

BELTON LAKE MASTER PLAN

Leon River
Brazos River
Basin

Bell and Coryell
Counties, Texas

2018

BELTON LAKE VISION

"The land, water, and recreational resources of Belton Lake is managed to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provide outdoor recreation opportunities that complement overall project purposes for the benefit of present and future generations."



**US Army Corps
of Engineers®**

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PURPOSE

The revision of the *Belton Lake Master Plan* (hereafter Plan or Master Plan) is a framework built collaboratively to serve as a guide toward appropriate stewardship of U.S. Army Corps of Engineers (USACE) administered resources at Belton Lake over the next 25 years. The 1970 Belton Lake Master Plan was an update of the original 1967 Master Plan, serving well past its intended 25-year planning horizon.

The Master Plan is primarily a land use and outdoor recreation strategic plan that does not address the specific authorized purposes of water storage for flood risk management or water supply purposes. Water management is addressed in the USACE Water Control Manual for Belton Lake. The 1970 Master Plan classifies a total of 24,240 acres of USACE land and 12,300 acres of surface water at conservation pool within the fee boundary. Due to land changes from erosion and sedimentation, land conveyance to Fort Hood, as well as better measurement technology, these numbers have changed. Currently, Belton Lake encompasses 13,541 acres of land and 12,385 acres of surface water, protecting the areas below the dam, including the cities of Belton and Temple. This Plan and supporting documentation provides an inventory, analysis, goals, objectives and recommendations for USACE lands and waters surface at Belton Lake, Texas.

PUBLIC INPUT

Public and agency input toward the Master Plan was obtained to ensure a balance between operational, environmental, and recreational outcomes. An Environmental Assessment (EA) was completed in conjunction with the Master Plan Revision to evaluate the impacts of alternatives. The EA is included in Appendix B.

Approximately 59 individuals, not including USACE personnel, attended the public scoping meetings held at the onset of the process on 25 May 2017. USACE received a total of 28 comments during the initial 30-day comment period. Eight (8) of the comments focused on the desire that land classification changes should preserve the natural areas and protect endangered and threatened species habitat. The remaining comments received were not directly related to possible changes to land classifications for the master plan, a key focus of the revision. However, all the public comments received were noted and will be addressed as future funds and development are considered.

Remainder to be completed following Public and Agency review of the draft MP and EA/draft Finding of No Significant Impact (FONSI).

RECOMMENDATIONS

The following land classifications changes (detailed in Chapter 8, Table 8.2) resulted from the inventory, analysis, and synthesis of data, documents, and public and agency input. In general, 13,541 total acres were reclassified, with fee and conservation pool acreage changes due in part to siltation, land conveyance, and improvements in measurement technology using Geographical Information System (GIS) technology. This software allows for more finely tuned measurements and thus acreages may vary slightly from official land acquisition records.

Table ES.1 Land Use Acreage Changes

Prior (1970) Land Classifications	Acres	New Land Classifications	Acres
Operation and Maintenance	167	Project Operations	261
Recreational Areas		High Density Recreation	1,467
Priority 1	2,126		
Priority 2	605		
Priority 3	123		
Priority 4	187		
		Environmentally Sensitive Areas	1,888
Aesthetic and Multiple Use Recreation	8,732	Multiple Resource Management – Low Density Recreation	82
Total Fee Area = 24,240		Multiple Resource Management – Wildlife Management	9,521
Permanent Pool 594.0 NGVD29			
Flowage Easement	6,861		
Military	1,430		

*Note: Since the 1970 Master Plan, 258 acres adjacent to Belton Lake is now owned and operated by Fort Hood for the Belton Lake Outdoor Recreation Area (BLORA), which is fee-based and open to the public. Additionally, there are 30 acres now owned by the Water District with conservation pool adjacency.

PLAN ORGANIZATION

Chapter 1 of the Master Plan presents an overall introduction of Belton Lake. Chapter 2 consists of an inventory and analysis of project resources. Chapters 3 and 4 lay out management goals, resource objectives, and land allocation and classification. Chapter 5 is the resource plan that identifies how project lands will be managed through a resource use plan for each land use classification. This includes current and projected park facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. Chapter 6 details topics that are unique to Belton Lake. Chapter 7 identifies the coordination efforts and stakeholder input gathered for the development of the Master Plan, and Chapter 8 gives a summary

90 of the changes in land classification from the previous master plan to the present one.
91 Finally, the appendices include information and supporting documents for this Master
92 Plan revision, including Land Classification and Park Plate Maps (Appendix A).
93

94 An EA analyzing alternative management scenarios for Belton Lake has been
95 prepared in accordance with the National Environmental Policy Act of 1969, as
96 amended (NEPA); regulations of the Council on Environmental Quality; and USACE
97 regulations, including Engineer Regulation 200-2-2: Procedures for Implementing
98 NEPA. The EA is a separate document that informs this Master Plan and can be found
99 in its entirety in Appendix B.

100
101 The EA evaluated two alternatives as follows: 1) No Action Alternative and 2)
102 Proposed Action. The EA analyzed the potential impact the No Action and Proposed
103 Action would have on the natural, cultural, and human environments. Because the
104 Master Plan is conceptual, any action proposed in the plan that would result in
105 significant disturbance to natural resources or result in significant public interest would
106 require additional NEPA documentation at the time the action takes place.

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108 **TABLE OF CONTENTS**

109	EXECUTIVE SUMMARY	ES-1
110	PURPOSE	ES-1
111	PUBLIC INPUT	ES-1
112	RECOMMENDATIONS	ES-2
113	PLAN ORGANIZATION	ES-2
114	TABLE OF CONTENTS.....	I
115	LIST OF TABLES	IV
116	LIST OF FIGURES	VI
117	LIST OF PHOTOS.....	VI
118	CHAPTER 1: INTRODUCTION.....	1-1
119	1.1. OVERVIEW.....	1-1
120	1.2. PROJECT PURPOSE AND AUTHORIZATION	1-2
121	1.3. MASTER PLAN PURPOSE AND SCOPE	1-3
122	1.4. BRIEF PROJECT AND WATERSHED DESCRIPTION	1-4
123	1.5. PROJECT ACCESS.....	1-6
124	1.6. PRIOR DESIGN MEMORANDUMS.....	1-7
125	1.7. PERTINENT LAWS.....	1-8
126	1.8. REAL ESTATE.....	1-9
127	1.8.1 Project Land Acquisition	1-9
128	1.8.2 Outgrants.....	1-10
129	1.8.3 Trespass and Encroachment.....	1-10
130	1.8. PERTINENT PROJECT INFORMATION	1-11
131	CHAPTER 2: PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT	
132	AND DEVELOPMENT.....	<u>2-1</u>
133	2.1. PHYSIOGRAPHIC SETTING.....	2-1
134	2.1.1 Ecoregion Setting	2-1
135	2.1.2 Climate	2-2
136	2.1.3 Geology and Topography	2-4
137	2.1.4 Hydrology and Groundwater.....	2-5
138	2.1.5 Soils.....	2-6
139	2.2 ECOREGION AND NATURAL RESOURCE ANALYSIS	2-8
140	2.2.1 Vegetative Resources	2-8
141	2.2.2 Wetland Resources	2-11

142	2.2.3	Fish and Wildlife Resources	2-12
143	2.2.4	Threatened and Endangered Species	2-14
144	2.2.5	Invasive Species.....	2-15
145	2.2.6	Visual and Scenic Resources	2-16
146	2.2.7	Sedimentation and Shoreline Erosion	2-16
147	2.2.8	Water Quality	2-17
148	2.3	CULTURAL RESOURCE AND ANALYSIS	2-18
149	2.3.1	Prehistoric.....	2-18
150	2.3.2	Historic.....	2-19
151	2.3.3	Previous Investigations at Belton Lake	2-19
152	2.3.4	Recorded Cultural Resources.....	2-20
153	2.3.5	Long-term Cultural Resources Objectives	2-20
154	2.4	DEMOGRAPHIC AND ECONOMIC ANALYSIS	2-20
155	2.4.1	Zone of Interest	2-20
156	2.4.2	Population.....	2-21
157	2.4.3	Education and Employment.....	2-25
158	2.4.4	Households, Income, Poverty	2-29
159	2.4.5	Social, Environmental and Environmental Benefits	2-31
160	2.5	RECREATION FACILITIES, ACTIVITIES, AND NEEDS	2-34
161	2.5.1	Zone of Influence and Visitation Statistics	2-34
162	2.5.2	Visitation Profile.....	2-34
163	2.5.3	Recreation Areas and Facilities	2-35
164	2.5.4	Recreational Analysis - Trends.....	2-36
165	2.5.5	Recreation Analysis – Needs.....	2-44
166	2.5.6	Recreational Carrying Capacity	2-45
167		CHAPTER 3: RESOURCE GOALS AND OBJECTIVES	3-1
168	3.1	INTRODUCTION.....	3-1
169	3.2	RESOURCE GOALS	3-1
170	3.3	RESOURCE OBJECTIVES.....	3-2
171		CHAPTER 4: LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE,	
172		AND PROJECT EASEMENT LANDS	4-1
173	4.1	LAND ALLOCATION.....	4-1
174	4.2	LAND CLASSIFICATION	4-1
175	4.2.1	Current Land and Water Surface Classifications	4-1
176	4.2.2	Project Operations	4-2

177	4.2.3	High Density Recreation	4-2
178	4.2.4	Mitigation	4-3
179	4.2.5	Environmentally Sensitive Areas	4-3
180	4.2.6	Multiple Resource Management Lands	4-3
181	4.2.7	Water Surface.....	4-5
182	4.2.8	Recreational Seaplane Operations.....	4-6
183	4.3	PROJECT EASEMENT LANDS.....	4-6
184		CHAPTER 5: RESOURCE PLAN.....	5-1
185	5.1	MANAGEMENT BY CLASSIFICATION	5-1
186	5.2	PROJECT OPERATIONS.....	5-1
187	5.3	HIGH DENSITY RECREATION	5-1
188	5.3.1	USACE Class A Parks.....	5-2
189	5.3.2	USACE Day Use Parks	5-3
190	5.3.3	Leased Parks.....	5-4
191	5.3.4	Boat Ramps and Marinas	5-5
192	5.3.5	Trails.....	5-6
193	5.4	MITIGATION	5-6
194	5.5	ENVIRONMENTALLY SENSITIVE AREAS	5-7
195	5.6	MULTIPLE RESOURCE MANAGEMENT LANDS.....	5-8
196	5.6.1	Low Density Recreation.....	5-8
197	5.6.2	Wildlife Management	5-8
198	5.6.3	Vegetative Management.....	5-11
199	5.6.4	Future/Inactive Recreation Areas	5-11
200	5.7	WATER SURFACE	5-11
201	5.7.1	Restricted	5-11
202	5.7.2	Designated No-wake	5-12
203	5.7.3	Fish and Wildlife Sanctuary	5-12
204	5.7.4	Open Recreation	5-12
205	5.8	SUSTAINABILITY	5-12
206		CHAPTER 6: SPECIAL TOPICS/ISSUES/CONSIDERATIONS.....	6-1
207	6.1	MILLER SPRINGS NATURE CENTER.....	6-1
208	6.2	BELTON LAKE OUTDOOR RECREATIONAL AREA (BLORA)	6-2
209	6.3	GOLDEN-CHEEKED WARBLER.....	6-2
210	6.4	INVASIVE SPECIES.....	6-3

211	6.5	RECREATIONAL BOATING STUDY	6-5
212	6.6	SHORELINE MANAGEMENT STATEMENT OF POLICY	6-6
213	6.7	GOVERNMENT PROPERTY ADJOINING FORT HOOD	6-7
214	6.8	UTILITY CORRIDORS	6-7
215		CHAPTER 7: PUBLIC AND AGENCY COORDINATION	7-1
216	7.1	PUBLIC AND AGENCY COORDINATION OVERVIEW	7-1
217	7.2	INITIAL STAKEHOLDER AND PUBLIC MEETINGS	7-1
218	7.3	PUBLIC AND AGENCY REVIEW OF DRAFT MP, EA, AND FONSI	7-5
219		CHAPTER 8: SUMMARY OF RECOMMENDATIONS	8-1
220	8.1	SUMMARY OVERVIEW	8-1
221	8.2	LAND CLASSIFICATION PROPOSALS	8-1
222		CHAPTER 9: BIBLIOGRAPHY	9-1
223		APPENDIX A - LAND CLASSIFICATION, MANAGING AGENCIES, AND	
224		RECREATION MAPS.....	A
225		APPENDIX B - NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)	
226		DOCUMENTATION.....	B
227		APPENDIX C - TRUST RESOURCES REPORT – USFWS	C
228		APPENDIX D - SPECIES OF GREATEST CONSERVATION NEED	D
229		APPENDIX E – WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP) REPORT ...	E
230		APPENDIX F – SEAPLANE POLICY	F
231		APPENDIX G – PERTINENT PUBLIC LAWS	G
232		APPENDIX H – ACRONYMS.....	H

233

234 LIST OF TABLES

235	Table 1.1	Design Memorandums	1-8
236	Table 1.2	Pertinent Data	1-12
237	Table 2.1	Belton Area 1963-2016 Monthly and Annual Precipitation in Inches	2-3
238	Table 2.2	Soil Classes.....	2-7
239	Table 2.3	Vegetation Classification and Condition 2016 Inventory	2-9
240	Table 2.4	Wetland Resources	2-11
241	Table 2.5	Federally-Listed Threatened and Endangered Species with Potential to Occur	
242		at Belton Lake	2-14
243	Table 2.6	Invasive Species Found at Belton Lake	2-16
244	Table 2.7.	Population Estimates and 2045 Projections - 2000 and 2016	2-21

245	Table 2.8 Percent of Population Estimate by Gender - 2016	2-22
246	Table 2.9. 2016 Population Estimate by Race/Hispanic Origin	2-24
247	Table 2.10. Population Estimate by Highest Level of Educational Attainment, Population	
248	25 Years of Age and Older - 2016.....	2-26
249	Table 2.11 Annual Average Employment by Sector.....	2-28
250	Table 2.12 Labor Force, Employment and Unemployment Rates, 2016 Annual	
251	Averages.....	2-29
252	Table 2.13 Households and Household Size - 2010	2-30
253	Table 2.14 Median and Per Capita Income - 2016.....	2-30
254	Table 2.15 Percent of Families and People Whose Income in the Past 12 Months is	
255	Below the Poverty Level - 2016.....	2-31
256	Table 2.16 Social Benefits.....	2-32
257	Table 2.17 Economic Benefit	2-33
258	Table 2.18 Environmental Benefit	2-34
259	Table 2.19 Belton Lake Parks and Facilities	2-36
260	Table 2.20 Top Five Recreation Facilities Needed by Texas Citizens – TORP 2012.	2-37
261	Table 2.21 Percent of Population Participating in Recreational Boating in the U.S....	2-38
262	Table 2.22 Participation in Hunting, Fishing, and Wildlife Watching in Texas.	2-38
263	Table 2.23 Comparison of Participation Rates of White/Non-Hispanics Versus Hispanics	
264	in the Top 10 Outdoor Recreation Activities in Texas 2006-2009	2-39
265	Table 2.24 Belton Camping Comment Cards, 2013-2014.....	2-41
266	Table 2.25 Belton Day Use Area Comment Cards, 2013-2014.....	2-43
267	Table 3.1 Recreational Objectives	3-3
268	Table 3.2 Natural Resource Management Objectives.....	3-4
269	Table 3.3 Visitor Information, Education, and Outreach Objectives	3-5
270	Table 3.4 General Management Objectives.....	3-6
271	Table 3.5 Cultural Resources Management Objectives	3-7
272	Table 4.1 Land Classification Acres at Belton Lake	4-6
273	Table 7.1 Public Comments from 25 May 2017 Public Scoping Meeting	7-2
274	Table 8.1 Change from Prior Land Classification to New Land Classification	8-2
275	Table 8.2 Reclassification Proposals.....	8-2

276
277
278
279
280
281
282
283
284
285
286
287
288
289
290
291
292
293
294
295
296
297
298
299
300
301
302
303
304
305
306
307

LIST OF FIGURES

Figure 1.1 Belton Lake Vicinity Map..... 1-5

Figure 1.2 Belton Road Network 1-7

Figure 2.1 Belton Lake Ecoregion 2-2

Figure 2.2 General Soil Map for Bell County 2-7

Figure 2.3 Percent Population by Age Group 2016..... 2-23

Figure 2.4 Population Estimate and 2045 Projection by Age Group 2016..... 2-23

Figure 2.5 Zone of Interest Population Estimate and Projection by Race/Ethnicity 2-25

Figure 2.6 Zone of Interest Employment by Sector 2-27

Figure 2.7 USACE Lake Visitation Map for Fort Worth District, 2016..... 2-35

Figure 2.8 Participation Rates of Texas Residents (2006-2009) versus U.S. Residents (2005-2009) in the Top 10 Outdoor Recreation Activities..... 2-39

LIST OF PHOTOS

Photo 1.1 Sunset at Belton Lake..... 1-1

Photo 1.2 Belton Lake Dam 1-6

Photo 2.1 Wild Turkey at Belton Lake 2-14

Photo 2.2 Cyclists at Belton Lake..... 2-37

Photo 2.3 Belton Lake at Sunset..... 2-40

Photo 2.4 Sandy Point Recreational Area at Belton Lake 2-45

Photo 4.1 Deer grazing at Belton Lake 4-4

Photo 5.1 Kickboarding/Parasurfing at Belton Lake 5-2

Photo 5.2 Fawn at Belton Lake 5-9

Photo 6.1 Miller Springs Nature Center..... 6-1

Photo 6.2 Belton Lake Outdoor Recreational Area 6-2

Photo 6.3 Golden-cheeked Warbler 6-3

Photo 6.4 Concrete Drinking Fountain Inundated for 45 days at Belton Lake. 6-4

1.1. OVERVIEW

Belton Reservoir (hereafter Belton Lake) is a multipurpose water resources project constructed and operated by the U.S. Army Corps of Engineers (USACE), Fort Worth District. The lake and associated federal lands are located in Bell and Coryell Counties, Texas (TX). Belton Dam is situated on the Leon River in the Brazos River Basin about three miles north of the city of Belton, TX and eight miles west of the city of Temple, TX. The dam and associated infrastructure, as well as all lands acquired for the Belton Lake project, are federally owned and administered by the USACE.



Photo 1.1 Sunset at Belton Lake (USACE Photo)

The Belton Lake Master Plan (hereafter Plan or Master Plan) is a the revision of the 1970 Master Plan and is intended to serve as a comprehensive land and recreation management guide with an effective life of approximately 25 years. The focus of the Plan is to guide the stewardship of natural and cultural resources, and make provision

for outdoor recreation facilities and opportunities on federal land associated with Belton Lake. The Plan does not address the flood risk management or water supply purposes of Belton Lake (see the USACE Water Control Manual for Belton Lake for a description of these project purposes).

National USACE missions associated with water resource development projects may include flood risk management, water conservation, navigation, mitigation, and hydroelectric power generation, which all serve to protect the built environment and natural resources of a region from the climate extremes of drought and floods. This creates a more resilient and sustainable region for the health, welfare, and energy security of its citizens. Maintaining a healthy vegetative cover and tree canopy on Federal lands within the constraints imposed by primary project purposes helps reduce stormwater runoff and soil erosion, mitigates air pollution, and moderates temperatures. The USACE Strategic Sustainability Performance Plan implements Executive Order (EO) 13693, stating:

“As a prominent Federal entity, a key participant in the use and management of many of the Nation’s water resources, a critical team member in the design, construction, and management of military and civil infrastructure, and responsible members of the Nation’s citizenry, the USACE strives to protect, sustain, and improve the natural and manmade environment of our Nation and is committed to sustainability and compliance with applicable environmental and energy statutes, regulations, and Executive Orders.

Sustainability is ... a natural part of the USACE decision processes, [and is a] part of our organizational culture. USACE is a steward for some of the Nation’s most important natural resources and we must ensure our stakeholders and partners receive products and services that provide for sustainable solutions that address short and long-term environmental, social, and economic considerations.”

1.2. PROJECT PURPOSE AND AUTHORIZATION

Belton Lake is a multipurpose water resource project constructed and operated by USACE for the purpose of flood risk management and water supply, with added authorization for recreation and fish and wildlife programs. Environmental stewardship, though not listed as a primary project purpose, is a major responsibility and inherent mission in the administration of federally owned lands.

Congressional authority for the construction of the Belton Lake as a unit of the plan for improvement for the Brazos River Basin, Texas is contained in the Flood Control Act approved 24 July 1946 (Public Law 526, 79th Congress, 2d Session). The project was modified by the Flood Control Act approved 3 September 1954 (Public Law 780, 83rd Congress, 2d Session) in accordance with the plan of improvement as outlined in House Document No. 535 (81st Congress, 2d Session).

Congressional authority for the recreational program at reservoir projects under the control of the Department of the Army is contained in the Flood Control Act

approved 22 December 1944 (Public Law 534, 78th Congress, 2d Session) as amended by subsequent acts. Congressional authority for the fish and wildlife program at reservoir projects under the control of the Department of the Army is contained in the Fish and Wildlife Coordination Act of 1958 (Public Law 85-624, 72 Stat 563), as amended.

A number of laws place emphasis on environmental stewardship of Federal lands. These laws, including but not limited to Public Law 91-190, National Environmental Policy Act of 1969 (NEPA) and Public Law 86-717, Forest Cover Act, place emphasis on the environmental stewardship of Federal lands and USACE-administered Federal lands, respectively.

1.3. MASTER PLAN PURPOSE AND SCOPE

In accordance with Engineering Regulation (ER) 1130-2-550 Change 07, dated 30 January 2013 and Engineering Pamphlet (EP) 1130-2-550 Change 05, dated 30 January 2013, master plans are required for most USACE water resources development projects having a federally owned land base. This revision of the Belton Lake Master Plan is intended to bring the master plan up to date to reflect current ecological, socio-demographic, and outdoor recreation trends that are affecting the lake, as well as those anticipated to occur within the planning period of 2018 to 2043 (i.e., 25 years).

The Belton Lake Master Plan is the strategic land use management document that guides the efficient, cost-effective, comprehensive management, development, and use of recreation, natural resources, and cultural resources throughout the life of the Belton Lake project. It is a vital tool for responsible stewardship and sustainability of the project's natural and cultural resources and makes provision for outdoor recreation facilities and opportunities on federal land associated with Belton Lake for the benefit of present and future generations. The Plan guides and articulates USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. It is a dynamic and flexible tool designed to address changing conditions. The Plan focuses on carefully crafted resource-specific goals and objectives. It ensures that equal attention is given to economy, quality, and needs in the management of Belton Lake resources and facilities, and that goals and objectives are accomplished at an appropriate scale.

The master planning process encompasses a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational, and socioeconomic conditions and trends. With a generalized conceptual framework, the process focuses on four primary components, as follows:

- Regional and ecosystem needs
- Project resource capabilities and suitability
- Expressed public interests that are compatible with Belton Lake's authorized purposes
- Environmental sustainability elements.

It is important to note what the Master Plan does not address. As noted in Section 1.1, the Plan does not address the flood risk management or water supply purposes of Belton Lake. The Plan also does not address details of design, management and administration, and implementation, but these are addressed in the Belton Lake Operational Management Plan (OMP). In addition, the Master Plan does not address the specifics of regional water quality, shoreline management with respect to private actions conducted by adjoining landowners such as vegetation modification. The operation and maintenance of primary project operations facilities, including but not limited to the dam, spillway, and gate-controlled outlet, are also not included in this Plan.

The 1970 Master Plan was sufficient for prior land use planning and management. Changes in outdoor recreation trends, regional land use, population, current legislative requirements, and USACE management policy have occurred over the past decades. Additionally, increasing fragmentation of wildlife habitat, national policies related to land management, climate change, and growing demand for recreational access and protection of natural resources are all factors affecting Belton Lake and the region in general. In response to these continually evolving trends, USACE determined that a full revision of the 1970 Plan is required as set forth in this Plan.

1.4. BRIEF PROJECT AND WATERSHED DESCRIPTION

Belton Dam is located on the Leon River 16.7 miles upstream from the confluence of the Leon and Little Rivers within the Brazos River Basin in the northern part of Bell County. From headwaters at the head of Blackwater Draw, Curry County New Mexico to its mouth at the Gulf of Mexico the Brazos River Basin is the 11th longest river in the United States, containing 11 reservoirs and stretching over 42,000 square-miles. Belton Lake is within the sub-watersheds of the Leon River, which has a 7,560 square mile drainage basin above Lake Belton and Little Rivers. Belton Lake was created by impounding the Leon River, a tributary of the Little River, which is a tributary of the Brazos River.

In 1954 during the completion of Belton Lake, Proctor Lake, a lake upstream of Belton Lake on the Leon River, was in the design stages. To prevent flooding on the Leon River, Belton Lake water elevation was temporary held at the 569 National Geodetic Vertical Datum of 1929 (NGVD29) to hold additional flood storage capacity until Proctor Lake was complete in 1972. At that time, Proctor Lake had sufficient flood storage capacity to allow Belton Lake's conservation pool elevation to be raised to its final design elevation of 594.0 NGVD29.

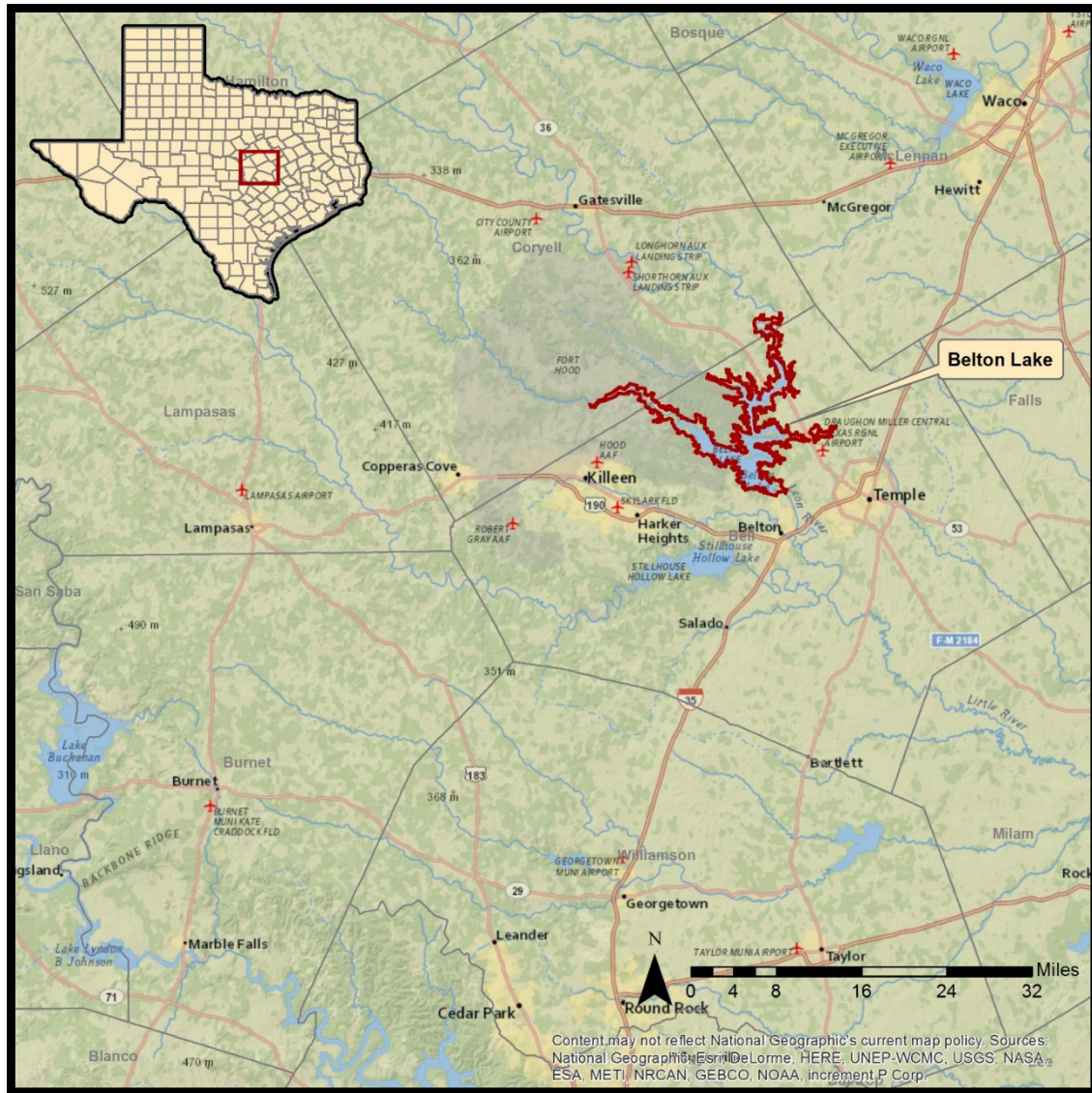


Figure 1.1 Belton Lake Vicinity Map

The Belton Dam is 5,524 feet long, including a 718-foot dike and a 1,300-foot spillway. The maximum height of the embankment above the stream is 192 feet. The uncontrolled spillway consists of an uncontrolled weir 1,300 feet in length, located in the left abutment of the dam. The outlet works consists of one 22-foot diameter conduit, which is controlled by three 7- by 22-foot boom-type gates. The invert is at elevation 483.0 NGVD29. The USACE lake headquarters and maintenance facilities are located on the right abutment of the dam and south of the main embankment.



Photo 1.2 Belton Lake Dam (USACE Photo)

The Flood Control Act of 1954 authorized modifications for hydropower at Belton upon impoundment of Proctor Lake. Previous studies determined hydropower to be infeasible, however, the Belton Recon Report dated Oct 1981 indicated that the provision of hydroelectric generating facilities at Belton Dam is feasible. To date, no modifications have been implemented to provide hydroelectric power.

The Brazos River Authority, a state agency, has entered into a contract with the Department of the Army to purchase 360,700 acre feet (ac-ft) of conservation storage space in the reservoir. The initial contract was approved by the Secretary of the Army on 15 January 1958, and then modified on 13 December 1960. The Flood Control Act of 03 September 1954 provided for the allocation of 12,000 ac-ft of conservation storage for a permanent water supply for Fort Hood.

1.5. PROJECT ACCESS

Belton Lake has a number of major, minor, and tertiary roads that service the area. Interstate (I) 35, just east of the reservoir, traverses the state, bringing visitors from major metropolitan areas such as Austin and Dallas/Fort Worth. State Highway (SH) 317, extending north from Belton, passes within about one mile of the dam, and SH 36, extends northwest from Interstate I-35 at Temple and crosses the Leon River and arm of Belton Lake. Farm-to-Market (FM) Road 2271/Morgan's Point Road crosses

over the dam, connecting Lake Road to the south and intersecting with W Adam's Avenue, which connects to SH 317. FM highways, which are hard surfaced, and county graveled and hard surfaced roads provide additional access to the reservoir area. Roadway expansion plans include widening FM 2305 from SH 317 to FM 2271. Figure 1.2 illustrates the Killeen-Temple Metropolitan Planning Organization (KTMO) Regional Thoroughfare Plan.

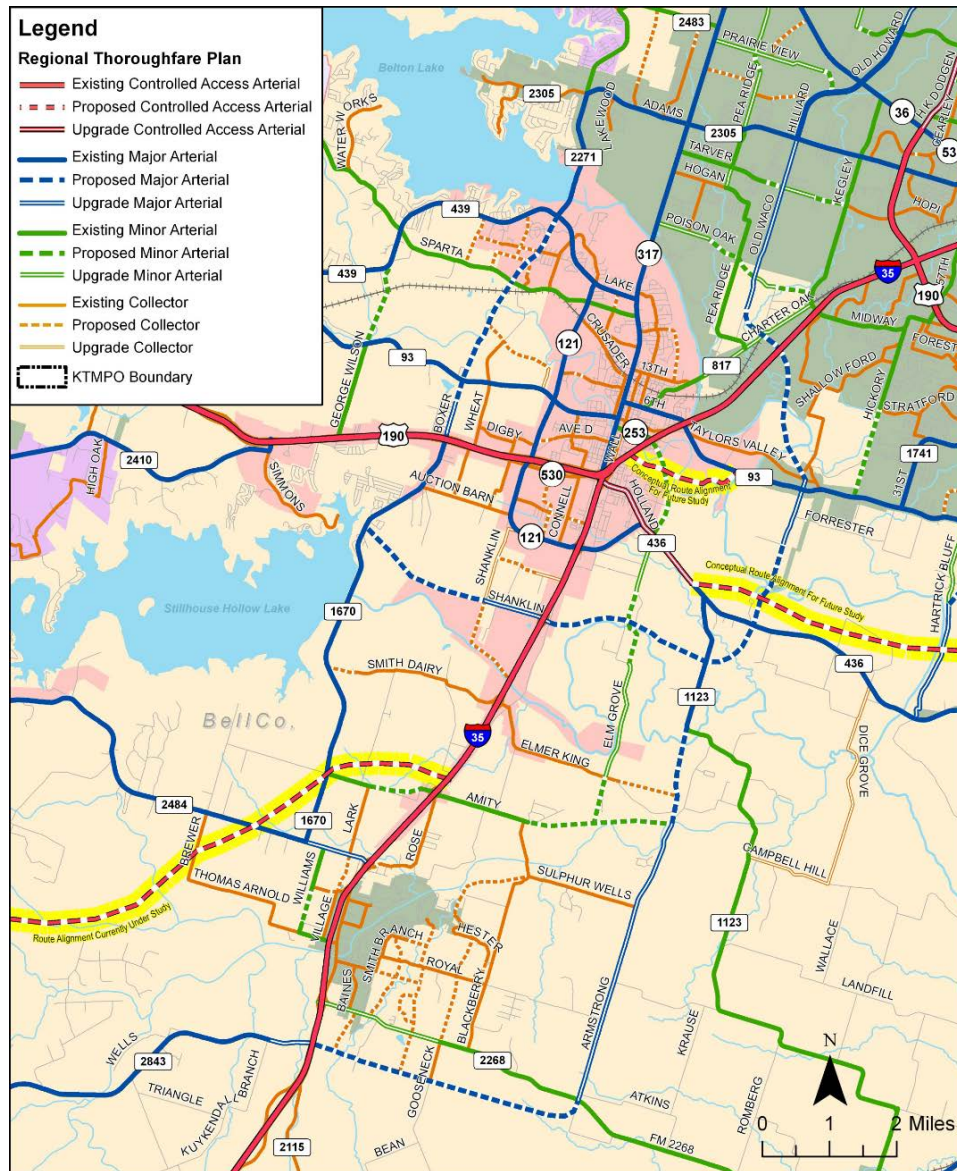


Figure 1.2 Belton Road Network (Source: KTMO)

1.6. PRIOR DESIGN MEMORANDUMS

Design Memorandums were prepared from 1956 thru 1970 setting forth design criteria for all aspects of the project including the prime flood risk management facilities, real estate acquisition, road and utility relocations, reservoir clearing, and the master

plan for recreation development and land management. A partial list of the Design Memoranda for Belton Lake are in Table 1.1 below.

Table 1.1 Design Memorandums

Design Memo	Title	Date
1	Belton Reservoir Master Plan	Jan 1954
1B	Belton Reservoir Master Plan Update	Feb 1967
1C	Belton Lake Master Plan, Revised	Jan 1970
2	Reservoir Clearing	Jun 1949
3	Supplement #1 – Clearing for Pool Rise	Mar 1969

1.7. PERTINENT LAWS

Numerous public laws apply directly or indirectly to the management of Federal land at Belton Lake. Listed below are several key public laws that are most frequently referenced in planning and operational documents. Refer to Appendix G for a more comprehensive listing.

- 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. - This act 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.
- PL 89-665, Historic Preservation Act of 1966. - This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.
- Public Law 86-717, Forest Conservation. - This act provides for the protection of forest and other vegetative cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.

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

1.8. REAL ESTATE

1.8.1 Project Land Acquisition

The original lands acquired in fee for Belton Lake include 26,551 acres. Under Public Law 85-500, which was later amended by Public Law 87-386, lands not needed

for project purposes, public use and recreational development or military purposes were offered for re-conveyance to former owners. Since that time, 1,445 acres have been disposed of, leaving the current fee area at 25,106 acres. Similarly, 7,176 acres of flowage easement were originally acquired, of which 315 acres were disposed leaving 6,861 acres of flowage easement.

1.8.2 Outgrants

Outgrants at Belton Lake include easements, licenses, leases, consents, and other formal real estate documents wherein USACE has granted a legal interest in real property. A summary of outgrants at Belton Lake is provided as follows:

- Total Easements: 30
- Total Leases: 7
- Licenses: 14
- Federal-to-Federal Permits: 1
- Other (including consents and right-of-entries): 80

The transfer of accountability and transfer of jurisdiction over 258 acres for the Belton Lake Outdoor Recreation Area (BLORA) was completed in 2003. Chapter 6 of this Plan contains more details concerning BLORA and Fort Hood interests.

Personnel of the Fort Worth District Real Estate Division, in coordination with Operations Division staff at Belton Lake, conduct compliance inspections of major outgrants, including concessions, public parks, and wildlife areas annually in accordance with applicable regulations.

Individuals and entities interested in lease acquisition to provide services to the public on USACE fee lands should be aware that specific restrictions and procedures apply to such leases. In many cases, individuals or entities will be encouraged to pursue a sublease with an existing lessee, such as with a marina. Any leases for new services are subject to a competitive bidding process following market studies and a determination by USACE that the prospective service or product would be beneficial to users at Belton Lake. Questions regarding this topic can be directed to the lake office.

1.8.3 Trespass and Encroachment

Government property is monitored by Belton Lake USACE personnel to identify and correct instances of unauthorized use, including trespasses and encroachments. The term “trespass” includes unauthorized transient use and occupancy, such as mowing, tree cutting and removal, livestock grazing, cultivation and harvesting crops, and any other alteration to Government property done without USACE approval. Unauthorized trespasses may result in a Title 36 citation to appear in Federal Magistrate Court, which could subject the violator to fines or imprisonment (See 36 Code of Federal Regulations (CFR) Part 327 Rules and Regulations Governing Public Use of Water Resources Development Projects Administered by the Chief of Engineers). More serious trespasses will be referred to the USACE Office of Counsel

for enforcement under state and federal law, which may require restoration of the premises and collection of monetary damages.

The term “encroachment” pertains to an unauthorized structure or improvement on Government property. When encroachments are discovered, lake personnel will attempt to resolve the issue at the project level. Where no resolution is reached, or where the encroachment is a permanent structure, the method of resolution will be determined by USACE Real Estate Division, with recommendations from Operations Division and Office of Counsel. USACE’s general policy is to require removal of encroachments, restoration of the premises, and collection of appropriate administrative costs and fair market value for the term of the unauthorized use.

1.8. PERTINENT PROJECT INFORMATION

Table 1.2 outlines pertinent project information such as key elevations, water storage, and spillway flow capacity at Belton Lake. The 2015 Texas Water Development Board (TWDB) volumetric survey indicates that Belton Lake has a total reservoir capacity of 432,631 acre-feet and encompasses 12,445 surface acres at conservation pool elevation (594.0 feet, NGVD29.)

655 **Table 1.2 Pertinent Data**

Feature	Elev Feet** (NGVD29)	Reservoir Area (acres)	Reservoir Capacity			Total Spillway Capacity (cfs)	Outlet Works Capacity (3 Gates)
			Accumulative (ac-ft)	Runoff (inches)	Incremental (ac-ft)		
Top of Dam	662.0						
PMF Design Water Surface (1983 Study)	658.0	38,000	1,918,100	10.2		513,238	
Design Water Surface (1951 Study)*	656.9	37,340	1,858,433	9.79		472,500	
Top of Flood Control pool & Spillway Crest (1983 Study)	631.0	23,620	1,097,600	5.78	640,000		27,900
Top of Conservation Pool (2003 Survey)	594.0	12,445	432,631	2.41	372,700		23,600
Invert of Lowest Intake (2015 Survey)	483.0						
Sediment Reserve					84,900***		
Total Storage					1,097,600		
Streambed (2003 Survey)	470.0						
Shoreline at Designed Conservation Pool – approximately 136 miles Note: Highlighted data based on 2015 Volumetric and sedimentation survey of Belton Lake by the Texas Water Development Board * All outlet gates are assumed closed **The elevations listed on the pertinent data sheet is based on the datum of NGVD29 and the NGVD88 datum shift of +0.2 feet elevation ***Estimated 50 years of sediment storage below elevation 547.0 feet NGVD29							

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CHAPTER 2: PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

2.1. PHYSIOGRAPHIC SETTING

Physiographic setting are the Earth's distinct landform regions defined in a three-tiered system of (1) physiographic divisions; (2) physiographic provinces; and (3) physiographic sections. Belton Lake is in the Osage Plains section of the Central Lowland province within the Interior Plains division. The Osage Plains is the southernmost of three tallgrass prairie physiographic areas, grading into savanna and woodland to the east and south, and into shorter mixed-grass prairie to the west.

2.1.1 Ecoregion Setting

Ecoregions are major ecosystems within physiographic regions defined by geographically distinct plant and animal species, natural communities, and environmental conditions. There are 12 different Level III and 56 Level IV ecoregions in Texas. Belton Lake is within the far southern end of the Level III Ecoregion known as Cross Timbers and the Level IV region known as Limestone Cut Plain. Early settlers coined the name Cross Timbers due to their repeated crossing of the timbered areas that impeded their prairie crossing. The Cross Timbers region extends from central Texas to southern Kansas; however, its vegetation has undergone significant changes over the past 150 years, and only small pockets of the ancient Cross Timber remains intact.

To help understand the region and guide future management of the USACE lands at Belton Lake, the following sections reflect conditions that are both typical of the Cross Timbers region and unique to Bell County and Belton Lake. While Section 2.1 covers the specifics of the region, Section 2.2 covers the natural resources specific to the region, its watershed, and the lake.

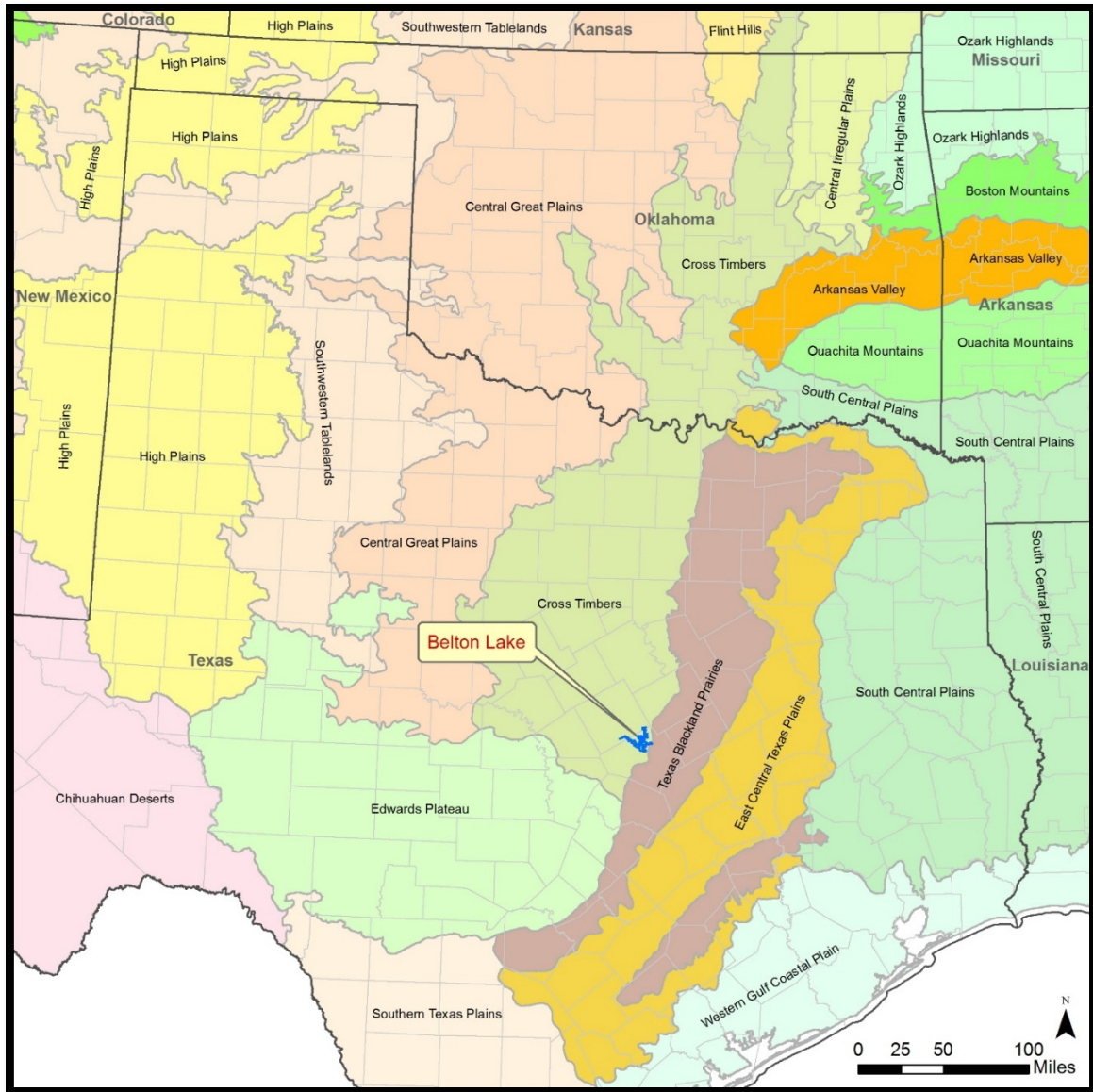


Figure 2.1 Belton Lake Ecoregion

2.1.2 Climate

Belton Lake lies in a moderately humid region of the southwest United States where the temperature is generally mild. Summer temperatures are generally hot during the day and warm at night, while winter temperatures are generally mild, with occasional cold periods, including some freezing temperatures, of short duration. Sub-zero temperatures are very rare. While the mean annual temperature is about 67 degrees Fahrenheit (°F), the maximum recorded temperature was 112 degrees °F in August 2011, and the minimum recorded temperature was -2 degrees °F in January 1949. The growing season between killing frosts is normally from mid-March to late-November.

The average annual precipitation over the watershed above the dam since 1963 is about 35.88 inches. Table 2.1 below shows the monthly and annual precipitation

recorded at Stillhouse Hollow Lake for the area of Belton Lake. This table shows the record daily precipitation was 14.57 inches in October 2015, and the minimum daily precipitation of 0.0 in both July and August 1993. The record maximum and minimum annual precipitation were 56.77 in 2007 and 20.47 in 1988, respectively. Areas highlighted in orange represent the month's record lowest precipitation, and the areas highlighted in blue are the highest precipitation recorded for the month from 1963 to 2016.

Table 2.1 Belton Area 1963-2016 Monthly and Annual Precipitation in Inches

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
1963							0.37	0.72	1.11	0.47	2.97	1.73	
1964	3.45	2.29	3.38	2.57	1.68	11.01	T	3.62	6.18	1.50	3.45	1.24	40.37
1965	4.49	3.84	1.30	1.38	12.63	2.65	0.33	0.47	4.42	1.74	3.50	3.94	40.69
1966	1.98	4.04	0.80	5.88	2.18	1.55	0.85	2.48	4.56	0.29	0.11	0.86	25.58
1967	0.45	0.54	0.95	1.66	5.69	0.14	0.18	1.16	3.18	4.86	3.16	3.02	24.99
1968	9.46	2.31	2.70	2.84	7.26	3.46	3.55	0.82	3.27	0.52	3.29	2.20	41.68
1969	0.61	3.00	3.78	4.04	2.38	0.74	0.55	3.30	1.70	3.86	2.06	2.66	28.68
1970	1.44	3.92	4.10	1.82	4.74	0.81	0.64	1.28	7.45	3.38	0.04	0.44	30.06
1971	T	1.75	0.17	2.14	4.58	1.21	5.21	2.67	1.76	6.78	2.96	3.91	33.14
1972	1.27	0.39	0.53	1.88	4.72	2.98	2.41	4.04	3.46	5.55	3.68	1.32	32.23
1973	4.57	2.36	2.86	2.83	2.23	3.52	4.93	0.94	6.84	7.29	1.13	0.44	39.94
1974	1.71	0.56	0.93	1.22	4.00	0.60	2.17	10.15	5.48	8.57	3.21	2.29	40.89
1975	1.33	3.48	1.77	1.39	9.97	5.50	1.09	3.93	2.55	2.59	0.88	1.58	36.06
1976	0.08	1.13	3.99	9.80	3.98	4.38	4.99	2.09	7.55	4.86	1.54	2.64	47.03
1977	1.96	4.15	2.43	7.01	2.36	2.87	0.11	0.56	0.52	1.89	1.44	0.33	25.63
1978	1.51	3.69	2.17	1.33	2.03	1.84	0.98	0.34	2.45	1.23	5.64	2.31	25.52
1979	2.57	3.19	5.64	5.47	8.65	5.06	5.33	3.37	2.75	1.38	0.64	2.99	47.04
1980	1.01	1.96	2.13	2.75	8.32	1.67	0.00	0.52	4.24	0.63	3.49	1.49	28.21
1981	1.00	3.30	3.40	2.95	3.79	13.91	0.60	1.55	2.79	7.95	1.29	0.56	43.09
1982	1.34	1.52	1.88	3.97	5.08	3.62	0.42	2.55	0.25	2.26	5.19	1.91	29.99
1983	1.62	3.10	4.18	0.14	7.66	1.17	1.61	4.14	4.06	1.34	2.03	0.61	31.66
1984	1.69	0.20	3.11	0.55	1.54	7.01	1.86	2.61	1.55	6.54	2.68	2.90	32.24
1985	1.55	3.77	3.62	3.53	3.94	3.12	0.43	1.62	4.94	5.45	5.66	2.48	40.11
1986	0.33	6.15	0.47	1.61	5.69	6.05	0.09	2.21	7.39	6.32	2.96	5.63	44.90
1987	1.00	3.33	1.33	1.20	3.66	6.85	1.60	0.63	2.62	0.35	4.77	3.47	30.81
1988	0.41	1.17	2.46	1.41	1.07	3.36	4.15	0.61	1.04	1.53	1.21	2.05	20.47
1989	4.71	4.33	3.12	0.59	5.46	4.68	0.92	3.03	0.27	1.94	0.71	0.40	30.16
1990	1.21	2.51	4.24	3.69	4.18	0.47	4.20	0.45	7.11	5.12	3.47	1.47	38.12
1991	4.99	1.56	1.21	1.92	11.65	5.83	1.15	1.38	5.60	5.19	1.68	9.78	51.94
1992	4.49	7.39	3.09	1.65	8.00	2.66	2.38	2.83	1.42	0.25	5.01	3.29	42.46
1993	3.60	2.74	5.27	4.64	4.86	3.29	0.00	0.00	4.57	3.50	1.46	2.08	36.01

Year	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NO V	DEC	Annual
1994	1.49	2.39	1.68	2.51	7.36	3.46	0.65	1.80	0.34	4.73	2.51	5.55	34.47
1995	0.74	1.44	3.02	4.21	4.29	5.80	1.77	2.30	3.50	0.96	1.74	1.13	30.90
1996	0.24	0.15	1.41	1.59	3.58	2.91	1.52	6.87	7.38	1.62	5.11	2.79	35.17
1997	2.43	5.67	3.55	7.37	4.78	5.72	1.67	0.53	3.15	3.58	4.94	7.37	50.76
1998	4.28	4.22	2.61	2.11	1.31	0.76	1.20	2.09	5.14	10.2 6	3.02	2.22	39.22
1999	0.96	0.22	2.84	2.06	4.58	2.36	3.01	0.13	4.81	1.84	0.20	2.18	25.19
2000	2.10	2.23	3.35	4.53	4.80	3.56	0.06	0.14	5.42	4.12	8.32	3.21	41.84
2001	6.61	1.61	4.56	1.85	7.11	2.62	1.37	14.5	2.18	2.54	5.92	3.39	54.20
2002	0.88	1.48	1.52	1.90	2.43	3.68	4.86	0.43	1.46	8.14	1.87	5.10	33.75
2003	1.07	5.27	1.88	0.57	1.26	4.81	0.80	1.79	3.10	4.28	1.33	0.72	26.88
2004	3.01	4.26	1.89	5.37	1.55	11.83	0.34	2.30	0.86	4.95	8.66	1.14	46.16
2005	2.97	2.93	2.23	0.88	3.71	2.91	4.93	5.43	1.07	1.42	1.31	0.22	30.01
2006	1.66	0.93	3.46	5.20	4.27	3.05	1.74	0.21	2.75	5.01	0.20	2.86	31.34
2007	7.15	0.20	8.71	1.64	11.34	10.99	7.44	0.53	4.54	0.71	1.66	1.86	56.77
2008	0.91	0.59	5.47	3.06	6.51	0.49	1.79	4.57	0.38	1.05	0.77	0.24	25.83
2009	1.04	0.92	4.03	5.12	2.65	0.02	1.14	0.38	10.7 5	12.2 2	1.70	1.84	41.81
2010	3.84	3.11	4.33	2.56	0.05	2.24	4.11	0.02	11.9 0	0.53	1.46	1.08	35.23
2011	3.47	1.09	0.21	0.32	4.13	0.74	0.15	0.00	0.36	2.87	1.13	6.01	20.48
2012	2.93	4.10	7.35	0.15	3.07	1.85	3.61	2.04	4.72	0.30	0.15	0.41	30.68
2013	4.95	1.43	1.42	1.36	6.73	1.06	2.42	1.91	2.98	7.14	2.72	1.18	35.30
2014	0.44	0.46	1.99	1.10	7.59	2.49	2.95	0.29	4.00	3.65	3.60	0.61	29.17
2015	3.91	1.26	2.74	2.69	9.14	5.87	0.33	1.45	0.99	14.6	7.23	2.12	52.30
2016	0.45	2.12	5.23	6.48	5.98	2.03	0.91	10.4 6	0.93	0.44	2.78	1.80	39.61
Average (in)	2.37	2.49	2.88	2.80	4.95	3.65	1.92	2.34	3.63	3.74	2.77	2.35	35.88

Source: NOAA Climatological Annual Summary

2.1.3 Geology and Topography

The Limestone Cut Plain of the Cross Timbers Ecoregion is underlain by Lower Cretaceous limestone, including the Glen Rose Formation and Walnut Clay, which are older than the limestone of the neighboring Edwards Plateau. The Glen Rose Formation has alternating layers of limestone, chert, and marl that erode differentially and generally more easily than the Edwards Limestone. The effects of increased precipitation and runoff are also apparent in the increased erosion and dissolution of the limestone layer.

The Limestone Cut Plain has flatter topography, lower drainage density, and a more open woodland character than does the Balcones Canyonlands, which lies further to the south of the Lake. The Belton Lake topography is characterized by buttes, mesas, and divides. The terrain in the area ranges from flat in the narrow valley of the flood

plains of the Leon River and Cowhouse Creek, to steep slopes and near vertical bluffs in the uplands.

2.1.4 Hydrology and Groundwater

The 45,573 square mile Brazos Basin, which feeds Belton Lake, is the second largest river basin by area within Texas. The total basin is 840 miles long with an annual flow of 6,074,000 ac-ft per year, most of which is in Texas. The basin's namesake river was named Los Brazos de Dios, "the arms of God," by early Spanish explorers. The Brazos River flows from the confluence of its Salt and Double Mountain forks in Stonewall County to the Gulf of Mexico. It is the state's third longest river and has the largest average annual flow volume of any river in the state. Other streams in the basin include the Salt, Double Mountain, and Clear forks of the Brazos River; Gabriel, Lampasas, Little, Leon, Navasota, Nolan, Paluxy, Sabana, and White rivers; and many creeks such as Big Sandy, Cedar, Millers, Salt, Sweetwater, and Yegua creeks. One of the issues in this basin is the increasing demand on surface water resources in the upper basin as groundwater supplies decline, particularly in the Ogallala Aquifer, which has historically supplied the majority of water in the upper basin.

The two primary sources of groundwater in the Belton Lake area are the Edwards Balcones Fault Zone (BFZ) Aquifer and the Trinity Aquifer (TWDB, 2015). The Edwards BZF forms a narrow belt extending through most of the southwestern part of the state of Texas, through 13 counties from a groundwater divide in Kinney County through the San Antonio area, northwestward to the Leon River in Bell County. Water in the aquifer occurs in fractures, honeycomb zones, and solution channels in the Edwards and associated limestone formations of Cretaceous age. Water quality for the Edwards (BZF) ranges from fresh to slightly saline as it approaches the west side of the Trinity Group, with total mineral dissolve ranging from 100 to 3,000 milligram per liter. Water from the Edwards (BZF) is primarily used for municipal, irrigation, and recreational purposes. The Trinity Aquifer consists of basal Cretaceous-age Trinity Group formations extending across much of the central and northwest parts of the state of Texas, through 61 counties. From the Red River in North Texas to the Hill Country of Central Texas, the aquifer is comprised of the Antlers, Twin Mountains, Glen Rose, Paluxy, Hosston, Travis Peak, and Hensell formations. In general, groundwater in the Trinity Aquifer is fresh but very hard in the outcrop. The dissolved solids increase from 1,000 - 5,000 milligram per liter, and slightly to moderately saline as the depth of the aquifer increases. Sulfate and chloride concentrations increase in the aquifer as depth increases. The Trinity Aquifer is mostly used for municipalities, irrigation, and livestock and is one of the most used groundwater resources in the state of Texas.

The Belton Lake area is administratively under the Groundwater Management Area (GMA) 8 as designated by TWDB. In 1993, the Edwards Aquifer Authority (EAA) was created by the legislature to regulate aquifer pumpage to benefit all users. Texas Water Code (TWC) Section 36.0015 states that groundwater conservation districts (GCDs) are the state's preferred method of groundwater management and establishes that GCDs will manage groundwater resources through rules developed and implemented in accordance with TWC Chapter 36. Chapter 36 gives directives to GCDs and the

statutory authority to carry out such directives, so that GCDs are provided the proper tools to protect and manage the groundwater resources within their boundaries.

The estimates of the annual amount of recharge to the groundwater resources that are recognized as Major Aquifers by TWDB are based on the Groundwater Availability Models (GAM) simulations provided by TWDB are:

1. Edwards BFZ Aquifer Recharge - 27,565 ac-ft per year
2. Trinity Aquifer Recharge - 2,816 ac-ft per year

The estimates of the annual amount of water discharged to surface water systems by the groundwater recognized as Major Aquifers by TWDB are based the GAM simulations provided by TWDB are:

1. Edwards BFZ Aquifer - 27,556 ac-ft per year
2. Trinity Aquifer - 11,131 ac-ft per year

2.1.5 Soils

Soil type and condition are an important component affecting the lake mission in terms of erosion and sedimentation, recreation options, and environmental stewardship. The Belton Lake area has thin limestone soils in the hilly portion, which are timbered with oak, elm, mesquite, juniper, and ash. Alluvial soils along the streams support pecan, willow, and hackberry trees.

Soils in the Belton Lake area are naturally susceptible to soil erosion. The major soil series found in the area are Topsey Clay Loam, Doss-real Complex, Eckrant-Rock Outcrop Complex, Real-Rock Outcrop Complex, and Sony Silty Clay Loam. The soils in general are well drained and moderately permeable, but can vary in depth, parent material, and slope. Hydrologically, these soil groups generally have moderate water infiltration rates, however in the areas where soils tend to be of clay formation, a very slow infiltration rate (high runoff potential) is recorded which gives the soil a shrink-swell potential. Figure 2.2 illustrates the distribution of soil types within Bell County.

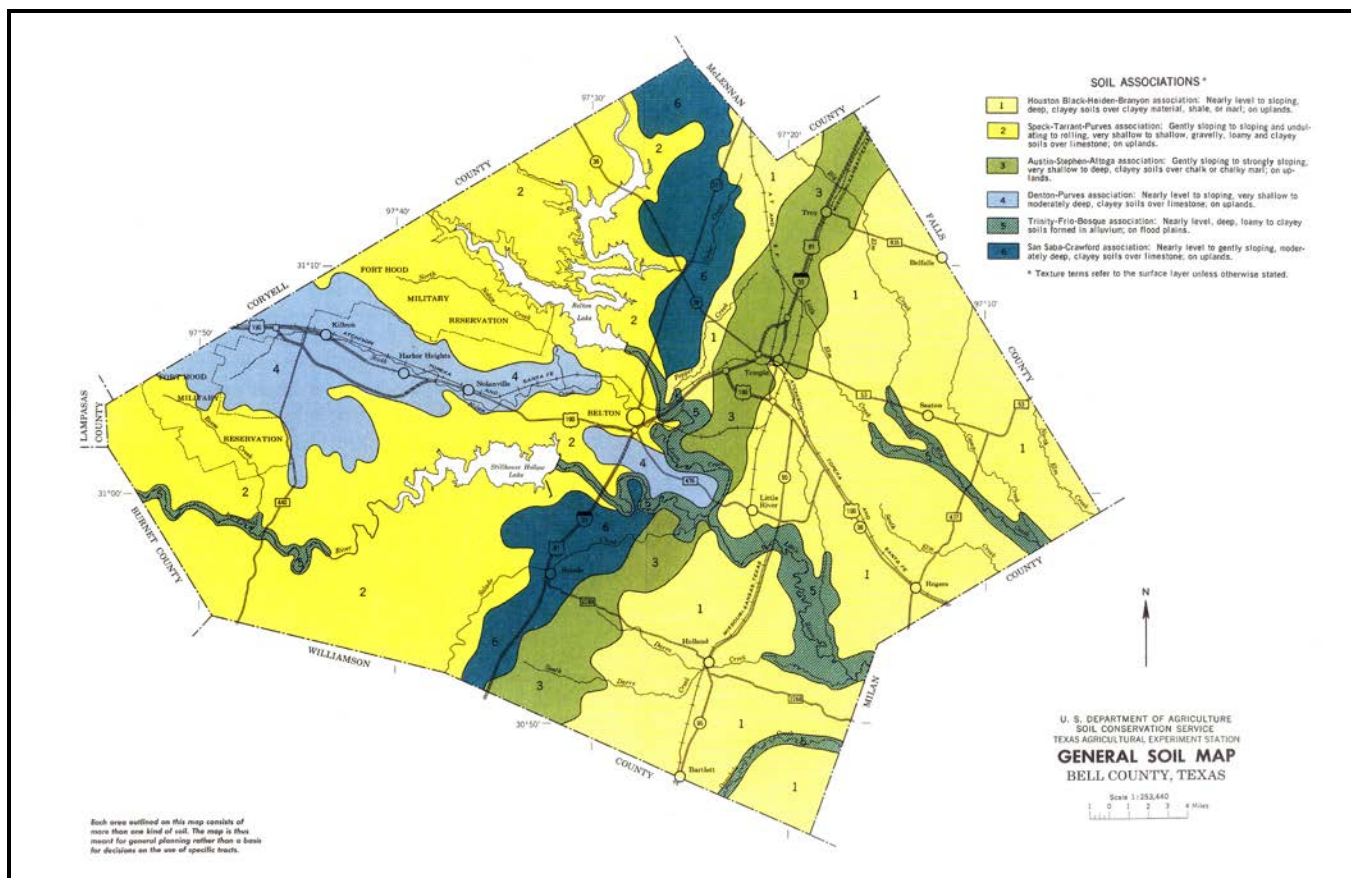


Figure 2.2 General Soil Map for Bell County (Source: US Department of Agriculture)

A soil survey by the Natural Resource Conservation Service (NRCS) shows there are all eight possible general classifications (Classes I through Class VIII) occurring in the reservoir area. 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 2.2 This data is compiled by the NRCS and is a standard component of natural resources inventories on USACE lands. This, and other inventory data, is recorded in the USACE Operations and Maintenance Business Information Link (OMBIL).

Table 2.2 Soil Classes

Soil Class	Acreage
Class I	7%
Class II	10%
Class III	18%
Class IV	2%
Class V	10%
Class VI	4%
Class VII	48%
Class VIII	0.2%

A general description of the soils at Belton Lake and the land capability classes are described below.

- *Class I* soils have slight limitations that restrict their use.
- *Class II* soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.
- *Class III* soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.
- *Class IV* soils have very severe limitations that restrict the choice of plants or require very careful management, or both.
- *Class V* 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.
- *Class VI* 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.
- *Class VII* soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.
- *Class VIII* 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 aesthetic purposes.

Detailed information on all soil types surrounding Belton Lake is available on websites maintained by the NRCS, U.S. Department of Agriculture.

2.2 ECOREGION AND NATURAL RESOURCE ANALYSIS

2.2.1 Vegetative Resources

USACE regulations and policy require a basic inventory of the vegetation at all operational projects. This inventory, referred to in EP 1130-2-540 as a Level 1 inventory, classifies the vegetation in accordance with the National Vegetation Classification System (NVCS) down to the Sub-Class level which is a very broad classification level. The inventory data, presented in Table 2.3, is recorded in the USACE national database referred to as the OMBIL and is useful in providing a general characterization of the vegetation on all operational projects. Daily management of USACE lands requires more detailed knowledge of the vegetation down to the Association level within the NVCS, and for most management prescriptions, down to the individual species level of dominant vegetation.

860 **Table 2.3 Vegetation Classification and Condition 2016 Inventory**

Division	Order	Class	Sub-Class	Total Sub-Class Acreage	Sustainable Areas	Transitioning Acres	Degraded Acres	Total Conditioned Acres
Non-Vegetated	Non-Vegetated	Non-Vegetated	Non-Vegetated	11,072	11,072	0	0	11,072
Vegetated	Herb Dominated	Herbaceous Vegetation	Perennial gramimoid vegetation	3,536	98	2,465	973	3,536
Vegetated	Scrub Dominated	Shrubland (Scrub)	Mixed evergreen deciduous shrubland (scrub)	635	190	64	381	635
Vegetated	Tree Dominated	Closed Tree Canopy	Mixed evergreen-deciduous closed tree canopy	2,670	250	1,602	818	2,670
Vegetated	Tree Dominated	Open Tree Canopy	Mixed evergreen-deciduous open tree canopy	5,168	506	3,617	1,045	5,168
Vegetated	Vegetation Not Dominant	Sparse Vegetation	Bolder gravel cobble or talus sparse vegetation	719	123	340	256	719
BELTON LAKE TOTALS				23,800	12,239	8,088	3,473	23,800

Note: Classification information is derived from the National Vegetation Classification System

861
862
863
864 The vegetation of the Cross Timbers section of the Limestone Cut Plain is
865 composed numerous tree species including post oak (*Quercus stellata*), white shin oak
866 (*Quercus sinuata* var. *breviloba*), cedar elm (*Ulmus crassifolia*), Texas ash (*Fraxinus*
867 *albicans*), plateau live oak (*Quercus fusiformis*), and bur oak (*Quercus macrocarpa*).
868 Although the grasslands of the Limestone Cut Plain are a mix of tall, mid, and short
869 grasses, some consider it a westernmost extension of the tallgrass prairie, which
870 distinguishes this ecoregion from the Edwards Plateau Woodland. Grasses include big
871 bluestem (*Andropogon gerardi*), little bluestem (*Schizachyrium scoparium*), yellow
872 Indiangrass (*Sorghastrum nutans*), silver bluestem (*Bothriochloa saccharoides*), Texas
873 wintergrass (*Nassella leucotricha*), tall dropseed (*Sporobolus compositus*), sideoats
874 grama (*Bouteloua curtipendula*), and common Curly mesquite (*Hilaria belangeri*). The
875 Cross Timbers wooded areas consist primarily of post oak (*Quercus stellata*), blackjack
876 oak (*Quercus marilandica*), and hickories (*Carya spp.*), along with tall and midgrasses.
877 A denser woody understory forms in the absence of fire.

878
879 A Wildlife Habitat Appraisal Procedure (WHAP) was completed in conjunction
880 with the Belton Lake Master Plan and associated EA. USACE looked at major habitat
881 types throughout USACE lands at Belton Lake and scored them based on their value for
882 terrestrial wildlife habitat. A total of 69 WHAP points around the lake were selected, all
883 within USACE fee property. The major habitat types selected and assessed were
884 Grasslands, Shrublands, Woodlands, and Bottomland Hardwoods. All habitat types
885 scored in the fair to good range of possible habitat vaue. The following is a summation

of the findings, and the WHAP report and results can be found in Appendix E of this Plan.

Grassland: There were 5 Grassland sites assessed that had WHAP scores ranging from a low of 0.47 to a high of 0.58. The average score for this habitat type was 0.50. Generally the grassland observed around Belton Lake is in fair to good condition but did show some transitioning to mixed prairie. The major species observed are prairie verbena (*Glandularia bipinnatifida*), bee balm (*Monarda fistulosa*), Canada wild rye (*Elymus canadensis*), sunflower (*Helianthus spp.*), mullein (*Verbascum thapsus*), gumweed (*Grindelia squarrosa*), doveweed (*Croton texensis*), Johnson grass (*Sorghum halepense*), curlycup (*Grindelia squarrosa*), ironweed (*Vernonia spp.*), balsam apple (*Echinocystis lobata*), and ragweed (*Ambrosia spp.*). Some woody species are observed in the area including honey locus (*Gleditsia triacanthos*), honey mesquite (*Prosopis glandulosa*), cedar elm (*Ulmus crassifolia*), winged elm (*Ulmus alata*), and salt cedar (*Tamarix spp.*).

Shrubland: There were 7 Shrubland sites assessed that had WHAP scores ranging from a low of 0.31 to a high of 0.62. The average score for this habitat type was 0.49. The general herbaceous species found in these sites are: Johnson grass (*Sorghum halepense*), beggar's lice (*Hackelia virginiana*), little bluestem (*Schizachyrium scoparium*), partridge pea (*Chamaecrista fasciculata*), Texas grama (*Bouteloua rigidisetata*), Sedge (*Carex texensis*), sunflower (*Helianthus spp.*), buttonbush (*Cephalanthus occidentalis*), silverleaf nightshade (*Solanum elaeagnifolium*), ragweed (*Ambrosia spp.*), St. John's wort (*Hypericum perforatum*), little bluestem (*Schizachyrium scoparium*), ironweed (*Vernonia spp.*), broom weed (*Gutierrezia sarothrae*), prairie coneflower (*Ratibida columnifera*), blazing star (*Liatris spp.*), mullein (*Verbascum spp.*), Texas bluegrass (*Poa arachinifera*), and Scribner's panicgrass (*Panicum oligosanthos*). The dominant woody species include: honey mesquite (*Prosopis glandulosa*), boxelder (*Acer negundo*), black locust (*Robinia pseudoacacia*), cedar elm (*Ulmus crassifolia*), salt cedar (*Tamarix spp.*), Ashe juniper (*Juniperus ashei*), and black willow (*Salix nigra*).

Woodland: There were 45 Woodland sites assessed that had WHAP scores ranging from a low of 0.31 to a high of 0.67. The average score for this habitat type was 0.53. Generally the woodlands observed around Belton Lake are in fair condition. The major herbaceous species observed are: Switchgrass (*Panicum virgatum*) and false nettle (*Boehmeria ramiflora*). The dominant woody species observed are: Dewberry (*Rubus trivialis*), poison ivy (*Toxicodendron radicans*), Ashe juniper (*Juniperus ashei*), live oak (*Quercus fusiformis*), blackjack oak (*Quercus marilandica*), chinaberry (*Melia azedarach*) (an invasive species), hackberry (*Celtis occidentalis*), greenbrier (*Smilax rotundifolia*), holly (*Ilex spp.*), green ash (*Fraxinus pennsylvanica*), Carolina snailseed (*Cocculus carolinus*), Texas persimmon (*Diospyros texana*), cedar elm (*Ulmus crassifolia*), and yaupon (*Ilex vomitoria*).

Bottomland Hardwood: There were 12 Bottomland Hardwood sites assessed that had a WHAP score ranging from a low of 0.36 to a high of 0.87. The average score for this habitat type was 0.64. Generally, the Bottomland Hardwoods observed around Belton

Lake were in good condition. The dominant herbaceous species observed were: Canada wild rye (*Elymus canadensis*), inland sea oats (*Chasmanthium latifolium*), Scribner's panic grass (*Panicum oligosanthos*), Johnson grass (*Sorghum halepense*), baccharis (*Baccharis halimifolia*), and lemon horsemint (*Monarda citriodora*). The dominant woody species observed were greenbrier (*Smilax rotundifolia*), dewberry (*Rubus trivialis*), snailseed (*Cocculus carolinus*), Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), live oak (*Quercus fusiformis*), mulberry (*Morus spp.*), green ash (*Fraxinus pennsylvanica*), sycamore (*Platanus americana*), hackberry (*Celtis occidentalis*), and pecan (*Carya illinoensis*).

2.2.2 Wetland Resources

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

Table 2.4 Wetland Resources

Wetland Types	Total Acres
Unconsolidated Bottom	11,259
Forested Wetland	615
Emergent Wetland	372
Unconsolidated Bottom	44
Total Inventoried	11,510

Note: These acres are from OMBIL and vary from USFWS acres.

Table 2.4 lists the acreages of various types of wetlands present at Belton Lake. Wetland classifications presented are derived from the U.S. Fish & Wildlife Service's (USFWS) Trust Resource List generated using the Information, Planning, and Conservation System decision support system.

