

**ENVIRONMENTAL ASSESSMENT
FOR THE
WEST TRAVIS COUNTY PUBLIC UTILITY AGENCY
RAW WATER TRANSMISSION MAIN**

Travis County, Texas

January 2017

Submitted to:

U.S. Fish and Wildlife Service
Austin Ecological Services Field Office
10711 Burnet Road, Suite 200
Austin, Texas 78758

On Behalf of:

West Travis County Public Utility Agency
12117 Bee Cave Road, Bldg. 3, Ste. 120
Bee Cave, Texas 78738

By:

aci consulting
1001 Mopac Circle
Austin, Texas 78746

TABLE OF CONTENTS

1.0	Introduction	1
2.0	Proposed Project, Plan Area, Permit Area, permit duration, and Covered Activities	1
2.1	Proposed Project	1
2.2	Plan Area	2
2.3	Permit Area	2
2.4	Permit Duration	3
2.5	Description of Covered Activities	3
3.0	Purpose and Need for Action	5
4.0	Alternatives	5
4.1	Alternative 1 (Preferred Alternative)	6
4.2	Alternative 2 (No Action)	7
5.0	Species Covered	8
6.0	Affected environment	8
6.1	Land Use	8
6.2	Topography	9
6.3	Aesthetics and Visual Resources	9
6.4	Noise	10
6.5	Air Quality	10
6.6	Human Health and Safety	12
6.7	Infrastructure	12
6.8	Climate	12
6.9	Socioeconomics and Environmental Justice	13
6.10	Hydrology	14
6.11	Vegetation	14
6.12	Geology	15
6.13	Soils	16
6.14	Cultural Resources	18
6.15	Federally Listed Species in Travis County	18
7.0	Environmental Consequences	28
7.1	No Action Alternative	29
7.2	Alternative 1 (Preferred Alternative)	29
7.3	Waters of the U.S.	31
7.4	Edwards Aquifer Recharge Zone	Error! Bookmark not defined.
7.5	Human Health and Safety	33
7.6	Golden-cheeked Warbler Habitat	33

8.0	CUMMULATIVE EFFECTS.....	35
9.0	Public Involvement	37
10.0	Agencies and Individuals consulted.....	37
11.0	Conclusion.....	38
12.0	References.....	39
13.0	List of Preparers.....	44

LIST OF TABLES

Table 1:	Impacts within Preserve, Macrosite and GCWA Occupied Habitat	4
Table 2:	National Ambient Air Quality Standards (as of October 2015).....	11
Table 3:	Population, Race, and Ethnicity for the Project Area Block Groups.....	13
Table 4:	Economic Indicators.....	13
Table 5:	Candidate, Threatened, and Endangered Species of Potential Occurrence in Travis County	19
Table 6:	Impact types within the GCWA preserve	34

LIST OF FIGURES

Figure 1:	Plan Area
Figure 2:	South Lake Austin Macrosite of the BCP
Figure 3:	Permit Area
Figure 4:	USGS 7.5-Minute Topographic Map: <i>Bee Cave</i>
Figure 5:	Waters of the U.S.
Figure 6:	Edwards Aquifer Recharge Zones
Figure 7:	Veni and Associates Karst Zones
Figure 8:	GCWA Habitat (SWCA 1993)
Figure 9:	aci GCWA Habitat
Figure 10:	Direct Impact Areas
Figure 11:	Total Impact Area

LIST OF APPENDICES

Appendix A: Balcones Canyonlands Preserve, Land Management Plan, Tier II-C, South Lake Austin Macrosite

Appendix B: Memorandum of Understanding Between U.S. Department of the Interior, U.S. Fish and Wildlife Service, and The Lower Colorado River Authority for The Purpose of Providing Surface Water for Residents in Western Travis and Northern Hays Counties

Appendix C: Cultural Resources Assessment

Appendix D: Habitat Conservation Plan for the Lake Pointe Development
Austin, Texas

Appendix E: aci consulting Habitat Assessment

Appendix F: Waters of the U.S. Assessment

Executive Summary

The West Travis County Public Utility Agency (WTCPUA) is seeking authorization under Section 10(a)(1)(B) of the Endangered Species Act (ESA) for incidental take of a federally listed endangered species, golden-cheeked warbler (*Setophaga [=Dendroica] chrysoparia*), associated with the construction, operation, and maintenance of a new WTCPUA Raw Water Transmission Main. Additionally, WTCPUA is requesting incidental take authorization for the operation and maintenance of an existing raw water line, along with an existing raw water intake facility, electric powerlines, and access road. WTCPUA has prepared a Habitat Conservation Plan (HCP) in support of the application for an ESA Section 10(a)(1)(B) incidental take permit (ITP).

The proposed take associated with the WTCPUA Raw Water Transmission Main (proposed raw water line) would be incidental to an otherwise lawful infrastructure project, the construction of a raw water transmission main within areas established as golden-cheeked warbler preserve and occupied habitat. The requested length of the ITP is 30 years. The issuance of the requested ITP is the federal action that requires an analysis of the impacts of the proposed action and the No Action Alternative on the human and natural environment under the National Policy Act (NEPA). This document serves as the Environmental Assessment (EA) drafted in accordance with NEPA for the requested authorization of incidental take of the listed species as a result of the proposed action.

The proposed raw water line is near the Lake Pointe development in Bee Cave, Texas, and would be constructed from an existing pump station on Lake Austin and extend to the existing Uplands Water Treatment Facility at Ranch-to-Market (RM) 2244, approximately 0.3 mile east of the intersection of Texas State Highway 71 and RM 2244 in Bee Cave, Texas. The proposed raw water line will be partially located within an existing preserve for GCWA that mitigated the effects of the Lake Pointe Development permitted under a prior Section 10(A)(1)(b) ITP. The proposed raw water line was designed to both minimize and avoid the amount of occupied habitat removal within the preserve system and minimize impacts to the Lake Pointe development. The Lake Pointe development is a fully developed subdivision and strong consideration was given to structural foundation; street and drainage facility damage cost; disruption to daily and routine activities within the subdivision; and the health, safety, and wellness of residents.

Some of the proposed project would occur in areas previously deeded as preserve land. Approximately 0.11 acre of permanent impacts will occur to GCWA habitat,

approximately 5.30 acres of temporary impacts will occur to GCWA habitat, and approximately 3.16 acres of indirect impacts will occur to GCWA habitat. These impacts to GCWA habitat are entirely within the preserve and will occur along the border of an existing 25-foot-wide access road, which currently exists as a corridor through the GCWA habitat within the preserve. Clearing activities for the proposed WTCPUA raw water line within the preserve would be completed outside of the GCWA breeding season, which is March 1 through August 31.

Impacts to GCWA habitat will result in the direct removal of approximately 5.41 acres of GCWA habitat along an existing clearing within the preserve due to the proposed minimization and avoidance measures outlined within the HCP. Additionally, approximately 3.16 acres of GCWA habitat will be indirectly affected by the proposed clearing activities. Removal of these 5.41 acres of habitat with the associated 3.16 acres of indirect impacts to habitat, is a new effect to the species within the existing preserve that the applicant proposes to mitigate with the purchase of 28 mitigation credits (typically a mitigation credit is equivalent to one acre of habitat) from the Hickory Pass Conservation Bank at a ratio of five mitigation credits for each acre of direct impacts (5:1) and a one-half mitigation credit for each acre of indirect impacts (0.5:1). The necessary mitigation was calculated using the following formula: $(5.41 \times 5) + (3.16 \times 0.5) = 28.63$, rounded down to 28. The mitigation calculation was rounded down to account for regrowth of GCWA habitat that will occur within the 5.30-acre area that will be temporarily impacted.

The proposed action, issuance of an ITP, associated with the proposed raw water line, and a no action alternative, not issuing the ITP, are evaluated in this EA. The proposed action has the potential to affect occupied golden-cheeked warbler habitat and waters of the U.S.

Environmental Assessment for the West Travis County Public Utility Agency Raw Water Transmission Main in Travis County, Texas

1.0 INTRODUCTION

The U.S. Fish and Wildlife Service (USFWS) is responding to the West Travis County Public Utility Agency's (WTCPUA) request for incidental take authorization pursuant to Section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (ESA), for the proposed WTCPUA Raw Water Transmission Main, which would be partly located in a mitigation preserve area and occupied habitat for the federally listed golden-cheeked warbler (*Setophaga chrysoparia*, GCWA, Covered Species). The USFWS's proposed action is the issuance of an incidental take permit (ITP) that provides a mechanism for the WTCPUA to comply with ESA and other federal laws and regulations. The ITP, if issued, would authorize the incidental take of the GCWA associated with the construction of the proposed WTCPUA Raw Water Transmission Main and operation and maintenance of the proposed and existing WTCPUA Raw Water Transmission Mains. The HCP describes the measures the WTCPUA proposes to minimize, avoid, and mitigate any potential take of GCWA to the maximum extent practicable.

This document is the Environmental Assessment (EA) for the requested authorization of an ESA Section 10(a)(1)(B) incidental take permit ITP for the proposed WTCPUA Raw Water Transmission Main project..

This EA has been prepared, pursuant to NEPA, to analyze the anticipated impacts of the proposed action and alternative to the human environment. A separate HCP for the proposed project has been drafted and submitted to USFWS to support the section 10(a)(1)(B) incidental take permit application. The development of this EA follows the procedures outlined in the December 21, 2016, revised *Habitat Conservation Planning and Incidental Take Processing Handbook* (USFWS and NMFS 2016).

2.0 PROPOSED PROJECT, PLAN AREA, PERMIT AREA, PERMIT DURATION, AND COVERED ACTIVITIES

2.1 Proposed Project

WTCPUA has submitted an application to the USFWS for a new Section 10 permit to construct a raw water line that connects an existing pump station located on the shores of Lake Austin with the existing Uplands Water Treatment Plant facility located along RM 2244 in Bee Cave, Texas. Additionally, WTCPUA is requesting incidental take authorization for the operation and maintenance of an existing raw water line, along with an existing raw water intake facility, electric powerlines, and access road. The

WTCPUA raw water line would provide redundancy and parallel capacity to the existing raw water line that connects the pump station with the water treatment facility. A figure depicting the two preserve areas, Lake Pointe development, existing pump station, Uplands Water Treatment Facility, existing access roads, and existing raw water line is included as Figure 1.

A description of the proposed project is include in the WTCPUA HCP, section 2.1, page 2-4; and is incorporate here by reference.

