O. Box 17300
Fort Worth, Texas 76102-0300

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Wimberley

Kelcy L. Warren
Dallas

Lee M. Bass
Chairman-Emeritus
Fort Worth

Carter P. Smith
Executive Director

Re: Scoping for Joe Pool Lake Master Plan Update
Dallas, Ellis and Tarrant Counties, Texas
TPWD Project 38015

Dear Mr. Don Wiese:

Texas Parks and Wildlife Department (TPWD) staff attended the May 23, 2017 public meeting for the proposed Joe Pool Lake Master Plan Update and have reviewed the meeting materials which describe the proposed revision process.

Project Description

The U.S. Army Corps of Engineers Fort Worth District (USACE) manages the land, water surface and recreational resources of Joe Pool Lake to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provides outdoor recreation opportunities that complement overall project purposes for the benefit of present and future generations. The current plan is dated June 1979, as supplemented in 1981, and has exceeded its useful life. The updated master plan will serve as a strategic land use management document that guides the management and development of Joe Pool Lake project lands and recreational use of the water surface for the next 25 years.

The TPWD-managed Cedar Hill State Park occurs on USACE Joe Pool Lake property. TPWD staff from our Inland Fisheries Division, State Parks Division, and Wildlife Division are interested in the proposed update and will work with USACE throughout the update process to assist in identifying sensitive resources and their management needs, potential fisheries protection areas, water recreation needs and access, habitat management goals, needs for trails and park improvements, terrestrial and aquatic invasive species management goals, and needs for public education primarily regarding water safety.

Sensitive Resources

The project area is within the Texas Blackland Prairies ecoregion and includes a limestone escarpment outcrop, known as the White Rock Escarpment. The Texas Conservation Action Plan (TCAP) provides guidance toward addressing Species of Greatest Conservation Need (SGCN) and important habitats and includes a statewide handbook as well as handbooks for each ecoregion of the state. To help guide your planning efforts, information on the TCAP, handbooks and lists of SGCN can be found at https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/tcap/. The TCAP

identifies priority habitats as well as priority issues related to municipal land and water management issues, conservation and recreation land and water management issues, and non-native invasive species that can impact native species and habitats.

In addition to the TCAP lists of SGCN by ecoregion, TPWD maintains a website that identifies state-listed species and SGCN that have the potential to occur in each Texas county at <http://tpwd.texas.gov/gis/rtest/> (RTEST).

TPWD maintains the Texas Natural Diversity Database (TXNDD) which tracks known occurrences of SGCN and rare habitats. For questions regarding a record or to obtain digital data, please contact TexasNatural.DiversityDatabase@tpwd.texas.gov. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state, and absence of information in the database does not imply that a species is absent from that area. The TXNDD contains records of native prairie communities within Joe Pool Lake property and contains records of the plateau milkvine (*Matelea edwardsensis*) and Hall's prairie clover (*Dalea hallii*), SGCN species that have been identified on or near Joe Pool Lake property. Additionally, the Glass Mountains coral-root (*Hexalectris nitida*) and Warnock's coral-root (*Hexalectris warnockii*) are SGCN known to occur within sloped oak-juniper woodlands of the White Rock Escarpment on property near Joe Pool Lake. Lands at Joe Pool Lake may contain SGCN that have not been found or reported to the TXNDD.

Recommendation: TPWD recommends referring to the TCAP, RTEST, and TXNDD for information regarding sensitive resources potentially occurring in the area, priority habitats, and issues affecting sensitive resources within the Texas Blackland Prairies Ecoregion.

Recommendation: In addition to addressing sensitive resources, TPWD recommends the plan include natural resource inventories and monitoring goals to identify habitat changes that may occur over the life of the project and trigger adaptive management, when needed.

The Ecological Mapping Systems of Texas is a recent land classification project which provides systems, mapping subsystems, and vegetative types for Texas and may assist in the USACE efforts toward examining project lands. EMST data that are downloadable by ecoregion at <http://tpwd.texas.gov/landwater/land/programs/landscape-ecology/ems/>, or available for use in the TPWD online interactive mapping tool, Texas Ecosystem Analytical Mapper, <http://tpwd.texas.gov/landwater/land/programs/landscape-ecology/team/>.

Floral Resources

Significant declines in the population of migrating monarch butterflies (*Danaus plexippus*) have led to widespread concern about this species and the long-term persistence of the North American monarch migration. As part of an international conservation effort TPWD has developed a Texas Monarch and Native Pollinator Conservation Plan, which includes a broad category action to augment larval feeding and adult nectaring opportunities. The plan can be found online at

Mr. Don Wiese
Page 3
June 23, 2017

http://tpwd.texas.gov/publications/pwdpubs/media/pwd_rp_w7000_2070.pdf. TPWD also hosts a website dedicated to native pollinators with links to various resources, http://tpwd.texas.gov/huntwild/wild/wildlife_diversity/nongame/native-pollinators/.

Recommendation: TPWD recommends incorporating pollinator conservation into the plan to promote and sustain the availability of floral resources throughout the growing season.

Boat Ramps

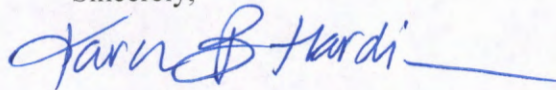
In 2012, TPWD initiated a statewide effort to survey and report terminus elevations of public boat ramps, as an approximation of available boater access to public reservoirs during periods of low water level. Statistics for boat ramps on Joe Pool Lake are published on Table 2 of a 2013 Fisheries Management Survey Report accessible at http://tpwd.texas.gov/publications/pwdpubs/media/lake_survey/pwd_rp_t3200_1315_2013.pdf. These measurements could be used to describe the level of impact to recreation and the local economy during drought conditions, and also used to guide future boat ramp improvements or construction to mitigate against or prevent reduced access to the reservoir.

Recommendation: TPWD recommends reviewing the 2013 Fisheries Management Survey Report to aid in the Plan's assessment of recreational needs, identification of resource objectives, and to guide decisions regarding future improvements or construction of boat ramps.

Recommendation: TPWD recommends the plan identify if there is a need for additional boat ramps or if the lake already meets a maximum safe boating-use capacity.

If you have any questions, please contact me at (903) 322-5001 or Karen.Hardin@tpwd.texas.gov. Additional TPWD staff from the Wildlife Division, State Parks Division and Inland Fisheries Division are also available to assist in the master plan update, so please continue to coordinate with those staff as appropriate. I anticipate that I will be compiling an overall agency letter upon TPWD review of the draft Master Plan once it is available, so please continue to include me in correspondence regarding this project.

Sincerely,



Karen B. Hardin
Wildlife Habitat Assessment Program
Wildlife Division

kbh/38015

Grand Prairie
— T E X A S —
PARKS, ARTS & RECREATION

June 22, 2017

Mr. Don Wiese
Department of the Army
Fort Worth District, Corps of Engineers
CESWF-PEC-TM
819 Taylor Street
Room 3B10
Fort Worth, Texas 76102-0300

Subject: Joe Pool Master Plan Revision Comments

Dear Mr. Wiese,

The City of Grand Prairie attended the Joe Pool Master Plan Public Meeting that was held on May 23, 2017 at The Summit in Grand Prairie. Below are our comments:

1. We request the current classification of "Recreation-High Use" of Lynn Creek Park, Loyd Park and Britton Park remain as such.
2. We request portions of West Lynn Creek be reclassified from "Interim Wildlife Management" to "Recreation-High Use".
3. We request portions of the Camp Wisdom tract be reclassified from "Recreation / Wildlife Management – Low Use" to "Recreation-High Use".
4. We request portions of Pleasant Valley Park be reclassified from "Interim Wildlife Management" to "Recreation-High Use".
5. Estes Park: The City of Grand Prairie is actively pursuing a partnership to develop Estes Park as per the approved "Resort" use. We request this classification be shown as "Recreation – High Use" or "High Density Recreation".
6. The City would like to explore the possibility of a land swap of a portion of existing leased Britton Park property that has minimal recreational value, for a portion of Corps jurisdictional property adjacent and south of Estes Park. It would be our intent to develop this into "High Density Recreation". We would like to meet personally with you to discuss this option.
7. If a second Marina is considered for Joe Pool Lake, the City of Grand Prairie requests the USACE keep us involved in the process.
8. The Grand Prairie Parks, Arts, and Recreation department has completed our Parks Master Plan, which includes our Lake Park sector. We will be glad to share this plan with you.

Grand Prairie
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PARKS, ARTS & RECREATION

9. We will also resubmit our 5 year Lake Parks Master Plan for your review.
10. As a current lease holder, the City of Grand Prairie requests we be very involved in the Master Plan process. We would like to review and comment as preliminary reviews are completed that have a direct impact on the properties leased to the City of Grand Prairie.

If you have any questions regarding this response, please contact me at 972-237-8375.

Respectfully,



Rick Herold, Director
Parks, Arts, and Recreation

APPENDIX C – WILDLIFE DOCUMENTS

TRUST RESOURCES REPORT – USFWS

OFFICIAL SPECIES LIST – USFWS

LIST OF SGCN SPECIES

WHAP REPORT

DRAFT

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

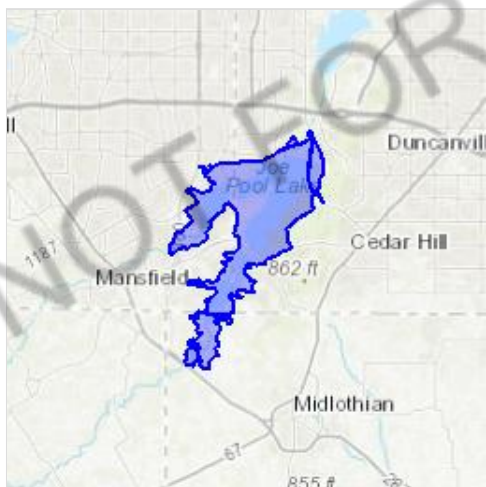
Project information

NAME

Joe Pool Lake Master Plan

LOCATION

Dallas, Ellis and Tarrant counties, Texas



DESCRIPTION

The Joe Pool Lake Master Plan (Dallas, Ellis, and Tarrant Counties, Texas) is the long-term strategic land use management document that guides the comprehensive management and development of all the project's recreational, natural, and cultural resources within the federal fee boundary. Under the guidance of ER-1130-2-550 Change 7, the Plan guides the efficient and cost-effective development, management, and use of project lands. It is a dynamic tool that provides for the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations. The Plan works in tandem with the Operational Management Plan (OMP), which is the implementation tool for the resource objectives and development needs identified in

the Master Plan. The Master Plan guides and articulates the USACE responsibilities pursuant to federal laws. Efforts are under way to revise the current Joe Pool Lake Master Plan, last revised in 1981. The Master Plan revision will update land classifications, plan for the modernization of existing parks, and inform the management of wildlife and other resource lands within USACE managed property at Joe Pool Lake for the next 25 years.

Local office

Arlington Ecological Services Field Office

☎ (817) 277-1100

📠 (817) 277-1129

2005 Ne Green Oaks Blvd

Suite 140

Arlington, TX 76006-6247

<http://www.fws.gov/southwest/es/arlingontexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [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.

The following species are potentially affected by activities in this location:

Birds

NAME	STATUS
------	--------

Golden-cheeked Warbler (=wood) <i>Dendroica chrysoparia</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/33	Endangered
Least Tern <i>Sterna antillarum</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8505	Endangered
Piping Plover <i>Charadrius melodus</i> This species only needs to be considered if the following condition applies: <ul style="list-style-type: none"> • Wind Energy Projects There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> This species only needs to be considered if the following condition applies: <ul style="list-style-type: none"> • Wind Energy Projects No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane <i>Grus americana</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/758	Endangered

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

Breeds Sep 1 to Jul 31

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

<https://ecos.fws.gov/ecp/species/1626>

Buff-breasted Sandpiper *Calidris subruficollis*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9488>

Harris's Sparrow *Zonotrichia querula*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Lesser Yellowlegs *Tringa flavipes*

Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9679>

Red-headed Woodpecker *Melanerpes erythrocephalus*

Breeds May 10 to Sep 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Red-headed
Woodpecker
BCC Rangewide (CON)
(This is a Bird of
Conservation Concern
(BCC) throughout its
range in the
continental USA and
Alaska.)

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEM1A](#)
[PEM1Ah](#)
[PEM1Ch](#)
[PEM1C](#)

FRESHWATER FORESTED/SHRUB WETLAND

[PFO1A](#)
[PFO1Ah](#)
[PFO1C](#)
[PSS1A](#)
[PSS1/EM1A](#)

FRESHWATER POND

[PUBHh](#)
[PUBFh](#)
[PUBFx](#)
[PUSC](#)
[PUBHx](#)

[PUSCh](#)
[PAB4Hh](#)
[PUSA](#)
[PUSAx](#)
[PUSAh](#)
[PUBF](#)

LAKE

[L1UBHh](#)
[L1UBHx](#)

RIVERINE

[R4SBC](#)
[R5UBH](#)
[R4SBA](#)
[R2UBHx](#)
[R2UBH](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office

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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:

July 09, 2018

Consultation Code: 02ETAR00-2018-SLI-0502

Event Code: 02ETAR00-2018-E-03072

Project Name: Joe Pool Lake Master Plan

Subject: Updated 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: 02ETAR00-2018-SLI-0502

Event Code: 02ETAR00-2018-E-03072

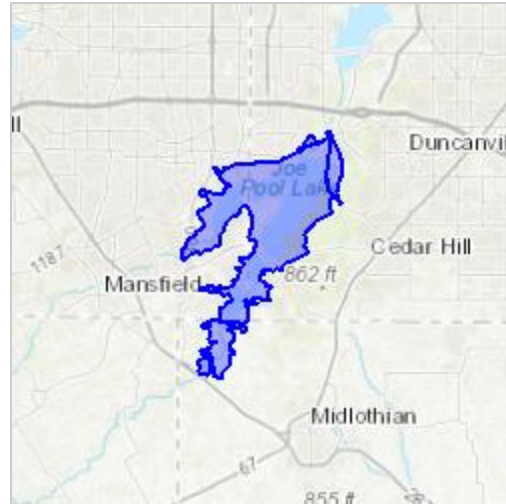
Project Name: Joe Pool Lake Master Plan

Project Type: LAND - MANAGEMENT PLANS

Project Description: The Joe Pool Lake Master Plan (Dallas, Ellis, and Tarrant Counties, Texas) is the long-term strategic land use management document that guides the comprehensive management and development of all the project's recreational, natural, and cultural resources within the federal fee boundary. Under the guidance of ER-1130-2-550 Change 7, the Plan guides the efficient and cost-effective development, management, and use of project lands. It is a dynamic tool that provides for the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations. The Plan works in tandem with the Operational Management Plan (OMP), which is the implementation tool for the resource objectives and development needs identified in the Master Plan. The Master Plan guides and articulates the USACE responsibilities pursuant to federal laws. Efforts are under way to revise the current Joe Pool Lake Master Plan, last revised in 1981. The Master Plan revision will update land classifications, plan for the modernization of existing parks, and inform the management of wildlife and other resource lands within USACE managed property at Joe Pool Lake for the next 25 years.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/32.600263833216616N97.01638911604545W>



Counties: Dallas, TX | Ellis, TX | Tarrant, TX

Endangered Species Act Species

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

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 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 Fisheries¹, 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
<p>Golden-cheeked Warbler (=wood) <i>Dendroica chrysoparia</i></p> <p>No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/33</p>	Endangered
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8505</p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>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:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/6039</p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/1864</p>	Threatened
<p>Whooping Crane <i>Grus americana</i></p> <p>Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758</p>	Endangered