2.2.3 Fish and Wildlife Resources

Belton Lake provides habitat for an abundance of fish and wildlife species. The lake provides a quality fishery, as well as quality wildlife habitat on public land associated with the project.

Fish Resources

Belton Lake provides fishing opportunities for the boater and for the bank angler. Common sport fish species present in Belton Lake include striped bass (*Morone saxatilis*), white bass (*Morone chrysops*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), white crappie (*Pomoxis annularis*), channel catfish (*Ictalurus punctatus*), and blue catfish (*Ictalurus furcatus*). Other species include a variety of sunfish (*Lepomis* spp.), bluegill (*Lepomis macrochirus*), warmouth (*Lepomis gulosus*), drum (*Aplodinotus grunniens*), carp (*Cyprinus carpio*) and red-bellied pacu (*Piaractus brachypomus*). Stocking of Belton Lake is conducted by Texas Parks and Wildlife Department (TPWD) and varies annually but has included striped bass, largemouth bass, smallmouth bass, rainbow trout (*Oncorhynchus mykiss*), and bluegill. In 2016 alone, TPWD stocked 160,740 fingerling Florida big mouth bass and 909,513 fry palmetto bass.

According to TPWD, the management plan from the 2010 survey report included the continued evaluation of fry versus fingerling palmetto bass stockings, spring-time collection efforts for smallmouth bass for the hatchery program, working with the USACE and bass tournament directors to improve the survivability of tournament-caught fish, improving habitat by introducing and monitoring native vegetation, and monitoring the reservoir for invasive species (e.g., zebra mussels) and educating marina owners and constituents about their issues and threats. Despite preventative efforts, zebra mussels were confirmed in Belton Reservoir in August 2013, and the reservoir is now infested. Recent efforts have included a comprehensive public relations campaign to further educate Belton Lake stakeholders about zebra mussels, how to inspect and clean, drain and dry their watercraft, and the new statewide water draining laws meant to prevent the spread of zebra mussels to other Texas waters.

USACE is committed to continued cooperation with TPWD, whose management strategies include:

- Manage sport fishes at Belton Lake with statewide regulations.
- Plant additional native vegetation as water levels allow.
- Maintain invasive species signage at boat ramps and inform the public about the negative impacts of aquatic invasive species when meeting with Belton Lake user groups.
- Conduct access and vegetation surveys.
- Survey with trap nets, gill nets, and electrofishing.
- Obtain a Category 3 age-and-growth sample for palmetto bass to test the effects of stocking two different fry stocking rates.
- Obtain a Category 3 age-and-growth sample for smallmouth bass to test the effects of increased water levels and fingerling stocking on year-class strength.

- Work with the USACE and constituent groups to inform and educate about best practices for tournament weigh-ins.

Wildlife Resources

Belton Lake provides habitat for an abundance of wildlife species, including game and non-game species, migratory waterfowl, resident and migratory song birds, wading birds, reptiles, amphibians, and insects. Birds such as canyon wrens (*Catherpes mexicanus*) and cliff swallows (*Petrochelidon pyrrhonota*) can be found along Cox's Hollow Trail at the Miller Springs Nature Area, near the Belton Lake dam. The area offers a mixture of geologic features, bottomland hardwoods, prairies, springs, and river habitats, which support white-tailed deer (*Odocoileus virginianus*), gray foxes (*Urocyon cinereoargenteus*), red foxes (*Vulpes vulpes*), coyotes (*Canis latrans*), fox squirrels (*Sciurus niger*), nine-banded armadillos (*Dasypus novemcinctus*), wild turkeys (*Meleagris gallopavo*), owls (Order *Strigiformes*), over a hundred other species of birds (Class *Aves*).

Several other parks around the lake offer similar viewing opportunities. Waterfowl, wading birds, bald eagles (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*) and brown booby (*Sula leucogaster*) can be viewed from several vantage points around the lake. Waterfowl viewing is best during the winter when eagles and osprey are present but uncommon. Cliff swallows are best viewed during the spring and summer before they migrate south.

USACE currently allows hunting at Belton Lake in specified areas and in accordance with specific restrictions on allowable game species and means and methods of hunting. Each year, USACE Fort Worth District publishes a Public Hunting Guide listing each USACE lake with Fort Worth District. The guide is updated each year to address any changes in State wildlife/hunting rules as well as any changes in the management of USACE land at each lake. Hunters are advised to obtain a copy of the guide and to visit with USACE lake staff when planning to hunt.



Photo 2.1 Wild Turkey at Belton Lake (USACE Photo)

2.2.4 Threatened and Endangered Species

Threatened species are those which are likely to become endangered within the foreseeable future. Endangered species are in danger of extinction throughout all or a significant portion of their range. The USFWS Information for Planning and Conservation (IPaC) states that several species of birds and flowering plants were identified as federally threatened and endangered species that potentially occur within USACE operated property at Belton Lake.

Table 2.5 indicates the various species of birds, flowering plants, and reptiles listed by the USFWS as Threatened, Endangered or Candidate species that could potentially be found at Belton Lake.

Table 2.5 Federally-Listed Threatened and Endangered Species with Potential to Occur at Belton Lake

Common Name	Scientific Name	Federal Status	State Status
Whooping Crane	<i>Grus americana</i>	Endangered	Endangered
Least Tern	<i>Sterna antillarum</i>	Endangered	Endangered
Piping Plover	<i>Charadrius melodus</i>	Threatened	Threatened
Red Knot	<i>Calidris canufus rufa</i>	Threatened	Not Listed
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>	Endangered	Endangered
Salado Salamander	<i>Eurycea chisholmensis</i>	Threatened	Not Listed
Smooth Pimpleback	<i>Quadrula houstonensis</i>	Candidate	Threatened
Texas Fawnsfoot	<i>Truncilla macrodon</i>	Candidate	Threatened

Source: USFWS 2018

2.2.5 Invasive Species

Invasive species are any kind of living organism which, if uncontrolled, causes harm to the environment, economy, or human health. Invasive species generally grow and reproduce quickly and spread aggressively. Non-native, or exotic, species have been introduced, either intentionally or unintentionally, and can out-compete native species for resources or otherwise alter the ecosystem. Native invasive species are those species that spread aggressively due to an alteration in the ecosystem, such as lack of fire or the removal of a predator from the food chain. Table 2.6 lists invasive and exotic species that occur at Belton Lake.

Table 2.6 Invasive Species Found at Belton Lake

Common Name	Scientific Name	Native/Non-native	Prevalence/acres
Birds			
Eurasian Sparrow	<i>Passer montanus</i>	Non-native	Significant/Major/11,151
European Starling	<i>Stumus vulgaris</i>	Non-native	Significant/Major/11,510
Mammals			
Feral Hog	<i>Sus scrofa</i>	Non-native	Moderate/1,1,510
Feral Cats	<i>Felis catus</i>	Non-native	Significant/Major/11,510
Nutria	<i>Myocastor coypus</i>	Non-native	Moderate/1,000
Zebra mussel	<i>Dreissena polymorpha</i>	Non-native	Significant/Major/12,135
Insects			
Africanized Honeybees	<i>mellifera scutellata</i> <i>Lepeletier</i>	Non-native	Moderate/11,510
Argentine Ant	<i>Linepithema humile</i>	Non-native	Moderate/11,510
Red Imported Fire Ant	<i>Solenopsis invicta</i>	Non-native	Significant/Major/11,510
Plants-Aquatic			
Hydrilla	<i>Hydrilla verticillata</i>	Non-native	Moderate/100
Plants-Terrestrial			
Castor Beans	<i>Ricinus communis</i>	Non-native	Minor/75

Source: OMBIL

Additional invasive species include Chinaberry (*Melia azedarach*), bamboo (*Bambuseae vulgaris*), Johnsongrass (*Sorghum halepense*), Japanese Privet (*Ligustrum haponicum*) and the red-bellied pacu (*Piaractus brachypomus*).

2.2.6 Visual and Scenic Resources

Belton 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 Belton Lake is located near two cities and a large military base, 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. 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. The Shoreline Management Policy has details concerning permits for vegetation manipulation.

Adjacent landowners are advised to contact USACE lake staff prior to conducting any vegetation manipulation on USACE land.

2.2.7 Sedimentation and Shoreline Erosion

Based on two methods for estimating sedimentation rates, the 2015 TWDB sedimentation survey estimates Belton Lake to have an average loss of capacity between 371 and 398 ac-ft per year since impoundment due to sedimentation below conservation pool elevation (594.0 feet NGVD29). The sedimentation survey indicates sediment accumulation varies throughout the reservoir. Sediment accumulation is consistently greater throughout the main thalwegs of Cowhouse Creek and Leon River. The TWDB recommends that a similar methodology be used to resurvey Belton Lake in 10 years or after a major flood event.

The original design estimate by USACE indicates Belton Lake has a water surface of 12,300 acres with a total reservoir capacity of 457,600 ac-ft. The original design was later revised in 1963 to account for the sediment range lines installed in 1953–1954, resulting in a total reservoir capacity estimate of 456,884 ac-ft and a water surface of 12,416 acres. The USACE resurveys of Belton Lake in 1961 and 1966 indicate the lake surface is 12,420 acres and 12,423 acres, respectively, with a total reservoir capacity of 447,500 ac-ft and 441,984 ac-ft, respectively. The TWDB surveyed Belton Lake in 1994 and 2003. The 1994 and 2003 TWDB surveys were reevaluated using current processing procedures resulting in updated capacity estimates of 446,505 ac-ft and 446,031 ac-ft, respectively.

2.2.8 Water Quality

Belton Lake is identified as segment 1220 within the Brazos River Basin. According to the 2014 Texas Commission on Environmental Quality (TCEQ) 2014 Texas Integrated Report for Clean Water Act Section 305(b) and 303(d), no water quality parameters measured were considered impaired at Belton Lake (TCEQ 2014). All parameters measured such as dissolved oxygen levels, metals in water, organics in water, sediment toxicity sets, and macrobenthos communities, show Belton Lake as fully supported (FS) for aquatic life, contact recreation, public water supply and general uses.

Few water quality parameters are monitored closely at Lake Belton such as the concentration of dissolved solids, erosion and sedimentation, levels of oxygen, and the concentrations of total inorganic nitrogen, however, TCEQ has determined that none of these parameters are of concern. The concentration of dissolved solids such as chloride, and sulfate in the water of Belton Lake average from 240 milligrams per liter, to 30 milligrams. The water is very hard, due to the high concentration of calcium carbonate. However, the hardness decreases during the summer and early fall due to the sustained high flow. Lower levels of oxygen are recorded in areas adjacent to the dam and in water depth below 35 feet especially in the summer due to oxidation of dead organisms and other organic material. Concentration of total inorganic nitrogen and

phosphorus are greatest during the summer and are generally elevated by runoffs during storm events.

2.2.9 Air Quality

The Clean Air Act, last amended in 1990, requires the EPA to set National Ambient Air Quality Standards (NAAQS) (40 CFR part 50) for pollutants considered harmful to public health and the environment. The Clean Air Act identifies two types of national ambient air quality standards. Primary standards provide public health protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings. These standards are implemented by the EPA to assign limits to the amount of pollution that can be present in the atmosphere.

Based on monitoring data, the EPA has determined that the Belton Lake area is currently in attainment, meaning that it meets standards. However, with an average of 65,000 vehicles passing through on the Interstate 35 corridor on a daily basis, and the accelerated growth of the Killeen and Temple urbanized areas near Belton Lake, this could potentially change over the 25-year planning horizon of this Plan.

2.3 CULTURAL RESOURCE AND ANALYSIS

2.3.1 Prehistoric

The earliest well-documented evidence of human occupation in the Belton Lake area is the Clovis culture, which dates to about 13,000 years before present (B.P.). Recent claims of an earlier pre-Clovis occupation (ca. 16,000 B.P.) have been made for the Gault Site in far southern Bell County. Prehistory is divided generally into three broad time periods: Paleo-Indian (13,000-8,500 B.P.), Archaic (8,500-1,250 B.P.), and Late Prehistoric (1,250-300 B.P.).

Evidence for Paleo-Indian period occupation is relatively rare in the Belton Lake area, and is known primarily from distinctive projectile point styles dating to this time period found in surface collections or in mixed multi-component sites. It is likely that intact Paleo-Indian camp sites may be buried deeply beneath Holocene floodplain alluvium. South of Belton Lake in Bell County a Clovis period occupation is well-represented by a major component at the Gault Site. Evidence suggests that the region was occupied by small groups of highly mobile hunter-gatherers that traveled over very large territories. Traditionally thought of as big-game hunters of mammoth and bison, more recent evidence indicates Paleo-Indians exploited a much broader range of animal and plant resources.

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

area and in Central Texas generally. Archaic period sites at Belton Lake include open campsites, burned rock midden features, and rockshelter occupations.

The Late Prehistoric Period (1,250-300 B.P.) is marked by the presence of the bow and arrow and pottery. During the early portion of this time span, subsistence strategies remained similar to those of the preceding Late Archaic. The Late Prehistoric period is divided into early Austin phase (1,250-650 B.P.) and late Toyah phase (650-300 B.P.) sub periods, both of which have been documented at Belton Lake archeological sites. The Toyah phase differs from the preceding Austin phase in terms of technology and subsistence strategies. Bison became an important economic resource. Evidence of horticulture also appears, but was of only minor importance to overall Toyah phase subsistence.

2.3.2 Historic

When Anglo settlers were beginning to occupy what is now Bell and Coryell Counties in the 1830s, Native American tribes reported in the area included the Tonkawa, Lipan Apache, Waco, Kiowa, and Comanche. Following the annexation of Texas by the United States in 1845, the US Army established a series of forts along the western frontier. Fort Gates (1849-1852) was established on the north bank of the Leon River in what is now Coryell County upstream from Belton Lake. The presence of Fort Gates attracted settlers to the area as the frontier advanced westward. Smaller-scale farming predominated the local economy until after the American Civil War.

Population growth in the area accelerated following the arrival of the railroads in 1881. This improved access to major markets and led to a dramatic increase in the numbers of local farms and ranches. Most of the historic period resources at Belton Lake are expected to be the archeological remains of house sites and outbuildings associated with farms and ranches dating from the late-19th century through the mid-20th century.

2.3.3 Previous Investigations at Belton Lake

The earliest archeological investigations in the Belton Lake area were excavations in the 1930s at the Fred Acree Site (41CV1) and the Owl Creek Shelter (41BL3) by A.T. Jackson, and the Aycok Shelter (41BL28) by Frank Watt. Studies related to the construction of Belton Lake began with a preliminary survey in 1949 by the River Basin Surveys. Additional sites were recorded in 1950, and excavations were conducted at five sites in 1952 (41CV17, 41CV21, 41CV26, 41CV27, 41CV28).

Further investigations occurred in 1962 when plans were made to raise the lake's Conservation Pool. That work included a reconnaissance survey and test excavations at nine sites by the Texas Archeological Salvage Project (21BL22, 41BL23, 41BL39, 41BL46, 41BL47, 41BL57, 41BL58, 41BL65, 41CV18). Since 1978, additional survey has been conducted along portions of Belton Lake's west shore as part of the Fort Hood Archeological Resource Management Program.

In the 1990s, several small areas were surveyed prior to proposed construction projects, and eight new sites were recorded. In 2010, 6,195 acres of fee property managed by the Corps of Engineers was surveyed for cultural resources. This resulted in the recording of 51 new sites and 46 previously known sites.

2.3.4 Recorded Cultural Resources

Currently, 196 archeological sites have been recorded at Belton Lake. Additional sites have been identified on the 5,472 acres licensed to and managed by Fort Hood. Only three of these sites have been evaluated to determine their eligibility for the National Register of Historic Places (all three were determined to be ineligible). The remaining 193 archeological sites have not yet been formally evaluated for National Register of Historic Places (NRHP) eligibility. All 11,667 acres of Belton Lake fee property located above the Conservation Pool elevation now have been inventoried to current archeological survey standards. Of this total, 5,472 acres are managed by Fort Hood and 6,195 acres are managed by the Corps of Engineers.

2.3.5 Long-term Cultural Resources Objectives

As funding allows, a Cultural Resources Management Plan (CRMP) shall be developed and incorporated into the Operational Management Plan in accordance with EP 1130-2-540. The purpose of the CRMP is to provide a comprehensive program to direct the historic preservation activities and objectives at Belton Lake. A full inventory of cultural resources at Belton Lake has been completed in compliance with Section 110 of the National Historic Preservation Act (NHPA). In consultation with the Texas State Historic Preservation Officer (SHPO), all currently known sites must be evaluated to determine their eligibility for the NRHP. In accordance with Section 106 of the NHPA, any proposed ground-disturbing activities or projects, such as those described in this master plan or as may be proposed in the future by others for right-of-way easements, will require coordination with the SHPO to locate and evaluate potential impacts to historic and prehistoric resources. Resources determined eligible for the NRHP must be protected from proposed project impacts, or the impacts must be mitigated. All future cultural resource investigations at Belton Lake must be coordinated with the SHPO and federally-recognized Tribes to insure compliance with the NHPA, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

2.4 DEMOGRAPHIC AND ECONOMIC ANALYSIS

The following information covers the current demographic and economic data for communities near Belton Lake (Zone of Interest). This basic information gives a snapshot of the current population and looks at growth trends for the area.

2.4.1 Zone of Interest

Belton Lake lies primarily within the northern portion of Bell County and extends in to Coryell County. The zone of influence for the socio-economic analysis of Belton Lake is defined as the counties in which the lake lies, Bell and Coryell, as well as the six

additional counties that surround Bell, which are Burnet, Falls, Lampasas, McLennan, Milam, and Williamson counties.

2.4.2 Population

The total population for the zone of interest in 2016 was 1,247,160, as shown in Table 2.7. A large majority of the zone of interest's population (approximately 39%) resides in Williamson County, 27% in Bell County, 20% in McLennan County, 6% in Coryell County, and 4% in Burnet County. The remaining counties in the zone of interest each account for 2% or less of the zone of interest's population.

The zone of interest's population makes up approximately 5% of the total population of Texas. From 2016 to 2045, the population in the zone of interest is expected to increase to just under 2 million from 1.2 million, an annual growth rate of 1.68%. By comparison, the population of Texas is projected to increase at a rate of 1.4% per year, and the national growth rate is expected to be 0.6% per year between 2016 and 2045. During this timeframe, all counties within the zone of interest are projected to have positive growth, with Bell County and Williamson County growing the most at 1.8% and 2.14%, respectively.

Table 2.7. 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
Bell County	237,974	330,859	524,806
Burnet County	34,147	44,584	58,349
Coryell County	74,978	75,710	107,138
Falls County	18,576	17,265	18,823
Lampasas County	17,762	20,357	27,062
McLennan County	213,517	243,394	298,063
Milam County	24,238	24,372	29,535
Williamson County	249,967	490,619	908,070
Zone of Interest Total	871,159	1,247,160	1,971,846

Source: U.S. Census Bureau, Population Division (2000 Estimate); 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 (2040 Projections)

The distribution of the population among gender in the zone of interest, as shown in Table 2.8, is approximately 49% male and 51% female, similar to the overall gender distribution in Texas.

Table 2.8 Percent of Population Estimate by Gender - 2016

Geographical Area	Male	Female
Texas	13,379,165	13,577,270
Bell County	165,045	165,814
Burnet County	22,025	22,559
Coryell County	37,638	38,072
Falls County	8,234	9,031
Lampasas County	9,972	10,385
McLennan County	118,704	124,690
Milam County	12,126	12,246
Williamson County	241,189	249,430
Zone of Interest Total	614,933	632,227

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

Figure 2.3 shows the population by age group. The distribution of age groups is similar between the zone of interest and the state of Texas. Bell County, where the majority of Belton Lake is located, has a slightly larger percent of the population ages 0 to 34 and a slightly smaller percentage of the population ages 35 and over when compared to both the zone of interest and the state. Figure 2.3 shows the zone of interest's population by age group in 2016 compared to the projections for 2045. The forecast shows that the population ages 0 to 59 will decrease while ages 60 and over will increase between 2016 and 2045.

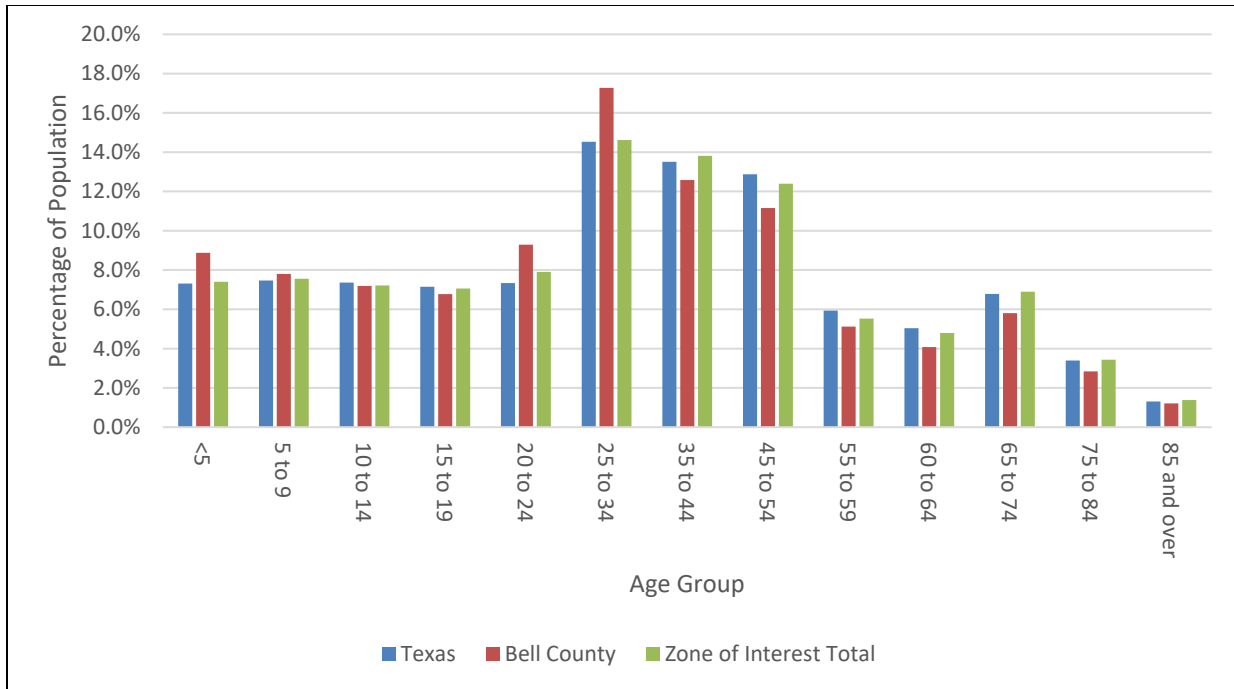


Figure 2.3 Percent Population by Age Group 2016

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

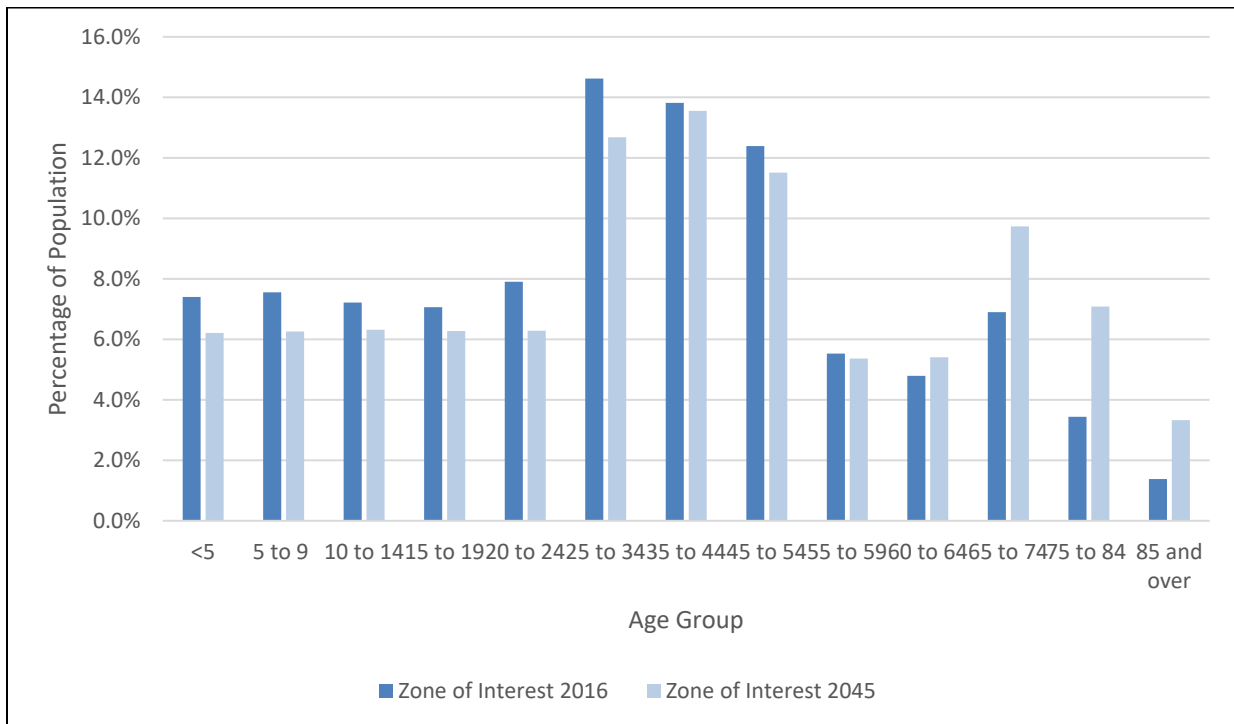


Figure 2.4 Population Estimate and 2045 Projection by Age Group 2016

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)

Population by race and Hispanic Origin is displayed in Table 2.9. The zone of interest is approximately 58% White, 12% Black, 23% Hispanic or Latino, 3% Asian, and 3% 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, and 4% Asian. Figure 2.5 shows the 2016 estimate and the 2045 projections of race/ethnicity in the zone of interest distributed between four categories, White, Black, Hispanic, and Other. The two graphs show that the Hispanic and Other categories are expected to increase by 13% and 3% respectively, while the White category decreases by 14% and the Black category decreases by 1%.

Table 2.9. 2016 Population Estimate by Race/Hispanic Origin

Counties	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 -All	11,705,684	3,134,962	63,336	1,161,742	18,990	35,509	423,062	10,413,150
Bell County	159,103	68,794	1,005	8,813	2,289	262	12,714	77,879
Burnet County	33,231	804	321	317	0	0	322	9,589
Coryell County	45,356	10,191	430	1,325	528	26	4,578	13,276
Falls County	8,920	4,156	33	42	23	0	204	3,887
Lampasas County	14,934	727	71	191	49	39	538	3,808
McLennan County	139,471	34,520	456	3,766	24	86	3,910	61,161
Milam County	15,495	2,018	37	130	0	4	530	6,158
Williamson County	302,516	29,923	924	28,128	110	904	11,171	116,943
Zone of Interest Total	719,026	151,133	3,277	42,712	3,023	1,321	33,967	292,701

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

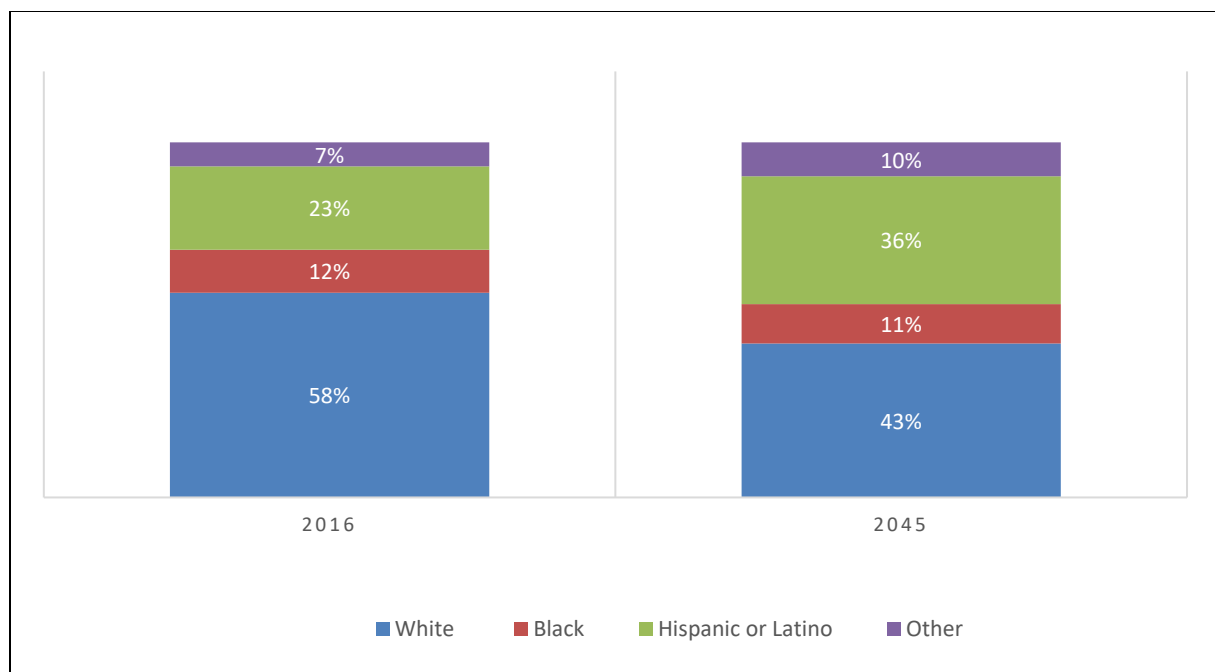


Figure 2.5 Zone of Interest Population Estimate and Projection by Race/Ethnicity

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)

2.4.3 Education and Employment

Table 2.10 displays the highest level of education attained by the population ages 25 and over. In the zone of interest, 4% of the population has less than a 9th grade education, and another 6% has between a 9th and 12th grade education; 25% has a high school diploma or equivalent, and another 26% has some college and no degree; 9% has an Associate's degree; 19% has a Bachelor's degree; and 9% has a graduate or professional degree. In Texas, 9% of the population has less than a 9th grade education; another 9% has between a 9th and 12th grade education; 25% has at least a high school diploma or equivalent; 22% has some college; 7% has an Associate's degree; 18% has a Bachelor's degree; and 10% has a graduate or professional degree.

1343 **Table 2.10. Population Estimate by Highest Level of Educational Attainment,**
 1344 **Population 25 Years of Age and Older - 2016**

Area	Highest Level of Educational Attainment							
	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
Bell County	198,709	8,392	10,863	54,300	58,615	20,362	30,282	15,895
Burnet County	31,066	1,761	2,548	9,745	7,392	2,474	4,851	2,295
Coryell County	46,747	2,262	3,553	13,173	15,421	5,257	5,032	2,049
Falls County	11,869	1,175	1,712	4,315	2,579	680	1,050	358
Lampasas County	13,907	494	1,086	3,654	4,160	1,656	1,859	998
McLennan County	146,233	9,406	14,232	41,628	34,236	14,237	21,012	11,482
Milam County	16,346	1,132	2,089	6,004	3,412	1,148	1,794	767
Williamson County	319,162	9,473	13,258	65,611	77,604	27,456	85,385	40,375
Zone of Interest Total	784,039	34,095	49,341	198,430	203,419	73,270	151,265	74,219

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

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 1346 Employment by sector is presented in Figure 2.6 and Table 2.11. Figure 2.6
 1347 shows that the largest percentage of the zone of interest is employed in the Educational
 1348 services, and health care and social assistance sector at 23%, followed by 12% in
 1349 Retail Trade, 11% in the Professional, scientific, and management, and administrative
 1350 and waste management services, 9% each in the Arts, entertainment, and recreation,
 1351 and accommodation and food services and the Manufacturing sectors, 7% each in the
 1352 Construction and Public Administration sectors, and 6% in the Finance and insurance,
 1353 and real estate and rental and leasing sector. The remainder of the employment sectors
 1354 each comprise 5% or less of the zone of interest's labor force.
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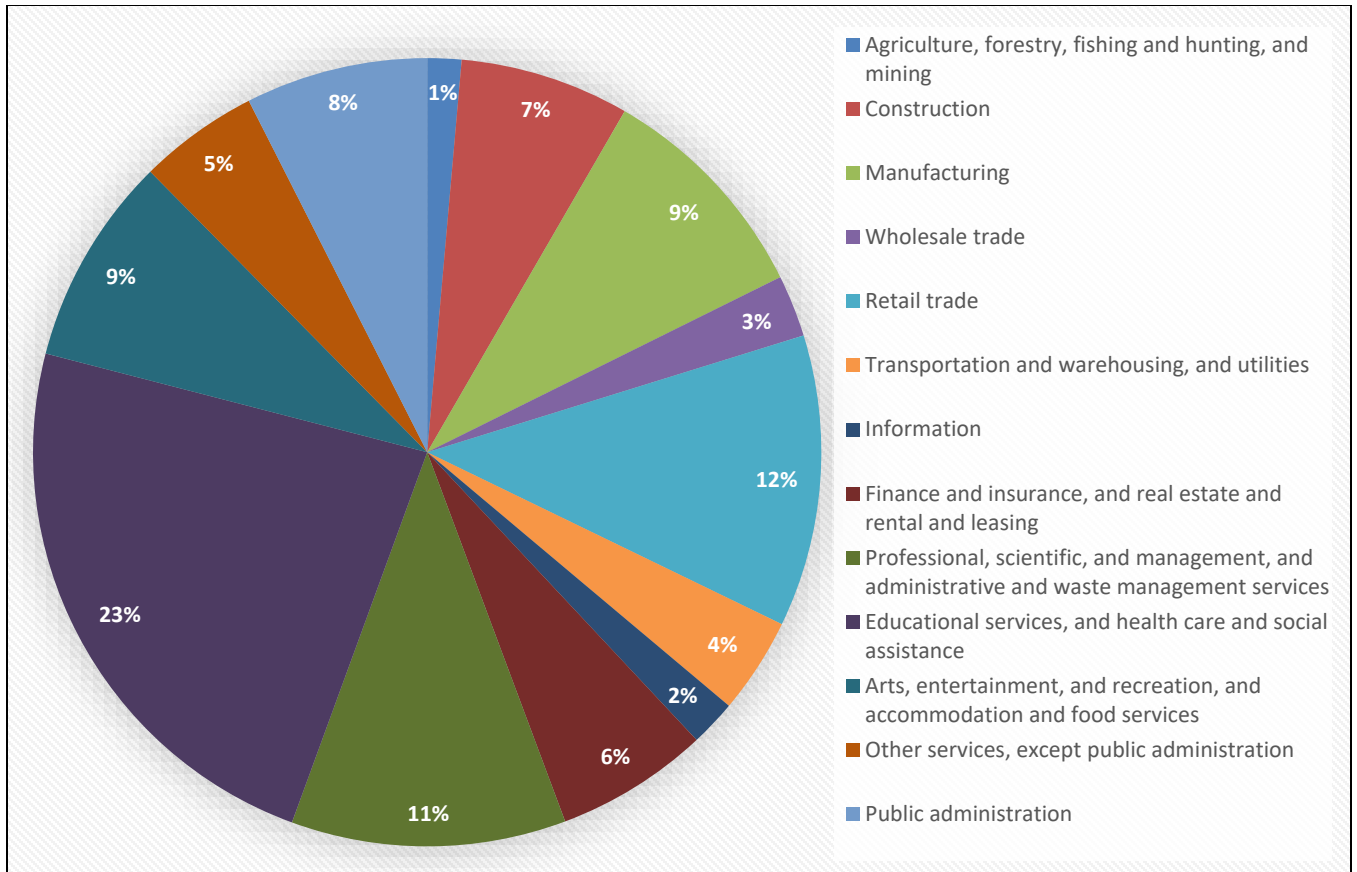


Figure 2.6 Zone of Interest Employment by Sector

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

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Table 2.11 Annual Average Employment by Sector

Employment Sector	Geographic Area										
	Texas	Bell County	Burnet County	Coryell County	Falls County	Lampasas County	McLennan County	Milam County	Williamson County	Zone of Interest Total	Central Texas WDA Growth Rate 2014 -2024
Civilian employed population 16 years and over	12,371,392	130,349	19,236	22,967	5,897	8,274	109,906	9,260	244,299	550,188	N/A
Agriculture, forestry, fishing/hunting, and mining	412,286	1,262	889	272	349	303	1,355	927	2,323	7,680	15.0%
Construction	991,020	8,098	2,205	1,550	515	1,140	7,728	788	16,266	38,290	34.9%
Manufacturing	1,105,928	8,299	1,231	1,056	804	445	12,400	823	26,209	51,267	9.6%
Wholesale trade	371,317	3,118	499	413	157	227	2,755	170	6,624	13,963	19.6%
Retail trade	1,425,241	15,789	2,688	2,528	628	1,136	13,956	915	28,242	65,882	19.3%
Transportation, warehousing, and utilities	677,152	5,960	833	1,048	466	273	4,491	684	7,907	21,662	12.4%
Information	221,994	1,915	273	403	22	145	1,565	101	6,031	10,455	-1.6%
Finance, insurance, real estate, rental and leasing	818,426	6,561	1,038	1,147	255	306	7,146	498	17,623	34,574	13.4%
Professional, scientific, management, administrative waste management services	1,386,202	12,306	1,957	2,002	283	512	8,539	379	36,021	61,999	26.6%
Educational services, health care and social assistance	2,676,715	33,316	3,347	5,484	1,414	1,943	29,476	2,202	51,867	129,049	21.9%
Arts, entertainment, recreation, accommodation and food services	1,115,923	11,935	2,246	2,257	352	442	9,574	673	19,694	47,173	20.1%
Other services, except public administration	652,272	6,212	1,094	1,035	243	671	5,898	456	11,455	27,064	14.1%
Public administration	516,916	15,578	936	3,772	409	731	5,023	644	14,037	41,130	7.2%
Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (2016 Estimate), Texas Workforce Commission Labor Market and Career Information (WDA Growth Rates)											

Included in Table 2.11 is a column displaying the growth rate of each industry within the Central Texas Workforce Development Area (WDA). The Central Texas WDA encompasses Bell and Coryell Counties, where Belton Lake lies. Also encompassed in this WDA are Hamilton, Lampasas, Milam, Mills, and San Saba Counties. As the table shows, it is anticipated that the most growth will be seen in the Construction industry (35%). The *professional, scientific, and management, and administrative and waste management services* industry is expected to experience the second highest growth at 27%. *Wholesale trade, retail trade, educational services, and health care and social assistance, and arts, entertainment and recreation, and accommodation and food services* will also see significant growth with growth rates ranging from 19 to 22% in each industry.

The civilian labor force in the zone of interest accounts for less than 5% of the civilian labor force of the state of Texas. As shown in Table 2.12, the zone of interest had an unemployment rate of 3.8% in 2016, lower than that of the state of Texas, which had an unemployment rate of 4.6% that same year. Within the zone of interest, Milam County was the only county with a higher unemployment rate than the state of Texas.

Table 2.12 Labor Force, Employment and Unemployment Rates, 2016 Annual Averages

Geographic Area	Civilian Labor Force	Number Employed	Number Unemployed	Unemployment Rate
Texas	13,294,000	12,688,000	606,000	4.6%
Bell County	140,722	134,490	6,232	4.4%
Burnet County	21,848	21,091	757	3.5%
Coryell County	25,286	24,141	1,145	4.5%
Falls County	6,579	6,284	295	4.5%
Lampasas County	9,307	8,925	382	4.1%
McLennan County	115,341	110,755	4,586	4.0%
Milam County	10,275	9,738	537	5.2%
Williamson County	273,363	264,238	9,125	3.3%
Zone of Interest Total	602,721	579,662	23,059	3.8%

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

2.4.4 Households, Income, Poverty

Table 2.13 displays the number of households and average household sizes as of the 2010 census. There were approximately 8.9 million households in the state of Texas with an average household size of 2.75 in 2010. The zone of interest contained approximately 416,000 of those homes with an average household size of 2.76.

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Table 2.13 Households and Household Size - 2010

Area	Total Households	Average Household Size
Texas	8,922,933	2.75
Bell County	114,035	2.65
Burnet County	16,511	2.53
Coryell County	22,545	2.84
Falls County	6,302	2.51
Lampasas County	7,539	2.58
McLennan County	86,892	2.60
Milam County	9,408	2.59
Williamson County	152,606	2.74
Zone of Interest Total	415,838	2.76

Source: U.S. Bureau of the Census, 2010 Census

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The median household income in the zone of interest ranged from \$38,547 in Falls County to \$75,935 in Williamson County in 2016, as displayed in Table 2.14. Per capita income in the zone of interest was \$27,052 in 2016, comparable to the state of Texas, which had a per capita income of \$27,828.

Table 2.14 Median and Per Capita Income - 2016

Geographic Area	Median Household Income	Per Capita Income
Texas	\$54,727	\$27,828
Bell County	\$51,529	\$24,213
Burnet County	\$54,259	\$27,434
Coryell County	\$49,275	\$20,555
Falls County	\$38,547	\$17,257
Lampasas County	\$50,358	\$24,382
McLennan County	\$44,246	\$22,878
Milam County	\$39,213	\$22,132
Williamson County	\$75,935	\$32,705
Zone of Interest Total	N/A	\$27,052

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

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Table 2.15 displays the percentage of persons and families whose incomes fell below the poverty level in the past twelve months as of 2016. There were less persons in the zone of interest with incomes below the poverty level in 2016 (12.8%) as compared to the state of Texas (16.7%). Falls County had the most persons with

incomes below the poverty level at 24.3%, followed by McLennan County at 19.9%. Bell, Burnet, Coryell, Lampasas, and Milam Counties each had between 13% and 16% of individuals below the poverty level. Williamson had the least poverty, with 7.2% of the population below the poverty level. In terms of families below the poverty level, the only counties with a greater percentage of poverty than the state of Texas were Falls County and McLennan Counties, which respectively had 18.4% and 13.3% of families below the poverty level. The remainder of the counties in the zone of interest had between 4.9% and 12.2% of families below the poverty level in 2016.

Table 2.15 Percent of Families and People Whose Income in the Past 12 Months is Below the Poverty Level - 2016

Geographic Area	All Persons	All Families
Texas	16.7%	13.0%
Bell County	14.7%	11.7%
Burnet County	14.4%	9.0%
Coryell County	14.1%	11.2%
Falls County	24.3%	18.4%
Lampasas County	13.7%	9.1%
McLennan County	19.9%	13.3%
Milam County	15.5%	12.2%
Williamson County	7.2%	4.9%
Zone of Interest Total	12.8%	N/A

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

2.4.5 Social, Environmental and Environmental Benefits

USACE recognized the importance of Belton Lake and the activities on USACE lands and waters as being an important part of the local economy. Besides the obvious economic savings through flood risk management and development advantages through water supply, businesses can see investment opportunities, and people are drawn to the natural areas surrounding USACE lakes, as is evidenced by the growing number of residents adjacent to USACE properties. Nationally, USACE lakes attract about 335 million recreation visits every year, with direct economic benefits on local economies within a 30 mile radius. The following information describes some of the extended social, environmental, and economic benefits of Belton Lake for surrounding communities for 2013 and 2016.

1431 **Table 2.16 Social Benefits**

Facilities in FY 2013	Facilities in FY 2016
<ul style="list-style-type: none"> • 21 recreation areas • 118 picnic sites • 194 camping sites • 8 playgrounds • 5 swimming areas • 11 number of trails • 18 trail miles • 5 fishing docks • 18 boat ramps • 532 marina slips 	<ul style="list-style-type: none"> • 22 recreation areas • 120 picnic sites • 194 camping sites • 8 playgrounds • 3 swimming areas • 12 number of trails • 21 trail miles • 5 fishing docks • 17 boat ramps • 519 marina slips
Visits (person-trips) in FY 2012	Visits (person-trips) in FY 2016
<ul style="list-style-type: none"> • 1,881,829 in total • 213,189 picnickers • 45,857 campers • 133,671 swimmers • 79,750 water skiers • 368,641 boaters • 550,833 sightseers • 323,268 fishermen • 5,631 hunters • 360,023 others 	<ul style="list-style-type: none"> • 1,051,023 in total • 119,068 picnickers • 25,612 campers • 74,657 swimmers • 44,541 water skiers • 123,555 boaters • 307,647 sightseers • 180,549 fishermen • 3,145 hunters • 201,077 others
Public Outreach in FY 2013	Public Outreach in FY 2016
30,207 public outreach contacts	17,115 public outreach contacts
Benefits in Perspective	
<p>By providing opportunities for active recreation, USACE lakes help combat one of the most significant of the nation's health problems: lack of physical activity.</p> <p>Recreational programs and activities at USACE lakes also help strengthen family ties and friendships; provide opportunities for children to develop personal skills, social values, and self-esteem; and increase water safety.</p>	

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1436 **Table 2.17 Economic Benefit**

Economic Data in FY2012	Economic Data in FY 2016
<p>1,881,829 visits per year resulted in:</p> <ul style="list-style-type: none"> • \$62,093 (thousands) in visitor spending within 30 miles of the USACE lake. • \$28,328 (thousands) in sales within 30 miles of the USACE lake. • 463 jobs within 30 miles of the USACE lake. • \$10,872 (thousands) in labor income within 30 miles of the USACE lake. • \$17,554 (thousands) in value added within 30 miles of the USACE lake. <p>With multiplier effects, visitor trip spending resulted in:</p> <ul style="list-style-type: none"> • \$39,234 (thousands) in total sales. • 550 jobs. • \$13,845 (thousands) in labor income. • \$24,257 (thousands) in value added (wages & salaries, payroll benefits, profits, rents, and indirect business taxes). 	<p>*Visitation per year resulted in:</p> <ul style="list-style-type: none"> • \$27,502,934 in visitor spending within 30 miles of the USACE lake. • \$17,015,289 in sales within 30 miles of the USACE lake. • 260 jobs within 30 miles of the USACE lake. • \$7,183,478 in labor income within 30 miles of the USACE lake. • \$9,931,405 in value added within 30 miles of the USACE lake. • \$9,193,601 in National Economic Development Benefits. <p>With multiplier effects, visitor trip spending resulted in:</p> <ul style="list-style-type: none"> • \$35,778,994 in total spending. • \$26,399,402 in total sales. • 329 jobs. • \$10,068,964 in labor income. • \$15,058,799 in value added (wages & salaries, payroll benefits, profits, rents, and indirect business taxes). <p><i>* Visitation counts were discontinued in 2012 while a new system was being developed</i></p>
Benefits in Perspective	
<p>The money spent by visitors to USACE lakes on trip expenses adds to the local and national economies by supporting jobs and generating income. Visitor spending represents a sizable component of the economy in many communities around USACE lakes.</p>	

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Table 2.18 Environmental Benefit

Resources in FY 2013	Resources Data in FY 2016
<ul style="list-style-type: none">• 23,800 land acres• 12,290 water acres• 136 shoreline miles	<ul style="list-style-type: none">• 23,800 land acres• 12,290 water acres• 136 shoreline miles
Benefits in Perspective	
Recreation experiences increase motivation to learn more about the environment; understanding and awareness of environmental issues; and sensitivity to the environment.	

2.5 RECREATION FACILITIES, ACTIVITIES, AND NEEDS

2.5.1 Zone of Influence and Visitation Statistics

The primary Zone of influence for Belton Lake encompasses Bell and Coryell, as well as the six additional counties that surround Bell, which are Burnet, Falls, Lampasas, McLennan, Milam, and Williamson counties.

2.5.2 Visitation Profile

The majority of visitors to Belton Lake come from a 100-mile radius of the reservoir, with more concentration of visitors from a 50-mile radius. These visitors are a diverse group of people with a wide variety of interests. Examples of visitors include campers who utilize the campgrounds around the reservoir and in the county and federally operated parks; adjacent residents; hunters and anglers who utilize hunting grounds and participate in fishing tournaments; marina customers who utilize the marinas on the reservoir; and day users who picnic, hike, bird watch, bicycle and ride horses. Belton Lake is the primary location for water-related recreation, providing the public with a location for boating, sailing, canoeing/kayaking, paddle boarding, and swimming in the area.

On average from 2007 through 2017, Belton Lake has entertained over a million visits per year, with the peak visitation months running from March through September. Figure 2.7 is the 2016 comparison between USACE lakes in the Fort Worth District region.

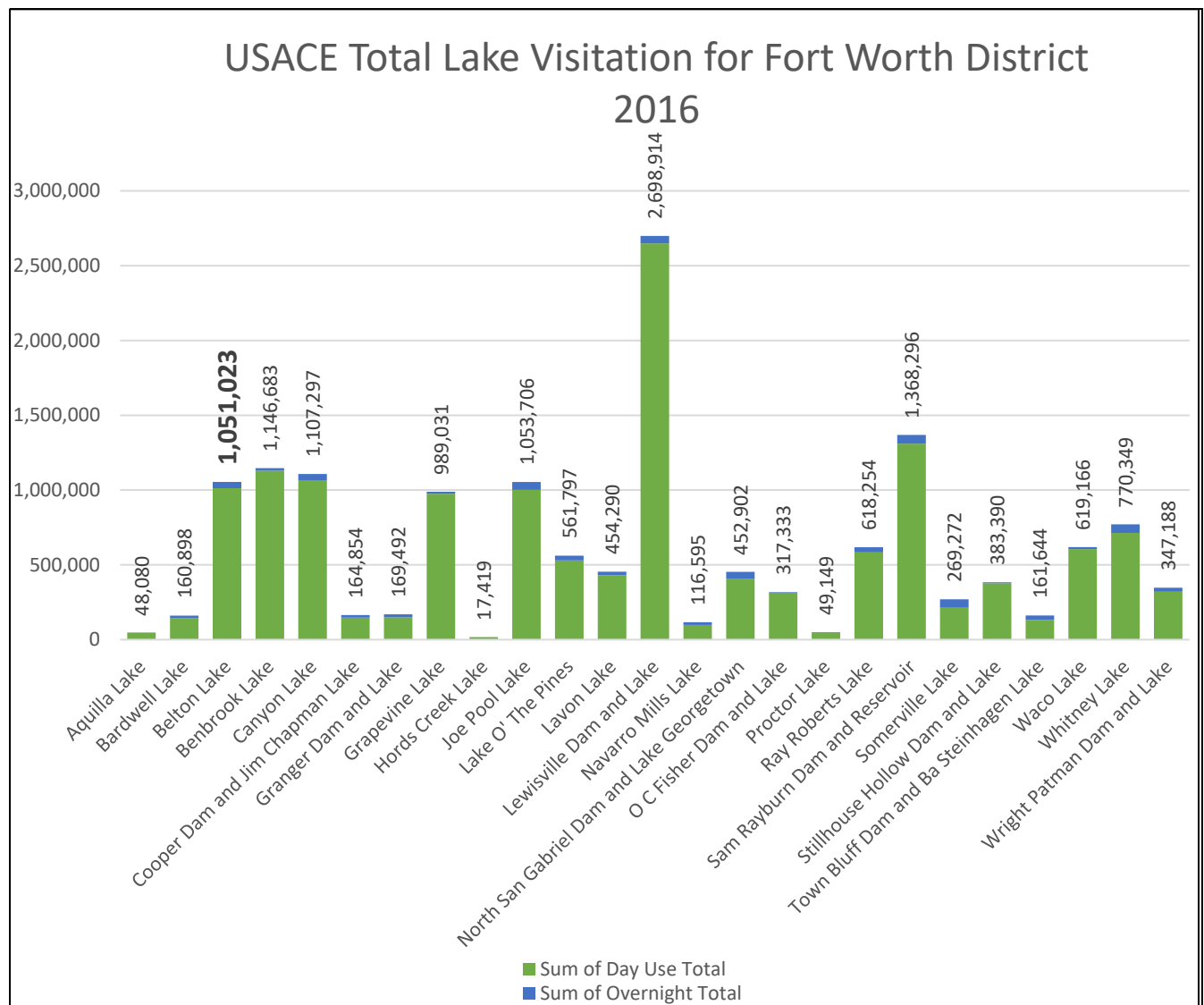


Figure 2.7 USACE Lake Visitation Map for Fort Worth District, 2016

2.5.3 Recreation Areas and Facilities

The existing recreational opportunities and future potential of Belton Lake is considered to be of great importance within the project's zone of influence. The project offers many recreational activities such as swimming, boating, water skiing, fishing, hunting, picnicking, camping, as well as hiking, and horseback riding. Table 2.19 lists the various recreational facilities collectively provided at Belton Lake through governmental agencies as well as commercial concessions.

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Photo 2.2 Cyclists at Belton Lake (USACE Photo)

As seen in Table 2.20, the top five recreational facilities needs in Texas focus on walking, hiking, biking, and wildlife observations. As population grow and urban environments expand, this trend is expected to continue. Having a regional resource like Belton Lake can provide these amenities to the rapidly expanding populations in Texas, Louisiana, and beyond.

Table 2.20 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%

Source: NSRE; TORP 2012

Interest in watercraft sports such as boating, canoeing, and kayaking continue to hold strong interest in recreation. Table 2.21 illustrates that over 35% of the population surveyed participate in boating activities. Canoeing and kayaking are seeing an increase in participation amongst those surveyed.

Table 2.21 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%

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

While participation in hunting and fishing show stable growth across those surveyed, there is a large jump in the population of people who are participating in the more passive activity of wildlife watching. As seen in Table 2.22, from 2001 to 2006 almost a million more people reported participating in this activity.

Table 2.22 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

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

As illustrated in Figure 2.7, Texas and the US are very similar, with more participation in walking and family gatherings, for which the facilities at Belton Lake can and do accommodate.

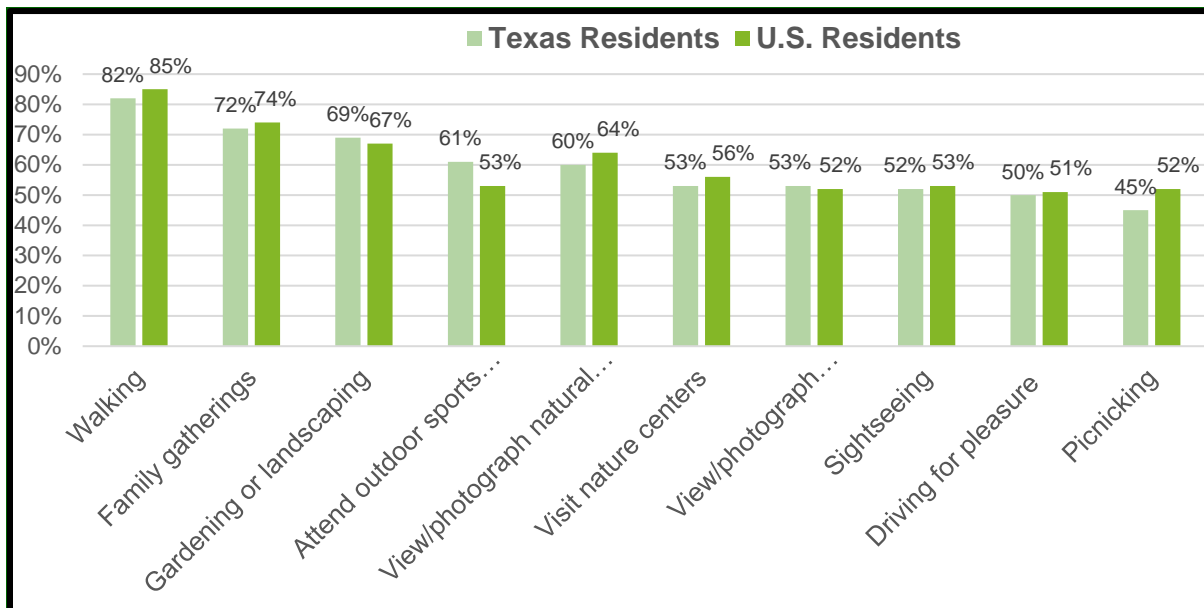


Figure 2.8 Participation Rates of Texas Residents (2006-2009) versus U.S. Residents (2005-2009) in the Top 10 Outdoor Recreation Activities (Source: NSRE; TORP 2012)

Belton Lake has a diverse culture of visitors, including a large number of Hispanic visitors from the area of influence. Table 2.23 illustrates a slightly larger population of Hispanic respondents participate in many outdoor recreation activities available at Belton Lake, including walking for pleasure and family gatherings.

Table 2.23 Comparison of Participation Rates of White/Non-Hispanics Versus Hispanics in the Top 10 Outdoor Recreation Activities in Texas 2006-2009

ACTIVITY	% Texans Participating 2006-2009	
	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%

Source: NSRE; TORP 2012

1550 Belton Lake recreation areas, natural shoreline, and water add to the
1551 attractiveness, vitality, and increased appreciation for the outdoors by users. These
1552 areas provide a sense of place and allow a growing urban population to enjoy outdoor
1553 recreation opportunities in a rural, natural setting. Outdoor recreation at Belton Lake
1554 generally falls within two broad categories; land-based or water-based recreation.
1555 Management objectives for each type vary depending on the location and the intensity
1556 of use. Recreation management objectives in this Plan project future direction and
1557 actions necessary to meet the public's needs for land and/or water based recreation.
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Photo 2.3 Belton Lake at Sunset (USACE Photo)

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1562 The reservoir provides recreational opportunity for swimming, boating, fishing,
1563 and other water sports. The area around the reservoir provide picnicking and camping
1564 for the casual, overnight, or vacationing visitors. Additionally, horseback riding is
1565 permitted in designated areas, and hiking and bird watching are encouraged throughout
1566 the project lands. Project lands are open for public hunting except in developed
1567 recreational area and lands in the vicinity of the dam and other project structures.
1568 Increases in these uses are expected, therefore, future development will be directed
1569 primarily toward those activities.
1570

1571 Written comments were collected from visitors in USACE parks for the period
1572 2013 -2014 via the USACE- administered Comment Card program. The most recent
1573 customer satisfaction comment card summary for Belton Lake provided below in Table
1574 2.24 and 2.25. The summary from the Belton Lake visitor comment cards shows that
1575 visitors are very satisfied with the current facilities.
1576

1577 **Table 2.24 Belton Camping Comment Cards, 2013-2014**

Customer Satisfaction Item	No. of Visitor Responses	Response Distribution (Percent)						Mean Response
		Very Good (5)	Good (4)	Neither Good Nor Poor (3)	Poor (2)	Very Poor (1)	Total	(1-5 Scale)
156 total submitted comment cards								
Facilities:								
Suitability of park facilities for my recreational equipment and activities	153	46%	44%	8%	1%	1%	100%	4.4
Restroom cleanliness and availability of conveniences	154	33%	38%	16%	11%	2%	100%	3.9
Appearance of park grounds	155	32%	43%	19%	4%	1%	100%	4
Adequacy of signs providing directions and information	156	53%	39%	6%	1%	1%	100%	4.4
Parking space availability during my visit	155	45%	45%	8%	1%	1%	100%	4.3
Condition of roads and parking areas in the park	155	36%	48%	14%	1%	1%	100%	4.2
Employees:								
Availability of park rangers and staff	153	37%	36%	18%	7%	2%	100%	4
Helpfulness of park rangers and staff	149	40%	36%	18%	5%	1%	100%	4.1
Environmental Setting:								

Customer Satisfaction Item	No. of Visitor Responses	Response Distribution (Percent)						Mean Response (1-5 Scale)
		Very Good (5)	Good (4)	Neither Good Nor Poor (3)	Poor (2)	Very Poor (1)	Total	
Attractiveness of surrounding scenery and landscape	154	35%	51%	12%	1%	2%	100%	4.2
Quality of land and water resources for my activities	153	35%	48%	14%	2%	1%	100%	4.2
Overall:								
Waiting times needed to access park facilities and services	154	57%	34%	6%	1%	1%	100%	4.4
Feeling of safety and security in the park	155	56%	36%	6%	1%	1%	100%	4.5
Value received for any visitor fees paid	151	48%	40%	11%	1%	1%	100%	4.3
Overall satisfaction with my visit to this area	155	42%	51%	6%	1%	1%	100%	4.3

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1589 **Table 2.25 Belton Day Use Area Comment Cards, 2013-2014**

Customer Satisfaction Item	No. of Visitor Responses	Response Distribution (Percent)						Mean Response (1-5 Scale)
		Very Good (5)	Good (4)	Neither Good Nor Poor (3)	Poor (2)	Very Poor (1)	Total	
158 total submitted comment cards								
Facilities:								
Suitability of park facilities for my recreational equipment and activities	157	43%	50%	6%	0%	1%	100%	4.4
Restroom cleanliness and availability of conveniences	152	26%	49%	13%	8%	4%	100%	3.8
Appearance of park grounds	157	29%	51%	17%	3%	0%	100%	4.1
Adequacy of signs providing directions and information	158	41%	52%	7%	0%	0%	100%	4.3
Parking space availability during my visit	156	42%	44%	8%	6%	1%	100%	4.2
Condition of roads and parking areas in the park	157	27%	61%	11%	0%	0%	100%	4.2
Employees:								
Availability of park rangers and staff	154	29%	45%	21%	3%	2%	100%	4
Helpfulness of park rangers and staff	147	32%	44%	21%	1%	1%	100%	4
Environmental Setting:								

Customer Satisfaction Item	No. of Visitor Responses	Response Distribution (Percent)						Mean Response (1-5 Scale)
		Very Good (5)	Good (4)	Neither Good Nor Poor (3)	Poor (2)	Very Poor (1)	Total	
Attractiveness of surrounding scenery and landscape	157	32%	50%	14%	2%	1%	100%	4.1
Quality of land and water resources for my activities	157	27%	59%	12%	1%	1%	100%	4.1
Overall:								
Waiting times needed to access park facilities and services	153	46%	43%	9%	1%	0%	100%	4.3
Feeling of safety and security in the park	156	41%	48%	8%	3%	0%	100%	4.3
Value received for any visitor fees paid	135	41%	49%	10%	0%	0%	100%	4.3
Overall satisfaction with my visit to this area	157	36%	55%	9%	0%	0%	100%	4.3

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1591 2.5.5 Recreation Analysis – Needs

1592 Belton Lake offers an array of recreational opportunities. Public comments
 1593 received during the master planning process would indicate that there is a desire to
 1594 have more recreational facilities to enhance the already outstanding outdoor recreation
 1595 experience, such as nature based tourism, hiking trails, canoe and kayak areas, bike
 1596 paths and zip lines. The TORP supports the need for hiking, biking, and in general more
 1597 non-motorized outdoor activities. USACE relies on partnerships for recreational
 1598 amenities, and as time, partnerships, and budget allows, will integrate more facilities to
 1599 accommodate the public. These activities are balanced with the primary missions of the
 1600 Lake, namely flood risk management, water supply, and the inherent mission of
 1601 environmental stewardship.

1602

1603 2.5.6 Recreational Carrying Capacity

1604 Recreational carrying capacity is considered by USACE to ensure that visitors
1605 have a high quality and safe recreational experience, and that natural resources are not
1606 irreparably damaged. An example of a carrying capacity consideration at Belton Lake is
1607 the management of public hunting on USACE lands wherein hunting activity may be
1608 restricted by species or by area, depending on population and/or habitat conditions.

1609

1610 The plan formulated herein proposes to provide a variety of activities and to
1611 encourage optimal use of present public use areas, where possible, based on the
1612 carrying capability of the land. The carrying capability of the land is determined primarily
1613 by the distinct characteristics of the site. These characteristics, both natural and
1614 manmade, are development constraints that often determine the type of facilities that
1615 should be provided.

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1618 **Photo 2.4 Sandy Point Recreational Area at Belton Lake** (USACE Photo)

1619

1620 Having facilities that cater to a variety of tastes and different members of the
1621 family will encourage visitors to enjoy the lake. Presently, USACE manage recreation
1622 areas using historic visitation data combined with best professional judgment to address
1623 recreation areas considered to be overcrowded, overused, underused, or well balanced.

1624 USACE will continue to identify possible causes and effects of overcrowding and
1625 overuse and apply appropriate best management practices including: site management,
1626 regulating visitor behavior, and modifying visitor behavior.
1627
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CHAPTER 3: RESOURCE GOALS AND OBJECTIVES

3.1 INTRODUCTION

This chapter sets forth goals and objectives necessary to achieve the USACE vision for the future of Belton Lake. In the context of this Master Plan, “goals” express the overall desired end state of the Master Plan whereas resource “objectives” are specific task-oriented actions necessary to achieve the overall Master Plan goals. The Master Plan resource objectives will be used as the basis for the Operations Management Plan (OMP), which is the master plan strategic implementation plan.

3.2 RESOURCE GOALS

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

- GOAL A.** Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.
- GOAL B.** Protect and manage project natural and cultural resources through sustainable environmental stewardship programs.
- GOAL C.** Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining project natural resources.
- GOAL D.** Recognize the unique qualities, characteristics, and potentials of the project.
- GOAL E.** Provide consistency and compatibility with national objectives and other State and regional goals and programs.

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

- Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.
- Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.

- Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
- Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
- Seek ways and means to assess and mitigate cumulative impacts to the environment; bring systems approaches to the full life cycle of our processes and work.
- Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.
- Respect the views of individuals and groups interested in USACE activities; listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

3.3 RESOURCE OBJECTIVES

Resource objectives are clearly written statements that respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and waters under the jurisdiction of the Fort Worth District, Belton Lake Project Office. The objectives stated in this Master Plan support the goals of the Master Plan, USACE EOPs, and applicable national performance measures. They are consistent with authorized project purposes, Federal laws and directives, regional needs, resource capabilities, and they consider public input. Recreational and natural resources carrying capacities are also accounted for during development of the objectives found in this Master Plan. Regional and State planning documents including TPWD's Texas Conservation Action Plan (TCAP) and TORP.

The objectives in this master plan provide project benefits, meet public needs, and foster environmental sustainability for Belton Lake to the greatest extent possible. They include recreational objectives; natural resource management objectives; visitor information; education and outreach objectives; general management objectives; and cultural resource management objectives. Tables 3.1 through 3.5 list the objectives along with its associated goal (s) it addresses.

1714 **Table 3.1 Recreational Objectives**

Recreational Objectives	Goals				
	A	B	C	D	E
Evaluate the demand for improved recreation facilities and increased public access on USACE-managed 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).	*		*	*	
Improve, modernize, and implement sustainability measures into day use and campground facilities through addition and repair of amenities, including, but not limited to: road improvements, sewer hook ups, increased electrical service, concrete or asphalt recreational vehicle pads, tent pads, restrooms, trails, pavilions, and improved 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 recreational use zoning and regulations for designated quiet water or no-wake areas with emphasis on 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.		*	*		*
Increase universally accessible facilities on Belton Lake lands.	*		*		*
Evaluate established permits/outgrants to determine impacts on public lands and waters. Sustain the Shoreline Statement of Policy in order to balance private shoreline uses (such as mowing or vegetation removal requests along the Federal property boundary, or paths to the shoreline) with habitat management and impacts to the general public.	*	*	*		
Consider flood/conservation pool to address potential impact to recreational facilities (i.e. campsites, boat ramps, courtesy docks, etc.).	*	*	*	*	
Consider long-term sustainable operational and maintenance costs when planning future new recreational facilities or upgrading and expanding existing facilities.	*	*		*	
Ensure consistency with USACE Recreation Strategic Plan.					*

Recreational Objectives	Goals				
	A	B	C	D	E
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 Belton Lake.	*	*	*	*	*

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

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 the public open space.	*	*		*	
Actively manage and conserve fish and wildlife resources, especially habitat for the golden-cheeked warbler 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 Belton 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.	*	*	*	*	*

Natural Resource Management Objectives	GOALS:				
	A	B	C	D	E
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 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.	*	*		*	*
Protect and/or restore important native habitats such as Texas Edwards Plateau, riparian zones, and wetlands, 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.	*	*	*	*	*

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

Table 3.3 Visitor Information, Education, and Outreach Objectives

Visitor Information, Education and Outreach Objectives	Goal				
	A	B	C	D	E
Provide more opportunities for communication with 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.	*	*	*		*

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

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

Table 3.4 General Management Objectives

General Management Objectives	Goal				
	A	B	C	D	E
Resurvey and maintain the public lands 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), OPlan (District level).					*
Reference Recreation Infrastructure Investment Strategy (RIIS) if funding levels change in future years.					*
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 appropriate entities.	*	*		*	*
Complete an inventory of cultural resources.	*	*		*	*
Increase public awareness and education of regional history.		*		*	*
While currently no listed sites exists at Belton Lake, the project office will ensure any future historical preservation is fully integrated into the Belton Lake Master Plan and planning decision making process (Section 106 and 110 of the NHPA; the Archeological Resources Protection Act; and the Native American Graves Protection and Repatriation Act) on public lands surrounding the lake.		*		*	*
Develop partnerships that promote and protect cultural resources at Belton 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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CHAPTER 4: LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, AND PROJECT EASEMENT LANDS

4.1 LAND ALLOCATION

All lands at USACE water resource development projects are allocated by USACE into one of four categories in accordance with the congressionally authorized purpose for which the project lands were acquired. There are four possible categories of allocation identified in USACE regulations including Operations, Recreation, Fish and Wildlife, and Mitigation. At Belton Lake, the only land allocation category that applies is Operations, which is defined as those lands that are required to operate the project for the primary authorized purposes of flood risk management, hydroelectric power, and water conservation. The remaining allocations of Recreation, Fish and Wildlife, and Mitigation would apply only if lands had been acquired specifically for these purposes. The entire fee simple federal estate at Belton Lake is 25,106 acres of land at conservation pool, all of which is allocated to Operations.

4.2 LAND CLASSIFICATION

Previous versions of the Belton Lake Master Plan included land classification criteria that were similar to the current criteria. These prior land classifications were based more on projected need than on actual experience, which resulted in some areas being classified for a type of use that has not, or is not likely to occur. Additionally, in the 40-plus years since the previous Master Plan was published, wildlife habitat values, surrounding land use, and regional recreation trends have changed giving rise to the need for revised classifications. Refer to Table 8.1 in Chapter 8 for a summary of land classification changes from the prior classifications to the current classifications.

4.2.1 Current Land and Water Surface Classifications

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

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Management Lands
- Water Surface

The land and water surface classifications for Belton Lake were established after taking into account public comments, input from key stakeholders including elected officials, city and county governments, and lessees operating on USACE land. Additionally, public comment, wildlife habitat values, and the trends analysis provided in

TPWD's TORP and TCAP were also used in decision making. Maps showing the various land classifications can be found in Appendix A. Each of the land classifications, including the acreage and description of allowable uses is described in the following paragraphs.

4.2.2 Project Operations

This classification includes the lands managed for operation of the dam, project office, and maintenance yards, all of which must be maintained to carry out the authorized purpose of flood risk management. In addition to the operational activities taking place on these lands, limited recreational use may be allowed for activities such as public access to the fishing pier in the tailrace area of the hydroelectric plant. Regardless of any limited recreation use allowed on these lands, the primary classification of Project Operations will take precedent over other uses. There are 261 acres of Project Operations land specifically managed for this purpose.

4.2.3 High Density Recreation

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

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

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

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

At Belton Lake, prior land classifications included a number of areas under the High Density Recreation classification. Several of these areas were never developed and/or were determined by the study team to be unsuitable for development resulting in a change to another, more suitable land classification. At Belton Lake there are 1,467 acres classified as High Density Recreation land. Refer to Table 2.19 for a listing of the current High Density Recreation Areas at Belton Lake. 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 Belton Lake with this classification.

4.2.5 Environmentally Sensitive Areas

These are areas where scientific, ecological, cultural, and aesthetic features have been identified. At Belton 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 1,888 acres classified as ESA at Belton Lake.

4.2.6 Multiple Resource Management Lands

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 spaces, a small boat ramp, and/or primitive sanitary facilities. There are 9,603 acres of land under this classification at Belton 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

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, several relatively large tracts were classified for Low Density Recreation, but during the study process to develop this Plan, these larger tracts were reclassified under the sub-classification of Wildlife Management. Low Density Recreation lands are typically narrow strips of land lying between the shoreline at the conservation pool elevation and the USACE property boundary line, and are often located adjacent to private residential areas. The narrow configuration and location next to residential areas make these areas unsuitable for other uses such as High Density Recreation, Vegetation Management or Wildlife Management. There are 82 acres under this classification at Belton Lake.

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4.2.6.2 Wildlife Management

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 9,521 acres of land included in this classification at Belton Lake.



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Photo 4.1 Deer grazing at Belton Lake (USACE Photo)

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4.2.6.3 Vegetative Management

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 no acres of land included in this classification at Belton Lake.

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4.2.6.4 Future or Inactive Recreation

These are lands with site characteristics compatible with High Density Recreation development. These are areas where High Density Recreation development was anticipated in prior land classifications, but the development either never took

place or was minimal. These areas are typically closed to vehicular traffic and will be managed as multiple resource management lands until development takes place. There are no acres of land included in this classification at Belton Lake.

4.2.7 Water Surface

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

4.2.7.1 Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The areas include the water surface upstream and downstream of the Belton Lake Dam, around three (3) water intake structures, as well as around the two (2) swim beaches, one at Temple's Lake Park, and another at Westcliff Park. There are 20 acres of restricted water surface at Belton Lake.