The WTCPUA raw water line will extend approximately 1.1 miles through the 161-acre Lake Pointe Preserve and have an 87.5-foot cleared ROW for a total area of approximately 11.32 acres within the GCWA preserve (Note: the area was calculated using Geographic Information Systems (GIS) software and differs from a direct length multiplied by width calculation). Of this 11.32 acres, the majority of the construction within the GCWA Preserve would include the existing footprint of an approximately 25-foot-wide access road that occupies approximately 133,049 square feet, or 3.05 acres, of the proposed alignment. However, the entire 11.32-acre impact area within the GCWA preserve is not classified as GCWA habitat. There is previous disturbance within the GCWA preserve, such as an access road and overhead line the proposed WTCPUA raw water line is routed along, and other non-disturbed areas that lack the structural and compositional elements necessary for the breeding, feeding, and sheltering of GCWA.

2.2 Plan Area

The plan area is approximately 643 acres and consists of the 98-acre Lake Pointe IV Preserve described within the Lake Pointe IV EA/HCP (USFWS 1996), the 161-acre 1993 Lake Pointe Preserve included within the Lake Pointe EA/HCP (SWCA 1993), the development described in both the Lake Pointe IV and Lake Pointe EA/HCPs, existing access roads, and the area along the existing raw water line that extends to the Uplands Water Treatment Facility in Travis County, Texas (Figure 1). The plan area is bordered by undeveloped land and residential properties along various portions of the alignment. The proposed WTCPUA raw water line would begin at the existing pump station located along the Colorado River and extend to the Uplands Water Treatment Facility located along RM 2244.

2.3 Permit Area

The permit area is the area of direct clearing and construction of the proposed WTCPUA raw water line along with a 300-foot buffer around the clearing areas to address indirect effects to the GCWA, which is limited to the preserve area.

Additionally, the existing water line within the preserve is included within the permit area. Overall, the proposed WTCPUA raw water line will be approximately 2.1 miles in length with clearing occurring in an approximately 25-foot-wide permanent ROW and a temporary ROW extending approximately 31.25 feet on either side of the permanent ROW for a total clearing width of 87.5 feet. The permanent ROW will be used for the construction, operation, and maintenance of the proposed WTCPUA raw water line and the temporary ROW will allow for the construction of the raw water line, but will be revegetated following construction of the project. The permanent and temporary ROWs will occur on a total of approximately 22.55 acres. This acreage includes the portions of the proposed WTCPUA raw water line that will extend within and outside of the GCWA preserve (Figure 3).

2.4 Permit Duration

The USFWS is considering issuance of a 30-year permit to authorize incidental impacts to the Covered Species associated with the Covered Activities. The covered activities are described in the following section.

2.5 Description of Covered Activities

The Covered Activities will include the clearing of vegetation and earth moving activities within the GCWA preserve associated with the WTCPUA raw water line, construction of the WTCPUA raw water line in the GCWA preserve, and operation and maintenance of the WTCPUA raw water line within the GCWA preserve.

The operation and maintenance activities will include mowing and trimming trees along the permanent ROW, electric powerlines, and access road to maintain access for maintenance, inspections, and other operational activities generally associated with raw water pipelines, electrical lines, and repair activities of the proposed WTCPUA raw water line. The electric powerlines and access road are located along the permanent ROW. Any mowing or trimming activities following project completion will be conducted outside of the GCWA breeding season. All normal operation and maintenance activities that require additional clearing or mechanized excavation will be limited to outside of the GCWA breeding. All other normal operation and maintenance activities that do not require clearing or mechanized excavation will be allowed throughout the year. Additionally, the operation and maintenance of the existing water line, along with the existing raw water intake facility, electric powerlines, and access road will be covered under this EA (Figure 1).

All temporary impacted areas would be re-vegetated. Clearing activities for the proposed WTCPUA raw water line within the preserve would be completed outside of

the GCWA breeding season. Construction activities within the preserve may continue into the breeding season as long as the construction activities begin concurrent with, or directly following, the clearing activities; however, best efforts will be made to complete as much of the construction activities as practicable outside of the breeding season. Following clearing activities, any construction activities are unlikely to adversely affect the GCWA. Staging areas would also be necessary for project completion; any staging areas will be located outside of the previously mapped GCWA habitat.

Construction would occur in areas previously deeded to WTCMUD #5 as preserve land. The WTCPUA and WTCMUD #5 are currently working towards establishing an easement within the WTCMUD #5-owned property. Clearing or construction will not occur within WTCMUD #5-owned property until both parties have executed an agreement and established the easement regarding the WTCPUA raw water line construction. Total impacts associated with any build alternative would be less than 4.4% of the combined 161-acre 1993 Lake Pointe Preserve and 98-acre Lake Pointe IV Preserve, both of which are owned and managed by WTCMUD #5. These impacts would also be less than 0.3% of the currently held 4,030 acres within the South Lake Austin Macrosite. These impacts will result in the removal of approximately 5.41 acres of GCWA habitat along an existing clearing within the preserve due to the proposed minimization and avoidance measures outlined within the Habitat Conservation Plan and indirect effects to 3.16 acres. USFWS considers these impacts as a new effect to the species that must be mitigated to offset any potential take of the GCWA resulting from the removal of this habitat. To mitigate these potential effects to the species, prior to clearing WTCPUA will purchase mitigation credits from the Hickory Pass Conservation Bank to offset the 5.41 acres of removed GCWA habitat and 3.16 acres of indirect effects. In total, 28 mitigation credits will be purchased. Potential impacts associated with the proposed project are depicted in Table 1.

Table 1: Impacts within Preserve, Macrosite and GCWA Occupied Habitat

Covered Activity	Area within Preserve	Macrosite Impacted	Direct Impacts to GCWA Habitat within the Preserve			Indirect Impacts to GCWA Habitat within the Preserve	Proposed Mitigation
			Permanent Impacts	Temporary Impacts	Total Direct GCWA Impacts		
Proposed Project	11.32 ac*	0.3%	0.11 ac	5.30 ac	5.41 ac	3.16 ac	28 Credits

Note: does not include staging areas

*Includes areas of existing disturbance

Potential changed circumstances include emergency maintenance and minor changes to the project design. Emergency maintenance for any of the covered activities requiring

additional clearing or mechanized excavation may be necessary during the breeding season to protect the health, safety, and welfare of the surrounding community. Should emergency maintenance be required during the breeding season, USFWS will be notified within two weeks of the start of these activities. During this coordination, WTCPUA and USFWS will determine whether a presence/absence survey for GCWA within 300 feet of the emergency maintenance area is recommended and additional avoidance, minimization, and mitigation measures that may be necessary to protect the species based on the additional impacts to GCWA habitat outside of the currently proposed permanent and temporary ROW. Additionally, minor changes to the project design may occur prior to the construction phase of the project. Should the proposed alignment deviate from the currently proposed alignment, WTCPUA will coordinate with USFWS to identify and address any changes to the proposed impacts to GCWA. Further information in the Covered Activities is in the WTCUPA HCP section 2.4, pages 7 to 9, and is incorporated here by reference

3.0 PURPOSE AND NEED FOR ACTION

The Proposed Federal Action considered in this EA is issuance of the ITP under Section 10(a)(1)(B) of the Endangered Species Act of 1973 (ESA) to the Applicant to authorize incidental take of GCWA that may result from Covered Activities. The USFWS's need for action is to respond to the Applicant's HCP and application for an ITP related to activities that have the potential to result in take of GCWA pursuant to the ESA Section 10(a)(1)(B) and its implementing regulations and policies. The USFWS's purpose in considering the Applicant's application is to ensure that the HCP complies with the legal criteria for issuance of an ITP. As a condition of receiving an ITP, an Applicant must prepare and submit to the USFWS for approval an HCP containing the mandatory elements of Section 10(a)(2)(A). An HCP must specify the following:

- The impact that would likely result from the taking;
- What steps the Applicant would take to minimize and mitigate such impacts, the funding available to implement such steps, and the procedures to be used to deal with unforeseen circumstances;
- What alternative actions to such taking the Applicant considered, and the reasons why such alternatives are not proposed to be utilized;
- Such other measures that the Secretary may require as being necessary or appropriate for the purposes of the plan.

4.0 ALTERNATIVES

Two alternatives were examined for this EA to identify the impacts the issuance of an ITP and approval of the associated HCP is expected to have on the human environment. The USFWS identified two alternatives for consideration:

- Alternative 1 (Preferred Alternative) – Issuance of the requested Section 10(a)(1)(B) ITP contingent on the implementation of the HCP for the WTCPUA Raw Water Transmission Main;
- Alternative 2 (No Action) – An ITP pursuant to Section 10(a)(1)(B) of the ESA would not be issued by the USFWS.

4.1 Alternative 1 (Preferred Alternative)

Alternative 1 (Preferred Alternative) is the USFWS’s Proposed Federal Action of issuance of a Section 10(a)(1)(B) 30-year ITP (from the date of issuance) to the Applicant to authorize incidental taking of GCWAs that may result from Covered Activities. Covered Activities are discussed in Section 2.5 of this EA and Section 2.4 of the HCP.

Authorization of take under this alternative, as described in Chapter 4 of the HCP, would result in the direct impacts to 5.41 acres of GCWA habitat and indirect impacts to 3.16 acres of GCWA habitat. With the issuance of a Section 10(a)(1)(B) ITP, WTCPUA would implement the HCP to minimize and mitigate the impacts of the potential take. The implementation of the HCP would include minimization, avoidance, and mitigation measures, as described in section 5.0 of the WTCPUA HCP and incorporated here by reference. Under Alternative 1 (Preferred Alternative), the purpose and need for the Proposed Federal Action would be satisfied. The USFWS would have the assurance that the Applicant would implement measures to minimize and mitigate for impacts of any potential taking of GCWA to the maximum extent practicable.

4.1.1 Additional Conservation Measures

In May 2000, the prior owner of the WTCPUA Regional Water System (the Lower Colorado River Authority (LCRA)), entered into a Memorandum of Understanding (2000 MOU, Appendix B) with the USFWS regarding environmental and endangered species assessment and protection measures that would be implemented as a part of service to existing and new customers which were to be served by a proposed transmission main (US290 Transmission Main) to what is now the southern portion of the WTCPUA service area (the US290 System). In December 2000, environmental groups sued the U.S. Army Corps of Engineers and the LCRA challenging compliance with the Environmental Protection Agency (EPA) and NEPA requirements. In July 2002, the lawsuit was settled with agreements by the LCRA to implement certain limitations on development and stipulations for allowable development. In May 2005,

the USFWS sent a letter to LCRA confirming that the *Optional Enhanced Measures for Protection of Water Quality in the Edwards Aquifer* adopted by Texas Commission on Environmental Quality (TCEQ) would serve as a regional plan under the terms of the 2000 MOU.