Critical habitats

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

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 State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
MAMMALS								
<i>Blarina hylophaga plumblea</i>	Elliot's short-tailed shrew			G5T1Q	S1	Savanna/Open Woodland		N
<i>Geomys attwateri</i>	Attwater's pocket gopher			G4	S4	Shrubland		Y
<i>Lutra canadensis</i>	River otter			G5	S4	Riparian	Appendix II, CITES	N
<i>Mustela frenata</i>	Long-tailed weasel			G5	S5	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland	Statewide	N
<i>Myotis austroriparius</i>	Southeastern myotis			G3G4	S3	Caves/Karst, Forest, Riparian		N
<i>Myotis velifer</i>	Cave myotis			G5	S4	Caves/Karst,		N
<i>Puma concolor</i>	Mountain lion			G5	S2	Forest, Woodland, Desert Scrub, Shrubland, Savanna/Open Woodland, Riparian	Statewide	N
<i>Spilogale putorius</i>	Eastern spotted skunk			G4T	S4	Savanna/Open Woodland, Grassland		N
<i>Sylvilagus aquaticus</i>	Swamp rabbit			G5	S5	Riparian, Freshwater Wetland		N
<i>Tadarida brasiliensis</i>	Brazilian free-tailed bat			G5	S5	Cave/Karst, Artificial Refugia	Statewide	N
<i>Taxidea taxus</i>	American badger			G5	S5	Grassland, Desert scrub, Woodland, Savanna/Open Woodland, Forest		N
<i>Ursus americanus</i>	Black bear	SAT	T	G5	S3	Forest, Woodland, Savanna/Open Woodland, Desert Scrub, Shrubland	see also Louisiana black bear; may overlap with Louisiana black bear in TBPR, ECPL	N
Mammals References:								
W.B. Davis and D.J. Schmidly. 1997 and 1994. Mammals of Texas (online and in print). Texas Tech University (1997) and Texas Parks and Wildlife Department (1994). http://www.nsrll.ttu.edu/tmot1/Default.htm (accessed 2011)								
BIRDS								
BIRDS ONLY: instead of endemism these numbers are for taxonomic sorting								
<i>Ammodramus henslowii</i>	Henslow's Sparrow			G4	S2S3N,SX B	Grassland, Savanna/Open Woodland	Winter	100
<i>Ammodramus leconteii</i>	Le Conte's Sparrow					Grassland	Winter	101
<i>Ammodramus savannarum</i>	Grasshopper Sparrow			G5	S3B	Grassland, Agricultural	Year-round	97
<i>Anas acuta</i>	Northern Pintail			G5	S3B,S5N	Lacustrine, freshwater wetland, saltwater wetland, coastal, marine	Winter	2
<i>Anthus spragueii</i>	Sprague's Pipit	C		G4	S3N	Barren/Sparse Vegetation, Grassland, Shrubland, Agricultural	Winter	80
<i>Asio flammeus</i>	Short-eared Owl			G5	S4N	Grassland, Shrubland, Agricultural	Winter	65
<i>Buteo lineatus</i>	Red-shouldered Hawk			G5	S4B	Woodland, Forest, Riparian, Freshwater Wetland	Year-round	26
<i>Butorides virescens</i>	Green Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic	Breeding	16
<i>Calcarius mccownii</i>	McCown's Longspur			G4	S4	Grassland, Agricultural	Winter, TBPR (northern), ECPL (northern)	104
<i>Calcarius pictus</i>	Smith's Longspur					Grassland, Agricultural	Winter	105
<i>Caprimulgus carolinensis</i>	Chuck-will's-widow			G5	S3S4B	Woodland, Forest, Riparian	Breeding	66
<i>Charadrius montanus</i>	Mountain Plover	PT		G3	S2	Agricultural, Grassland	Winter	43
<i>Chondestes grammacus</i>	Lark Sparrow			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	98
<i>Circus cyaneus</i>	Northern Harrier			G5	S2B,S3N	Grassland, Shrubland	Year-round	23

Texas Blackland Prairies Ecoregion 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 State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
<i>Cistothorus platensis</i>	Sedge Wren			G5	S4	Grassland, Freshwater Wetland	Winter	78
<i>Colinus virginianus</i>	Northern Bobwhite			G5	S4B	Grassland, Shrubland, Savanna/Open Woodland	deleted for CHIH	4
<i>Dendroica dominica</i>	Yellow-throated Warbler			G5	S4B	Woodland, Forest, Riparian	Breeding	84
<i>Dryocopus pileatus</i>	Pileated Woodpecker			G5	S4B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	69
<i>Egretta caerulea</i>	Little Blue Heron			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	13
<i>Egretta thula</i>	Snowy Egret			G5	S5B	Riparian, Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Cultural Aquatic	Breeding	12
<i>Euphagus carolinus</i>	Rusty Blackbird			G4	S3	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Winter	110
<i>Haliaeetus leucocephalus</i>	Bald Eagle			G5	S3B,S3N	Riparian, Lacustrine, Freshwater Wetland, Saltwater Wetland	Year-round, added CRTB	22
<i>Hylocichla mustelina</i>	Wood Thrush			G5	S4B	Woodland, Forest, Riparian	Breeding	79
<i>Icterus spurius</i>	Orchard Oriole			G5	S4B	Shrubland, Savanna/Open Woodland, Woodland, Riparian	Breeding	111
<i>Ictinia mississippiensis</i>	Mississippi Kite			G5	S4B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Breeding	20
<i>Ixobrychus exilis</i>	Least Bittern			G5	S4B	Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary	Breeding	11
<i>Lanius ludovicianus</i>	Loggerhead Shrike			G4	S4B	Desert Scrub, Grassland, Shrubland, Savanna/Open Woodland, Agricultural, Developed	Year-round	73
<i>Limnothlypis swainsonii</i>	Swainson's Warbler			G4	S3B	Woodland, Forest, Riparian	Breeding	88
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker			G5	S3B	Savanna/Open Woodland, Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	67
<i>Meleagris gallopavo</i>	Wild Turkey			G5	S5B	Shrubland, Savanna/Open Woodland, Forest, Riparian, Agricultural	Year-round, added <i>merriami</i> for CHIH	8
<i>Mycteria americana</i>	Wood Stork		T	G4	SHB,S2N	Riverine, Freshwater wetland	Migrant	18
<i>Oporornis formosus</i>	Kentucky Warbler			G5	S3B	Woodland, Forest	Breeding	90
<i>Passerina ciris</i>	Painted Bunting			G5	S4B	Shrubland, Agricultural	Breeding	107
<i>Piranga rubra</i>	Summer Tanager			G5	S5B	Urban/Suburban/Rural	Breeding	106
<i>Pluvialis dominica</i>	American Golden-Plover			G5	S3	Grassland, Freshwater Wetland, Agricultural	Migrant	39
<i>Poecile carolinensis</i>	Carolina Chickadee			G5	S5B	Woodland, Forest, Riparian, Developed: Urban/Suburban/Rural	Year-round	76
<i>Protonotaria citrea</i>	Prothonotary Warbler			G5	S3B	Woodland, Forest, Riparian, Lacustrine, Freshwater Wetland	Breeding	86
<i>Scolopax minor</i>	American Woodcock			G5	S2B,S3N	Woodland, Forest, Riparian	Winter (some breeding during that time)	51
<i>Seiurus motacilla</i>	Louisiana Waterthrush			G5	S3B	Woodland, Forest, Riparian	Breeding	89
<i>Spiza americana</i>	Dickcissel			G5	S4B	Grassland, Agricultural	Breeding	108
<i>Spizella pusilla</i>	Field Sparrow			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round	96
<i>Sternula antillarum</i>	Least Tern	LE*	E*	G4	S3B	Riverine, Lacustrine, Freshwater Wetland, Saltwater Wetland, Estuary, Coastal, Marine, Developed: Industrial	Year-round; subspecies <i>athalassos</i>	54
<i>Sturnella magna</i>	Eastern Meadowlark			G5	S5B	Grassland, Shrubland, Savanna/Open Woodland	Year-round; subspecies <i>lilliana</i> added for CHIH	109
<i>Thryomanes bewickii (bewickii)</i>	Bewick's Wren			G5	S5B	Shrubland, Savanna/Open Woodland, Woodland, Developed: Urban/Suburban/Rural	Year-round, red-backed form only	77
<i>Tympanuchus cupido</i>	Greater Prairie-Chicken (Interior)			G4	S1B	Grassland	Year-round	6
<i>Tyrannus forficatus</i>	Scissor-tailed Flycatcher			G5	S3B	Desert Scrub, Grassland, Shrubland, Agricultural, Developed	Breeding	71
<i>Vireo bellii</i>	Bell's Vireo			G5	S3B	Desert scrub, Shrubland, Riparian	Breeding	74
<i>Zonotrichia querula</i>	Harris's Sparrow			G5	S4	Shrubland, Agricultural	Winter	103

Texas Blackland Prairies Ecoregion 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 State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
Birds References:								
The Birds of North America Online (A. Poole, Ed.). 2005 (with current updates by species). Retrieved from The Birds of North America Online database: http://bna.birds.cornell.edu/BNA/ (accessed 2011). Supported by information from the Cornell Lab of Ornithology and the American Ornithologists' Union (http://www.aou.org/).								
REPTILES AND AMPHIBIANS								
<i>Anaxyrus (Bufo) woodhousii</i>	Woodhouse's toad			G5	SU	Woodland, Forest, Freshwater Wetland		N
<i>Apalone mutica</i>	smooth softshell turtle					Riparian, Riverine, Lacustrine, Freshwater Wetland	added	N
<i>Apalone spinifera</i>	spiny softshell turtle					Riparian, Riverine, Lacustrine, Freshwater Wetland	added, not AZNM	N
<i>Cheylydra serpentina</i>	Common snapping turtle					Riparina, Riverine	added	N
<i>Crotalus atrox</i>	Western diamondback rattlesnake				S4	Barren/Sparse Vegetation, Desert Scrub, Grassland, Shrubland, Savanna, Woodland, Caves/Karst		N
<i>Crotalus horridus</i>	Timber (Canebrake) Rattlesnake		T	G4	S4	Woodland, Forest, Riparian		N
<i>Graptemys caglei</i>	Cagle's map turtle		T	G3	S1	Riparina, Riverine		Y
<i>Graptemys versa</i>	Texas map turtle			G4	SU	Riparina, Riverine		Y
<i>Heterodon nasicus</i>	Western hognosed snake					Desert Scrub, Grassland, Shrubland	added	N
<i>Macrochelys temminckii</i>	alligator snapping turtle		T	G3G4	S3	Riparian, Riverine, Cultural Aquatic	added	N
<i>Ophisaurus attenuatus</i>	western slender glass lizard					Grassland, Savanna	added	N
<i>Phrynosoma cornutum</i>	Texas horned lizard		T	G4G5	S4	Desert Srub, Grassland, Savanna		N
<i>Pseudacris streckeri</i>	Strecker's Chorus Frog			G5	S3	Grassland, Savanna, Woodland, Riparian, Cultural Aquatic, Freshwater Wetland		N
<i>Sistrurus catenatus</i>	massasauga					Grassland, Barren/Sparse Vegetation, Shrubland, Coastal,	added	N
<i>Terrapene carolina</i>	Eastern box turtle			G5	S3	Grasslands, Savanna, Woodland		N
<i>Terrapene ornata</i>	Ornate box turtle			G5	S3	Grassland, Barren/Sparse Vegetation, Deset Scrub, Savanna, Woodland		N
<i>Thamnophis sirtalis annectans</i>	Texas Garter Snake (Eastern/Texas/ New Mexico)			G5	S2	Riparian, Around Lacustrine and Cultural Aquatic Sites		Y
<i>Trachemys scripta</i>	Red-eared slider					Riparian, Riverine, Lacustrine, Freshwater Wetland, Cultural Aquatic	added	N
Reptiles and Amphibians References:								
J.E. Werler and J.R. Dixon. 2000. Texas Snakes: Identification, Distribution, and Natural History. University of Texas Press, Austin. 519 pgs.								
J.R. Dixon. 1987. Amphibians and Reptiles of Texas. Texas A&M University Press, College Station. 434 pp.								
FRESHWATER FISHES							Range in Texas, as known	

Texas Blackland Prairies Ecoregion 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 State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
<i>Anguilla rostrata</i>	American eel			G4	S5	Streams and reservoirs in drainages connected to marine environments	Originally found in large rivers from the Red River to the Rio Grande; Red River (from the mouth upstream to and including the Kiamichi River), Sabine Lake (including minor coastal drainages west to Galveston Bay), Galveston Bay (including minor coastal drainages west to mouth of Brazos River), Brazos River, Colorado River, San Antonio Bay (including minor coastal drainages west of mouth of Colorado River to mouth of Nueces River), Nueces River. Extirpated in several drainages (dams)	N
<i>Atractosteus spatula</i>	alligator gar					Near surface habitats in slack water and backwater habitats of rivers. Preferred pool, pool-bank snag, pool-channel snag, pool-snag complex, pool-edge, and pool-vegetation habitat	Red River (from the mouth upstream to and including the Kiamichi River), Sabine Lake (including minor coastal drainages west to Galveston Bay), Galveston Bay (including minor coastal drainages west to mouth of Brazos River), Brazos River, Colorado River, San Antonio Bay (including minor coastal drainages west of mouth of Colorado River to mouth of Nueces River), Nueces River	N
<i>Cyprinella elongatus</i>	Blue sucker		T	G3G4	S3	Large, deep rivers, and deeper zones of lakes	Red River (from the mouth upstream to and including the Kiamichi River), Sabine Lake (including minor coastal drainages west to Galveston Bay), Galveston Bay (including minor coastal drainages west to mouth of Brazos River), Brazos River, Colorado River, San Antonio Bay (including minor coastal drainages west of mouth of Colorado River to mouth of Nueces River), Nueces River	N
<i>Etheostoma fonticola</i>	Fountain darter	LE	E	G1	S1	Thermally constant (21-24 °C) springs and the upper San Marcos (Hays Co.) and Comal (Comal Co.) rivers, usually in dense beds of <i>Vallisneria</i> , <i>Elodia</i> , <i>Ludwigia</i> and other aquatic plants; substrate normally mucky	Upper San Marcos (Hays Co.) and Comal (Comal Co.) rivers, San Antonio Bay drainage unit Note: original population in the Comal River extirpated in mid-1950's when Comal Springs ceased to flow; a population from San Marcos was reintroduced into Comal Springs in 1975	Y