4.2.7.2 Designated No-Wake

Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps. There are 17 boat ramps and three (3) marina areas at Belton Lake where no-wake restrictions are in place for reasons of public safety and protection of property. There are 42 acres of designated no-wake water surface at Belton Lake.

4.2.7.3 Fish and Wildlife Sanctuary

This water surface classification applies to areas with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. Belton Lake has no water surface areas designated as a Fish and Wildlife Sanctuary.

4.2.7.4 Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. This classification encompasses the majority of the lake water surface and is open to general recreational boating. Boaters are advised through maps and brochures, or signs at boat ramps and marinas, that navigational hazards may be present at any time and at any location in these areas. Operation of a boat in these areas is at the owner's risk. Specific navigational

1928 hazards may or may not be marked with a buoy. There are 12,323 acres of open
1929 recreation water surface at Belton Lake.

1930
1931 Future management of the water surface includes the maintenance of warning,
1932 information, and regulatory buoys as well as routine water safety patrols during peak
1933 use periods.

1934 4.2.8 Recreational Seaplane Operations

1935 Seaplane restrictions are part of Title 36 Code of Federal Regulations. At Belton
1936 Lake and other USACE lakes across the nation, areas where recreational seaplane
1937 operations are prohibited were established through public meetings and environmental
1938 assessments circa 1980. The seaplane policy for USACE Fort Worth District is found in
1939 the Notice to Seaplane Pilots (see Appendix F), which lays out the general restrictions
1940 as well as lake-specific restrictions for seaplane operation. Seaplane operations at
1941 Belton Lake are generally prohibited in several major coves and bays off the main body
1942 of the lake and within 500 feet of structures such as bridges and the dam. Once on the
1943 water, seaplanes are considered to be water vessels and fall under guidelines for
1944 watercraft.

1945
1946 Table 4.1 provides a summary of land and water surface classifications at Belton
1947 Lake. Acreages were calculated by historical and GIS data. A map representing these
1948 areas can be found in Appendix A.

1949
1950 **Table 4.1 Land Classification Acres at Belton Lake**

CLASSIFICATION	ACRES
Project Operations	261
High Density Recreation	1,467
Environmental Sensitive Areas	1,888
Multiple Resource Managed Lands - Low Density Recreation	82
Multiple Resource Managed Lands - Wildlife Management	9,521
Multiple Resource Managed Lands - Vegetative Management	-
Multiple Resource Managed Lands - Future/Inactive Recreation Areas	-
Water Surface: Restricted	20
Water Surface: Designated No-Wake	42
Water Surface: Fish and Wildlife Sanctuary	-
Water Surface: Open Recreation	12,323

1951 Note: Acreages were measured using GIS technology and may vary from the official land acquisition
1952 records. Acreage varies depending on changes in lake levels, sedimentation and shoreline erosion. Total
1953 Water Surface: 12,385 acres - Miles of Shoreline at conservation pool: 136 miles

1954

1955 **4.3 PROJECT EASEMENT LANDS**

1956 Project Easement Lands are primarily lands on which easement interests were
1957 acquired. Fee title was not acquired on these lands, but the easement interests convey
1958 to the Federal government certain rights to use and/or restrict the use of the land for
1959 specific purposes. Easement lands are typically classified as Operations Easement,

1960 Flowage Easement, and/or Conservation Easement. At Belton Lake, Flowage
1961 Easement lands exist for one primary purpose. A flowage easement, in general, grants
1962 to the government the perpetual right to temporarily flood/inundate private land during
1963 flood risk management operations and to prohibit activities on the flowage easement
1964 that would interfere with flood risk management operations such as placement of fill
1965 material or construction of habitable structures. There are 6,861 acres of Flowage
1966 Easements lands at Belton Lake.
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1970 5.1 MANAGEMENT BY CLASSIFICATION

1971 This chapter describes the management plans for each land use classification
1972 within the Master Plan. The classifications that exist at Belton Lake are Project
1973 Operations, High Density Recreation, Environmentally Sensitive Areas, and Multiple
1974 Resource Management Lands, which consist of Low Density Recreation and Wildlife
1975 Management. The Water Surface is divided into classifications of Restricted, No-Wake,
1976 and Open Recreation. The management plans describe how these project lands will be
1977 managed in broad terms. A more descriptive plan for managing these lands can be
1978 found in the Belton Lake OMP.
1979

1980 5.2 PROJECT OPERATIONS

1981 Project Operations is land associated with the dam, spillway, levees, lake office,
1982 maintenance facilities, and other areas solely for the operation of the project. There are
1983 261 acres of lands under this classification, all of which are managed by the USACE.
1984 The management plan for the Project Operations area is to continue providing physical
1985 security necessary to ensure sustained operations of the dam and related facilities
1986 including restricting public access in hazardous locations near the dam and spillway.
1987

1988 5.3 HIGH DENSITY RECREATION

1989 Belton Lake has 1,467 acres classified as High Density Recreation. These lands
1990 are developed for intensive recreational activities for the visiting public including day use
1991 and campgrounds. National USACE policy set forth in ER 1130-2-550, Chapter 16,
1992 limits recreation development on USACE lands to those activities that are dependent on
1993 a project's natural resources and typically include water-based activities, overnight use,
1994 and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches,
1995 boat launching ramps and comprehensive resorts. Examples of activities that are not
1996 dependent on a project's natural resources include, theme parks or ride-type attractions,
1997 sports or concert stadiums, and stand-alone facilities such as restaurants, bars, motels,
1998 hotels, and golf courses.
1999

2000 USACE operates and manages numerous areas designated as High Density
2001 Recreation. The following is a description of each park operated by USACE along with a
2002 conceptual management plan for parks by classification groups. Groups include Class A
2003 (highly developed listed in section 5.3.1) and Class C (basic facilities listed in section
2004 5.3.2). Maps showing existing parks and facilities managed by USACE can be found in
2005 Appendix A. In addition to the USACE managed and operated High Density Recreation
2006 areas, USACE leases seven High Density Recreation areas that are managed as parks
2007 by recreation partners. Following is a brief description of these parks and notes the
2008 recreational partners who manage them.

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Photo 5.1 Kickboarding/Parasurfing at Belton Lake (USACE Photo)

2013 **5.3.1 USACE Class A Parks**

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In accordance with historical visitation rates and recent outdoor recreation trends documented in the 2012 TORP, camping in both highly developed and primitive settings has declined significantly in Texas since 2000. NSRE surveys documented that in the period 2006-2009 only 21.9% of Texans participated in developed camping and only 9.7% participated in primitive camping. These percentages are down significantly from surveys conducted in 2000-2001. Visitation rates for some of the Class A parks at Belton Lake are growing, while at others they are steady or decreasing. Facilities provided are sufficient in some parks, while at others demand exceeds available resources during peak use periods. USACE intends to continue to operate the Class A campgrounds and day use areas by maintaining and improving existing facilities, but has no long range plans to add additional campsites. In response to trends documented in the TORP, USACE will endeavor to improve access to some swim beaches and to develop hiking and biking trails in or adjacent to some park areas as funding permits. USACE encourages partnerships with agencies who lease and manage parks to respond to increasing demands and build on the current quality of USACE parks for present and future visitors.

Cedar Ridge Park - Cedar Ridge Park consists of 195 acres, 52 of which are currently developed and includes 68 campsites, eight screen shelters, one group camping area, one playground, one fishing dock, one beach area, two pavilions, two two-lane boat ramps, two courtesy docks, one vault toilet, six water borne toilets with showers, paved access roads, one laundry facility, two trailer dump stations, a manned entrance complex, and North Point Yacht Club/Marina access.

Live Oak Ridge Park - Live Oak Ridge Park has an area of 39 acres of which 34 are developed and contains 49 campsites with water and electric hook-ups, one two-lane boat ramp, a courtesy dock, two waterborne restrooms with showers, one playground, paved access roads, one trailer dump station, one camper activity center, and a manned gate entrance complex.

Westcliff Park - Westcliff Park consists of 314 acres with 19 developed acres, which includes 33 picnic/camping sites, one beach area, one- two lane boat ramp, a courtesy dock, three waterborne restrooms, paved access roads, one play structure, and gate entrance complex. Because of the pool raise in 1972, Westcliff Park was divided into two areas. The areas were previously known as Westcliff I and Westcliff II. In the early 90's the name of Westcliff I Park was shortened to Westcliff Park and Westcliff II Park was changed to Sparta Valley Park (listed under Day Use area) to reduce confusion.

White Flint Park - White Flint Park has an area of 375 acres, 12 of which are presently developed, and contains 12 camping units, 12 screened shelters, one two-lane boat ramp, one courtesy dock, one pair of wood-frame vault restrooms, one waterborne restroom with showers, one gate house, and paved access roads.

Winkler Park - Winkler Park is a class C park and has an area of 128 acres, 10 of which are presently developed, and contains 15 camping units, one volunteer park host site, one water borne restroom with shower, and paved access roads. This park is managed as a camping area, and is the most popular fishing camp area on Belton Lake. The sites usually stay full from May through August.

5.3.2 USACE Day Use Parks

The management plan for all the parks listed below is to continue to operate them as day use areas and access points by maintaining and improving existing facilities. Similar to Class A parks, emphasis will be placed on improvements such as upgrading aging water and electrical infrastructure, repairing or replacing outdated restrooms, paving gravel roads in some parks and installing site amenities such as fire rings, lantern posts and cookers. Trails within parks will be considered in cooperation with other agency partners for development and operation.

Sparta Valley Park - Sparta Valley Park consists of six (6) partially developed acres, which includes two picnic sites, one two-lane boat ramp, a courtesy dock, one vault toilet, and paved access roads.

Belton Lakeview Park - Belton Lakeview Park consists of 40 acres with 39 picnic units, a boat ramp, a courtesy dock, two playgrounds, two waterborne restrooms, two pavilions, one group use area, paved access roads, and a commercial concession out grant which includes: Franks Marina, and the Dead Fish Grill.

Miller Springs Park - Miller Springs Park has an area of 310 acres of which two (2) acres are developed and maintained as two separate use areas with five (5) picnic shelters, one pair of wood frame restrooms, a paved access road, and moderate day-use visitation primarily for fishing.

Temple Lake Park - Temple Lake Park has 122 acres of which 55 are developed and contains 60 picnic units, two two-lane boat launch ramps, one pavilion, one beach area, one vault toilet, three (3) water-borne toilets, one courtesy dock, a fishing dock, paved access roads, one playground, and one manned entrance complex.

Arrowhead Point Park - Arrowhead Point Park has four (4) acres, three (3) of which are developed and contain a two-lane boat launch ramp, a vault toilet and a courtesy dock. Arrowhead Point is operated as a free, 24 hours available, access point for boat launching and bank fishing.

Rogers Park - Rogers Park has an area of 78 acres, three (3) acres of which are presently developed and contains, one two-lane boat ramp, one courtesy dock, one vault restroom and paved access roads.

Owl Creek Park - Owl Creek Park consists of 47 acres of which 20 are developed and contains picnic/camping units, one two-lane boat ramp, one courtesy dock, one vault toilet, and paved access roads. This park is managed as a combination day use/free camping area. It is a very popular fishing and boat launching area on the Owl Creek arm of the lake, and receives moderate camping pressure.

McGregor Park - McGregor Park has 174 acres of which 25 are developed and contains one boat launch ramp, one metal vault toilet, six park benches, gravel access roads, one volunteer park attendant site, and an outgranted area to the Temple Aero-modelers Club.

Leona Park - Leona Park has an area of 95 acres, four of which are presently developed, and contains one two-lane boat ramp, one pair of wood frame vault restrooms, and paved access roads.

Iron Bridge Park - Iron Bridge Park has an area of 164 acres, five (5) of which are presently developed, and contains five (5) picnic/camping units, a two-lane boat ramp, a pair of metal frame vault restrooms, and paved access road.

5.3.3 Leased Parks

USACE has nine (9) outgrants issued in the form of permits or leases to recreational partners, referred to as grantees. Each grantee is responsible for the

operation and maintenance of their leased area, and although USACE does not provide direct maintenance within any of the leased locations, it may occasionally lend support where appropriate. The USACE reviews requests and ensures compliance with applicable laws and regulations for proposed activities in all leased and USACE-operated HDR areas. USACE works with partners to ensure that recreation areas are managed and operated in accordance with the objectives prescribed in Chapter 3.

The only leased park at Belton Lake is the Miller Springs Nature Area. This 264-acre park was leased to the Miller Springs Nature Alliance for nearly 25 years and is newly leased to the cities of Belton and Temple. Section 6.1 in this Plan contains more details for this valuable resource at Belton Lake.

5.3.4 Boat Ramps and Marinas

There are 15 boat ramps operated by USACE, two (2) boat ramps leased and operated by Bell County, and three (3) marinas leased to concessionaires at Belton Lake that provide recreational access to the lake. These have varying hours of operation and are either free or have a fee associated with use. Additionally, ramps are closed from time to time due to flooding or other damage. The maps in Appendix A of this Plan indicate the location of these ramps. Please consult the appropriate agencies website for status of ramps. Currently, there are no plans to expand or add additional boat ramps at Belton Lake. Management will include maintaining and improving facilities as time and funding permits.

5.3.4.1 USACE Operated Boat Ramps

Sparta Valley - This park has a two-lane concrete boat ramp with free 24-hour access.

Westcliff Park - This park has a two-lane concrete boat ramp and is open from 6:00 AM - 10:00 PM daily.

Belton Park - This park has a two-lane concrete boat ramp with free 24-hour access.

Arrowhead Point - This park has a two-lane concrete boat ramp with free 24-hour access.

Temple's Lake Park - This park has two (2), two - lane concrete boat ramps, the north and the south ramp. The north ramp is open 24-hours a day and the south ramp is open from 6:00 AM - 9:00 PM daily.

Roger's Park - This park has a two-lane concrete boat ramp with free access 24-hours a day.

Cedar Ridge Park - This park has two (2), two-lane concrete boat ramps, the east and the west boat ramps, that are open from 6:00 AM - 10:00 PM daily.

McGregor Park – This park has a one-lane boat ramp that is shallow and provides access to the upper end of the lake for smaller run-about boats. The ramp has free access and is open from 06:00 AM through sunset.

Leona Park - This park has a two lane concrete boat ramp with free access 24 hours a day. This ramp provides convenient access to the Leon River and the upper end of Belton Lake.

White Flint Park - This park has a two lane concrete boat ramp. This ramp provides convenient access to the Leon River and the upper end of Belton Lake.

Owl Creek Park - This park has a two lane concrete boat ramp with free access 24 hours a day.

Iron Bridge Park - This park has a two lane concrete boat ramp with free access 24 hours a day. This ramp is very shallow and watercraft larger than a 14-foot flat bottom boat cannot launch at this ramp.

5.3.4.2 Boat Ramps Operated by Concessionaire

Cen-Tex Sportsman Club boat ramp – Leased and operated by Bell County, this one-lane ramps is free and open 24 hours a day. The ramp is short and is only used by smaller run-abouts and fishing boats.

Lakeaire boat ramp – Leased and operated by Bell County, this one-lane ramps is free and open 24 hours a day. The ramp is short and is only used by smaller run-abouts and fishing boats.

5.3.4.3 Leased Marina's

Frank's Marina - Located at Belton Park off FM 439, this marina has boat slip rentals, jet-ski rentals, snack bar, gas dock, and a covered fishing dock.

North Point Yacht Club (formally Pier-36 Marina) - Located at Cedar Ridge Park off of SH 36, this marina has boat slips for rent, a snack bar, gas dock, and Jeff's Restaurant.

Morgan's Point Marina - Located in Morgan's Point Resort, this marina has boat slips for rent, a snack bar, gas dock, and a high-water walkway.

5.3.5 Trails

As stated in the TORP, there is a growing demand for trails of all kinds. Belton Lake features a seven (7) mile hiking and biking trail in Miller Springs Nature Center, which is not operated by USACE. While USACE is interested in further trail development at Belton Lake, it is dependent upon partnerships with other organizations to develop and maintain.

5.4 MITIGATION

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

5.5 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally Sensitive Areas are areas where scientific, ecological, cultural or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act or applicable state statutes. These areas must be managed to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration and management. These areas are typically distinct parcels located within another, and perhaps larger, land classification, area.

The results of the WHAP conducted in the late summer of 2017 were used, in part, to assist in determining which areas should be classified as ESA. Other factors, including the presence of cultural resources, species of conservation concern, and visual aesthetics were also included in the selection of ESA areas. There are 2 areas totaling approximately 1,888 acres at Belton Lake that are classified as ESA. Each of these areas are numbered on the land classification maps in Appendix A. Table 5.1 provides a listing of the ESA areas, including habitat type, acreage WHAP scores. More information on the WHAP can be found in Appendix E of this Plan.

Table 5.1 WHAP Points within ESA's at Belton Lake

ESA Area Number ¹	Acres	WHAP Scores Per Sample Point Number and Associated Habitat Type		
		Point #	Score	Habitat Type
ESA 1	1,803	58	0.52	Juniper Forest
		63	0.39	Mixed Forest
		64	0.43	Juniper Forest
		65	0.49	Juniper Forest
ESA 2	85	4	0.59	Sloped Mixed Forest

Future management of ESA areas will be designed to protect and improve the resources that qualify these areas for ESA classification. All of these areas are suitable for development of natural surface pedestrian trails unless the areas are critically important as habitat for sensitive species. Hunting is also allowed on these areas taking into consideration public safety and resource protection. Specific management measures may include but are not limited to the following:

- Cultural Resource Sites: Known sites will be protected from vandalism and/or erosion. Additional reconnaissance surveys will be conducted as needed to determine the extent of cultural resource sites. Tribal coordination will continue to insure proper management and/or protection of known sites.
- Sites supporting Species of Conservation Concern: The site characteristics that cause these areas to be favored by individual species will be protected and improved. Perch and/or nesting sites for the southern bald eagle are examples of site characteristics that need protection.

- Steep Slope Sites: These areas will be monitored to protect their scenic value, wildlife habitat value, and to reduce shoreline erosion.

5.6 MULTIPLE RESOURCE MANAGEMENT LANDS

Multiple Resource Management Lands are organized into four sub-classifications. These sub-classifications are Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. The following is a description of each sub-classification's resource objectives, acreages, and description of use.

5.6.1 Low Density Recreation

These lands are generally narrow parcels of land that are adjacent to private residential developments. Future management of these lands calls for maintaining a healthy, ecologically adapted vegetative cover to reduce erosion and improve aesthetics. Prevention of unauthorized use such as trespass or encroachments is an important management objective for all USACE lands, but is especially important for those lands in close proximity to private development. These lands are typically open to the public, including adjacent landowners, for pedestrian traffic and are frequently used by adjacent landowners for access to the shoreline near their homes. Adjacent landowners may apply for a permit to mow a meandering path to the shoreline, and if conditions warrant, may apply for a permit to mow a narrow strip along the USACE boundary line as a precaution against wildfire. The general public may use these lands for bank fishing, hiking, and for access to the shoreline. Hunting is strictly limited to controlled hunts in designated hunting area. Future uses may include additional designated natural surface hike/bike/equestrian trails. There are 82 acres classified as Low Density Recreation.

5.6.2 Wildlife Management

These are lands designated for the stewardship of fish and wildlife resources and are managed by USACE. There are currently 9,521 acres of land under this classification at Belton Lake, however, areas of low density recreation, ESA's and vegetative management all support wildlife. Management efforts focus on producing native wildlife food and habitat.

The broad objective of fish and wildlife management is to conserve, maintain and improve the fish and wildlife habitat to produce the greatest dividend for the benefit of the general public. Implementation of a fish and wildlife management plan is the first step toward achieving the goals of the Fish and Wildlife Coordination Act (Public Law 85-624). The TPWD and the USFWS share responsibility with USACE for managing fish and wildlife, primarily through enforcement of laws and regulations and establishing seasons and bag limits for game species. Future management plans for wildlife areas include continued cooperation with partners and managing and improving wildlife management areas under this land classification.

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Photo 5.2 Fawn at Belton Lake (USACE Photo)

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5.6.2.1 Wildlife Management Areas

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Wildlife Management Areas and other land areas adjacent to the lakeshores were acquired for project operations, but they are designated for wildlife management. As potential wildlife habitat, these areas are best suited to upland game bird, songbird and waterfowl species management. Emphasis will be placed on improving habitat for bobwhite quail and Rio Grande turkey, as other species will also benefit from such improvements. Techniques such as prescription burning, thinning juniper stands, planting native grasses and forbs beneficial to pollinators, and artificial nest boxes to encourage continued use by raptors, including osprey and bald eagles, will also be utilized. Such lands are available to the public for sightseeing, nature study, hiking, hunting and other activities that enhance environmental awareness and promote environmental stewardship. At this time, there are five (5) areas at Belton that are actively managed to promote native habitat and promote ecologically beneficial areas for wildlife. The following are the five (5) named management areas at Belton Lake.

Cedar Creek Management Area. Cedar Creek management area consists of 490 acres lying north of State Highway 36. The objective of all work efforts in this resource management area is to conserve the natural soil, timber, grassland, water, and wildlife, while restoring and maintaining sustainable wildlife population densities, habitat, and

forage. In all management areas, the management techniques favorable to the restoration of more durable and sustainable native ecosystems will be utilized. Effective management for these ecosystems will increase suitable habitat for native wildlife and improve the outdoor recreation program. Grassy fields with wooded fencerows and waterways comprise the majority of this management area.

Horse Bend Management Area. Horseshoe Bend management area consists of 670 acres, lying west of State Highway 317. The objective of all work efforts in this resource management area is to conserve the natural soil, timber, grassland, water, and wildlife, while restoring, maintaining, and improving sustainable wildlife population densities, habitat, and forage. In all management areas, the management techniques favorable to the restoration of more durable and sustainable native ecosystems will be utilized. Effective management for these ecosystems will increase suitable habitat for native wildlife and improve the outdoor recreation program. Grassy fields with wooded fencerows and waterways comprise most of this management area with a much greater variety of native vegetation species present due to previous wildfires.

Iron Bridge Management Area. Iron Bridge Management Area consists of 630 acres, lying north of State Highway 36. The objective of all work efforts in this resource management area is to conserve the natural soil, timber, grassland, water, and wildlife, while restoring, maintaining, and improving sustainable wildlife population densities, habitat, and forage. In all management areas, the management techniques favorable to the restoration of more durable and sustainable native ecosystems will be utilized. Effective management for these ecosystems will increase suitable habitat for native wildlife and improve the outdoor recreation program. Grassy fields with wooded fencerows, wooded thickets, and wooded waterways comprise most of this management area. Most of the acreage in this parcel will be inundated under a four-foot rise above conservation pool, contains good amounts of fluvial soils, and would benefit from native wetland vegetation planting.

Owl Creek Management Area. Owl Creek management area consists of 700 acres, lying west of Owl Creek Park and extending to tract G-628. The objective of all work efforts in this resource management area is to conserve the natural soil, timber, grassland, water, and wildlife, while restoring and maintaining sustainable wildlife population densities, habitat, and forage. In all management areas, the management techniques favorable to the restoration of more durable and sustainable native ecosystems will be utilized. Effective management for these ecosystems will increase suitable habitat for native wildlife and improve the outdoor recreation program. Grassy fields with wooded fencerows, wooded thickets, and wooded waterways comprise most of this management area.

White Flint Management Area. White Flint management area consists of 202 acres, lying north of State Highway 36. The objective of all work efforts in the resource management areas is to conserve the natural soil, timber, grassland, water, and wildlife, while restoring and maintaining sustainable wildlife population densities, habitat, and forage. In all management areas, the management techniques favorable to the

restoration of more durable and sustainable native ecosystems will be utilized. Effective management for these ecosystems will increase suitable habitat for native wildlife and improve the outdoor recreation program. Grassy fields with wooded fencerows, wooded thickets, and wooded waterways comprise most of this management area. In 2008 TXDOT developed a wetland area in the management area as mitigation for fill material used on the Highway 36 project. The wetland area is seasonally dry and does not hold a significant amount of wetland vegetation capable of maintaining a healthy wetland ecosystem.

There is at least one federally-listed endangered species that could utilize habitat within the Belton Lake area. Therefore, any work conducted on this project will be in accordance to the Endangered Species Act and will be appropriately coordinated with the USFWS. The species of focus within this area of consideration are animals listed as a threatened or endangered species under the Endangered Species Act. These species (Table 2.5) will continue to receive attention to ensure they are managed in accordance to their habitat needs.

Non-game wildlife is also managed by USACE. Other non-game programs, such as song bird nest box construction and installation of bat boxes, are performed on an intermittent basis. The plan is to continue these initiatives in order to provide some form of management for non-game species.

5.6.3 Vegetative Management. These are lands that have vegetative types considered to be sensitive and needing special classification to ensure success. A good example of these types of vegetation would be forested wetlands and Cross Timber forests. There are no acres currently identified at Belton Lake for vegetative management purposes.

5.6.4 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 Belton Lake.

5.7 WATER SURFACE

At conservation pool level of 594.0 NGVD29 there are 12,385 acres of surface water. Buoys are managed by USACE with close coordination with the TPWD. These buoys help mark hazards, swim beaches, boats keep-out and no-wake areas.

5.7.1 Restricted

Restricted areas are around swim beaches as well as the dam for project operations, safety, and security purposes. Water surface zoned as restricted total approximately 20 acres.

5.7.2 Designated No-wake

No-wake areas are located near boat launch areas for the safety of launching and loading boat or personal watercraft. During formulation of this Plan, public comment indicated a desire for establishment of passive use boating areas in the form of paddle trails or no-wake areas where paddle boats would not have to compete with motorized watercraft. USACE is open to this concept and will work with interested parties to fulfill this need. Currently, approximately 42 total acres of Belton Lake is designated for no-wake.

5.7.3 Fish and Wildlife Sanctuary

These areas are managed with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. There are no water surface acres under this classification at Belton Lake.

5.7.4 Open Recreation

The remaining lake area not in the above classifications is open to recreational use. No specific zoning exists for these areas, but there is a buoy system in place to help aid in public safety. Future management of the water surface includes the maintenance of warning, information, and regulatory buoys as well as routine water safety patrols during peak use periods. Approximately 12,323 total acres of Belton Lake is zoned for open recreation.

5.8 SUSTAINABILITY

Sustainability is a multi-pronged aspect of responsible stewardship of USACE lands. The outcome of sustainability initiatives is to have a program that; is able to adapt to fiscal challenges, safeguards the environment, and continues to provide high quality recreational opportunities for the public. As the nation's largest provider of outdoor recreation, managing 12 million acres of lands and waters across the county, USACE is committed to implementing initiatives that link people to water.

The recreational mission of USACE is to manage and conserve natural resources, while providing quality public outdoor recreation opportunities to serve the needs of the present and future generations. This is in-line, and indeed the underpinning, of all the goals and objectives for Belton Lake resources and management. The USACE 2011 Recreational Strategic Plan identifies a number of goals and objectives designed to build a more robust environmental and recreational program on USACE managed lands. Many of the goals center specifically on promoting environmental sustainability in all aspects of recreation resources management. This includes integrating environmental operating principles and other environmental regulation and initiatives into day-to-day decision making and long range planning. Other objectives include using Leadership in Energy and Environmental Design (LEED) certified personnel and projects in facility design and maintenance, adopting Sustainable Sites Initiative criteria where applicable on land-based recreation areas, and updating project master plans to include environmental sustainability elements.

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2438 Meeting the public's needs and continuing to provide a full range of outdoor
2439 recreation opportunities will require collaboration. In support of that, USACE will
2440 maintain and enhance existing relationships while seeking new and innovative types of
2441 relationships with federal, state, and local agencies, volunteers, non-government
2442 organizations, cooperators and others to provide certain recreation services and
2443 opportunities to the public. Besides pursuing and maintaining partnerships, it is
2444 important to continue to identify, analyze, and evaluate authorities and policies such as
2445 fee collection and retention and increased partnership capabilities. Areas identified for
2446 changes to meet the goals and objectives of this Strategy include authorities for fee
2447 collection and retention without budgetary offset and policies that pertain to funding
2448 schedules for partnership projects.

2449
2450 Through creativity, innovation, strong partnerships, and environmentally-
2451 sustainable stewardship, quality recreational opportunities will continue to be available
2452 to the public. This will be done while simultaneously protecting the water, environment,
2453 and cultural resources for current and future generations.
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miles of multi-use public trails. This primary purpose of the area is recreational and environmental education.

In August 2017, Miller Springs Alliance, Inc., being a small group of retired volunteers, could no longer afford to maintain the area and requested ending the lease. In November 2017 discussions between the USACE, City of Belton, and the City of Temple began for reopening the area. The cities of Temple and Belton are currently leasing the area and have plans to maintain the park and trails.

6.2 BELTON LAKE OUTDOOR RECREATIONAL AREA (BLORA)

The Cowhouse Creek upstream of Belton Dam is the location of the popular Belton Lake Outdoor Recreation Area (BLORA), operated by the US Army at Fort Hood. This area was owned by USACE until 2005 when its ownership was transferred to the US Army as part of U.S. Army Moral, Welfare and Recreation.



Photo 6.2 Belton Lake Outdoor Recreational Area (USACE Photo)

BLORA consists of approximately 350 acres and has over 2 miles of shoreline. The area has 64 recreational vehicle (RV) campsites located on three different areas of the park. There are 12 pavilions that include restrooms, playgrounds, and basketball and volley ball courts. There are 4 picnic areas that accommodates over 1,000 people. This area also includes 2 boat ramps, swim beach with beach house and snack bar, and water slide. There is an enclosed heated fishing dock and marina. Although the area is operated primarily for the benefit of Fort Hood soldiers and families, it is open to the general public on a fee basis.

6.3 GOLDEN-CHEEKED WARBLER

USACE is a federal agency and is responsible for participating in the recovery actions for federally endangered and threatened species occurring on USACE-managed lands. . Golden-cheeked warblers (*setophaga chrysoparia*) are federally endangered migratory songbirds that breed exclusively in the juniper-oak (*Juniperus ashei-Quercus spp.*) woodlands of central Texas. Campbell (2003) described vegetation associations where golden-cheeked warblers are expected to occur as woodlands with mature Ashe juniper in a natural mix with oaks (*quercus spp.*), elms (*ulmus spp.*), and other

hardwoods, in relatively moist areas such as steep canyons, slopes, and adjacent uplands.

Some of the properties managed by the USACE around Belton Lake fit Campbell's description. At this point, two USACE areas have been determined to contain golden-cheeked warblers. One is the land on the north-west side of Belton Lake that is adjacent to the Fort Hood military lands. The other is the Miller Springs Nature area.



Photo 6.3 Golden-cheeked Warbler. (Courtesy, USFWS)

USACE lands on the north-west side of Belton Lake but adjacent to Fort Hood Military Reservation contains vegetation that supports warbler habitat. The Fort Hood Reservation owns and manages thousands of acres of land and has many known sightings of golden-cheeked warblers. These two government agencies have partnered and the Commanding General of Fort Hood is primarily responsible for the maintenance, protection and conservation of all natural and cultural resources of these lands.

A golden-cheeked warbler survey was conducted during the 2013 breeding season and one male was spotted in the Miller Springs Nature Area near the Bee Suck Hollow area. The Miller springs area is located on FM 2271 just below Belton Lake Dam, and contains approximately 40 hectares (approx. 99 acres) of warbler habitat. Although this sites fits the description of warbler breeding habitat, this male may have not established territories at this sites because he was not successful in attracting a female or no other males established territories at this site.

6.4 INVASIVE SPECIES

The extent of invasive species currently documented as present at Belton Lake lands and waters is presented in Table 2.8. While efforts are made to prevent and eradicate invasive species from the lands and waters at Belton Lake, special attention is given to particularly destructive species, including the zebra mussel (*Dreissena*

polymorpha). Population levels of zebra mussels at several Texas lakes have quickly risen to levels that are impacting raw water intakes for water supply and internal piping. At present these impacts are mainly in the form of increased maintenance costs due to having to remove the mussels. The zebra mussel is roughly the size of a fingernail but can reach up to 2 inches long and is characterized by an alternating light and dark striped pattern resembling zebra stripes on two connected hard shells. On September 2013, zebra mussels were positively documented in Belton Lake. Precautions are being taken and educational and warning signs are posted at the lake and affiliated websites. Currently, USACE is working with TPWD to help educate the public at Belton Lake, including creating a series of informational YouTube videos for boaters, hunters, and anglers. Management plans will be formulated in the coming months to address zebra mussels at Belton Lake.



Photo 6.4 Concrete Drinking Fountain Inundated for 45 days at Belton Lake.
(USACE Photo)

Terrestrial invasive species at Belton Lake include the Chinese tallow tree (*Triadica sebifera*), Chinaberry tree (*Melia azedarach*), willow baccharis (*Baccharis salicina*) and castor beans (*Ricinus communis*). The Chinese tallow tree is a deciduous species with a 12" to 18" crooked trunk and a height of 50 feet at maturity. The USDA first introduced it to the Gulf coast in the 1900's to develop a soap-making industry from the seeds. Eradication of the tree is difficult due to its fast growth and ability to adapt to all soils. The species causes large-scale ecosystem modification by replacing native

vegetation thereby reducing native species diversity that, in turn, has a negative effect on wildlife. Additionally, the plant is toxic to humans and cattle and can cause dermatitis on contact.

The Chinaberry tree is a very drought tolerant tree native to Asia that grows extremely fast (5-10 feet each year) and has very few diseases allowing it to out-compete native species. While it has brilliant yellow fall foliage and lavender spring flowers, the berries, bark, leaves and flowers produced by the tree are all toxic to livestock, humans and pets. The plant was originally introduced for its ability to thrive in poor conditions, and its berries were used to make soap, and extracts from the tree have been used as natural pesticides. Seeds are spread by birds, and the plant spreads by root sprouts, thus forming a dense thicket.

Willow baccharis is a weedy, noxious, perennial shrub that grows between three to nine feet. The plant prefers wet sites along rivers, streams and lakes but has begun spreading into the upland sites, tolerating saline soils. Originally used to control erosion, it is a prolific seed producer, reproducing by seed and rhizomes, rapidly spreading and invading mesic sites. While native, it is toxic and aggressively invades in disturbed areas. It can be controlled with some herbicides.

Castor beans is an invasive plant at Belton Lake. The plant can reach up to nine feet tall and has stems that are purplish and highly branched, with large palmate leaves. Castor beans are evergreen in frost-free areas and are very fast growing. Stands of castor beans displace native vegetation, exhausts the soil of nutrients, and the seeds produce the toxic substance ricin. Additionally, it has been found to cause allergic asthma. Control of this plant is via herbicides and pulling of seedlings. Fire is discouraged, as it most likely causes further invasion.

Belton Lake also is invaded by the armored catfish (*Hypotomus plecostomus*), an algivorous, mostly nocturnal fish that ranges from three inches to over three feet in length. Originally introduced to control algae, it is unclear how effective they actually are for this intended purpose. The fish is resilient due to a combination of successful breeding strategies, the ability to adapt to a wide range of ecological conditions, and the fact that it can gulp air and survive out of water for more than 30 hours. With overabundance of these fish in freshwater ecosystems, local indigenous species can be out-competed and reduced. This could lead to a collapse of freshwater fisheries.

6.5 RECREATIONAL BOATING STUDY

In 2002, the Fort Worth District adopted a policy governing water-related recreation development that has the potential to affect the degree of boating traffic on the water surface of all Fort Worth District lakes. In brief terms, the policy established a target capacity of 22 surface acres of boatable water surface for each vessel on the water during peak use periods. Using the number of boat ramp parking spaces, wet storage slips and dry stacked storage slips as a basis for calculating potential boating activity, USACE can determine whether any proposed additions of parking spaces or storage slips has the potential to exceed the target capacity. USACE has determined

that the number of existing parking spaces and slips at Belton Lake as of the date of this Plan has the potential to exceed the target capacity and may have already done so. In view of this potential, USACE would require a comprehensive water-related recreation use study prior to making a decision to approve or deny a proposal for additional slips or boat ramp parking spaces at Belton Lake. The policy allows limited flexibility in decision-making. Adequate funding to conduct a Recreational Boating Study at the same time as the Master Plan revision was not available.

6.6 SHORELINE MANAGEMENT STATEMENT OF 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. At Belton Lake, no such private uses existed as of that date and therefore private shoreline uses are not allowed.

The private uses described in the regulation primarily include privately-owned floating facilities such as floating boat docks, fixed or movable piers, and vegetation modification activities such as plantings, mowing, and selective removal of shrubs and trees to the extent that exclusive benefits accrue to an individual or group and the general public is denied use of public lands or waters. Not included in the above definition are certain limited private activities that do not provide exclusive benefits to an individual or group, nor preclude general public use. These limited private activities may be allowed by written shoreline use permit for reasons of public safety, erosion control, benefits to wildlife, or to provide reasonable pedestrian access to the shoreline. A key requirement of the regulation is stated as follows: "Except to honor written commitments made prior to publication of this regulation, private shoreline uses are not allowed on water resources projects where construction was initiated after December 13, 1974, or on water resources projects where no private shoreline uses existed as of that date." The regulation requires USACE to prepare a Shoreline Management Plan for those projects where private uses existed as of December 13, 1974, and a Shoreline Management Policy Statement (SMPS) for all other projects. In response to this requirement a SMPS was prepared for Belton Lake.

In FY 2012, an administrative update to the Belton Lake Shoreline Management Statement of Policy was prepared to incorporate current terminology and to ensure compliance and compatibility with the most current versions of ER 1130-2-406 and ER 1130-2-540, as well as Fort Worth District policy decisions related to shoreline management. One of the primary reasons for the administrative update was to incorporate language that supports the USACE natural resources mission statement to

“manage and conserve natural resources consistent with ecosystem management principles” as set forth in ER 1130-2-540.

The purpose of the SMPS is to set forth the policy and procedures by which USACE manages certain private uses of public lands at Belton Lake. Private uses that accrue exclusive benefits to an individual are not allowed at Belton Lake. The non-exclusive private uses that may be authorized by written permit from USACE include mowing and removal of underbrush to the extent needed for protection from wildfire and limited clearing to provide a pedestrian access path from private property to the shoreline. These non-exclusive uses may not be authorized in all areas and are subject to restrictions set forth in the SMPS. To further inquire about the SMPS at Belton Lake, please contact the lake office.

6.7 GOVERNMENT PROPERTY ADJOINING FORT HOOD

In the late 1940's and early 1950's when lands needed for the Belton Lake Project were being acquired, approximately 1,430 acres of needed land lying north and east of Cowhouse Creek belonged to US Army at Fort Hood Military Reservation. These acres were acquired from Fort Hood for the project. After all needed lands were acquired for the project, USACE granted a permit to Fort Hood to use approximately 9,260 acres for military purposes.

The Commanding General of Fort Hood is responsible for the maintenance, protection and conservation of all natural and cultural resources of these 9,260 acres in accordance with the following permit guidelines:

- The area shall be included under the Fort Hood Environmental Management Program with TPWD. Biologists are permitted to conduct investigations and studies of fish and wildlife in the area
- No structures are permitted below elevation 642' without USACE District Engineer permission
- Fort Hood Commanding General is responsible for installing and maintaining buoys and signs to inform public of available public use areas
- Permitted public use is allowed within 200' of the waters' edge
- No overnight camping is allowed
- Hunting and all firearms are prohibited except in accordance with Fort Hood regulations and restrictions
- Any training activities conducted by Fort Hood require prior notification of the USACE Lake Manager. Military training activities take priority over public use and require a 300 meter buffer zone on all sides of the training site.

6.8 UTILITY CORRIDORS

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. After obtaining public input and examining the location of existing roads and utility lines on project lands, USACE determined that only

utility corridors would be designated at Belton Lake. USACE policy in ER 1130-2-550, Chapter 17, states that project lands will generally be available only for roads that are considered regional arteries or freeways. If regional and county mobility plans call for widening of some existing roadways across USACE lands, these will be addressed on a case-by-case basis.

The following six (6) utility corridors have been designated across USACE land at Belton Lake, with each corridor incorporating and/or running parallel to an existing easement. These corridors are shown on map number BL17-OU-01 provided in Appendix A. Future use of these corridors, where the corridor is limited to an existing easement, would in most cases require prior approval of those entities that have legal rights to the easement. Some existing easements at Belton Lake are designated as “restricted”, these easements may be used for placement of additional utilities by the grantee holding the easement, but only for purposes which directly serve the grantee or are of direct benefit to the Government. Expansion or widening of these “restricted” existing corridor easements will generally not be permitted.

- Corridor 1 (Rogers Park): RESTRICTED. This ONCOR Utility easement includes the existing right-of-way for an electrical line that is 50 feet wide and 7,944 feet long. This existing line is overhead and underwater. This corridor starts in USACE Tract # F-510-2, F-511 off the point in the Rogers Park development area and generally crosses Belton Lake in north westerly direction and ending in USACE Tract # F-520, F-210, F-522 and F-523. The electrical line serves the Gatesville water intake structure on the northern side of Belton Lake.
- Corridor 2 (Cedar Ridge area): This Brazos Electric easement includes the existing right-of-way for an above ground primary electric transmission line that runs approximately 2,960 feet by 50 feet in a north - south direction crossing Cedar Creek at the mouth of Belton Lake through Cedar Ridge Park in Segment E Tract 426-1.
- Corridor 3 (Prior Gas Line): RESTRICTED. This American Petrofina easement includes the existing right-of-way before USACE ownership where the easement crossed government property three times including the main body of the Leon River and several tributaries. The approximate 12,500 feet by 40 feet corridor crosses many USACE Tracts 612, 619, 620 & 621 in Segment G.
- Corridor 4 (Hwy 36 Bridge): This Texas Department of Transportation easement includes the existing right-of-way where State Highway 36 crosses the main body of the Leon River arm of Belton Lake. The corridor crosses many USACE Tracts in Segments G & H.
- Corridor 5 (Future): The corridor is established for a future right-of-way for either water, electrical, roadway or other. This corridor will run perpendicular to the Leon River immediately above Winkler Park in USACE Tract numbers K-

901-2 and K-901-2E on the west side of the lake and Tract numbers J-824-1 and J824-1E on the east side of the lake. The future corridor is approximately 2,000 feet long by 200' wide, crossing USACE land from east to west near Deer Ridge Road.

- Corridor 6 (Iron Bridge area): This Heart of Texas Electric Cooperative easement crosses the Leona River near Iron Bridge Park and travels in an east to west direction. The corridor travels through Tracts K-904, K-906 K-942, K-928, K-929, K-931, and K-933.

In summary, the following best management practices shall be applied in the future use of the corridors.

- Use existing easements before using additional space.
- Efficient use of the designated corridor space to allow the maximum number of utilities possible to occupy the space. Reduced cost is not a reason to occupy more space. A typical drawing depicting how utility lines can be placed efficiently within a corridor is provided in Appendix A following the map of corridor locations.
- In accordance with USACE policy at Chapter 17 of ER 1130-2-550, Non-Recreation Outgrant Policy, avoid placement of utility lines on USACE land unless there is no reasonable alternative route.
- Underground utilities shall be installed by boring at all creek crossings, and where feasible, across the full extent of designated corridors. Bore pits shall be a minimum of 100 feet from the centerline of creeks and, depending on site conditions, may need to be placed farther than 100 feet.
- Overhead electric and communication lines must meet minimum sag height requirements to be specified by USACE.
- Natural resources damaged or destroyed within corridors shall be mitigated per USACE requirements.
- Current and future identified cultural resources will be protected.

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7.1 PUBLIC AND AGENCY COORDINATION OVERVIEW

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

The USACE began planning to revise the Belton Lake Master Plan in September 2016. The objectives for the master plan revision were to (1) update land classifications to reflect changes in USACE land management policies since 1970 and (2) update the Master Plan to reflect new agency requirements for master plan documents in accordance with ER 1130-2-550, Change 7, January 30, 2013 and EP 1130-2-550, Change 5, January 30, 2013.

7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS

The first action was a scheduled public scoping meeting providing an avenue for public and agency stakeholders to ask questions and provide comments. The public scoping meeting was held on 25 May 2017 at the City of Belton's Harris Community Center located at 401 N. Alexander Street, Belton, TX 76513. The Fort Worth District placed advertisements on the USACE webpage, social media and print publications two weeks prior to the public scoping meeting.

USACE employees hosted the workshop, which was conducted in an open format. Participants were asked to sign in at a table where staff provided the participants with information regarding the structure of the scoping meeting and comment forms. After signing in, participants were directed to be seated in the auditorium for a presentation by USACE for the Master Plan Revision Project Delivery Team (PDT) to convey information about the following topics:

- Public involvement process
- Project overview
- Overview of the NEPA process
- Master Plan and current land classifications
- How to submit comments

At the conclusion of the presentation USACE representatives were available to answer questions and receive written comments at information tables. Interested persons had the opportunity to comment about the project using a variety of methods, including the following:

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

Approximately 59 individuals, not including USACE personnel, attended the May 25 public scoping meeting for interest groups, partner agencies, other government agencies, and businesses. Among the attendees were representatives from the Central Texas Council of Governments (CTCOG), City of Belton, and Congressman Carter's office. A total of 28 comments were received following this public scoping meeting. Many of the comments received did not relate to the master plan, such as issues of shoreline management (i.e. encroachment and vandalism issues) or management issues (i.e. opening parks, invasive species), or public roads. While these comments and concerns are very important, they are not within the purview of a master plan. Belton Lake is a Federally-owned and managed public property, and it is USACE goal to be a good neighbor as well as steward of public interest as it concerns Belton Lake. As such, USACE is bound to the equal enforcement of policies and fees for this publically held national asset. Table 7.1 below gives a summary list of the comments during the initial scoping comment period for the master plan, followed by the USACE response.

Table 7.1 Public Comments from 25 May 2017 Public Scoping Meeting

Comment Area		
Nature of Comments	Number of Comments	USACE Response
Miller Springs Park and Nature Center		
Encroachment and vandalism issues	3	Although activities outside USACE properties cannot be regulated by USACE, every effort is being made to maintain security and create an agreeable outdoor experience for all concerned. Designated public use trails are designed to reduce the possibility of users straying onto adjacent landowner property. Conversely, the Federal property boundary line is inspected periodically to reduce trespass, encroachment and vandalism by neighboring landowners.
Land classification changes to protect natural areas and	5	Concur. New land classifications take into consideration State and Federally-listed species and cultural sites. Federal land that is

Comment Area		
Nature of Comments	Number of Comments	USACE Response
endangered species habitat		determined to be important to perpetuation of a listed species, especially a Federally-listed species, will, under most circumstances, be classified as an Environmentally Sensitive Area in the revised master plan. USACE is required by law to protect Federally-listed species and habitat. Designation of Environmentally Sensitive Areas is only one step toward compliance with the law. USACE embraces the opportunity to partner with agencies and municipalities to help manage these areas to protect the lands while ensuring public access.
Natural Area Preservation		
Preserve natural areas and remove invasive species	3	Preservation of natural areas is of great importance to USACE, as well as other natural resource agencies. The general public also supports natural and cultural resource preservation as documented in the Texas Outdoor Recreation Plan (TORP). Land classifications are developed and partnerships pursued as appropriate toward this end. Invasive species is an ongoing concern throughout the US, including Belton Lake. USACE will continue to pursue a number of programs and best management practices to help control the establishment or spread of these species, including collaborating with private and public agencies for invasive species control at Belton Lake.
Parks and Trails		
Multi-modal and connected lake hike and bike trails created	5	In general, USACE relies on partnerships with other agencies and organizations to develop and maintain new recreational facilities, such as trails, campgrounds or picnic areas. Depending on annual funding appropriated by Congress, USACE will continue to operate and maintain existing facilities currently operated by USACE. Based on USACE District Policy on water-related recreation facilities, expansion or addition of boat ramps and boat ramp parking, or boat slips at marinas on Belton Lake is contingent on completion of a comprehensive recreational boating survey to ensure that
Expand recreational partnerships	1	
Reopen closed parks	2	
Create paddle trails	1	
Provide more free access	1	
Expand boat ramp facilities and parking	1	

Comment Area		
Nature of Comments	Number of Comments	USACE Response
		boating traffic on peak use days does not exceed capacity. As partnerships, contributions, volunteers and other considerations materialize, expansion, repair and maintenance of recreational facilities and opportunities, or completion of a comprehensive recreational boating survey, can be accomplished for the Federal lands and water surface at Belton Lake.
Lake to Lake Road		
Support for lake to lake road project	4	The proposed expansion or placement of roadways on Federal land is not part of the master plan. USACE is working with TXDOT, the City of Belton and surrounding counties to ensure that existing or proposed public roadways comply with national USACE policy relative to public roads on USACE lands.
Leases and Concessions		
Review of lease and concession boundaries, recreational capacity, water access, and public safety	1	While USACE recognizes the importance of lease and concessionaire partnerships on USACE lands, the discussion of leases and concessions as part of the master plan is generally limited to the physical boundaries of leased areas and any new major developments proposed by a lessee. The physical boundary of each lease is addressed only if the lessee expresses an interest in changing the boundary. Daily operational concerns in each lease is typically not addressed in the master plan. These issues are addressed through real estate actions such as lease amendments. Public safety is a primary concern and every effort will continue to be taken by USACE through lease inspections to ensure a safe and enjoyable atmosphere for all users.
Water Level/Flow		
Maintain normal flow of water	1	The subject of water level and river flows are not part of the master plan. Belton Lake's primary mission is flood risk management and water conservation. Water release rates, lake levels and water allocation are covered in the Belton Lake Water Management Plan. The topic of water management and water rights is

Comment Area		
Nature of Comments	Number of Comments	USACE Response
		mentioned in the master plan, but only for informational purposes.

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2859 **7.3 PUBLIC AND AGENCY REVIEW OF DRAFT MP, EA, AND FONSI**

2860 **Remainder to be completed following Public and Agency review of the draft MP**
2861 **and EA/draft FONSI.**

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8.1 SUMMARY OVERVIEW

The preparation of the Belton Lake Master Plan followed the new USACE master planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 13 January 2013. Three major requirements set forth in the new guidance include (1) preparation of contemporary Resource Objectives, (2) Classification of project lands using the newly approved classification standards, and (3) preparation of a Resource Plan describing in broad terms how the land in each of the land classifications will be managed into the foreseeable future. Additional important requirements include rigorous public involvement throughout the process, and consideration of regional recreation and natural resource management priorities identified by other federal, state, and municipal authorities. The study team endeavored to follow this guidance to prepare a master plan that will provide for enhanced recreational opportunities for the public, improve environmental quality, and foster a management philosophy conducive to existing and projected staff levels at Belton Lake. Factors considered in the Plan were identified through public involvement and review of statewide planning documents including TPWD's 2012 TORP (synonymous with SCORP) and the TCAP – Edwards Plateau Ecoregion. This Master Plan will ensure the long-term sustainability of the USACE managed recreation program and natural resources associated with Belton Lake.

8.2 LAND CLASSIFICATION PROPOSALS

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

Of the 28 public comments received as a result of the first public scoping meeting, five referred to a specific request or proposal to demonstrably change prior land classifications. The land classifications presented in the Plan were formulated based on these comments and the USACE Belton Lake Project staff, Operations Division Staff and Regional Planning and Environmental Center (RPEC) staff assigned to the Master Plan PDT based on first-hand experience, professional training, and best management practices. There were 6,754 acres reclassified or updated to the new land classification name. All changes reflect historic and projected public use and new guidance from ER 1130-2-550 and EP 1130-2-550. A summary of acreage changes from prior land classifications to the current classifications is provided in Table 8.1, and key decision points in the reclassification of project lands are presented in Table 8.2.

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Table 8.1 Change from Prior Land Classification to New Land Classification

Prior (1970) Land Classifications	Acres	New Land Classifications	Acres
Operation and Maintenance	167	Project Operations	261
Recreational Areas		High Density Recreation	1,467
Priority 1	2,126		
Priority 2	605		
Priority 3	123		
Priority 4	187		
		Environmentally Sensitive Areas	1,888
Aesthetic and Multiple Use Recreation	8,732	Multiple Resource Management – Low Density Recreation	82
Total Fee Area = 24,240		Multiple Resource Management – Wildlife Management	9,521
Permanent Pool 594.0 NGVD29			
Flowage Easement	6,861		
Military	1,430		

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Note: Since the 1970 Master Plan, fee title to the 258-acre Belton Lake Outdoor Recreation Area (BLORA), operated by Fort Hood, was transferred to Fort Hood and is no longer part of USACE land holdings at Belton Lake. Additionally, there are 30 acres now owned by the Water District.

Table 8.2 Reclassification Proposals

Proposal	Description	Justification
Project Operations (PO)	Lands under the prior classification of Operation and Maintenance were converted to the new and similar classification of Project Operations and increased by 94 acres for a total of 261 acres due to improved mapping and the following: <ul style="list-style-type: none">• 8 acres from Aesthetics• 51 acres from Recreational Areas Priority 1• 35 acres from improved measurement technology.	The Project Operations land classification was expanded due to the creation of permanent weirs and to protect visitors near the water intake structures around the Lake. The conversion of these lands will have no effect on the current or projected public use.

Proposal	Description	Justification
High Density Recreation (HDR)	<p>Lands under the prior classification of Recreational Areas Priorities 1, 2, 3, and 4 were converted to the new and similar classification of High Density Recreation but were reduced by 1,574 for a total of 1,467 acres due to improved mapping and the following:</p> <ul style="list-style-type: none"> • 220 net acres to ESA • 82 acres to LDR • 51 acres to PO • 739 acres to WM • 30 acres sold to water district • 258 transferred to BLORA • 194 acres due to improved measurement technology 	<p>The 145 park acres were reclassified to ESA. Historically, these lands have been managed for the benefit of wildlife and are places where GCWA habitat exists. These lands are more appropriately classified as ESA lands. The conversion of these lands will have no effect on current or projected public use.</p>
Environmentally Sensitive Areas (ESA)	<p>The classification of 1,888 acres as Environmentally Sensitive Areas resulted from the following land classification changes:</p> <ul style="list-style-type: none"> • 1,609 acres from Aesthetics • 85 acres from Priority 1 • 194 acres from Priority 2 	<p>These classification changes were necessary to recognize those areas at Belton Lake having the highest ecological value, including areas of high value for protection of important habitat for the endangered GCWA as designated by the USFWS, and to protect unique views and cultural and archeological sites. The conversion of lands 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>
MRML – Low Density Recreation (LDR)	<p>The classification of 82 acres to MRML-LDR</p>	<p>The land in the former classification of Priority 1</p>

Proposal	Description	Justification
	resulted from converting some lands under the prior classification of Recreation Priority 1.	were converted to MRML-LDR due to the area having historic land use patterns supporting the change. The conversion of these lands will have no effect on current or projected public use.
MRML – Wildlife Management Area (WM)	<p>The classification of 9,521 acres to MRWL-WM resulted from reclassifying some lands under the prior classification as follows:</p> <ul style="list-style-type: none"> • 8,640 acres from Aesthetics • 881 acres from Recreation Priority 1, 2, 3 & 4 	The land in the former classification of Aesthetics and Priority 1, 2, 3, & 4 were converted to MRML-WM to more appropriately align with historic land use patterns supporting the change. The conversion of these lands will have no effect on current or projected public use.
Water Surface	<p>The classification of 12,385 acres of water surface of the lake at the conservation pool elevation is as follows:</p> <ul style="list-style-type: none"> • 20 acres of Restricted water surface at Belton Lake include the water surface in front of the intake structure at the control tower at Belton Dam, the three (3) municipal water intake structures, and designated swimming areas in the parks around Belton. Buoys mark the line in front of the dam. Keep-out buoys and floating barrier pipes mark the designated swimming areas in each park. • 42 acres of Designated No-Wake areas are in 	Previous master plans for Belton Lake did not specify different classifications on the water surface, though these classifications were recognized in practice. This master plan revision recognizes and specifies these uses. The classification of water surfaces will have no effect on current or projected public use

Proposal	Description	Justification
	<p>place near the boat ramps and marina areas at Belton Lake.</p> <ul style="list-style-type: none"> There are 12,323 acres of Open Recreation water surface at Belton Lake. 	

Note: The land classification changes described in this table are the result of changes to 62 individual parcels of land ranging from a few acres to over 100 hundred acres. Acreages were measured using GIS technology. The acreage numbers provided are approximate.

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

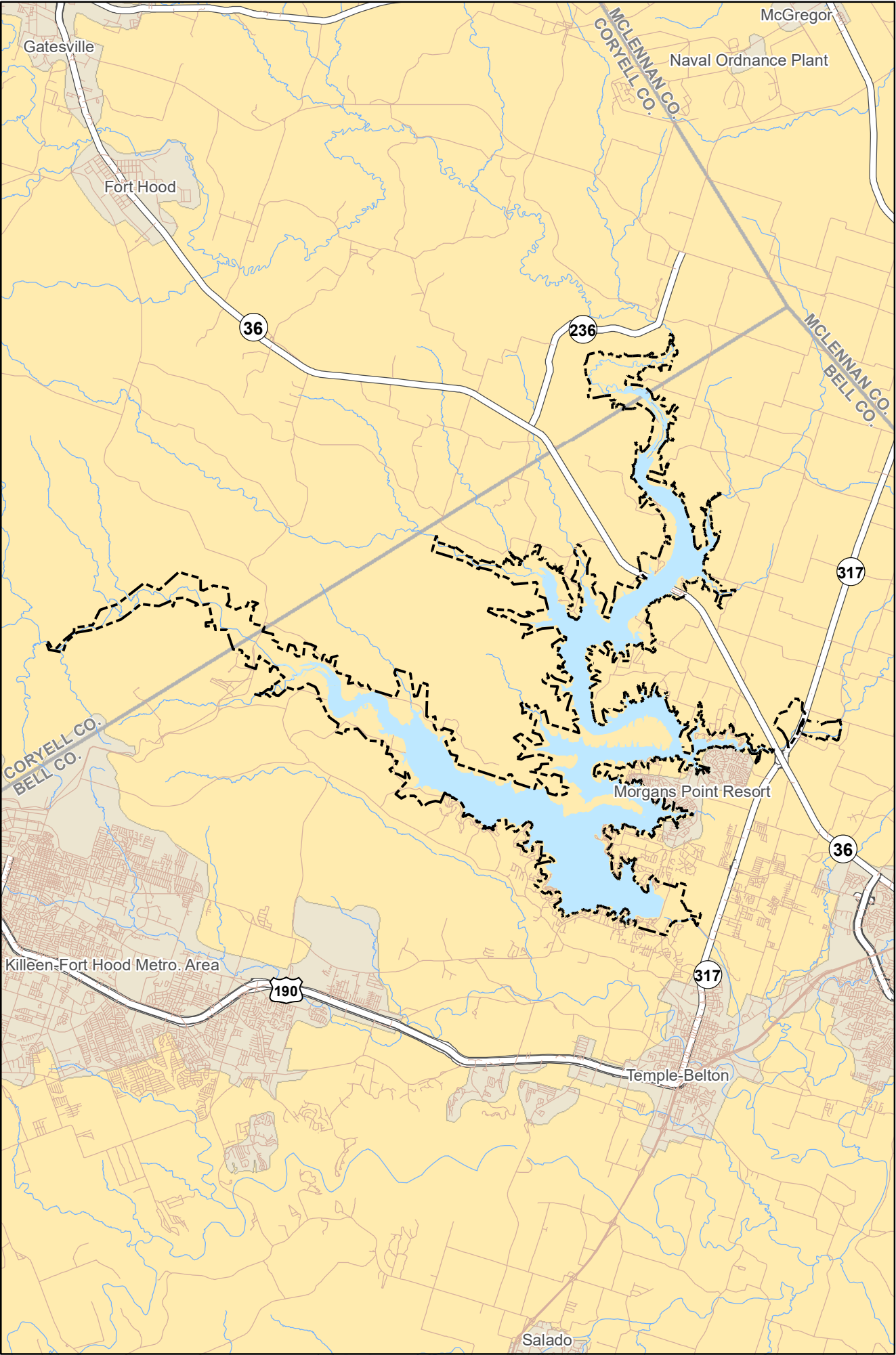
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INDEX TO MASTER PLAN MAPS

GENERAL
TITLE

MAP NO.	TITLE
BL17MP-OI-00	PROJECT LOCATION & INDEX TO MAPS
BL17MP-OM-01	AGENCY LAND MANAGEMENT
BL17MP-OU-01	UTILITY CORRIDOR
BL17MP-OW-01	MARINAS/CONCESSIONS
BL17MP-WM-01	WILDLIFE MANAGEMENT AREAS

LAND CLASSIFICATION


MAP NO.	TITLE
BL17MP-OC-00	LAND AND WATER CLASSIFICATIONS (00)
BL17MP-OC-01	LAND AND WATER CLASSIFICATIONS (01)
BL17MP-OC-02	LAND AND WATER CLASSIFICATIONS (02)
BL17MP-OC-03	LAND AND WATER CLASSIFICATIONS (03)
BL17MP-OC-04	LAND AND WATER CLASSIFICATIONS (04)
BL17MP-OC-05	LAND AND WATER CLASSIFICATIONS (05)
BL17MP-OC-06	LAND AND WATER CLASSIFICATIONS (06)
BL17MP-OC-07	LAND AND WATER CLASSIFICATIONS (07)
BL17MP-OC-08	LAND AND WATER CLASSIFICATIONS (08)
BL17MP-OC-09	LAND AND WATER CLASSIFICATIONS (09)
BL17MP-OC-10	LAND AND WATER CLASSIFICATIONS (10)
BL17MP-OC-11	LAND AND WATER CLASSIFICATIONS (11)
BL17MP-OC-12	LAND AND WATER CLASSIFICATIONS (12)
BL17MP-OC-13	LAND AND WATER CLASSIFICATIONS (13)
BL17MP-OC-14	LAND AND WATER CLASSIFICATIONS (14)

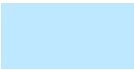
RECREATIONAL AREAS


MAP NO.	TITLE
BL17MP-OR-0A	GOVERNMENT MANAGED RECREATIONAL AREAS
BL17MP-OR-0B	PRIVATELY MANAGED RECREATIONAL AREAS
BL17MP-OR-01	BELTON LAKE VIEW PARK
BL17MP-OR-02	MILLER SPRINGS PARK
BL17MP-OR-03	OVERLOOK PARK (DAM SITE)
BL17MP-OR-04	LIVE OAK RIDGE PARK
BL17MP-OR-05	ARROWHEAD POINT PARK
BL17MP-OR-06	TEMPLE'S LAKE PARK
BL17MP-OR-07	ROGERS PARK
BL17MP-OR-08	CEDAR RIDGE PARK
BL17MP-OR-09	MCGREGOR PARK
BL17MP-OR-10	LEONA PARK
BL17MP-OR-11	IRON BRIDGE PARK
BL17MP-OR-12	WINKLER PARK
BL17MP-OR-13	WHITE FLINT PARK
BL17MP-OR-14	OWL CREEK PARK
BL17MP-OR-15	SPARTA VALLEY PARK
BL17MP-OR-16	WESTCLIFF PARK

THIS PRODUCT IS REPRODUCED FROM GEOSPATIAL INFORMATION PREPARED BY THE U.S. ARMY CORPS OF ENGINEERS. GIS DATA AND PRODUCT ACCURACY MAY VARY. THEY MAY BE DEVELOPED FROM SOURCES OF DIFFERING ACCURACY. ACCURATE ONLY FOR CERTAIN SCALES, BASED ON MODELING OR INTERPRETATION, INCOMPLETE WHILE BEING CREATED OR REVISED. USING GIS PRODUCTS FOR PURPOSES OTHER THAN THOSE FOR WHICH THEY WERE CREATED MAY YIELD INACCURATE OR MISLEADING RESULTS.



 FEE BOUNDARY

 WATER SURFACE



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

PROJECT LOCATION AND MAP INDEX

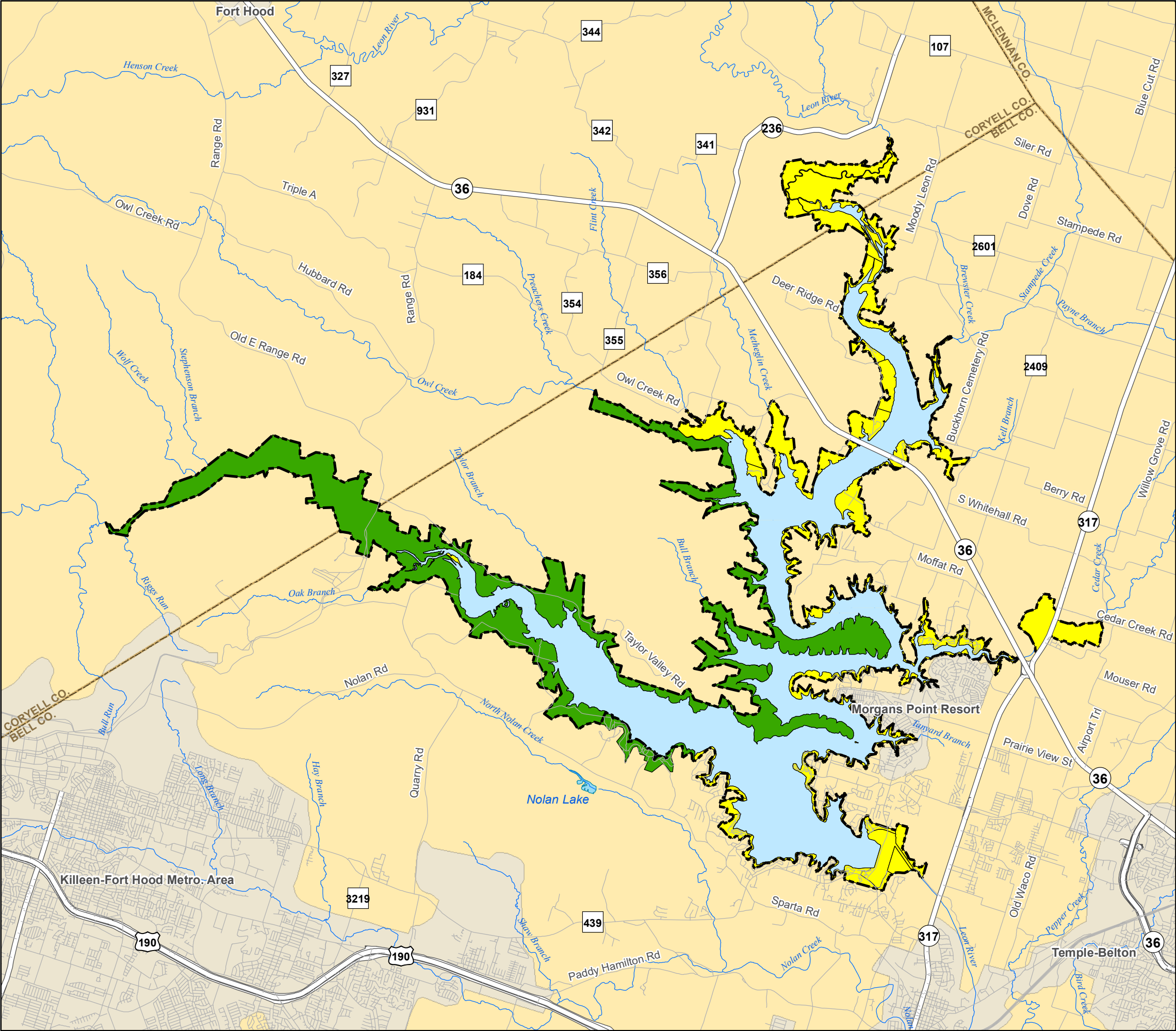


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DATE:
JULY 2018

MAP NO.
BL17MP-OI-00



- FEE BOUNDARY
- U.S. ARMY CORPS OF ENGINEERS
- FORT HOOD MILITARY INSTALLATION



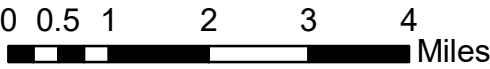
U.S. ARMY CORPS OF ENGINEERS
FORT WORTH DISTRICT

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

AGENCY LAND MANAGEMENT

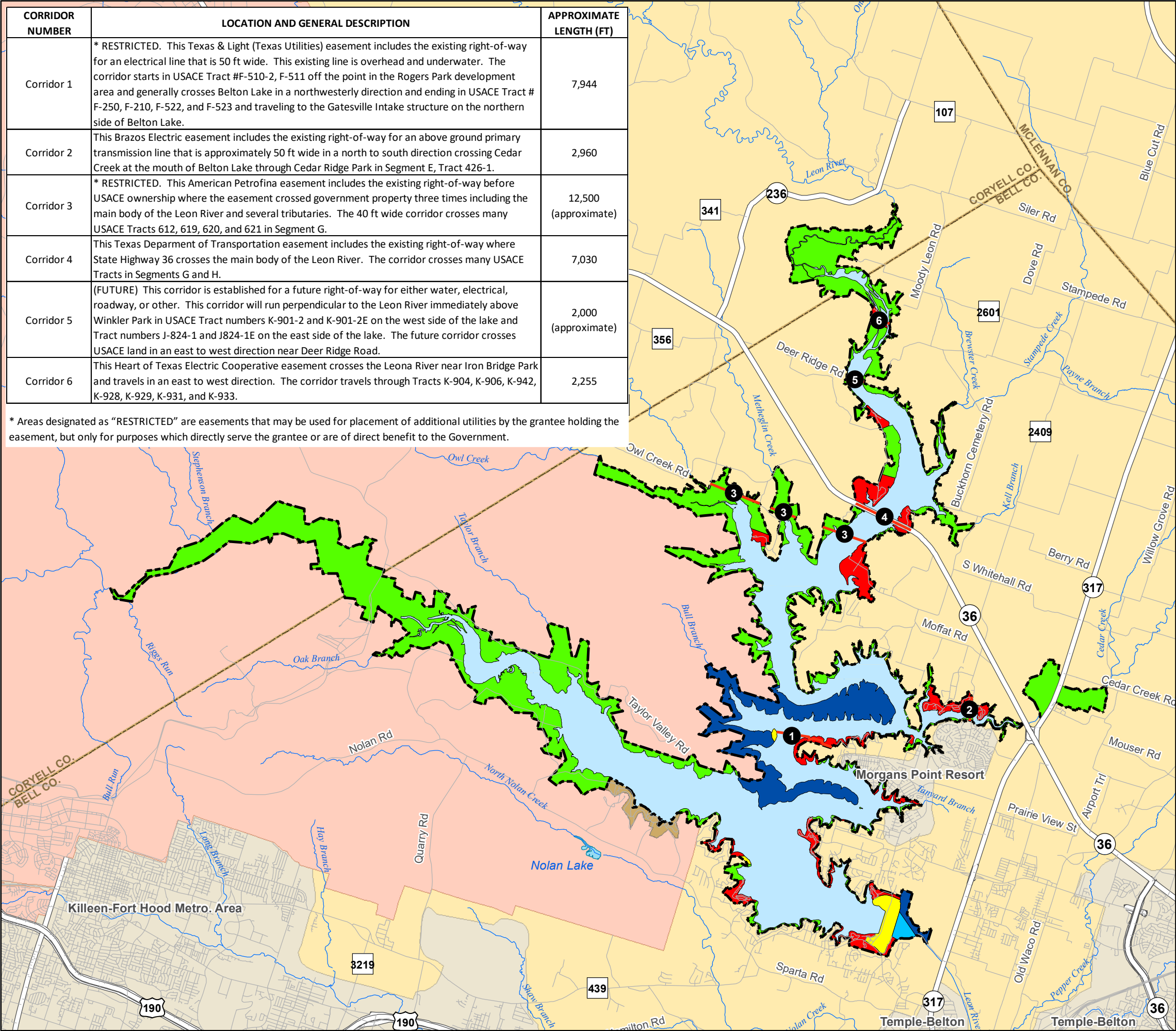


DATE:
JULY 2018


MAP NO.
BL17MP-OM-01

CORRIDOR NUMBER	LOCATION AND GENERAL DESCRIPTION	APPROXIMATE LENGTH (FT)
Corridor 1	* RESTRICTED. This Texas & Light (Texas Utilities) easement includes the existing right-of-way for an electrical line that is 50 ft wide. This existing line is overhead and underwater. The corridor starts in USACE Tract #F-510-2, F-511 off the point in the Rogers Park development area and generally crosses Belton Lake in a northwesterly direction and ending in USACE Tract # F-250, F-210, F-522, and F-523 and traveling to the Gatesville Intake structure on the northern side of Belton Lake.	7,944
Corridor 2	This Brazos Electric easement includes the existing right-of-way for an above ground primary transmission line that is approximately 50 ft wide in a north to south direction crossing Cedar Creek at the mouth of Belton Lake through Cedar Ridge Park in Segment E, Tract 426-1.	2,960
Corridor 3	* RESTRICTED. This American Petrofina easement includes the existing right-of-way before USACE ownership where the easement crossed government property three times including the main body of the Leon River and several tributaries. The 40 ft wide corridor crosses many USACE Tracts 612, 619, 620, and 621 in Segment G.	12,500 (approximate)
Corridor 4	This Texas Department of Transportation easement includes the existing right-of-way where State Highway 36 crosses the main body of the Leon River. The corridor crosses many USACE Tracts in Segments G and H.	7,030
Corridor 5	(FUTURE) This corridor is established for a future right-of-way for either water, electrical, roadway, or other. This corridor will run perpendicular to the Leon River immediately above Winkler Park in USACE Tract numbers K-901-2 and K-901-2E on the west side of the lake and Tract numbers J-824-1 and J824-1E on the east side of the lake. The future corridor crosses USACE land in an east to west direction near Deer Ridge Road.	2,000 (approximate)
Corridor 6	This Heart of Texas Electric Cooperative easement crosses the Leona River near Iron Bridge Park and travels in an east to west direction. The corridor travels through Tracts K-904, K-906, K-942, K-928, K-929, K-931, and K-933.	2,255

* Areas designated as “RESTRICTED” are easements that may be used for placement of additional utilities by the grantee holding the easement, but only for purposes which directly serve the grantee or are of direct benefit to the Government.