All of these actions and agreements applied only to service from the US290 Transmission Main. The LCRA, as a matter of policy, expanded the general applicability of these agreements to the Hamilton Pool Road Transmission Main when it was subsequently constructed.

4.1.2 *Monitoring and Reporting*

GCWA populations would be monitored through presence-absence surveys within 300 feet of the proposed WTCPUA raw water line every three years starting during the first breeding season following project completion and extending seven years for a total of three surveys (year 1, year 4, and year 7). During the duration of the permit, an annual report describing the clearing, construction, progress of re-vegetation, operation, and maintenance activities of the proposed WTCPUA raw water line and existing raw water line of the previous year will be submitted to USFWS. Additionally, the results of the three presence-absence surveys will be submitted to USFWS in the years they are completed. All annual reports will be submitted to USFWS by March 1 of the following year.

The USFWS will be notified prior to the initiation of project construction activities and after project completion. Additionally, WTCPUA will request verification of the purchase of bank credits prior to beginning construction and will provide the executed sales agreement stipulating the number of credits purchased.

4.1.3 *Changed Circumstances*

The HCP identifies provisions to address potential changes in circumstances that could affect GCWA. If circumstances were to change, the Applicant would implement the changed circumstances provisions included in the HCP (Section 5.3.1) and incorporated here by reference. This includes the loss of GCWA habitat within the project area prior to construction, emergency maintenance, and minor changes in project design.

4.2 **Alternative 2 (No Action)**

NEPA requires evaluation of a “no action” alternative, which serves as a baseline for comparison of potential project effects. Under the No Action Alternative for the Proposed Project, an ITP pursuant to Section 10(a)(1)(B) of the ESA would not be issued

by the USFWS. The Applicant could elect either not to proceed with construction of the Proposed Project or to proceed with construction without an ITP or an HCP. If construction occurs, the USFWS assumes that the Applicant would construct the Proposed Project in a manner that complies with the ESA and avoids take of GCWA. The No Action Alternative in this EA analyzes the impacts of both of these scenarios. In either scenario, the conservation measures described in the HCP would not be implemented.

Under the No Action Alternative, USFWS would not authorize incidental take of GCWA as a result of the Proposed Project and the USFWS would not have the assurance that conservation of GCWA would occur to the maximum extent practicable. The No Action Alternative is required by the federal Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14(d)) and is carried forward for analysis in the EA.

5.0 SPECIES COVERED

Impacts associated with the construction of the proposed WTCPUA raw water line would impact occupied GCWA habitat. No other occupied habitat for any federally listed species is present within the proposed WTCPUA raw water line area.

6.0 AFFECTED ENVIRONMENT

The following sections describe the affected environment regarding land use, topography, aesthetics and visual resources, noise, air quality, human health and safety, infrastructure, climate, socioeconomics and environmental justice, hydrology, vegetation, geology, soils, cultural resources, and federally listed species.

6.1 Land Use

Historically, the Lake Pointe development area was used for cattle grazing and a large portion of woody vegetation was removed prior to 1990. Roads and trails were constructed throughout the property. The developed portion of the plan area currently exists as residential and commercial development with a major arterial roadway, RM 2244, located along the southern portion of the plan area. The undeveloped portion is primarily within the preserve areas and is early-successional to mid-successional mixed Ashe juniper/hardwood forest on the plateaus and later-successional Ashe juniper/hardwood forest within the draws.

Currently, the plan area occupies approximately 643 acres. Of the 643 acres, approximately 384 acres has been developed. The remaining 259 acres were set aside as

a preserve area (161-acre 1993 Lake Pointe Preserve and 98-acre Lake Pointe IV Preserve) and protected by rules adopted and enforced by WTCMUD #5 to protect GCWAs and the associated GCWA habitat. Within the preserve area, GCWA habitat was delineated by SWCA and described in the Lake Pointe EA/HCP (SWCA 1993). Undeveloped land and residential development are bound along various portions of the preferred alternative. The southern boundary of the preferred alternatives within the ROW along the south side of RM 2244. The preserve area has since been incorporated into the South Lake Austin Macrosite of the BCP (Figure 2).

The plan area land is currently used as residential development, commercial development, roadway, and endangered species preserve. The residential development, commercial development, and roadways will remain unchanged from their current condition due to the proposed project. The preserve area will continue to operate as an endangered species preserve without any changes to its use. However, the preserve will have approximately 5.41 acres of clearing occur along an existing road within the preserve and will have a raw water line installed below ground in this area. The clearing and installation of the raw water line will have no effect on the use of the land within the preserve.

Since the proposed project will not result in changing the land use from residential development, commercial development, roadway, and endangered species preserve, this resource is not carried forward for further study.

6.2 Topography

According to the *Bee Cave* USGS 7.5-minute topographic quadrangle, the elevation of the proposed alignments ranges from approximately 520 feet mean sea level (MSL) to 900 feet MSL (Figure 4). Drainage generally flows from south to north toward the Colorado River.

The proposed project will not result in a change to the plan area topography. Therefore, this resource is not carried forward for further study.

6.3 Aesthetics and Visual Resources

The proposed project area is characterized by steep, hill country topography with mixed Ashe juniper-deciduous woodland in the portion of proposed project area within the preserve area, and the remaining portions of the proposed project exist as an urban environment.

The proposed project will result the minor widening of an existing cleared roadway within the preserve that will result in a minimal, temporary change to the visual or aesthetic resources in this area until the impacted areas are allowed to revegetate, but the aesthetic value of the preserve will not be altered. Outside of the preserve area, the proposed project will be constructed in an urban setting and will not change the aesthetic or visual quality. Therefore, this resource is not carried forward for further study.

6.4 Noise

The Noise Control Act of 1972 [42 U.S.C. 4901] states that is the policy of the United States. to promote an environment that is free from noise that jeopardizes their health or welfare. The proposed project will result in general construction noise associated with the installation of the raw water line. Following construction, no additional noise other than potential maintenance is expected to occur. All noise will be minimal and will comply with all state and local regulations, and will not jeopardize the health or welfare of the nearby community. Therefore, this resource is not carried forward for further study.

6.5 Air Quality

Under 40 CFR Part 50, the federal CAA requires the EPA to define the NAAQS for “pollutants considered harmful to the public health and the environment.” These standards provide limits for specific pollutants that if exceeded in a given area are considered to be designated as a nonattainment area by the EPA.

Under 40 CFR Part 50, there are two types of NAAQS:

- Primary Standards: provide protection for public health, including the health of “sensitive” populations (elderly and children); and
- Secondary Standards: provides protection for the public welfare, including decreased visibility and damage to buildings, crops and animals (EPA 2016).

The EPA has established standards for six “criteria” pollutants. Each criterion is listed below in Table 2.

During the most recent ozone review cycle, the EPA determined that the 2008 standard was not adequate and on October 1, 2015, the standard became more stringent. Compliance with the standard is based on the annual fourth highest daily ozone concentration, which is then averaged over a period of three years for a rolling three-

year average. Under the old standard, O₃ was 75 ppb and it is currently 70 ppb (EPA 2015).

Table 2: National Ambient Air Quality Standards (as of October 2015)

Pollutant		Standard	Averaging Time	Level	Form
Carbon Monoxide (CO)		Primary	8-hour	9 ppm	Not to be exceeded more than once per year
			1-hour	35 ppm	
Lead (Pb)		Primary and Secondary	Rolling 3-month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide (NO ₂)		Primary	1-hour	100 ppb	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	1-year	53 ppb	Annual mean
Ozone (O ₃)		Primary and Secondary	8-hour	70 ppb	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution	PM _{2.5}	Primary	1-year	12 µg/m ³	Annual mean, averaged over 3 years
		Secondary	1-year	15 µg/m ³	Annual mean, averaged over 3 years
		Primary and Secondary	24-hour	35 µg/m ³	98 th percentile, average over 3 years
	PM ₁₀	Primary and Secondary	24-hour	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)		Primary	1-hour	75 ppb	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

According to the EPA Nonattainment Areas for Criteria Pollutants (Green Book, EPA 2017), Travis County is currently in attainment for all six NAAQS. The proposed project may result in minor emissions of particle pollution during construction, but these effects will only occur during construction and are expected to be negligible and will not result in meeting nonattainment criteria for any of the six NAAQS.

The proposed project is located in a county that is in attainment for all six NAAQS and will not result in meeting nonattainment for any of the six NAAQS. Therefore, this resource is not carried forward for further study.

6.6 Human Health and Safety

The existing water line within the plan area is approximately 32 years old. In early October 2015, the existing line ruptured causing the entire WTCPUA service area to enter emergency Stage 4 water restrictions while the failure was being repaired. The proposed project will be constructed to provide redundancy to the existing raw water line to promote the health, safety, and welfare of the community within the WTCPUA service area.

6.7 Infrastructure

The existing water line within the plan area is approximately 32 years old. In early October 2015, the existing line ruptured causing the entire WTCPUA service area to enter emergency Stage 4 water restrictions while the failure was being repaired. The proposed project will be constructed to provide redundancy to the existing raw water line and is part of an approved 10-year Capital Improvement Program that will allow the WTCPUA to realize the current design capacity of the Uplands Water Treatment Plant and raw water intake as well as provide for projected demands within the service area, but will not add any capacity to the service area.

The proposed project is an infrastructure project that will not affect any existing infrastructure other than allowing the Uplands Water Treatment plant to meet its design capacity. Therefore, the resource is not carried forward for further study.

6.8 Climate

The proposed project is located within the subtropical humid climate region of Texas (Larkin and Bomar 1983). The area receives an average of 34.32 inches of rainfall per year, and has an average annual high temperature of 79.8° F with an average annual low temperature of 59.0° F. In the winter, highs generally average 63.1° F with lows averaging 42.8° F, and rainfall averages 6.64 inches. Summer temperatures average 94.9° F for highs and 73.8° F for lows, with rainfall averaging 8.56 inches (NOAA 2015).

The proposed project is the installation of a raw water line that will not expand the WTCPUA service area. During construction and operation, the proposed project will result in carbon emissions to the atmosphere. However, all emissions would be minor compared with all other sources of carbon emissions within the surrounding vicinity and overall biosphere and will have no measurable effect on the climate. Therefore, this resource is not carried forward for further study.

6.9 Socioeconomics and Environmental Justice

Executive Order 12646 issued in 1994 directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their actions on minority communities and low-income communities.

Census tract and block group data were used for demographic analysis of the area potentially directly affected by construction of the proposed project. Census data for Travis County from 2016 were used. The proposed project is located within Census Tract 17.84.