Texas Blackland Prairies Ecoregion 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 State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
<i>Macryhbopsis storeriana</i>	Silver chub					Broad rivers with low gradient which flow through old mature valley; bottoms gravel to silt, but more common over silt or mud, turbid water with very soft sand/silt substrate Normally inhabits pools, will move to riffle if siltation is heavy; when large streams very turbid or depositing unusually large amounts of silt, will temporarily migrate into clearer streams of higher gradients; when waters were very clear individuals move to deeper water	Red River and the lower Brazos River; Brazos River population is apparently disjunct from other populations of this species, which range through the Mississippi River Basin to Mobile Bay	N
<i>Micropterus treculii</i>	Guadalupe bass			G3	S3	Small lentic environments; commonly taken in flowing water	Endemic to the streams of the northern and eastern Edwards Plateau including portions of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside of the Edwards Plateau streams in decreased abundance, primarily in the lower Colorado River; two introduced populations have been established in the Nueces River system	Y
<i>Notropis atrocaudalis</i>	Blackspot shiner					More abundant near headwaters; runs and pools over all types of substrates, generally avoiding areas of backwater and swiftest currents	Red River (from the mouth upstream to and including the Kiamichi River), Sabine Lake (including minor coastal drainages west to Galveston Bay), Galveston Bay (including minor coastal drainages west to mouth of Brazos River), and Brazos River	N
<i>Notropis bairdi</i>	Red River shiner					Turbid waters of broad, shallow channels of main stream, over bottom mostly of silt and shifting sand; streambeds with widely fluctuating flows subject to high summer temperatures, high rates of evaporation, and high concentrations of dissolved solids; tolerant of high salinities	Red River, from the mouth upstream to and including the Kiamichi River	N
<i>Notropis buccula</i>	Small eye shiner	C		G2Q	S2	Turbid waters of broad, sandy channels of main stream, over substrate consisting mostly of shifting sand; broad condition tolerances (turbidity, salinity, oxygen).	Brazos River; historically as far south as Hempstead (Waller County)	Y
<i>Notropis chalybaeus</i>	Ironcolor shiner					Small to medium sized streams that drain pine woodlands; acid, tannin-stained, non-turbid sluggish Coastal Plain streams and rivers of low to moderate gradient; often at the upstream ends of pools, with a moderate to sluggish current, and sand, mud, silt, or detritus substrata; usually associated with aquatic vegetation; in the San Marcos River (Hays Co.), a disjunct population is restricted to clear, spring-fed waters with abundant aquatic vegetation	Red River (from the mouth upstream to and including the Kiamichi River), Sabine Lake (including minor coastal drainages west to Galveston Bay), San Antonio Bay (including minor coastal drainages west of mouth of Colorado River to mouth of Nueces River, isolated population found in the San Marcos River headwaters)	N

Texas Blackland Prairies Ecoregion 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 State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
<i>Notropis oxyrhynchus</i>	Sharpnose shiner	C		G3	S3	Moderate current velocities and depths, sand bottom	Brazos River drainage; Red River drainage, when a tributary to the Brazos River was captured into the Red River drainage; introduced in Colorado River drainage	Y
<i>Notropis potteri</i>	Chub shiner		T	G4	S3	Turbid, flowing water with silt or sand substrate; tolerant of high salinities	Brazos River, Colorado River, San Jacinto River, Trinity Rivers, and Galveston Bay	N
<i>Notropis shumardi</i>	Silverband shiner					Large rivers, smaller tributaries and oxbow lakes that frequently reconnect to Brazos River mainstem; main channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water over silt, sand, and gravel; tolerant of high turbidity	Red River (from the mouth upstream to and including the Kiamichi River), Sabine Lake (including minor coastal drainages west to Galveston Bay), Galveston Bay (including minor coastal drainages west to mouth of Brazos River), Brazos River, and Colorado River	N
<i>Percina apristis</i>	Guadalupe darter					Riffles; most common under or around boulders in the main current; moderately turbid water; absent in collections from the clearest waters tributary to the Guadalupe, namely spring heads and the main river west of Kerrville	Guadalupe River and its tributaries, the San Marcos and Blanco Rivers; apparently absent from the headwaters of the Blanco and the entirety of the San Antonio River	Y
<i>Polyodon spathula</i>	Paddlefish		T	G4	S3	Large river systems and tributaries; deepwater channel habitats; low-gradient areas of moderate to large-sized rivers, sluggish pools, backwaters, bayous, and oxbows with abundant zooplankton; large reservoirs if connected to/can access free-flowing streams in the spring for spawning	Historically occurred in Texas in every major river drainage from the Trinity Basin eastward; currently only Red River, from the mouth upstream to and including the Kiamichi River	N
<i>Satan eurystomus</i>	Widemouth blindcat		T	G1	S1	Karst: Subterranean waters	Restricted to 5 artesian wells penetrating the San Antonio Pool of the Edwards Aquifer (Edwards Limestone, Lower Cretaceous) in the vicinity of San Antonio (Bexar County)	Y
<i>Trogloglanis pattersoni</i>	Toothless blindcat		T	G1	S1	Karst: Subterranean waters	Restricted to 5 artesian wells penetrating the San Antonio Pool of the Edwards Aquifer (Edwards Limestone, Lower Cretaceous) in the vicinity of San Antonio (Bexar County)	Y
Freshwater Fish References:								
C. Thomas, T.H. Bonner and B.G. Whiteside. 2007. Freshwater Fishes of Texas: A Field Guide. Sponsored by The River Systems Institute at Texas State University, published by Texas A&M University Press.								
Editor's Note: All freshwater fishes life history information in this table was sourced directly from the online version; citations are embedded in the online version at http://www.bio.txstate.edu/~tbonner/txfishes/								
INVERTEBRATES								
<i>Bombus pensylvanicus</i>	American bumblebee			GU	SU*	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Bee/Wasp/Ant	
<i>Chimarra holzenthali</i>	Holzenthali's Philopotamid caddisfly			G1G2	S1	Riparian, Riverine	Aquatic - Insects - Caddisflies; added TBPR, ECPL	
<i>Cotinis boylei</i>	A scarab beetle			G2*	S2*	Grassland, Shrubland, Woodland	Terrestrial - Insect - Beetles	
<i>Nicrophorus americanus</i>	American Burying Beetle	LE		G1	S1	Grassland, Savanna/Open Woodland	Terrestrial - Insect - Beetles	
<i>Potamilus amphichaenus</i>	Texas heelsplitter		T	G1G2	S1	Riverine	Aquatic - Freshwater - Mollusks; new state rank and threatened state status	
<i>Procambarus regalis</i>	Regal burrowing crayfish			G2G3	S2?*	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish	

Texas Blackland Prairies Ecoregion 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 State of the practice resources are listed in each taxa line for more detailed information	Other Notes	Endemic in Texas
		Federal	State	Global	State			
<i>Procambarus steigmani</i>	Parkhill prairie crayfish			G1G2	S1S2*	Freshwater Wetland, Grassland	Aquatic - Crustaceans - Crayfish	
<i>Pseudocentropiloides morihari</i>	A mayfly			G2G3	S2?*	Riverine, Riparian	Aquatic - Insects - Mayflies	
<i>Sphinx eremitoides</i>	Sage sphinx			G1G2	S1?*	Grassland	Terrestrial - Insect - Butterflies/Moths	
<i>Susperatus tonkawa</i>	A mayfly			G1	S1*	Riparian, Riverine	Aquatic - Insects - Mayflies	
Invertebrates References:								
www.bugguide.net – good tool for identification and taxonomic information.								
www.texasento.net – compilation of information on insects in Texas								
www.odonatacentral.org – resource for identification and distribution of damselflies and dragonflies								
www.butterfliesandmoths.org – resource for identification and distribution of Lepidoptera								
www.texasmussels.wordpress.com – resource for information on freshwater mussels in Texas								
Howells, R. G., R. W. Neck and H. D. Murray. 1996. Freshwater Mussels of Texas. Texas Parks and Wildlife Press, Austin.								
Burlakova, L. E., A. Y. Karatayev, V. A. Karatayev, M. E. May, D. L. Bennett and M. J. Cook. 2011. Biogeography and conservation of freshwater mussels (Bivalvia:Unionidae) in Texas: patterns of diversity and threats. Diversity and Distributions: 1-15.								
PLANTS								
<i>Agalinis densiflora</i>	Osage Plains false foxglove			G3	S2	Savanna/Open Woodland - Outcrops	Terrestrial	N
<i>Astragalus reflexus</i>	Texas milk vetch			G3	S3	Savanna/Open Woodland	Terrestrial	Y
<i>Calopogon oklahomensis</i>	Oklahoma grass pink			G3	S1S2	Savanna/Open Woodland; Grassland; Freshwater Wetland	Terrestrial	N
<i>Carex edwardsiana</i>	canyon sedge			G3G4S3S4	S3S4	Woodland (slopes above Riparian)	Wetland	Y
<i>Carex shinneryi</i>	Shinner's sedge			G3?	S2	Grassland	Wetland	N
<i>Crataegus dallasiana</i>	Dallas hawthorn			G3Q	S3	Riparian (creeks in the Blackland Prairie)	Terrestrial	Y
<i>Cuscuta exaltata</i>	tree dodder			G3	S3	Woodland	Terrestrial	N
<i>Dalea hallii</i>	Hall's prairie-clover			G3	S3	Savanna/Open Woodland; Grassland	Terrestrial	Y
<i>Echinacea atrorubens</i>	Topeka purple-coneflower			G3	S3	Savanna/Open Woodland	Terrestrial	N
<i>Hexalectris nitida</i>	Glass Mountains coral-root			G3	S3	Woodland	Terrestrial	N
<i>Hexalectris warnockii</i>	Warnock's coral-root			G2G3	S2	Woodland	Terrestrial	N
<i>Hymenoxys pygmaea</i>	Pygmy prairie dawn			G1	S1	Barren/Sparse Vegetation with Grassland matrix (saline prairie)	currently being described	Y
<i>Liatris glandulosa</i>	glandular gay-feather			G3	S3	Savanna/Open Woodland	Terrestrial	Y
<i>Paronychia setacea</i>	bristle nailwort			G3	S3	Savanna/Open Woodland	Terrestrial	Y
<i>Phlox oklahomensis</i>	Oklahoma phlox			G3	SH	Savanna/Open Woodland	Terrestrial	N
<i>Physaria engelmannii</i>	Engelmann's bladderpod			G3	S3	Savanna/Open Woodland	Terrestrial	Y
<i>Polygonella parksii</i>	Parks' jointweed			G2	S2	Savanna/Open Woodland (sandhills); Grassland	Terrestrial	Y
<i>Prunus texana</i>	Texas peachbush			G3G4	S3S4	Savanna/Open Woodland; Grassland	Terrestrial	Y
<i>Thalictrum texanum</i>	Texas meadow-rue			G2	S2	Savanna/Open Woodland; Riparian (bottomland forest)	Terrestrial	Y
<i>Zizania texana</i>	Texas wild rice	LE	E	G1	S1	Riverine (spring-fed, clear, thermally constant, moderate current, sand to gravel substrate)	Aquatic	Y

WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP) SUMMARY REPORT
JOE POOL MASTER PLAN
DALLAS, ELLIS, AND TARRANT COUNTIES, TEXAS



**US Army Corps
of Engineers®**
Fort Worth District

December 2017

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Introduction

Habitat assessments were conducted at Joe Pool Lake on October 2-5th, 2017 using Texas Parks and Wildlife Department's (TPWD) Wildlife Habitat Appraisal Procedure ([WHAP] TPWD 1995). WHAP survey point locations were haphazardly preselected based on aerial imagery from existing Geographical Information Systems (GIS) data. A total of 69 WHAP points were surveyed, all within U.S. Army Corps of Engineers (USACE) fee boundary (Figures 1A, 1B, and 1C).

The purpose of this report is to describe wildlife habitat quality within the USACE Joe Pool Lake fee-owned property in Dallas, Ellis, and Tarrant Counties, Texas. This report is being prepared by the USACE Regional Planning and Environmental Center to provide habitat quality information and inform land classifications as part of the Joe Pool Lake Master Plan revision process.

Study Area

USACE fee owned property at Joe Pool Lake, approximately 15,202 acres, is located within the Dallas-Fort Worth metroplex in north central Texas. More specifically, the lake sits primarily between the cities of Grand Prairie and Cedar Hill, Texas within the Texas Blackland Prairie ecoregion. Among numerous small creeks and tributaries, Mountain Creek and Walnut Creek are the major contributing streams to Joe Pool Lake. Downstream of the Joe Pool Lake dam, Mountain Creek meanders through Mountain Creek Lake before its confluence with the Trinity River.

Methodology

An interagency team of biologists, foresters, and USACE park rangers conducted the habitat surveys on October 2-5th, 2017. TPWD's WHAP protocol was used to analyze and describe existing habitats.

The WHAP requires evaluating representative sites of each cover type present within an area of interest. For this project, a search area of 0.1 acre (circle with radius of 37.2 feet) was used at each WHAP site to compile a list of plant species occurring at each site and to complete the Biological Components Field Evaluation Form (https://tpwd.texas.gov/publications/pwdpubs/media/pwd_rp_w7000_0145.pdf). Field data collected on the form at each WHAP site included the following components:

1. Site Potential
2. Temporal Development of Existing Successional Stage
3. Uniqueness and Relative Abundance
4. Vegetation Species Diversity
5. Vertical Vegetation Stratification
6. Additional Structural Diversity
7. Condition of Existing Vegetation

At each site, a 1/10th acre plot was evaluated and points were assigned to all applicable components based on field conditions. A habitat quality score, where values range from 0.0 (low quality) to 1.0 (high quality), was then calculated for each site by adding together all points and multiplying by 0.01. Habitat quality was then determined for all sites within the same habitat type.

Photographs were taken at each site and are included as Attachment B.

The TPWD developed the WHAP to allow a qualitative, holistic evaluation of wildlife habitat for particular tracts of land statewide without imposing significant time requirements in regard to field work and compilation of data (TPWD 1995). The WHAP was not designed to evaluate habitat quality in relation to specific wildlife species.

The WHAP is based on the following assumptions:

1. Vegetation structure including species composition and physiognomy is itself sufficient to define the habitat suitability for wildlife;
2. A positive relationship exists between vegetation diversity and wildlife species diversity;
3. Vegetation composition and primary productivity directly influence population densities of wildlife species.

As designed, the WHAP is intended to be used for the following applications:

1. Evaluating impacts upon wildlife populations from specific development project alternatives.
2. Establishing baseline data prior to anticipated or proposed changes in habitat conditions for specific areas.
3. Comparing tracts of land that are candidates for land acquisition or mitigation.
4. Evaluating general habitat quality and wildlife management potential for tracts of land over large geographical areas, including wildlife planning units.

The WHAP protocol can be used to assess a wide range of habitats, however it was originally developed to assess and develop mitigation requirements for loss of bottomland hardwoods and other aquatic habitats. Scores can screw higher for these habitats based on how the scoring is allotted to each WHAP habitat component. Upland forest and grassland habitat types cannot reach a score indicative of high quality habitat although they may exhibit high quality features. Subsequently, high quality upland habitat may not be identified or can be overlooked.

Grasslands, in particular, fall into this category. Consider the Site Potential component with a maximum score of 0.25 points, it allocates more points based on higher hydrologic connectivity. In order to receive the highest score for this component, the area must exhibit at least one of the following: at least periodically support predominately hydrophytic vegetation, is predominately undrained hydric soil and supports or is capable of supporting hydrophytic vegetation, and/or is saturated with water or covered by shallow water during 1-2 months during the growing season of each year. In a grassland setting, when conditions become conducive to hydrophytic plant growth, a successional shift from a grassland to herbaceous wetlands, swamps, or riparian forest is likely to occur. Therefore, grasslands would almost always be limited to a maximum score of 0.12 points (uplands with thick surface layer).

Similarly, grasslands would be limited to a maximum of 0.12 points for the Temporal Development of Existing Successional Stage component, whereas other forested habitats could receive the full 0.25 points.

These two components alone regularly exclude grassland habitat from receiving 0.26 points on the WHAP scale. In order to identify the maximum score each habitat type can receive, USACE environmental staff scored each criteria given ideal conditions for riparian/bottomland hardwood forest (BHF), upland forest (includes all non-riparian/BHF forests), grassland, swamp, and marsh habitats. The maximum values scores, shown in Table 1, were then used to normalize

scores for habitats that are prevented from reaching the maximum WHAP score primarily due to arbitrary low scores in the two WHAP components described above. Normalizing habitat scores will identify high quality habitat that would otherwise not be detected.

Table 1. Maximum Total Score per Habitat Type

Cover Type	Component Number								Maximum Total Score
	1	2	3	4	5	6	7	7B	
Swamp	20	20	20	20	5	5	5	5	1.00
Marsh	25	20	20	20	NA	5	10	NA	1.00
Riparian/BHF	25	20	20	15	5	5	5	5	1.00
Upland Forest	12	20	20	15	5	5	5	5	0.87
Grassland	12	12	20	6	3	5	5	5	0.68

Swamp, marsh, and riparian/BHF habitats can all achieve the maximum score, therefore, no normalization of scores were made for these habitat types. Upland forests and grasslands, however, can only reach within 0.13 and 0.32 points of the maximum WHAP score, even in ideal conditions.