- UTILITY CORRIDOR
- FEE BOUNDARY
- BLORA
- FORT HOOD MILITARY INSTALLATION



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

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

UTILITY CORRIDOR

0 0.5 1 2 3 4

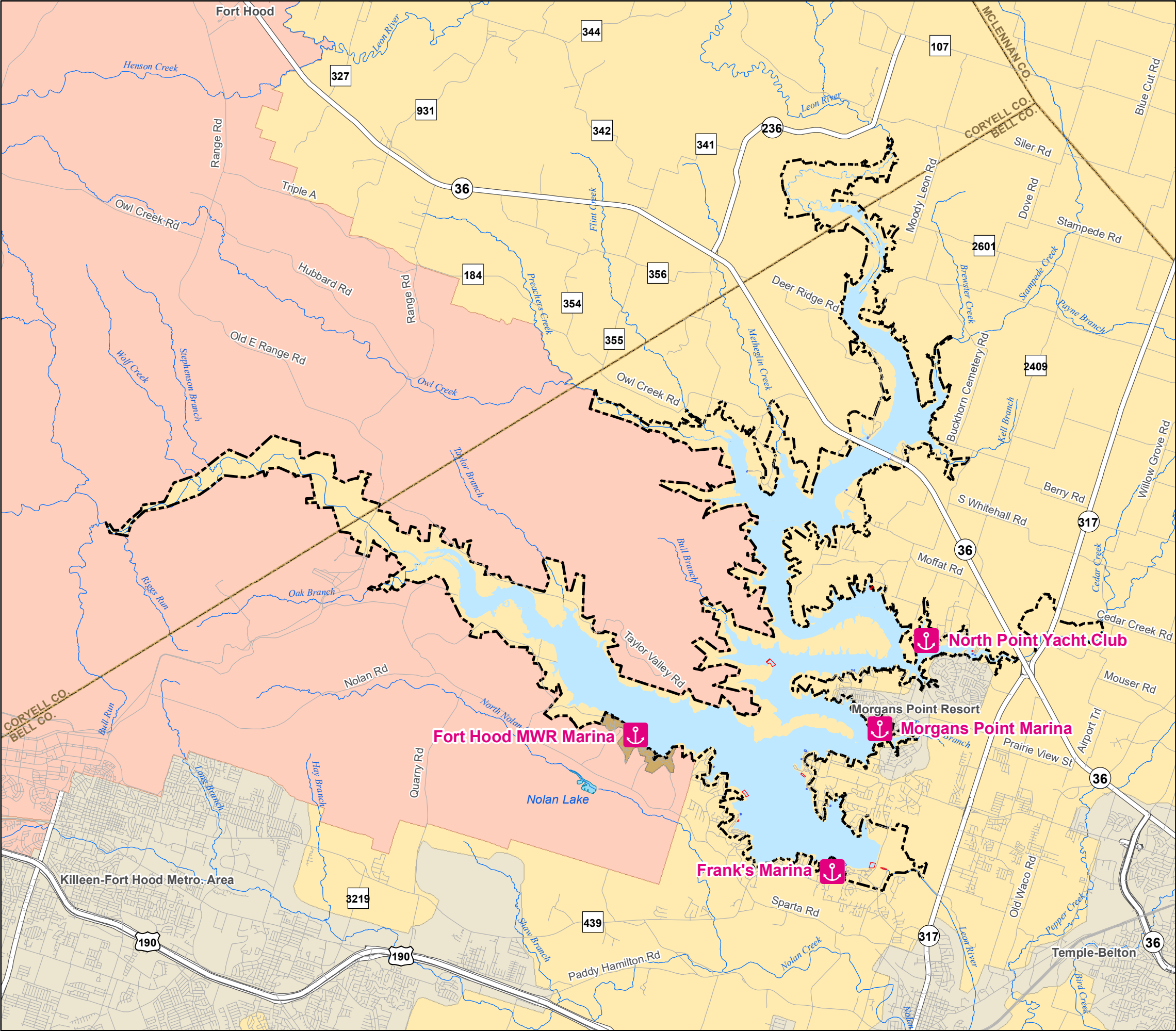
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DATE:

JULY 2018

MAP NO.

BL17MP-OU-01



- MARINAS / CONCESSIONS
- FEE BOUNDARY
- WATER SURFACE: RESTRICTED
- WATER SURFACE: DESIGNATED NO WAKE AREA
- BLORA
- FORT HOOD MILITARY INSTALLATION



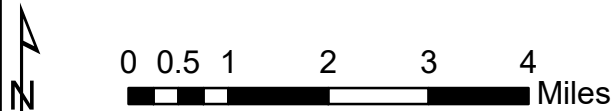
U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

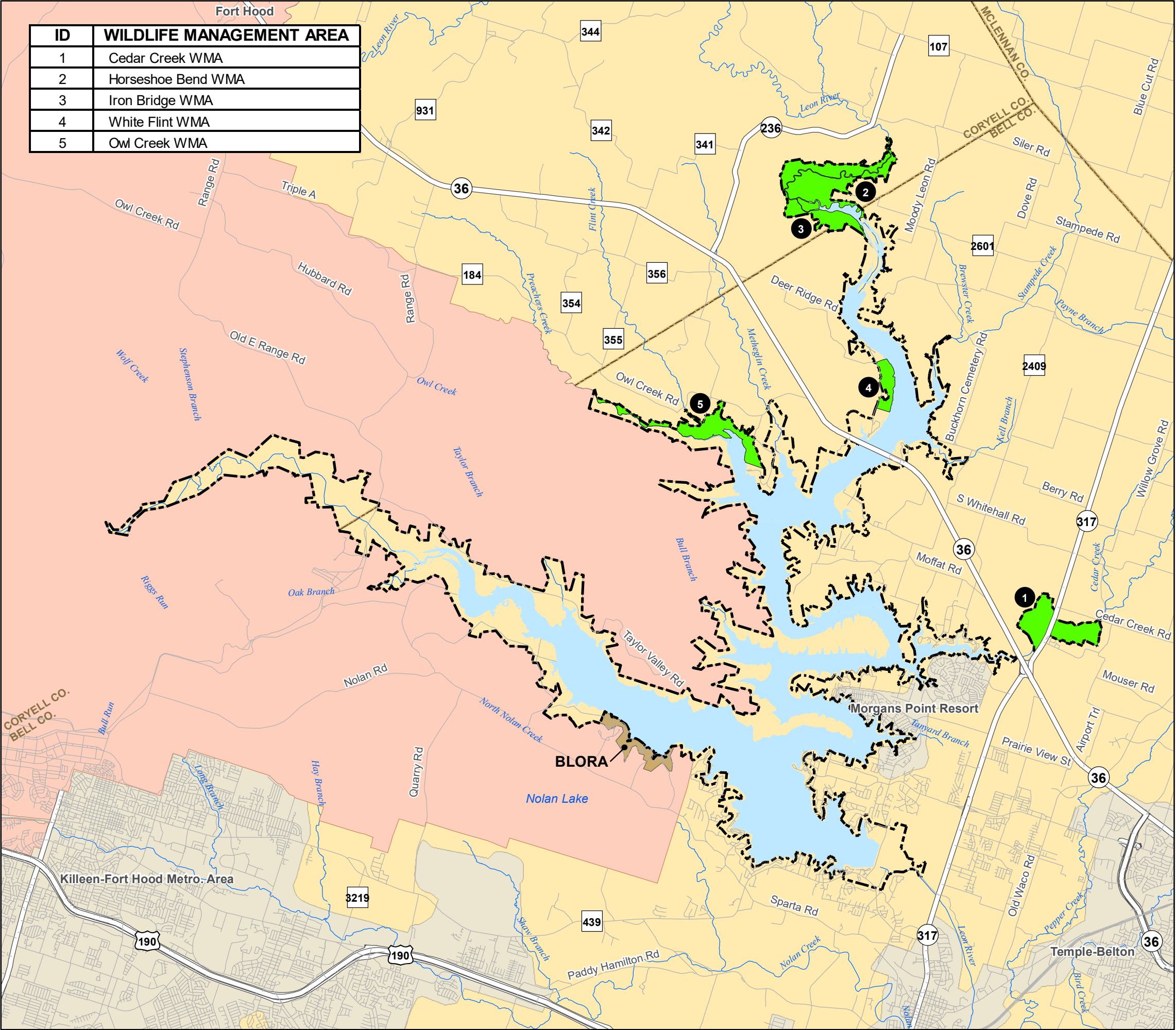
BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

MARINAS/CONCESSIONS



DATE: JULY 2018	MAP NO. BL17MP-OW-01
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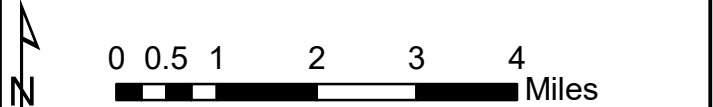
- FEE BOUNDARY
- BLORA
- FORT HOOD MILITARY INSTALLATION
- WILDLIFE MANAGEMENT
- WATER SURFACE: OPEN RECREATION



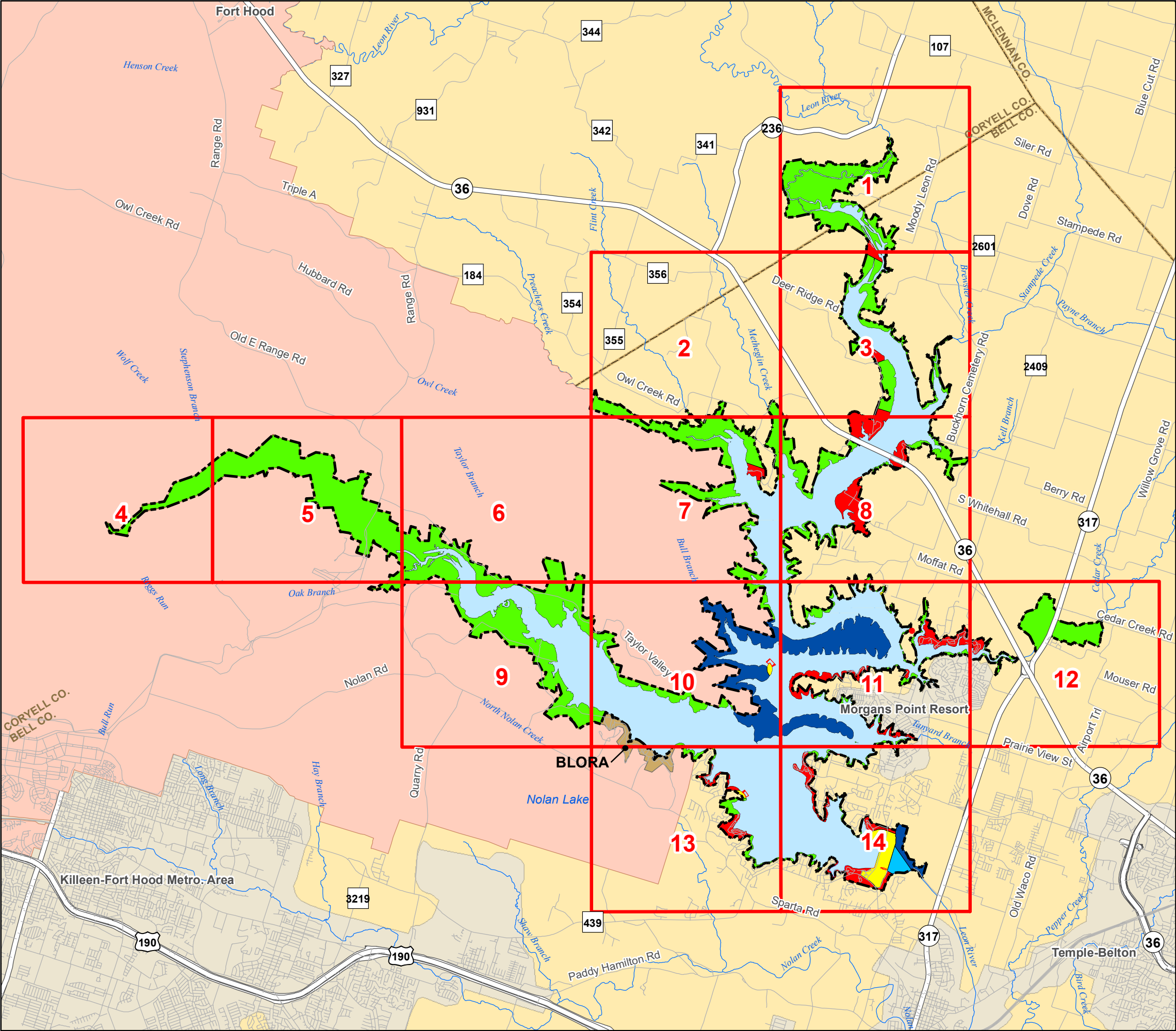
**U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT**

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

**BELTON LAKE DAM AND RESERVOIR
BELTON LAKE MASTER PLAN
WILDLIFE MANAGEMENT AREAS**



DATE: JULY 2018 MAP NO. BL17MP-WM-01



- FEE BOUNDARY
- INDEX GRID
- BLORA
- FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



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

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

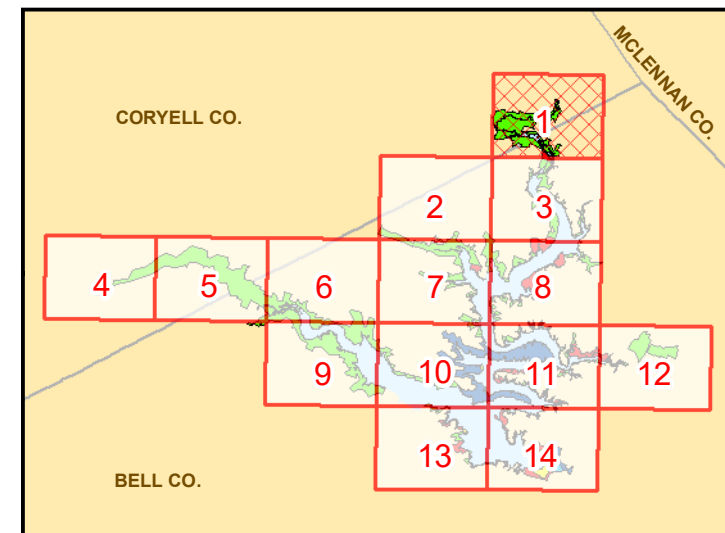
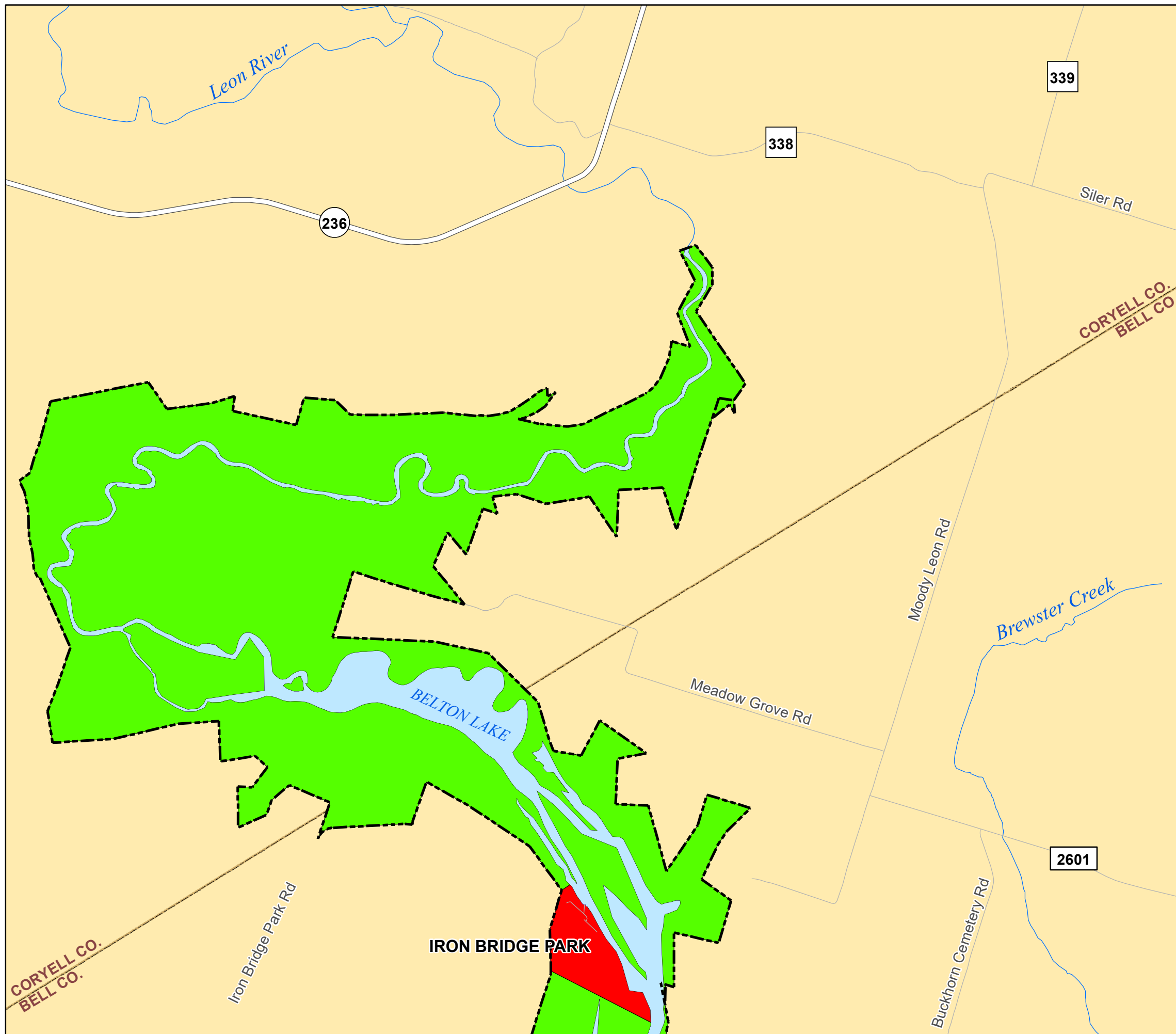
BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 00)



DATE: JULY 2018

MAP NO. BL17MP-OC-00



- FEE BOUNDARY
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



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

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

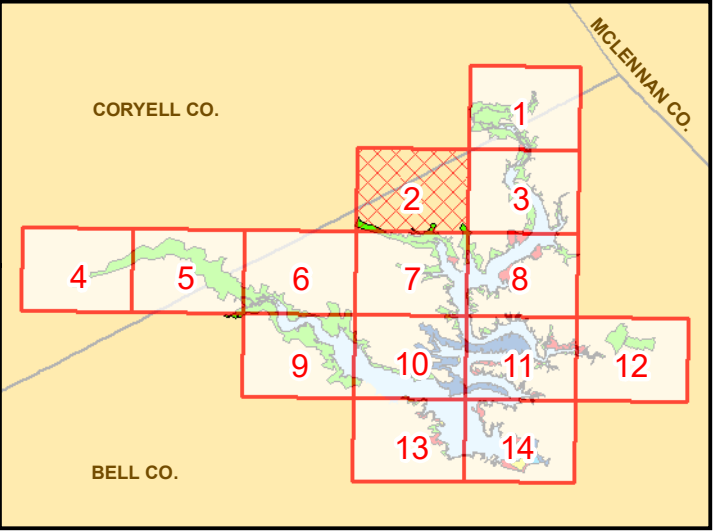
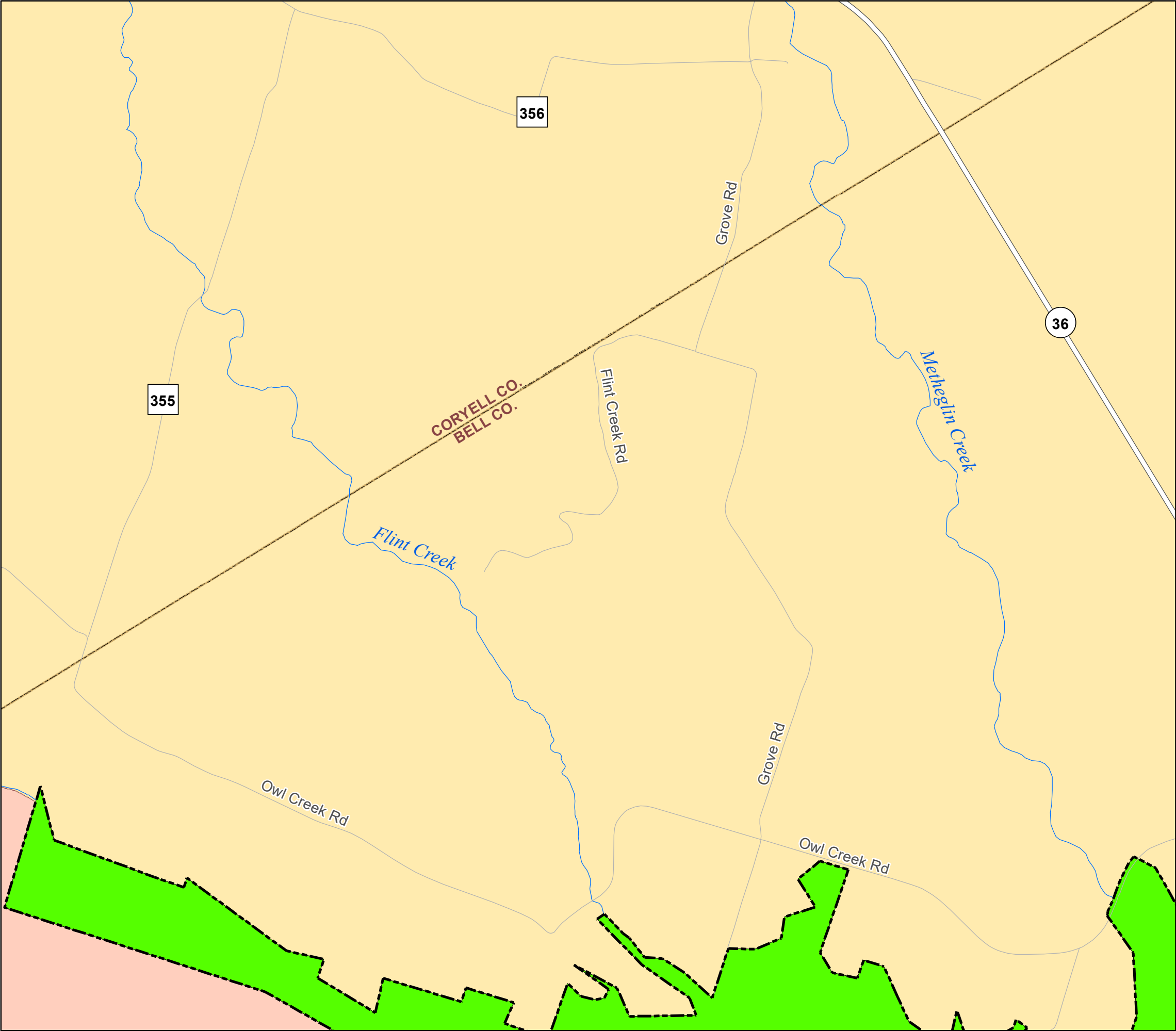
BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 01)




0 500 1,000 2,000 3,000 4,000 Feet

DATE: JULY 2018	MAP NO. BL17MP-OC-01
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- FEE BOUNDARY
-  FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
-  WILDLIFE MANAGEMENT
-  LOW DENSITY RECREATION
-  ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
-  RESTRICTED
-  DESIGNATED NO WAKE AREA
-  OPEN RECREATION



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

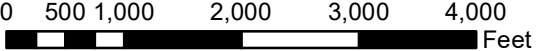

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

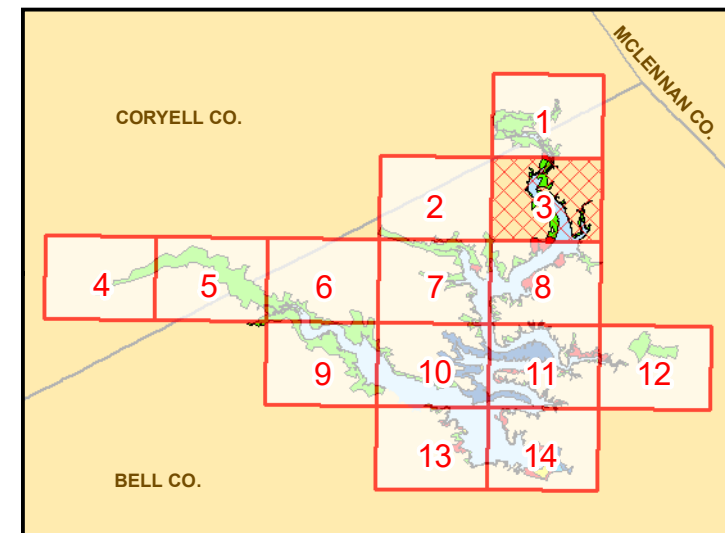
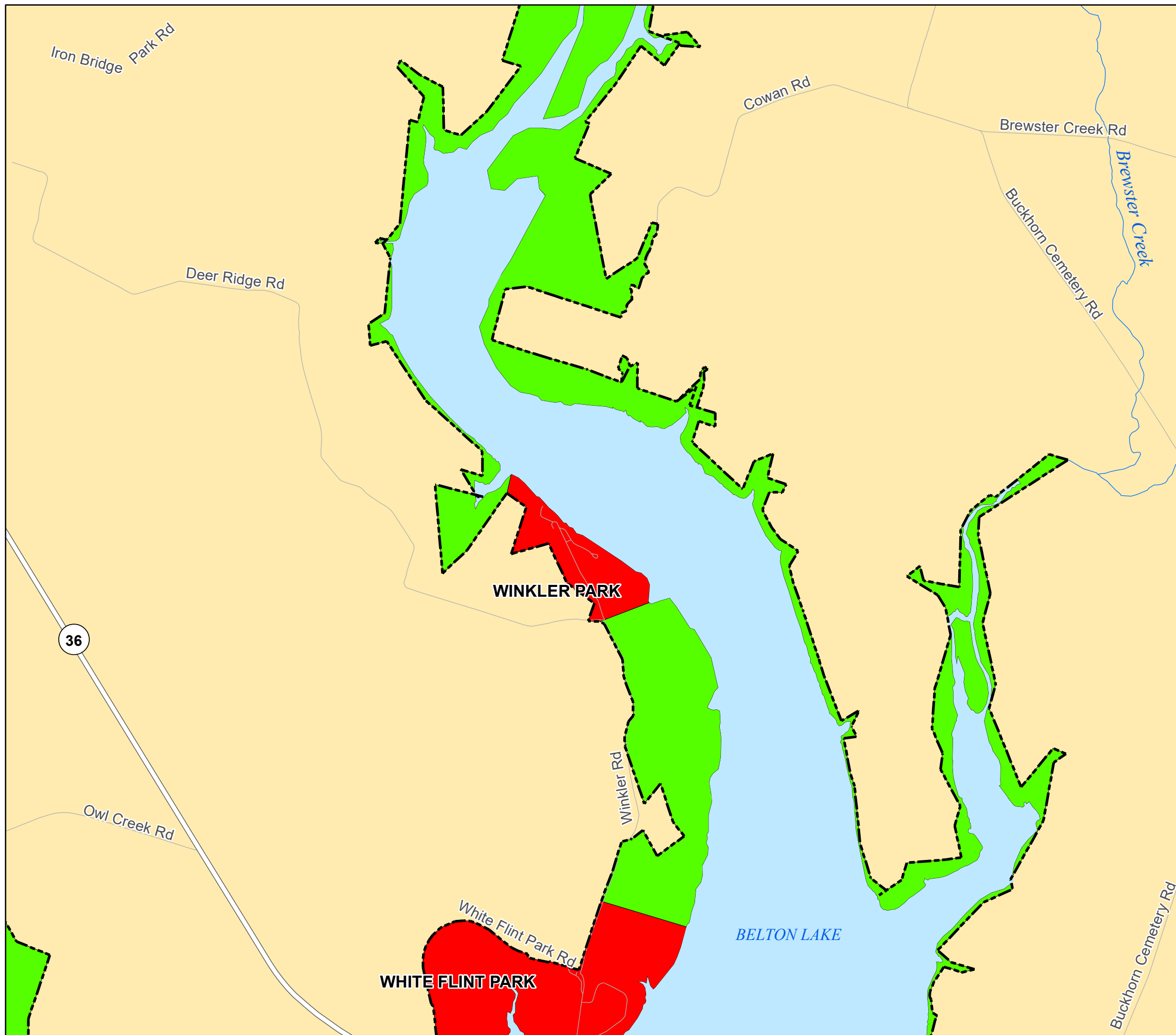
BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 02)




DATE:
JULY 2018

MAP NO.
BL17MP-OC-02



- FEE BOUNDARY
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION

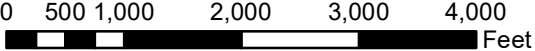



**U.S. ARMY CORPS
OF ENGINEERS**
FORT WORTH DISTRICT

BELTON LAKE DAM AND RESERVOIR

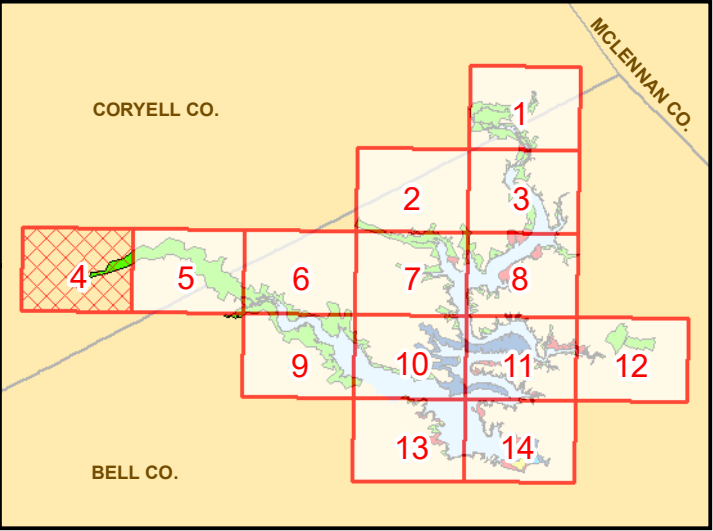
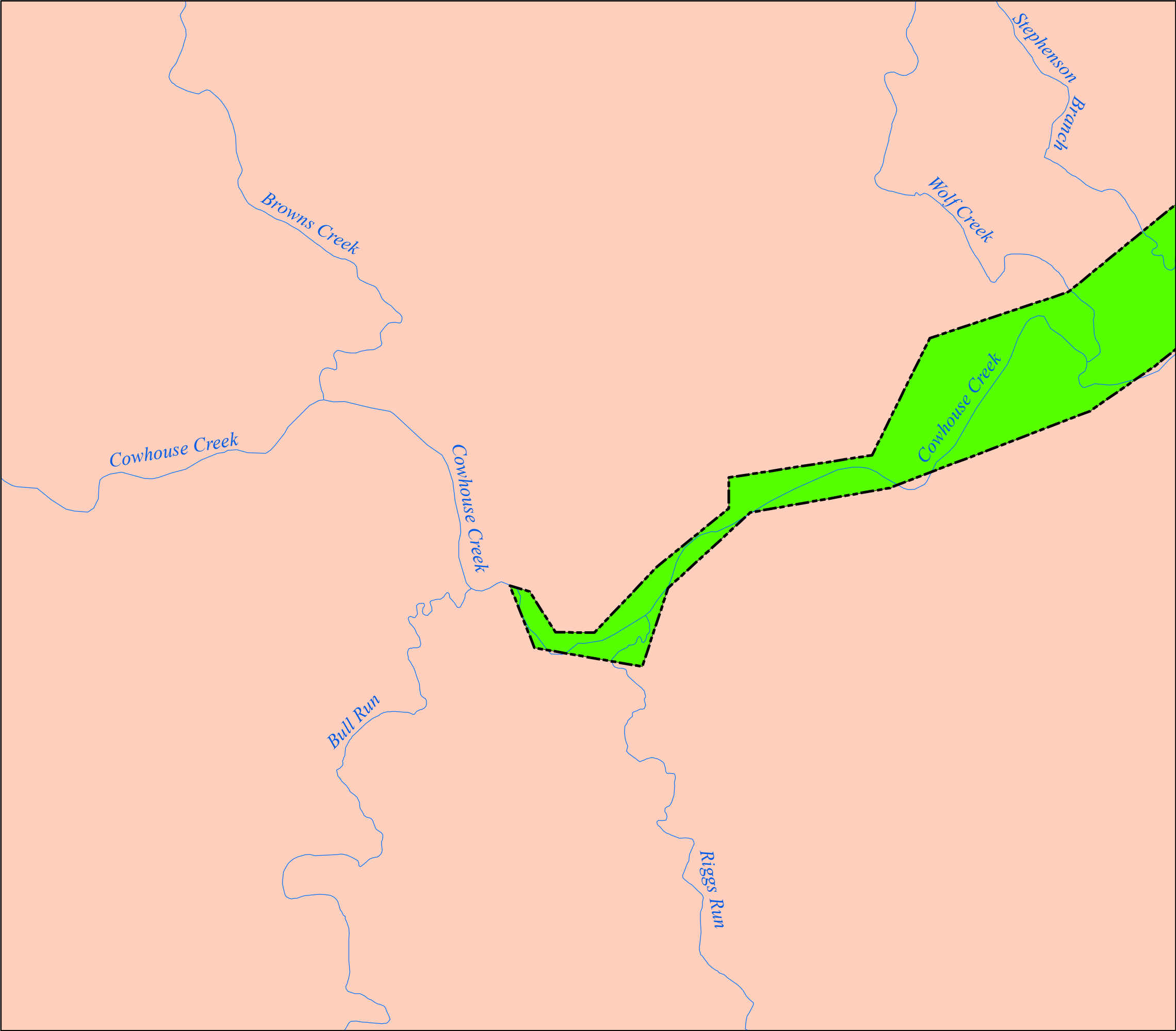
LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR
BELTON LAKE MASTER PLAN
LAND CLASSIFICATION (INDEX SHEET 03)




DATE:
JULY 2018

MAP NO.
BL17MP-OC-03



- FEE BOUNDARY
- FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



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

FORT WORTH DISTRICT


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 04)



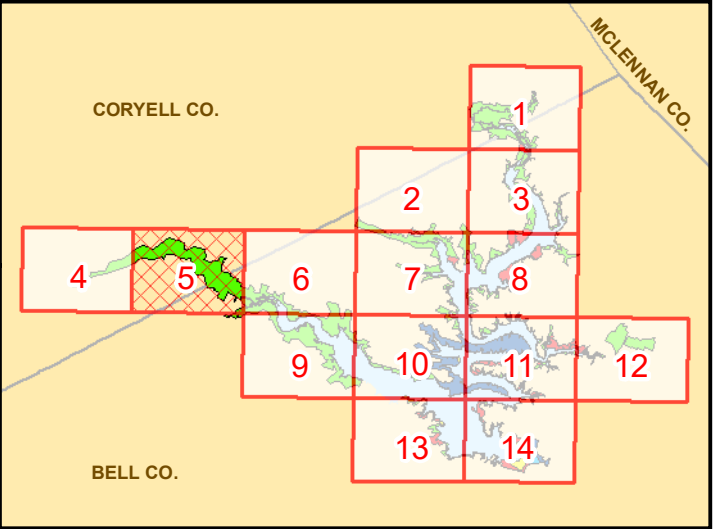
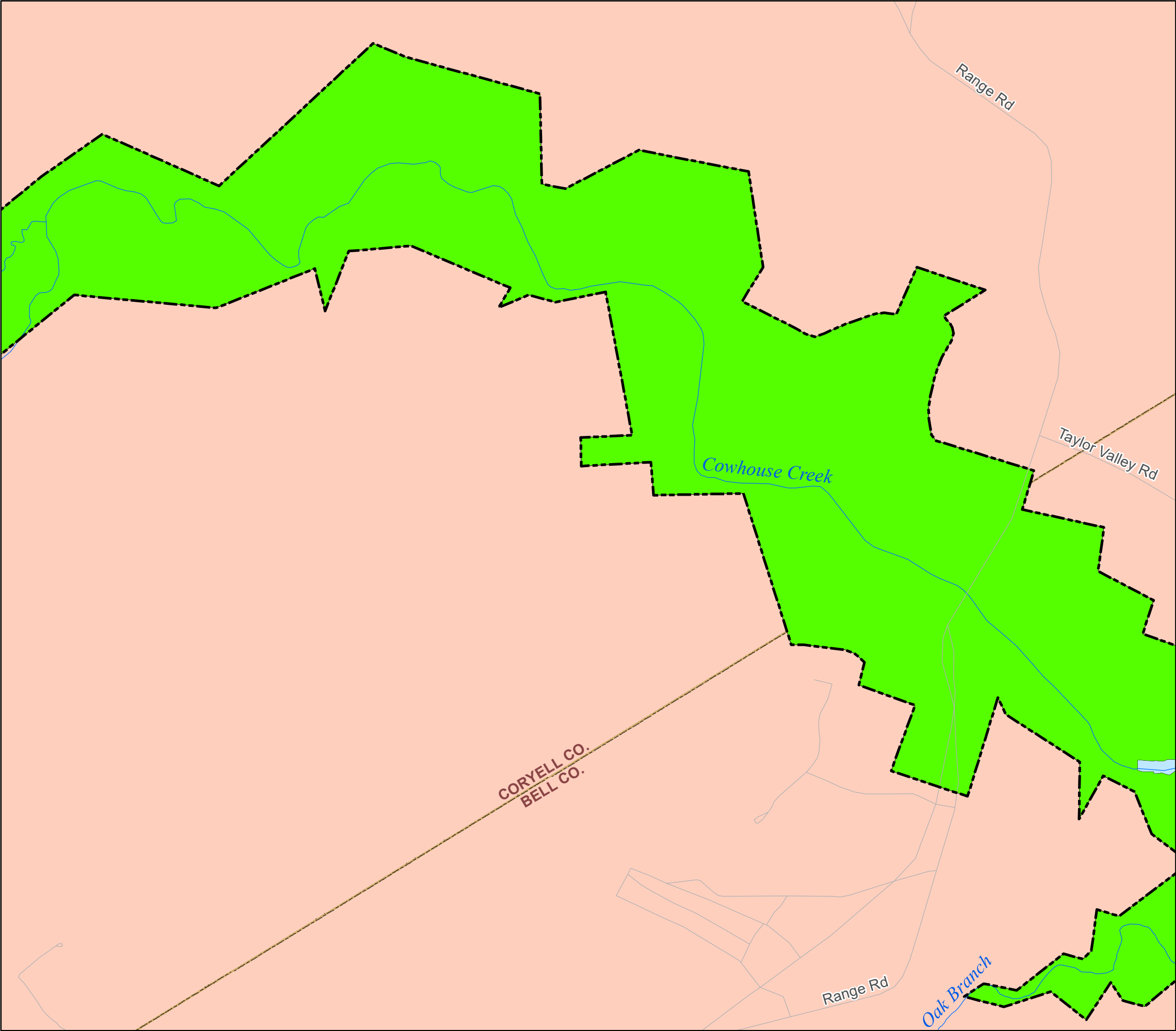
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DATE:


JULY 2018

MAP NO.

BL17MP-OC-04



- FEE BOUNDARY
- FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



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

FORT WORTH DISTRICT


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 05)



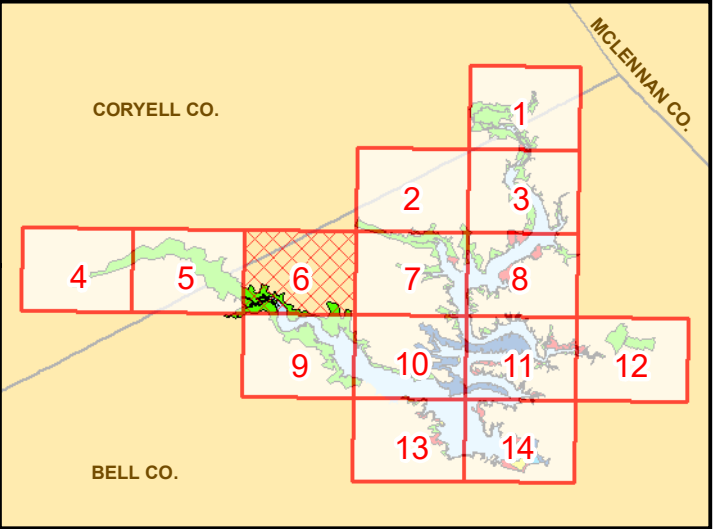
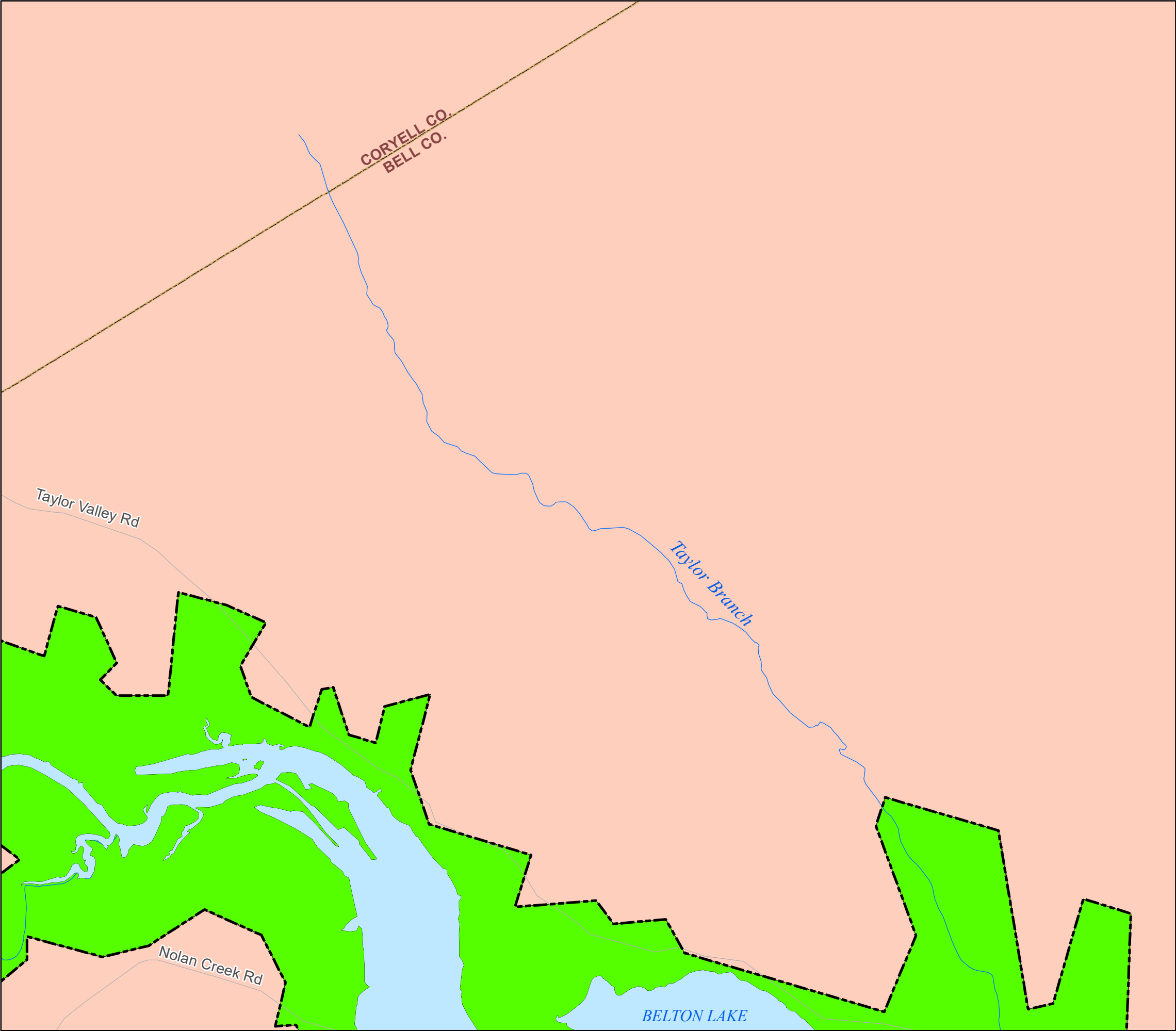
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DATE:


JULY 2018

MAP NO.

BL17MP-OC-05



- FEE BOUNDARY
-  FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
-  PROJECT OPERATIONS
-  HIGH DENSITY RECREATION
-  WILDLIFE MANAGEMENT
-  LOW DENSITY RECREATION
-  ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
-  RESTRICTED
-  DESIGNATED NO WAKE AREA
-  OPEN RECREATION



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 06)

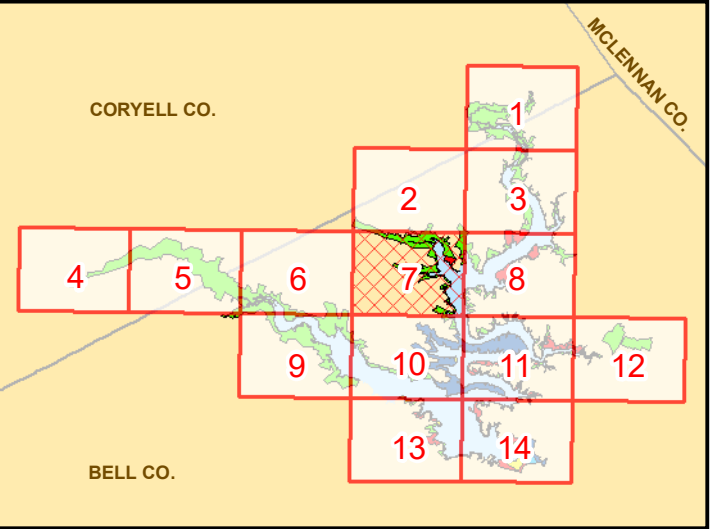
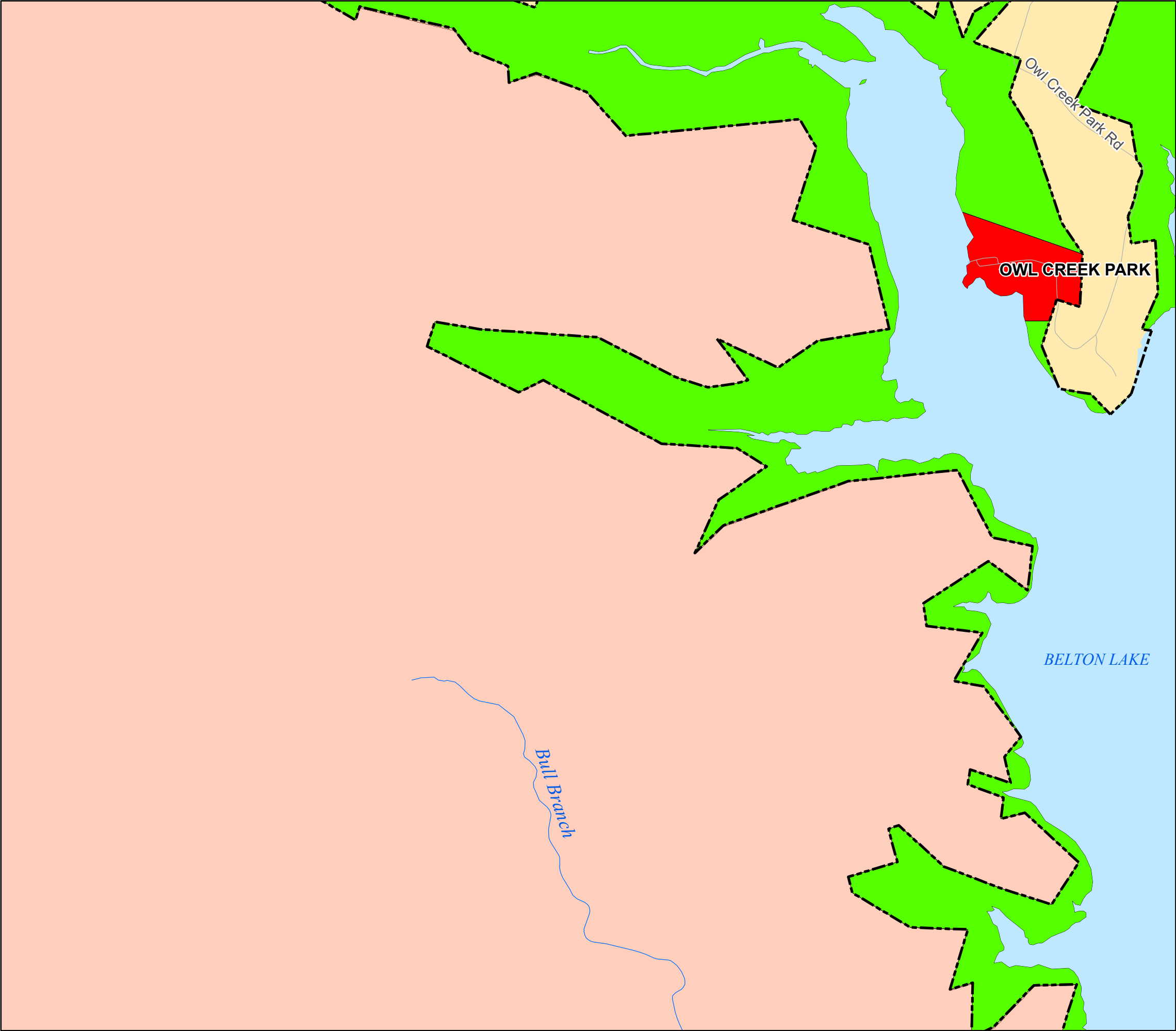


05001,0002,0003,0004,000


Feet

DATE:
JULY 2018

MAP NO.
BL17MP-OC-06



- FEE BOUNDARY
- Fort Hood Military Installation
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

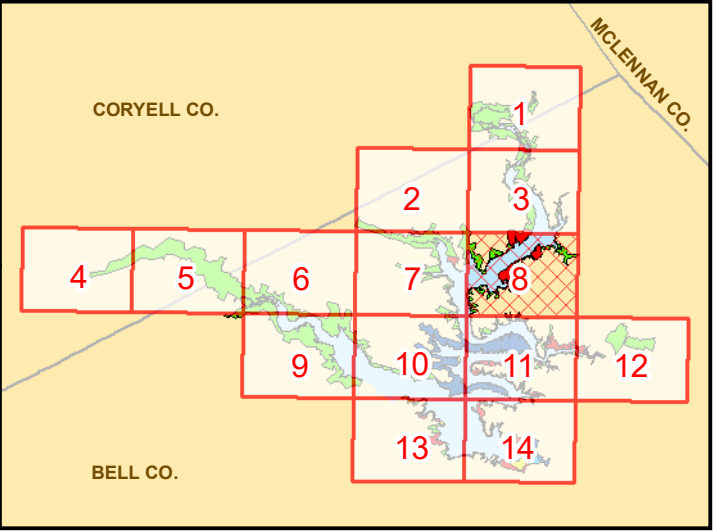
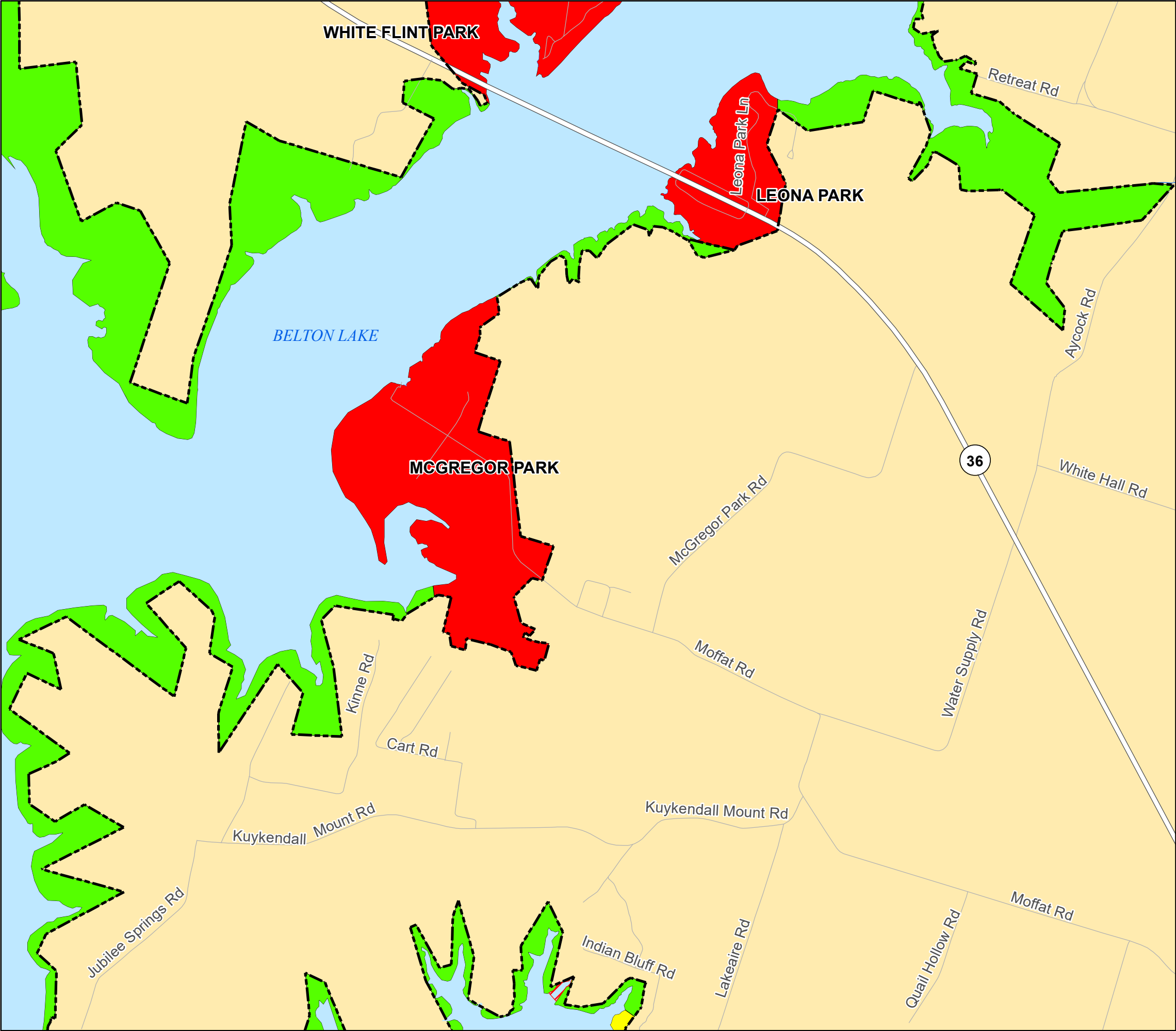
LAND CLASSIFICATION (INDEX SHEET 07)



0 500 1,000 2,000 3,000 4,000 Feet

DATE:
JULY 2018

MAP NO.
BL17MP-OC-07



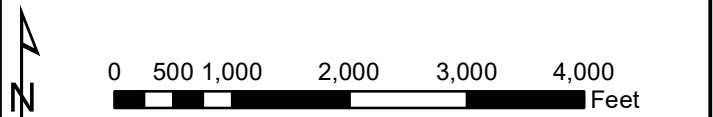
- FEE BOUNDARY
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



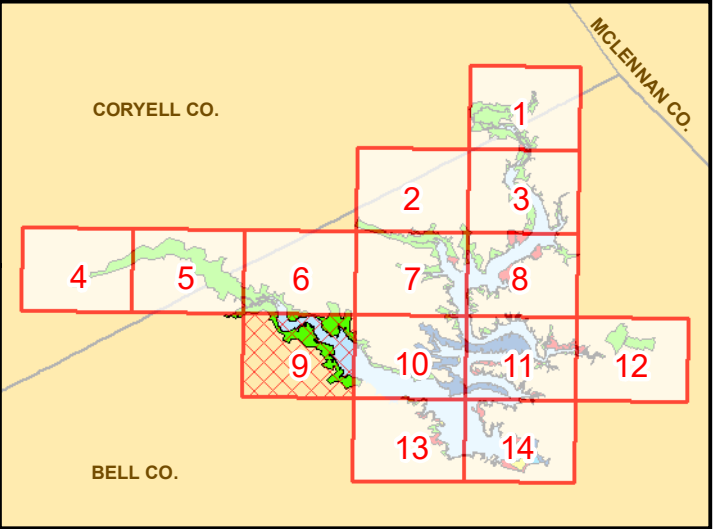
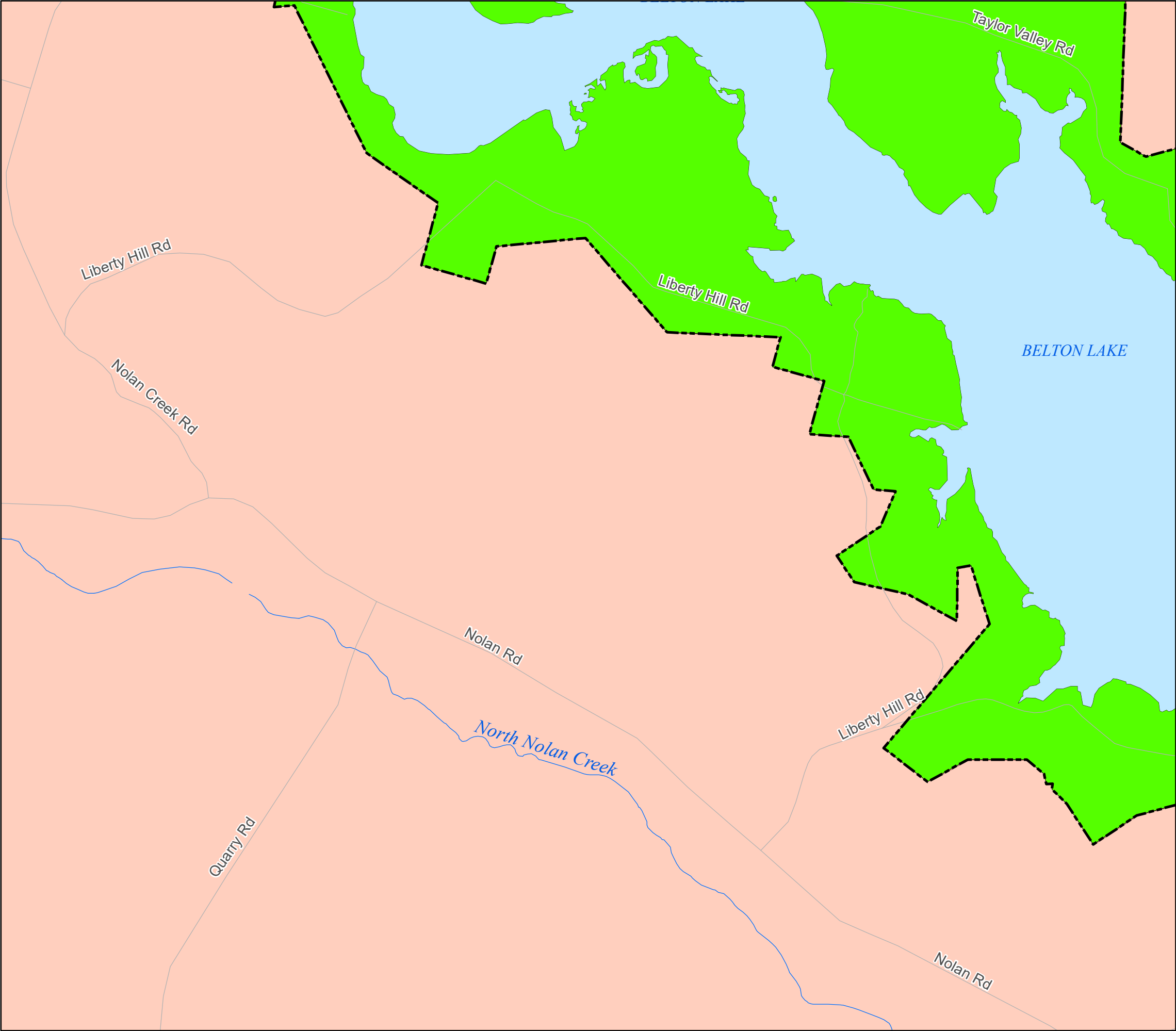
**U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT**

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS


BELTON LAKE DAM AND RESERVOIR
BELTON LAKE MASTER PLAN
LAND CLASSIFICATION (INDEX SHEET 08)



DATE: JULY 2018	MAP NO. BL17MP-OC-08
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- FEE BOUNDARY
- FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



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


FORT WORTH DISTRICT

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 09)



0 500 1,000 2,000 3,000 4,000 Feet

DATE:

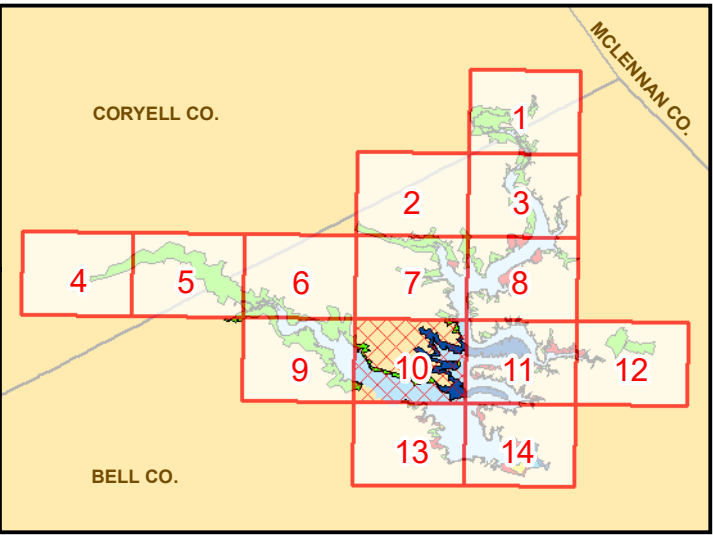
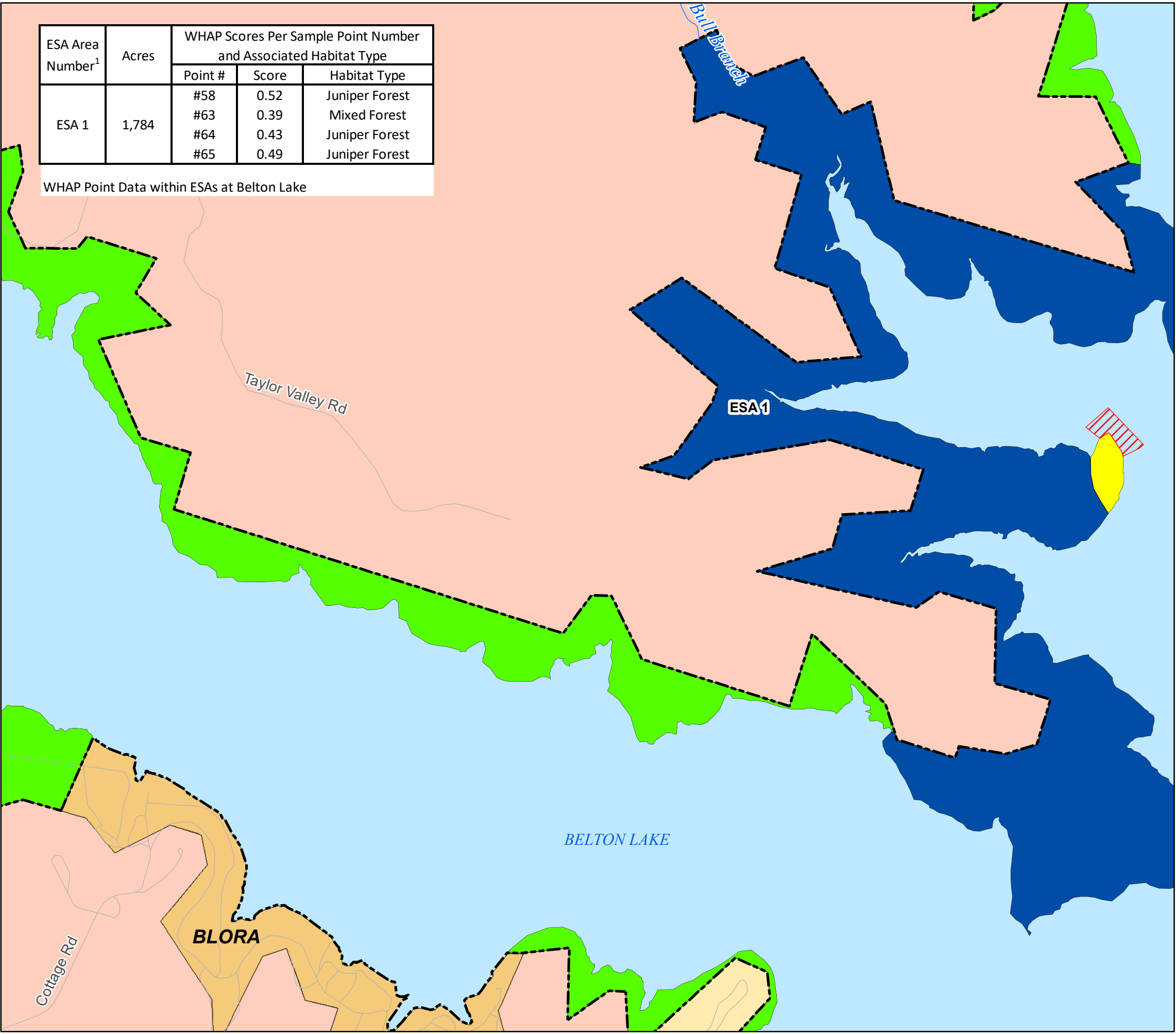
JULY 2018

MAP NO.