Table 3 compares population, race, and ethnicity within the census tract. The data collected by the U.S. Census Bureau for 2016 allow for analysis of the racial and ethnic compositions surrounding the project area.

Table 3: Population, Race, and Ethnicity for the Project Area Block Groups

Group	Non-Hispanic or Latino							Hispanic or Latino	Total	% Minority*
	White Alone	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races			
CT 17.84	4,753	17	5	1,128	0	53	115	418	6,071	22%

* (Total Population – White Alone Population) ÷ Total Population = % Minority

Source: Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-year Estimates

Table 4 includes median household income and poverty status for each of the two project area block groups within the census tract, Travis County, and the State of Texas.

Table 4: Economic Indicators

Group	Median household income in 2016	Total households in 2016	Percent living below poverty level
17.84 BG 1	\$124,185	951	1.1%
17.84 BG 2	\$186,806	925	1.1%
Travis County	\$64,422	437,831	10.2%

Texas	\$54,727	9,289,554	13.0%
-------	----------	-----------	-------

Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-year Estimates

For the purpose of this EA, a minority community is defined as one where the minority population (persons classified as non-white or Hispanic) of the local census block exceeds 50% of the total population for that tract. A low-income community for the purpose of this EA is defined as one where the percentage of persons within the local census tract classified by the U.S. Census Bureau (USCB) as living below the poverty level exceeds the overall percentage for Travis County.

USCB data from the 2016 American Community Survey states that approximately 22% of the population is a minority population and that 1.1% of the population is living below the poverty level. Therefore, an environmental justice population does not exist in the vicinity of the proposed project. Additionally, the proposed project will have no effect on the current socioeconomic status of the surrounding community. Therefore, this resource is not carried forward for further study.

6.10 Hydrology

The proposed alignment lies within Hydrologic Unit Code (HUC) 12090205: Austin-Travis Lakes. According to the USGS National Hydrology Dataset (NHD), no flowlines intersect the proposed project. However, aci consulting conducted a jurisdictional waters of the U.S. assessment for the proposed alignment and determined that the proposed alignment likely intersects two potential waters of the U.S. (Figure 5). A review of the National Wetlands Inventory database did not identify any potential wetland features intersecting subject alignments.

The Federal Emergency Management Agency (FEMA) 100-year Flood Hazard Zone does not extend onto the proposed alignment.

According to the TCEQ recharge maps for the Edwards aquifer (2001), approximately 1,040 feet of the southwest portion each alternative lies within the contributing zone. The remaining portions of the preferred alternative is not within the recharge, contributing, or transition zones (Figure 6).

6.11 Vegetation

The plan area intersects the “Live Oak-Ashe Juniper Woods” and the “Live Oak-Mesquite-Ashe Juniper Parks” designations, as noted on the TPWD *Vegetation Types of Texas* map (McMahan et al. 1984). Woods, as described by McMahan et al. (1984) are defined as areas of woody plants that are mostly nine to 30 feet tall with approximately

71 percent to 100 percent canopy cover and usually lacking a midstory. Parks, as described by McMahan et al. (1984), are defined as areas of woody plants equal to or greater than nine feet tall, with a percent canopy cover ranging between 11 percent to 70 percent either growing as scattered individuals or in clusters between continuous grasses and forbs. The vegetation within the undeveloped portions of the plan area are consistent with these designations. However, the majority of the plan area to the east have been cleared of vegetation as a result of past development and consist predominantly of maintained landscaping, roadways, and easements.

Plant species observed in the project area include, but are not limited to, Ashe juniper (*Juniperus ashei*), chinaberry (*Melia azedarach*), yaupon (*Ilex vomitoria*), maidenhair fern (*Adiantum capillus-veneris*), American sycamore (*Platanus occidentalis*), eastern cottonwood (*Populus deltoides*), Japanese privet (*Ligustrum japonicum*), live oak (*Quercus fusiformis*), johnsongrass (*Sorghum halepense*), southern dewberry (*Rubus trivialis*), black willow (*Salix nigra*), agarita (*Mahonia trifoliolata*), prickly pear cactus (*Opuntia* sp.), prairie tea (*Croton monanthogynus*), Mexican silktassel (*Garrya ovata*), Texas oak (*Quercus texana*), willow baccharis (*Baccharis salicina*), coneflower (*Echinacea* sp.), greenbrier (*Smilax bona-nox*), twistleaf yucca (*Yucca rupicola*), little bluestem (*Schizachyrium scoparium*), and various ornamental grasses and forbs.

The proposed project will result in minor clearing along an existing, cleared road. This clearing will not affect the overall vegetative community within the plan area. Therefore, this resource is not carried forward for further study.

6.12 Geology

The Bureau of Economic Geology (Barnes 1974) classified the general surface geology of the proposed alignments as being primarily dominated by the Glen Rose Formation (Kgr). Barnes (1974) describes the Glen Rose Formation (Kgr) as:

Limestone dolomite, and marl subdivided into two units by Corbula bed C; alternating resistant and recessive beds forming stairstep topography; limestone aphanitic to fine grained, hard to soft and marly, light gray to yellowish gray; dolomite, fine grained, porous, yellowish brown; marine megafossils include molluscan steinkerns, rudistids oysters, and echinoids; upper part, relatively thinner bedded, more dolomitic, and less fossiliferous than the lower part, thickness about 200 feet; lower part more massive and about 160 feet thick, includes at top Corbula bed, C, with abundant steinkerns of Corbula Harvey (Hill) in an interval up to 5 feet thick; thickness of Glen Rose Formation 380 +/- feet.

In the Glen Rose Formation, there is low potential for karst feature development; furthermore, in 1992 (revised 2007), Veni and Associates delineated four karst zones to define geologic areas with the potential for subsurface endangered karst invertebrates. The zones are:

- Zone 1: Areas known to contain listed invertebrate karst species;
- Zone 2: Areas having a high probability of containing habitat suitable for listed invertebrate karst species;
- Zone 3: Areas that have a low probability for containing listed invertebrate karst species; and
- Zone 4: Areas, both cavernous and non-cavernous, that do not contain endangered karst invertebrate species.

The proposed WTCPUA raw water line is located in Zone 4: Areas, both cavernous and non-cavernous, that do not contain endangered karst invertebrate species (Figure 7).

The proposed project will not significantly alter the local geology. Additionally, since the proposed project is located within Zone 4: Areas, both cavernous and non-cavernous, that do not contain endangered karst invertebrate species, no additional survey for karst features was conducted. Therefore, this resource is not carried forward for further study.

6.13 Soils

The Soil Conservation Service (SCS 1974) classified the general soil association within the proposed alignments as Brackett association. The Brackett association is described as “shallow, gravelly, calcareous, loamy soils overlying interbedded limestone and marl.” According to the Natural Resources Conservation Service (NRCS) Web Soil Survey (2015), four soils are located along the preferred alternative:

- *Brackett-Rock outcrop complex, 1 to 12 percent slopes (BID)* - This component is on ridges on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, paralithic, is 6 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R081CY355TX Adobe 29-35" Pz ecological site. Nonirrigated

land capability classification is 6e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 65 percent.

- *Brackett-Rock outcrop-Real complex, 8 to 30 percent slopes (BoF)* - This component is on stair stepped ridges on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, paralithic, is 10 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 2 percent. This component is in the R081CY362TX Steep Adobe 29-35" Pz ecological site. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 65 percent. There are no saline horizons within 30 inches of the soil surface.
- *Tarrant and Speck soils, 0 to 2 percent slopes (TcA)* - This component is on undulating plains on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 6 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the R081CY360TX Low Stony Hill 29-35" Pz ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface.
- *Tarrant-Rock outcrop complex, 18 to 50 percent slopes (TdF)* - This component is on ridges on dissected plateaus. The parent material consists of residuum weathered from limestone. Depth to a root restrictive layer, bedrock, lithic, is 6 to 20 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately low. Available water to a depth of 60 inches (or restricted depth) is very low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 5 percent. This component is in the R081CY363TX Steep Rocky 29-35" Pz ecological site. Nonirrigated land capability classification is 7s. This soil does not meet hydric

criteria. The calcium carbonate equivalent within 40 inches, typically, does not exceed 25 percent. There are no saline horizons within 30 inches of the soil surface.

The proposed project will be constructed mainly via open trench and backfilled with the native excavated material prior to project completion. Small sections will be constructed by trenchless technology (boring) and will not affect the in situ soils between the surface and the pipe installation at all. Therefore, the proposed project will not alter the local soils. This resource is not carried forward for further study.

6.14 Cultural Resources

Archeologists from aci consulting conducted a pedestrian survey within the proposed permanent ROW and adjacent areas in accordance with CTA and THC guidelines. The survey was limited to the portions of the proposed project where subsurface excavation was anticipated to occur and did not include the entire temporary ROW, where no subsurface excavation is anticipated to occur. This work was conducted in compliance with Texas Administrative Code (13 TAC 26.20[2]) under Texas Antiquities Code permit number 7354 as well as Section 106 of the National Historic Preservation Act of 1966, as amended, for compliance with Section 404 of the Clean Water Act for any impacts to US Army Corps of Engineers (USACE) potentially regulated waters. No new archeological sites were recorded. Based on these results, no further archeological work is recommended.

The cultural resources survey and THC concurrence are included as Appendix C. This resource is not carried forward for further study.

6.15 Federally Listed Species in Travis County

Eighteen federally listed threatened, endangered, or candidate species in Travis County have the potential to be impacted by the proposed project (USFWS 2015a). Of the 18 species, 11 are federally listed as endangered, one is federally listed as threatened, and six are candidates for federal listing.

The species that are federally listed as endangered within Travis County, Texas, includes two amphibians: Austin blind salamander and Barton Springs salamander; three birds: black-capped vireo (BCVI), GCWA, and whooping crane; and six endangered karst invertebrates (EKI): Bee Creek Cave harvestman, Bone Cave harvestman, Tooth Cave spider, Tooth Cave pseudoscorpion, Kretschmarr Cave mold beetle, and Tooth Cave ground beetle. One species, Jollyville Plateau salamander, is federally listed as threatened. Six species identified as candidates for federal-listing include five mussels, the golden orb, smooth pimpleback, Texas fatmucket, Texas

fawnsfoot, and Texas pimpleback; and one plant, the bracted twistflower (USFWS 2015a).

Three other species: least tern (*Sterna antillarum*), piping plover (*Charadrius melodus*), and red knot (*Calidris canutus*) are federally listed as endangered, threatened, and proposed threatened, respectively, in Travis County and are not known to occur in the project area.