To evaluate all habitat types on an even scoring basis, upland forest and grassland scores were normalized by dividing their original scores by the maximum possible score for their respective habitat types. For example, if a grassland site received an initial score of 0.42, it would be divided by the maximum total points a grassland site can receive, 0.68. The normalized total score used for further analysis for the grassland site would be 0.61.

This adjustment allows habitat type scores to be analyzed and compared to their corresponding habitat type maximum total score. Rather than, for instance, a grassland being evaluated on a bottomland hardwood scoring scale.

All WHAP scores analyzed and discussed from here forward reflect the normalized total scores. As mentioned above, swamp, marsh, and riparian/BHF habitats were not normalized as they can already achieve maximum scores. Grassland scores were normalized by dividing initial scores by 0.68, while all upland forest scores were normalized by dividing the initial score by 0.87.

Habitat

Using TPWD’s Texas Ecological Mapping Systems (<https://tpwd.texas.gov/landwater/land/programs/landscape-ecology/ems/>), Joe Pool Lake lies within the Texas Blackland Prairie ecoregion. The most common habitat types include Deciduous Forest, Grasslands, and Riparian Forest (Elliot, 2014). Table 2 displays all habitats surveyed and the number of points surveyed within each respective habitat type.

Table 2. Survey Points per Habitat Type	
Habitat Type	Points Surveyed
Mixed Forest	8
Deciduous Forest	25
Riparian Forest	15
Grassland	21
Total Points Surveyed	69

Elliot (2014) provided general habitat type descriptions and associated vegetation communities for the Ecological Systems Classification and Mapping Project in support of the Comprehensive Wildlife Conservation Strategy for the Texas Parks and Wildlife Department. These descriptions were meant to be broad and depict typical vegetative assemblages across vast areas as the observable vegetation communities can vary based on local conditions.

Historically, tallgrass prairies consisting of little bluestem, big bluestem, yellow Indiangrass, tall dropseed, eastern gamagrass and many forbs, such as asters, clovers, and black-eyed susan dominated the region. Before nearly all of the prairie was developed, bison and pronghorn, greater prairie chickens, and even ocelot utilized this area. Only an estimated 5,000 widely scattered acres in small tracts remain of the original 12 million acres of the region, or less than one-tenth of one percent of remaining prairie. Riparian hardwoods, primarily bur oak, Shumard oak, sugar hackberry, elm, ash, eastern cottonwood, and pecan, meander this prairie. The headwaters of several east Texas rivers begin in the Blackland Prairie region. In addition, the Trinity, Brazos and Colorado Rivers, and many tributaries of nearly every major system feeding the Gulf of Mexico, originate in or cross the Blackland Prairies (TPWD, 2012).

Figure 2 displays the distribution of habitat types within the USACE boundary at Joe Pool Lake. For analysis purposes, habitat types were pooled into one of four categories: deciduous forest, grassland, mixed forest, and riparian forest.

Results and Discussion

The total habitat score for each point surveyed is a representation of multiple habitat attributes including vegetative diversity and structure, site soil potential, successional stage, and uniqueness of that habitat across the landscape. Data analysis highlights are discussed below, while detailed data for each point surveyed can be found in Attachment A: Joe Pool WHAP Summary Results of this report.

Grassland (N = 21) and deciduous forests (N = 25) were the most abundant habitat types surveyed. Deciduous forest scores ranged from 0.38 to 0.75 while grassland scores fell between 0.38 and 0.79. The lower minimum scores, especially for these normally drier upland habitats, may be partly due to long-term flooding that occurred at Joe Pool Lake in recent years, thus leading to reduced plant diversity. Flooding at lower elevations in the flood pool of Joe Pool Lake Almost certainly led to mortality of the typically upland species of herbaceous plant growth. This certainly affected survey metrics within the inundated areas. Long-term flooding of Federal lands is a routine occurrence at typical Corps lakes having a primary mission of flood risk reduction.

The average, maximum, and minimum total score observed for each habitat type surveyed is shown in Table 3.

Table 3. Average, Maximum, and Minimum Total Scores per Habitat Type

Habitat Type	Average Total Score	Maximum Total Score	Minimum Total Score
Deciduous Forest	0.55	0.75	0.38
Grassland	0.61	0.79	0.38
Mixed Forest	0.56	0.82	0.40
Riparian Forest	0.60	0.85	0.40

Figures 3A, 3B, and 3C show the range of total scores for all points surveyed (N = 69) as well as the nine additional points that were skipped due to inaccessibility or multiple points occurring in the same area. Skipped points show a total score of 0 in figures 3A, 3B, and 3C. Overall, riparian forest and grassland habitats exhibited the highest average total score (0.60 and 0.61). In general, these habitats exhibited more woody and herbaceous vegetative species diversity than deciduous and mixed forests.

Also noteworthy, large scale grassland/prairie restoration efforts are underway at Joe Pool Lake, primarily within Cedar Hill State Park. Habitat scores are expected to climb in these areas as native plant diversity increases and restoration efforts near completion. Once complete, these areas are likely to become unique, highly valuable for wildlife as native prairie habitat in the region has largely been lost.

Beyond vegetative diversity, the three major metrics within the WHAP scoring criteria that allocate points are for site potential, successional stage, and uniqueness and relative abundance. Table 4 shows these metrics' average score per habitat type.

Table 4. Average Site Potential, Successional Stage, and Uniqueness and Relative Abundance Scores per Habitat Type

Habitat Type	\bar{x} Site Potential	\bar{x} Successional Stage	\bar{x} Uniqueness and Relative Abundance
Deciduous Forest	14.68	7.72	8.80
Grassland	11.40	4.95	7.00
Mixed Forest	13.22	8.78	8.89
Riparian Forest	17.13	11.07	9.67

Site potential allocates more points based on soil substrates characteristics and hydrologic connectivity that can support hydrophytic habitats, such as marshes, swamps, and bottomland hardwood forests that are often considered to be higher quality, more diverse habitat. This allows areas to score higher even though a recent disturbance, such as fire or flood, may have removed most of the vegetation. Areas scoring high in site potential but low in other metrics can be targeted for management efforts as these areas' vegetation community response should be favorable, thus increasing habitat value.

Successional stage refers to the age of the vegetative community. Older, mature forests, as do climax prairies, score higher than younger pole stands or disturbed grasslands as they provide more diverse forage, cover, and niche habitats. These scores are expected to increase across the board except in areas around the lake that may not have the soil types to support hydrophytic vegetation and are flooded frequently enough to limit upland forest or grassland growth and development.

Uniqueness and Relative Abundance takes into consideration the rarity of a habitat or vegetative community and its abundance in the region. Ongoing urban expansion has significantly influenced the region's remaining habitat composition. Few large, contiguous patches of habitat remain within the DFW metroplex. Joe Pool Lake and the surrounding terrestrial habitat represents one of these remaining patches that have become less abundant across the region. As urban development continues, the remaining habitat at Joe Pool Lake will likely increase in overall wildlife value and uniqueness.

Riparian forests are typically found in highly productive soils and consist of vegetation communities that persist and even thrive when exposed to frequent or extended periods of flooding. As such, these areas exhibited the highest average site potential, successional stage, and uniqueness and relative abundance scores among all habitat types surveyed.

As noted earlier, grassland/prairie restoration efforts have been in progress at Joe Pool Lake. Several of these sites were surveyed within Cedar Hill State Park as part of this effort. Overall, survey points #6, #8, #23, #65, and #73 (Figure 4) all scored over 0.70 indicating medium to high value grassland habitat. These areas largely represent the conservation and restoration efforts completed to date and are likely to increase in habitat value as restoration efforts continue. In addition, as the surrounding area continues to be developed, these remaining native prairie habitats will become increasingly unique in the region.

Only three points (9, 13, and 50) surveyed received scores over 0.80 indicating very high quality habitat. These areas support riparian and mixed forest habitats featuring high tree species diversity including mature pecan and oak canopy cover. In addition, these three points (Figure 5) all received the maximum scores for site potential, successional stage, and uniqueness and relative abundance criteria.

In summary, combining the WHAP analytical analysis, continued urban development, and spatial distribution of higher scoring points, two areas were identified as having higher quality in relation to the remaining lands administered by USACE at Joe Pool Lake. The two areas include land along the eastern shorelines within Cedar Hill State Park and land along Walnut Creek near SH360.

Recommendations

Even with planned and unplanned disturbances, there are numerous areas of valuable wildlife habitat remaining on USACE fee property at Joe Pool Lake.

The conservation and restoration management practices at Joe Pool Lake include prairie restoration sites entailing thinning and prescribed fire, and chemical treatment for the improvement of upland habitats with an overall goal of increasing native species diversity and maintaining overall health. Overall, habitat management has proven effective in maintaining medium- to high-quality wildlife habitat on USACE lands at Joe Pool Lake.

Based on the results of the WHAP survey efforts, areas to consider for Wildlife Management or Environmentally Sensitive Areas land classifications include those areas having the highest scores. The planning team for the Joe Pool Lake Master Plan revision will take into account the WHAP scores when making land classification decisions.

References

Elliott, Lee F., David D. Diamond, C. Diane True, Clayton F. Blodgett, Dyan Pursell, Duane German, and Amie Treuer-Kuehn. 2014. Ecological Mapping Systems of Texas: Summary Report. Texas Parks & Wildlife Department, Austin, Texas.

Texas Parks and Wildlife Department (TPWD). 2012. Texas Conservation Action Plan 2012-2016: Texas Blackland Prairies Handbook. Editor, Wendy Connally, Texas Conservation Action Plan Coordinator. Austin, Texas.

Texas Parks and Wildlife Department (TPWD). 1995. Wildlife Habitat Appraisal Procedure (WHAP). Last revised January 12, 1995.

Joe Pool Lake WHAP Summary Result Figures

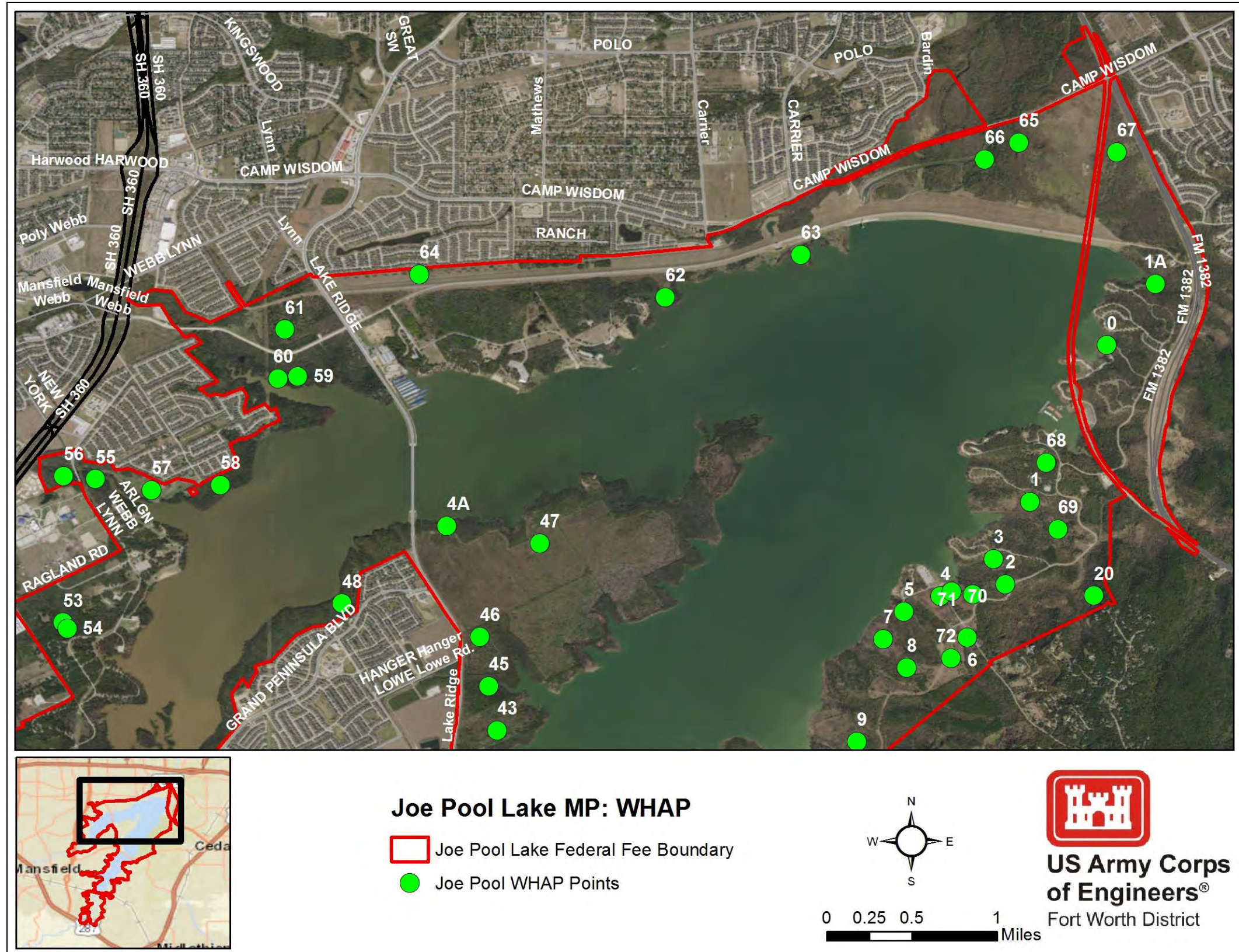


Figure 1A. Distribution of WHAP Points within the fee owned boundary at Joe Pool Lake.