BL17MP-OC-09

ESA Area Number ¹	Acres	WHAP Scores Per Sample Point Number and Associated Habitat Type		
		Point #	Score	Habitat Type
ESA 1	1,784	#58	0.52	Juniper Forest
		#63	0.39	Mixed Forest
		#64	0.43	Juniper Forest
		#65	0.49	Juniper Forest

WHAP Point Data within ESAs at Belton Lake



- FEE BOUNDARY
- Fort Hood Military Installation
- BLORA
- LAND CLASSIFICATION**
- Project Operations
- Wildlife Management
- Environmentally Sensitive Area
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
- Open Recreation



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

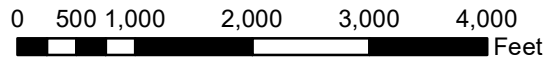

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

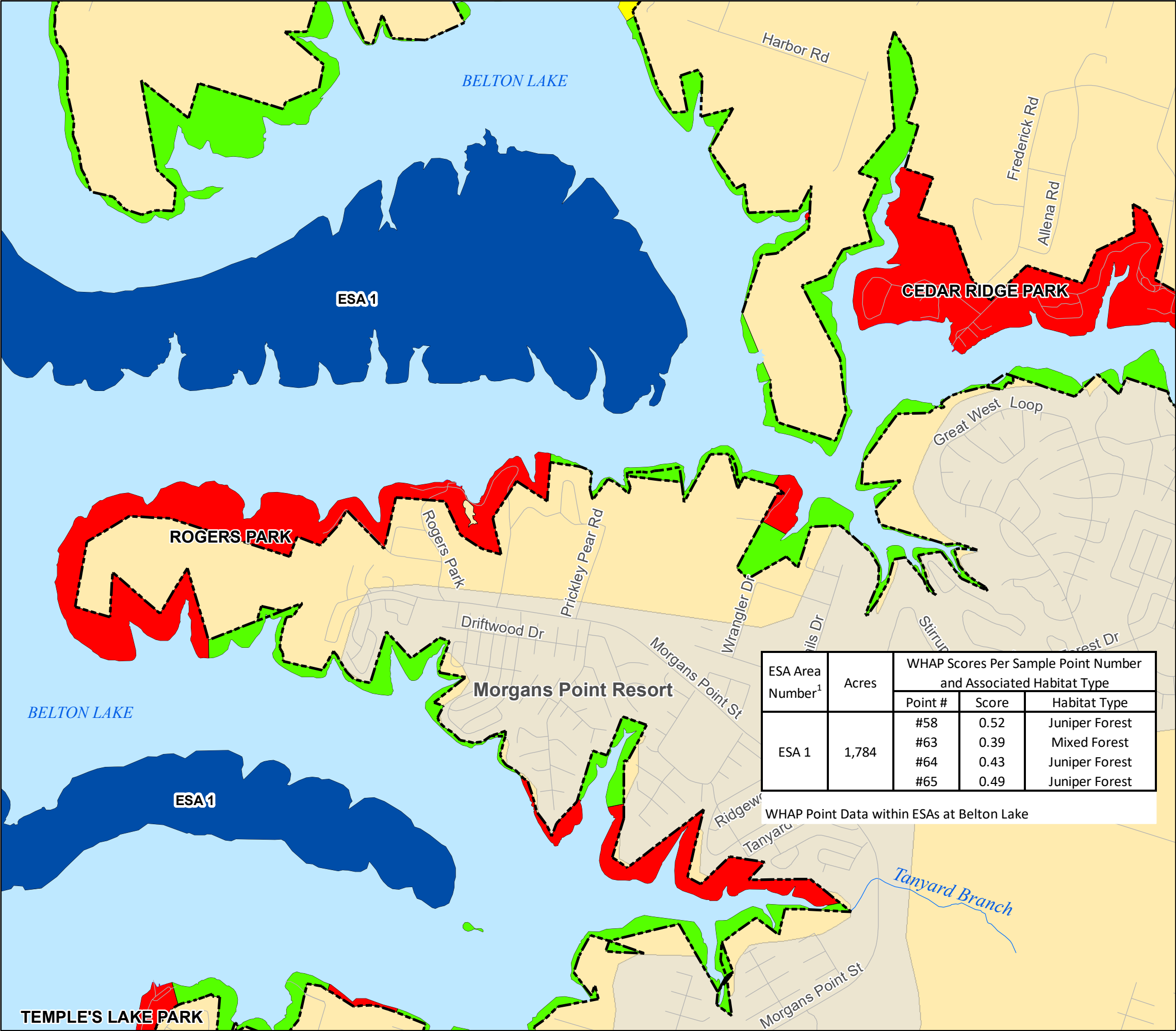
BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 10)



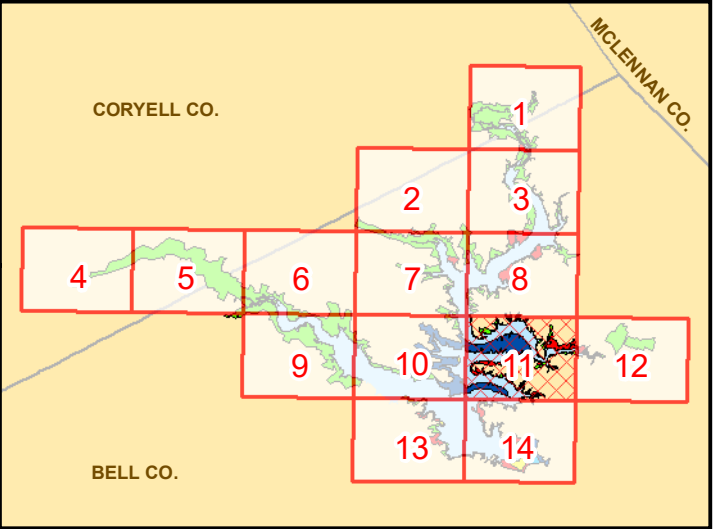
DATE:
JULY 2018

MAP NO.
BL17MP-OC-10



ESA Area Number ¹	Acres	WHAP Scores Per Sample Point Number and Associated Habitat Type		
		Point #	Score	Habitat Type
ESA 1	1,784	#58	0.52	Juniper Forest
		#63	0.39	Mixed Forest
		#64	0.43	Juniper Forest
		#65	0.49	Juniper Forest

WHAP Point Data within ESAs at Belton Lake



- FEE BOUNDARY
- FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



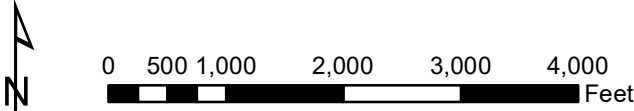
**U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT**

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

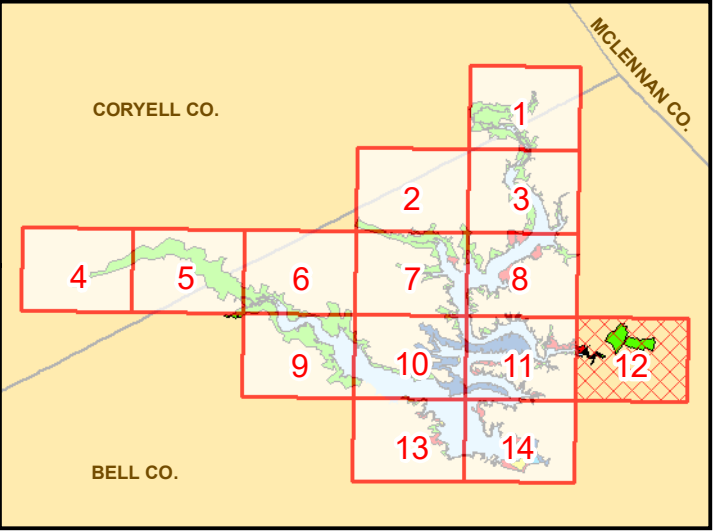
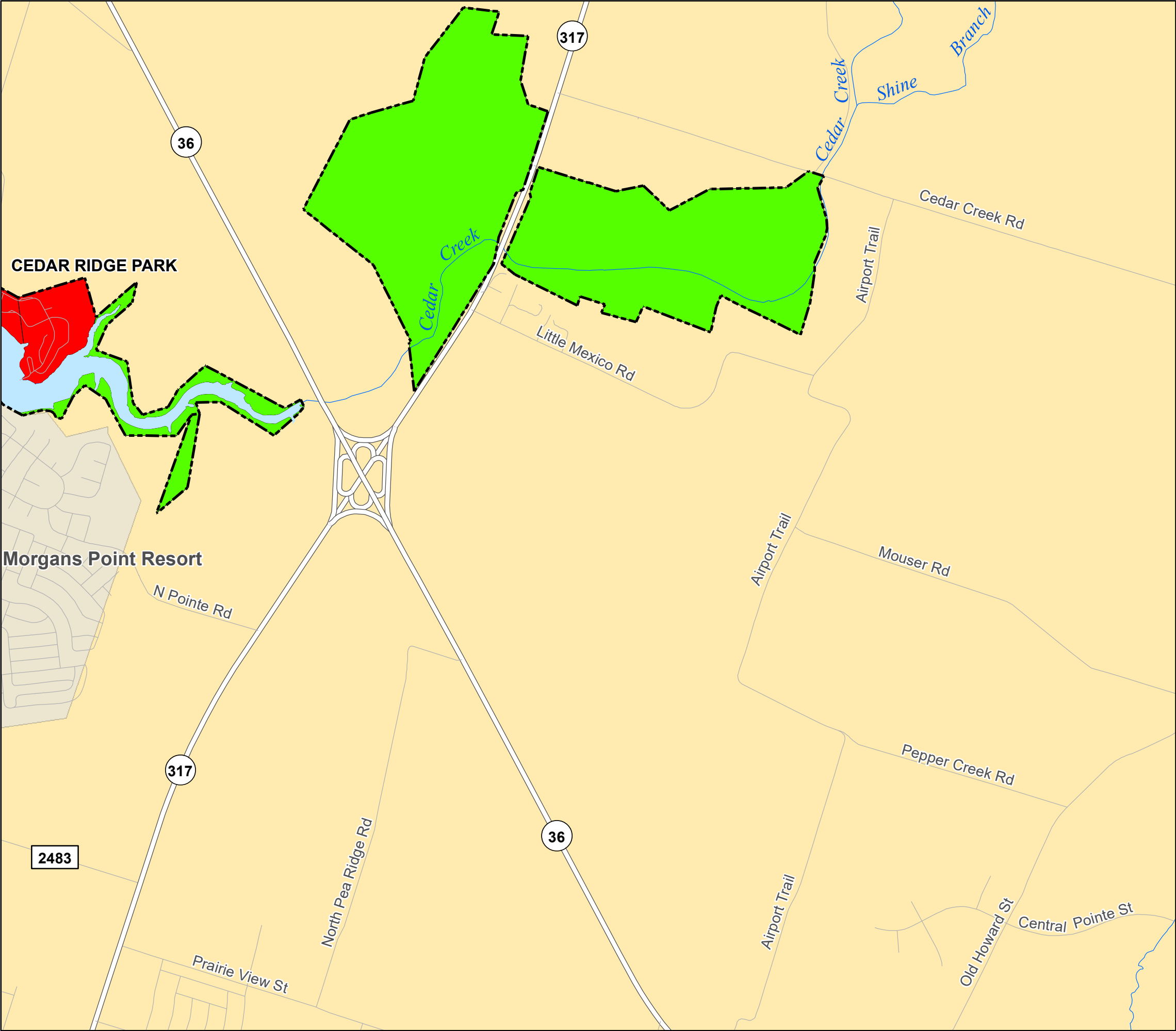
BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN


LAND CLASSIFICATION (INDEX SHEET 11)



DATE: JULY 2018	MAP NO. BL17MP-OC-11
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- FEE BOUNDARY
- FORT HOOD MILITARY INSTALLATION
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
 - HIGH DENSITY RECREATION
 - WILDLIFE MANAGEMENT
 - LOW DENSITY RECREATION
 - ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
 - DESIGNATED NO WAKE AREA
 - OPEN RECREATION



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

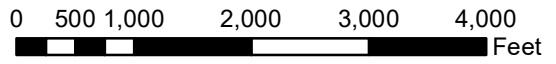

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

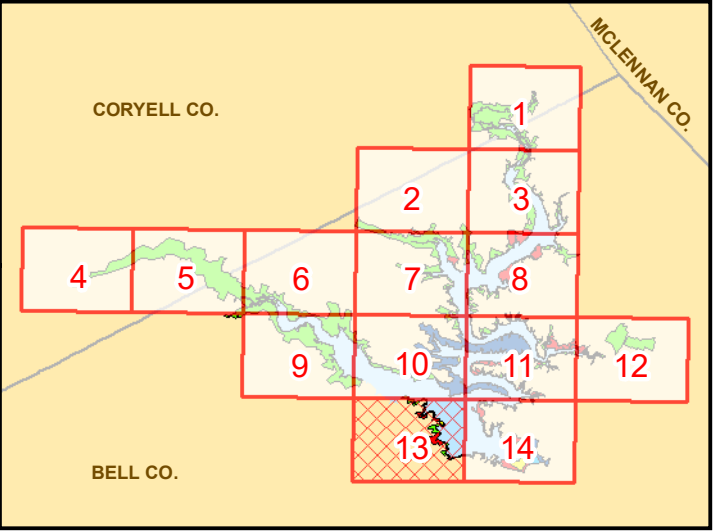
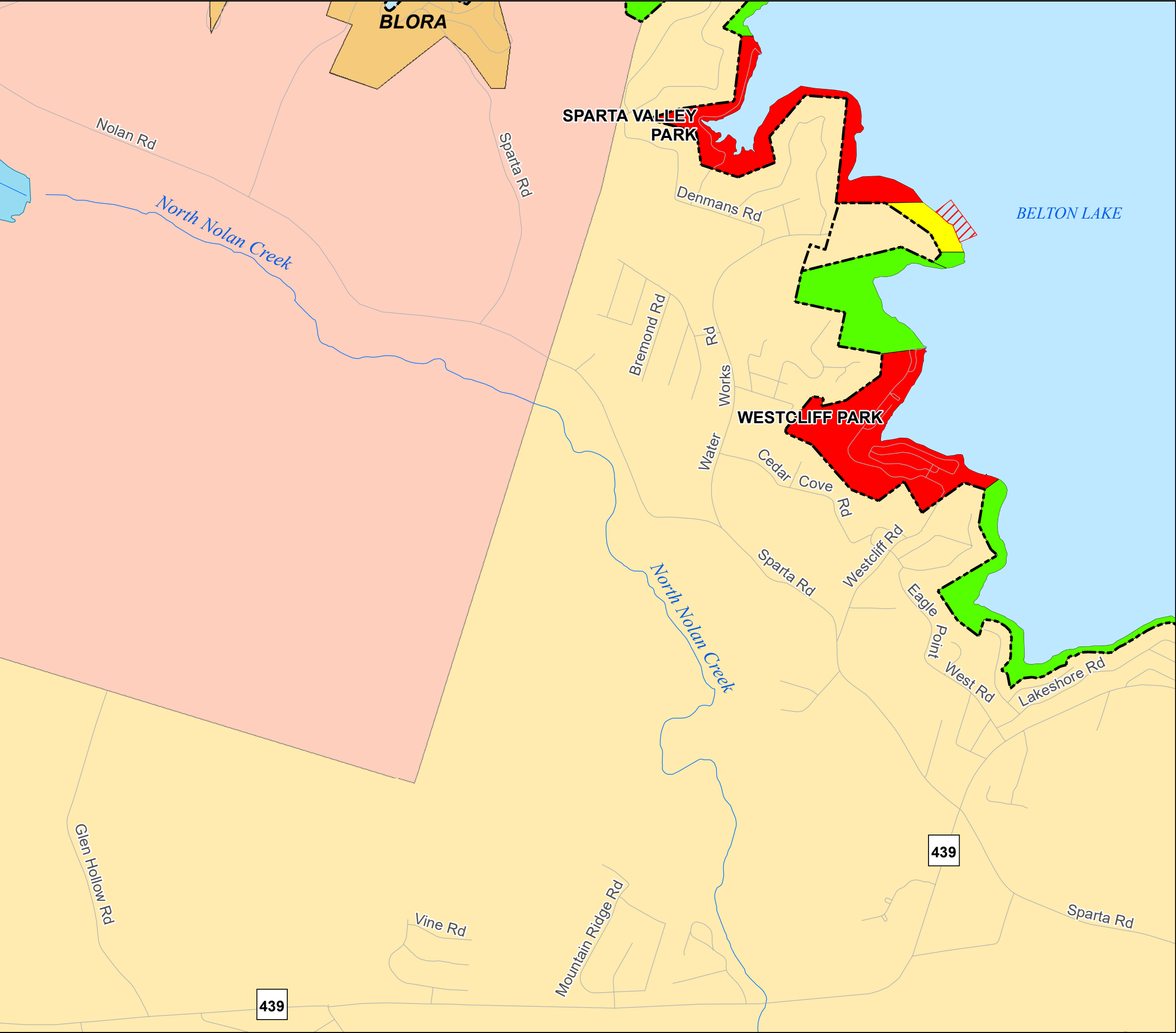
BELTON LAKE MASTER PLAN

LAND CLASSIFICATION (INDEX SHEET 12)



DATE:
JULY 2018

MAP NO.
BL17MP-OC-12



- FEE BOUNDARY
- FORT HOOD MILITARY INSTALLATION
- BLORA
- LAND CLASSIFICATION**
- PROJECT OPERATIONS
- HIGH DENSITY RECREATION
- WILDLIFE MANAGEMENT
- LOW DENSITY RECREATION
- ENVIRONMENTALLY SENSITIVE AREA
- WATER SURFACE CLASSIFICATION**
- RESTRICTED
- DESIGNATED NO WAKE AREA
- OPEN RECREATION



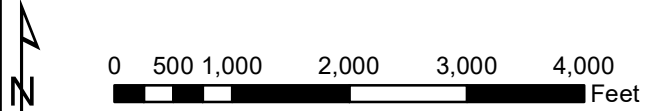
**U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT**

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

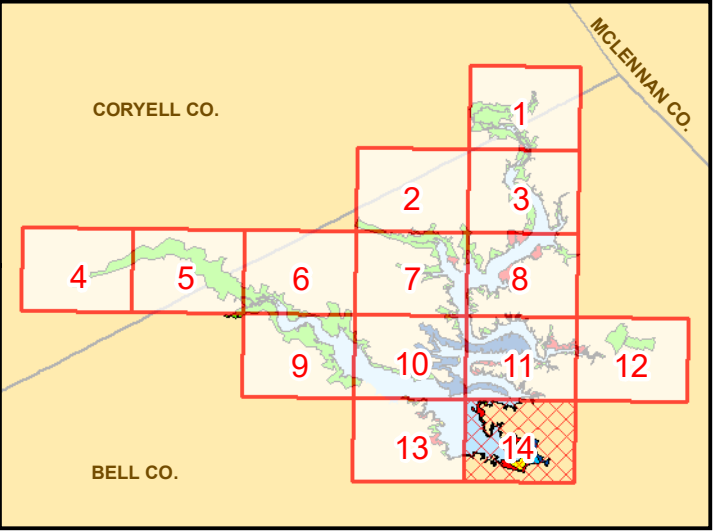
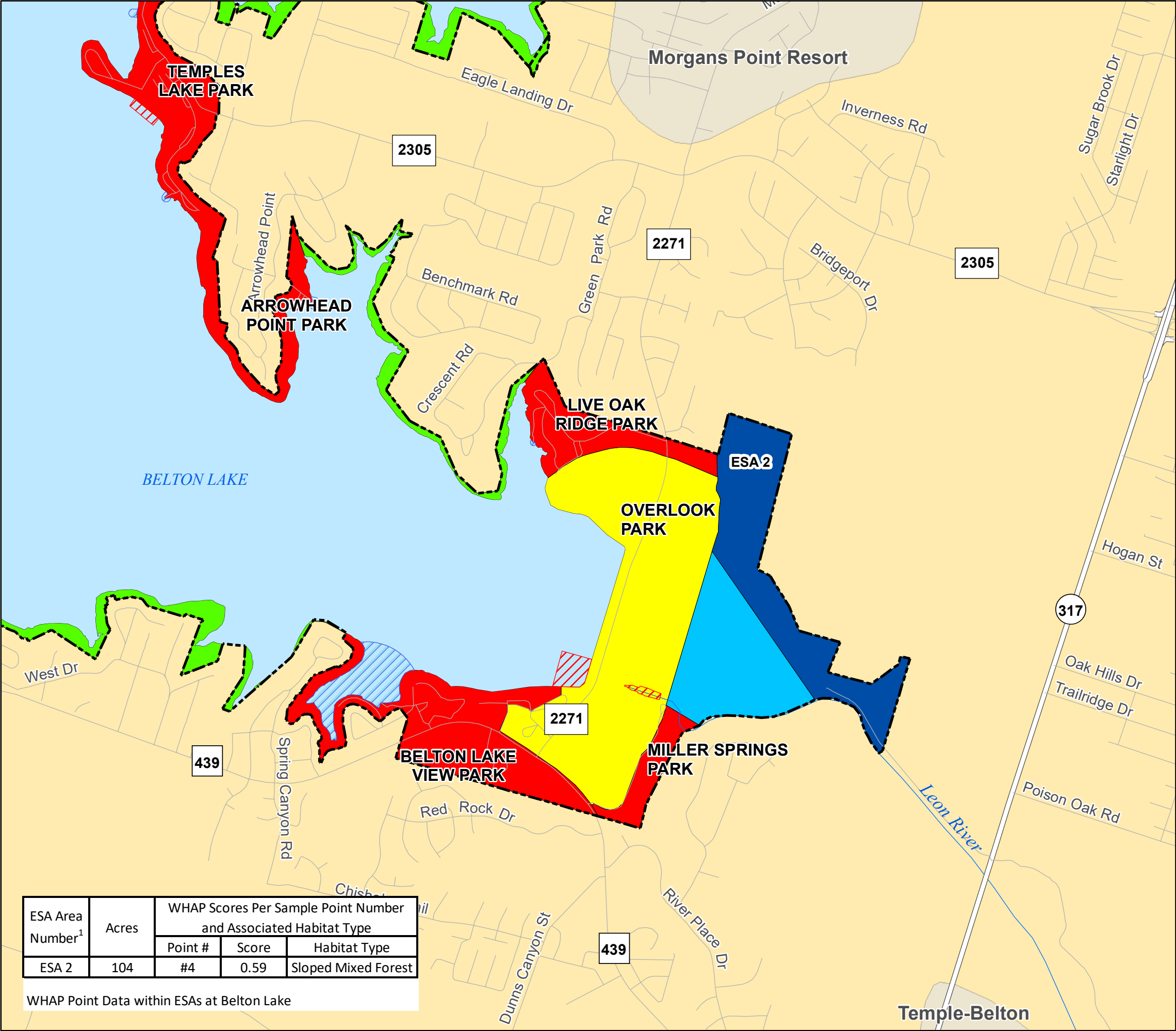
BELTON LAKE MASTER PLAN








LAND CLASSIFICATION (INDEX SHEET 13)



DATE:
JULY 2018

MAP NO.
BL17MP-OC-13



- FEE BOUNDARY
- WATER SURFACE CLASSIFICATION**
-  RESTRICTED
 -  DESIGNATED NO WAKE AREA
 -  OPEN RECREATION
- LAND CLASSIFICATION**
-  PROJECT OPERATIONS
 -  HIGH DENSITY RECREATION
 -  WILDLIFE MANAGEMENT
 -  LOW DENSITY RECREATION
 -  ENVIRONMENTALLY SENSITIVE AREA
 -  FORT HOOD MILITARY INSTALLATION



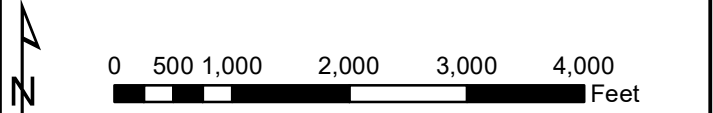
**U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT**

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

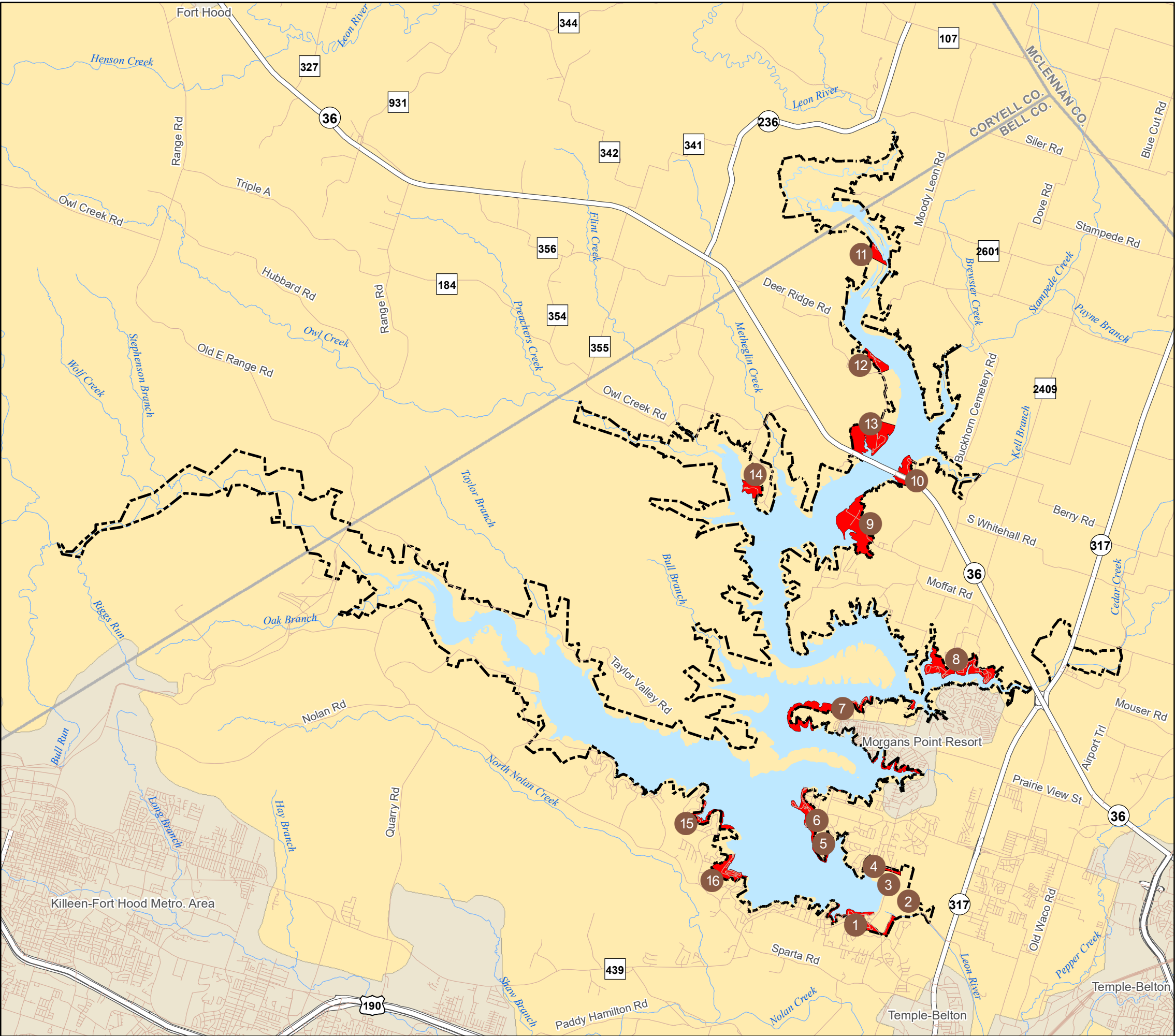
LAND CLASSIFICATION (INDEX SHEET 14)



DATE:	MAP NO.
JULY 2018	BL17MP-OC-14

ESA Area Number ¹	Acres	WHAP Scores Per Sample Point Number and Associated Habitat Type		
		Point #	Score	Habitat Type
ESA 2	104	#4	0.59	Sloped Mixed Forest

WHAP Point Data within ESAs at Belton Lake



GOVERNMENT MANAGED PUBLIC USE AREAS

- | | |
|------------------------|-----------------------|
| 1 BELTON LAKEVIEW PARK | 9 MCGREGOR PARK |
| 2 MILLER SPRINGS PARK | 10 LEONA PARK |
| 3 OVERLOOK PARK | 11 IRON BRIDGE PARK |
| 4 LIVE OAK RIDGE PARK | 12 WINKLER PARK |
| 5 ARROWHEAD POINT PARK | 13 WHITE FLINT PARK |
| 6 TEMPLE'S LAKE PARK | 14 OWL CREEK PARK |
| 7 ROGERS PARK | 15 SPARTA VALLEY PARK |
| 8 CEDAR RIDGE PARK | 16 WESTCLIFF PARK |



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

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

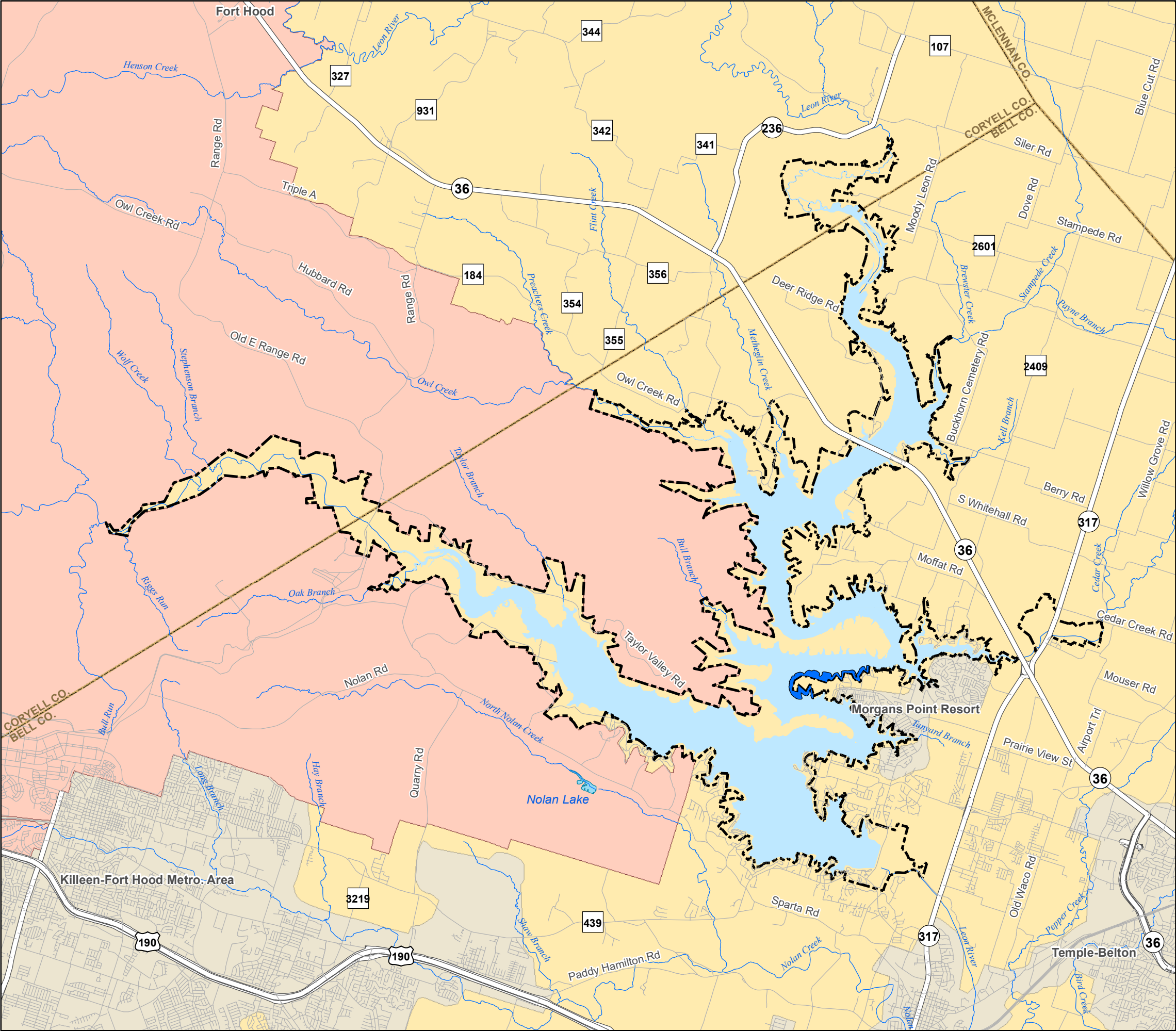
**GOVERNMENT MANAGED
PUBLIC RECREATIONAL AREAS**




0 0.5 1 2 3 4 Miles

DATE:
JULY 2018

MAP NO.
BL17MP-OR-0A



- FEE BOUNDARY
- QUASI PUBLIC / SPECIAL INTEREST / NON-COMMERCIAL
- FORT HOOD MILITARY INSTALLATION
- WATER SURFACE



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

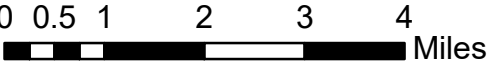

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

PRIVATELY MANAGED
RECREATIONAL AREAS












DATE:
JULY 2018

MAP NO.
BL17MP-OR-0B



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	2
PICNIC SITES	37
VAULT TOILET	
RESTROOMS	3
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  COURTESY DOCK
-  GROUP SHELTER
-  PICNIC TABLE
-  PLAYGROUND
-  RESTROOM
-  FEE BOUNDARY
-  WATER SURFACE: RESTRICTED
-  WATER SURFACE: DESIGNATED NO WAKE AREA



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

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(BELTON LAKE VIEW PARK)**







0 300 600 900 1,200 Feet


DATE:
JULY 2018

MAP NO.
BL17MP-OR-01



ITEM	EXISTING
BOAT RAMP	
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	5
VAULT TOILET	
RESTROOMS	1
SHOWERS	
DUMP STATION	

-  PICNIC TABLE
-  RESTROOM
-  WATER SURFACE: RESTRICTED
-  FEE BOUNDARY



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(MILLER SPRINGS PARK)**



0

40

80

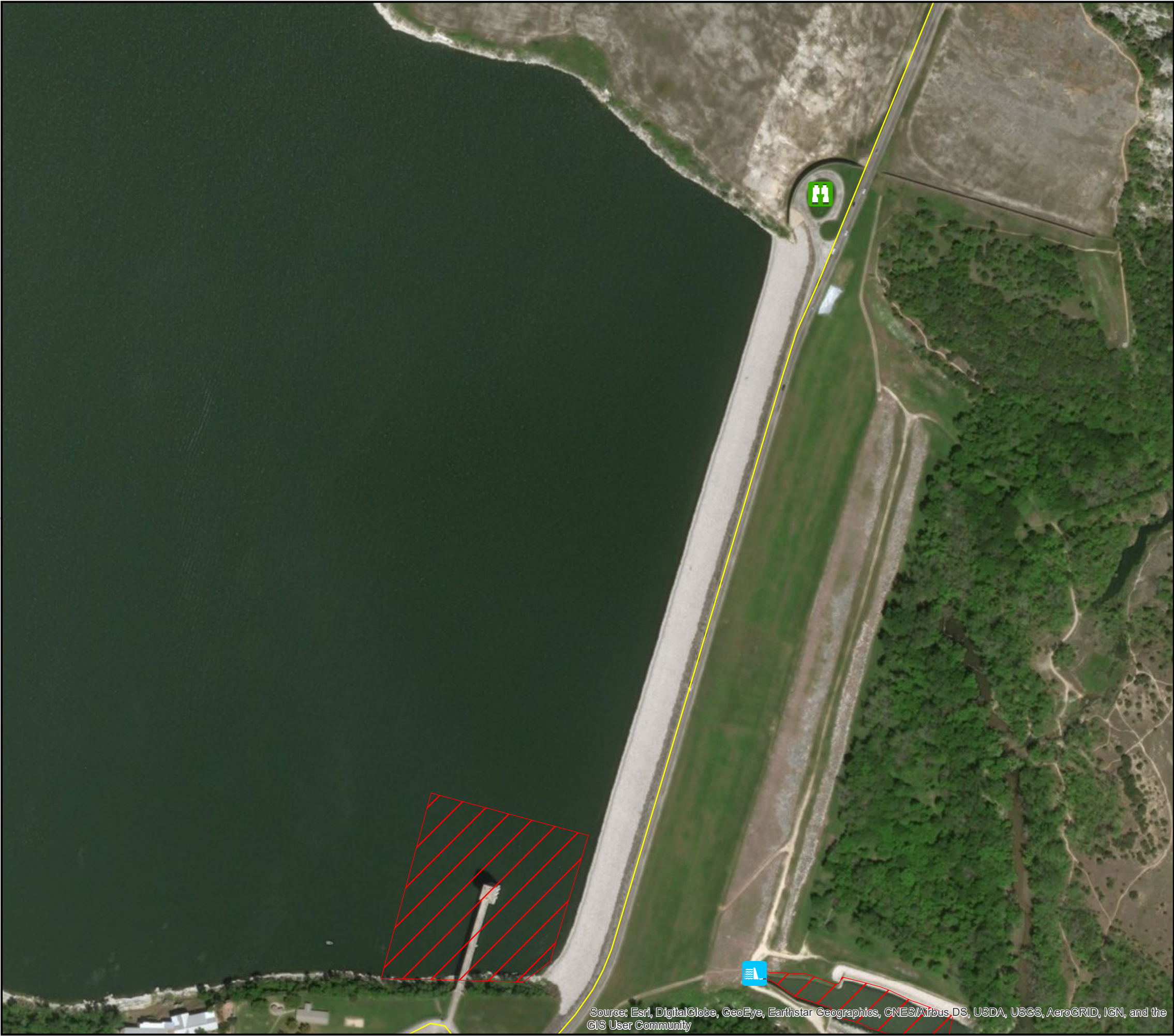
120

160




Feet


DATE:
JULY 2018

MAP NO.
BL17MP-OR-02



ITEM	EXISTING
BOAT RAMP	
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	
SHOWERS	
DUMP STATION	

-  OBSERVATION SITE
-  SPILLWAY STRUCTURE
-  WATER SURFACE: RESTRICTED



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(OVERLOOK PARK - DAM SITE)**

N

0200400600800

Feet









DATE:
JULY 2018

MAP NO.
BL17MP-OR-03



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	48
ELECTRICAL HOOK-UP	48
GROUP PICNIC SHELTER	1
PICNIC SITES	
VAULT TOILET	
RESTROOMS	2
SHOWERS	2
DUMP STATION	1

-  BOAT RAMP
-  CAMPING
-  ENTRANCE GATE
-  GROUP SHELTER
-  RESTROOM
-  SHOWER
-  FEE BOUNDARY
-  WATER SURFACE: DESIGNATED NO WAKE AREA



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

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

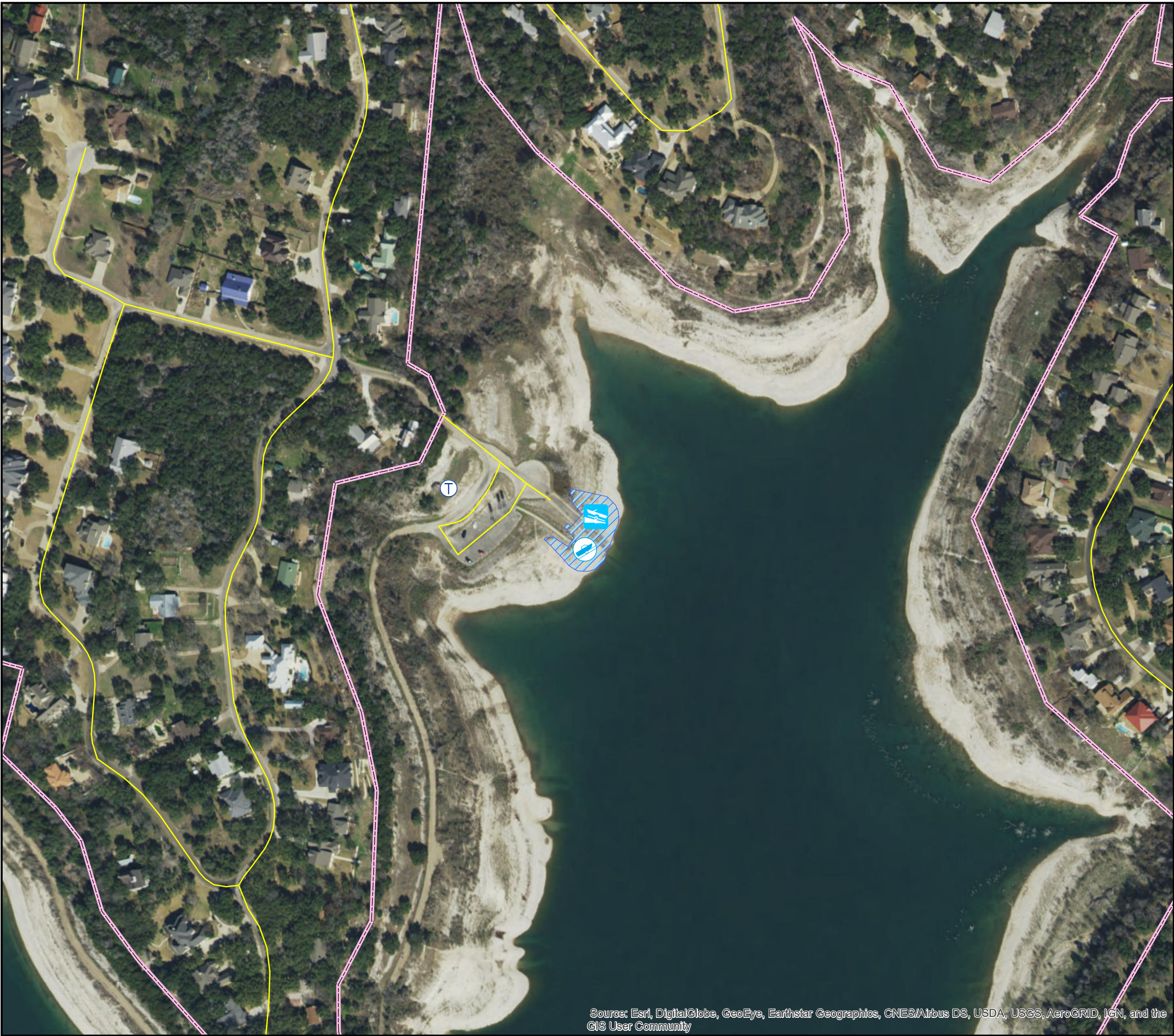
BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(LIVE OAK RIDGE PARK)**



0 175 350 525 700 Feet

DATE: JULY 2018	MAP NO. BL17MP-OR-04
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Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	



BOAT RAMP



COURTESY DOCK



VAULT TOILET



FEE BOUNDARY



WATER SURFACE: DESIGNATED
NO WAKE AREA



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

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(ARROWHEAD POINT PARK)**



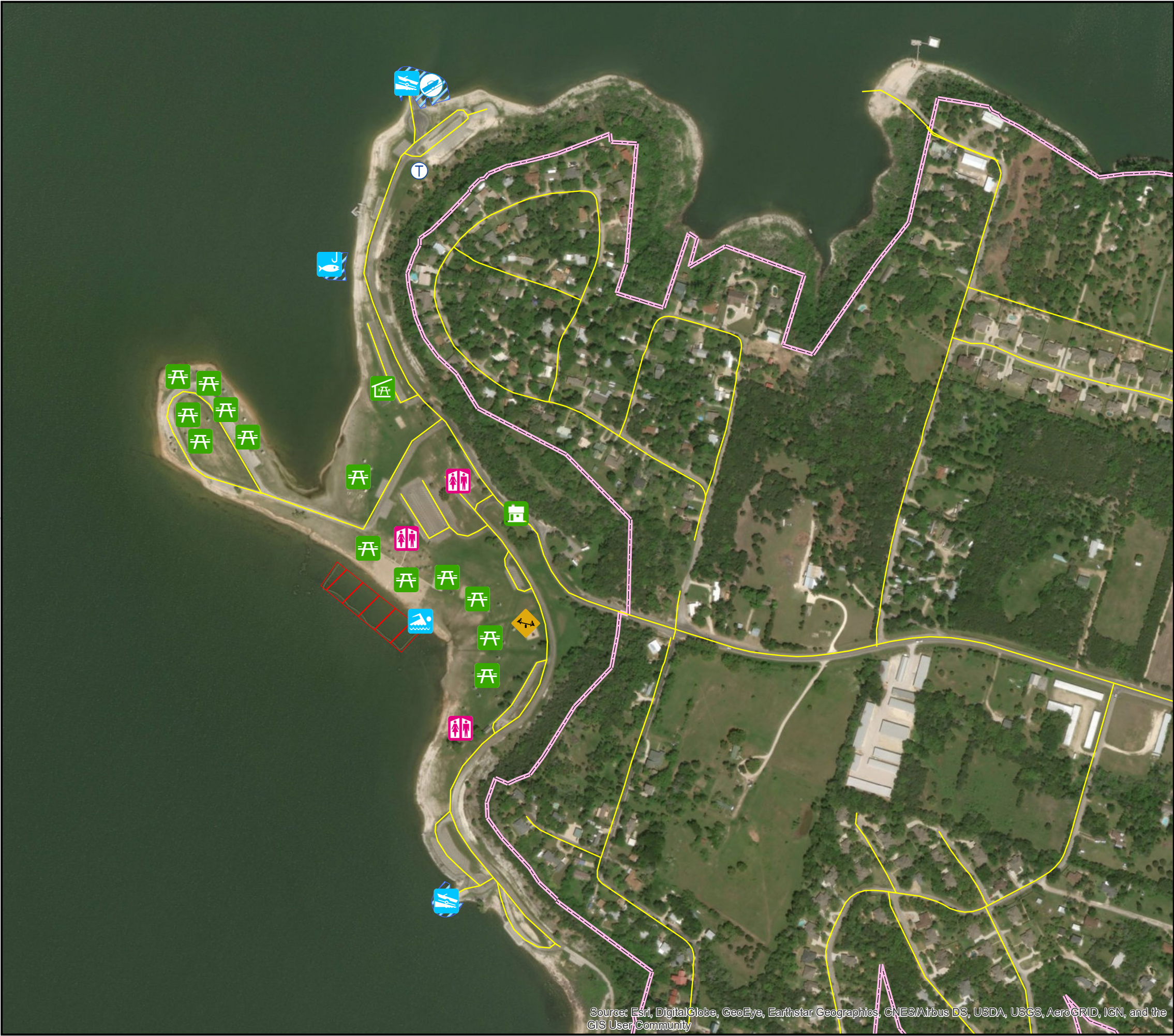
0 150 300 450 600
Feet

DATE:














JULY 2018


MAP NO.

BL17MP-OR-05



ITEM	EXISTING
BOAT RAMP	2
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	1
PICNIC SITES	55
VAULT TOILET	1
RESTROOMS	3
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  COURTESY DOCK
-  ENTRANCE GATE
-  GROUP SHELTER
-  PICNIC TABLE
-  PLAYGROUND
-  FEE BOUNDARY
-  WATER SURFACE: RESTRICTED
-  WATER SURFACE: DESIGNATED NO WAKE AREA
-  RESTROOM
-  SWIM BEACH
-  TRAILHEAD
-  VAULT TOILET



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(TEMPLE'S LAKE PARK)**



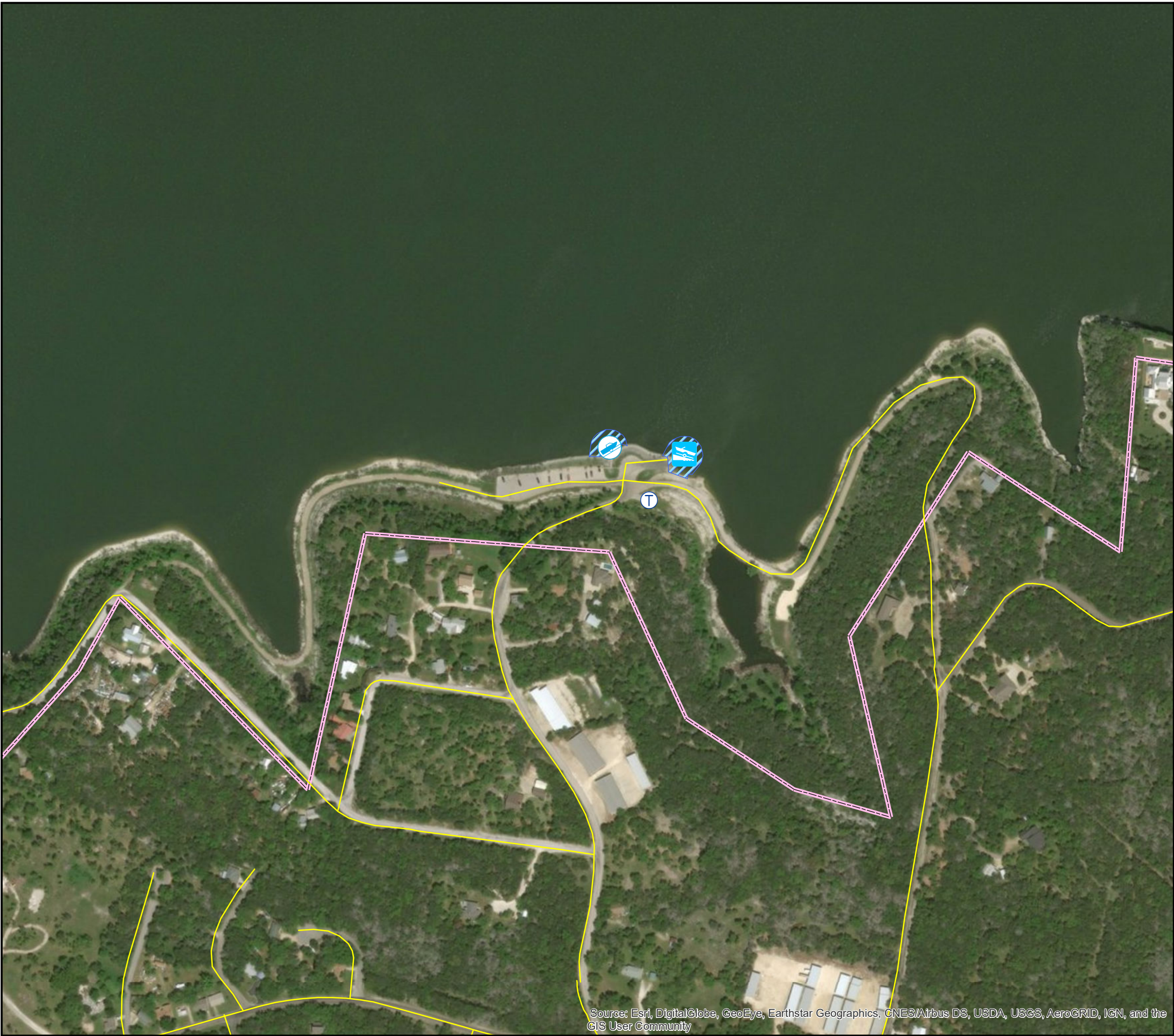
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Feet

DATE:
JULY 2018

MAP NO.
BL17MP-OR-06

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	



BOAT RAMP



COURTESY DOCK



VAULT TOILET



FEE BOUNDARY



WATER SURFACE: DESIGNATED
NO WAKE AREA



U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

RECREATIONAL AREAS
(ROGERS PARK)



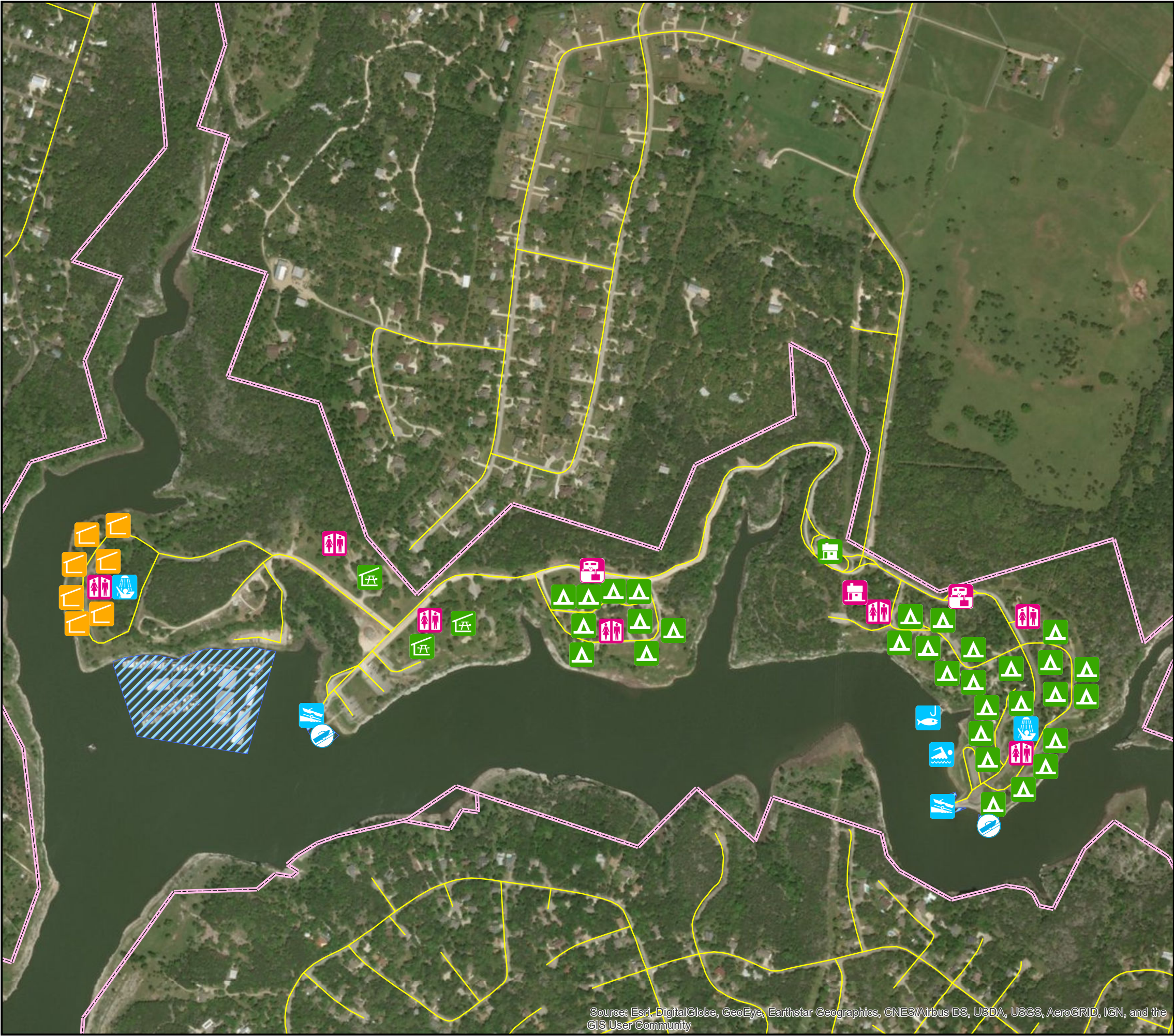
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DATE:

















JULY 2018


MAP NO.

BL17MP-OR-07



ITEM	EXISTING
BOAT RAMP	2
COURTESY DOCK	2
GROUP CAMPSITES	1
CAMPSITES	68
ELECTRICAL HOOK-UP	68
GROUP PICNIC SHELTER	2
PICNIC SITES	
VAULT TOILET	
RESTROOMS	7
SHOWERS	2
DUMP STATION	2

-  ACTIVITY CENTER
-  BOAT RAMP
-  CAMPING
-  COURTESY DOCK
-  ENTRANCE GATE
-  GROUP SHELTER
-  PLAYGROUND
-  RESTROOM
-  SANITARY DUMP STATION
-  FEE BOUNDARY
-  WATER SURFACE: RESTRICTED
-  WATER SURFACE: DESIGNATED NO WAKE AREA
-  SCREENED SHELTER
-  SHOWER
-  SWIM BEACH
-  TRAILHEAD



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(CEDAR RIDGE PARK)**



03757501,1251,500

Feet





DATE:
JULY 2018


MAP NO.
BL17MP-OR-08



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  VAULT TOILET
-  FEE BOUNDARY
-  WATER SURFACE: DESIGNATED NO WAKE AREA



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(MCGREGOR PARK)**



04008001,2001,600

Feet




DATE:
JULY 2018


MAP NO.
BL17MP-OR-09



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	14
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	

-  CAMPING, PRIMITIVE
-  VAULT TOILET
-  FEE BOUNDARY



U.S. ARMY CORPS
OF ENGINEERS

FORT WORTH DISTRICT


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

RECREATIONAL AREAS
(WINKLER PARK)



0150300450600

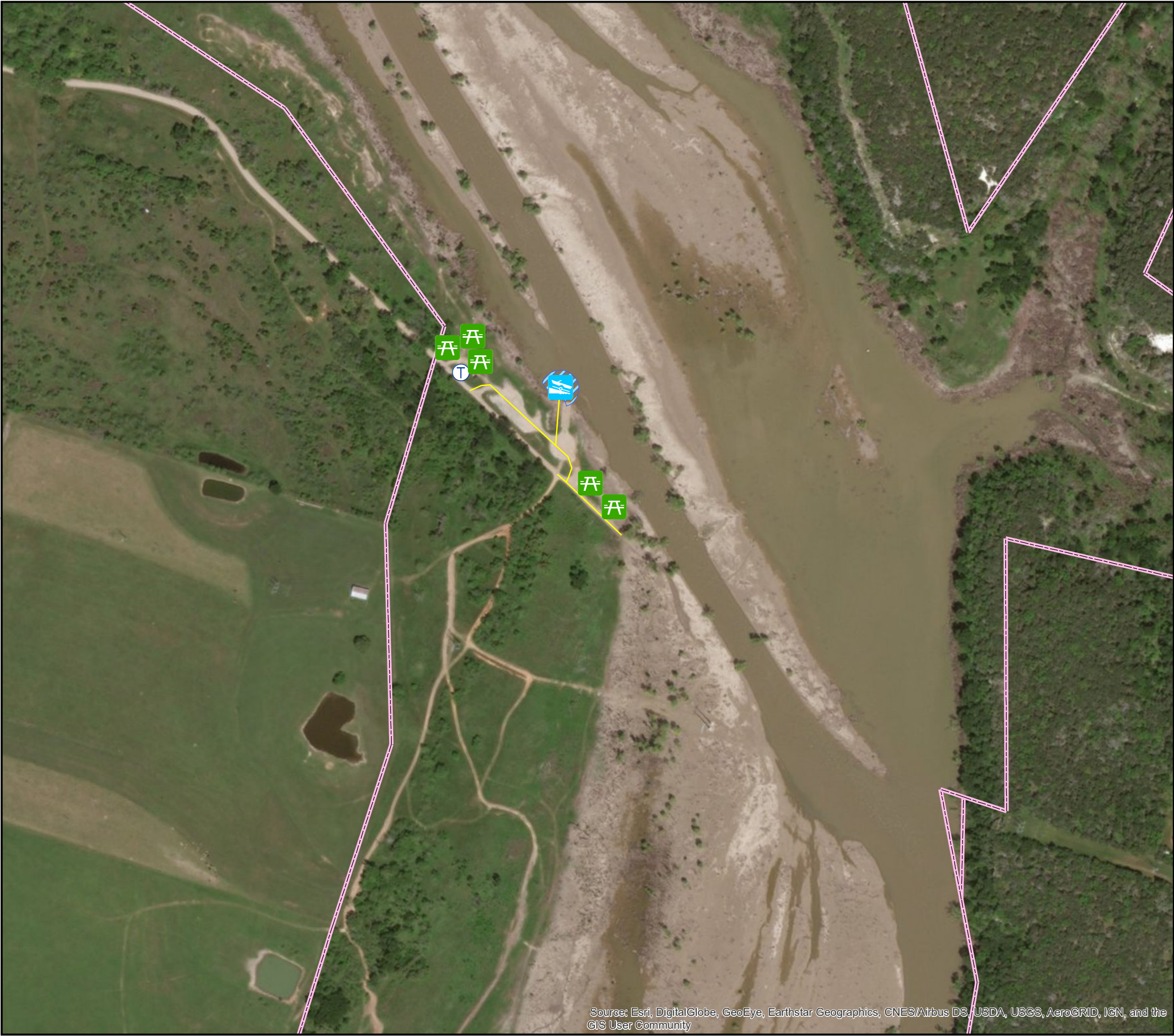
Feet

DATE:

JULY 2018






MAP NO.

BL17MP-OR-10



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	5
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  PICNIC TABLE
-  VAULT TOILET
-  FEE BOUNDARY
-  WATER SURFACE: DESIGNATED NO WAKE AREA



U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

RECREATIONAL AREAS
(IRON BRIDGE PARK)







0 200 400 600 800 Feet


DATE:	MAP NO.
JULY 2018	BL17MP-OR-11



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	
GROUP CAMPSITES	
CAMPSITES	14
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	
RESTROOMS	1
SHOWERS	1
DUMP STATION	

-  CAMPING, PRIMITIVE
-  RESTROOM
-  SHOWER
-  FEE BOUNDARY



U.S. ARMY CORPS
OF ENGINEERS

FORT WORTH DISTRICT


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

RECREATIONAL AREAS
(WINKLER PARK)



0150300450600

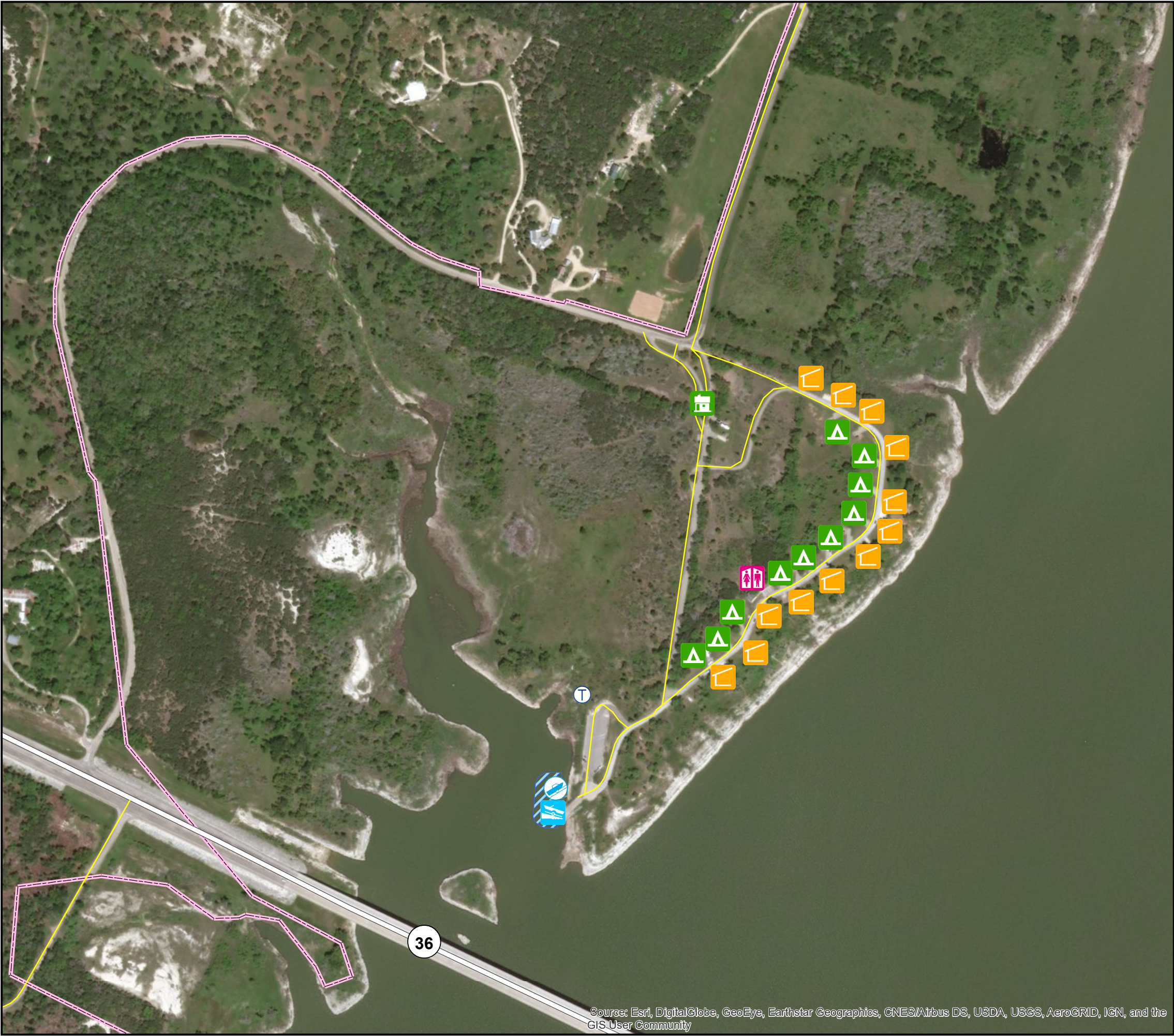
Feet

DATE:










JULY 2018

MAP NO.

BL17MP-OR-12



ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	13
ELECTRICAL HOOK-UP	13
GROUP PICNIC SHELTER	12
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	1
SHOWERS	
DUMP STATION	1

-  BOAT RAMP
-  COURTESY DOCK
-  CAMPING
-  ENTRANCE GATE
-  RESTROOM
-  SCREENED SHELTER
-  VAULT TOILET
-  FEE BOUNDARY
-  WATER SURFACE: DESIGNATED NO WAKE AREA



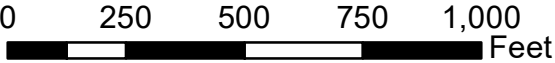
U.S. ARMY CORPS
OF ENGINEERS
FORT WORTH DISTRICT

BELTON LAKE DAM AND RESERVOIR LEON RIVER, TEXAS

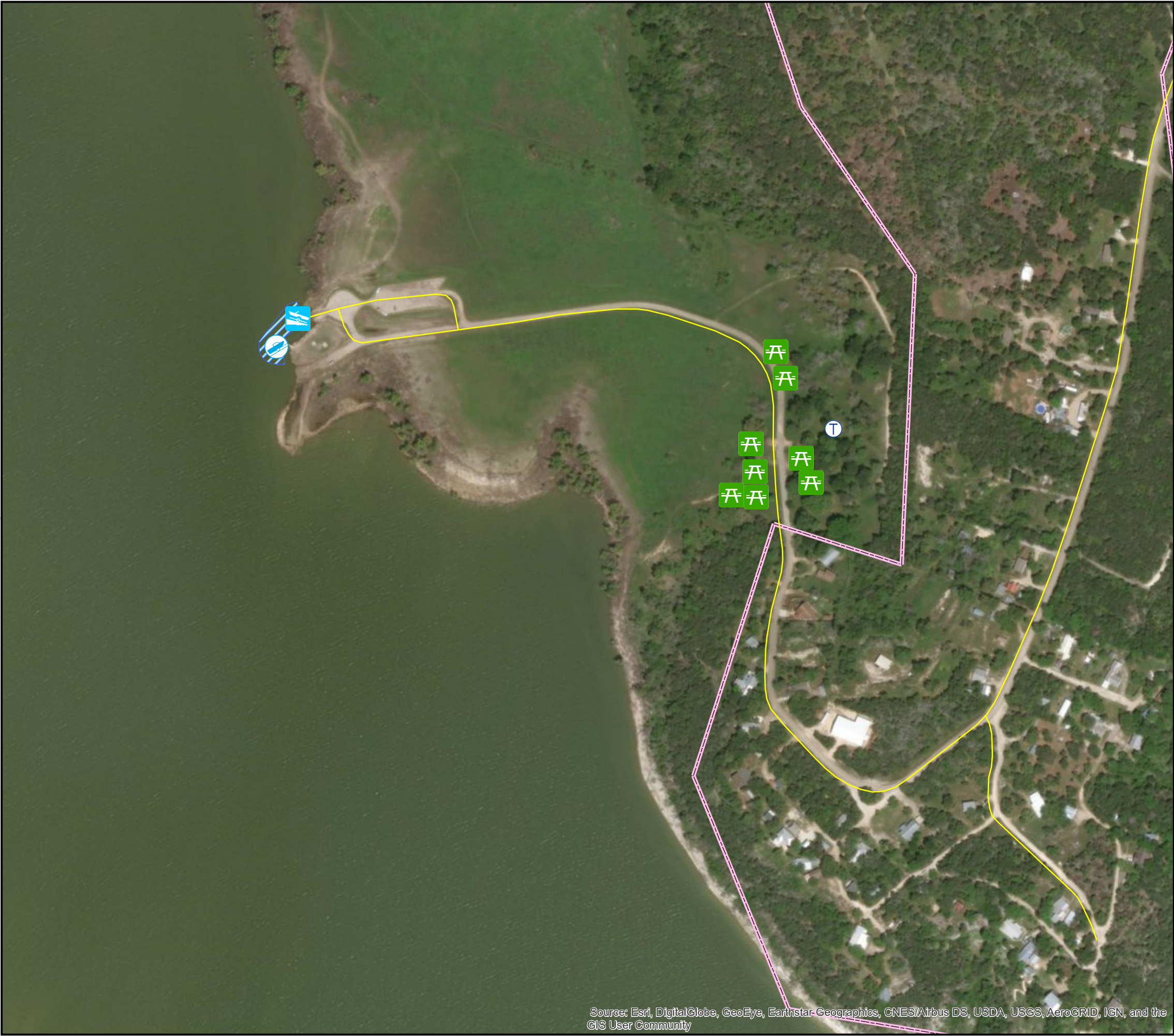
BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

RECREATIONAL AREAS
(WHITE FLINT PARK)










DATE:	MAP NO.
JULY 2018	BL17MP-OR-13



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	8
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	

-  BOAT RAMP
-  COURTESY DOCK
-  PICNIC TABLE
-  VAULT TOILET
-  FEE BOUNDARY
-  WATER SURFACE: DESIGNATED NO WAKE AREA



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

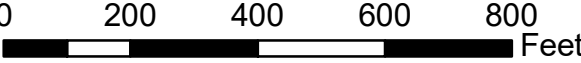

BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

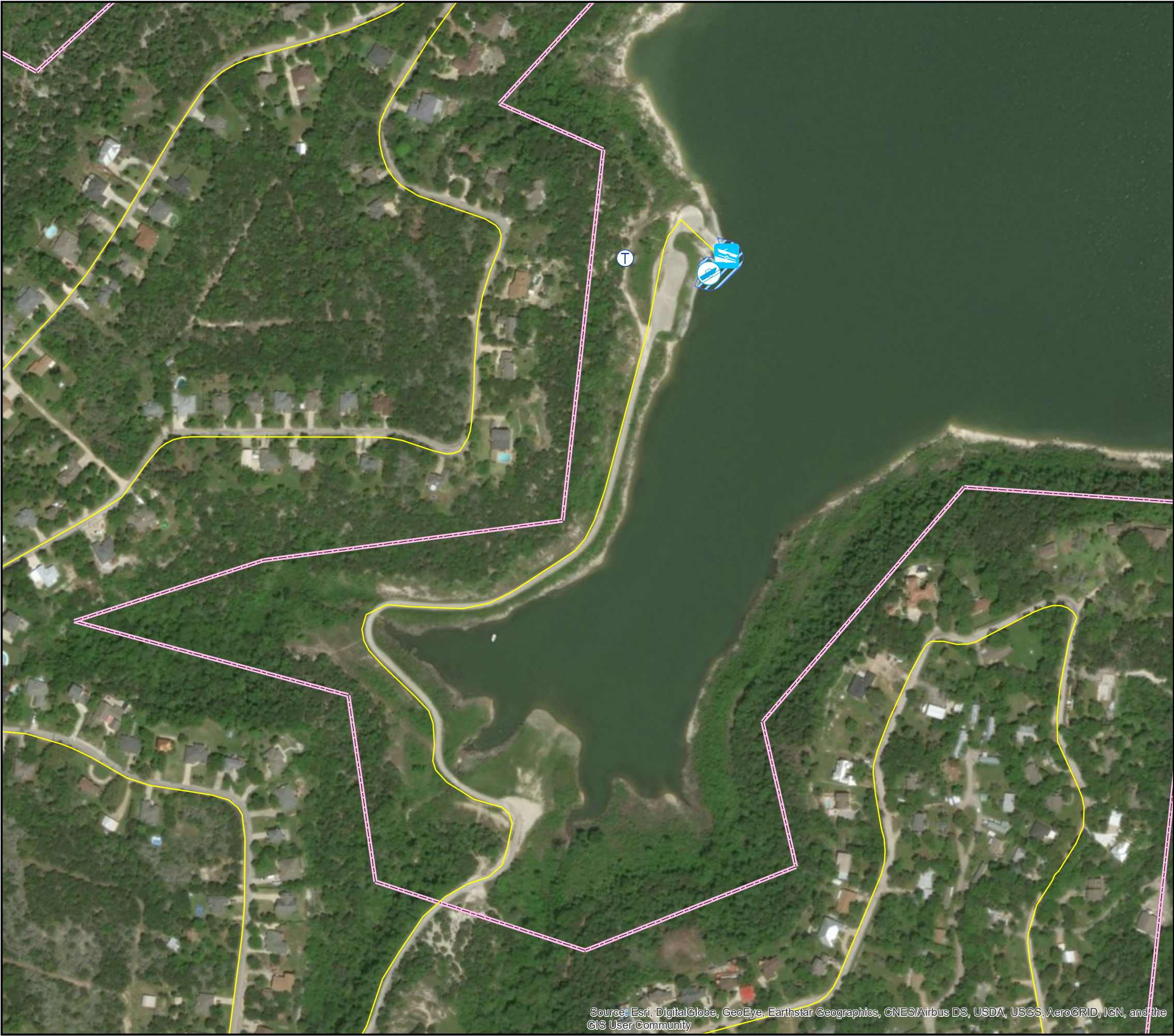
BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(OWL CREEK PARK)**



DATE:
JULY 2018

MAP NO.
BL17MP-OR-14



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	
ELECTRICAL HOOK-UP	
GROUP PICNIC SHELTER	
PICNIC SITES	
VAULT TOILET	1
RESTROOMS	
SHOWERS	
DUMP STATION	



BOAT RAMP



COURTESY DOCK



VAULT TOILET



FEE BOUNDARY



WATER SURFACE: DESIGNATED
NO WAKE AREA



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

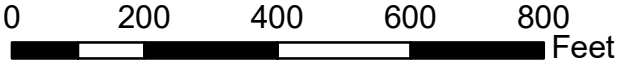
BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(SPARTA VALLEY PARK)**

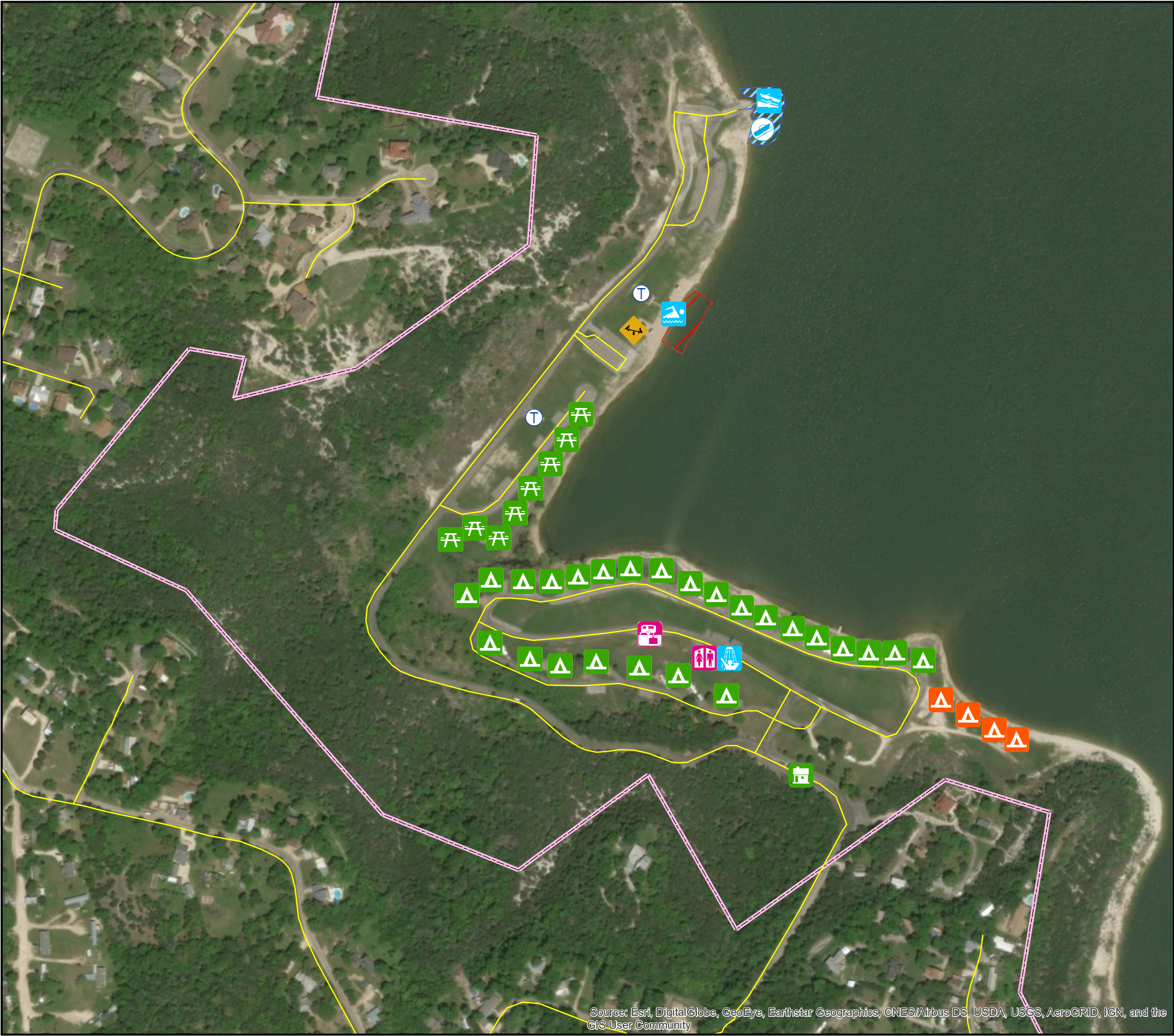


DATE:

JULY 2018
















MAP NO.


BL17MP-OR-15



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

ITEM	EXISTING
BOAT RAMP	1
COURTESY DOCK	1
GROUP CAMPSITES	
CAMPSITES	31
ELECTRICAL HOOK-UP	27
GROUP PICNIC SHELTER	
PICNIC SITES	11
VAULT TOILET	2
RESTROOMS	1
SHOWERS	1
DUMP STATION	1

-  BOAT RAMP
-  CAMPING, PRIMITIVE
-  CAMPING
-  COURTESY DOCK
-  ENTRANCE GATE
-  PICNIC TABLE
-  PLAYGROUND
-  RESTROOM
-  SANITARY DUMP STATION
-  FEE BOUNDARY
-  WATER SURFACE: RESTRICTED
-  WATER SURFACE: DESIGNATED NO WAKE AREA
-  SHOWERS
-  SWIM BEACH
-  VAULT TOILET



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


BELTON LAKE DAM AND RESERVOIR

LEON RIVER, TEXAS

BELTON LAKE DAM AND RESERVOIR

BELTON LAKE MASTER PLAN

**RECREATIONAL AREAS
(WESTCLIFF PARK)**



0200400600800

Feet

DATE:
JULY 2018

MAP NO.
BL17MP-OR-16

2994

**APPENDIX B - NATIONAL ENVIRONMENTAL POLICY ACT
(NEPA) DOCUMENTATION**

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Environmental Assessment for the Belton Lake Master Plan

Leon River
Brazos River Basin



Bell and Coryell Counties, Texas



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

July 2018

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**Draft FINDING OF NO SIGNIFICANT IMPACT
ENVIRONMENTAL ASSESSMENT FOR THE
BELTON LAKE MASTER PLAN
BRAZOS RIVER BASIN
BELL AND CORYELL COUNTIES, TEXAS**

In accordance with the National Environmental Policy Act of 1969, including guidelines in 33 Code of Federal Regulations (CFR), 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 that the alternative management scenarios set forth in the 2018 Lake Belton Master Plan would have on the natural, cultural, and human environments.