No habitat for federally listed threatened, endangered, and candidate species other than the GCWA are present within the plan area. A summary table identifying the additional listed species is included as Table 5.

Table 5: Candidate, Threatened, and Endangered Species of Potential Occurrence in Travis County

Species	Latin Name	Federal Status	Habitat Present
Amphibians			
Austin Blind Salamander	<i>Eurycea waterloensis</i>	LE	No
Barton Springs Salamander	<i>Eurycea sosorum</i>	LE	No
Jollyville Plateau salamander	<i>Eurycea tonkawae</i>	LT	No
Birds			
Black-capped Vireo	<i>Vireo atricapilla</i>	LE	No
Golden-cheeked Warbler	<i>Setophaga chrysoparia</i>	LE	Yes
Whooping Crane	<i>Grus americana</i>	LE, EXPN	No
Least Tern*	<i>Sterna antillarum</i>	LE	No
Piping Plover*	<i>Charadrius melodus</i>	LT	No
Red Knot*	<i>Calidris canutus</i>	PT	No
Karst Invertebrates			
Bee Creek Cave Harvestman	<i>Texella reddelli</i>	LE	No
Bone Cave Harvestman	<i>Texella reyesi</i>	LE	No
Tooth Cave Spider	<i>Leptoneta myopica</i>	LE	No
Tooth Cave Pseudoscorpion	<i>Tartarocreagris texana</i>	LE	No
Kretschmarr Cave Mold Beetle	<i>Texamaurops reddelli</i>	LE	No
Tooth Cave Ground Beetle	<i>Rhadine persephone</i>	LE	No
Mussels			
Golden Orb	<i>Quadrula aurea</i>	C	No
Smooth Pimpleback	<i>Quadrula houstonensis</i>	C	No
Texas Fatmucket	<i>Lampsilis bracteata</i>	C	No
Texas Fawnsfoot	<i>Truncilla macrodon</i>	C	No
Texas Pimpleback	<i>Quadrula petrina</i>	C	No
Plants			
Bracted Twistflower	<i>Streptanthus bracteatus</i>	C	No
* Not considered in the effects analysis			

Species	Latin Name	Federal Status	Habitat Present
LE = Listed endangered; LT = Listed threatened; EXPN = Experimental population, non-essential; C = Candidate; PT = Proposed Threatened Source: (USFWS 2015a)			

6.15.1 Whooping Crane

No impacts to or take of whooping cranes is anticipated as a result of the preferred alternative. Whooping crane is not carried forward for further study.

6.15.2 Black-capped Vireo

No impacts to or take of BCVI is anticipated as a result of the preferred alternative. BCVI is not carried forward for further study.

6.15.3 Karst Invertebrates

According to USFWS, six endangered karst invertebrates (EKI) are federally listed in Travis County: Bee Creek cave harvestman, Bone Cave harvestman, Tooth Cave spider, Tooth Cave pseudoscorpion, Kretschmarr Cave mold beetle, and Tooth Cave ground beetle. No critical habitat has been designated for any of these EKI (USFWS 2015b). Only the Bee Creek Cave harvestman has been located south of the Colorado River (USFWS 1988).

No impacts to or take of EKI is anticipated as a result of the preferred alternative. EKI are not carried forward for further study.

6.15.4 Barton Springs Salamander

The majority of the subject area is not located within the recharge or contributing zones of the Edwards aquifer (TCEQ 2001); however, approximately 1,040 feet of the project near the Uplands Water Treatment Facility would occur within the northern extent of the contributing zone (Figure 6). The raw water line will be constructed within the existing FM 2244 ROW within this area. The area where construction of the proposed project would occur within the contributing zone is currently developed and completely impacted. Best Management Practices would be employed during the excavation and construction of the proposed raw water line that would minimize any pollutant or sediment discharge resulting in no impacts to the contributing zone. Following construction, the impacted area will be revegetated to its current condition. Therefore, any impacts to Barton Springs salamander associated with construction of the proposed project is considered highly unlikely.

No impacts to or take of Barton Springs salamander is anticipated as a result of the preferred alternative. Barton Springs salamander is not carried forward for further study.

6.15.5 *Jollyville Plateau Salamander*

The majority of the subject area is not located within the recharge or contributing zones of the Edwards aquifer (TCEQ 2001); however, approximately 1,040 feet of the project near the Uplands Water Treatment Facility would occur within the northern extent of the contributing zone (Figure 6). The raw water line will be constructed within the existing FM 2244 ROW within this area. The area where construction of the proposed project would occur within the contributing zone is currently developed and completely impacted. Best Management Practices would be employed during the excavation and construction of the proposed raw water line that would minimize any pollutant or sediment discharge resulting in no impacts to the contributing zone. Following construction, the impacted area will be revegetated to its current condition. Therefore, any impacts to Jollyville Plateau salamander associated with construction of the proposed project is considered highly unlikely.

No impacts to or take of Jollyville Plateau salamander is anticipated as a result as a result of the preferred alternative. Jollyville Plateau salamander is not carried forward for further study.

6.15.6 *Austin Blind Salamander*

The majority of the subject area is not located within the recharge or contributing zones of the Edwards aquifer (TCEQ 2001); however, approximately 1,040 feet of the project near the Uplands Water Treatment Facility would occur within the northern extent of the contributing zone (Figure 6). The raw water line will be constructed within the existing FM 2244 ROW within this area. The area where construction of the proposed project would occur within the contributing zone is currently developed and completely impacted. Best Management Practices would be employed during the excavation and construction of the proposed raw water line that would minimize any pollutant or sediment discharge resulting in no impacts to the contributing zone. Following construction, the impacted area will be revegetated to its current condition. Therefore, any impacts to Austin blind salamander associated with construction of the proposed project is considered highly unlikely.

No impacts to or take of Austin blind salamander is anticipated as a result as a result of the preferred alternative. Austin blind salamander is not carried forward for further study.

6.15.7 Candidate Species

The bracted twistflower and five mussel species are currently candidates for federal listing.

Bracted Twistflower

The bracted twistflower was classified as a candidate species for federal listing on September 27, 1985 (USFWS 1985). The bracted twistflower is a member of the Brassicaceae family and is an herbaceous annual plant (USFWS 2013). The bracted twistflower germinates in the fall and winter after rainfall and forms a basal rosette that develops a culm with lavender to purple flowers in the spring; the average height of the erect stem is 18 to 24 inches but they can grow as tall as 54 inches. The upper leaves are very short triangular bracts while the lower leaves are progressively longer and have an elongated heart shape. The seeds mature in summer siliques and may grow to 4.7 inches long and 0.15 inch wide. The Texas counties of occurrence for this species include Bexar, Hays, Medina, Travis, and Uvalde. Since 1989, there have been 32 documented sites for the bracted twistflower. All of the known populations of bracted twistflower are within one kilometer of the Balcones Fault Zone (USFWS 2011). This species appears to prefer areas with a woody canopy cover of less than 50 percent but may exist in dense thickets. Historically, the species occurred in areas where sparse tree density existed in stony, loose soils. Bracted twistflower is usually found growing where thin layers of clay overlay limestone or dolomite formations (USFWS 2013).

Probability of Occurrence

The BCCP identified potential habitat for the bracted twistflower within the Lake Pointe development area; however, the ecological survey conducted by EH&A (1989) did not identify any bracted twistflower on the property (SWCA 1993).

No impacts to or take of bracted twistflower is anticipated as a result of the proposed WTCPUA raw water line. Bracted twistflower is not carried forward for further study.

Mussels

Five freshwater mussels were federally listed as candidate species on October 6, 2011, following a petition from environmental groups; however, their listing has been precluded by higher priorities (USFWS 2011). The mussel species that are currently candidates for listing are scheduled to go through the listing process by 2023 (USFWS 2016).

Golden Orb

The golden orb has been known to occur within the Brazos, Colorado, San Marcos, Guadalupe, San Antonio, Frio, and Nueces River systems (TPWD 2013a). The species is subrectangular to broadly elliptical in shape and is approximately 77 mm in shell length

(Howells et al. 1996). Habitat for this species typically consists of stable sand, gravel, and firm mud in flowing waters to depths of two to three meters (TPWD 2013a).

No golden orb habitat is present within the project alignment; therefore, the occurrence of this species within the subject area is considered highly unlikely.

No impacts to or take of golden orb is anticipated as a result of the proposed WTCPUA raw water line. Golden orb is not carried forward for further study.

Smooth Pimpleback

The smooth pimpleback is known to occur in the Brazos, Little Brazos, Navasota, and Colorado River systems (TPWD 2013a). The species is rounded and blunt in shape and is approximately 66 mm in shell length and 59 mm in shell height (Howells et al. 1996). Habitat for this species typically consists of mixed mud, sand, and fine gravel substrates in slow to moderate flowing streams and rivers (Howells et al. 1996).

Probability of Occurrence

No smooth pimpleback habitat is present within the project alignment; therefore, the occurrence of this species within the subject area is considered highly unlikely.

No impacts to or take of smooth pimpleback is anticipated as a result of the proposed WTCPUA raw water line. Smooth pimpleback is not carried forward for further study.

Texas Fatmucket

The Texas fatmucket is known to occur in the Colorado, Concho, San Saba, Llano, Pedernales, San Marcos, Guadalupe, and San Antonio River systems (TPWD 2013a). The species is rhomboidal to slightly elongate in shape, is at least 90 mm in shell length and 53 mm in shell height (Howells et al. 1996). Habitat for this species typically consists of sand, mud and gravel in streams, and rivers with moderately flowing waters (Howells et al. 1996). In Colorado River tributaries, the species has been found between bedrock slabs (Howells et al. 1996).

Probability of Occurrence

The Lake Pointe development area is adjacent to the Colorado River. Habitat for this species is not likely to be present within this portion of the Colorado River due to changes in the hydrologic regime resulting from upstream and downstream dams. Therefore, no habitat of Texas fatmucket is likely present within the project alignment. The occurrence of the species within the subject area is considered highly unlikely.

No impacts to or take of Texas fatmucket is anticipated as a result of the proposed WTCPUA raw water line. Texas fatmucket is not carried forward for further study.

Texas Fawnsfoot

The Texas fawnsfoot has been known to occur in the Colorado, Trinity and Brazos River systems (TPWD 2013a). The species is ovate, long, slightly compressed in shape, approximately 45 mm in length and 27 mm in shell length (Howells et al. 1996). Habitat for this species is currently unreported (Howells et al. 1996). According to NatureServe (2014), very little information about the species biology has been documented.

Probability of Occurrence

No Texas fawnsfoot habitat is present within the project alignment; therefore, the occurrence of this species within the subject area is considered highly unlikely.