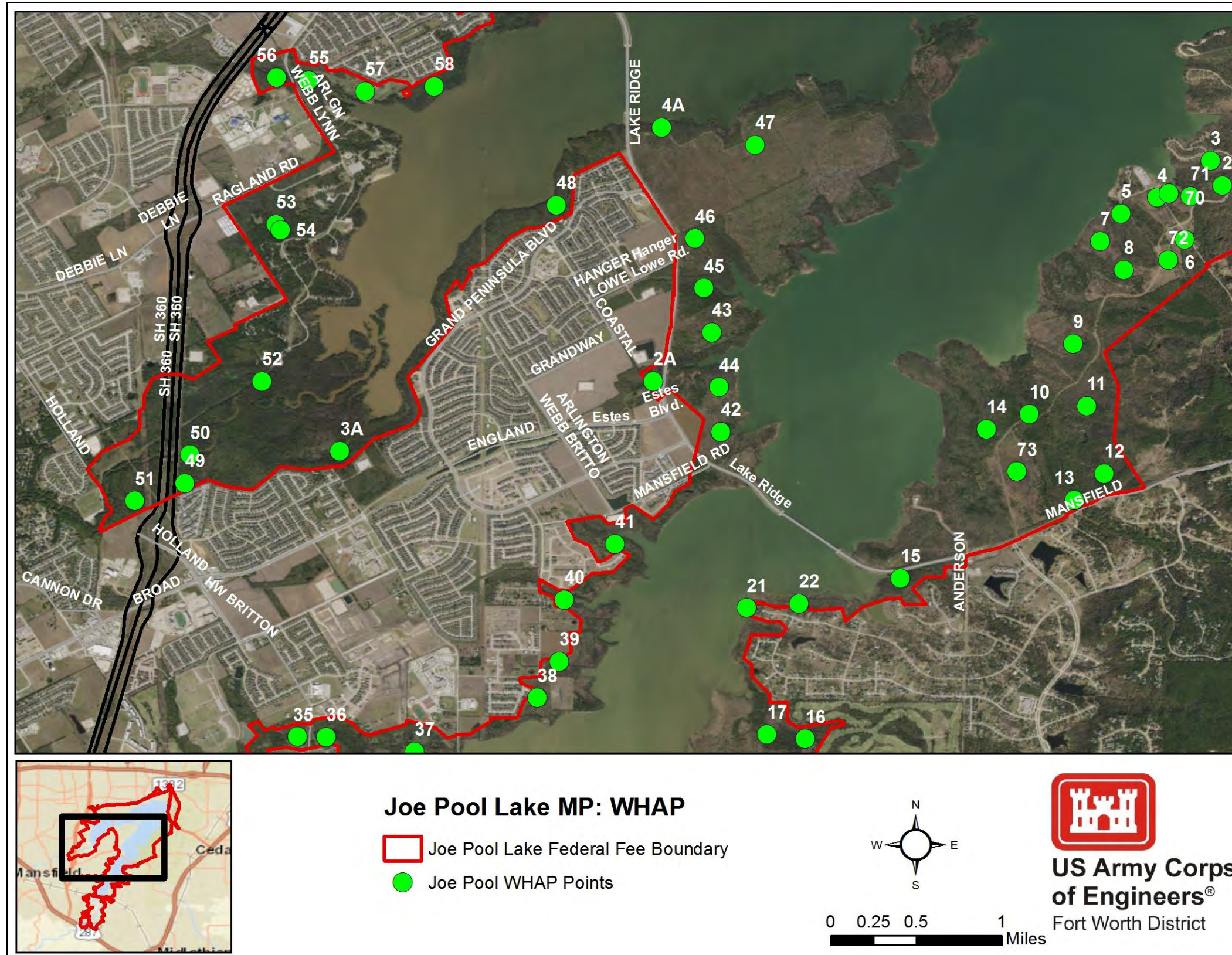


Figure 1B. Distribution of WHAP Points within the fee owned boundary at Joe Pool Lake.

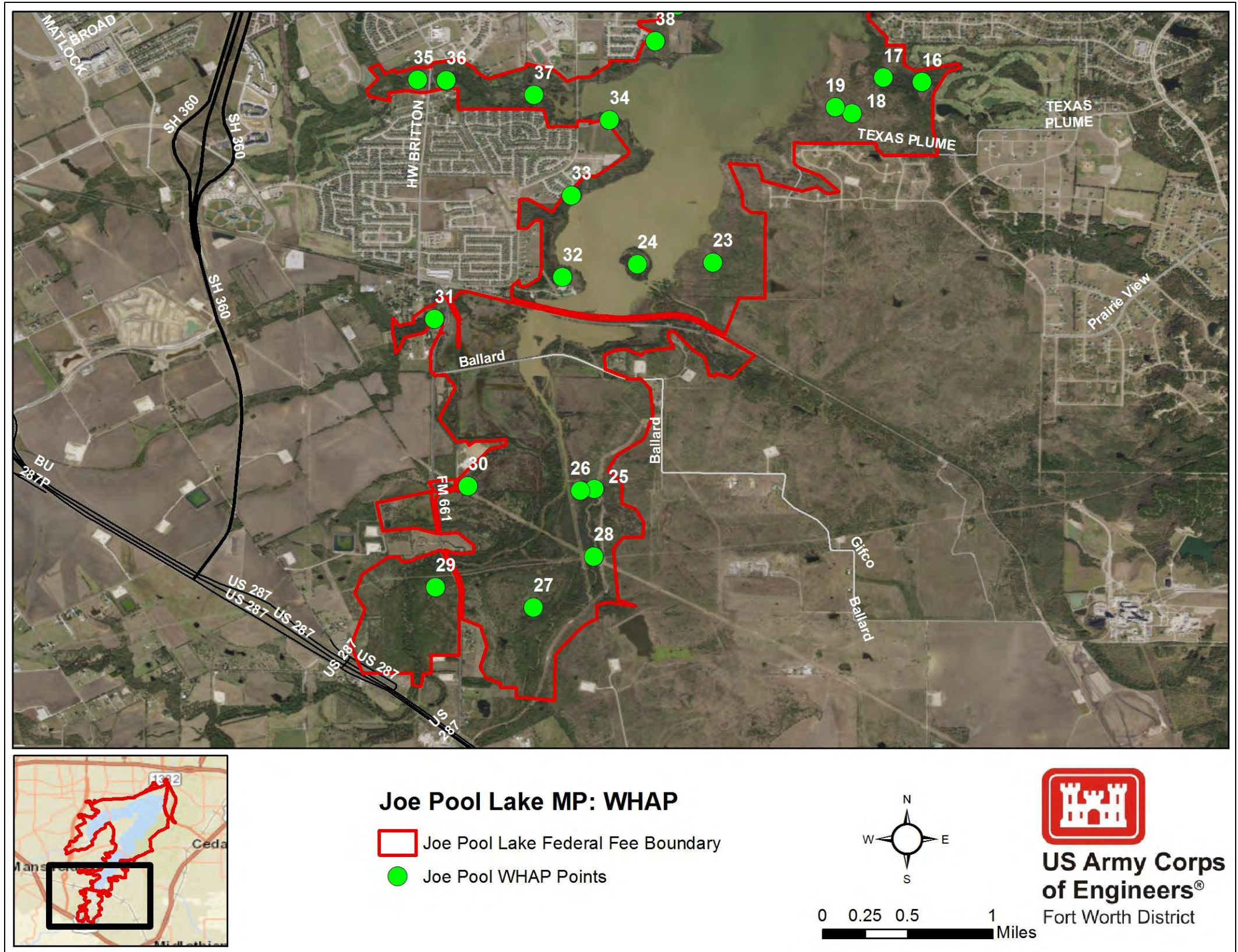


Figure 1C. Distribution of WHAP Points within the fee owned boundary at Joe Pool Lake.

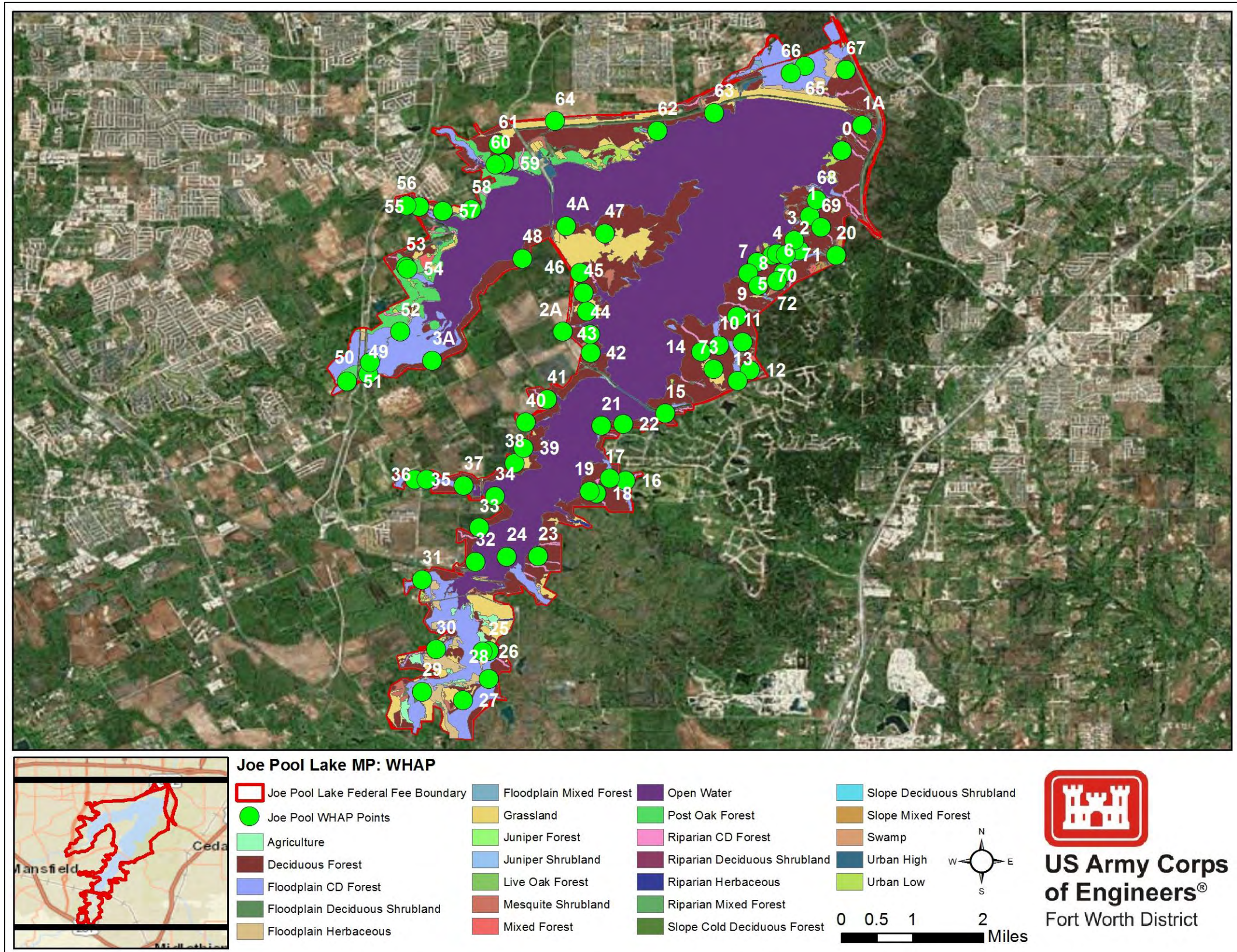


Figure 2. Distribution of Habitat Types within the fee owned boundary at Joe Pool Lake.

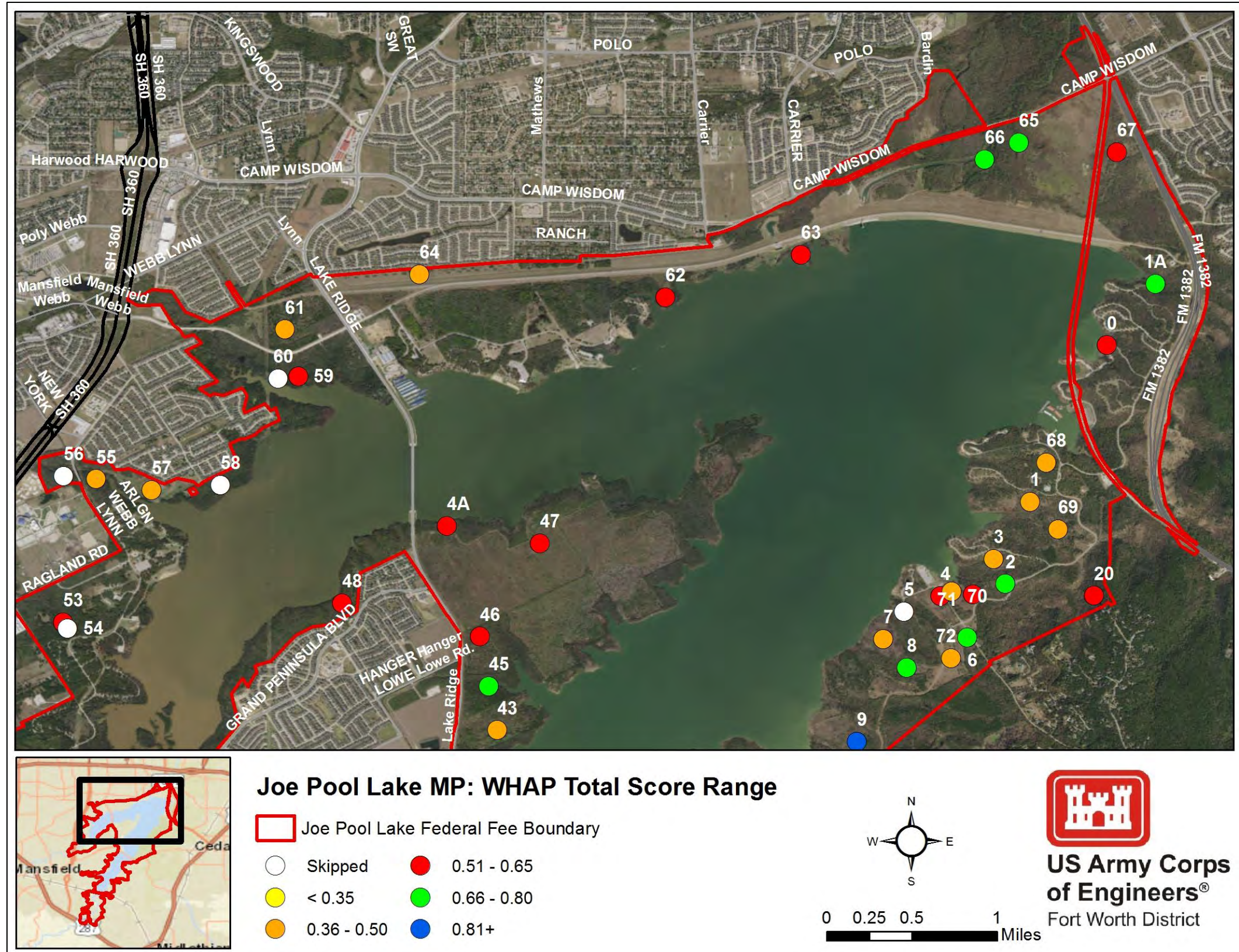


Figure 3A. Total Score Range for All Points Surveyed.

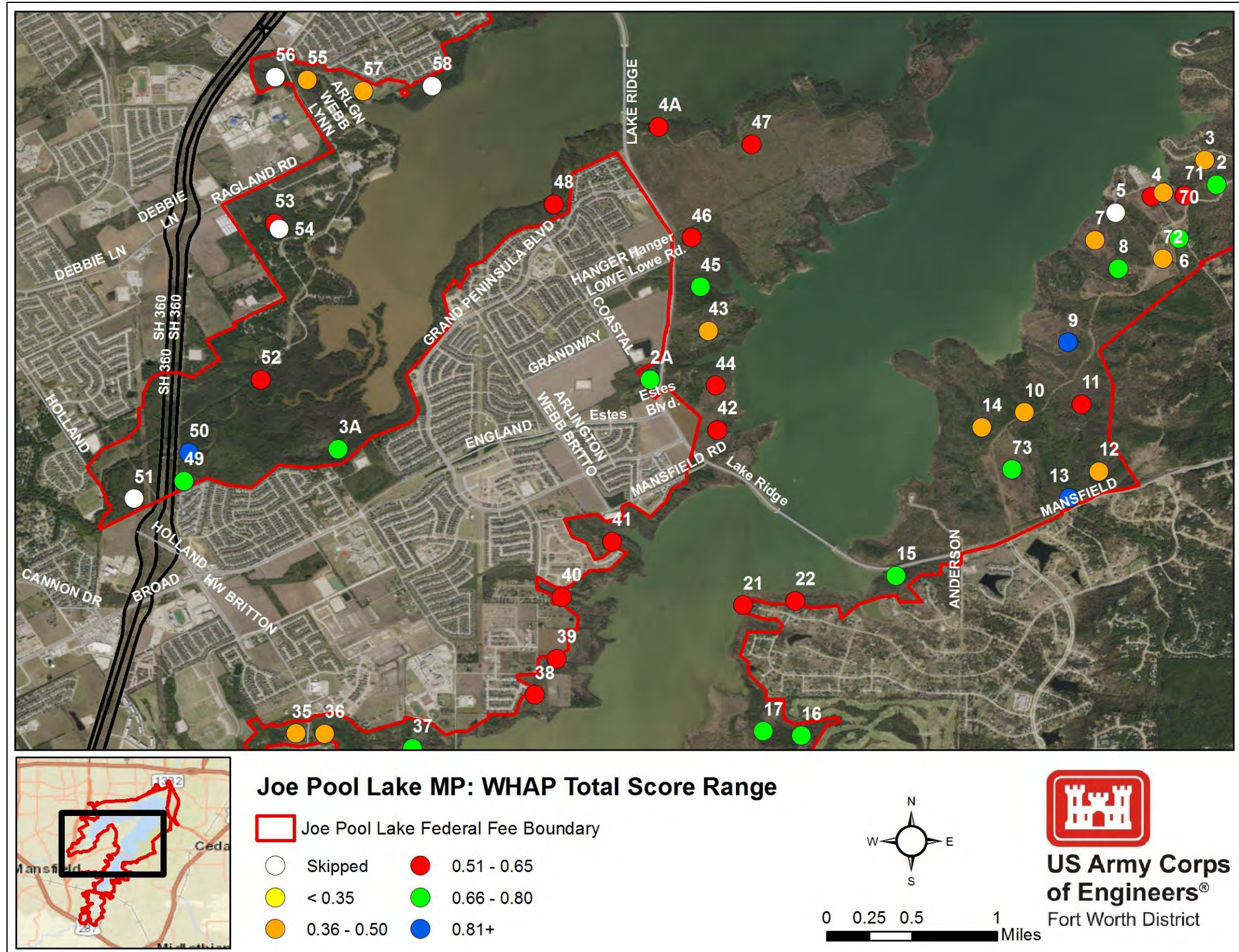


Figure 3B. Total Score Range for All Points Surveyed.