The 2018 Master Plan, a revision of the 1970 Master Plan, will provide guidance for stewardship of natural resources and management for long-term public access to, and use of, the natural resources of the Belton Lake, including the land use classifications of the USACE- managed lands. The 2018 Master Plan includes a comprehensive description of the project, factors influencing resource management and development, new resource management objectives, special topics, and synopsis of public involvement and input into the planning process, and description of existing conditions.

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 reclassification of land use would occur. The operations and management of Belton Lake would continue as outlined in the current Master Plan.

The Proposed Action includes a revision of the Master Plan, coordination with the public, and updates to comply with current USACE regulations and guidance and reflect ecological, socio-demographic, and outdoor recreation trends that are currently impacting USACE managed lands, as well as those which have occurred since 1970. Land classifications were refined to meet authorized project purposes and current resource objectives that address a mix of natural resource and recreation management objectives that are compatible with regional goals. Required land and water surface classification changes associated with the Proposed Action include several reclassifications to balance resource objectives, and include the following:

Proposal	Description	Justification
Project Operations (PO)	Lands under the prior classification of Operation and Maintenance were converted to the new and similar classification of Project Operations and increased by 94 acres for a total of 261 acres due to improved mapping and the following:	The PO land classification was expanded due to the creation of permanent weirs and to protect visitors near the water intake structures around Belton Lake. The conversion of these lands will have no effect on the

	<ul style="list-style-type: none"> • 8 acres from Aesthetics • 51 acres from Recreational Areas Priority 1 • 35 acres from improved measurement technology. 	current or projected public use.
High Density Recreation (HDR)	<p>Lands under the prior classification of Recreational Areas Priorities 1, 2, 3, and 4 were converted to the new and similar classification of HDR but were reduced by 1,574 acres for a total of 1,467 acres due to improved mapping and the following:</p> <ul style="list-style-type: none"> • 220 net acres to Environmentally Sensitive Areas (ESA) • 82 acres to Multiple Resource Management Lands (MRML) – Low Density Recreation (LDR) • 51 acres to PO • 739 acres to MRML – Wildlife Management (WM) • 30 acres sold to water district • 258 transferred to Belton Lake Outdoor Recreation Area (BLORA) • 194 acres due to improved measurement technology 	Historically, these lands have been managed for the benefit of wildlife and are places where Golden-cheeked warbler (GCWA) habitat exists. Areas with contiguous habitat remaining or breeding and nesting habitat are more appropriately classified as ESA or WM lands. The conversion of these lands will have no effect on current or projected public use.
Environmentally Sensitive Areas	<p>The classification of 1,888 acres as ESA resulted from the following land classification changes:</p> <ul style="list-style-type: none"> • 1,609 acres from Aesthetics • 85 acres from Recreational Areas Priority 1 • 194 acres from Recreation Areas Priority 2 	These classification changes were necessary to recognize those areas at Belton Lake having the highest ecological value, including areas of high value for protection of important habitat for the endangered GCWA as designated by the U.S. Fish and Wildlife Service (USFWS), and to protect unique views and cultural and archeological sites. The conversion of lands 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.
Multiple Resource Management Lands - Wildlife Management	<p>The classification of 9,521 acres of MRML-WM resulted from the reclassification of some lands under the prior classification as follows:</p> <ul style="list-style-type: none"> • 8,640 acres from Aesthetics • 881 acres from Recreation Priority 1, 2, 3 & 4 	The land in the former classification of Aesthetics and Priority 1, 2, 3, & 4 were converted to MRML-WM to more appropriately align with historic land use patterns supporting the change. The conversion of these lands will have no effect on current or projected public use.
Multiple Resource Management Lands – Low Density Recreation	The classification of 82 acres to LDR resulted from converting some lands under the prior classification of Recreation Priority 1.	The land in the former classification of Priority 1 were converted to LDR due to the area having historic land use patterns supporting the change. The conversion of these lands will have no effect on current or projected public use.
Water Surface	<p>The classification of 12,385 acres of water surface of the lake at the conservation pool elevation is as follows:</p> <ul style="list-style-type: none"> • 20 acres of Restricted water surface at Belton Lake include the water surface in front of the intake structure at the control tower at Belton Dam and designated swimming areas in the parks around Belton. Buoys mark the line in front of the dam. Keep-out buoys and floating barrier pipes mark the designated swimming areas in each park. • 42 acres of Designated No-Wake areas are in place near the boat ramps 	Previous master plans for Belton Lake did not specify different classifications on the water surface, though these classifications were recognized in practice. This master plan revision recognizes and specifies these uses. The classification of water surfaces will have no effect on current or projected public use.

	and marina areas at Belton Lake. <ul style="list-style-type: none"> • There are 12,323 acres of Open Recreation water surface at Belton Lake. 	
Utility Corridors	Six utility corridors were identified to serve as preferred locations for future outgrants such as easements for utility lines on USACE lands at Belton Lake. Descriptions of each corridor can be found in Section 6.8 of the 2018 Master Plan.	Utility corridors identify areas for current and future utility use that would also limit further fragmentation of existing habitat at Belton Lake.

¹The land classification changes described in this table are the result of changes to several individual parcels of land ranging from a few acres to several hundred acres. Acreages were measured using geographic information system (GIS) technology. The acreage numbers provided are approximations.

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

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

It is my finding that, based on the EA, the revision of the 1970 Master Plan for Belton Lake will have no significant adverse impact on the environment and will not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, an EIS will not be prepared.

Date

Calvin Hudson III
Colonel, U.S. Army
District Commander

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the potential environmental and socioeconomic impacts of the Belton Lake Master Plan revision. This EA will facilitate the decision process regarding the Proposed Action and alternatives.

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

SECTION 2 PROPOSED ACTION AND ALTERNATIVES examines alternatives for implementing the Proposed Action and describes the recommended alternative.

SECTION 3 AFFECTED ENVIRONMENT describes the existing environmental and socioeconomic setting.

ENVIRONMENTAL CONSEQUENCES identifies the potential environmental and socioeconomic effects of implementing the Proposed Action and alternatives.

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

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

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

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

SECTION 8 REFERENCES provides bibliographical information for cited sources.

SECTION 9 ACRONYMS/ABBREVIATIONS

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

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TABLE OF CONTENTS

SECTION 1: INTRODUCTION.....	1
1.1 PROJECT DESCRIPTION.....	1
1.2 PURPOSE OF AND NEED FOR THE ACTION	2
1.3 SCOPE OF THE ACTION	2
SECTION 2: PROPOSED ACTION AND ALTERNATIVES.....	3
2.1 ALTERNATIVE 1: NO ACTION	4
2.2 ALTERNATIVE 2: PROPOSED ACTION	5
2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION.....	12
SECTION 3: AFFECTED ENVIRONMENT AND CONSEQUENCES.....	12
3.1 LAND USE.....	13
3.1.1 Alternative 1: No Action.....	14
3.1.2 Alternative 2: Proposed Action.....	14
3.2 WATER RESOURCES	15
3.2.1 Alternative 1: No Action.....	17
3.2.2 Alternative 2: Proposed Action.....	17
3.3 CLIMATE	17
3.3.1 Alternative 1: No Action.....	18
3.3.2 Alternative 2: Proposed Action.....	18
3.4 CLIMATE CHANGE AND GREENHOUSE GASES.....	18
3.4.1 Alternative 1: No Action.....	19
3.4.2 Alternative 2: Proposed Action.....	19
3.5 AIR QUALITY.....	19
3.5.1 Alternative 1: No Action.....	19
3.5.2 Alternative 2: Proposed Action.....	19
3.6 TOPOGRAPHY, GEOLOGY, AND SOILS.....	20
3.6.1 Alternative 1: No Action.....	21
3.6.2 Alternative 2: Proposed Action.....	21
3.7 NATURAL RESOURCES	21
3.7.1 Alternative 1: No Action.....	23
3.7.2 Alternative 2: Proposed Action.....	23
3.8 THREATENED AND ENDANGERED SPECIES	23
3.8.1 Alternative 1: No Action.....	26
3.9 INVASIVE SPECIES.....	26
3.9.1 Alternative 1: No Action.....	27
3.9.2 Alternative 2: Proposed Action.....	27
3.10 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES.....	27
3.10.1 Alternative 1: No Action.....	27
3.10.2 Alternative 2: Proposed Action.....	28
3.11.1 Alternative 1: No Action.....	29
3.11.2 Alternative 2: Proposed Action.....	29
3.12 RECREATION.....	29
3.12.1 Alternative 1: No Action.....	30
3.12.2 Alternative 2: Proposed Action.....	30
3.13 AESTHETIC RESOURCES	30

3.13.1	Alternative 1: No Action	30
3.13.2	Alternative 2: Proposed Action	30
3.14	HAZARDOUS MATERIALS AND SOLID WASTE	30
3.14.1	Alternative 1: No Action	31
3.14.2	Alternative 2: Proposed Action	31
3.15	HEALTH AND SAFETY	31
3.15.1	Alternative 1: No Action	32
3.15.2	Alternative 2: Proposed Action	32
3.16	SUMMARY OF CONSEQUENCES AND BENEFITS	32
SECTION 4: CUMULATIVE IMPACTS		36
4.1	PAST IMPACTS WITHIN THE ZONE OF INTEREST	36
4.2	CURRENT AND REASONABLY FORESEEABLE PROJECTS WITHIN AND NEAR THE ZONE OF INTEREST	36
4.3.1	LAND USE	38
4.3.2	WATER RESOURCES	39
4.3.3	CLIMATE	39
4.3.4	CLIMATE CHANGE AND GHG	39
4.3.5	AIR QUALITY	39
4.3.6	TOPOGRAPHY, GEOLOGY, AND SOILS	39
4.3.7	NATURAL RESOURCES	40
4.3.8	THREATENED AND ENDANGERED SPECIES	40
4.3.9	INVASIVE SPECIES	40
4.3.10	CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES	41
4.3.11	SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE	41
4.3.12	RECREATION	41
4.3.13	AESTHETIC RESOURCES	41
4.3.14	HAZARDOUS MATERIALS AND SOLID WASTE	41
4.3.15	HEALTH AND SAFETY	42
SECTION 5: COMPLIANCE WITH ENVIRONMENTAL LAWS		42
SECTION 6: IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES		43
SECTION 7: PUBLIC AND AGENCY COORDINATION		44
SECTION 8: REFERENCES		46
SECTION 9: ACRONYMS/ABBREVIATIONS		48
SECTION 10: LIST OF PREPARERS		49

LIST OF TABLES

2-1: Reclassification Proposals.....	6
3-1: Wetland Resources.....	16
3-2: Federally Listed Endangered and Threatened Species with Potential to Occur at Belton Lake.....	24
3-3: Summary of Consequences and Benefits.....	33

LIST OF FIGURES

Figure 1: National Wetland Inventory Mapped Wetlands at Belton Lake.....	16
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ENVIRONMENTAL ASSESSMENT
Belton Lake Master Plan
Bell and Coryell Counties, TX

SECTION 1: INTRODUCTION

The Master Plan is the strategic land use management document that guides the comprehensive management and development actions related to all project recreational, natural, and cultural resources throughout the life of the water resource project. The Master Plan guides the execution of efficient and cost-effective management, development, and use of project lands. The Master Plan is a vital tool for the responsible stewardship and sustainability of project resources for the benefit of present and future generations.

1.1 PROJECT DESCRIPTION

Belton Lake is located in central Texas in Bell and Coryell counties, Texas, at the northern extent of the Edwards' Plateau, on the Leon River in the Brazos River basin, approximately eight km (4.97 miles) northwest of the city of Belton, Texas. The Belton Lake dam extends approximately 0.77 Km (0.48 miles). The dam and associated infrastructure, as well as all the project lands which were acquired for Belton Lake project, are Federally-owned and are managed by the U.S. Army Corps of Engineers (USACE), Fort Worth District.

Belton Lake, was authorized by the Flood Control Act of 24 July 1946 (Public Law 526, 79th Congress, 2nd Session) and modified by the Flood Control Act approved 3 September 1954 (Public Law 780, 83rd Congress, 2nd Session) for flood control and water conservation. Authority for the recreational program was granted under the Flood Control Act of 22 December 1944 (Public Law 534, 78th Congress, 2nd Session) as amended by subsequent acts. Authority for the Fish and Wildlife program was granted under the Fish and Wildlife Coordination Act of 1958 as amended (Public Law 85-624 72 Stat 563). The Federal Government entered into a contract with the Brazos River Authority, a state agency, on 17 January 1958 granting them the right to storage space in the reservoir. The Flood Control Act of 3 September 1954 provided for the allocation of 12,000 acre-feet of conservation storage for a permanent water supply for Fort Hood and adjacent military installations.

The construction of the reservoir was completed in 1954 with a conservation pool of 569.00 National Geodetic Vertical Datum (NGVD29) of 1929. Deliberate impoundment began 8 March 1985. The conservation pool was raised to 594.00 NGVD29 after the construction of Proctor Lake and remains as such today.

The Belton Lake Dam is 5,524 feet long, including a 718-foot dike and a 1,300-foot spillway. The maximum height of the embankment above the stream is 192 feet. The uncontrolled spillway consists of an uncontrolled weir located in the left abutment of the dam. The outlet works consists of one 22-foot diameter conduit, which is controlled by three 7- by 22-foot boom-type gates. The invert is at elevation 483.0 NGVD29.

1.2 PURPOSE OF AND NEED FOR THE ACTION

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

The need for the Proposed Action is to bring the 1970 Master Plan up-to-date and to reflect ecological, socio-political, and socio-demographic changes that are currently impacting Belton Lake, as well as those changes anticipated to occur through 2043. The 1970 plan was sufficient for prior land use planning and management until recently as changes in outdoor recreation trends, regional land use, population, current legislative requirements and USACE management policy have indicated the need to revise the plan. Additionally, increasing fragmentation of wildlife habitat, national policies related to climate change, growing demand for recreational access, and protection of natural resources are all factors affecting Belton Lake and the surrounding region in general. In response to these continually evolving trends, the USACE determined that a full revision of the 1970 plan would be required.

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

- Changes in national policies or public law mandates
- Operations and maintenance budget allocations
- Recreation area closures
- Facility and infrastructure improvements
- Cooperative agreements with stakeholder agencies (such as Texas Parks and Wildlife Department [TPWD] and the U.S. Fish and Wildlife Service [USFWS]) to operate and maintain public lands
- Outdoor recreation trends identified in the Texas Outdoor Recreation Plan (TORP)
- Ecoregion priorities identified in the Texas Conservation Action Plan (TCAP)
- Evolving public concerns expressed through USACE's recreation area comment card program

As part of the master planning process, the project delivery team evaluated public comments and current land uses, determined any necessary changes to land classifications, and formulated the proposed alternatives. Information gathered from public coordination and a public information meeting was used to develop the proposed alternatives and then this EA was initiated.

1.3 SCOPE OF THE ACTION

This EA was prepared to evaluate existing conditions and potential impacts of proposed alternatives associated with the Master Plan revision for Belton Lake. The alternative considerations were formulated to include all of Belton Lake and surrounding federally-owned fee lands. These lands comprise all properties historically acquired to

1 build the project, including USACE lands and lands leased by the USACE to other
2 governmental or non-governmental entities. This EA was prepared pursuant to the
3 National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ)
4 regulations (40 Code of Federal Regulations [CFR] 1500–1517), and the USACE
5 implementing regulations, Policy and Procedures for Implementing NEPA, ER 200-2-2
6 (1988).

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

8 The project need is to revise the 1970 Master Plan so that it is compliant with
9 current USACE regulations and guidance and reflects current and desired future
10 management goals. As part of this process, which includes public outreach and
11 comment, two alternatives were developed for evaluation, including a No Action
12 Alternative. The alternatives were developed using land classifications that indicate the
13 primary use for which project lands are managed. There are five categories of land
14 classifications: Project Operations (PO), High Density Recreation (HDR), Mitigation,
15 Environmentally Sensitive Areas (ESA), and Multiple Resource Management Lands
16 (MRML). MRMLs are divided into four subcategories: Low Density Recreation (LDR),
17 Wildlife Management (WM), Vegetative Management (VM), and Future/Inactive
18 Recreation Areas.

19 The Preferred Alternative or Proposed Action evaluated in this EA is compared to
20 the No Action Alternative. The USACE guidance recommends the establishment of
21 resource goals and objectives for purposes of development, conservation, and
22 management of natural, cultural, and man-made resources for a project. Goals describe
23 the desired end state of overall management efforts, whereas objectives are concise
24 statements describing measurable and attainable management activities that support
25 the stated goals. Goals and objectives are guidelines for obtaining maximum public
26 benefits while minimizing adverse impacts on the environment and are developed in
27 accordance with 1) authorized project purposes, 2) applicable laws and regulations,
28 3) resource capabilities and suitability, 4) regional needs, 5) other governmental plans
29 and programs, and 6) expressed public desires.

30 In the context of the 2018 Master Plan, goals express the overall desired end
31 state of the Master Plan, whereas resource objectives are specific task-oriented actions
32 necessary to achieve the Master Plan goals. The objectives in the 2018 Master Plan are
33 intended to provide project benefits, meet public needs, and foster environmental
34 sustainability of Belton Lake to the greatest extent possible. The goals for the Belton
35 Lake Master Plan include the following:

- 36 • Goal A: Provide the best management practices (BMPs) to respond to
37 regional needs, resource capabilities and capacities, and expressed public
38 interests consistent with authorized project purposes.
- 39 • Goal B: Protect and manage project natural and cultural resources
40 through sustainable environmental stewardship programs.
- 41 • Goal C: Provide public outdoor recreation opportunities that support
42 project purposes and public interests while sustaining project natural
43 resources.

- Goal D: Recognize the unique qualities, characteristics, and potentials of the project.
- Goal E: Provide consistency and compatibility with natural objectives and other state and regional goals and programs.

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

- Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse and sustainable condition is necessary to support life.
- Recognize the interdependence of life and the physical environment. Proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.
- Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
- Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
- Seek ways and means to assess and mitigate cumulative impacts on the environment; bring systems approaches to the full life cycle of our processes and work.
- Build and share an integrated scientific, economic, and social knowledge base that supports a greater understanding of the environment and impacts of our work.
- Respect the views of individuals and groups interested in USACE activities; listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

The Proposed Action would meet regional goals associated with good stewardship of land and water resources, would meet regional recreation goals, would address identified recreational trends, and would allow for continued use and development of project lands without violating national policies or public laws. The project-wide resource goals established for Belton Lake which were used in determining the Proposed Action, as well as the nationwide USACE Environmental Operating Principles, are detailed in Section 3.1 of the Master Plan.

2.1 Alternative 1: No Action

Under the No Action Alternative, the USACE would take no action and would not revise the 1970 Master Plan (USCE 1970). Instead the USACE would continue to manage Belton Lake's natural resources as set forth in the 1970 Master Plan. The 1970 Master Plan would continue to provide the only source of comprehensive management guidelines and philosophy. The No Action Alternative, while it does not meet the purpose of or need for the Proposed Action, serves as a benchmark of existing conditions against which Federal actions can be evaluated, and as such, the No Action Alternative is included in this EA, as prescribed by CEQ regulations (40 CFR §

1502.14(d)). Under the No Action Alternative, no new resource analysis or land-use classification would occur at the project.

2.2 Alternative 2: Proposed Action

Under the Proposed Action, the USACE proposes to adopt and implement the 2018 Master Plan. The 2018 Master Plan would replace the 1970 Master Plan and provide an up-to-date management plan that follows current Federal laws and regulations while sustaining Belton Lake's natural resources and providing recreational experiences for the next 25 years.

Under Alternative 2, the Master Plan would be reviewed, coordinated with the public, revised to comply with USACE regulations and guidance, and revised to reflect changes in land management and land uses that have occurred over time or are desired in the foreseeable future. The key to this alternative would be the revision of land classifications to USACE standards and the preparation of resource objectives that would reflect current and projected needs and be compatible with regional goals. Required changes associated with the Proposed Action would include reclassifications of land, classification of the water surface, adoption of new resource objectives, and preparation of a resource plan describing how each land classification would be managed for the foreseeable future. The Proposed Action would result in the following land and water surface reclassifications covering all Federal lands at Belton Lake:

- 261 acres Project Operations
- 1,888 acres Environmentally Sensitive Area
- 82 acres Multiple Resource Management Lands - Low Density Recreation
- 1,467 acres High Density Recreation
- 9,521 acres Multiple Resource Management Lands - Wildlife Management
- 20 acres Water Surface: Restricted
- 42 acres Water Surface: Designated No-Wake
- 12,323 acres Water Surface: Open Recreation

Note, acreages were measured using GIS technology and may vary from official land acquisition records. Acreage varies depending on changes in lake level, sedimentation, and shoreline erosion. Total water surface area, when lake is at conservation pool, at Belton Lake is 12,385 acres and comprises of 136 miles of shoreline.

The proposed land classification categories are defined as follows:

- Project Operations (PO): Lands required for the dam, spillway, switchyard, levees, dikes, offices, maintenance facilities, and other areas used solely for the operation of Belton Lake.
- High Density Recreation (HDR): Lands developed for the intensive recreational activities for the visiting public including day use and campgrounds. These areas could also be for commercial concessions and quasi-public development.
- Environmentally Sensitive Areas (ESA): Areas where scientific, ecological, cultural, or aesthetic features have been identified.

- Multiple Resource Management Lands (MRML): Allows for the designation of a predominate use with the understanding that other compatible uses may also occur on these lands.
 - Wildlife Management (WM): Lands designated for stewardship of fish and wildlife resources.
 - Low Density Recreation (LDR): Lands with minimal development or infrastructure that support passive recreation use (primitive camping, fishing, hunting, trails, wildlife, viewing, etc.).
 - Vegetative Management (VM): Lands designated for stewardship of forest, prairie, and other native vegetative cover.
 - Future or Inactive recreation Areas: Areas with site characteristics compatible with potential future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources.
- Water Surface: Allows for surface water zones.
 - Restricted: Water areas restricted for Belton Lake operations, safety, and security.
 - Designated No-Wake: Water areas to protect environmentally sensitive shoreline areas and recreational water access areas from disturbance and areas to protect public safety.
 - Open Recreation: Water areas available for year-round or seasonal water-based recreational use.

Table 2-1 shows the proposed classifications and acres contained in each classification as well as the water surface classifications. A justification for the proposed reclassification is included.

Table 2.1 Reclassification Proposals

Proposal	Description	Justification
Project Operations	<p>Lands under the prior classification of Operation and Maintenance were converted to the new and similar classification of PO and increased by 94 acres for a total of 261 acres due to improved mapping and the following:</p> <ul style="list-style-type: none"> • 8 acres from Aesthetics • 51 acres from Recreational Areas Priority 1 • 35 acres from improved measurement technology. 	<p>The PO land classification was expanded due to the creation of permanent weirs and to protect visitors near the water intake structures around Belton Lake. The conversion of these lands will have no effect on the current or projected public use.</p>

High Density Recreation	<p>Lands under the prior classification of Recreational Areas Priorities 1, 2, 3, and 4 were converted to the new and similar classification of HDR but were reduced by 1,574 acres for a total of 1,467 acres due to improved mapping and the following:</p> <ul style="list-style-type: none"> • 220 net acres to Environmentally Sensitive Areas (ESA) • 82 acres to MRML – LDR • 51 acres to PO • 739 acres to MRML – WM • 30 acres sold to water district • 258 transferred to BLORA • 194 acres due to improved measurement technology 	<p>Historically, these lands have been managed for the benefit of wildlife and are places where Golden-cheeked warbler (GCWA) habitat exists. Areas with contiguous habitat remaining or breeding and nesting habitat are more appropriately classified as ESA or WM lands. The conversion of these lands will have no effect on current or projected public use.</p>
Environmentally Sensitive Areas	<p>The classification of 1,888 acres as ESA resulted from the following land classification changes:</p> <ul style="list-style-type: none"> • 1,609 acres from Aesthetics • 85 acres from Recreational Areas Priority 1 • 194 acres from Recreation Areas Priority 2 	<p>These classification changes were necessary to recognize those areas at Belton Lake having the highest ecological value, including areas of high value for protection of important habitat for the endangered GCWA as designated by the USFWS, and to protect unique views and cultural and archeological sites. The conversion of lands 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>
Multiple Resource Management Lands - Wildlife Management	<p>The classification of 9,521 acres of MRML-WM resulted from the reclassification of some lands under the prior classification as follows:</p> <ul style="list-style-type: none"> • 8,640 acres from Aesthetics • 881 acres from Recreation Priority 1, 2, 3 & 4 	<p>The land in the former classification of Aesthetics and Priority 1, 2, 3, & 4 were converted to MRML-WM to more appropriately align with historic land use patterns supporting the change. The conversion of these lands will have no</p>

		effect on current or projected public use.
Multiple Resource Management Lands – Low Density Recreation	The classification of 82 acres to LDR resulted from converting some lands under the prior classification of Recreation Priority 1.	The land in the former classification of Priority 1 were converted to LDR due to the area having historic land use patterns supporting the change. The conversion of these lands will have no effect on current or projected public use.
Water Surface	<p>The classification of 12,385 acres of water surface of the lake at the conservation pool elevation is as follows:</p> <ul style="list-style-type: none"> • 20 acres of Restricted water surface at Belton Lake include the water surface in front of the intake structure at the control tower at Belton Dam and designated swimming areas in the parks around Belton. Buoys mark the line in front of the dam. Keep-out buoys and floating barrier pipes mark the designated swimming areas in each park. • 42 acres of Designated No-Wake areas are in place near the boat ramps and marina areas at Belton Lake. • There are 12,323 acres of Open Recreation water surface at Belton Lake. 	Previous master plans for Belton Lake did not specify different classifications on the water surface, though these classifications were recognized in practice. This master plan revision recognizes and specifies these uses. The classification of water surfaces will have no effect on current or projected public use.
Utility Corridors	Six utility corridors were identified to serve as preferred locations for future outgrants such as easements for utility lines on USACE lands at Belton Lake. Descriptions of each corridor can be found in Section 6.8 of the 2018 Master Plan.	Utility corridors identify areas for current and future utility use that would also limit further fragmentation of existing habitat at Belton Lake.

1 The land classification changes described in this table are the result of changes to several individual parcels of land
2 ranging from a few acres to several hundred acres. Acreages were measured using geographic information system
3 (GIS) technology. The acreage numbers provided are approximate.

Land Surface Classifications

Project Operations

In the 2018 Master Plan, there are 261 acres of land under this classification, all of which are managed by the USACE. Land designated as Project Operations lands are associated with the dam, spillway, powerhouse, levees, lake office, maintenance facilities, and other areas used primarily for the purposes of flood risk management and water conservation. The management activities for this area involve continuing to provide physical security necessary to ensure sustained operations of the dam and related facilities, including restricting public access in hazardous locations near the dam and spillway.

High Density Recreation

The 2018 Master Plan stipulates that lands managed under this classification are lands developed for intensive recreational activities for the visiting public, including day use and campgrounds, and encompasses 1,467 acres. National USACE policy set forth in Engineering Regulation (ER) and Engineer Pamphlet (EP) 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 include water-based activities, overnight use such as campgrounds, and day use such as marinas, 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 theme parks or ride-type attractions, sports or concert stadiums, and stand-alone facilities such as restaurants, bars, motels, hotels, and golf courses.

USACE operates and manages numerous areas designated as High Density recreation. The 2018 Master Plan, (Chapters 5.3.1, 5.3.2, and 5.3.3) describes the various parks under management by the USACE, as well as parks that are leased by non-Federal grantees from the USACE, and provides a conceptual management plan for each park by classification group. There are two USACE-managed classification groups, Class A (highly developed) and Class C (basic facilities). Maps showing existing parks and facilities managed by the USACE can be found in Appendix A of the 2018 Master Plan. In addition to the USACE-managed and USACE-operated High Density recreation areas, USACE leases four High Density recreation areas that are managed as parks by recreation partners (i.e., non-Federal grantees).

Environmentally Sensitive Area

In the 2018 Master Plan there are 1,888 acres designated as ESAs at Belton Lake. These are areas where scientific, ecological, cultural, or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act (NHPA), or applicable state statutes. These areas must be managed to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration and management. These areas are typically distinct parcels located within another, and perhaps larger, land classification area. The majority of acreage in these

1 areas is excellent habitat for federally-listed endangered or threatened species such as
2 the Black-capped Vireo (*Vireo atricapilla*), Golden-cheeked Warbler (*Dendroica*
3 *chrysoparia*), Least Tern (*Sterna antillarum*), Whooping Crane (*Grus americana*), and
4 Salado Salamander (*Eurycea chisholmensis*). Additional consideration was given to
5 unique or scarce habitat types such as bottomland hardwood forests located along river
6 and creek bottoms when determining which areas should be designated as ESAs.

7 Multiple Resource Management Land (MRML)

8 MRML are, as the name implies, lands that serve multiple purposes but that are
9 sub-classified and managed for a predominant use. The following paragraphs describe
10 the various sub-classifications of MRML at Belton Lake, as well as the resource
11 objectives, acreages, and management plan for each sub-classification.

12 MRML – Low Density Recreation

13 These are lands with minimal development or infrastructure that support passive
14 public use including, but not limited to, hiking, nature photography, bank fishing, and
15 hunting. Future management of these lands calls for maintaining a healthy, ecologically
16 adapted vegetative cover to reduce erosion and improve aesthetics. Prevention of
17 unauthorized use such as trespass or encroachments is an important management
18 objective for all USACE lands, but is especially important for those lands in close
19 proximity to private development. These lands are typically open to the public, including
20 adjacent landowners, for pedestrian traffic and are frequently used by adjacent
21 landowners for access to the shoreline near their homes. Adjacent landowners may
22 apply for a permit to mow a meandering path to the shoreline, and if conditions warrant,
23 may apply for a permit to mow a narrow strip along the USACE boundary line as a
24 precaution against wildfire. Mowing activity by adjacent landowners is addressed in the
25 Belton Lake Shoreline Management Statement of Policy available at the Belton Lake
26 Project Office, and briefly described in Section 6.6 of the 2018 Master Plan. The general
27 public may use these lands for bank fishing, for hiking, and for access to the shoreline.
28 Hunting may be allowed in select areas that are a reasonable and safe distance from
29 adjacent residential properties. Future uses may include additional designated natural
30 surface hike/bike/equestrian trails. The placement of public trails in areas near
31 residential properties will require public involvement prior to trail design. In the 2018
32 Master Plan, there are 82 acres of MRML -- Low Density Recreation lands at Belton
33 Lake.

34 MRML – Wildlife Management

35 These are lands designated for the stewardship of fish and wildlife resources and
36 are managed by the USACE. In the 2018 Master Plan, there are 9,521 acres of land
37 designated as WM at Belton Lake. Future management of these lands calls for
38 managing the habitat to support native, ecologically adapted vegetation which in turn
39 supports native wildlife species. Specific management techniques including, but not
40 limited to, placement of nesting structures, construction of water features or brush piles,
41 prescription burning, fencing, and planting of specific food producing plants may be
42 necessary to support the needs of wildlife Species of Greatest Conservation Need
43 (SGCN) (see Appendix C of the 2018 Master Plan for the TPWD listing of SGCN).
44 Migratory species, both game and non-game, are generally given priority over non-

migratory species when implementing wildlife management measures. Other management activities include the improvement or restoration of existing wetlands, or where topography, soil type, and hydrology are appropriate, the construction of wetlands. Where beneficial to long-term ecological management goals, agricultural leases for grazing or hay production could be employed. Hunting and fishing activities are regulated by Federal and state laws. However, management of these lands is directed to giving priority to accomplishing the Natural Resources Management objectives as identified in Chapter 3 of the 2018 Master Plan.

Current public use of these lands includes hiking and horseback riding on existing trails, bank fishing, canoeing and kayaking, and hunting. Future public use includes all existing uses and expansion of trail opportunities where feasible. Some MRML – Wildlife Management may support the establishment of nature centers or environmental learning areas.

Water Surface Classifications

In accordance with the national USACE policy set forth in EP 1130-2-550, the water surface of Belton Lake at the conservation pool elevation may be classified using the following four classifications:

- Restricted
- Designated No-Wake
- Fish and Wildlife Sanctuary
- Open Recreation

At the conservation pool elevation of 594.0 NGVD29, Belton Lake has a water surface area of 12,385 acres. The following water surface classifications are designated at Belton Lake:

Restricted

Restricted water surface includes those areas where recreation boating is prohibited or restricted for project operations, safety, and security purposes. There are 20 acres of water surface designated as restricted at Belton Lake. These areas include the water surface upstream and downstream of the Belton Dam and designated swimming areas in the parks around Belton Lake. Standard U.S. Coast Guard (USCG) regulatory buoys are deployed around these areas and are managed by the USACE in close coordination with TPWD. Buoys mark the restricted area in front of the dam and a line of signs in the Leon River denotes the restricted area downstream of the dam. Keep-out buoys and yellow poly buoy lines also mark the designated swimming areas.

Designated No-Wake

Designated No-Wake areas are intended to protect lake users and improve boating safety near key recreational water access areas such as boat ramps and marinas. Designated No-Wake areas at Belton Lake include approximately 42 acres at the 3 existing marinas and 11 public boat ramps. These areas are typically marked with standard USCG regulatory buoys.

Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. With the exception of the Restricted and Designated No-Wake areas described in the above paragraphs, the remaining water surface of approximately 12,323 acres at Belton Lake water surface is designated as Open Recreation. Boaters are advised through maps, brochures, and signs at boat ramps and marinas, that navigational hazards may be present at any time and at any location in these areas.

Fish and Wildlife Sanctuary

This surface water classification applies to areas that are managed with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, or spawning. No surface water at Belton Lake is classified as Fish and Wildlife Sanctuary.

Project Easement Lands

Project Easement lands are lands on which easement interests were acquired. Fee title was not acquired on these lands, but the easement interests convey to the Federal government certain rights to use or restrict the use of the land for specific purposes. Easement lands are typically classified as Operations Easement, Flowage Easement, or Conservation Easement. At Belton Lake, the only easement lands are those lands where a Flowage Easement was acquired. A Flowage Easement, in general, grants to the government the perpetual right to temporarily flood/inundate private land during flood risk management operations. Activities prohibited within the Flowage Easement that would interfere with flood risk management operations include the placement of fill material or construction of habitable structures. In the 2018 Master Plan, there are 6,861 acres of land designated as Flowage Easement lands at Belton Lake.

2.3 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

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

SECTION 3: AFFECTED ENVIRONMENT AND CONSEQUENCES

This section of the EA describes the natural and human environments that exist at the project and the potential impacts of the No Action (Alternative 1) and Proposed Action (Alternative 2), outlined in Section 2.0 of this document. Only those issues that have the potential to be affected by any of the alternatives are described, per CEQ guidance (40 CFR § 1501.7 [3]). Some topics are limited in scope due to the lack of direct effect from the Proposed Action on the resource or because that particular resource is not located within the project area. For example, no body of water in the

1 Belton Lake watershed is designated as a Federally Wild or Scenic River, so this
2 resource will not be discussed.

3 Impacts (consequence or effect) can be either beneficial or adverse and can be
4 either directly related to the action or indirectly caused by the action. Direct effects are
5 caused by the action and occur at the same time and place (40 CFR § 1508.8 [a]).
6 Indirect effects are caused by the action and are later in time or further removed in
7 distance but are still reasonably foreseeable (40 CFR § 1508.8 [b]). As discussed in this
8 section, the alternatives may create temporary (less than 1 year), short-term (up to 3
9 years), long-term (3 to 10 years following the master plan revision), or permanent
10 effects.

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

- 19 • Negligible: A resource would not be affected or the effects would be at or
20 below the level of detection, and changes would not be of any measurable
21 or perceptible consequence.
- 22 • Minor: Effects on a resource would be detectable, although the effects
23 would be localized, small, and of little consequence to the sustainability of
24 the resource. Mitigation measures, if needed to offset adverse effects,
25 would be simple and achievable.
- 26 • Moderate: Effects on a resource would be readily detectable, long-term,
27 localized, and measurable. Mitigation measures, if needed to offset
28 adverse effects, would be extensive and likely achievable.
- 29 • Major: Effects on a resource would be obvious and long-term, and would
30 have substantial consequences on a regional scale. Mitigation measures
31 to offset the adverse effects would be required and extensive, and
32 success of the mitigation measures would not be guaranteed.

33 **3.1 LAND USE**

34 Belton Lake was originally authorized by the Flood Control Acts of 1946 and
35 1954. Construction of the Belton Lake Dam began in 1949 and was completed in 1954.
36 The total project area at Belton Lake encompasses 24,240 acres in fee owned land in
37 addition to 6,861 acres of flowage easement lands. When the pool elevation is at the
38 normal or conservation pool elevation of 594.0 NGVD29, the lake has a surface area of
39 approximately 12,385 acres.

40 The USACE lands above elevation 594.0 NGVD29 associated with Belton Lake
41 are listed in the 1970 Master Plan as follows:

- 42 • 167 acres of land managed as operations and maintenance

- 3,041 acres of land managed as public recreational areas (Priority 1,2,3, & 4)
- 8,732 acres of land managed as aesthetic and multiple use recreation and wildlife area

The USACE operates and manages numerous areas designated as HDR. In addition to the USACE-operated parks, the USACE leases seven areas to non-Federal partners referred to as grantees. Each grantee is responsible for the operation and maintenance of their leased area; USACE does not provide direct maintenance within any of the leased locations, but it may occasionally lend support where appropriate. The USACE reviews requests and ensures compliance with applicable laws and regulations for proposed activities in all leased and USACE-operated HDR areas. These parks are Cedar Ridge Park, Live Oak Ridge Park, Westcliff Park, White Flint Park, and Winkler Park.

Section 5.3 of the 2018 Master Plan further describes recreational areas at Belton Lake.

3.1.1 Alternative 1: No Action

The No Action Alternative for Belton Lake is defined as the USACE taking no action, which means the Master Plan would not be revised. No new resources analysis, resources management objectives, or land-use classifications would occur. The operation and maintenance of USACE lands at Belton Lake would continue as outlined in the existing Master Plan. Although this alternative does not result in a Master Plan that meets current regulations and guidance, there would be no short- or long-term, minor, moderate or major, beneficial, or adverse impacts on land use on Belton Lake project lands.

3.1.2 Alternative 2: Proposed Action

The objectives for revising the Belton Lake Master Plan were to describe current and foreseeable land uses, taking into account expressed public opinion and USACE policies that have evolved to meet day-to-day operational needs. The USACE intends to continue to operate the Class A campgrounds and Day Use Area, as well as Class C Day Use Areas and Access points, by maintaining and improving existing facilities with no plans for expansion. Emphasis will be placed on improvements such as upgrading aging water and electrical infrastructure, improving service facilities such as restrooms and showers, improving energy efficiency, and improving the sustainability of facilities. The changes required for the Proposed Action were developed to help fulfill the regional goals associated with good stewardship of natural resources that would allow for the continued use and development of project lands. With the combination of continued HDR and LDR land classifications coupled with the designation of utility corridors, land use changes are expected to be minimal at Belton Lake. Therefore, implementation of the Proposed Action would not result in any short- or long-term, minor, moderate or major, beneficial, or adverse impacts on land use on Belton Lake project lands.

3.2 WATER RESOURCES

The water resources for Belton Lake can be classified into three categories- Groundwater, Surface water, and Wetlands. The primary water resource in the Belton Lake area is surface water.

Surface Water

Belton Lake is within the Brazos River Basin, the second largest river basin in Texas encompassing about 44,670 square miles spanning from Curry County, New Mexico, extending diagonally southeast through the state of Texas to the Gulf of Mexico. The estimated drainage area of the Belton Lake is 3,531 square miles and includes Cowhouse, Owl, Cedar, and Stampede Creeks.

Belton Lake was authorized to be built under the Federal Flood Control Act of July 24, 1946, modified on September 3, 1954. The Water Rights were allocated by the State Board of Water Engineers under Permit No. 1689 on 29 October 1953 to the U. S. Government to divert 10,000 acre-feet of water per year for the use of the installation at Fort Hood. Additional water rights were granted to the Brazos River Authority (BRA), under permit No. 2018, on 24 July 1964. This authorized BRA to impound not to exceed 457,600 acre-feet of water in Belton Lake and the capacity to divert and use not to exceed 95,000 acre-feet per year for municipal purposes and 150,000 acre feet per year for industrial purposes with a priority right of 110,000 acre-feet per year. BRA received additional authority by the amended permit No. 2018.

The volumetric survey of 2015 of Belton Lake indicates that the lake has a total reservoir capacity of 432,631 acre-feet and encompasses 12,445 acres at conservation pool elevation as described in Section 1.9 of the 2018 Master Plan.

Hydrology and Groundwater

The two primary sources of groundwater in the Belton Lake area are the Edwards Balcones Fault Zone (BFZ) Aquifer and the Trinity Aquifer (Texas Water Development Board [TWDB] 2015). Further description of hydrology and groundwater at Belton Lake is provided in Section 2.1.4 of the 2018 Master Plan.

Wetlands

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

Wetlands in the Belton Lake area are most common on floodplains along rivers and streams (riparian wetland), along the margin of the lake, and in other low-lying areas where groundwater intercepts the soil (springs). Wetlands generally occur as small emergent wetlands associated with ephemeral streams or as large forested wetland complexes adjacent to perennial channels.

Table 3-1 lists the acreages of various types of wetlands present at Belton Lake. Wetland classifications, as depicted in Figure 1.

Table 3-1. Wetland Resources

Wetland Types	Total Acres
Freshwater Emergent Wetland	388
Freshwater Forested/Shrub Wetland	754
Freshwater Pond	19
Riverine	533
Lake	12,239

Note: Acreages from the USFWS website do not match exactly with the USACE digitized acreages.

Figure 1. National Wetland Inventory Mapped Wetlands at Belton Lake



Water Quality

Belton Lake is identified as Segment ID 1220 within the Brazos River Basin. According to the Texas Commission on Environmental Quality (TCEQ) draft 2016 Texas Integrated Report for Clean Water Act Section 305(b) and 303(d), no water quality parameters measured were considered impaired at Belton Lake (TCEQ 2018). All parameters measured such as dissolved Oxygen levels, metals in water, organics in water, sediment Toxicity sets, and macrobenthos communities, show Belton Lake as fully supported (FS) for aquatic life, contact recreation, public water supply and general uses.

Upstream of Belton Lake, Leon River (Segment ID 1259) is identified on the 303(d) list as impaired for recreation use due to bacteria in the draft 2016 Texas Integrated Report of Surface Water Quality (TCEQ, 2018).

Section 2.2.8 of the 2018 Master Plan provides further description of water quality at Belton Lake.

3.2.1 Alternative 1: No Action

There would be no short- or long-term, minor, moderate or major, beneficial, or adverse impacts on water resources as a result of implementing the No Action Alternative, since there would be no change to the existing Master Plan.

3.2.2 Alternative 2: Proposed Action

The reclassifications and resource management objectives required for the Proposed Action would allow land management and land uses to be compatible with the goals of good stewardship of water resources (e.g., conservation of emergent wetlands, erosion control, and maintaining good water quality). The increase of ESA (1,888 acres) and WM (739 acres) classified lands provide valuable buffering and filtering properties to adjacent water bodies. The proposed utility corridors would further limit potential impacts to water resources at Belton Lake. Therefore, there would be no short- or long-term, minor, moderate or major, beneficial, or adverse impacts on water resources as a result of the 2018 Master Plan.

3.3 CLIMATE

Belton Lake lies near the intersection of the Cross Timbers and Texas Blackland ecoregions, along the northern extent of the Edward's Plateau. The climate is characterized by short, mild winters and long hot summers. In spring, summer, and fall, prevailing winds are from the south and southwest. The mean annual temperature in the vicinity of the dam site is approximately 67 degrees (°) Fahrenheit (F). The maximum recorded temperature was 112° F and the recorded low was -2° F in January 1949. The mean annual precipitation over the contributing portion of the Brazos River Basin above Belton Lake is approximately 36 inches.

Section 2.1.2 of the 2018 Master Plan further describes the regional and local climate.

3.3.1 Alternative 1: No Action

The No Action Alternative does not involve any activities that would contribute to changes in existing conditions. There would be no short- or long-term, minor, moderate or major, beneficial, or adverse impacts on climate as a result of implementing the No Action Alternative.

3.3.2 Alternative 2: Proposed Action

Revision of the Belton Lake Master Plan would have no impact on the climate of the study area. There would no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts on climate as a result of the updated 2018 Master Plan.

3.4 CLIMATE CHANGE AND GREENHOUSE GASES

CEQ drafted guidelines for determining meaningful greenhouse gas (GHG) decision-making analysis. The CEQ guidance states that if a project would be reasonably anticipated to cause direct emissions of 25,000 metric tons or more of carbon dioxide (CO₂)-equivalent (CO₂e) GHG emissions per year, the project should be considered in a qualitative and quantitative manner in NEPA reporting (CEQ 2015). CEQ proposes this as an indicator of a minimum level of GHG emissions that may warrant some description in the appropriate NEPA analysis for agency actions involving direct emissions of GHG (CEQ 2015).

Regional contributors to greenhouse gas emissions include major transportation corridors such as I-35 and other residential and industrial emitters associated with urban development within Bell or Coryell Counties. The Belton Lake Project Office will continue monitoring programs as required to meet applicable laws and policies.

Two Executive Orders (EOs), EO 13514 and EO 13653, as well as the President's Climate Action Plan (CAP) set forth requirements to be met by federal agencies. These requirements range from preparing general preparedness plans to meeting specific goals to conserve energy and reduce GHG emissions. The USACE has prepared an Adaptation Plan in response to the EOs and CAP. The Adaptation Plan includes the following USACE policy statement:

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

The USACE manages 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 EO 13693 and related USACE policy.

Texas, in general, experiences multiple climate and weather hazards including floods, droughts, severe storms, tornadoes, hurricanes and winter storms. The National Climate Assessment (Shafer et al., 2014) projected that large parts of Texas and Oklahoma are projected to see longer dry spells by mid-century (2041-2070),

1 particularly in the western edges of the state. Although the projected number of heavy
2 precipitation days is not expected to change dramatically through the remainder of the
3 century.

4 **3.4.1 Alternative 1: No Action**

5 The No Action Alternative does not involve any activities that would contribute to
6 changes in existing conditions. There would be no short- or long-term, minor, moderate,
7 or major, beneficial, or adverse impacts on climate change or contributions to GHG
8 emissions as a result of implementing the No Action Alternative.

9 **3.4.2 Alternative 2: Proposed Action**

10 Under the Proposed Action, current Belton Lake project management plans and
11 monitoring programs would not be changed. There would be no short- or long-term,
12 minor, moderate, or major, beneficial, or adverse impacts on climate change or
13 contributions to GHG emissions as a result of the updated 2018 Master Plan. In the
14 event that GHG emission issues become significant enough to impact the current
15 operations at Belton Lake, the 2018 Master Plan and all associated documents would
16 be reviewed and revised as necessary.

17 **3.5 AIR QUALITY**

18 The USEPA established nationwide air quality standards to protect public health
19 and welfare in 1971. The State of Texas has adopted the National Ambient Air Quality
20 Standards (NAAQS) as the state's air quality criteria. NAAQS standards specify
21 maximum permissible short- and long-term and concentrations of various air
22 contaminants including primary and secondary standards for six criteria pollutants:
23 Ozone (O₃), Carbon Monoxide (CO), Sulfur Dioxide (SO₂), Nitrogen Dioxide (NO₂),
24 particulate matter (PM₁₀ and PM_{2.5}), and Lead (Pb). Based on both Federal and state air
25 quality standards, an area can be classified as either an "attainment," "maintenance," or
26 "non-attainment" area for each pollutant. According to TCEQ current State
27 Implementation Plan (TCEQ 2015), the Belton Lake area (Bell and Coryell Counties) is
28 an attainment area and does not require a pollutant control strategy. In 2017, Bell
29 County, Texas air quality was rated as "Good" for 303 out of 365 days (EPA, 2017).
30 Only 5 days were reported as "Unhealthy for Sensitive Groups".

31 **3.5.1 Alternative 1: No Action**

32 There would be no short- or long-term, minor, moderate or major, beneficial, or
33 adverse impacts on air quality as a result of implementing the No Action Alternative,
34 since there would be no change to the existing Master Plan.

35 **3.5.2 Alternative 2: Proposed Action**

36 Existing operation and management of Belton Lake is compliant with the Clean
37 Air Act and would not change with implementation of the 2018 Master Plan. No short- or
38 long-term, minor, moderate, or major, beneficial, or adverse impacts on air quality would
39 occur as a result of implementing the proposed revisions to the Belton Lake Master
40 Plan.

3.6 TOPOGRAPHY, GEOLOGY, AND SOILS

Topography

The topography of the lands surrounding Belton Lake is controlled, for the most part, by the underlying and surface geology and soils. It is defined by rolling prairies and steep breaks. Belton Lake is in the Balcones Fault Zone, a region of many small faults. Over geological time, the area surrounding this fault zone has elevated as much as 500 feet above sea level in the eastern part and as high as 1,200 feet in the western part. Erosion in the area has created an irregular steep sloping terrain. Soils developed from thousands of years of slow erosion by major streams and tributaries cover most of the relatively flat areas of limestone surface, resulting in a rolling topography of hills bisected by steep bluffs where streams are located. Meandering stream beds and floodplains cut into the limestone are filled with relatively flat alluvial deposits in the stream valleys. Further discussion on the topography in the region can be found in Section 2.1.3 of the 2018 Master Plan.

Geology

The underlying geology of Belton Lake is that of valleys, buttes, and mesas. It is located in the Mid-Continent Plains and Escarpments physiographic region, and the eastern edge of the Edwards Plateau. The area of Belton Lake was originally that of rolling prairies with limestone beds. However the softer limestone was eroded slowly forming narrow long valleys and streams flowing in a southeastwards direction leaving the ridges of the harder limestone. The area is characterized by karst topographic features such as sinkholes, caves, and underground springs. The geologic formations of Cretaceous and Quaternary Ages in the Belton Lake area are Glen Rose, Paluxy Sand, Walnut Clay, Comanche Peak Limestone, and Denton Clay formations. Further discussion on the geology in the region can be found in Section 2.1.3 of the 2018 Master Plan.

Soils

Geology influences the kind of soils that develop in any area. Geologic formation in the Belton Lake is wholly within the Mesozoic period. All the rock outcrops are of the lower Cretaceous (Comanche) formation and the Cretaceous Gulf formation. Soils in the Belton Lake area are naturally susceptible to soil erosion. The major soil series found in the area are Topsey Clay Loam Doss-Real Complex, Eckrant-Rock Outcrop Complex, Real-Rock Outcrop Complex, and Sony Silty Clay Loam. The soils in general are well drained and moderately permeable, but can vary in depth, parent material, and slope. Hydrologically, these soil groups generally have a moderate infiltration water rate. However, in the areas where soils tend to be of clay formation, a very slow infiltration rate (high runoff potential) is recorded which gives the soil a shrink-swell potential.

Prime Farmland

As required by Section 1541(b) of the Farmland Protection Policy Act (FPPA) of 1980 and 1995, 7 U.S.C. 4202(b), federal and state agencies, as well as projects funded with federal funds, are required to: 1) use the criteria to identify and take into account the adverse effects of their programs on the preservation of farmland; 2) consider alternative actions, as appropriate, that could lessen adverse effects; and 3)

1 ensure that their programs, to the extent practicable, are compatible with state and units
2 of local government and private programs and policies to protect farmland.

3 There are several soil types on Belton Lake project lands that are considered prime
4 farmland soils or soils associated with farmlands of state importance. However, the
5 lands represented by these soil types have not been used for farming since the lands
6 were acquired prior to the completion of construction of Belton Lake Dam in 1954.

7 **3.6.1 Alternative 1: No Action**

8 The No Action Alternative does not involve any activities that would contribute to
9 changes in existing conditions, so there would be no short- or long-term, minor,
10 moderate, or major, beneficial, or adverse impacts on topography, geology, soils,
11 sedimentation, or shoreline erosion as a result of implementing the No Action
12 Alternative.

13 **3.6.2 Alternative 2: Proposed Action**

14 Topography, geology, soils, and prime farmland were considered during the
15 refining process of land reclassifications for the 2018 Master Plan. Development of
16 utility corridors will take into account the soils types present, and, in the case of erosive
17 soils, soil stabilization measures would be required to be implemented. Some lands
18 under the prior classification of Recreation Areas were reclassified to the new and
19 similar classification of HDR, but total acreage was reduced from 3,041 acres to 1,467
20 acres. This reduction is solely based on the realization that the amount of acreage
21 originally planned for intensive recreation use per the 1970 Master Plan significantly
22 exceeded the amount necessary to meet public needs and was excessive and not being
23 fully utilized. Areas currently developed as park would continue to operate as parks and
24 no change would occur. However, 399 acres of the lands designated as Recreation
25 Areas would be reclassified to Wildlife Management, along with 85 acres to ESA, to
26 better reflect historic use patterns and current land management efforts. The conversion
27 of these lands would have no effect on current or projected public use. Therefore, under
28 the Proposed Action, there would be no short- or long-term, minor, moderate, or major,
29 beneficial, or adverse impacts on topography, geology, soils, or prime farmland as a
30 result of implementing the 2018 Master Plan.

31 **3.7 NATURAL RESOURCES**

32 Operational civil works projects administered by USACE are required, with few
33 exceptions, to prepare an inventory of natural resources. The basic inventory required is
34 referred to within USACE regulations (ER and EP 1130-2-540) as a Level One
35 Inventory. This inventory includes the following: vegetation in accordance with the
36 National Vegetation Classification System through the sub-class level; assessment of
37 the potential presence of special status species including but not limited to Federal and
38 State listed endangered and threatened species, migratory species, and birds of
39 conservation concern listed by the USFWS; land (soils) capability classes in accordance
40 with NRCS soil surveys; and wetlands in accordance with the USFWS Classification of
41 Wetlands and Deepwater Habitats of the United States, which were previously
42 discussed in Section 3.2.

1 In addition to the data from the Level One Inventories, a Habitat Assessment was
2 conducted on 7-10 August 2017 at Belton Lake by USACE, TPWD, and USFWS. The
3 TPWD's Wildlife Habitat Appraisal Procedures (WHAP) (TPWD 1995) was used to
4 identify general habitat conditions and identify any unique or high quality habitat in the
5 preparation of the 2018 Master Plan.

6 The four major habitat types that were assessed were Grassland, Shrubland,
7 Woodland, and Bottomland Hardwood. The WHAP assessment report is included as
8 Appendix E of the 2018 Master Plan.

9 Overall bottomland hardwood and woodland habitats exhibited the highest
10 average total score (0.64 and 0.53 out of 1.00).

11 The four point (survey site designation) numbers with the highest scores were:
12 57, 76, 5b, and 1. Point 57 received the highest score (0.87) and is located in a fairly
13 remote woodland, with the closest road being 3 miles away. Point 76 has the second
14 highest score, 0.80. This site was located in a bottomland hardwood forest surrounded
15 by farmland. Point 5b received a score of 0.77 and consisted of primarily bottomland
16 hardwood forest within Miller Spring Park. Point 1, also located within Miller Spring Park
17 and consisting of bottomland hardwood forest, received a score of 0.70.

18 The Texas Conservation Action Plan (TCAP) 2012 and the accompanying Texas
19 Cross Timbers Ecoregion Handbook (Handbook), published by TPWD in August 2012,
20 were used in the preparation of the 2018 Master Plan. The TCAP and Handbook were
21 invaluable in identifying Species of Greatest Conservation Need (SGCN), rare plant
22 communities, regional conservation issues, and a suite of conservation actions needed
23 to reduce negative effects on SGCN and rare plant communities. The TCAP and
24 Handbook were especially valuable in preparing the Land Classifications and Resource
25 Objectives in the 2018 Master Plan.

26 Vegetation

27 Belton Lake lies near the intersection of the Cross Timbers and Texas Blackland
28 ecoregions in central Texas. The region is a transitional area between tall grass prairies
29 and oak savannas. The dominant trees include honey locust (*Gleditsia triacanthos*),
30 honey mesquite (*Prosopis glandulosa*), cedar elm (*Ulmus crassifolia*), winged elm
31 (*Ulmus alata*), salt cedar (*Tamarix*), boxelder (*Acer negundo*), black locust (*Robinia*
32 *pseudoacacia*), Ashe juniper (*Juniperus ashei*), and black willow (*Salix nigra*).

33 Predominate herbaceous species include various grasses and forbs. The
34 dominate grasses and forbs found on Belton Lake lands include switchgrass (*Panicum*
35 *virgatum*), false nettle (*Boehmeria ramiflora*), bermuda grass (*Cynodon dactylon*), sea
36 oats (*Chasmanthium latifolium*), Scribner's panic grass (*Panicum oligosanthos*),
37 Johnsongrass (*Sorghum halepense*), and baccharis (*Baccharis halimifolia*).

38 Additional discussion of vegetation resources at Belton Lake can be found in
39 Section 2.2.1 of the 2018 Master Plan and Appendix E: WHAP Summary Report.

Fisheries and Wildlife Resources

Belton Lake provides habitat for an abundance of fish and wildlife species. The lake provides a quality fishery, as well as quality wildlife habitat on public land associated with the project.

Fishing opportunities for boaters and bank anglers are abundant at Belton Lake. Common sport fish species present include striped bass (*Morone saxatilis*), white bass (*Morone chrysops*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*M. dolomieu*), white crappie (*Pomoxis annularis*), channel catfish (*Ictalurus punctatus*), and blue catfish (*I. furcatus*). Other species include a variety of sunfish (*Lepomis* spp.), bluegill (*Lepomis macrochirus*), warmouth (*Lepomis gulosus*), drum (*Aplodinotus grunniens*), carp (*Cyprinus carpio*) and red-bellied pacu (*Piaractus brachypomus*). Stocking of Belton Lake is conducted by TPWD and varies annually but has included striped bass, largemouth bass, smallmouth bass, trout and bluegill.

Additional discussion of fish and wildlife resources at Belton Lake can be found in Section 2.2.3 of the 2018 Master Plan and in the Trust Resources Report in Appendix C of the 2018 Master Plan.

3.7.1 Alternative 1: No Action

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

3.7.2 Alternative 2: Proposed Action

The reclassifications, resource management objectives, and resource plan required for the Proposed Action would allow land management and land uses to be compatible with the goals of good stewardship of natural resources. For example, the Proposed Action in the 2018 Master Plan would allow project lands to continue supporting the USFWS and TPWD missions associated with wildlife conservation and implementation of operational practices that would protect and enhance wildlife and fishery populations and habitat. The addition of 1,888 acres of ESA and 9,521 acres of WM lands protects natural resources from various types of adverse impacts such as habitat fragmentation. Utility corridors would also help prevent further disturbance and fragmentation of fish and wildlife habitat at Belton Lake. The Proposed Action would be compatible with conservation principles and measures to protect migratory birds as mandated by EO 13186. Long-term, minor benefits to natural resources would be likely to occur with implementation of the 2018 Master Plan.

3.8 THREATENED AND ENDANGERED SPECIES

The Endangered Species Act was enacted to provide a program for the preservation of endangered and threatened species and to provide protection for the ecosystems upon which these species depend for their survival. All Federal agencies are required to implement protective measures for designated species and to use their authorities to further the purposes of the Endangered Species Act. The Secretary of the Interior and the Secretary of Commerce (marine species) are responsible for the

1 identification of threatened or endangered species and development of any potential
2 recovery plan.

3 USFWS is the primary agency responsible for implementing the Endangered
4 Species Act, and is responsible for birds and other terrestrial and freshwater species.
5 USFWS responsibilities under the Endangered Species Act include: 1) the identification
6 of threatened and endangered species; 2) the identification of critical habitats for listed
7 species; 3) implementation of research on, and recovery efforts for, these species; and
8 4) consultation with other Federal agencies concerning measures to avoid harm to listed
9 species.

10 An endangered species is a species officially recognized by USFWS as being in
11 danger of extinction throughout all or a significant portion of its range. A threatened
12 species is a species likely to become endangered within the foreseeable future
13 throughout all or a significant portion of its range. Proposed species are those that have
14 been formally submitted to Congress for official listing as threatened or endangered.
15 Species may be considered eligible for listing as endangered or threatened when any of
16 the five following criteria occur: 1) current/imminent destruction, modification, or
17 curtailment of their habitat or range; 2) overuse of the species for commercial,
18 recreational, scientific, or educational purposes; 3) disease or predation; 4) inadequacy
19 of existing regulatory mechanisms; and 5) other natural or human-induced factors
20 affecting their continued existence.

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

28 There are seven Federally-listed species and 2 candidate species that could be
29 found at Belton Lake based on information from USFWS Information for Planning and
30 Consultation (IPaC) website (Consultation Code: 02ETAU00-2018-SLI-0648) (USFWS
31 2018). A list of these species is presented in Table 3-2. No Critical Habitat has been
32 designated within or near Belton Lake. The species identified as Threatened,
33 Endangered or Candidate Species by TPWD that are not federally listed are included in
34 Appendix C of the 2018 Master Plan.

Table 3-2. Federally Listed Endangered and Threatened Species with Potential to Occur at Belton Lake

Common Name	Scientific Name	Federal Status	Occurrence
Whooping Crane	<i>Grus americana</i>	Endangered	Rare; migrant
Least Tern	<i>Sterna antillarum</i>	Endangered	Seasonal; migrant
Piping Plover	<i>Charadrius melodus</i>	Threatened	Rare; migrant
Red Knot	<i>Calidris canufus rufa</i>	Threatened	Rare; migrant
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>	Endangered	Occasional
Salado Salamander	<i>Eurycea chisholmensis</i>	Threatened	None
Smooth Pimpleback	<i>Quadrula houstonensis</i>	Candidate	Rare
Texas Fawnsfoot	<i>Truncilla macrodon</i>	Candidate	Rare

Source: USFWS 2018

Whooping Crane habitat consists of marshes, shallow lakes, lagoons, salt flats, grain and stubble fields, and barrier islands (AOU 1983, Matthews and Moseley 1990, and NatureServe 2018A). While some habitat for this species is present on Belton Lake project lands, few sightings have occurred in recent history, therefore it is considered a rare occurrence at Belton Lake.

Least Tern, Piping Plover, and Red Knot preferred habitat mostly consists of open waters, rivers, lakes, estuaries, marshes, and swamps. Typically nesting occurs on sandy to gravely substrates including shorelines and sandbars or other areas that are near open water. Nests are usually above the high water line and close to vegetation (USFWS 2018 A, B, C). Depending on lake levels, they all may nest along the shorelines or on exposed sandbars at Belton Lake. Shoreline habitat for these species are present on Belton Lake project lands. Few Piping Plover and Red Knot sightings have occurred in recent history in or around Belton Lake, therefore they are considered a rare occurrence; however Least Terns are occasionally seen during migration or the nesting season utilizing the lake and shorelines at Belton Lake.

Golden-cheeked Warbler (GCWA) habitat consists of old-growth and mature regrowth Ashe juniper-oak woodlands in rocky terrain (NatureServe 2018B). Pockets of habitat for Golden-cheeked Warbler are present within and adjacent to Belton Lake project lands. Some sightings have occurred in recent history, therefore they are considered an occasional occurrence at Belton Lake. Section 6.3 of the 2018 Master Plan provides further discussion on the occurrence of GCWA in the region.

1 The Salado Salamander is entirely aquatic and reaches lengths up to 6
2 centimeters (cm), with a grayish-brown dorsal color and slight cinnamon tinge (Herps of
3 Texas, 2018). The entire known population of Salado Salamander is endemic to two
4 areas, Big Boiling Springs and Robertson Springs in Bell County, Texas (NatureServe,
5 2018C). With the Salado Salamander being a spring obligate, they are not expected to
6 be present at Belton Lake.

7 Smooth Pimpleback, which are generally smooth but can have a few to many
8 pustules (NatureServe, 2018E), have been recently known to occur along the Brazos
9 and Colorado Rivers, although not necessarily throughout the entire rivers lengths
10 (USFWS, 2011). Due to the deep, slow moving water, Smooth Pimpleback are not
11 expected to be found within Belton Lake.

12 Texas Fawnsfoot can be found along bank habitat and occasionally in
13 backwaters consisting of mostly sandy substrates within the Brazos and Colorado River
14 basins (USFWS, 2011). Texas Fawnsfoot are ovate to long ovate and likely prefer rivers
15 or larger streams (NatureServe, 2018F). Due to the deep, slow moving water, Texas
16 Fawnsfoot are not expected to be found within Belton Lake.

17 **3.8.1 Alternative 1: No Action**

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

22 **3.8.2 Alternative 2: Proposed Action**

23 Under the Proposed Action, the USACE would continue cooperative
24 management plans with the USFWS and TPWD to preserve, enhance, and protect
25 wildlife habitat resources. To further management opportunities and beneficially impact
26 habitat diversity, the reclassifications proposed in the 2018 Master Plan include 1,888
27 acres as ESAs. Under this reclassification, several land parcels that were previously
28 classified as Aesthetics/Multiple Use Recreation or Recreation Intensive Use and
29 Wildlife Areas were converted to ESAs in order to recognize those areas having the
30 highest ecological value and to ensure they are given the highest order of protection
31 among possible land classifications. Included as ESAs were areas of high-value
32 bottomland hardwood and areas designated by USFWS as high quality habitat for
33 GCWA and Black-Capped Vireo. The conversion of these lands will have no effect on
34 current or projected public use. However, long-term, beneficial impacts on Threatened
35 and Endangered Species could occur as a result of implementing the reclassifications
36 outlined in the 2018 Master Plan. Any future activities that could potentially result in
37 impacts on Federally-listed species will be coordinated with USFWS through Section 7
38 of the Endangered Species Act.

39 **3.9 INVASIVE SPECIES**

40 Invasive species are any kind of living organism which, if uncontrolled, causes
41 harm to the environment, economy, or human health. Invasive species generally grow
42 and reproduce quickly and spread aggressively. Non-native, or exotic, species have

1 been introduced, either intentionally or unintentionally, and can out-compete native
2 species for resources or otherwise alter the ecosystem. Native invasive species are
3 those species that spread aggressively due to an alteration in the ecosystem, such as
4 lack of fire or the removal of a predator from the food chain. Section 2.2.5 in the 2018
5 Master Plan lists invasive and exotic species that occur at Belton Lake. Section 6.4 of
6 the 2018 Master Plan provides further description of invasive species at Belton Lake.

7 Executive Order (EO) 13751, dated December 5, 2016, which amends EO 13112
8 (1999), directs federal agencies to expand and coordinate their efforts to prevent the
9 introduction, establishment, and spread, as well as to eradicate and control populations
10 of invasive species (i.e. noxious plants and animals not native to the U.S.). Non-native
11 flora and fauna can cause significant changes to ecosystems, and upset ecological
12 processes and relationships. Numerous factors can facilitate the spread of plant and
13 animal species outside their natural range, both domestically and internationally.
14 Invasive species damage the habitats that native plants and animals need to survive,
15 and they hurt economies and threaten human well-being.

16 **3.9.1 Alternative 1: No Action**

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

22 **3.9.2 Alternative 2: Proposed Action**

23 The land reclassifications, resource objectives, and resource plan required to
24 revise the Belton Lake Master Plan are compatible with the lake's invasive species
25 management practices. Therefore, invasive species would continue to be managed, and
26 no short- or long-term, minor, moderate or major, beneficial, or adverse impacts on
27 resources would occur as a result of implementing the 2018 Master Plan.

28 **3.10 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES**

29 The earliest well-documented evidence of human occupation in the Belton Lake
30 area is the Clovis culture, which dates to about 13,000 years before present (B.P.).
31 Recent claims of an earlier pre-Clovis occupation (ca. 16,000 B.P.) have been made for
32 the Gault Site in far southern Bell County.

33 Section 2.3 of the 2018 Master Plan provides prehistoric and historic background
34 discussions for the Belton Lake area as well as a summary regarding previous cultural
35 resources investigations.

36 **3.10.1 Alternative 1: No Action**

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

3.10.2 Alternative 2: Proposed Action

Impacts on cultural, historical, and archaeological resources were considered during the refinement processes of land reclassifications and selection of utility corridors. Based on previous surveys at Joe Pool Lake, the required reclassifications, resource objectives, and resource plan would not change current cultural resource management plans or alter areas where these resources exist. All future activities would be coordinated with the State Historic Preservation Officer and federally recognized Tribes to ensure compliance with Section 106 of the NHPA, the Archaeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act. In addition, the allocation of 1,888 acres to ESA and 9,521 acres to Wildlife Management would provide some level of protection to cultural resources as ground disturbance to these areas would be limited. Therefore, no short- or long-term, minor, moderate, or major adverse impacts on cultural, historical, or archaeological resources would occur as a result of implementing the 2018 MP, but there may be minor long-term benefits as a result of land classification changes that would limit potential ground disturbances.

3.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

Belton Lake lies primarily within the northern portion of Bell County and extends in to Coryell County. The zone of influence for the socio-economic analysis of Belton Lake is defined as the counties in which the lake lies, Bell and Coryell, as well as the six additional counties that surround Bell, which are Burnet, Falls, Lampasas, McLennan, Milam, and Williamson counties.

Environmental Justice

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

EO 12898 does not provide guidelines as to how to determine concentrations of minority or low-income populations. However, analysis of demographic data on race, ethnicity, and poverty provides information on minority and low-income populations that could be affected by the Proposed Actions. The U.S. Census American Community Survey provides the most recent estimates available for race, ethnicity, and poverty. Minority populations are those persons who identify themselves as Black, Hispanic, Asian American, American Indian/Alaskan Native, Pacific Islander, or Other (section 2.4.2 of the 2018 Master Plan). Poverty status is used to define low-income. Poverty is defined as the number of people with income below poverty level, which in 2017 was \$24,588 for a family of four with two children under 18 (US Census Bureau, 2018). A

1 potential disproportionate impact may occur when the minority in the study area
2 exceeds 50 percent or when the percent minority and/or low-income in the study area
3 are meaningfully greater than those in the region.

4 Protection of Children

5 EO 13045 requires each Federal agency “to identify and assess environmental
6 health risks and safety risks that may disproportionately affect children” and “ensure that
7 its policies, programs, activities, and standards address disproportionate risks to
8 children that result from environmental health risks or safety risks.” This EO was
9 prompted by the recognition that children, still undergoing physiological growth and
10 development, are more sensitive to adverse environmental health and safety risks than
11 adults. The potential for impacts on the health and safety of children is greater where
12 projects are located near residential areas.

13 Section 2.4 of the 2018 Master Plan provides a detailed discussion on regional
14 demographics.

15 **3.11.1 Alternative 1: No Action**

16 Under the No Action Alternative, there would be no changes to the existing
17 Master Plan, with the USACE continuing to manage Belton Lake’s natural resources as
18 set forth in the 2018 Master Plan. There would be no short- or long-term, minor,
19 moderate, or major adverse impacts on socioeconomic resources. Beneficial
20 socioeconomic impacts existing as a result of the implementation of the current Master
21 Plan would continue, as visitors would continue to come to the lake from surrounding
22 areas. In addition to camping in USACE-operated campgrounds, many visitors
23 purchase goods such as groceries, fuel, and camping supplies locally, eat in local
24 restaurants, stay in local hotels and resorts, play golf at local golf courses, and shop in
25 local retail establishments. These activities would continue to bring revenues to local
26 companies, provide jobs for local residents, and generate local and state tax revenues.
27 There would be no disproportionately high or adverse impacts on minority or low-
28 income populations or children with the implementation of the No Action Alternative.

29 **3.11.2 Alternative 2: Proposed Action**

30 Under the Proposed Action, the land reclassifications, resources objectives, and
31 resource plan reflect changes in land management and land uses that have occurred
32 since 1970. Lake Belton offers a variety of free recreational opportunities for visitors. It
33 is beneficial to the local economy through direct and indirect job creation and local
34 spending by visitors. Beneficial impacts would be similar to the No Action Alternative.
35 There would be no short- or long-term minor, moderate, or major adverse impacts on
36 economy in the area and no disproportionately high or adverse impacts on minority or
37 low-income populations or children as a result of the Proposed Action.

38 **3.12 RECREATION**

39 The primary region having a significant influence on the public use and
40 management of Belton Lake includes Bell and Coryell Counties, situated in central Texas.
41 The majority of visitors to Belton Lake come from within a 100-mile radius of the lake.
42 Belton Lake visitors are a diverse group ranging from campers who utilize the
43 campgrounds around the lake, full-time and part-time residents of the private housing

1 developments that border the lake, hunters and anglers who utilize public lands around
2 the lake, day users who picnic in the locally and Federally operated parks, marina
3 customers, and many other user groups.

4 Sections 2.5, 6.2, and 6.5 of the 2018 Master Plan provides further discussion on
5 recreation opportunities at Belton Lake.