No impacts to or take of Texas fawnsfoot is anticipated as a result of the proposed WTCPUA raw water line. Texas fawnsfoot is not carried forward for further study.

Texas Pimpleback

The Texas pimpleback is known to occur in the Colorado, Concho, San Saba, Llano, Pedernales, San Marcos, Guadalupe, and San Antonio River systems (TPWD 2013a). The species is subelliptical, subrhomboidal, or subquadrate in shape, is typically 87 mm in shell length and 75 mm in shell height (Howells et al. 1996). Habitat for this species typically consists of mud, sand, and gravel substrates in shallow waters (Howells et al. 1996).

Probability of Occurrence

No Texas pimpleback habitat is present within the project alignment; therefore, the occurrence of this species within the subject area is considered highly unlikely.

No impacts to or take of Texas pimpleback is anticipated as a result of the proposed WTCPUA raw water line. Texas pimpleback is not carried forward for further study.

6.15.8 Golden-cheeked Warbler

GCWA was emergency listed as endangered on May 4, 1990, and the Final Rule was issued on December 27, 1990 (USFWS 1990a & USFWS 1990b). GCWA is a small, migratory, insectivorous bird known to breed only in Central Texas. The species winters in Central America, arrives in Central Texas in mid-March, and returns to its wintering grounds between late June and mid-August. GCWA requires unique structural and compositional vegetative elements within the landscape for habitat. A recovery plan for GCWA was published in 1992 to provide for the long-term

maintenance and recovery strategies for the species (USFWS 1992). No critical habitat has been designated for the species. Mathewson et al. (2012) recently estimated the range-wide GCWA male population at 263,339 (95 percent confidence interval: 223,927 – 302,620), and Morrison et al. (2012) concluded that the species exists as a single population across its breeding range.

GCWA nest on the Edwards Plateau, Lampasas Cut-Plain, and Llano Uplift regions of Central Texas (USFWS 1992). GCWA generally prefer moderate to high-density areas of mature trees containing dense foliage in the upper canopy. A mix of mature deciduous tree species among mature Ashe juniper is ideal for GCWA habitat. Typical GCWA habitat consists of tall, dense, mature stands of Ashe juniper mixed with trees such as Texas oak, Lacey oak (*Quercus laceyi*), shin oak, plateau live oak (*Quercus virginiana var. fusiformis*), post oak (*Quercus stellata*), Texas ash (*Flaxinus texensis*), cedar elm (*Ulmus crassifolia*), hackberry (*Celtis laevigata*), bigtooth maple (*Acer grandidentatum*), sycamore, Texas black walnut (*Juglans microcarpa*), escarpment black cherry (*Prunus serotina*), and pecan (*Carya illinoensis*). Areas most likely to be utilized by GCWA consist of nearly continuous canopy cover of trees with 50 to 100 percent closed canopy (Campbell 2003).

The GCWA recovery plan (USFWS 1992) describes the general habitat structure for GCWA as requiring a moderate to high density of trees and dense foliage. Wahl et al. (1990) notes this density is usually at the upper levels. Pulich (1976) states that the general habitat structure for GCWA consists of climax stands of Ashe juniper averaging 20 feet in height with some deciduous cover that are frequently adjacent to riparian or solid-oak species for foraging. Tree species composition is dominated by Ashe juniper and a variety of other, mostly deciduous species. Ashe juniper trees with shredding bark, aged 20 to 40 years, are required for nesting materials. Tree height average ranges from 4.5 to 9.8 meters (14.76 to 32.14 feet), with an average tree height of 6.5 meters (21.32 feet) (Wahl et al. 1990). Wahl et al. (1990) notes that there is variation of GCWA occupation frequency at various heights based on the age, maturity, and density of the tree stand. Canopy cover in known GCWA habitat was estimated to be 67% at 3 meters (9.84 feet), 73% at 5 meters (16.14 feet), and 68% above 5.5 meters (18.04 feet) (Wahl et al. 1990).

The GCWA is a small wood warbler that weighs approximately 9 grams and is a summer resident in Texas and generally ranges from the area around Austin, southwest across the Edwards Plateau to the West Nueces River drainage in Kinney County, then northeast to Junction, east to Llano County, and northward near the Possum Kingdom area in Palo Pinto and Stephens counties. Within this range, they occupy “cedar breaks,” which are areas of “almost impenetrable mature stands of cedar that broke the

horizon or terrain of grass and other vegetation” (Pulich 1976). These areas were historically constrained to the sheltered slopes and cliffs of the limestone canyons of the area as a result of burning the landscape by Native Americans or natural fire sources, according to Pulich. Recent land management practices that resulted in fire suppression and overgrazing has allowed the cedar breaks to expand into areas that were previously comprised of grassland (Pulich 1976).

The GCWA recovery plan (USFWS 1992) describes the general habitat structure for GCWA as requiring a moderate to high density of trees and dense foliage. Wahl et al. (1990) notes this density is usually at the upper levels. Pulich (1976) states that the general habitat structure for GCWA consists of climax stands of Ashe juniper averaging 20 feet in height with some deciduous cover that are frequently adjacent to riparian or solid-oak species for foraging. Tree species composition is dominated by Ashe juniper and a variety of other, mostly deciduous species. Ashe juniper trees with shredding bark, aged 20 to 40 years, are required for nesting materials. Tree height average ranges from 4.5 to 9.8 meters (14.76 to 32.14 feet), with an average tree height of 6.5 meters (21.32 feet) (Wahl et al. 1990). Wahl et al. (1990) notes that there is variation of GCWA occupation frequency at various heights based on the age, maturity, and density of the tree stand. Canopy cover in known GCWA habitat was estimated to be 67% at 3 meters (9.84 feet), 73% at 5 meters (16.14 feet), and 68% above 5.5 meters (18.04 feet) (Wahl et al. 1990).

The GCWA recovery plan cites Pulich (1976) for its thresholds of the acreage amount that one pair of GCWA would regularly utilize in varying degrees of habitat quality. Pulich’s density estimates are 8 ha/pair (19.7 ac/pair) in “good” habitat, 20 ha/pair (49.4 ac/pair) in “average” habitat, and 33 ha/pair (81.5 ac/pair) in “marginal” habitat (Pulich 1976).

Campbell (2003) notes that GCWA habitat typically consists of mature Ashe juniper woodlands interspersed with deciduous species. The areas most likely to be utilized by GCWA consist of nearly continuous cover of trees with 50 to 100 percent closed canopy. Deciduous species common in GCWA habitat include escarpment black cherry, Texas black walnut, ash (*Fraxinus* sp.), Texas oak, and cedar elm.

The GCWA recovery plan cites Pulich (1976) for its thresholds of the acreage amount that one pair of GCWA would regularly utilize in varying degrees of habitat quality. Pulich’s density estimates are 8 ha/pair (19.7 ac/pair) in “good” habitat, 20 ha/pair (49.4 ac/pair) in “average” habitat, and 33 ha/pair (81.5 ac/pair) in “marginal” habitat (Pulich 1976).

Campbell (2003) notes that GCWA habitat typically consists of mature Ashe juniper woodlands interspersed with deciduous species. The areas most likely to be utilized by GCWA consist of nearly continuous cover of trees with 50 to 100 percent closed canopy. Deciduous species common in GCWA habitat include escarpment black cherry, Texas black walnut, ash (*Fraxinus* sp.), Texas oak, and cedar elm.

According to Mathewson et al. (2012) the range-wide GCWA male population is approximately 263,339 (95 percent confidence interval: 223,927 – 302,620). Morrison et al. (2012) concluded that the species exists as a single population across its breeding range.

According to the TPWD TNDD, the majority of the plan area is encompassed by EO ID# 5510 (TPWD 2014).

Probability of Occurrence

GCWAs are known to occur within and adjacent to the plan area. The Lake Pointe EA/HCP (SWCA 1993) classified approximately 200 acres of the current plan area as GCWA habitat (Figure 8), which occurred primarily in the wooded draws. Since the Lake Pointe EA/HCP was approved in 1993, the preserve area has been incorporated into the 4,030-acre South Lake Austin Macrosite of the BCP.

GCWA habitat was delineated within the plan area during the drafting process of the Lake Pointe EA/HCP (SWCA 1993). According to the Lake Pointe EA/HCP (SWCA 1993), habitat was delineated based on known GCWA sightings. Habitat was delineated where warblers were found in areas with a mixture of large deciduous trees and junipers. The boundary between habitat and non-habitat was based on the change between areas with warbler sightings within forested areas with large deciduous trees and junipers to areas that were unoccupied by GCWAs that consisted primarily of smaller junipers and live oaks. Texas oak was the primary deciduous species utilized by GCWAs. The habitat boundary is displayed on Figure 8. Based on the habitat area mapped in the Lake Pointe HCP (SWCA habitat, Appendix D), approximately 5.41 acres of GCWA habitat will be cleared. Additionally, aci consulting conducted a habitat assessment (Appendix E) within the proposed WTCPUA raw water line permanent and temporary ROW on December 29, 2014, and March 10, and March 25, 2015 (Figure 9). This document did not specifically describe the acreage of GCWA habitat within the proposed ROWs; however, the Geographic Information System (GIS) data used to create the figures that delineate the habitat types was used in this EA to calculate potential impacts based on the habitat delineated in Appendix E, Figure 9. Specifically,

areas delineated as “Category 2” were classified as GCWA habitat. Based on the aci consulting habitat assessment (aci habitat), approximately 4.55 acres of GCWA habitat will be cleared. To provide a more conservative estimate of impacts to GCWA habitat, all impacts to GCWA will be based on the SWCA habitat classification.

7.0 ENVIRONMENTAL CONSEQUENCES

The scope of NEPA analysis associated with a habitat conservation plan addresses the direct, indirect, and cumulative effects of the proposed incidental take and the mitigation and minimization measures from implementation of the HCP. The preferred alternative includes the removal of GCWA habitat within an area protected for this species to offset impacts of prior development projects, and the protection of high quality habitat in a USFWS-approved habitat conservation bank.

An “effect” is defined by NEPA regulations as either a direct result of an action that occurs at the same time and place as the action or is an indirect result of an action that occurs later in time or in a different place and is reasonably foreseeable (40 CFR 1508.8) “Cumulative effects” are the incremental environmental impact or effect of the action considered together with impacts of past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions (40 CFR 1508.7).

The purpose of an environmental assessment is to determine whether the proposed action has significant effects on the quality of the human environment. The potential significance of an effect should be considered in the context of the effect and the relative magnitude or intensity of the effect. NEPA regulations require an analysis of “no action” as a benchmark that enables decision makers to assess the relative magnitude of environmental effects of the action alternatives. If no difference is anticipated for the future condition under the No Action Alternative and the action alternative, then the action may be said to have no effect.