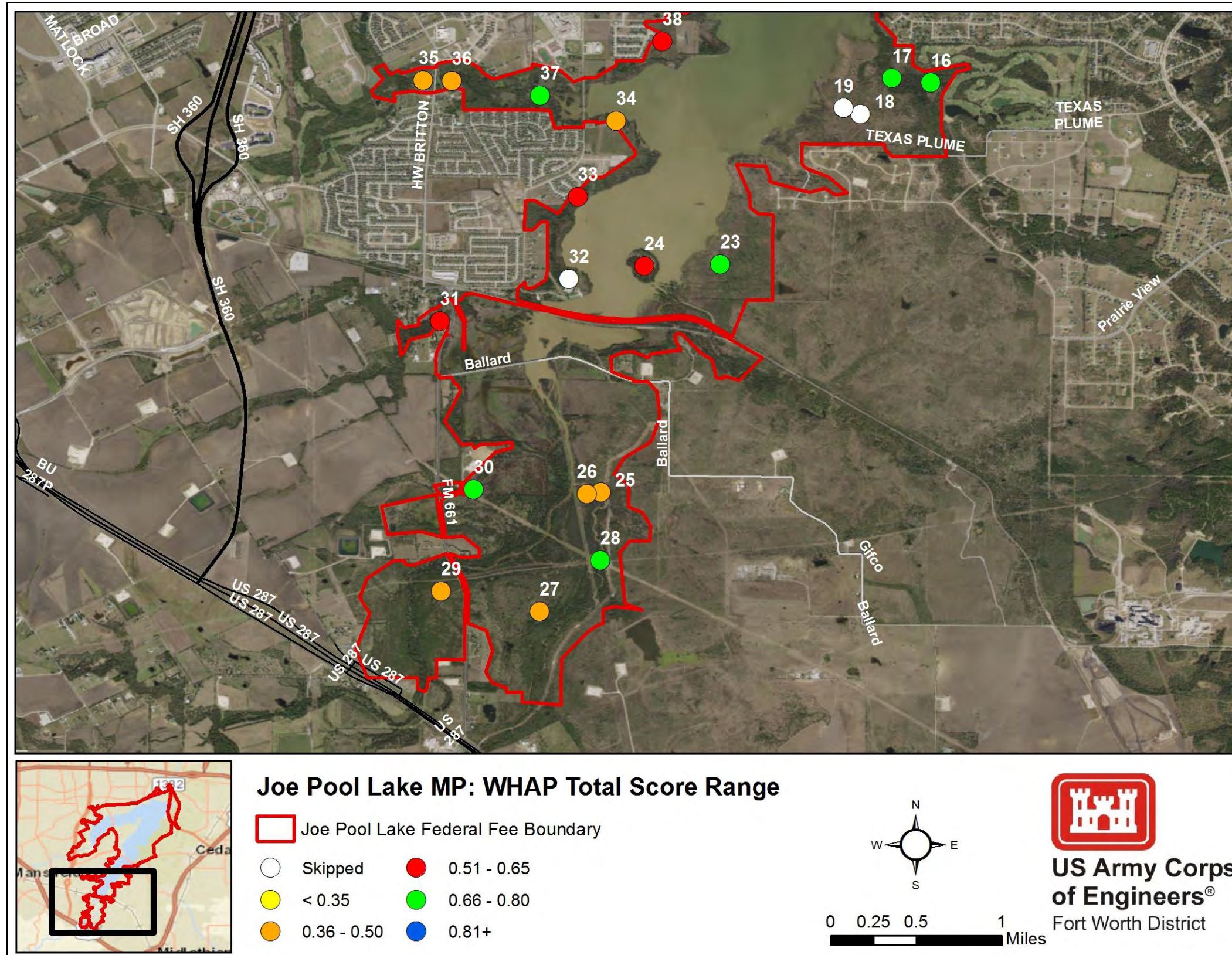


Figure 3C. Total Score Range for All Points Surveyed.

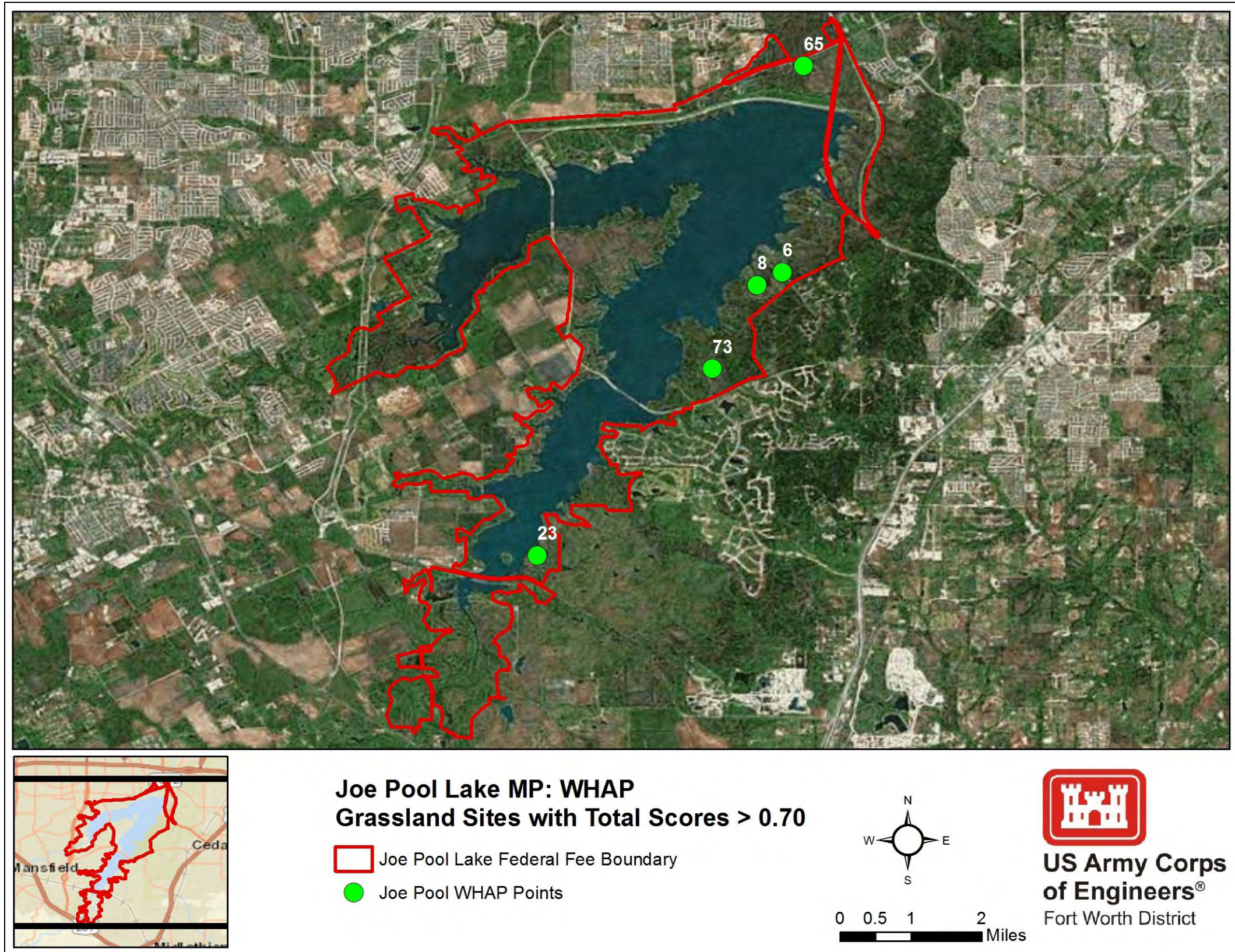


Figure 4. Grassland Sites with Total Score > 0.70.

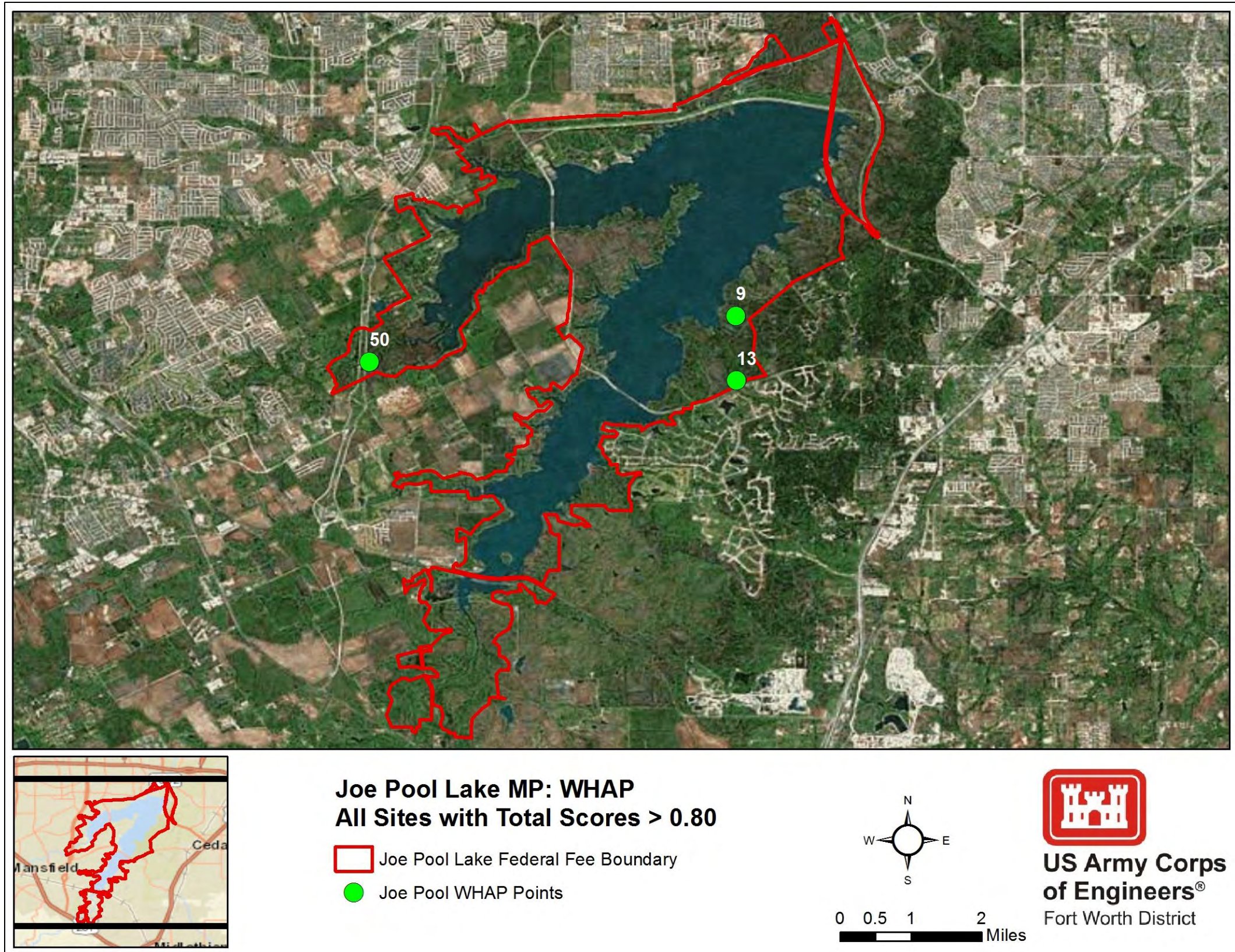


Figure 5. Survey Points with Total Score > 0.80.

Attachment A: Joe Pool Lake WHAP Results Summary

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
0	Decidious Forest	0.54	Hackberry, unknown #1, Mistletoe, unknown vine	Mesquite, Locust	Post Oak	None	Winged Elm	Juniper	None	Prickly Pear	Doveweed, Beggar's Lice, Sunflower, Panicum sp, Beebalm, Ragweed, 3 misc, Silver Bluestem, Big Bluestem	None
1	Decidious Forest	0.49	Hackberry, American Persimmon	Mesquite, Locust	None	None	Winged Elm	Juniper	None	Prickly Pear	Doveweed, Big Bluestem, Sunflower, Snow on the Prairie, Beebalm, Wildrye, Thistle, Sensitive Brier, Broomweed, Tumbleweed, Gayfeather, Wood Sorrel, Side Oats Grama, Panicum Sp, Croton(goat weed), Beggar's Lice	Score doesn't reflect true value
1a	Decidious Forest	0.67	Hackberry, Greenbrier,	None	Shumard Oak	None	Cedar Elm, Green Ash	Juniper	None	None	Carex Sp, Giant Ragweed, Wildrye	Riparian
2	Grassland	0.66	Hackberry, Greenbrier, Persimmon, Privet, Sumac	Honey Locust, Mesquite	None	None	Winged Elm, Cedar Elm	Juniper	None	None	Beggar's Lice, Canada Wildrye, Ragweed, Thistle, Silver Bluestem, Milkweed, Sawgrass, Big Bluestem, 3 unknown spp.	chemical burn/mulched
2a	Decidious Forest	0.71	Hackberry, Poison Ivy	None	None	None	Green Ash	None	None	Cottonwood, Willow	Giant Ragweed, Goldenrod, Aster Spp.	Riparian