6 **3.12.1 Alternative 1: No Action**

7 Under the No Action Alternative, there would be no short- or long-term, minor,
8 moderate, or major, beneficial, or adverse impacts on recreational resources, as there
9 would be no changes to the existing Master Plan.

10 **3.12.2 Alternative 2: Proposed Action**

11 Belton Lake is beneficial to the local visitors and also offers a variety of free
12 recreation opportunities. Even though the amount of acreage available for HDR and
13 LDR would decrease with implementation of the 2018 Master Plan, these land
14 reclassifications reflect changes in land management and land uses that have occurred
15 since 1970 at Belton Lake. Existing parks, and other recreation areas would continue to
16 be available to the public. The conversion of these lands would have no effect on
17 current or projected public use. Therefore no short- or long-term, minor, moderate or
18 major, beneficial, or adverse impacts on area recreational resources would result from
19 revision of the Belton Lake Master Plan.

20 **3.13 AESTHETIC RESOURCES**

21 Belton Lake is known for its scenic rocky bluffs; this makes it a popular
22 destination for boating and camping. Section 2.2.6 of the 2018 Master Plan provides
23 additional descriptions of scenic opportunities around Belton Lake.

24 **3.13.1 Alternative 1: No Action**

25 There would be no short- or long-term, minor, moderate, or major, beneficial, or
26 adverse impacts on aesthetic resources as a result of implementing the No Action
27 Alternative, as there would be no changes to the existing Master Plan.

28 **3.13.2 Alternative 2: Proposed Action**

29 Belton Lake currently plays a pivotal role in availability of parks and open space
30 in Bell and Coryell counties. The reclassification of land would have no effect on current
31 or projected public use or visual aesthetics. Furthermore, the increase in the acreage of
32 land classified as ESAs and WM would ensure the protection of valuable aesthetic
33 resources at Belton Lake and limit future development. Therefore, no short- or long-
34 term, minor, moderate or major adverse impacts on visual resources would result from
35 implementation of the 2018 Master Plan. The establishment of utility corridors would
36 further limit habitat fragmentation and potential impacts to aesthetics areas at Belton
37 Lake. Long-term, negligible benefits may occur as aesthetic areas within ESA and WM
38 classified lands would receive some protection from future disturbances.

39 **3.14 HAZARDOUS MATERIALS AND SOLID WASTE**

40 This section describes existing conditions within the Belton Lake area with regard
41 to potential environmental contamination and the sources of releases to the

environment. Contaminants could enter the Belton Lake environment via air or water pathways. The highways and roads, marinas, and private residences in the vicinity of the lake could also provide sources of contaminants. There are a number of private marinas around Belton Lake, many of which provide boat fueling service. These fuel docks are regulated by the USCG with regard to spill containment and cleanup requirements. There have been no major releases of boating fuel to the lake in the past 5 years (USACE 2018). There are also numerous public campgrounds and recreation areas/parks around the lake that could contribute small amounts of hazardous materials and waste to the watershed. Illegal trash dumping on project lands by individuals and businesses is a persistent problem. USACE and area law enforcement officials work cooperatively to apprehend those responsible for illegal trash dumping.

Several private residences and commercial facilities also surround the lake shores, and fertilizer and pesticide/herbicide use at those locations could contribute minor amounts of hazardous materials to the lake. Public trash and garbage pickup and disposal is provided for all properties around Belton Lake by commercial solid waste removal contractors (USACE 2018).

3.14.1 Alternative 1: No Action

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

3.14.2 Alternative 2: Proposed Action

The land reclassifications required to revise the Master Plan would be compatible with Belton Lake hazardous and toxic waste and solid waste management practices. Therefore, no short- or long-term, minor, moderate, or major, beneficial, or adverse impacts due to hazardous, toxic, radioactive, or solid wastes would occur as a result of implementing the 2018 Master Plan.

3.15 HEALTH AND SAFETY

As mentioned earlier in this document, Belton Lake's authorized purposes include flood risk management, water conservation, and recreation. Compatible uses incorporated in project operation management plans include conservation and fish and wildlife habitat management components. The USACE, with some assistance from the TPWD and USFWS, has established public outreach programs to educate the public on water safety and conservation of natural resources. In addition to the water safety outreach programs, the lake project has established recreation management practices in place to protect the public. These include safe boating and swimming regulations, safe hunting regulations, and speed limit and pedestrian signs for park roads. Belton Lake also has solid waste management plans in place for camping and day use areas. Belton Lake has personnel in place to enforce these policies, rules, and regulations during normal park hours.

The Texas Department of State Health Service's (DSHS) Seafood and Aquatic Life Group protects consumers from contaminants, disease or other health hazards transmissible or found in fish and shellfish using several functions including Fish

1 Consumption Advisories and Bans for Public Waters. Currently, there are no fish
2 consumption advisories for Belton Lake (DSHS, 2018).

3 **3.15.1 Alternative 1: No Action**

4 Under the No Action Alternative, the Belton Lake Master Plan would not be
5 revised. No short- or long-term, minor, moderate or major, beneficial, or adverse
6 impacts on human health or safety would be anticipated.

7 **3.15.2 Alternative 2: Proposed Action**

8 Under the Proposed Action, the proposed revisions to the Belton Lake Master
9 Plan would be compatible with project safety management plans. The revised water
10 surface classifications of Restricted and Designated No-Wake areas would improve
11 boating safety near key recreational water access areas such as boat ramps. The lake
12 project would continue to have reporting guidelines in place should water quality
13 become a threat to public health. Existing regulations and safety programs throughout
14 the Belton Lake Project area would continue to be enforced to ensure public safety.
15 There would be no short- or long-term, minor, moderate, or major, adverse impacts on
16 public health and safety as a result of implementing the Proposed Action.

17 **3.16 SUMMARY OF CONSEQUENCES AND BENEFITS**

18 Table 3-3 provides a tabular summary of the consequences and benefits for the
19 No Action and Proposed Action alternatives for each of the 15 assessed resource
20 categories.

1 **Table 3-3. 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 Surface Water, 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	No change	No effect	No effect	No added benefit
Climate Change and Greenhouse Gases	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.
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.

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Topography, Geology, Soils, and Prime Farmland	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.
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 1,888 acres of ESA and an increase in lands emphasizing wildlife management to 9,521 acres.
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 T&E species.
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

Resource	Change Resulting from Revised Master Plan	Environmental Consequences		Benefits Summary
		No Action Alternative	Proposed Action	
Recreation	Moderate benefits to outdoor recreation programs.	Fails to recognize current outdoor recreation trends.	Fully recognizes current outdoor recreation trends.	Specific management objectives focused on outdoor recreation opportunities and trends are included.
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.	Use of utility corridors may have minor beneficial impact by limiting fragmentation and ground disturbing activities. 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.	No effect	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 62 acres of surface water as restricted and designated no-wake for public safety purposes.

SECTION 4: CUMULATIVE IMPACTS

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

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

4.1 PAST IMPACTS WITHIN THE ZONE OF INTEREST

Belton Lake was originally authorized by the Flood Control Act of 1946 and modified by the Flood Control Act of 1954. Construction of the Belton Lake Dam began in 1949 and was completed in 1954. Belton Lake includes about 24,240 acres that were acquired in fee simple title by USACE, and perpetual Flowage Easements on an additional 6,861 acres.

The U.S. Army's Fort Hood Installation is located on the western side of Belton Lake. Fort Hood contains approximately 196,356 acres of mission land and roughly 200 miles of intermittent and perennial streams and tributaries, as well as suitable land of various quality for wildlife. Forty-three miles of shoreline and 692 surface acres of Belton Lake is within the installation.

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

Future management of the 6,861 acres of Flowage Easement Lands at Belton Lake includes routine inspection of these areas to ensure that the Government's rights specified in the easement deeds are protected. In almost all cases, the Government acquired the right to prevent placement of fill material or habitable structures on the easement area. Placement of any structure that may interfere with the USACE flood risk management and water conservation missions may also be prohibited.

The primary planning responsibilities for the road network serving the two counties surrounding Belton Lake is a function of the Texas Department of Transportation (TXDOT). The Waco Region TXDOT office performs most of the highway planning for the four counties of immediate concern. There are currently no significant highway projects planned for the region that would have a major effect on the

1 actions set forth in the 2018 Master Plan, but it is reasonable to expect linear
2 transportation arteries being added in the future to accommodate population growth.

3 USACE policy encourages the establishment of designated corridors on project
4 lands, where feasible, to serve as the preferred location for future outgrants such as
5 easements for roads or utility lines. After obtaining public input and examining the
6 location of existing roads and utility lines on project lands, the USACE determined that
7 only utility corridors would be designated at Belton Lake. Future use of these corridors,
8 where the corridor is limited to an existing easement, would in most cases require prior
9 approval of those entities that have legal rights to the easement.

10 Belton Lake Outdoor Recreation Area (BLORA) is a 350 acre recreation area
11 located on the southwestern shore of Belton Lake, which offers recreational activities
12 such as RV camping, primitive camping, boating, fishing, swimming, waterslides, a
13 paintball course, horse riding trails, 26 miles of bicycle trails, three nature trails that offer
14 wildlife viewing opportunities for species such as deer, wild turkey, as well as
15 endangered birds such as the golden-cheeked warbler, black-capped vireo, and the
16 delisted bald eagle and. Most BLORA facilities are open to the public and to military
17 members and their eligible dependents. Some services such as watercraft rental,
18 pavilion sites, and cottage rentals are restricted to authorized users only.

19 The U.S. Army's Fort Hood Installation is located on the western side of Belton
20 Lake with 43 miles of shoreline and 692 surface acres of Belton Lake being within the
21 installation boundaries. With approximately 196,356 acres of mission land and
22 approximately 200 miles of intermittent and perennial streams and tributaries and
23 suitable land for wildlife management, Fort Hood has an extensive Integrated Natural
24 Resources Management Plan (INRMP) to ensure the installation's commitment to the
25 conservation of the natural resources. Under the Natural Resource Management on
26 Military Lands Act of 1960 (Title 16 [S.S.C.] Section 670 a et seq.), commonly known as
27 the Sikes Act, as amended, the Secretary of Defense shall carry out a program to
28 provide for the conservation and rehabilitation of natural resources on military
29 installations. To facilitate the program, the Secretary of each military department shall
30 prepare and implement an integrated natural resources management plan for each
31 military installation in the United States under the jurisdiction of the Secretary.
32 Consistent with the use of military installations to ensure the preparedness of the Armed
33 Forces, the Secretaries of the military departments shall carry out the program to
34 provide for the conservation and rehabilitation of natural resources on military
35 installations. The programs can entail the sustainable multipurpose use of the
36 resources, including hunting, fishing, trapping, and non-consumptive uses, although
37 subject to public and military safety requirements. In preparing this INRMP, Fort Hood
38 has maintained its commitment to ensure that environmental considerations are integral
39 to the mission and has complied with Army Regulation 200-1, Environmental
40 Sustainability and Stewardship; the Department of the Army's INRMP Policy
41 Memorandum (21 March 1997), titled Army Goals and Implementing Guidance for
42 Natural Resources Planning Level Surveys (PLS) and Integrated Natural Resources
43 Management Plan (INRMP); and Title 32 of the Code of Federal Regulations, Part 651,
44 Environmental Analysis of Army Actions. In addition, this INRMP provides the guidance

necessary for Fort Hood to maintain compliance with the Endangered Species Act, the Clean Water Act, and Executive Order 11990 (Protection of Wetlands).

Fort Hood's extensive INRMP addresses but is not limited to: 1) endangered species management and monitoring; 2)invasive species monitoring; 3) wetland mitigation, when required; 4) construction and maintenance of fire breaks; 5) fisheries management; 6) migratory birds management; 7) soil survey and restoration; 8) water resources management; 9) forest and woodland monitoring and management; 10) agricultural leasing; and, 11) planning level surveys.

The Natural Resources Management Branch (NRMB) is charged with managing the INRPM, both on and off post. Fort Hood Installation coordinates with other federal agencies to ensure the effectiveness of their INRPM, such as the USACE Fort Worth District, which has the jurisdiction over the waters of the U.S. in accordance with Section 404 of the Clean Water Act. Fort Hood also coordinates with state agencies such as TPWD. In accordance with Army Regulation (R 200-1) INRMPs are reviewed annually for revision and to ensure their effectiveness, and once every five years or as needed for major revisions. Fort Hood INRMP is formulated in association and compliance with NEPA regulations and policies.

4.3 ANALYSIS OF CUMULATIVE IMPACTS

Impacts on each resource were analyzed according to how other actions and projects within the zone of interest might be affected by the No Action Alternative and Proposed Action. Impacts can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis the intensity of impacts will be classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 3. Minimal growth and development are expected to continue in the vicinity of Belton Lake. There are no cumulative adverse impacts on resources anticipated when added to the impacts associated with implementation of either the Proposed Action or No Action alternatives. A summary of the anticipated cumulative impacts on each resource is presented below.

4.3.1 LAND USE

A major impact would occur if any action is inconsistent with adopted land use plans or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Land use around Belton Lake has experienced little change in the past several years. Under the No Action Alternative, land use would not change. Although the Proposed Action would result in the reclassification of project lands, the reclassifications were developed to help fulfill regional goals associated with good stewardship of land resources that would allow for continued use of project lands.

Section 6.8 of the 2018 Master Plan also identifies the need and location for proposed utility corridors. The purpose of utility corridors is to condense the footprint and associate impacts of any future utility crossings on USACE lands. Therefore, cumulative impacts on land use within the area surrounding Belton Lake, when combined with past and proposed actions in the region, are anticipated to be negligible.

4.3.2 WATER RESOURCES

A major impact would occur if any action is inconsistent with adopted surface water classifications or water use plans, or if an action would substantially alter those resources required for, supporting, or benefiting the current use. Belton Lake was developed for flood risk management and recreation purposes. The reclassifications and resource objectives required to revise the Belton Lake Master Plan are compatible with water use plans and surface water classification; further, they were developed to help fulfill regional goals associated with good stewardship of natural resources and would allow for continued and safe use of water resources associated with Belton Lake. Therefore, cumulative impacts on water resources within the area surrounding Belton Lake, when combined with past and proposed actions in the region, are anticipated to be minor.

4.3.3 CLIMATE

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

4.3.4 CLIMATE CHANGE AND GHG

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

4.3.5 AIR QUALITY

No major highway or roadway projects are scheduled near the zone of interest for Belton Lake; therefore, limiting the amount of new emissions that could potentially affect air quality within the region. The Proposed Action would not adversely impact air quality within the area. Vehicle traffic along park and area roadways and routine daily activities in nearby communities contribute to current and future emission sources; however, due to the remote nature of the area, those impacts are negligible. Seasonal prescribed burning could occur on Belton Lake and would have minor, negative impacts on air quality through elevated ground-level O₃ and particulate matter concentrations; however, these seasonal burns would be scheduled so that impacts are minimized. Implementation of the 2018 Master Plan, when combined with other existing and proposed projects in the region, could result in minor adverse and beneficial cumulative impacts on air quality.

4.3.6 TOPOGRAPHY, GEOLOGY, AND SOILS

A major impact would occur if the action exacerbates or promotes long-term erosion, if the soils are inappropriate for a proposed construction activity and would create a risk to life or property, or if there would be a substantial reduction in agricultural production or loss of Prime Farmland soils. Cumulative impacts on topography, geology,

1 and soils within the area surrounding Belton Lake, when combined with past and
2 proposed actions in the region, are anticipated to be negligible.

3 **4.3.7 NATURAL RESOURCES**

4 By implementing the 2018 Master Plan, the establishment of ESA and MRML –
5 WM areas, as well as resource objectives and resource plans would allow land
6 management and land uses to be compatible with the goals of good stewardship of
7 natural resources. The Proposed Action would allow project lands to continue
8 supporting USFWS and TPWD missions associated with wildlife conservation and
9 implementation of operational practices that would protect and enhance wildlife and
10 fishery populations and habitat. In addition, the Proposed Action would be compatible
11 with conservation principles and measures to protect migratory birds as mandated by
12 EO 13186. Past, present, and future projects are not anticipated to impact the viability of
13 any plant species or community, rare or sensitive habitats, or wildlife, thus, there is no
14 identified threat to natural resources. Long-term, beneficial impacts on natural resources
15 could occur as a result of implementing the reclassifications outlined in the 2018 Master
16 Plan. Therefore, there would be long-term beneficial impacts to natural resources
17 resulting from implementation of the 2018 Belton Lake Master Plan, including the
18 establishment of utility corridors, when combined with past and proposed actions in the
19 region.

20 **4.3.8 THREATENED AND ENDANGERED SPECIES**

21 The Proposed Action and No Action Alternative would not adversely impact
22 threatened, endangered and special status species within the area. Should federally
23 listed species change in the future (e.g., delisting of the Least Tern or other species or
24 listing of new species), associated requirements will be reflected in revised land
25 management practices in coordination with the USFWS. The USACE would continue
26 cooperative management plans with the USFWS and TPWD to preserve, enhance, and
27 protect critical wildlife habitat resources.

28 Projects proposed within the Belton Lake project area, as well as past, present,
29 and future projects, are not anticipated to impact threatened and endangered species
30 as they will be coordinated with the appropriate resource agencies. The land
31 reclassifications will allow for further protection of threatened, endangered and other
32 unique/rare communities found within the TXNDD database. The reclassifications will
33 also allow future land management practices that would maintain and enhance habitats
34 for these species. The proposed utility corridors would limit further fragmentation of
35 habitat and confine ongoing maintenance disturbances. Therefore, there would be
36 major long-term beneficial impacts on threatened and endangered species resulting
37 from the implementation of the 2018 Belton Lake Master Plan when combined with past
38 and proposed actions in the area.

39 **4.3.9 INVASIVE SPECIES**

40 The Proposed Action would have beneficial impacts on native species. Belton
41 Lake currently implements the Belton Lake Invasive Species Management Program and
42 would continue to do so regardless of the Proposed Action. Therefore, implementation
43 of the 2018 Master Plan, when combined with other existing and proposed projects in

1 the region, would not result in adverse cumulative impacts on native species as a result
2 of invasive species control efforts. In fact, beneficial cumulative impacts would occur on
3 native species through implementation of the 2018 Master Plan and other programs
4 within the region supported by agencies such as TPWD and USFWS.

5 **4.3.10 CULTURAL, HISTORICAL, AND ARCHAEOLOGICAL RESOURCES**

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

14 **4.3.11 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE**

15 The Proposed Action would not result in the displacement of persons (minority,
16 low-income, children, or otherwise) as a result of implementing the reclassifications,
17 resources objectives, and resource plan proposed in the 2018 Master Plan. Therefore,
18 the effects of the Proposed Action on environmental justice and the protection of
19 children, when combined with other ongoing and proposed projects in the Belton Lake
20 area, would not be considered a major cumulative effect.

21 **4.3.12 RECREATION**

22 Belton Lake provides regionally significant outdoor recreation benefits including a
23 variety of free recreation opportunities. The land acreages for HDR and LDR would
24 change as a result of implementing the reclassifications, resources objectives, and
25 resource plan proposed in the 2018 Master Plan. These changes reflect changes in
26 land management and historic recreation use patterns that have occurred since 1970 at
27 Belton Lake. The conversion of these lands would have no effect on current or projected
28 public use. The existing parks, boat ramps, and other recreation areas would continue
29 to provide outdoor recreation opportunities to the public. Therefore, the Proposed
30 Action, when combined with other existing and proposed projects in the region, would
31 result in negligible beneficial cumulative impacts on area recreational resources.

32 **4.3.13 AESTHETIC RESOURCES**

33 No impacts on visual resources would occur as a result of implementing the
34 reclassifications, resources objectives, and resource plan proposed in the 2018 Master
35 Plan. The Proposed Action, especially the classification of ESAs, in conjunction with
36 other projects in the region, would result in minor beneficial cumulative impacts on the
37 visual resources in the Belton Lake area.

38 **4.3.14 HAZARDOUS MATERIALS AND SOLID WASTE**

39 No hazardous material or solid waste concerns would be expected with
40 implementation of the 2018 Master Plan; therefore, when combined with other ongoing
41 and proposed projects in the Belton Lake area, there would be no major cumulative
42 effects on hazardous materials and solid waste.

4.3.15 HEALTH AND SAFETY

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

SECTION 5: COMPLIANCE WITH ENVIRONMENTAL LAWS

This EA has been prepared to satisfy the requirements of all applicable environmental laws and regulations, and has been prepared in accordance with the CEQ's implementing regulations for NEPA, 40 CFR Parts 1500 – 1508, and the USACE ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The revision of the 1970 Master Plan is consistent with the USACE's Environmental Operating Principles. The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

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

Endangered Species Act of 1973, as amended – Current lists of threatened or endangered species were compiled for the revision of the 2018 Master Plan. There would be no adverse impacts on threatened or endangered species resulting from the revision of the 1970 Master Plan. However, beneficial impacts, such as habitat protection, could occur as a result of the revision of the 2018 Master Plan.

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

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

Clean Water Act (CWA) of 1977, as amended – The Proposed Action is in compliance with all state and Federal CWA regulations and requirements and is regularly monitored by the USACE and TCEQ for water quality. A state water quality certification pursuant to Section 401 of the CWA is not required for the 2018 Master Plan revision. However, any future utilities occupying the proposed utility corridors would be required to comply with all Clean Water Act requirements. There will be no change in the existing management of the reservoir that would impact water quality.

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

8 Clean Air Act of 1977, as amended – The USEPA established nationwide air
9 quality standards to protect public health and welfare. Existing operation and
10 management of the reservoir is compliant with the Clean Air Act and will not change
11 with the 2018 Master Plan revision.

12 Farmland Protection Policy Act (FPPA) of 1980 and 1995 – The FPPA's purpose
13 is to minimize the extent to which Federal programs contribute to the unnecessary and
14 irreversible conversion of farmland to non-agricultural uses. There is no Prime Farmland
15 on Belton Lake Project Office Lands.

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

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

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

28 Executive Order 12898, Environmental Justice – This EO directs Federal
29 agencies to achieve environmental justice to the greatest extent practicable and
30 permitted by law, and consistent with the principles set forth in the report on the
31 National Performance Review. Agencies are required to identify and address, as
32 appropriate, disproportionately high and adverse human health or environmental effects
33 of its programs, policies, and activities on minority populations and low-income
34 populations. The revision of the 1970 Master Plan will not result in a disproportionate
35 adverse impact on minority or low-income population groups.

36 **SECTION 6: IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF** 37 **RESOURCES**

38 NEPA requires that Federal agencies identify “any irreversible and irretrievable
39 commitments of resources which would be involved in the Proposed Action should it be
40 implemented” (42 U.S.C. § 4332). An irreversible commitment of resources occurs
41 when the primary or secondary impacts of an action result in the loss of future options
42 for a resource. Usually, this is when the action affects the use of a nonrenewable
43 resource or it affects a renewable resource that takes a long time to regenerate. The

1 impacts for this project from the reclassification of land would not be considered an
2 irreversible commitment because subsequent Master Plan revisions could result in
3 some lands being reclassified to a prior, similar land classification. An irretrievable
4 commitment of resources is typically associated with the loss of productivity or use of a
5 natural resource (e.g., loss of production or harvest). No irreversible or irretrievable
6 impacts on Federally protected species or their habitat is anticipated from implementing
7 revisions to the Belton Lake Master Plan.

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

9 In accordance with 40 CFR §§1501.7, 1503, and 1506.6, the USACE initiated
10 public involvement and agency scoping activities to solicit input on the 2018 Master
11 Plan revision process, as well as identify reclassification proposals, and identify
12 significant issues related to the Proposed Action. The USACE began its public
13 involvement process with a public scoping meeting to provide an avenue for public and
14 agency stakeholders to ask questions and provide comments. This public scoping
15 meeting was held on 25 May 2017 at the City of Belton's Harris Community Center in
16 Belton, Texas. The USACE, Fort Worth District, placed advertisements on the USACE
17 webpage and on social media prior to the public scoping meeting. Twenty-eight public
18 comments were received during the initial public comment period. Please refer to
19 Section 7 of the 2018 Master Plan for a summary of comments received at the public
20 meetings.

21 A second public meeting will be held on 24 July, 2018 at the City of Belton's
22 Harris Community Center located at 401 N. Alexander Street, Belton, TX 76513. This
23 meeting was established to introduce the public to the Draft 2018 Master Plan and to
24 begin the 30-day public review period of the Draft 2018 Master Plan and EA. As with the
25 first public meeting, USACE, Fort Worth District, placed advertisements on the USACE
26 webpage and social media as well as notified agencies and stakeholders. Appendix C
27 includes the agency and stakeholder email distribution lists. The EA was coordinated
28 with agencies having legislative and administrative responsibilities for environmental
29 protection. A copy of the correspondence from the agencies that provided comments
30 and planning assistance for preparation of the EA is also included in Appendix C.

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SECTION 8: REFERENCES

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18 2011.pdf

SECTION 9: ACRONYMS/ABBREVIATIONS

%	Percent
°	Degrees
BLORA	Belton Lake Outdoor Recreation Area
BMP	Best Management Practice
BP	Before Present
CAP	Climate Action Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	Cubic Feet per Second
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
CO ₂ e	CO ₂ -equivalent
CWA	Clean Water Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EP	Engineer Pamphlet
ER	Engineer Regulation
ERS	Environmental Radiation Surveillance
ESA	Environmentally Sensitive Area
F	Fahrenheit
FAA	Federal Aviation Administration
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gas
GCWA	Golden-cheeked Warbler
HDR	High Density Recreation
LDR	Low Density Recreation
MP	Master Plan
MRML	Multiple Resource Management Lands
msl	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO	Nitrogen Oxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRRS	National Recreation Reservation Service
O ₃	Ozone
OAQPS	Office of Air Quality Planning and Standards
Pb	Lead
PCB	Polychlorinated Biphenyls
PCPI	Per Capita Personal Incomes
PM _{2.5}	Particulate Matter Less than 2.5 Microns
PM ₁₀	Particulate Matter Less than 10 Microns
ROD	Record of Decision

RPEC	Regional Planning and Environmental Center
SGCN	Species of Greatest Conservation Need
SO ₂	Sulfur Dioxide
TCAP	Texas Conservation Action Plan
TCEQ	Texas Commission on Environmental Quality
TCLP	Toxicity Characteristic Leaching Procedure
TPWD	Texas Parks and Wildlife Department
U.S.	United States
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	Volatile Organic Compounds
VM	Vegetation Management
WHAP	Wildlife Habitat Appraisal Procedures
WM	Wildlife Management

SECTION 10: LIST OF PREPARERS

Zia Groosh Burns – Biologist, Regional Planning and Environmental Center; 7 Years USACE experience.

Marcia Hackett- Environmental Regional Technical Specialist, Regional Planning and Environmental Center; 21 years of USACE experience

Mandy McGuire – Compliance Section Chief, Regional Planning and Environmental Center; 8 years of USACE experience.

Paul Roberts – Biologist, Compliance Section, Regional Planning and Environmental Center; 3 years of USACE experience.

Brandon Wadlington – Biologist, Compliance Section, Regional Planning and Environmental Center; 3 years of USACE experience.

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APPENDIX C - TRUST RESOURCES REPORT – USFWS

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3001

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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

Belton Lake Master Plan Revision

LOCATION

Bell and Coryell counties, Texas



DESCRIPTION

The Belton Lake Master Plan (Belton Lake, Bell and Coryell 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 Belton Lake Master Plan, last revised in 1970. 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 Belton Lake for the next 25 years.

Local office

Austin Ecological Services Field Office

☎ (512) 490-0057

📠 (512) 490-0974

10711 Burnet Road, Suite 200
Austin, TX 78758-4460

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

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

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) *Dendroica chrysoparia* Endangered

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/33>

Least Tern *Sterna antillarum* Endangered

This species only needs to be considered if the following condition applies:

- Wind Energy Projects

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8505>

Piping Plover *Charadrius melodus* Threatened

This species only needs to be considered if the following condition applies:

- 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>

Red Knot *Calidris canutus rufa* Threatened

This species only needs to be considered if the following condition applies:

- Wind Energy Projects

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/1864>

Whooping Crane *Grus americana* Endangered

There is **final** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/758>

Amphibians

NAME

STATUS

Salado Salamander *Eurycea chisholmensis* Threatened

There is **proposed** critical habitat for this species. Your location is outside the critical habitat.

<https://ecos.fws.gov/ecp/species/3411>

Clams

NAME

STATUS

Smooth Pimpleback *Quadrula houstonensis* Candidate

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8967>

Texas Fawnsfoot *Truncilla macrodon*

Candidate

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8965>

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.)
American Golden-plover <i>Pluvialis dominica</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Bald Eagle <i>Haliaeetus leucocephalus</i> 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	Breeds Sep 1 to Jul 31
Chestnut-collared Longspur <i>Calcarius ornatus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Harris's Sparrow <i>Zonotrichia querula</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Long-billed Curlew <i>Numenius americanus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5511	Breeds elsewhere

Orchard Oriole *Icterus spurius*

Breeds Jun 10 to Aug 15

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

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.

Semipalmated Sandpiper *Calidris pusilla*

Breeds elsewhere

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

Sprague's Pipit *Anthus spragueii*

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/8964>

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.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

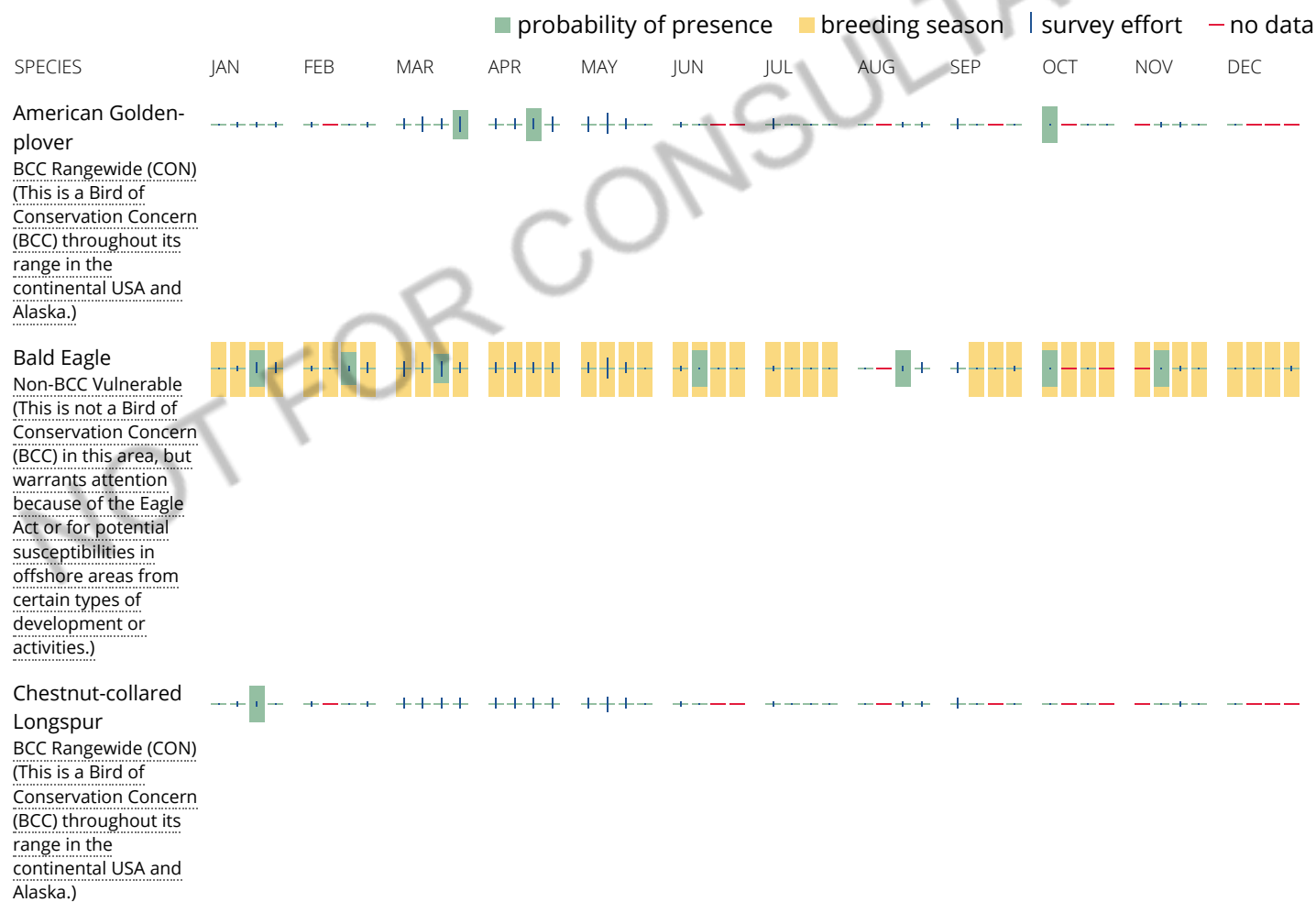
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

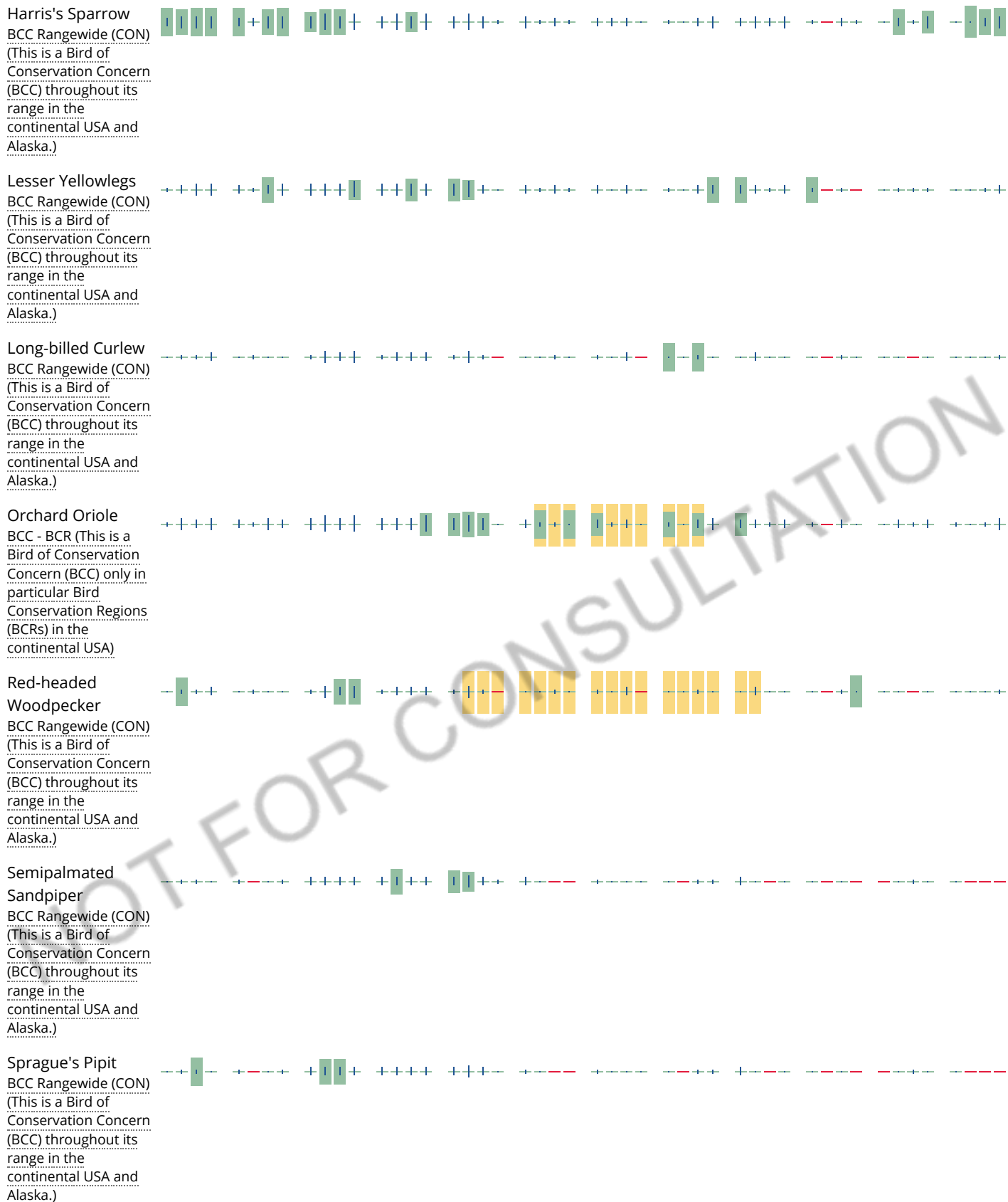
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





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](#).

WETLAND INFORMATION IS NOT AVAILABLE AT THIS TIME

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

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.

3003

APPENDIX D - SPECIES OF GREATEST CONSERVATION NEED

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

Phone: (512) 490-0057 Fax: (512) 490-0974

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

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

In Reply Refer To:

June 22, 2018

Consultation Code: 02ETAU00-2018-SLI-0648

Event Code: 02ETAU00-2018-E-02139

Project Name: Belton Lake Master Plan Revision

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, that *may* occur within the county of your proposed project and/or may be affected by 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.).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. 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. Also 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.

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 sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of federally listed as threatened

or endangered species and to determine whether projects may affect these species and/or designated critical habitat.

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 projects 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.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally 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, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
 - *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
 - *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.
-

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. 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>.

Migratory Birds

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php>) for minimizing impacts to migratory birds and bats.

Finally, 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 <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.php>.

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:

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

(512) 490-0057

Project Summary

Consultation Code: 02ETAU00-2018-SLI-0648

Event Code: 02ETAU00-2018-E-02139

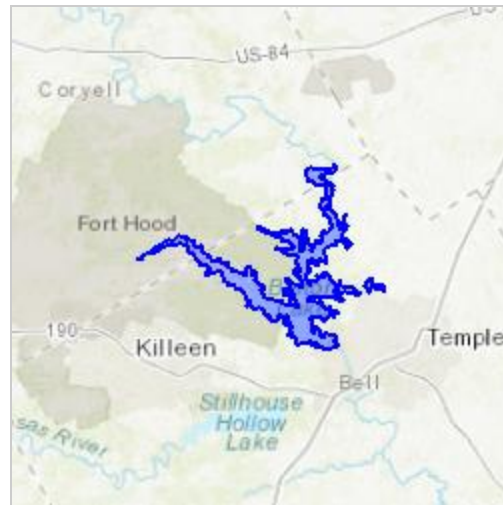
Project Name: Belton Lake Master Plan Revision

Project Type: LAND - MANAGEMENT PLANS

Project Description: The Belton Lake Master Plan (Belton Lake, Bell and Coryell 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 Belton Lake Master Plan, last revised in 1970. 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 Belton 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/31.20483475667612N97.49412669280144W>



Counties: Bell, TX | Coryell, TX

Endangered Species Act Species

There is a total of 8 threatened, endangered, or candidate species on this species list.

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

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA 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.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/33</p>	Endangered
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop.</p> <p>No critical habitat has been designated for this species.</p> <p>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/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.</p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>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.</p> <p>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</p> <p>There is final critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/758</p>	Endangered

Amphibians

NAME	STATUS
<p>Salado Salamander <i>Eurycea chisholmensis</i></p> <p>There is proposed critical habitat for this species. Your location is outside the critical habitat.</p> <p>Species profile: https://ecos.fws.gov/ecp/species/3411</p>	Threatened

Clams

NAME	STATUS
Smooth Pimpleback <i>Quadrula houstonensis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8967	Candidate
Texas Fawnsfoot <i>Truncilla macrodon</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8965	Candidate

Critical habitats

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

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APPENDIX E – WILDLIFE HABITAT APPRAISAL PROCEDURE
(WHAP) REPORT

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APPENDIX F

WILDLIFE HABITAT APPRAISAL PROCEDURE (WHAP) SUMMARY REPORT

BELTON LAKE MASTER PLAN REVISION

BELL AND CORYELL COUNTIES, TEXAS



October 2017



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

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TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	METHODOLOGY	1
3.0	HABITAT DESCRIPTION AND HABITAT SCORES	3
	GRASSLAND	3
	SHRUBLAND	4
	UPLAND FOREST	4
	RIPARIAN/BOTTOMLAND HARDWOOD FORESTS	4
4.0	NOTABLE SAMPLING LOCATIONS AND HABITATS	5
5.0	RECOMMENDATIONS	5
	REFERECES	6
	BELTON LAKE WHAP SUMMARY FIGURES	7
	Attachment A: Belton Lake WHAP Results Summary	11
	Attachment B: WHAP Point Photographs	39

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1.0 INTRODUCTION

Habitat assessments for the Belton Lake Master Plan Revision were conducted on August 7-10, 2017 using Texas Parks and Wildlife Department's (TPWD) Wildlife Habitat Appraisal Procedure (WHAP). WHAP survey point locations were haphazardly selected based on aerial imagery from existing Geographical Information Systems (GIS) data. A total of 69 WHAP points around the lake were selected, all within U.S. Army Corps of Engineers (USACE) federal fee property at Belton Lake (Figures 1-4). The major habitat types that were selected and assessed were Mixed Forest, Juniper Forest, and Deciduous Forest. Figures 1-4 also show the distribution of all habitat types at Belton Lake.

For the purpose of preparing this report, the above habitat types were consolidated into grassland, shrubland, woodland, and bottomland hardwoods.

The purpose of this report is to describe the general wildlife habitat quality within USACE land at Belton Lake in Bell and Coryell Counties, Texas to inform land classifications as part of the 2018 Master Plan revision for Belton Lake.

2.0 METHODOLOGY

An interagency team of biologists and rangers from USACE, TPWD, and U.S. Fish and Wildlife Service convened to conduct a habitat evaluation of selected areas at Belton Lake. The TPWD's WHAP was used to analyze and describe the various existing habitats. The WHAP was not designed to evaluate habitat quality in relation to specific wildlife species.

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. Therefore, caution must be used when comparing across habitat types when using the WHAP methodology.

3.0 HABITAT DESCRIPTION AND HABITAT SCORES

Using TPWD's Texas Ecological Mapping Systems (Elliot, 2014), habitat types surveyed were lumped into four habitat categories for the purpose of analysis: Grasslands, Riparian/Bottomland Hardwood Forest, Upland Forest, and Shrublands. Table 1 displays the number of points surveyed within each respective habitat type.

Table 1. Survey Points per Habitat Type	
Habitat Type	Number Surveyed
Grassland	5
Riparian/Bottomland Hardwood Forest	12
Shrubland	7
Upland Forest	45
Grand Total	69

Table 2 displays the distribution of scores for all habitat types surveyed, including the average, maximum, and minimum score on a scale of 0.0 (no habitat quality)-1.0 (highest habitat quality).

Table 2. Average, Maximum, and Minimum Scores per Habitat Type			
Habitat Type	Average Score	Maximum Score	Minimum Score
Grassland	0.50	0.58	0.47
Riparian/Bottomland Hardwood Forest	0.64	0.87	0.36
Shrubland	0.49	0.62	0.31
Upland Forest	0.53	0.67	0.31

The sections bellows further describe habitat conditions and common species observed for each habitat type assessed. For more information regarding plant species encountered, see Attachment A.

GRASSLAND

There were five Grassland sites assessed that had WHAP scores ranging from a low of 0.47 to a high of 0.58. The average score for this habitat type was 0.50. Generally the grassland observed around Belton Lake is in fair to good condition but did show some transitioning to mixed prairie. The major species observed are prairie verbena (*Glandularia bipinnatifida*), bee balm (*Monarda fistulosa*), Canada wildrye (*Elymus canadensis*), sunflower (*Helianthus*), mullein (*Verbascum thapsus*), gumweed (*Grindelia squarrosa*), doveweed (*Croton texensis*), Johnson grass (*Sorghum halepense*), curlycup (*Grindelia squarrosa*), ironweed (*Vernonia*), balsam apple

(*Echinocystis lobata*), and ragweed (*Ambrosia*). Some woody species are observed in the area including honey locus (*Gleditsia triacanthos*), mesquite (*Prosopis glandulosa*), cedar elm (*Ulmus crassifolia*), winged elm (*Ulmus alata*), and salt cedar (*Tamarix*).

SHRUBLAND

There were seven Shrubland sites assessed that had WHAP scores that ranging from a low of 0.31 to a high of 0.62. The average score for this habitat type was 0.49. The general herbaceous species found in these sites are: Johnson grass, beggar's lice (*Hackelia virginiana*), little bluestem (*Schizachyrium scoparium*), partridge pea (*Chamaecrista fasciculata*), Texas grama (*Bouteloua rigidiseta*), Sedge (*Carex texensis*), sunflower, buttonbush (*Cephalanthus occidentalis*), silverleaf nightshade (*Solanum elaeagnifolium*), ragweed, St. John's wort (*Hypericum perforatum*), bluestem, iron weed, broom weed (*Gutierrezia sarothrae*), prairie coneflower (*Ratibida columnifera*), blazing star (*Liatris*), Mullein, Texas bluegrass (*Poa arachinifera*), and Scribner's panicgrass (*Panicum*). The dominant woody species include: mesquite, boxelder (*Acer negundo*), black locust (*Robinia pseudoacacia*), cedar elm, salt cedar, Ashe juniper (*Juniperus ashei*), and black willow (*Salix nigra*).

UPLAND FOREST

There were 45 Upland Forest sites assessed that had WHAP score ranging from a low of 0.31 to a high of 0.67. The average score for this habitat type was 0.53. Generally the woodland observed around Belton Lake are in fair condition. The major herbaceous species observed are: Switchgrass (*Panicum virgatum*), and false nettle (*Boehmeria ramiflora*). The dominant woody species observed are: Dewberry (*Rubus trivialis*), poison ivy (*Toxicodendron radicans*), Ashe juniper (*Juniperus ashei*), live oak (*Quercus fusiformis*), blackjack oak (*Quercus marilandica*), chinaberry (*Melia azedarach*), hackberry (*Celtis occidentalis*), Greenbrier (*Smilax rotundifolia*) (*Smilax rotundifolia*), holly (*Ilex*), green ash (*Fraxinus pennsylvanica*), Carolina snailseed (*Cocculus carolinus*), Texas persimmon (*Diospyros texana*), elm, cedar, and yaupon (*Ilex vomitoria*).

RIPARIAN/BOTTOMLAND HARDWOOD FORESTS

There were 12 Riparian/Bottomland Hardwood Forest sites assessed that had a WHAP score ranging from a low of 0.36 to a high of 0.87. The average score for this habitat type was 0.64. Generally, these forests observed around Belton Lake were in good condition. The dominant herbaceous species observed were: wild rye, inland sea oats (*Chasmanthium latifolium*), Scribner's panic grass (*Panicum oligosanthos*),

Johnsongrass, baccharis (*Baccharis halimifolia*), and lemon horsemint. The dominant woody species observed were *Greenbrier (Smilax rotundifolia)*, dewberry, snailseed, Ashe juniper, Cedar, elm, live Oak, mulberry, green ash, sycamore, hackberry (*Celtis occidentalis*), and Pecan.

4.0 NOTABLE SAMPLING LOCATIONS AND HABITATS

Based on the results of the WHAP, select areas of each of the major habitats types exhibit a high value for wildlife (Table 3). In general, these sites exhibited mature, diverse vegetation communities. Associated with the maturity of the vegetation communities, were unique niche habitat features including snags, logs, thickets and other structural diversity that provides habitat for a variety of wildlife species.

Table 3. Areas that Exhibit High Value for Wildlife

<u>Site</u>	<u>Habitat Major Type</u>	<u>WHAP Score</u>
57	Woodland	0.87
76	Bottomland Hardwood	0.80
5b	Bottomland Hardwood	0.77
1	Bottomland Hardwood	0.70

5.0 RECOMMENDATIONS

Even with planned and unplanned disturbances, there are numerous areas of valuable wildlife habitat remaining on USACE fee property at Belton 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 Belton Lake Master Plan revision will take into account the WHAP scores when making land classification decisions.

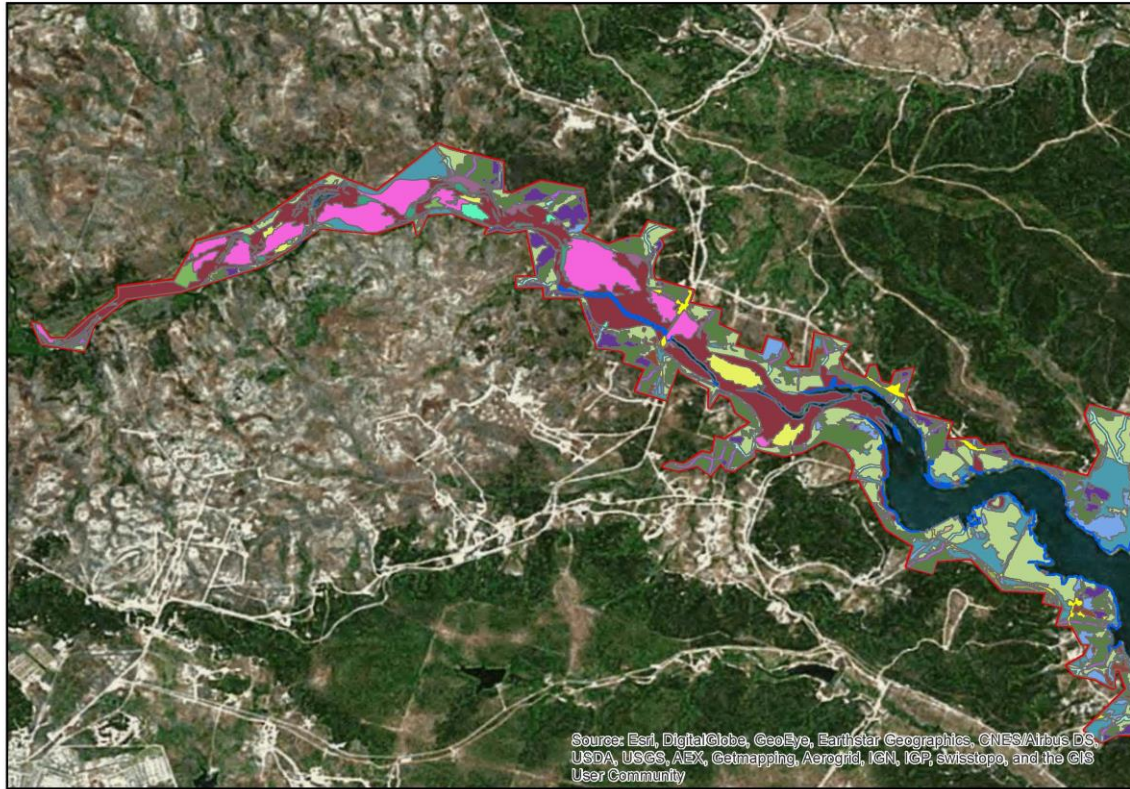
REFERECES

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). 1995. Wildlife Habitat Appraisal Procedure (WHAP). Last revised January 12, 1995.

BELTON LAKE WHAP SUMMARY FIGURES

Belton Lake: Mapped Vegetation Classes



Belton Lake MP

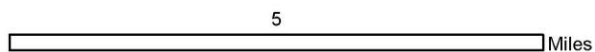
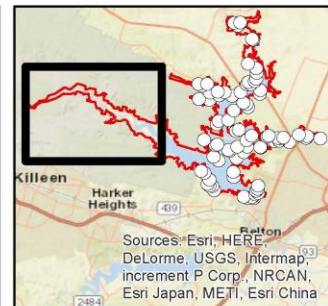
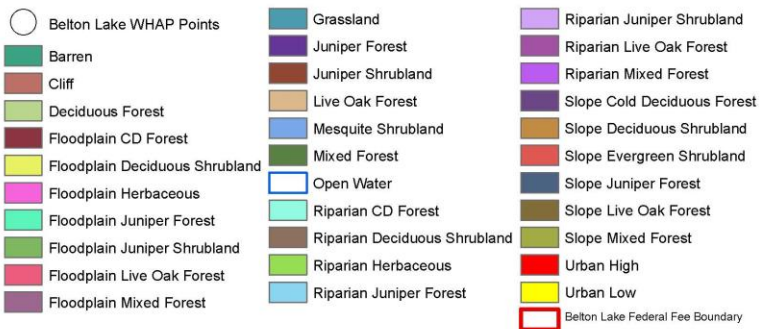
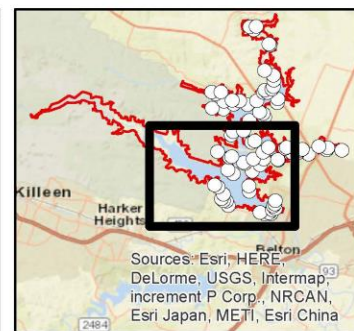
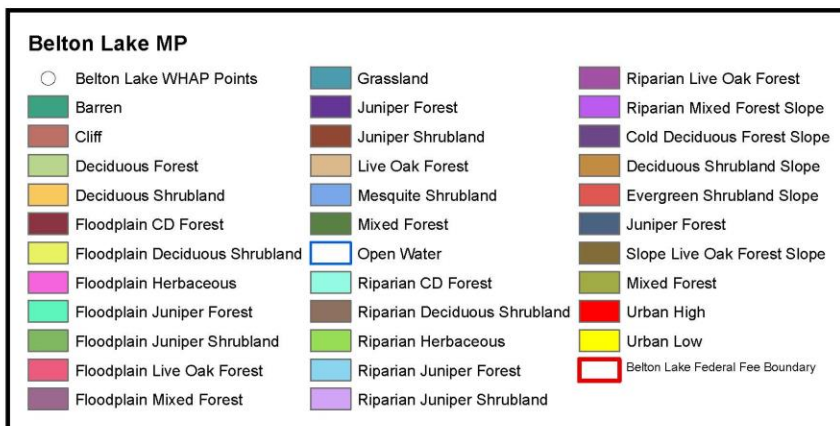
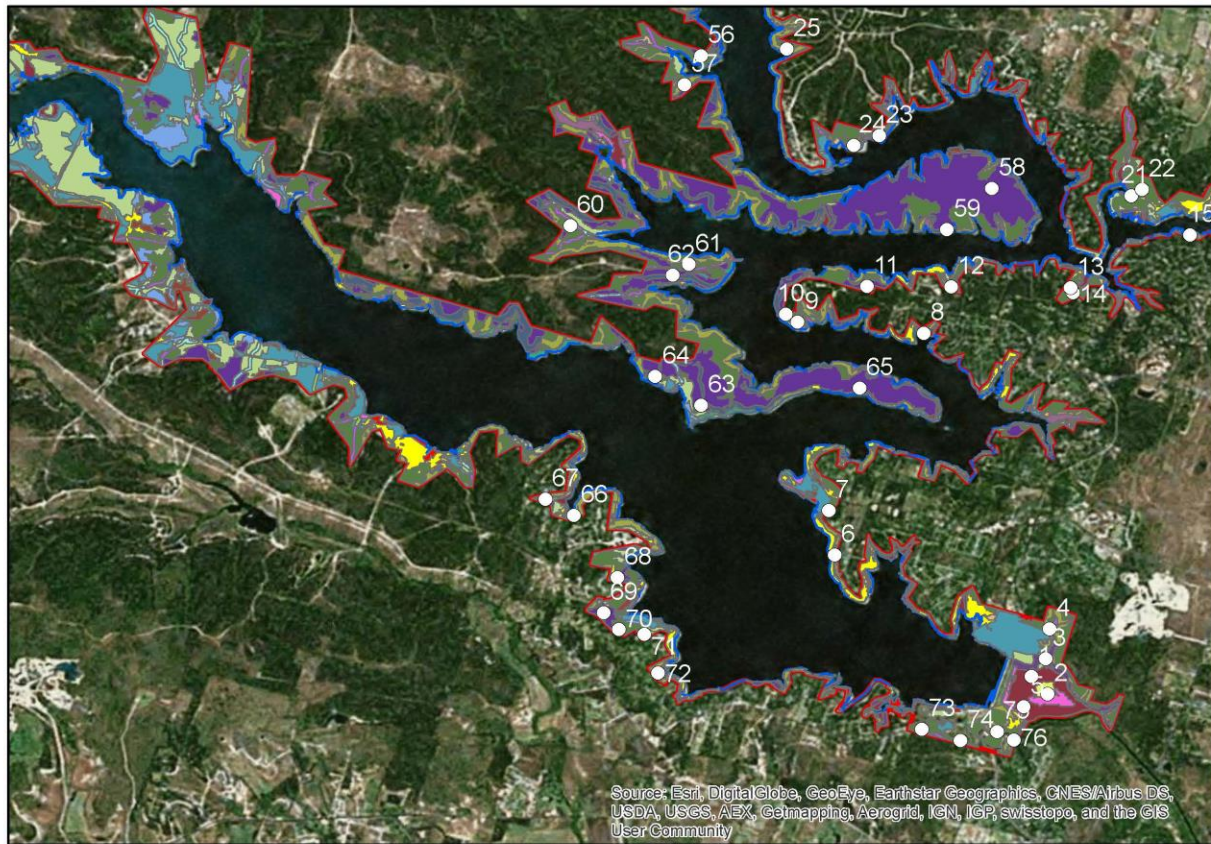


Figure 1. Distribution of Habitat Types and WHAP Sites at Belton Lake.

Belton Lake: Mapped Vegetation Classes

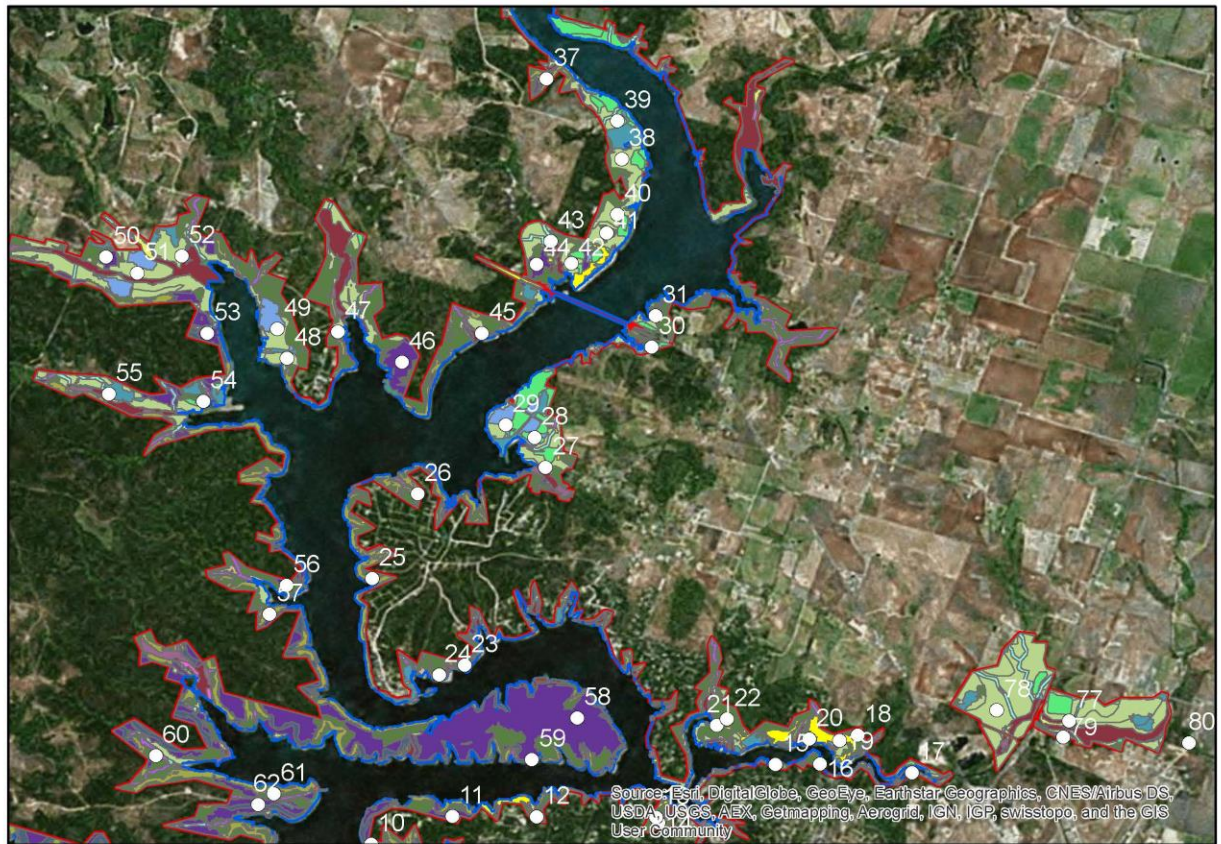


5 Miles



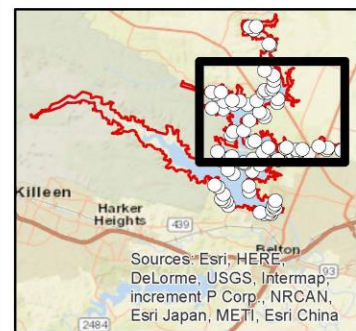
Figure 2. Distribution of Habitat Types and WHAP Sites at Belton Lake.

Belton Lake: Mapped Vegetation Classes



Belton Lake MP

- | | | |
|--------------------------------|------------------------------|----------------------------------|
| ○ Belton Lake WHAP Points | Grassland | Riparian Live Oak Forest |
| Agriculture | Juniper Forest | Riparian Mixed Forest |
| Barren | Juniper Shrubland | Slope Cold Deciduous Forest |
| Cliff | Live Oak Forest | Slope Deciduous Shrubland |
| Deciduous Forest | Mesquite Shrubland | Slope Evergreen Shrubland |
| Deciduous Shrubland | Mixed Forest | Slope Juniper Forest |
| Floodplain CD Forest | Open Water | Slope Live Oak Forest |
| Floodplain Deciduous Shrubland | Post Oak Forest | Slope Mixed Forest |
| Floodplain Herbaceous | Riparian CD Forest | Swamp |
| Floodplain Juniper Forest | Riparian Deciduous Shrubland | Urban High |
| Floodplain Juniper Shrubland | Riparian Herbaceous | Urban Low |
| Floodplain Live Oak Forest | Riparian Juniper Forest | Belton Lake Federal Fee Boundary |
| Floodplain Mixed Forest | Riparian Juniper Shrubland | |

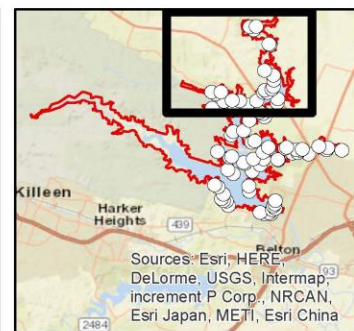
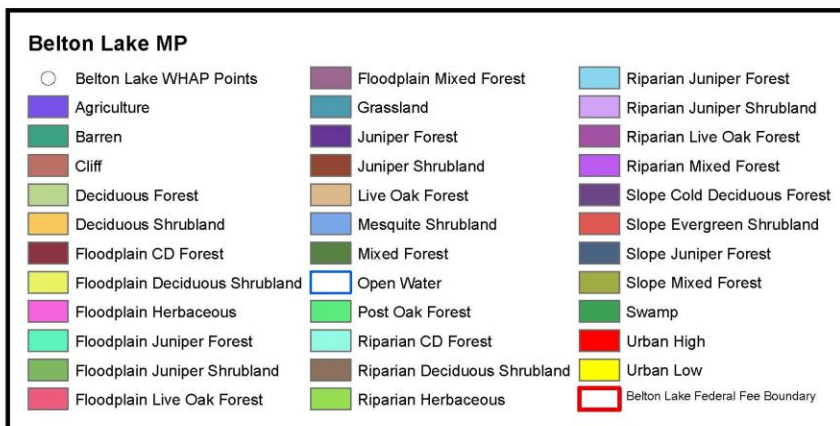
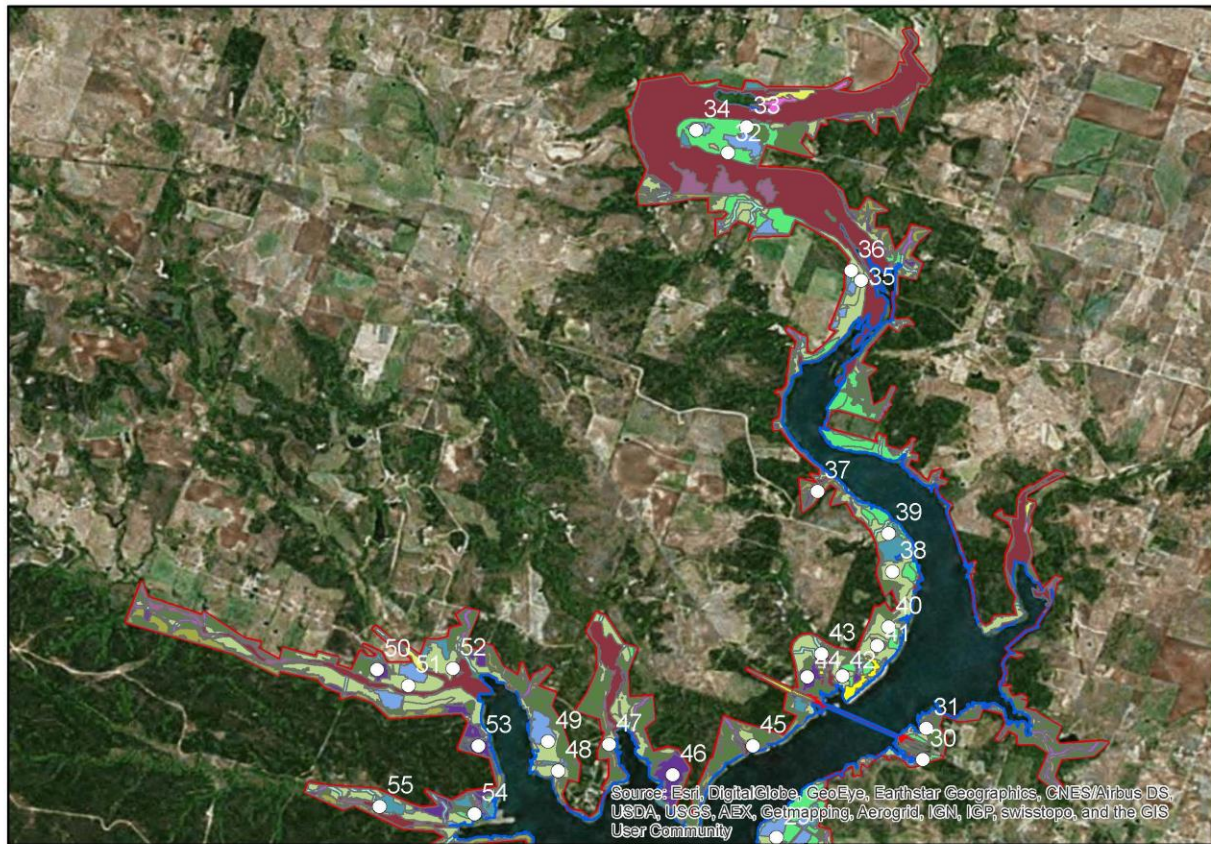


5 Miles



Figure 3. Distribution of Habitat Types and WHAP Sites at Belton Lake.

Belton Lake: Mapped Vegetation Classes



5 Miles



Figure 4. Distribution of Habitat Types and WHAP Sites at Belton Lake.