For the purposes of this analysis, the following general definitions also apply:

- **Type of Effect:** Beneficial effects are those that are reasonably likely to improve the status or condition of a resource, while adverse effects are those that would degrade or cause a decline in the status or condition of a resource.
- **Duration of Effect:** Short-term effects are temporary conditions relevant only during or for a short time after completion of activities (i.e., duration of several weeks). Medium-term effects would be expected to persist over a period of

years. Long-term effects would be expected to be permanent conditions or at least persist for a decade or more.

- **Intensity of Effect:** Negligible effects are those that cannot be reasonably expected to have a measurable effect on the condition or status of the resource. Minor effects may have a detectable, but very limited effect on the resource, but would not reasonably be expected to significantly influence the overall condition or status of the resource. Moderate effects would likely have measurable effects on the identified resource that could also influence the overall condition or status of the resource. Major effects would have a readily apparent and substantial influence on the overall condition or status of a resource.
- **Geographic Scale of Effect:** Effects may influence a resource only within the boundary of the Project Area (project scale effect) or extend beyond the limits of the Project Area. Local scale effects would influence the affected resources on adjacent properties or the immediate vicinity of the Project Area. Regional scale effects would generally be felt more broadly across the county or adjacent counties, while global effects would apply to the entire geographic extent of the resource.

7.1 No Action Alternative

Under the No Action Alternative, the USFWS would not authorize incidental take of GCWA as a result of the Proposed Project and the USFWS would not have the assurance that the proposed conservation of GCWA habitat would occur. If the applicant does not implement the project, conditions in the project area into the foreseeable future would likely remain similar to those described in the affected environment section above and as they are described in the affected environment section above. If the applicant implements the project without an incidental take permit, it would do so in a manner that does not cause incidental take of the GCWA, but the USFWS assumes that other resources will be impacted in a manner commensurate with the preferred alternative.

7.2 Alternative 1 (Preferred Alternative)

The issuance of the ITP under Section 10(a)(1)(B) of the ESA for the proposed project would authorize the incidental take of the GCWA through the direct removal of 5.41 acres of habitat and indirect impact to 3.16 acres of GCWA habitat. The impacts to this habitat would be mitigated through the purchase of 28 credits of GCWA habitat from a USFWS-approved conservation bank. Additionally, the proposed project would result in the minor alteration of two waters of the U.S.

An analysis of potential effects to waters of the U.S., the Edwards Aquifer Recharge Zone, human health and safety, and the GCWA was conducted for the proposed project.

Resource	Preferred Alternative	No Action Alternative
Waters of the United States	The construction of the new pipeline will adversely affect less than 0.5 acre of wetlands or other regulated waterbodies. Construction will permanently affect 0.015 acres and temporarily affect .036 acres.	No new impacts to waters of the United States would occur if the project is not implemented.
Hydrology	1,040 feet of the proposed project are within the contributing zone of the Edwards Aquifer. The recharge zone will not be affected by the proposed project. Minor impacts to the contributing zone would occur within the project area.	The recharge zone nor the contributing zone of the Edwards Aquifer would be impacted under the no action alternative.
Human Health and Safety	The preferred alternative corrects potential adverse impact to human health and safety by providing reliable water to the local community. Therefore, the preferred alternative has a beneficial impact.	If the project is not implemented than the probability that the existing water line could fail is high and has failed previously. If the redundant water line is not constructed, then adverse impacts to human health and safety are expected.
Golden-cheeked warbler	The preferred alternative will permanently impact .11 acres of GCWA habitat because it will be cleared. An additional 3.16 acres	If the project is not constructed or constructed in a manner that does not cause incidental take of GCWA, then the species is not adversely affected. No credits in a habitat conservation bank

	<p>of habitat will be permanently indirectly impacted by fragmentation effects. 5.3 acres will be impacted for the medium-term because it will be allow to regrow. Regrowth of juniper-deciduous woodlands can several decades. The applicant will purchase 28 credits of permanently conserved habitat from a USFWS-approved conservation bank to offset the impacts of the project.</p>	<p>would be purchased under the No Action alternative.</p>
--	---	--

7.3 Waters of the U.S.

aci consulting scientists surveyed the proposed project for waters of the U.S. on December 29, 2014; March 10; 2015, and March 25, 2015. Where apparent, personnel measured the width of the ordinary high water mark (OHWM) along the length of the waterway. Locations of measurements were recorded using a Global Positioning System (GPS) receiver.

Field reconnaissance of the preferred alignment identified two waters of the U.S., JD-1 and JD-4. JD-1 has an OHWM of approximately 18 feet and JD-4 has an OHWM of approximately 8 feet. The proposed project would have permanent and temporary impacts to JD-1 of approximately 450 square feet and 1,125 square feet, or 0.010 acre and 0.025 acre, respectively. The proposed project would have permanent and temporary impacts to JD-4 of approximately 200 square feet and 500 square feet, or 0.005 acre and 0.011 acre, respectively. In total the proposed project would have permanent and temporary impacts to 650 square feet and 1,625 square feet, or 0.015 acre and 0.036 acre, of waters of the U.S., respectively.

Currently, a nationwide permit (NWP), specifically NWP 12 Utility Line Activities, has been submitted to the U.S. Army Corps of Engineers (USACE) for the proposed project and a project number of SWF-2016-00184 was issued. Prior to issuance of the NWP,

USACE requires compliance with General Condition 18: Endangered Species, which requires that no NWP will authorize any project that “may affect” a listed species unless Section 7 consultation addressing the effects of the proposed activity has been completed.

The waters of the U.S. assessment is included as Appendix F.

7.4 Hydrology

According to the Texas Commission on Environmental Quality (TCEQ) recharge maps for the Edwards aquifer (2001), approximately 1,040 feet of the southwest portion of the proposed project lies within the contributing zone. The remaining portions of the proposed project are not within the recharge, contributing, or transition zones.

All activities associated with the proposed project will conform to all applicable federal and state laws and municipal regulations including all applicable water quality and stormwater regulations. BMPs and a SWP3, in accordance with the TPDES general permit TXR150000, will be implemented during all construction activities to minimize any discharge of sediments from the construction area. Following all construction activities, the permanent and temporary ROWs will be stabilized.

In May 2000, the prior owner of the WTCPUA Regional Water System (the Lower Colorado River Authority, LCRA) entered into a Memorandum of Understanding (2000 MOU, Appendix B) with the USFWS regarding environmental and endangered species assessment and protection measures that would be implemented as a part of service to existing and new customers which were to be served by a proposed transmission main (US290 Transmission Main) to what is now the southern portion of the WTCPUA service area (the US290 System). In December 2000, environmental groups sued the U.S. Army Corps of Engineers and the LCRA challenging compliance with the Environmental Protection Agency (EPA) and NEPA requirements. In July 2002, the lawsuit was settled with agreements by the LCRA to implement certain limitations on development and stipulations for allowable development. In May 2005, the USFWS sent a letter to LCRA confirming that the *Optional Enhanced Measures for Protection of Water Quality in the Edwards Aquifer* adopted by TCEQ would serve as a regional plan under the terms of the 2000 MOU.

All of these actions and agreements applied only to service from the US290 Transmission Main. The LCRA, as a matter of policy, expanded the general applicability of these agreements to the Hamilton Pool Road Transmission Main when it was subsequently constructed. The Board of Directors of the WTCPUA voluntarily expanded the applicability of the provisions of the 2000 MOU to all portions of its

service area, thereby requiring enhanced protection of endangered species and water quality throughout its approximately 200-square-mile Impact Fee Planning Area. The 2000 MOU would apply to the proposed project. Therefore, the proposed project will not have a significant impact on the contributing zone, recharge zone, or Edwards Aquifer.

7.5 Human Health and Safety

The proposed project will provide redundancy to an existing, aging raw water line that previously ruptured causing the entire WTCPUA service area to enter emergency Stage 4 water restrictions while the failure was being repaired. The existing raw water line is nearing its design life and is expected require repairs in the future as well. The proposed project will protect human health and safety by protecting against a future scenario where the service area must enter into emergency water restrictions due to an infrastructure failure. These failures can limit the amount of available to the fire department during fire and rescue activities, can limit the watering of lawns and other vegetation that could promote an increase in fuel loads for fires, and could potentially require residents within the service area to lack access to potable water.

7.6 Golden-cheeked Warbler Habitat

GCWA habitat was delineated within the plan area during the drafting process of the Lake Pointe EA/HCP (SWCA 1993). According to the Lake Pointe EA/HCP (SWCA 1993), habitat was delineated based on known GCWA sightings. Habitat was delineated where warblers were found in areas with a mixture of large deciduous trees and junipers. The boundary between habitat and non-habitat was based on the change between areas with warbler sightings within forested areas with large deciduous trees and junipers to areas that were unoccupied by GCWAs that consisted primarily of smaller junipers and live oaks. Texas oak was the primary deciduous species utilized by GCWAs. The habitat boundary is displayed on Figure 8. Based on the habitat area mapped in the Lake Pointe HCP (SWCA habitat), approximately 5.41 acres of GCWA habitat will be cleared. Additionally, aci consulting conducted a habitat assessment within the proposed WTCPUA raw water line permanent and temporary ROW on December 29, 2014, and March 10, and March 25, 2015 (Figure 9). Based on the aci consulting habitat assessment (aci habitat, Appendix E), approximately 4.55 acres of GCWA habitat will be cleared. To provide a more conservative estimate of impacts to GCWA habitat, all impacts to GCWA will be based on the SWCA habitat classification. Direct impacts to GCWA habitat based on the SWCA habitat classification are depicted in Figure 10.

To summarize the direct effects to GCWA, approximately 1.1 miles of the proposed WTCPUA raw water line will occur within the 161-acre Lake Pointe Preserve and have

an approximately 87.5-foot cleared ROW for a total area of approximately 11.32 acres within the GCWA preserve. Of this 11.32 acres, the majority of the construction within the GCWA Preserve would include the existing footprint of an approximately 25-foot-wide access road that occupies approximately 133,049 square feet, or 3.05 acres, of the proposed alignment. Additionally, not including the existing road footprint, approximately 5.41 acres of previously mapped GCWA habitat occurs within the permanent and temporary ROWs (0.11 acre within the permanent ROW and 5.30 within the temporary ROW). The remaining portion of the ROWs within the GCWA preserve occur on approximately 2.86 acres of area that was not mapped as GCWA habitat during authorization of the Lake Pointe EA/HCP (SWCA 1993). See Table 6 for a summary of impact areas within the GCWA preserve.