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
6	Grassland	0.71	Hackberry, Gum Bumelia	None	None	None	Cedar Elm	None	None	Osage Orange	Paspalum, Western Ragweed, Ironweed, Giant Ragweed, Eastern Gamagrass, Indiangrass, Big Bluestem, Little Bluestem, Goldenrod, Wood Sorrel, Side Oats Grama, Snow on the Prairie, Blue Sage, 2 unknown forbs, Doveweed, Boneset	None
7	Grassland	0.43	Western Soapberry, Greenbrier, Hackberry, Hercules Club, Carolina Snailseed, Ballonvine	Locust, Mesquite	None	None	None	None	None	None	Little Bluestem, King Ranch Bluestem, Beggar's Lice, unknown forb	None
8	Grassland	0.71	Flameleaf Sumac, Hackberry, Greenbrier, Plum, Snailseed, Yaupon, Soapberry, Poison Ivy	Mesquite	None	None	Green Ash, Winged Elm	Juniper	None	Prickly Pear	Little Bluestem, Big Bluestem, Croton, Nut Sedge	None
9	Mixed Forest	0.82	Hackberry, Mexican Plum, 1 unknown, Sumac, Ballonvine	Mesquite	None	None	Winged Elm, Cedar Elm	Juniper	None	None	Broomweed, Croton, unknown (milkweed?), Queen Anne's Lace, Goldenrod, Indiangrass, Big Bluestem, Little Bluestem, Johnson Grass, Snow on the Prairie, Soapweed, , Scribner's Panicum	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
10	Mixed Forest	0.48	Possum Haw, Privet, Gum Bumelia, Wild Plum	Mesquite	None	None	Cedar Elm	Juniper	None	Prickly Pear	Rosinweed, Rosinweed, Gayfeather, Little Bluestem, Indian Grass, Johnson Grass, Carex, Wintergrass, Sunflower	None
11	Decidious Forest	0.51	Cedar, Possum Haw, Yaupon, Mulberry	Mesquite	None	None	Cedar Elm	None	None	Prickly Pear, Osage Orange	Carex spp.	None
12	Decidious Forest	0.38	Hackberry, Corralberry, Juniper, Greenbrier, Possum Haw,	None	None	None	Cedar Elm, Ash	Juniper	None	Prickly Pear	Carex, Scribner's Panicum, 1 unknown	None
13	Riparian Forest	0.85	Poison Oak, Greenbriar, Poison Ivy, Juniper, Snailseed, Hackberry, grapes, Corralberry, Mulberry, Soapberry	None	Shumard Oak	Pecan	Ash, Cedar Elm, Winged Ash, American Elm	None	None	Cottonwood	Johnson Grass, Ragweed, Goldenrod, Inland Sea Oats, Wildrye, Sunflower, Scribner's Panicum, Aster spp, Paspalum	None
14	Mixed Forest	0.40	Plum	Mesquite	None	None	None	Juniper	None	Prickly Pear	Gayfeather, False Boneset, Broomweed, Sprangletop, Johnson Grass, Three Awn, Croton, Winter Grass	former dump site

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
20	Mixed Forest	0.62	Poison Ivy, Strawberry, Rattanvine, Blackgum, Wild Plum, Hackberry, Persimmon, Peppervine, Greenbrier	Redbud	Shumard Oak, Bigelow Oak, Hybrid Red/Blackjack Oak, White Oak	Pecan, Mexican Buckeye	American Elm, Winged Elm	Juniper	None	Prickly Pear	Carex, Beggar's Lice	None
21	Grassland	0.54	None	Mesquite, Locust	None	None	Cedar Elm	None	None	None	Dodder, American Basketflower, Sumpweed, Doveweed, unknown grass, Sesbania, Aster spp, Mare's Tail	None
22	Grassland	0.57	Balloon Vine	Mesquite	None	None	None	None	None	Buttonbush	American Basket Flower, Broomweed, Doveweed, Mare's Tail, Eryngo, Switchgrass, Sumpweed, Pigweed, Blackeyed Susan, Western Ragweed, Frog Fruit, Cyperus spp, Sesbania spp,	None
23	Grassland	0.76	Hackberry, Gum Bumelia	Mesquite	None	None	None	Juniper	None	Opuntia spp.	Silver Bluestem, Gayfeather, Goldenrod, Little Bluestem, Broomweed, Japanese Brome, Switchgrass, Johnson Grass, Doveweed, Snow on the Prairie	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
24	Grassland	0.57	Balloonvine	Locust, Mesquite	None	None	Green Ash	None	None	None	Johnson Grass, False Boneset, Aster, Sesbania, Switchgrass, Mare's Tail,	None
25	Riparian Forest	0.43	Bumelia, Hackberry	Mesquite	None	None	Cedar Elm	None	None	None	Wildrye	None
26	Mixed Forest	0.46	Hackberry	Mesquite	None	None	Cedar Elm	Juniper	None	Prickly Pear	Switchgrass, Sumpweed, Illinois Broomweed, Mare's Tail, unknown cool season grass, unknown forb, Broomweed, Giant Ragweed	None
27	Riparian Forest	0.47	None	Mesquite	None	None	Cedar Elm	None	None	Osage Orange, Black Willow	Sumpweed, Dodder, Cocklebur, Giant Ragweed, Mare's Tail, unknown cool season grass, Illinois Broomweed, Doveweed, Sedge	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
28	Grassland	0.69	Hackberry	Mesquite, Locust	None	None	None	None	None	None	Doveweed, Little Bluestem, Snakeweed, Giant Ragweed, Snow on the Prairie, Gayfeather, American Basketflower, Beggar's Lice, Japanese Brome, Texas cupgrass, Sumpweed, unknown cool season grass, Wildrye, 2 unknown forbs, Wildrye, Carex spp	None
29	Riparian Forest	0.40	None	mesquite	None	None	Cedar Elm	None	None	None	Giant Ragweed, Sumpweed, cool season grass, Cyperus spp, Goldenrod	None
30	Grassland	0.66	None	Honey Locust	None	None	American Elm	None	None	Black Willow	Sumpweed, Balloon Vine, Eryngo, Illinois Bundleflower, Giant Ragweed, Dodder	None
31	Riparian Forest	0.60	Hackberry, Poison Ivy	None	None	None	None	Juniper	None	None	Giant Ragweed, Wildrye, unknown forb, Cyperus spp, Carex spp	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
32	Skipped	Skipped	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
33	Mixed Forest	0.52	Hackberry, Soapberry, Greenbrier, Mulberry, Poison Ivy	Mesquite	None	None	None	Juniper	None	None	Wildrye, Beggar's Lice	None
34	Decidious Forest	0.45	Greenbrier, Gum Bumelia, Hackberry, Poison Ivy, Dogwood-Rough, Deciduous Holly, Western Soapberry,	Mesquite, Locust	None	Pecan	None	Juniper	None	Osage Orange	Wildrye, Giant Ragweed, Carex spp	None
35	Riparian Forest	0.47	Hackberry, Dewberry, Greenbrier	None	None	None	None	None	None	Osage Orange	Giant Ragweed, Wildrye	None
36	Riparian Forest	0.40	Hackberry, Privet, Gum Bumelia, Greenbrier, Poison Ivy	None	None	None	None	Juniper	None	Prickly Pear, Osage Orange	Panicum spp	None
37	Decidious Forest	0.68	Hackberry, Balloon Vine, Greenbrier, Muscadine, mulberry	Honey Locust	None	None	Green Ash, Cedar Elm	None	None	Osage Orange, Black Willow	Giant Ragweed, Thistle, Johnson Grass, Purpletop, 3 unknowns	None
38	Grassland	0.53	Gum Bumelia, Balloonvine	Mesquite	None	None	None	Juniper	None	None	Goldenrod, Switchgrass, False boneset	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
39	Grassland	0.62	Hackberry	Mesquite	None	None	None	None	None	None	Sunflower, Johnson Grass, Goldenrod, Croton, Yellow Aster, Bunchgrass, Illinois Bundle Flower	
40	Riparian Forest	0.50	Hackberry, Flameleaf Sumac, Plum	None	None	None	Ash	None	None	Osage Orange, Buttonbush	Giant Ragweed, Beggar's Lice, Wildrye, 1 unknown	None
41	Grassland	0.62	Hackberry, Greenbrier, Flameleaf Sumac	Mesquite	None	None	Ash	None	None	None	Wildrye, Giant Ragweed, Beggar's Lice	None
42	Mixed Forest	0.60	Gum Bumelia, American Persimmon, Blackberry	None	None	None	None	Juniper	Baccaharis	Cottonwood	Snow on the Prairie, Johnson Grass, Thistle, Frog Fruit, Big Purple Flower, Sunflower, Blue Bonnet, Sensitive Brier, Cocklebur, Aster, Goldenrod, Unknown purple flower, Ragweed,	None
43	Decidious Forest	0.47	Hackberry, Dogwood, Poison Ivy	Mesquite, Honey Locust	None	None	American Elm	Juniper	None	None	Broomweed, Carex, 4 unknown herbacious spp, Ragweed, Scribner's Panicum, Doveweed	None
44	Decidious Forest	0.51	Hackberry, Greenbrier, Poison Ivy, Privet	Mesquite, unknown legume, Locust	None	None	None	Juniper	None	Prickly Pear	Carex, Sunflower, Beggar's Lice, Broomweed, Doveweed	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
45	Riparian Forest	0.72	Hackberry, Greenbrier, Poison Ivy, Mulberry, Tievine, Strawberry, Balloonvine, Carolina Snailseed	Legume spp	None	None	None	None	None	Willow, Cottonwood	Ragweed, Carex spp x 2, Purple Aster, Hydracotyle, Nut Sedge, Dandelion, Morning Glory	None
46	Decidious Forest	0.56	Hackberry, Poison Ivy, Dogwood, Blackberry, 1 unknown	Mesquite, Honey Locust, 1 unknown	None	None	Winged Elm	Juniper	None	None	Ragweed, Milkweed, Goldenrod, Broomweed, White Aster. 2 unknown herbacious species, Doveweed	None
47	Grassland	0.56	Hackberry, Poison Ivy, Gum Bumelia	Mesquite, Locust	None	None	None	Juniper	None	None	Broomweed, cool season grass, White Aster, Yellow Aster, Snow on the Prairie, Queen Anne's Lace	None
48	Mixed Forest	0.57	Poison Ivy, Sumac, Blackgum, Greenbrier, Dogwood, Muscadine Grape,	Mesquite, unknown legume spp,	White Oak, Red Oak	Pecan	Winged Elm, American Elm	Juniper	None	Prickly Pear	Side Oats, Little Bluestem, unknown grass x2, Spindle Weed	None
49	Riparian Forest	0.68	Virginia Creeper, Poison Ivy, Gum Bumelia, Hackberry, Greenbrier, Privet	None	Shumard Oak	Pecan	Green Ash, Cedar Elm	Juniper	None	None	Inland Sea Oats, Giant Ragweed, Willdrye	None
50	Riparian Forest	0.81	Rusty Blackhaw, Mustang Grape, Deciduous Holly, Poison Ivy, Greenbrier	Locust	Post Oak, Bur Oak	None	Winged Elm	Juniper	None	None	Giant Ragweed, Inland Sea Oats, Prairie Aster, Panicum spp.	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
57	Grassland	0.38	None	None	None	None	None	None	None	None	Goldenrod, Primrose, Johnson Grass, Love Grass, Carex, American Basketflower, Giant Ragweed, 1 unknown	None
58	Skipped	Skipped	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
59	Mixed Forest	0.58	Hackberry, Japanese Privet, Poison Ivy, Greenbrier, Red Mulberry	Honey Locust, Mesquite	None	None	None	None	None	Osage Orange	Unknown grass, unknown forb(geranium like), unknown forb(miniture pokeweed like)	None
60	Skipped	Skipped	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
61	Decidious Forest	0.45	Plum, Hackberry(seedling), Dewberry	Mesquite	None	None	Cedar Elm	Juniper	None	None	Johnson Grass, Silver Bluestem, Little Ragweed, Croton, Panicum,unknown forb, Vine Mesquite, Mullen spp, Weeping Lovegrass, 2 unknown forbs, Purpletop,	None
62	Decidious Forest	0.63	Privet, Hackberry, Poison Ivy, Virginia Creeper, Greenbrier	Mesquite	None	None	Cedar Elm	Juniper	None	None	None	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
63	Decidious Forest	0.59	Hackberry, Greenbrier, 1 unknown	Honey Locust	None	None	Cedar Elm	None	None	None	Giant Ragweed, Wildrye, Panicum, Johnson Grass,	None
64	Decidious Forest	0.49	Poison Ivy, Hackberry	Mesquite	None	None	Elm	Juniper	None	Cottonwood, Willow	Johnson Grass, Panicum spp.	
65	Grassland	0.72	Hackberry, Poison Ivy, Gum Bumelia, unknown vine(3 leaflets)	None	None	pecan	Cedar Elm, Elm	None	None	None	Giant Ragweed, Beggar's Lice, Canada Wildrye, unknown forb(green spike flower), Panicum, Sunflower	None
66	Riparian Forest	0.75	Hackberry, Chinese Privet, Western Soapberry, Coralberry, Gum Bumelia, Greenbrier, Poison Ivy	None	Shumard Oak	None	Green Ash, Cedar Elm, Elm	None	None	None	Giant Ragweed, Canada Wildrye, Beggar's Lice, 3 unknown forbs, unknown grass	Moved to capture riparian woods.
67	Grassland	0.59	Hackberry	None	None	None	Cedar Elm	None	Baccharis	None	Broomweed, Goldenrod, Panicum, Beggar's Lice, Aster (small white bloom), Snow on the Prairie, Sensitive Brier, Thistle, unknown forb(brownseed pod), unknown forb(green spike flower)	None
68	Grassland	0.43	Snailseed	Legume spp	None	None	None	None	None	None	Johnson Grass, Sunflower, Croton, Thistle, 4 unknown	None

Point Number	Habitat Group	Total Score	Berry Drupe	Legume Pod	Acorn	Nut Nutlike	Samara	Cone	Achene	All Others	Herbaceous Species	Remarks
69	Decidious Forest	0.49	Hackberry, Greenbrier, Blackgum	Mesquite, Locust	None	None	Green Ash	None	None	None	Goldenrod, Doveweed, Beggar's Lice, Ragweed, Broomweed, Canada Wildrye, Sensitive Brier, Wood Sorrel, Sunflower, 2 unknown spp	None
70	Decidious Forest	0.48	Greenbrier, Hackberry, Poison Ivy, Privet, Persimmon	Mesquite	None	None	Winged Elm	None	None	None	Croton, Little Bluestem, Johnson Grass, Western Ragweed, Thistle, Verbena, Snow on the Prairie	None
71	Decidious Forest	0.54	Hackberry	Mesquite	None	None	Winged Elm, American Elm	None	None	Prickly Pear	Thistle, Beggar's Lice, Goldenrod, Sunflower, Ragweed	Mulched greater than 1 yr.
72	Decidious Forest	0.44	None	Mesquite	None	None	None	None	None	None	Doveweed, Western Ragweed, Johnson Grass, Mare's Tail, American Basketflower, Side Oats Grama, Bromes Spp, Goldenrod, Sunflower, Aster spp	None
73	Grassland	0.79	Gum Bumelia, Mustang Grape, Wild Plum, Prickly Ash, Privet	Mesquite	None	None	Prickly Ash	Juniper	None	None	Thistle(purple), unknown, Johnson Grass, Bushy Bluestem, spiny aster, Goldenrod, Carex, Skunkweed, unknown (whiteflower)	None