Attachment A: Belton Lake WHAP Results Summary

Site	Habitat Type	Habitat Score	Woody Species	Herbaceous Species
38	Grassland	0.47	Soapberry (<i>Sapindus saponaria</i>) Greenbrier (<i>Smilax rotundifolia</i>) Ashe juniper (<i>Juniperus ashei</i>) Pecan (<i>Carya illinoensis</i>) Dewberry (<i>Rubus trivialis</i>)	Ragweed (<i>Ambrosia</i>) Sunflower (<i>Helianthus</i>) Wild rye (<i>Elymus canadensis</i>) Johnson grass (<i>Sorghum halepense</i>) Dove weed (<i>Croton setigerus</i>) Verbena (<i>Verbena officinalis</i>) Horsenettle (<i>Solanum</i>) Bee balm (<i>Moarda fistulosa</i>) Giant ragweed (<i>Amrosia trifida</i>) Sedge (<i>Carex texensis</i>) Unidentified sp. 1 3 unidentified forb sp. 2 unidentified grass sp.
39	Grassland	0.53	Gum bumelia (<i>Sideroxylon lanuginosu</i>) Dewberry (<i>Rubus trivialis</i>) Chinaberry (<i>Melia azedarach</i>) Greenbrier (<i>Smilax rotundifolia</i>) Blackberry (<i>Rubus</i>) Honey Locust (<i>Gleditsia triacanthos</i>) Mesquite (<i>Prosopis Glandulosa</i>) Cedar elm (<i>Ulmus crassifolia</i>) Winged elm (<i>Ulmus alata</i>) Salt cedar (<i>Tamrix</i>) Snailseed (<i>Cocculus carolinus</i>)	Canada germander (<i>Teucrium canadense</i>) Johnson grass (<i>Sorghum halepense</i>) Unidentified grass sp. Cactus (<i>Opuntia</i>)

45	Grassland	0.58	Hackberry (<i>Celtis occidentalis</i>) Greenbrier (<i>Smilax rotundifolia</i>) American beautyberry (<i>Callicarpa americana</i>) Snailseed (<i>Cocculus carolinus</i>) Holly (<i>Ilex</i>) Dewberry (<i>Rubus trivialis</i>) Poison ivy (<i>Toxicodendron radicans</i>) Muscadine (<i>Muscadinia rotundifolia</i>) Blackhaw (<i>Viburnum prunifolium</i>) Coralberry (<i>Symphoricarpos orbiculatus</i>) Cedar elm (<i>Ulmus crassifolia</i>)	Silver bluestem (<i>Bothriochloa saccharoides</i>) Dove weed (<i>Croton setigerus</i>) Wild rye (<i>Elymus candensis</i>) Johnson grass (<i>Sorghum halepense</i>) Winter wheat (<i>Triticum aestivum</i>) Beggar's lice (<i>Hackelia virginiana</i>) Ironweed (<i>Vernonia texana</i>) Prairie conflower (<i>Ratibida columnifera</i>) Aster (<i>Symphyotrichum oblongifolium</i>) Mexican hat (<i>Bryophyllum daigremontianum</i>) Prairie verbena (<i>Glandularia bipinnatifida</i>) King ranch bluestem (<i>Bothriochloa ischaemum</i>) Curlycup (<i>Grindelia squarrosa</i>) Gumweed (<i>Grindelia squarrosa</i>) Wood sorrel (<i>Oxalis drummondii</i>) Switchgrass (<i>Panicum virgatum</i>)
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51	Grassland	0.47	Dewberry (<i>Rubus trivialis</i>) Greenbrier (<i>Smilax rotundifolia</i>) Snailseed (<i>Cocculus carolinus</i>) Black locust (<i>Robinia pseudoacacia</i>)	Prairie verbena (<i>Glandularia bipinnatifida</i>) Bee balm (<i>Monarda fistulosa</i>) Wild rye (<i>Elymus canadensis</i>) Doveweed (<i>Croton texensis</i>) Sunflower (<i>Harpalium</i>) Mullein (<i>Verbascum thapsus</i>) Gumweed (<i>Grindelia squarrosa</i>) Balsam apple (<i>Echinocystis lobata</i>) Morning glory (<i>Ipomoea lindheimeri</i>) Curley cup (<i>Grindelia squarrosa</i>) Mexican hat (<i>Bryophyllum daigremontianum</i>) Switchgrass (<i>Panicum virgatum</i>)
52	Grassland	0.47	Snailseed (<i>Cocculus carolinus</i>) Poisonbean (<i>Sesbania drummondii</i>) Baccharis (<i>Baccharis halimifolia</i>) Buttonbush (<i>Cephalanthus occidentalis</i>)	Ragweed (<i>Ambrosia</i>) Johnson grass (<i>Sorghum halepense</i>) Ironweed (<i>Vernonia texana</i>) Doveweed (<i>Croton texensis</i>) Balsam apple (<i>Echinocystis lobata</i>) Texas vervain (<i>Verbena halei</i>) Frogfruit (<i>Phyla chinensis</i>) Verbena (<i>Verbena officinalis</i>) Bee balm (<i>Monarda fistulosa</i>) Sunflower (<i>Harpalium</i>) Sensitive briar (<i>Mimosa nuttallii</i>)
Grassland Summary Data				
Total Number of Sites				5
Lowest Habitat Score				0.47
Highest Habitat Score				0.58
Average Habitat Score				0.50

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Site	Habitat Type	Total Score	Woody Species	Herbaceous Species
2	Shrubland	0.56	Grape (<i>Vitis</i>) Dewberry (<i>Rubus trivialis</i>) Mesquite (<i>Prosopis Glandulosa</i>) Boxelder (<i>Acer negundo</i>) Salt cedar (<i>Tamrix</i>)	Switchgrass (<i>Panicum virgatum</i>) Texas grama (<i>Bouteloua rigidiseta</i>) Beggar's lice (<i>Hackelia virginiana</i>) Bluestem (<i>Schizachyrium scoparium</i>) Johnson grass (<i>Sorghum halepense</i>) Sedge (<i>Carex texensis</i>) Partridge pea (<i>Chamaecrista fasciculata</i>) Sunflower (<i>Harpalium</i>) Silver leaf nightshade (<i>Solanum elaeagnifolium</i>) Ragweed (<i>Ambrosia</i>) Gayfeather (<i>Liatris</i>) Bee balm (<i>Moarda fistulosa</i>) Texas vervain (<i>Verbena halei</i>) Prairie conflower (<i>Ratibida columnifera</i>) Cactus (<i>Opuntia</i>)
23	Shrubland	0.41	Mustang grape (<i>Vitis mustangensis</i>) Dewberry (<i>Rubus trivialis</i>) Texas Persimmon (<i>Diospyros texana</i>) Snailseed (<i>Cocculus carolinus</i>) Hackberry (<i>Celtis occidentalis</i>) Muscadine (<i>Muscadinia rotundifolia</i>) Rattan vine (<i>Berchemia scandens</i>) 2 Unknown vines Snapdragon vine (<i>Maurandella antirrhiniflora</i>) Ashe juniper (<i>Juniperus ashei</i>) Baccharis (<i>Baccharis halimifolia</i>)	Johnson grass (<i>Sorghum halepense</i>) St John's wort (<i>Hypericum perforatum</i>) 2 unidentified sp. Mexican hat (<i>Bryophyllum daigremontianum</i>) Ragweed (<i>Ambrosia</i>) Bluestem (<i>Schizachyrium scoparium</i>) Sedge (<i>Carex texensis</i>) Baldwin ironweed (<i>Vernonia baldwinii</i>)

			Buttonbush (<i>Cephalanthus occidentalis</i>)	Texas broomweed (<i>Gutierrezia sarothrae</i>) Prickly pear (<i>Opuntia engelmannii</i>) Doveweed (<i>Croton texensis</i>)
24	Shrubland	0.31	Greenbrier (<i>Smilax rotundifolia</i>)	Mexican hat (<i>Bryophyllum daigremontianum</i>) Johnson grass (<i>Sorghum halepense</i>) Bluestem (<i>Schizachyrium scoparium</i>) Blazing star (<i>Liatris pycnostachya</i>) Mullein (<i>Verbascum thapsus</i>) Scribner's panic grass (<i>Panicum oligosanthos</i>) Prairie conflower (<i>Ratibida columnifera</i>) Doveweed (<i>Croton texensis</i>)
29	Shrubland	0.62	Poison ivy (<i>Toxicodendron radicans</i>) Buttonbush (<i>Cephalanthus occidentalis</i>) Pepper vine (<i>Ampelopsis arborea</i>) Black willow (<i>Salix nigra</i>)	Giant ragweed (<i>Ambrosia trifida</i>) Sedge (<i>Carex texensis</i>) Baldwin ironweed (<i>Vernonia baldwinii</i>) Texas bluegrass (<i>Poa arachnifera</i>)
35	Shrubland	0.47	Greenbrier (<i>Smilax rotundifolia</i>) Grape (<i>Vitis</i>) Snailseed (<i>Cocculus carolinus</i>)	Wild rye (<i>Elymus canadensis</i>) Ragweed (<i>Ambrosia</i>) Beggar's lice (<i>Hackelia virginiana</i>) Purpletop (<i>Tridens flavus</i>) Nettle (<i>Urtica dioica</i>) Sedge (<i>Carex texensis</i>) Pokeweed (<i>Phytolacca americana</i>)

				Unknown Forb #1 Cactus (<i>Opuntia</i>)
40	Shrubland	0.45	Greenbrier (<i>Smilax rotundifolia</i>) Gum bumelia (<i>Sideroxylon lanuginosum</i>) Coralberry (<i>Symphoricarpos orbiculatus</i>) Texas Persimmon (<i>Diospyros texana</i>) Mesquite (<i>Prosopis Glandulosa</i>) Cedar elm (<i>Ulmus crassifolia</i>)	Wild rye (<i>Elymus candensis</i>) Sedge (<i>Carex texensis</i>) Mexican hat (<i>Bryophyllum daigremontianum</i>) Unidentified forb Broomweed (<i>Gutierrezia sarothrae</i>) Barnyard grass (<i>Echinochloa crusgalli</i>) Canada germander (<i>Teucrium canadense</i>) Cactus (<i>Opuntia</i>)
49	Shrubland	0.6	Greenbrier (<i>Smilax rotundifolia</i>) Mustang grape (<i>Vitis mustangensis</i>) Holly (<i>Ilex</i>) Sugarberry (<i>Celtis laevigata</i>) Cedar elm (<i>Ulmus crassifolia</i>) Black locust (<i>Robinia pseudoacacia</i>) Snailseed (<i>Cocculus carolinus</i>)	Wild rye (<i>Elymus candensis</i>) Giant ragweed (<i>Ambrosia trifida</i>) Beggar's lice (<i>Hackelia virginiana</i>) Doveweed (<i>Croton texensis</i>) Prairie conflower (<i>Ratibida columnifera</i>) Clover (<i>Trifolium</i>)
Shrubland Summary Data				
Total Number of Sites				7
Lowest Habitat Score				0.31
Highest Habitat Score				0.62
Average Habitat Score				0.49

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Site Number	Lumped Habitat	Total Score	Woody Species	Herbaceous Species
4	Woodland	0.59	<i>Greenbrier (Smilax rotundifolia)</i> <i>Hackberry (Celtis occidentalis)</i> <i>Poison Ivy (Toxicodendron radicans)</i> <i>Dewberry (Rubus trivialis)</i> <i>Chinese privet (Ligustrum sinense)</i> <i>Snailseed (Cocculus carolinus)</i> <i>Bigelow oak (Quercus sinuata var. breviloba)</i> <i>Blackjack oak (Quercus marilandica)</i> <i>Live Oak (Quercus fusiformis)</i>	<i>Red yucca (Hesperaloe parviflora)</i> <i>Prickly pear (Opuntia engelmannii)</i>

			<p>Elm (<i>Ulmus crassifolia</i>)</p> <p>Ashe juniper (<i>Juniperus ashei</i>)</p>	
6	Woodland	0.54	<p>Hackberry (<i>Celtis occidentalis</i>)</p> <p>Texas Persimmon (<i>Diospyros texana</i>)</p> <p>American beautyberry (<i>Callicarpa Americana</i>)</p> <p>Chinaberry (<i>Melia azedarach</i>)</p> <p>Mustang grape (<i>Vitis mustangensis</i>)</p> <p>Yaupon (<i>Ilex vomitoria</i>)</p> <p>Greenbrier (<i>Smilax rotundifolia</i>)</p> <p>Live Oak (<i>Quercus fusiformis</i>)</p> <p>Shumard Oak (<i>Quercus shumardii</i>)</p> <p>Ashe juniper (<i>Juniperus ashei</i>)</p> <p>Baccharis (<i>Baccharis halimifolia</i>)</p> <p>Agarita (<i>Mahonia trifoliolata</i>)</p>	<p>Switchgrass (<i>Panicum virgatum</i>)</p> <p>Lilac (<i>Syringa vulgaris</i>)</p> <p>Prickly pear (<i>Opuntia engelmannii</i>)</p> <p>Sensitive briar (<i>Mimosa nuttallii</i>)</p>
7	Woodland	0.50	<p>Yaupon (<i>Ilex vomitoria</i>)</p> <p>Mustang grape (<i>Vitis mustangensis</i>)</p> <p>Sumac (<i>Rhus virens</i>)</p> <p>Texas Persimmon (<i>Diospyros texana</i>)</p> <p>Hackberry (<i>Celtis occidentalis</i>)</p> <p>Privet (<i>Ligustrum</i>)</p> <p>Japanese privet (<i>Ligustrum japonicum</i>)</p> <p>Bigelow oak (<i>Quercus sinuata</i>)</p> <p>Live Oak (<i>Quercus fusiformis</i>)</p> <p>Ashe juniper (<i>Juniperus ashei</i>)</p>	<p>Lantana (<i>Lantana camara</i>)</p> <p>Switchgrass (<i>Panicum virgatum</i>)</p> <p>Bunchgrass (<i>Nolina texana</i>)</p> <p>Beggar's lice (<i>Hackelia virginiana</i>)</p> <p>Morning glory (<i>Ipomoea lindheimeri</i>)</p> <p>Prickly pear (<i>Opuntia engelmannii</i>)</p>

8	Woodland	0.50	Greenbrier (<i>Smilax rotundifolia</i>) Bigelow oak (<i>Quercus sinuata</i>) Ashe juniper (<i>Juniperus ashei</i>) Baccharis (<i>Baccharis halimifolia</i>) Black willow (<i>Salix nigra</i>)	Lantana (<i>Lantana camara</i>) Ragweed (<i>Ambrosia</i>) Doveweed (<i>Croton texensis</i>) Texas wintergrass Smith's grass (<i>Melica smithii</i>) Prickly pear (<i>Opuntia engelmannii</i>) Red yucca (<i>Hesperaloe parviflora</i>)
9	Woodland	0.50	Greenbrier (<i>Smilax rotundifolia</i>) Holly (<i>Ilex</i>) Mustang grape (<i>Vitis mustangensis</i>) Live Oak (<i>Quercus fusiformis</i>) Ashe juniper (<i>Juniperus ashei</i>)	Switchgrass (<i>Panicum virgatum</i>) Bunchgrass (<i>Nolina texana</i>) Red yucca (<i>Hesperaloe parviflora</i>) Prickly pear (<i>Opuntia engelmannii</i>)
10	Woodland	0.50	Texas mountain laurel Live Oak (<i>Quercus fusiformis</i>) Ashe juniper (<i>Juniperus ashei</i>) Cholla (<i>Opuntia imbricate</i>)	Switchgrass (<i>Panicum virgatum</i>) Red yucca (<i>Hesperaloe parviflora</i>)
11	Woodland	0.36	Possumhaw (<i>Ilex verticillata</i>) Holly (<i>Ilex</i>) Ashe juniper (<i>Juniperus ashei</i>) Bigelow oak (<i>Quercus sinuata</i>)	Switchgrass (<i>Panicum virgatum</i>) Red yucca (<i>Hesperaloe parviflora</i>) Prickly pear (<i>Opuntia engelmannii</i>)
12	Woodland	0.52	Poison ivy (<i>Toxicodendron radicans</i>) Yaupon (<i>Ilex vomitoria</i>) Soapberry (<i>Sapindus saponaria</i>) Winterberry (<i>Ilex verticillata</i>) Holly (<i>Ilex</i>) Ashe juniper (<i>Juniperus ashei</i>) Shumard Oak (<i>Quercus shumardii</i>) Bigelow oak (<i>Quercus sinuata</i> var. <i>breviloba</i>) Redbud (<i>Cercis canadensis</i>) Green Ash (<i>Fraxinus pennsylvanica</i>)	Switchgrass (<i>Panicum virgatum</i>) Wild rye (<i>Elymus canadensis</i>) Red yucca (<i>Hesperaloe parviflora</i>) Prickly pear (<i>Opuntia engelmannii</i>) Lantana (<i>Lantana camara</i>)

13	Woodland	0.52	<p>Yaupon (<i>Ilex vomitoria</i>)</p> <p>3 unidentified vine sp.</p> <p>Unidentified berry sp.</p> <p>Ashe juniper (<i>Juniperus ashei</i>)</p> <p>Live Oak (<i>Quercus fusiformis</i>)</p> <p>Green Ash (<i>Fraxinus pennsylvanica</i>)</p> <p>Snailseed (<i>Cocculus carolinus</i>)</p>	<p>Switchgrass (<i>Panicum virgatum</i>)</p> <p>Bunchgrass (<i>Nolina texana</i>)</p> <p>Prickly pear (<i>Opuntia engelmannii</i>)</p> <p>Red yucca (<i>Hesperaloe parviflora</i>)</p>
14	Woodland	0.50	<p>Greenbrier (<i>Smilax rotundifolia</i>)</p> <p>Hackberry (<i>Celtis occidentalis</i>)</p> <p>Beautyberry (<i>Callicarpa Americana</i>)</p> <p>Sugarberry (<i>Celtis laevigata</i>)</p> <p>Mustang grape (<i>Vitis mustangensis</i>)</p> <p>Poison ivy (<i>Toxicodendron radicans</i>)</p> <p>Yaupon (<i>Ilex vomitoria</i>)</p> <p>Soapberry (<i>Sapindus saponaria</i>)</p> <p>Gum bumelia (<i>Sideroxylon lanuginosum</i>)</p> <p>Texas Persimmon (<i>Diospyros texana</i>)</p> <p>Texas mountain laurel (<i>Dermatophyllum secundiflorum</i>)</p> <p>Cedar elm (<i>Ulmus crassifolia</i>)</p>	<p>Switchgrass (<i>Panicum virgatum</i>)</p> <p>Inland sea oats (<i>Chasmanthium latifolium</i>)</p> <p>Wild rye (<i>Elymus canadensis</i>)</p> <p>Johnson grass (<i>Sorghum halepense</i>)</p> <p>Blackeyed Susan (<i>Rudbeckia hirta</i>)</p> <p>Sunflower (<i>Harpalium</i>)</p> <p>Thistle (<i>Cirsium texanum</i>)</p> <p>False nettle (<i>Boehmeria cylindrica</i>)</p> <p>Giant ragweed (<i>Ambrosia trifida</i>)</p> <p>Broomweed (<i>Gutierrezia sarothrae</i>)</p> <p>Golden crown weed (<i>Verbesina encelioides</i>)</p>
16	Woodland	0.61	<p>Gum bumelia (<i>Sideroxylon lanuginosum</i>)</p> <p>Ashe juniper (<i>Juniperus ashei</i>)</p> <p>Eves necklace</p> <p>Cedar elm (<i>Ulmus crassifolia</i>)</p>	<p>Wild rye (<i>Elymus canadensis</i>)</p> <p>False nettle (<i>Boehmeria cylindrica</i>)</p> <p>Blackeyed Susan (<i>Rudbeckia hirta</i>)</p> <p>Lamb Ear (<i>Stachys byzantina</i>)</p> <p>Thistle (<i>Cirsium texanum</i>)</p> <p>Switchgrass (<i>Panicum virgatum</i>)</p> <p>Greenbrier (<i>Smilax rotundifolia</i>)</p> <p>Mint (<i>Mentha</i>)</p> <p>Doveweed (<i>Croton texensis</i>)</p>

18	Woodland	0.48	Blackberry (<i>Rubus</i>) Holly (<i>Ilex</i>) Greenbrier (<i>Smilax rotundifolia</i>) Beautyberry (<i>Callicarpa Americana</i>) Texas Persimmon (<i>Diospyros texana</i>) Ashe juniper (<i>Juniperus ashei</i>) Live Oak (<i>Quercus fusiformis</i>) Green Ash (<i>Fraxinus pennsylvanica</i>)	Morning glory (<i>Ipomoea lindheimeri</i>) Switchgrass (<i>Panicum virgatum</i>) Giant ragweed (<i>Ambrosia trifida</i>) 3 Unknowns
19	Woodland	0.54	Sugarberry (<i>Celtis laevigata</i>) Hackberry (<i>Celtis occidentalis</i>) Texas Persimmon (<i>Diospyros texana</i>) Ashe juniper (<i>Juniperus ashei</i>) Cedar elm (<i>Ulmus crassifolia</i>) Green Ash (<i>Fraxinus pennsylvanica</i>)	Wild rye (<i>Elymus canadensis</i>) Doveweed (<i>Croton texensis</i>) Switchgrass (<i>Panicum virgatum</i>)
20	Woodland	0.54	Hackberry (<i>Celtis occidentalis</i>) Yaupon (<i>Ilex vomitoria</i>) Greenbrier (<i>Smilax rotundifolia</i>) Texas Persimmon (<i>Diospyros texana</i>) Ashe juniper (<i>Juniperus ashei</i>) Green Ash (<i>Fraxinus pennsylvanica</i>) Redbud (<i>Cercis canadensis</i>) Live Oak (<i>Quercus fusiformis</i>)	Switchgrass (<i>Panicum virgatum</i>) Morning glory (<i>Ipomoea lindheimeri</i>) Doveweed (<i>Croton texensis</i>)
21	Woodland	0.53	Muscadine (<i>Muscadinia rotundifolia</i>) Greenbrier (<i>Smilax rotundifolia</i>) Yaupon (<i>Ilex vomitoria</i>) Texas Persimmon (<i>Diospyros texana</i>) Ashe juniper (<i>Juniperus ashei</i>)	Wild rye (<i>Elymus canadensis</i>) Giant ragweed (<i>Ambrosia trifida</i>) Inland sea oats (<i>Chasmanthium latifolium</i>) Switchgrass (<i>Panicum virgatum</i>) Lilac (<i>Syringa vulgaris</i>) Rattan vine (<i>Berchemia scandens</i>)
22	Woodland	0.53	Beautyberry (<i>Callicarpa Americana</i>) Greenbrier (<i>Smilax rotundifolia</i>) Hackberry (<i>Celtis occidentalis</i>)	Switchgrass (<i>Panicum virgatum</i>) 3 Different Species Of Panicum Wild rye (<i>Elymus canadensis</i>)

			Blackberry Sugarberry (<i>Celtis laevigata</i>) Yaupon (<i>Ilex vomitoria</i>) Texas Persimmon (<i>Diospyros texana</i>) Soapberry (<i>Sapindus saponaria</i>) Ashe juniper (<i>Juniperus ashei</i>)	
25	Woodland	0.50	Texas Persimmon (<i>Diospyros texana</i>) Greenbrier (<i>Smilax rotundifolia</i>) Flame leaf Sumac (<i>Rhus lanceolata</i>) Snailseed (<i>Cocculus carolinus</i>) Yaupon (<i>Ilex vomitoria</i>) Holly (<i>Ilex</i>) Ashe juniper (<i>Juniperus ashei</i>) Redbud (<i>Cercis canadensis</i>)	Scribner's panic grass (<i>Panicum oligosanthes</i>) Sedge (<i>Carex texensis</i>) Beggar's lice (<i>Hackelia virginiana</i>) Stinging nettle (<i>Urtica dioica</i>) Gumweed (<i>Grindelia squarrosa</i>) Doveweed (<i>Croton texensis</i>)
26	Woodland	0.64	No data is recorded	No data is recorded
27	Woodland	0.41	Soapberry (<i>Sapindus saponaria</i>) Texas Persimmon (<i>Diospyros texana</i>) American Holly (<i>Ilex opaca</i>) Ashe juniper (<i>Juniperus ashei</i>)	Switchgrass (<i>Panicum virgatum</i>) Wild rye (<i>Elymus canadensis</i>) Sedge (<i>Carex texensis</i>) Desert Christmas cactus (<i>Cylindropuntia leptocaulis</i>)
28	Woodland	0.67	Sugarberry (<i>Celtis laevigata</i>) American holly (<i>Ilex opaca</i>) Coralberry (<i>Symphoricarpos orbiculatus</i>)	Mint (<i>Mentha</i>) Lindheimer Copperleaf Aster (<i>Symphyotrichum oblongifolium</i>)
31	Woodland	0.47	Greenbrier (<i>Smilax rotundifolia</i>) Mustang grape (<i>Vitis mustangensis</i>) Dewberry (<i>Rubus trivialis</i>) Chinaberry (<i>Melia azedarach</i>) Yaupon (<i>Ilex vomitoria</i>) Holly (<i>Ilex</i>)	Panicum Spp. X3 False Ragweed (<i>Parthenium hysterophorus</i>) Mint (<i>Mentha</i>) Thistle (<i>Cirsium texanum</i>) Sprangletop (<i>Leptochloa</i>)

			Poison ivy (<i>Toxicodendron radicans</i>) Snailseed (<i>Cocculus carolinus</i>)	Doveweed (<i>Croton texensis</i>)
32	Woodland	0.58	Ashe juniper (<i>Juniperus ashei</i>) Hackberry (<i>Celtis occidentalis</i>) Greenbrier (<i>Smilax rotundifolia</i>) Dewberry (<i>Rubus trivialis</i>) Grape (<i>Vitis</i>)	Johnson grass (<i>Sorghum halepense</i>) Purpletop (<i>Tridens flavus</i>) Switchgrass (<i>Panicum virgatum</i>) Bee balm (<i>Monarda fistulosa</i>) Doveweed (<i>Croton texensis</i>) Wolf's bane (<i>Aconitum</i>) Stinging nettle (<i>Urtica dioica</i>) Sunflower (<i>Harpalium</i>) Partridge pea (<i>Chamaecrista fasciculata</i>) Silver bluestem (<i>Bothriochloa saccharoides</i>)
41	Woodland	0.50	Greenbrier (<i>Smilax rotundifolia</i>) Hackberry (<i>Celtis occidentalis</i>) Soapberry (<i>Sapindus saponaria</i>) Osage Orange Coralberry (<i>Symphoricarpos orbiculatus</i>)	Wild rye (<i>Elymus canadensis</i>) Sedge (<i>Carex texensis</i>) Unknown Forb
43	Woodland	0.60	Greenbrier (<i>Smilax rotundifolia</i>) Chinaberry (<i>Melia azedarach</i>) American beautyberry (<i>Callicarpa Americana</i>) Coralberry (<i>Symphoricarpos orbiculatus</i>) Dewberry (<i>Rubus trivialis</i>)	Purpletop (<i>Tridens flavus</i>) Sedge (<i>Carex texensis</i>) Sticktight Doveweed (<i>Croton texensis</i>)

44	Woodland	0.52	Coralberry (<i>Symphoricarpos orbiculatus</i>) Gum bumelia (<i>Sideroxylon lanuginosum</i>) Texas Persimmon (<i>Diospyros texana</i>) Greenbrier (<i>Smilax rotundifolia</i>) Deciduous Holly (<i>Ilex verticillata</i>) Privet (<i>Ligustrum</i>) Ashe juniper (<i>Juniperus ashei</i>)	Sedge (<i>Carex texensis</i>)
46	Woodland	0.50	Greenbrier (<i>Smilax rotundifolia</i>) Texas Persimmon (<i>Diospyros texana</i>) Holly (<i>Ilex</i>) Poison ivy (<i>Toxicodendron radicans</i>) Muscadine (<i>Muscadinia rotundifolia</i>) American beautyberry (<i>Callicarpa Americana</i>) Ashe juniper (<i>Juniperus ashei</i>)	Scribner's panic grass (<i>Panicum oligosanthos</i>) Carex Sp. Baldwin ironweed (<i>Vernonia baldwinii</i>) Beggar's lice (<i>Hackelia virginiana</i>)
47	Woodland	0.54	Chinaberry (<i>Melia azedarach</i>) Greenbrier (<i>Smilax rotundifolia</i>) Yaupon (<i>Ilex vomitoria</i>) Mustang Grape (Mustang grape (<i>Vitis mustangensis</i>)) Beautyberry (<i>Callicarpa Americana</i>) Corral Berry Ashe juniper (<i>Juniperus ashei</i>)	False Ragweed (<i>Parthenium hysterophorus</i>) Beggar's lice (<i>Hackelia virginiana</i>) Morning glory (<i>Ipomoea lindheimeri</i>) Switchgrass (<i>Panicum virgatum</i>)
48	Woodland	0.65	Poisonbean (<i>Sesbania drummondii</i>)	Dodder Bermuda Grass Sedge (<i>Carex texensis</i>) Cocklebur Sensitive brier (<i>Mimosa nuttallii</i>) Baldwin ironweed (<i>Vernonia baldwinii</i>)

50	Woodland	0.31	Ashe juniper (<i>Juniperus ashei</i>)	Sedge (<i>Carex texensis</i>) Scribner's panic grass (<i>Panicum oligosanthos</i>) Sensitive brier (<i>Mimosa nuttallii</i>)
56	Woodland	0.46	American Holly (<i>Ilex opaca</i>) Texas Persimmon (<i>Diospyros texana</i>) Greenbrier (<i>Smilax rotundifolia</i>) Ashe juniper (<i>Juniperus ashei</i>) Live Oak (<i>Quercus fusiformis</i>) Shumard Oak Hybridized Oak Bigelow oak (<i>Quercus sinuata</i> var. <i>breviloba</i>) Sumac (<i>Rhus virens</i>) Snailseed (<i>Cocculus carolinus</i>)	Bluestem (<i>Schizachyrium scoparium</i>) Scribner's panic grass (<i>Panicum oligosanthos</i>) Sedge (<i>Carex texensis</i>) Prickly pear (<i>Opuntia engelmannii</i>) Doveweed (<i>Croton texensis</i>)
58	Woodland	0.52	Yaupon (<i>Ilex vomitoria</i>) Agarito Texas Persimmon (<i>Diospyros texana</i>) Poison ivy (<i>Toxicodendron radicans</i>) Ashe juniper (<i>Juniperus ashei</i>) Live Oak (<i>Quercus fusiformis</i>) Schumard Oak (<i>Quercus shumardii</i>) Texas mountain laurel (<i>Dermatophyllum secundiflorum</i>) Legume Spp	Doveweed (<i>Croton texensis</i>) Sedge (<i>Carex texensis</i>) Scribner's panic grass (<i>Panicum oligosanthos</i>) Morning glory (<i>Ipomoea lindheimeri</i>) Bluestem (<i>Schizachyrium scoparium</i>) White Heliotrope (<i>Heliotropium tenellum</i>) Red yucca (<i>Hesperaloe parviflora</i>) Prickly pear (<i>Opuntia engelmannii</i>)
63	Woodland	0.39	Poison ivy (<i>Toxicodendron radicans</i>) Ashe juniper (<i>Juniperus ashei</i>) Baccharis (<i>Baccharis halimifolia</i>) Schumard Oak (<i>Quercus shumardii</i>) Oak Spp Live Oak (<i>Quercus fusiformis</i>) Acacia (<i>Acacia farnesiana</i>)	Sedge (<i>Carex texensis</i>) Bluestem (<i>Schizachyrium scoparium</i>) Scribner's panic grass (<i>Panicum oligosanthos</i>) Stinging nettle (<i>Urtica dioica</i>) Panicum Spp Sensitive brier (<i>Mimosa nuttallii</i>)

64	Woodland	0.43	Sumac (<i>Rhus virens</i>) Ashe juniper (<i>Juniperus ashei</i>) Baccharis (<i>Baccharis halimifolia</i>) Live Oak (<i>Quercus fusiformis</i>) Schumard Oak (<i>Quercus shumardii</i>) Redbud (<i>Cercis canadensis</i>)	Bluestem (<i>Schizachyrium scoparium</i>) Lantana (<i>Lantana camara</i>) Scriveners' Panicum Sedge (<i>Carex texensis</i>) Sensitive brier (<i>Mimosa nuttallii</i>) Red yucca (<i>Hesperaloe parviflora</i>) Prickly pear (<i>Opuntia engelmannii</i>)
65	Woodland	0.49	Dewberry (<i>Rubus trivialis</i>) Greenbrier (<i>Smilax rotundifolia</i>) Texas Persimmon (<i>Diospyros texana</i>) Holly (<i>Ilex</i>) Poison ivy (<i>Toxicodendron radicans</i>) Ashe juniper (<i>Juniperus ashei</i>) Live Oak (<i>Quercus fusiformis</i>) Bigelow oak (<i>Quercus sinuata</i> var. <i>breviloba</i>) Schumard Oak (<i>Quercus shumardii</i>) Cedar elm (<i>Ulmus crassifolia</i>)	Scribner's panic grass (<i>Panicum oligosanthos</i>) Sedge (<i>Carex texensis</i>) Beggar's lice (<i>Hackelia virginiana</i>) Stinging nettle (<i>Urtica dioica</i>) Morning glory (<i>Ipomoea lindheimeri</i>) Bluestem (<i>Schizachyrium scoparium</i>) St John's wort (<i>Hypericum perforatum</i>) Prickly pear (<i>Opuntia engelmannii</i>) Doveweed (<i>Croton texensis</i>) Red yucca (<i>Hesperaloe parviflora</i>)
66	Woodland	0.67	Hackberry (<i>Celtis occidentalis</i>) Carolina Buckthorn (<i>Rhamnus caroliniana</i>) Roughleaf Dogwood Green Ash (<i>Fraxinus pennsylvanica</i>) Dewberry (<i>Rubus trivialis</i>) Ashe juniper (<i>Juniperus ashei</i>) Texas Persimmon (<i>Diospyros texana</i>) Nandina (<i>Nandina domestica</i>) Poison ivy (<i>Toxicodendron radicans</i>) Greenbrier (<i>Smilax rotundifolia</i>) Grape (<i>Vitis</i>) Privet (<i>Ligustrum</i>) Schumard Oak (<i>Quercus shumardii</i>)	Sedge (<i>Carex texensis</i>) Inland sea oats (<i>Chasmanthium latifolium</i>) Doveweed (<i>Croton texensis</i>) Bluestem (<i>Schizachyrium scoparium</i>) Purpletop (<i>Tridens flavus</i>) Red yucca (<i>Hesperaloe parviflora</i>)

			Pecan (<i>Carya illinoensis</i>) Texas Walnut (<i>Juglans microcarpa</i>) Mesquite (<i>Prosopis Glandulosa</i>)	
67	Woodland	0.53	Ashe juniper (<i>Juniperus ashei</i>) Blackhaw (<i>Viburnum prunifolium</i>) Possumhaw (<i>Ilex verticillata</i>) Poison ivy (<i>Toxicodendron radicans</i>) Chinaberry (<i>Melia azedarach</i>) Grape (<i>Vitis</i>) Greenbrier (<i>Smilax rotundifolia</i>) Carolina Buckthorn (<i>Rhamnus caroliniana</i>) Yaupon (<i>Ilex vomitoria</i>) Buckeye (<i>Ungnadia speciose</i>) Gum bumelia (<i>Sideroxylon lanuginosum</i>) Shumard Oak (<i>Quercus shumardii</i>) Green Ash (<i>Fraxinus pennsylvanica</i>)	Unknown Grass Cactus (<i>Opuntia</i>) Red yucca (<i>Hesperaloe parviflora</i>)
68	Woodland	0.40	Ashe juniper (<i>Juniperus ashei</i>) Mustang grape (<i>Vitis mustangensis</i>) Sumac (<i>Rhus virens</i>) Greenbrier (<i>Smilax rotundifolia</i>) Poison ivy (<i>Toxicodendron radicans</i>) Shumard Oak (<i>Quercus shumardii</i>) Green Ash (<i>Fraxinus pennsylvanica</i>)	Sedge (<i>Carex texensis</i>) Unknown Grass
70	Woodland	0.45	Ashe juniper (<i>Juniperus ashei</i>) Poison ivy (<i>Toxicodendron radicans</i>) Sumac (<i>Rhus virens</i>) Shumard Oak (<i>Quercus shumardii</i>) Green Ash (<i>Fraxinus pennsylvanica</i>)	Bluestem (<i>Schizachyrium scoparium</i>) Sedge (<i>Carex texensis</i>) Cactus (<i>Opuntia</i>)

71	Woodland	0.57	<p>Nandina (<i>Nandina domestica</i>)</p> <p>Skunkbush</p> <p>Ashe juniper (<i>Juniperus ashei</i>)</p> <p>Holly (<i>Ilex</i>)</p> <p>Greenbrier (<i>Smilax rotundifolia</i>)</p> <p>Carolina Buckthorn (<i>Rhamnus caroliniana</i>)</p> <p>Buckeye (<i>Ungnadia speciose</i>)</p> <p>Texas Persimmon (<i>Diospyros texana</i>)</p> <p>Poison ivy (<i>Toxicodendron radicans</i>)</p> <p>Shumard Oak (<i>Quercus shumardii</i>)</p> <p>Green Ash (<i>Fraxinus pennsylvanica</i>)</p>	<p>Sedge (<i>Carex texensis</i>)</p> <p>Bluestem (<i>Schizachyrium scoparium</i>)</p> <p>Unknown Grass</p> <p>Red yucca (<i>Hesperaloe parviflora</i>)</p>
72	Woodland	0.53	<p>Sumac (<i>Rhus virens</i>)</p> <p>Buckeye (<i>Ungnadia speciose</i>)</p> <p>Ashe juniper (<i>Juniperus ashei</i>)</p> <p>Greenbrier (<i>Smilax rotundifolia</i>)</p> <p>Carolina Buckthorn (<i>Rhamnus caroliniana</i>)</p> <p>Texas mountain laurel (<i>Dermatophyllum secundiflorum</i>)</p> <p>Mustang grape (<i>Vitis mustangensis</i>)</p> <p>Nandina (<i>Nandina domestica</i>)</p> <p>Blackhaw (<i>Viburnum prunifolium</i>)</p> <p>Privet (<i>Ligustrum</i>)</p> <p>Red mulberry</p> <p>Green Ash (<i>Fraxinus pennsylvanica</i>)</p> <p>Shumard Oak (<i>Quercus shumardii</i>)</p>	<p>Little bluestem (<i>Schizachyrium scoparium</i>)</p> <p>Sedge (<i>Carex texensis</i>)</p> <p>Red yucca (<i>Hesperaloe parviflora</i>)</p>
73	Woodland	0.61	<p>Mustang grape (<i>Vitis mustangensis</i>)</p> <p>Greenbrier (<i>Smilax rotundifolia</i>)</p> <p>Yaupon (<i>Ilex vomitoria</i>)</p> <p>Dogwood (<i>Cornus florida</i>)</p>	<p>Sedge (<i>Carex texensis</i>)</p> <p>Scribner's panic grass (<i>Panicum oligosanthos</i>)</p> <p>Wild rye (<i>Elymus canadensis</i>)</p> <p>Prickly pear (<i>Opuntia engelmannii</i>)</p>

			Dewberry (<i>Rubus trivialis</i>) Rusty backhaw (<i>Viburnum prunifolium</i>) Blackberry Ashe juniper (<i>Juniperus ashei</i>) Cedar elm (<i>Ulmus crassifolia</i>) Ashe juniper Shumard Oak (<i>Quercus shumardii</i>) Live Oak (<i>Quercus fusiformis</i>) Redbud (<i>Cercis canadensis</i>) Nandina (<i>Nandina domestica</i>)	
74	Woodland	0.67	Yaupon (<i>Ilex vomitoria</i>) Poison ivy (<i>Toxicodendron radicans</i>) Wax-Leaf Legustrum Ashe juniper (<i>Juniperus ashei</i>) Possumhaw (<i>Ilex verticillata</i>) Beautiful Berry Grape (<i>Vitis</i>) Dewberry (<i>Rubus trivialis</i>) Hackberry (<i>Celtis occidentalis</i>) Virginia Creeper (<i>Parthenocissus quinquefolia</i>) Green Ash (<i>Fraxinus pennsylvanica</i>) Cedar elm (<i>Ulmus crassifolia</i>) Live Oak (<i>Quercus fusiformis</i>) Bigelow oak (<i>Quercus sinuata</i> var. <i>breviloba</i>) Redbud (<i>Cercis canadensis</i>)	Sedge (<i>Carex texensis</i>) Ball Moss Unknown Grass Red yucca (<i>Hesperaloe parviflora</i>)

75	Woodland	0.56	Poison ivy (<i>Toxicodendron radicans</i>) Greenbrier (<i>Smilax rotundifolia</i>) Rusty blackhaw (<i>Viburnum prunifolium</i>) Yaupon (<i>Ilex vomitoria</i>) Sumac (<i>Rhus virens</i>) Ashe juniper (<i>Juniperus ashei</i>) Ash Shumard Oak (<i>Quercus shumardii</i>) Bigelow oak (<i>Quercus sinuata</i> var. <i>breviloba</i>) Black Walnut Skunk Bush Cholla Water Locust Hoary Milkpea	Sedge (<i>Carex texensis</i>) Panicum Spp Copper Leaf Prickly pear (<i>Opuntia engelmannii</i>)
77	Woodland	0.57	Poison Oak Sugarberry (<i>Celtis laevigata</i>) Dewberry (<i>Rubus trivialis</i>) Mustang grape (<i>Vitis mustangensis</i>) Unknown Cherry Possumhaw (<i>Ilex verticillata</i>) Holly (<i>Ilex</i>) Ashe juniper (<i>Juniperus ashei</i>) Partridge pea (<i>Chamaecrista fasciculata</i>)	Thistle (<i>Cirsium texanum</i>) Switchgrass (<i>Panicum virgatum</i>) Broomweed (<i>Gutierrezia sarothrae</i>)
78	Woodland	0.63	Poison Oak (<i>Toxicodendron pubescens</i>) Hackberry (<i>Celtis occidentalis</i>) Mustang grape (<i>Vitis mustangensis</i>) Cedar elm (<i>Ulmus crassifolia</i>) Buttonbush (<i>Cephalanthus occidentalis</i>)	Johnson grass (<i>Sorghum halepense</i>) Switchgrass (<i>Panicum virgatum</i>) Wild rye (<i>Elymus canadensis</i>) Giant Ragweed (<i>Ambrosia trifida</i>)

			<i>Greenbrier (Smilax rotundifolia)</i>	
Woodland Summary Data				
Total Number of sites				45
Lowest Habitat Score				0.31
Highest Habitat Score				0.67
Average Habitat Score				0.53

1

2

3

4

5

6

Site	habitat Type	Total Score	Dominant Woody Species	Dominant Herbaceous Species
72A	Bottomland Hardwood	0.36	Chinese Tallow Chinaberry (<i>Melia azedarach</i>) <i>Greenbrier (Smilax rotundifolia)</i> Unknown Vine Dewberry (<i>Rubus trivialis</i>) Snailseed (<i>Cocculus carolinus</i>) Buttonbush (<i>Cephalanthus occidentalis</i>)	Johnson grass (<i>Sorghum halepense</i>) Bermuda grass (<i>Cynodon dactylon</i>) Lizard's weed (<i>Saururus cernuus</i>) unknown forb #1 Frogfruit (<i>Phyla chinensis</i>) Clover (<i>Trifolium</i>)

36	Bottomland Hardwood	0.52	<i>Greenbrier (Smilax rotundifolia)</i> <i>Dewberry (Rubus trivialis)</i> <i>Bois d'arc (Maclura pomifera)</i> <i>Hackberry (Celtis occidentalis)</i> <i>Virginia Creeper (Parthenocissus quinquefolia)</i> <i>Grape (Vitis)</i> <i>Cedar elm (Ulmus crassifolia)</i> <i>Mesquite (Prosopis Glandulosa)</i> <i>Snailseed (Cocculus carolinus)</i> <i>Gum bumelia (Sideroxylon lanuginosum)</i>	<i>Sedge (Carex texensis)</i> <i>Canad wild rye (Elymus canadensis)</i> unknown forb #1 <i>Prairie conflower (Ratibida columnifera)</i> <i>Canadian germander pokeweed (Teucrium canadense)</i>
80	Bottomland Hardwood	0.54	<i>Sugarberry (Celtis laevigata)</i> <i>Hackberry (Celtis occidentalis)</i> <i>Poison Oak (Toxicodendron pubescens)</i> <i>Cedar elm (Ulmus crassifolia)</i> <i>Ashe juniper (Juniperus ashei)</i> <i>Snailseed (Cocculus carolinus)</i> <i>Greenbrier (Smilax rotundifolia)</i>	<i>Wild rye (Elymus canadensis)</i> <i>Prickly pear (Opuntia engelmannii)</i>
5	Bottomland Hardwood	0.57	<i>Hackberry (Celtis occidentalis)</i> <i>Greenbrier (Smilax rotundifolia)</i> <i>Wild Blackberry</i> <i>Poison ivy (Toxicodendron radicans)</i> <i>Chinaberry (Melia azedarach)</i> <i>Pepper vine (Ampelopsis arborea)</i> <i>Blackberry</i> <i>Hawthorn</i> <i>Muscadine (Muscadinia rotundifolia)</i> <i>Boxelder (Acer negundo)</i> <i>Cedar elm (Ulmus crassifolia)</i> <i>Pecan (Carya illinoensis)</i> <i>Poisonbean (Sesbania drummondii)</i>	<i>Inland sea oats (Chasmanthium latifolium)</i> <i>Wild rye (Elymus canadensis)</i> <i>Beggar's lice (Hackelia virginiana)</i>

30	Bottomland Hardwood	0.59	<i>Greenbrier (Smilax rotundifolia)</i> <i>Yaupon (Ilex vomitoria)</i> <i>Poison Oak (Toxicodendron pubescens)</i> <i>Pepper vine (Ampelopsis arborea)</i> <i>Hackberry (Celtis occidentalis)</i> <i>Chinaberry (Melia azedarach)</i> <i>Dewberry (Rubus trivialis)</i> <i>Winged Elm</i>	<i>Wild rye (Elymus canadensis)</i> <i>Thistle (Cirsium texanum)</i> <i>Beggar's lice (Hackelia virginiana)</i>
17	Bottomland Hardwood	0.62	<i>Greenbrier (Smilax rotundifolia)</i> <i>Cedar elm (Ulmus crassifolia)</i> <i>Buttonbush (Cephalanthus occidentalis)</i>	<i>Thistle (Cirsium texanum)</i> <i>Cocklebur (Xanthium strumarium)</i> <i>Lamb Ear (Stachys byzantina)</i> <i>Mint (Mentha)</i> <i>Giant Ragweed (Ambrosia trifida)</i> <i>Doveweed (Croton texensis)</i> <i>Wild rye (Elymus canadensis)</i> <i>Sunflower (Harpalium)</i> <i>Blackeyed Susan (Rudbeckia hirta)</i> <i>False Ragweed (Parthenium hysterophorus)</i> <i>Switchgrass (Panicum virgatum)</i> <i>Pokeweed (Phytolacca americana)</i> <i>Copperleaf (Acalypha monostachya)</i> <i>Fleabane (Erigeron)</i> <i>Sumpweed (marshelder)</i>

3	Bottomland Hardwood	0.65	<i>Greenbrier (Smilax rotundifolia)</i> <i>Virginia Creeper (Parthenocissus quinquefolia)</i> <i>Hackberry (Celtis occidentalis)</i> <i>Grape (Vitis)</i> <i>Elbow Bush (Forestiera pubescens)</i> <i>Privet (Ligustrum)</i> <i>Poison ivy (Toxicodendron radicans)</i> <i>Gum bumelia (Sideroxylon lanuginosum)</i> <i>Possumhaw (Ilex verticillata)</i> <i>Snailseed (Cocculus carolinus)</i> <i>Nandina (Nandina domestica)</i> <i>Ashe juniper (Juniperus ashei)</i> <i>Live Oak (Quercus fusiformis)</i> <i>Slippery Elm</i> <i>Green Ash (Fraxinus pennsylvanica)</i>	Sedge (<i>Carex texensis</i>)
33	Bottomland Hardwood	0.67	<i>Greenbrier (Smilax rotundifolia)</i> <i>Dewberry (Rubus trivialis)</i> <i>Poison ivy (Toxicodendron radicans)</i> <i>Ashe juniper (Juniperus ashei)</i> <i>Virginia Creeper (Parthenocissus quinquefolia)</i> <i>Cedar elm (Ulmus crassifolia)</i> <i>Live Oak (Quercus fusiformis)</i> <i>Snailseed (Cocculus carolinus)</i>	<i>lemon horsemint (Monarda citriodora)</i> <i>Doveweed (Croton texensis)</i> <i>Daisy (Bellis perennis)</i> <i>Sedge (Carex texensis)</i> <i>Wild rye (Elymus canadensis)</i> <i>Giant Ragweed (Ambrosia trifida)</i> <i>unknown forb</i> <i>Pokeweed (Phytolacca americana)</i> <i>Canada germander</i>
1	Bottomland Hardwood	0.7	<i>Chinaberry (Melia azedarach)</i> <i>Dogwood (Cornus florida)</i> <i>Greenbrier (Smilax rotundifolia)</i> <i>Grape (Vitis)</i> <i>Holly (Ilex)</i> <i>Poison ivy (Toxicodendron radicans)</i>	<i>Inland sea oats (Chasmanthium latifolium)</i> <i>Unknown #1 Forb</i> <i>Sedge (Carex texensis)</i> <i>Unknown #2 Forb</i> <i>Red yucca (Hesperaloe parviflora)</i>

			Virginia Creeper (<i>Parthenocissus quinquefolia</i>) Possumhaw (<i>Ilex verticillata</i>) Snailseed (<i>Cocculus carolinus</i>) Privet (<i>Ligustrum</i>) Pepper vine (<i>Ampelopsis arborea</i>) Mulberry (<i>Morus rubra</i>) Ashe juniper (<i>Juniperus ashei</i>) Dewberry (<i>Rubus trivialis</i>)	
5b	Bottomland Hardwood	0.77	Poison ivy (<i>Toxicodendron radicans</i>) Poison Sumac (<i>Toxicodendron vernix</i>) Greenbrier (<i>Smilax rotundifolia</i>) Pepper vine (<i>Ampelopsis arborea</i>) Mulberry (<i>Morus rubra</i>) Dewberry (<i>Rubus trivialis</i>) Hackberry (<i>Celtis occidentalis</i>) Rusty blackhaw (<i>Viburnum prunifolium</i>) Snailseed (<i>Cocculus carolinus</i>) Pecan (<i>Carya illinoensis</i>) Boxelder (<i>Acer negundo</i>) Cedar elm (<i>Ulmus crassifolia</i>) Green Ash (<i>Fraxinus pennsylvanica</i>) Sycamore (<i>Platanus mexicana</i>) Cottonwood Black willow (<i>Salix nigra</i>) Baccharis (<i>Baccharis halimifolia</i>)	False nettle (<i>Boehmeria cylindrica</i>) Inland sea oats (<i>Chasmanthium latifolium</i>) Wild rye (<i>Elymus canadensis</i>) Switchgrass (<i>Panicum virgatum</i>) Sedge (<i>Carex texensis</i>) Johnson grass (<i>Sorghum halepense</i>) Water pennywort (<i>Hydrocotyle</i>) Smartweed (<i>Polygonum</i>) Marsh Fleabane (<i>Pluchea odorata</i>)

6	Bottomland Hardwood	0.8	<i>Greenbrier (Smilax rotundifolia)</i> <i>Privet (Ligustrum)</i> <i>Poison ivy (Toxicodendron radicans)</i> <i>Hackberry (Celtis occidentalis)</i> <i>Ashe juniper (Juniperus ashei)</i> <i>Possumhaw (Ilex verticillata)</i> <i>Holly (Ilex)</i> <i>Dogwood (Cornus florida)</i> <i>Dewberry (Rubus trivialis)</i> <i>Nandina (Nandina domestica)</i> <i>Virginia Creeper (Parthenocissus quinquefolia)</i> <i>Grape (Vitis)</i> <i>Snailseed (Cocculus carolinus)</i> <i>Bigelow oak (Quercus sinuata var. breviloba)</i> <i>Slippery Elm (Ulmus rubra)</i> <i>Green Ash (Fraxinus pennsylvanica)</i>	
57	Bottomland Hardwood	0.87	<i>Greenbrier (Smilax rotundifolia)</i> <i>Pepper vine (Ampelopsis arborea)</i> <i>Rattan vine (Berchemia scandens)</i> <i>Texas Persimmon (Diospyros texana)</i> <i>Mustang grape (Vitis mustangensis)</i> <i>Dewberry (Rubus trivialis)</i> <i>American beautyberry (Callicarpa Americana)</i> <i>Poison ivy (Toxicodendron radicans)</i> <i>Hackberry (Celtis occidentalis)</i> <i>Sumac (Rhus virens)</i> <i>Holly (Ilex)</i> Unknown With Red Berry, Unknown Vine <i>Possumhaw (Ilex verticillata)</i>	<i>Wild rye (Elymus candensis)</i> <i>Wood Oats (Chasmanthium gracile)</i> <i>Scribner's panic grass (Panicum oligosanthos)</i> <i>Switchgrass (Panicum virgatum)</i> <i>Silver bluestem (Bothriochloa saccharoides)</i>

			Live Oak (<i>Quercus fusiformis</i>) Pecan (<i>Carya illinoensis</i>) Elm (<i>Ulmus crassifolia</i>) Ashe juniper (<i>Juniperus ashei</i>)	
Bottomland Hardwood Summary Data				
Total Number of Sites				12
Lowest Habitat Score				0.36
Highest Habitat Score				0.87
Average Habitat Score				0.64

Attachment B: WHAP Point Photographs



Site 4, facing north



Site 4, facing south



Site 4, facing east



Site 4, facing west



Site 5, facing north



Site 5, facing south



Site 5, facing east



Site 5, facing west



Site 6, facing north



Site 6, facing south



Site 6, facing east



Site 6, facing west



Site 7, facing north



Site 7, facing south



Site 7, facing east



Site 7, facing west



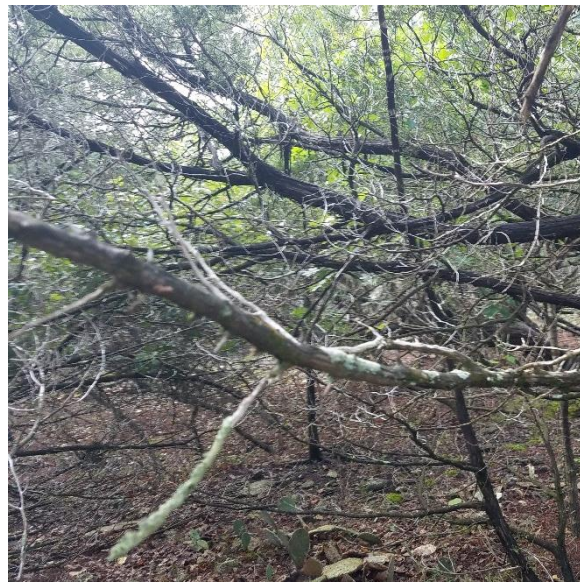
Site 13, facing north



Site 13, facing south



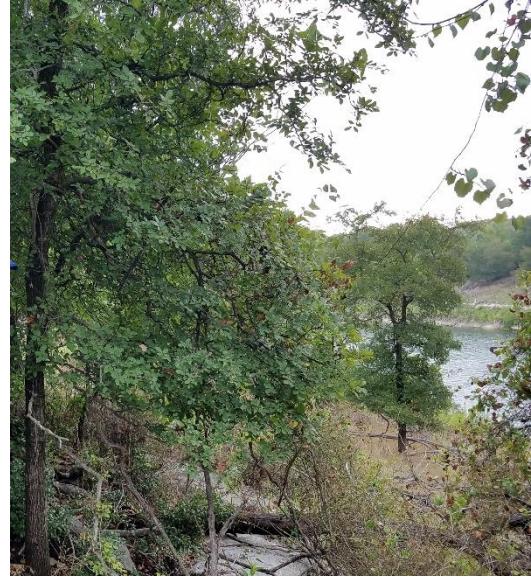
Site 13, facing east



Site 13, facing west



Site 14, facing north



Site 14, facing south



Site 14, facing east



Site 14, facing west



Site 16, facing north



Site 16, facing south



Site 16, facing east



Site 16, facing west



Site 17, facing north



Site 17, facing south



Site 17, facing east



Site 17, facing west



Site 18, facing north



Site 18, facing south



Site 18, facing east



Site 18, facing west



Site 19, facing north



Site 19, facing south



Site 19, facing east



Site 19, facing west



Site 20, facing north



Site 20, facing south



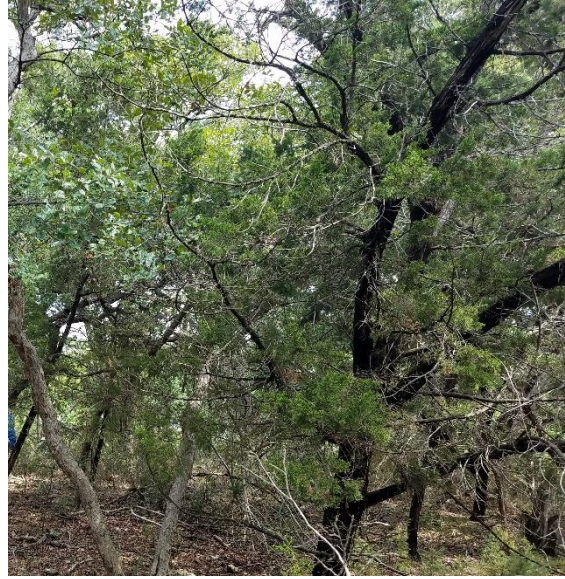
Site 20, facing east



Site 20, facing west



Site 21, facing north



Site 21, facing south



Site 21, facing east



Site 21, facing west



Site 22, facing north



Site 22, facing south



Site 22, facing east



Site 22, facing west



Site 23, facing north



Site 23, facing south



Site 23, facing east



Site 23, facing west



Site 24, facing north



Site 24, facing south



Site 24, facing east



Site 24, facing west



Site 25, facing north



Site 25, facing south



Site 25, facing east



Site 25, facing west



Site 27, facing north



Site 27, facing south



Site 27, facing east



Site 27, facing west



Site 28, facing north



Site 28, facing south



Site 28, facing east



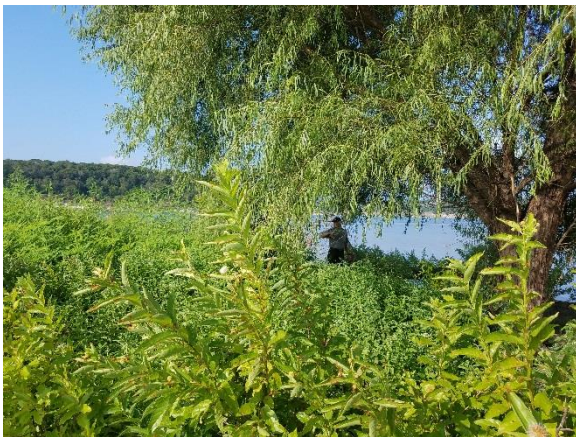
Site 28, facing west



Site 29, facing north



Site 29, facing south



Site 29, facing east



Site 29, facing west



Site 30, facing north



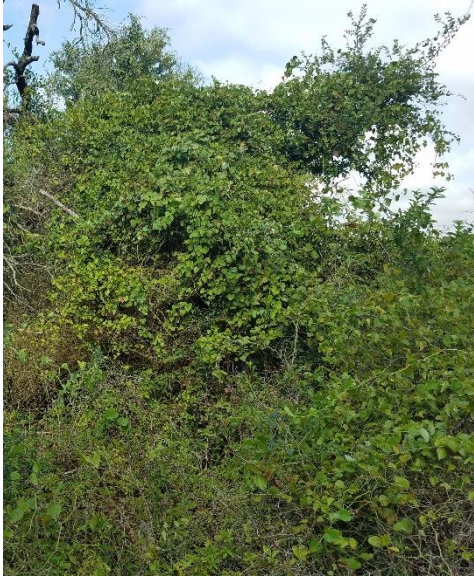
Site 30, facing south



Site 30, facing east



Site 30, facing west



Site 31, facing north



Site 31, facing south



Site 31, facing east



Site 31, facing west

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APPENDIX F – SEAPLANE POLICY

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MEMORANDUM FOR O&M Distribution #2
Number (POL: 00-06)

SUBJECT: Notice to Seaplane Pilots

1. The enclosed Notice to Seaplane Pilots has been updated to correct a few omissions (Waco Lake had been omitted from the last update in Feb 1998) and to include the District's Web Site address.
2. The Notice includes a reference to our Lake Recreation Visitor's Guide pamphlet for additional information. When the Notice is given to a member of the public, the Guide pamphlet should be attached.
3. When printing a copy of the Notice, it should be printed on a Corps of Engineers letterhead.

Encl


DWIGHT L. QUARLES
Chief, Operations Division

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>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>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>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>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>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>JOE POOL LAKE</p> <p>Landings and takeoffs are prohibited in all lake areas west of the Lakeridge Parkway bridges.</p>
<p>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>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>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>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>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>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>NAVARRO MILLS LAKE</p> <p>Landings and takeoffs are prohibited west of Wolf Creek Park 1.</p>	<p>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>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>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>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>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>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.

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APPENDIX G – PERTINENT PUBLIC LAWS

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- 3015 • Public Law 59-209, Antiquities Act of 1906. The first Federal law established to
3016 protect what are now known as "cultural resources" on public lands. It provides a
3017 permit procedure for investigating "antiquities" and consists of two parts: An act
3018 for the Preservation of American Antiquities, and Uniform Rules and Regulations.
- 3019 • Public Law 74-292, Historic Sites Act of 1935. Declares it to be a national policy
3020 to preserve for (in contrast to protecting from) the public, historic (including
3021 prehistoric) sites, buildings, and objects of national significance. This act provides
3022 both authorization and a directive for the Secretary of the Interior, through the
3023 National Park Service, to assume a position of national leadership in the area of
3024 protecting, recovering, and interpreting national archeological historic resources.
3025 It also establishes an "Advisory Board on National Parks; Historic Sites,
3026 Buildings, and Monuments, a committee of eleven experts appointed by the
3027 Secretary to recommend policies to the Department of the Interior".
- 3028 • Public Law 75-761, Flood Control Act of 1938. This act authorizes the
3029 construction, repair, and preservation of certain public works on rivers and
3030 harbors for navigation, flood control, and for other purposes.
- 3031 • Title 16 U.S. Code §§ 668-668a-d, 54 Stat. 250, Bald Eagle Protection Act of
3032 1940, as amended. This Act prohibits anyone, without a permit issued by the
3033 Secretary of the Interior, from taking bald eagles, including their parts, nests, or
3034 eggs. The Act provides criminal penalties for persons who take, possess, sell,
3035 purchase, barter, offer to sell, transport, export or import, at any time or any
3036 manner, any bald eagle [or any golden eagle], alive or dead, or any part, nest, or
3037 egg thereof. The Act defines "take" as pursue, shoot, shoot at, poison, wound,
3038 kill, capture, trap, collect, molest or disturb.
- 3039 • Public Law 78-534, Flood Control Act of 1944. - Section 4 of the act as last
3040 amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to
3041 construct, maintain, and operate public parks and recreational facilities in
3042 reservoir areas and to grant leases and licenses for lands, including facilities,
3043 preferably to Federal, State or local governmental agencies.
- 3044 • Public Law 79-525, River and Harbor Act of 1946. This act authorizes the
3045 construction, repair, and preservation of certain public works on rivers and
3046 harbors for navigation, flood control, and for other purposes.
- 3047 • Public Law 83-780, Flood Control Act of 1954. This act authorizes the
3048 construction, maintenance, and operation of public parks and recreational
3049 facilities in reservoir areas under the control of the Department of the Army and
3050 authorizes the Secretary of the Army to grant leases of lands in reservoir areas
3051 deemed to be in the public interest.
- 3052 • Public Law 85-624, Fish and Wildlife Coordination Act 1958. - This act as
3053 amended in 1965 sets down the general policy that fish and wildlife conservation
3054 shall receive equal consideration with other project purposes and be coordinated
3055 with other features of water resource development programs. Opportunities for
3056 improving fish and wildlife resources and adverse effects on these resources

- 3057 shall be examined along with other purposes which might be served by water
3058 resources development.
3059
- 3060 • Public Law 86-717, Forest Conservation. - This act provides for the protection of
3061 forest and other vegetative cover for reservoir areas under this jurisdiction of the
3062 Secretary of the Army and the Chief of Engineers.
 - 3063 • Public Law 87-874, Rivers and Harbors Act of 1962. This act authorizes the
3064 construction, repair, and preservation of certain public works on rivers and
3065 harbors for navigation, flood control, and for other purposes.
 - 3066 • Public Law 88-578, Land and Water Conservation Fund Act of 1965. This act
3067 established a fund from which Congress can make –appropriations for outdoor
3068 recreation. Section 2(2) makes entrance and user fees at reservoirs possible by
3069 deleting the words "without charge" from Section 4 of the 1944 Flood Control Act
3070 as amended.
 - 3071 • Public Law 88-29, 28 May 1963, authorized the Secretary of the Interior to
3072 inventory and classify outdoor recreation needs and resources and to prepare a
3073 comprehensive outdoor recreation plan taking into consideration the plans of the
3074 various Federal agencies, State, and other political subdivisions. It also states
3075 that the federal agencies undertaking recreational activities shall consult with the
3076 Secretary of the Interior concerning these activities and shall carry out such
3077 responsibilities in general conformance with the nationwide plan.
3078
 - 3079 • Public Law 89-72, Federal Water Project Recreation Act of 1965. - This act
3080 requires that not less than one-half the separable costs of developing
3081 recreational facilities and all operation and maintenance costs at Federal
3082 reservoir projects shall be borne by a non-Federal public body. A
3083 HQUSACE/OMB implementation policy made these provisions applicable to
3084 projects completed prior to 1965.
 - 3085 • Public Law 89-90, Water Resources Planning Act (1965). This act established
3086 the Water Resources Council and gives it the responsibility to encourage the
3087 development, conservation, and use of the Nation's water and related land
3088 resources on a coordinated and comprehensive basis.
 - 3089 • Public Law 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated
3090 October 21, 1976. This act authorized a research and development program with
3091 respect to solid-waste disposal. It proposes (1) to initiate and accelerate a
3092 national research and development program for new and improved methods of
3093 proper and economic solid-waste disposal, including studies directed toward the
3094 conservation of national resources by reducing the amount of waste and
3095 unsalvageable materials and by recovery and utilization of potential resources in
3096 solid waste; and (2) to provide technical and financial assistance to State and
3097 local governments and interstate agencies in the planning, development, and
3098 conduct of solid-waste disposal programs.

- 3099 • Public Law 89-665, Historic Preservation Act of 1966. - This act provides for: (1)
3100 an expanded National Register of significant sites and objects; (2) matching
3101 grants to states undertaking historic and archeological resource inventories; and
3102 (3) a program of grants-in aid to the National Trust for Historic Preservation; and
3103 (4) the establishment of an Advisory Council on Historic Preservation. Section
3104 106 requires that the President's Advisory Council on Historic Preservation have
3105 an opportunity to comment on any undertaking which adversely affects properties
3106 listed, nominated, or considered important enough to be included on the National
3107 Register of Historic Places.
- 3108 • Public Law 90-483, River and Harbor and Flood Control Act of 1968, Mitigation of
3109 Shore Damages. Section 210 restricted collection of entrance fee at USACE
3110 lakes and reservoirs to users of highly developed facilities requiring continuous
3111 presence of personnel.
- 3112 • Public Law 91-190, National Environmental Policy Act of 1969 (NEPA). – NEPA
3113 declared it a national policy to encourage productive and enjoyable harmony
3114 between man and his environment, and for other purposes. Specifically, it
3115 declared a “continuing policy of the Federal Government... to use all practicable
3116 means and measures...to foster and promote the general welfare, to create
3117 conditions under which man and nature can exist in productive harmony, and
3118 fulfill the social, economic, and other requirements of present and future
3119 generations of Americans.” Section 102 authorized and directed that, to the
3120 fullest extent possible, the policies, regulations and public law of the United
3121 States shall be interpreted and administered in accordance with the policies of
3122 the Act. It is Section 102 that requires consideration of environmental impacts
3123 associated with Federal actions. Section 101 of NEPA requires the federal
3124 government to use all practicable means to create and maintain conditions under
3125 which man and nature can exist in productive harmony.
3126
- 3127 Specifically, Section 101 of the National Environmental Policy Act declares:
3128 ○ Fulfill the responsibilities of each generation as trustee of the environment for
3129 succeeding generations;
3130 ○ Assure for all Americans safe, healthful, productive, and aesthetically and
3131 culturally pleasing surroundings;
3132 ○ Attain the widest range of beneficial uses of the environment without
3133 degradation risk to health or safety or other undesirable and unintended
3134 consequences;
3135 ○ Preserve important historic, cultural, and natural aspects of our national
3136 heritage and maintain wherever possible an environment which supports
3137 diversity and variety of individual choice;
3138 ○ Achieve a balance between population and resource use which will permit
3139 high standards of living and a wide sharing of life's amenities: and
3140 ○ Enhance the quality of renewable resources and approach the maximum
3141 attainable recycling of depletable resources.
3142

- 3143 • Public Law 91-611, River and Harbors and Flood Control Act of 1970. – Section
3144 122eEstablishes the requirement for evaluating the economic, social, and
3145 environmental impacts of projects.
- 3146 • Public Law 92-347, Golden Eagle Passbook and Special Recreation User Fees.
3147 This act revises Public Law 88-578, the Public Land and Water Conservation Act
3148 of 1965, to require Federal agencies to collect special recreation user fees for the
3149 use of specialized sites developed at Federal expense and to prohibit the
3150 USACE from collecting entrance fees to projects.
- 3151 • Public Law 92-500, Federal Water Pollution Control Act Amendments of 1972.
3152 The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as
3153 amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet
3154 of uniform State standards for water quality. Public Law 92-500 strongly affirms
3155 the Federal interest in this area. "The objective of this act is to restore and
3156 maintain the chemical, physical and biological integrity of the Nation's waters."
- 3157 • Public Law 92-516, Federal Environmental Pesticide Control Act of 1972. This
3158 act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It
3159 provides for complete regulation of pesticides to include regulation, restrictions
3160 on use, actions within a single State, and strengthened enforcement.
- 3161 • Public Law 93-81, Collection of Fees for Use of Certain Outdoor Recreation
3162 Facilities. This act amends Section 4 of the Land and Water Conservation Act of
3163 1965, as amended to require each Federal agency to collect special recreation
3164 use fees for the use of sites, facilities, equipment, or services furnished at
3165 Federal expense.
- 3166 • Public Law 93-205, Conservation, Protection, and Propagation of Endangered
3167 Species Act of 1973, as amended. This law repeals the Endangered Species
3168 Conservation Act of 1969. It also directs all Federal departments/agencies to
3169 carry out programs to conserve endangered and threatened species of fish,
3170 wildlife, and plants and to preserve the habitat of these species in consultation
3171 with the Secretary of the Interior. This Act establishes a procedure for
3172 coordination, assessment, and consultation. This Act was amended by Public
3173 Law 96-159.
- 3174 • Public Law 93-251, Water Resources Development Act of 1974. Section 107 of
3175 this law establishes a broad Federal policy which makes it possible to participate
3176 with local governmental entities in the costs of sewage treatment plan
3177 installations.
- 3178 • Public Law 93-291, Archeological Conservation Act of 1974. The Secretary of the
3179 Interior shall coordinate all Federal survey and recovery activities authorized
3180 under this expansion of the 1960 act. The Federal Construction agency may
3181 transfer up to one percent of project funds to the Secretary with such transferred
3182 funds considered non-reimbursable project costs.
- 3183 • Public Law 93-303, Recreation Use Fees. This act amends Section 4 of the Land
3184 and Water Conservation Act of 1965, as amended, to establish less restricted

- 3185 criteria under which Federal agencies may charge fees for the use of
3186 campgrounds developed and operated at Federal areas under their control.
- 3187 • Public Law 93-523, Safe Drinking Water Act. The act assures that water supply
3188 systems serving the public meet minimum national standards for protection of
3189 public health. The act (1) authorizes the Environmental Protection Agency to
3190 establish Federal standards for protection from all harmful contaminants, which
3191 standards would be applicable to all public water systems, and (2) establishes a
3192 joint Federal-State system for assuring compliance with these standards and for
3193 protecting underground sources of drinking water.
- 3194 • Public Law 94-422, Amendment of the Land and Water Conservation Fund Act of
3195 1965. Expands the role of the Advisory Council. Title 2 - Section 102a amends
3196 Section 106 of the Historical Preservation Act of 1966 to say that the Council can
3197 comment on activities which will have an adverse effect on sites either included
3198 in or eligible for inclusion in the National Register of Historic Places.
- 3199 • Public Law 95-217, Clean Water Act of 1977, as amended. This Act amends the
3200 Federal Water Pollution Control Act of 1970 and extends the appropriations
3201 authorization. The Clean Water Act is a comprehensive Federal water pollution
3202 control program that has as its primary goal the reduction and control of the
3203 discharge of pollutants into the nation's navigable waters. The Clean Water Act
3204 of 1977 has been amended by the Water Quality Act of 1987, Public Law 100-4.
- 3205 • Public Law 95-341, American Indian Religious Freedom Act of 1978. The Act
3206 protects the rights of Native Americans to exercise their traditional religions by
3207 ensuring access to sites, use and possession of sacred objections, and the
3208 freedom to worship through ceremonials and traditional rites.
- 3209 • Public Law 95-632, Endangered Species Act Amendments of 1978. This law
3210 amends the Endangered Species Act Amendments of 1973. Section 7 directs
3211 agencies to conduct a biological assessment to identify threatened or
3212 endangered species that may be present in the area of any proposed project.
3213 This assessment is conducted as part of a Federal agency's compliance with the
3214 requirements of Section 102 of NEPA.
- 3215 • Public Law 96-95, Archeological Resources Protection Act of 1979. This Act
3216 protects archeological resources and sites that are on public and tribal lands, and
3217 fosters increased cooperation and exchange of information between
3218 governmental authorities, the professional archeological community, and private
3219 individuals. It also establishes requirements for issuance of permits by the
3220 Federal land managers to excavate or remove any archeological resource
3221 located on public or Indian lands.
- 3222 • Public Law 98-63, Supplemental Appropriations Act of 1983. This Act authorized
3223 the USACE Volunteer Program. The United States Army Chief of Engineers may
3224 accept the services of volunteers and provide for their incidental expenses to
3225 carry out any activity of the USACE, except policymaking or law or regulatory
3226 enforcement.

- 3227 • Public Law 99-662, The Water Resources Development Act 1986. Provides for
3228 the conservation and development of water and related resources and the
3229 improvement and rehabilitation of the Nation's water resources infrastructure.
- 3230 • Public Law 101-601, Native American Graves Protection and Repatriation Act (16
3231 November 1990), requires Federal agencies to return Native American human
3232 remains and cultural items, including funerary objects and sacred objects, to
3233 their respective peoples.
3234
3235
3236

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3238	ac-ft	Acre Feet
3239	BLORA	Belton Lake Outdoor Recreation Area
3240	BP	Before Present
3241	CRMP	Cultural Resources Management Plan
3242	DC	District Commander
3243	CFR	Code of Federal Regulations
3244	CFS	Cubic Feet per Second
3245	CTCOG	Central Texas Council of Governments
3246	CWA	Clean Water Act
3247	DM	Design Memorandum
3248	DoD	Department of Defense
3249	DQC	District Quality Control
3250	EA	Environmental Assessment
3251	EC	Engineer Circular
3252	EM	Engineering Manual
3253	EO	Executive Order
3254	EOP	Environmental Operating Principles
3255	EP	Engineering Pamphlet
3256	EPA	United States Environmental Protection Agency
3257	ER	Engineering Regulation
3258	ESA	Environmentally Sensitive Areas
3259	F	Fahrenheit

3260	FEMS	Facilities and Equipment Maintenance System
3261	FM	Farm to Market Road
3262	FONSI	Finding of No Significant Impact
3263	GAM	Groundwater Availability Models
3264	GCWA	Golden Cheeked Warbler
3265	GIS	Geographical Information Systems
3266	HDR	High Density Recreation
3267	HQ	USACE Headquarters
3268	I	Interstate
3269	IPaC	USFWS Information for Planning and Conservation
3270	KTMPO	Killeen-Temple Metropolitan Planning Organization
3271	LDR	Low Density Recreation
3272	LEED	Leadership in Energy and Environmental Design
3273	MP	Master Plan or Master Planning
3274	MRML	Multiple Resource Management Lands
3275	NAAQS	National Ambient Air Quality Standard
3276	NEPA	National Environmental Policy Act, 1970
3277	NGVD29/88	National Geodetic Vertical Datum (1929 or 1988)
3278	NHPA	National Historic Preservation Act
3279	NOA	Notice of Availability
3280	NRCS	Natural Resource Conservation Service
3281	NRHP	National Register of Historic Places

3282	NRRS	National Recreation Reservation System
3283	NSRE	National Survey on Recreation and the Environment
3284	NVCS	National Vegetation Classification System
3285	NWI	National Wetland Inventory
3286	O&M	Operations and Maintenance
3287	OMB	Office of Management and Budget
3288	OMBIL	Operations and Maintenance Business Information Link
3289	OMP	Operations Management Plan for a specific lake Project
3290	OPM	Operations Project Manager
3291	PDT	Project Development Team
3292	PM	Project Management or Project Manager
3293	PMBP	Project Management Business Processes
3294	PMP	Project Management Plan
3295	PL	Public Law
3296	REAS	Recreation Economic Assessment System
3297	RPEC	Regional Planning and Environmental Center
3298	SH	State Highway
3299	SHPO	State Historical Preservation Office
3300	SMPS	Shoreline Management Policy Statement
3301	SWF	U. S. Army Corps of Engineer's Fort Worth District Office
3302	SWF-OD	Operations Division, U. S. Army Corps of Engineers, Fort Worth
3303	TCAP	Texas Conservation Action Plan

3304	TCEQ	Texas Commission on Environmental Quality
3305	TORP	Texas Outdoor Recreation Plan
3306	TPWD	Texas Parks and Wildlife Department
3307	TWDB	Texas Water Development Board
3308	TX	Texas
3309	TXDOT	Texas Department of Transportation
3310	VM	Vegetative Management
3311	US	United States Route
3312	USACE	United States Army Corps of Engineers
3313	USACE-SWF	U. S. Army Corps of Engineer's Fort Worth District Office
3314	USFWS	U. S. Fish and Wildlife Service
3315	USGS	United States Geological Survey
3316	WHAP	Wildlife Habitat Appraisal Procedure
3317	WMA	Wildlife Management Area
3318	WDA	Workforce Development Area
3319		
3320		