Attachment B: Joe Pool Lake WHAP Point Photographs

Joe Pool Point #: 6

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 7

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 15

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 16

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 17

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 25

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 26

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 27

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 28

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 29

Facing North



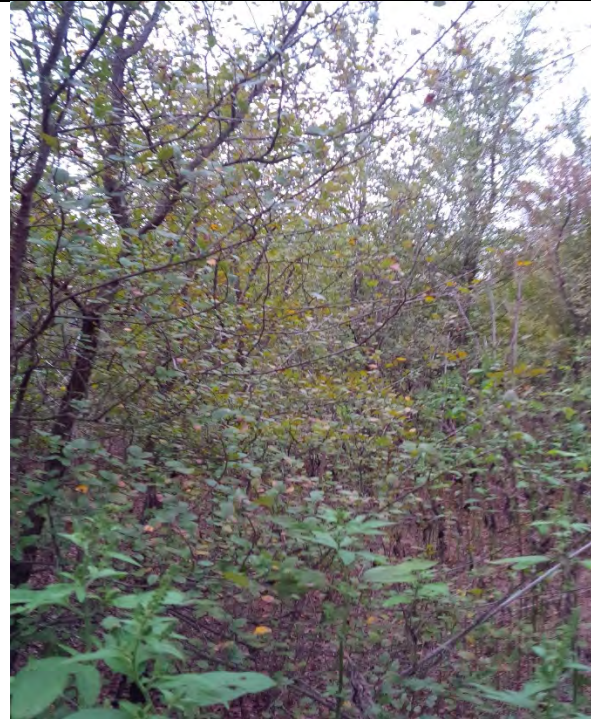
Facing East



Facing West



Facing South



Joe Pool Point #: 30

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 31

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 34

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 35

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 36

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 37

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 38

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 39

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 40

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 41

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 49

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 50

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 52

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 53

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 54

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 57

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 59

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 61

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 62

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 63

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 64

Facing North



Facing East



Facing West



Facing South



Joe Pool Point #: 72

Facing North



Facing East



Facing West



Facing South



APPENDIX D – PERTINENT PUBLIC LAWS

DRAFT

- House Document 74-308. Proposed the construction of the Caddoa Dam and Reservoir for flood control and irrigation purposes
- Public Law 74-738, Flood Control Act of 1936 as amended by the Public Law 75-761, Flood Control Act of 1938 – Authorized the construction of the Caddoa Dam and Reservoir for flood control and irrigation purposes.
- Public Law 76-667. Chapter 430, 3rd Session. Changed to name of the project to John Martin Reservoir Project in honor of John A Martin, the lake Congressman from Colorado.
- Public Law 78-534, Flood Control Act of 1944. Section 4 of the Act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to Federal, State or local governmental agencies.
- Public Law 85-624, Fish and Wildlife Coordination Act 1958. – The FWCA as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.
- Public Law 86-717, Forest Conservation Act. This Act provides for the protection of forest and other vegetative cover for reservoir areas under the jurisdiction of USACE.
- Public Law 89-298, Flood Control Act of 1965. Authorizes the Chief of Engineers to use and not to exceed 10,000 acre-feet of flood control storage space in the reservoir for the purpose of establishing and maintaining a permanent pool for fish and wildlife and recreations purposes at such times as storage space may be available for such permanent pool within the conservation pool as defined in Article III F, Arkansas River Compact (63 Stat. 145).
- Public Law 89-72, Federal Water Project Recreation Act of 1965. This Act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at Federal reservoir projects shall be borne by a non-Federal public body. A HQUSACE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.
- Public Law 91-190, National Environmental Policy Act of 1969. NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a “continuing policy of the Federal Government...to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of

present and future generations of Americans.” Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations, and public law of the United States shall be interpreted and administered in accordance with the policies of the Act. It is Section 102 that requires consideration of environmental impacts associated with Federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

Specifically, Section 101 of the National Environmental Policy Act declares:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
 - Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
 - Attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
 - Preserve important historic, cultural, and natural aspects of our national heritage and maintain wherever possible an environment which supports diversity and variety of individual choice;
 - Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities, and
 - Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.
- Public Law 89-665, National Historic Preservation Act of 1966 (NHPA). Establishes a national policy of preserving, restoring, and maintaining cultural resources. It requires Federal agencies to take into account the effect an action may have on sites that may be eligible for inclusion on the National Register of Historic Places.
 - Public Law 101-601, Native American Graves Protection and Repatriation Act. Requires Federal agencies to return Native American human remains and cultural items, including funerary objects and sacred objects, to their respective peoples.
 - Public Law 59-209, Antiquities Act of 1906. The first Federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities and Uniform Rules and Regulations.
 - Public Law 74-292, Historic Sites Act of 1935. Declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior.”

- Public Law 87-874, Rivers and Harbors Act of 1962. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.
- Public Law 88-578, Land and Water Conservation Fund Act of 1965. This act established a fund from which Congress can make appropriations for outdoor recreation. Section 2(2) makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act as amended.
- Public Law 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 21, 1976. This act authorized a research and development program with respect to solid waste disposal. It proposes (1) to initiate and accelerate a national research and development program for new and improved methods of proper and economic solid-waste disposal, including studies directed toward the conservation of national resources by reducing the amount of waste and unsalvageable materials and by recovery and utilization of potential resources in solid waste; and (2) to provide technical and financial assistance to State and local governments and interstate agencies in the planning, development, and conduct of solid-waste disposal program.
- Public Law 90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages. Section 210 restricted collection of entrance fee at USACE lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.
- Public Law 91-611, River and Harbor and Flood Control Act of 1970. Section 234 provides that persons designated by the Chief of Engineers shall have authority to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.
- Public Law 92-463, Federal Advisory Committee Act. The Federal Advisory Committee Act became law in 1972 and is the legal foundation defining how federal advisory committees operate. The law has special emphasis on open meetings, chartering, public involvement, and reporting.
- Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972. The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. Public Law 92-500 strongly affirms the Federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."
- Public Law 92-516, Federal Environmental Pesticide Control Act of 1972. This act completely revises the Federal Insecticide, Fungicide, and Rodenticide Act. It provides

for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.

- Public Law 93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each Federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at Federal expense.
- Public Law 93-251, Water Resources Development Act of 1974. Section 107 of this law establishes a broad Federal policy which makes it possible to participate with local governmental entities in the costs of sewage treatment plan installations.
- Public Law 93-291, Archeological Conservation Act of 1974. The Secretary of the Interior shall coordinate all Federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non reimbursable project costs.
- Public Law 93-303, Recreation Use Fees. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which Federal agencies may charge fees for the use of campgrounds developed and operated at Federal areas under their control.
- Public Law 93-523, Safe Drinking Water Act. The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish Federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a joint Federal-State system for assuring compliance with these standards and for protecting underground sources of drinking water.
- Public Law 94-422, Amendment of the Land and Water Conservation Fund Act of 1965. Expands the role of the Advisory Council. Title 2 Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the NRHP.
- Public Law 99-662, The Water Resources Development Act. Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

APPENDIX E – FORT WORTH DISTRICT NOTICE TO SEAPLANE PILOTS

DRAFT

NOTICE TO SEAPLANE PILOTS
U.S. Army Corps of Engineers, Fort Worth District
Prohibitions and Restrictions Governing the Use of Seaplanes

POLICY

In accordance with Title 36, Chapter III, Part 328 of the Code of Federal Regulations, it is the objective of the Corps of Engineers natural resources management mission to maximize public enjoyment and use of Corps lakes, consistent with their aesthetic and biological values. Within that context, the following restrictions governing the use of seaplanes have been developed.

DISTRICT-WIDE PROHIBITIONS AND RESTRICTIONS

1. Pilots are responsible for knowing the rules and regulations pertaining to aircraft as set forth in Title 36, Chapter III, Part 327.4 of the Code of Federal Regulations. Copies are available from any Corps of Engineers Lake Office.
2. Seaplanes may not be operated between sunset and sunrise. Where not specifically restricted or prohibited, recreational seaplane operations are allowed seven days a week.
3. Aircraft larger than 5,000 pounds gross weight are prohibited from landing without special permission from the District Engineer.
4. Commercial seaplane operations are prohibited unless authorized by the District Engineer. Commercial operations, if authorized, will be limited to the hours of 10 a.m. to 5 p.m., Monday through Friday, from November 1 to April 1.
5. Individual letter permits may be issued for seaplanes to operate in prohibited areas on a one-time-only basis.
6. The operation of a seaplane at Corps of Engineers lakes is at the risk of the plane's owner, operator, and passenger(s). All lakes in the Fort Worth District are operated as flood control reservoirs with widely fluctuating pool elevations. Pilots are encouraged to contact each lake project office for current pool elevation information. Addresses and phone numbers of each lake are listed in the attached Visitor's Guide. Information may also be obtained from the Corps of Engineers web site at www.swf.usace.army.mil
7. Where landings and takeoffs are not totally prohibited at a given lake, a minimum distance of 500 feet from shore or structures must be maintained during landing and takeoffs.
8. The attached information lists specific restrictions and prohibitions for each lake in the Fort Worth District.

SEAPLANE OPERATIONS ARE PROHIBITED ON THE FOLLOWING LAKES

Lake Georgetown
 Grapevine Lake
 Hords Creek Lake
 O.C. Fisher Lake
 B.A. Steinhagen Lake
 Waco Lake

SPECIFIC RESTRICTIONS ON SEAPLANE OPERATION

<p align="center">AQUILLA LAKE</p> <p>Seaplane operations are prohibited in all areas except on 'open water' areas of the lake from the dam northeast to the mouth of Hackberry Creek Branch and from the dam northwest to an East-West line extending from the north bank of the Old School branch.</p>	<p align="center">JIM CHAPMAN LAKE - COOPER DAM</p> <p>Landings and takeoffs are prohibited in the uncleared portion of the lake west of a line running from the west end of South Sulphur State Park to the peninsula at the mouth of Doctors Creek and in the cove formed Doctors Creek.</p>
<p align="center">BARDWELL LAKE</p> <p>Landings and takeoffs are prohibited north of Highway 34 and in all coves off the main body of the lake.</p>	<p align="center">GRANGER LAKE</p> <p>Landings and takeoffs are prohibited in both major arms of the lake formed by Willis Creek and the San Gabriel River and in the large, shallow lake area north of a line from the outlet structure to the east tip of the San Gabriel Wildlife Area.</p>
<p align="center">BELTON LAKE</p> <p>Landings and takeoffs are prohibited north of Highway 36, in the coves formed by Owl Creek and Cedar Creek, and in the arm of the lake formed by Cowhouse Creek upstream from the northwest end of the Fort Hood Recreation Area.</p>	<p align="center">JOE POOL LAKE</p> <p>Landings and takeoffs are prohibited in all lake areas west of the Lakeridge Parkway bridges.</p>
<p align="center">BENBROOK LAKE</p> <p>Landings and takeoffs are prohibited in the lake area south of the abandoned pump station on the east shore and in the coves formed by East and West Dutch Branch Creeks.</p>	<p align="center">LAKE O THE PINES</p> <p>Landings and takeoffs are prohibited in all coves and bays off the main body of the lake and in uncleared and shallow areas of the lake.</p>
<p align="center">CANYON LAKE</p> <p>Landings and takeoffs are prohibited upstream from Cranes Mill Park and in all coves and major bay areas off of the main body of the lake. (Including the large lake area east and west of Canyon Park.)</p>	<p align="center">LAVON LAKE</p> <p>Landings and takeoffs are prohibited in lake areas north of Collin Park, north of Tickey Creek Park, and in all coves and bays off the main body of the lake.</p>

SPECIFIC RESTRICTIONS ON SEAPLANE OPERATION	
<p style="text-align: center;">LEWISVILLE LAKE</p> <p>Landings and takeoffs are prohibited in uncleared areas north of Crescent Oaks Park, the entire area west of IH 35 and north of Highway 720, and in large uncleared portions of the entire eastern half of the lake.</p>	<p style="text-align: center;">SOMERVILLE LAKE</p> <p>Landings and takeoffs are prohibited west of the west end of Birch Creek Unit of Somerville Lake State Park and in all coves and bays off the main body of the lake.</p>
<p style="text-align: center;">NAVARRO MILLS LAKE</p> <p>Landings and takeoffs are prohibited west of Wolf Creek Park 1.</p>	<p style="text-align: center;">STILLHOUSE HOLLOW LAKE</p> <p>Landings and takeoffs are prohibited west and south of Cedar Knob Road and in large shallow areas surrounding unnamed islands in the main body of the lake.</p>
<p style="text-align: center;">PROCTOR LAKE</p> <p>Landings and takeoffs are prohibited in all areas north and west of the eastern tip of Promontory Park and all areas west of the southwest tip of Promontory Park.</p>	<p style="text-align: center;">WHITNEY LAKE</p> <p>Seaplane operations are prohibited in areas downstream from a line drawn from the northern tip of Walling Bend park to the mouth of Frazier Creek and upstream from a line drawn from the mouth of Cedar Creek southwest to the opposite undeveloped shoreline. The coves formed by King Creek and Cedron Creek are also prohibited</p>
<p style="text-align: center;">RAY ROBERTS LAKE</p> <p>Landings and takeoffs are prohibited north of Highway 3002 and in areas north and east of a line from the northeast tip of Johnson Park to the southwest tip of Jordan Park.</p>	<p style="text-align: center;">WRIGHT PATMAN LAKE</p> <p>Landings and takeoffs are prohibited in all coves and bays off main body of lake and in uncleared and shallow areas of the lake.</p>
<p style="text-align: center;">SAM RAYBURN RESERVOIR</p> <p>Landings and takeoffs are prohibited west of Highway 147, north of Highway 83, and in scattered uncleared areas of the reservoir.</p>	

NOTE: The latest revision to this Notice to Seaplane Pilots was completed in March of 2000.

APPENDIX F – ACRONYMS

DRAFT

ac-ft	Acre Feet
AQI	Air Quality Index
B.P.	Before Present
BMP	Best Management Practices
CAP	Climate Action Plan
CHSP	Cedar Hill State Park
CRMP	Cultural Resources Management Plan
CWA	Clean Water Act
DC	District Commander
DF	Deciduous Forest
DQC	District Quality Control
DQCB	District Quality Control Board
DM	Design Memorandum
EA	Environmental Assessment, NEPA Document
EMS	Ecological Mapping System
EOP	Environmental Operating Principles
EP	Engineering Pamphlet
EPA	United States Environmental Protection Agency
ER	Engineering Regulation
ESA	Environmentally Sensitive Area
°F	Degrees Fahrenheit
FONSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Coordination act of 1958
GIS	Geographical Information Systems
HDR	High Density Recreation
HQ	USACE Headquarters (also HQUSACE)
IH	Interstate Highway
IPaC	Information for Planning and Consultation
KR	King Ranch (also King Ranch Bluestem)
LDR	Low Density Recreation
LEED	Leadership in Energy and Environmental Design
MP	Master Plan or Master Planning
MRML	Multiple Resource Management Lands
NAAQS	National Ambient Air Quality Standards
NCTCOG	North Central Texas Council of Governments
NEPA	National Environmental Policy Act, 1970
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Prevention Act
NRHP	National Register of Historic Places
NOA	Notice of Availability
NRCS	Natural Resource Conservation Service
NRHP	National Registry of Historic Places
NVCS	National Vegetation Classification System

NWI	National Wetland Inventory
O&M	Operations and Maintenance
OMB	Office of Management and Budget
OMBIL	Operations and Maintenance Business Information
OMP	Operations Management Plan for a specific lake Project
OPM	Operations Project Manager
PDT	Project Development Team
PL	Public Law
PM	Project Management or Project Manager
PMP	Project Management Plan
PO	Project Operations
RBLH	Riparian Bottomland Hardwoods
RBS	Recreational Boating Survey
RIFA	Red Imported Fire Ant
RPEC	Regional Planning and Environmental Center
RTEST	Rare, Threatened, and Endangered Species of Texas
SCORP	Statewide Comprehensive Outdoor Recreation Plan (synonymous with
TORP in	Texas)
SGCN	Species of Greatest Conservation Need
SH	State Highway
SHPO	State Historical Preservation Office
SMPS	Shoreline Management Policy Statement
SIP	State Implementation Plan
SMU	Southern Methodist University
SWA	State Wildlife Area
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TORP	Texas Outdoor Recreation Plan
TRA	Trinity River Authority
TX	Texas
TXDOT	Texas Department of Transportation
TXNDD	Texas Natural Diversity Database
US	United States (U.S.)
USACE	United States Army Corps of Engineers
USFWS	U. S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VM	Vegetative Management Area
WDA	Workforce Development Area
WHAP	Wildlife Habitat Appraisal Procedure
WM	Wildlife Management Area