Table 6: Impact types within the GCWA preserve

Road	Non-habitat	GCWA Habitat		Total Area within GCWA Preserve
		Permanent Impacts	Temporary Impacts	
3.05 ac	2.86 ac	0.11 ac	5.30 ac	11.32 ac

Outside of the GCWA preserve, the 87.5-foot permanent and temporary ROWs will occur on approximately 11.38 acres of developed land.

The routing of the proposed WTCPUA raw water line along an existing, disturbed corridor within the preserve, the access road, was designed to avoid impacts to GCWA, minimize impacts to occupied GCWA habitat where they could not be avoided, avoid indirect impacts to GCWA habitat by constructing the raw water line along a previous impact corridor, and minimize and avoid impacts to the Lake Pointe development and its residents.

The USFWS considers indirect impacts associated with habitat fragmentation to extend 300 feet into habitat from the edge of cleared habitat. The proposed routing of the WTCPUA raw water line will be constructed along an existing road and overhead electrical line, which have already caused indirect effects to the GCWA within 300 feet of their impact areas. These existing indirect impacts are caused by fragmentation of the existing habitat and by creating a vector for increased competition, predation, and parasitism of the GCWA. The proposed WTCPUA raw water line will expand the cleared areas along these existing cleared areas, which will result in an approximately 3.16 acres of indirect impacts (Figure 11). Therefore, the new indirect effects that will occur due to the clearing, construction, or maintenance of the proposed WTCPUA raw water line have been minimized to the maximum extent practicable.

The WTCPUA raw water line will result in the removal of approximately 5.41 acres of GCWA habitat along an existing clearing within the preserve due to the proposed minimization and avoidance measures outlined within the Habitat Conservation Plan. The removal of these 5.41 acres of habitat is a new effect to the species that must be mitigated to offset any potential take of the GCWA resulting from the removal of this habitat. Additionally, approximately 3.16 acres of GCWA will be indirectly affected due to the expanding of previously indirectly affected areas (Figure 11). Additionally, operation and maintenance activities could potentially reduce the foraging area of the GCWA due to maintenance of the ROW. To mitigate these potential effects to the species, WTCPUA will purchase 28 mitigation credits from the Hickory Pass Conservation Bank.

Indirect impacts to GCWA occur within habitat within 300 feet of direct impacts to GCWA habitat. The proposed routing of the WTCPUA raw water line will be constructed along an existing road and overhead electrical line, which have already caused indirect effects to the GCWA within 300 feet of their impact areas. These existing indirect impacts are caused by fragmentation of the existing habitat and by creating a vector for increased competition, predation, and parasitism of the GCWA. The proposed WTCPUA raw water line will expand the cleared areas along these existing cleared areas, which will result in an approximately 3.16 acres of indirect impacts (Figure 11). Therefore, the new indirect effects that will occur due to the clearing, construction, or maintenance of the proposed WTCPUA raw water line have been minimized to the maximum extent practicable.

All other undeveloped areas would be maintained in their natural conditions. Human use would continue to be restricted to maintenance and passive recreation such as hiking within the preserve area. Fences have been installed to delineate habitat preserve boundaries and would remain in place.

8.0 CUMULATIVE EFFECTS

The CEQ (40 CFR §1508.7) defines cumulative impact as:

...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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The proposed action would result in the additional construction of a raw water line to provide redundancy and parallel capacity to an existing raw water line that connects the pump station with the water treatment facility. The existing raw water line is nearing the end of its design life. Historically, the permit area was maintained ranchland with little wooded vegetation along the higher areas and mixed deciduous-Ashe juniper woodland within the canyons. The permit area is currently primarily endangered species preserve adjacent to urban development. The proposed action would not result in a modification of the boundaries of the preserve system or altering of adjacent urban development. The preserve area is unlikely to change uses in the future due to being placed under a deed restriction that states, "it is specifically agreed and understood that the [161-acre 1993 Lake Pointe Preserve] is conveyed for the purpose of and is hereby restricted to use as Conserved Habitats under the terms and provisions of the [Lake Pointe] HCP Agreement." Additionally, the urban area within the permit area is fully developed and unlikely to significantly change in the foreseeable future.

The proposed action would likely result in the maintenance of an existing raw water line and construction of an additional raw water line within the preserve system. This additional raw water line would allow the WTCPUA to realize the current design capacity of the Uplands Water Treatment Plant and raw water intake as well as provide for projected demands within the service area, but will not add any capacity to the service area. Therefore, proposed action is unlikely to affect future development within the service area.

The cumulative effects to GCWA would be the removal of occupied GCWA habitat due to the proposed project. Construction of the proposed project would result in the direct removal of 5.41 acres of GCWA habitat and indirect effects to 3.16 acres of GCWA habitat. WTCPUA will purchase 28 mitigation credits from the Hickory Pass Conservation Bank to offset the removed GCWA habitat at a ratio of five mitigation credits to each acre of removed habitat (5:1). Additionally, the impacts associated with the proposed project would be less than 4.4% of the combined 161-acre 1993 Lake Pointe Preserve and 98-acre Lake Pointe IV Preserve, both of which are owned and managed by WTCMUD #5. These impacts would also be less than 0.3% of the currently held 4,030 acres within the South Lake Austin Macrosite. The WTCPUA and WTCMUD #5 are currently working towards establishing an easement within the WTCMUD #5-owned property. Clearing or construction will not occur within WTCMUD #5-owned property until both parties have executed an agreement and established the easement regarding the WTCPUA raw water line construction.

Additionally, the proposed project would have permanent and temporary impacts to 650 square feet and 1,625 square feet, or 0.015 acre and 0.036 acre, of waters of the U.S., respectively. These impacts to waters of the U.S. are less than 0.1 acre, which is the threshold where impacts to waters of the U.S. generally require compensatory mitigation. The NEPA review process for issuing the current NWP, which are active from March 2017 through March 2021, determined that these levels of impacts to waters of the U.S. have no significant impact on the environment. Additionally, the impacted areas will be revegetated following project completion and the existing hydrology will be restored; therefore, no cumulative effects on waters of the U.S. will occur as a result of issuing the ITP.

For these reasons, when considered in conjunction with other reasonably foreseeable activities, the proposed project would not result in significant cumulative impacts to federally listed or candidate species or waters of the U.S.

9.0 PUBLIC INVOLVEMENT

As part of the NEPA review process for issuance of an ITP the EA and HCP will be made available for public review and comment by the USFWS. The WTCPUA has engaged representative groups for the directly affected public by providing correspondence and making presentations related to the project at public meetings including Homeowners' Association and MUD Board meetings, as well as discussing the project at its own public meetings.

10.0 AGENCIES AND INDIVIDUALS CONSULTED

Currently, the Texas Historic Commission, U.S. Army Corps of Engineers, and U.S. Fish and Wildlife Service have been consulted regarding the WTCPUA Raw Water Transmission Main project. No additional agencies have been coordinated with regarding the issuance of the ITP.

11.0 CONCLUSION

The Proposed Federal Action is the Applicant's Preferred Alternative to issue an ITP for this project. Alternative 1 (Preferred Alternative) and the No Action Alternative would not have a significant direct, indirect, or cumulative effect on the human environment or environmental resources.

12.0 REFERENCES

- Barnes, V.E. 1974 (Reprinted 1995). Geologic Atlas of Texas Austin Sheet. The University of Texas at Austin. Bureau of Economic Geology.
- Butcher, J.A., M.L. Morrison, D. Ransom, Jr., R.D. Slack, and R.N. Wilkins. 2010. Evidence of a minimum patch size threshold of reproductive success in an endangered songbird. *Journal of Wildlife Management* 74(1):133-139.
- Campbell, L. 2003. *Endangered and Threatened Animals of Texas: Their Life History and Management*. Texas Parks and Wildlife Resource Protection Division, Austin, Texas.
- (EH&A) Espey, Hudson & Associates. 1989. Bohl's Ranch ecological survey. Unpublished report to Cornerstone Development Corp., Austin, Texas.
- (EPA) Environmental Protection Agency. 2017. Nonattainment Areas for Criteria Pollutants (Green Book). Counties Designated "Nonattainment. September 30, 2017. <https://www3.epa.gov/airquality/greenbook/mapnpoll.html>
- Howells, R.G., R.W. Neck, and H.D. Murray. 1996. *Freshwater Mussels of Texas*. Texas Parks and Wildlife Press, Austin, Texas.
- Larkin, T.J and G.W. Bomar. 1983. *Climatic Atlas of Texas*. LP-192. Texas Department of Water Resources. December 1983.
- Mathewson, H.A., J.E. Groce, T.M. McFarland, M.L. Morrison, J.C. Newnam, R.T. Snelgrove, B.A. Collier, and R.N. Wilkins. 2012. Estimating breeding season abundance of golden-cheeked warblers in Texas, USA. *Journal of Wildlife Management* 76(6)1117-1128.
- McMahan, C.A., R.G. Frye, and K.L. Brown. 1984. *The Vegetation Types of Texas*. Texas Parks and Wildlife. Austin, Texas.
- Morrison, M.L. B.A. Collier, H.A. Mathewson, J.E. Groce, and R.N. Wilkins. 2012. The prevailing paradigm as a hindrance to conservation. *Wildlife Society Bull. Special Section* 1-7.

- NatureServe. 2014. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington Virginia. Available online at <http://www.natureserve.org/explorer>. Accessed December 31, 2014.
- (NRCS) Natural Resources Conservation Service. 2015. Web Soil Survey: Soil Survey Area: Travis County, Texas. U.S. Department of Agriculture. Available online at <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed: March 16, 2015.
- (NOAA) National Oceanic and Atmospheric Administration. 2015. Data Tools: 1984-2010 Normals Austin Camp Mabry, TX US. National Climatic Data Center. <http://www.ncdc.noaa.gov/cdo-web/datatools/normals>. Accessed May 11, 2015.
- Pulich, W.M. 1976. The golden-cheeked warbler: a bioecological study. Texas Parks and Wildlife Dept., Austin.
- (SCS) Soil Conservation Service. 1974. Soil Survey of Travis County, Texas. United States Department of Agriculture. Texas Agriculture Experiment Station.
- (SWCA) SWCA Inc. Environmental Consultants. 1993. Habitat Conservation Plan for the Lake Pointe Development Austin, Texas. May 1993.
- (TCEQ) Texas Commission on Environmental Quality. 2001. "Edwards Aquifer Protection Program, Chapter 213 Rules - Recharge Zone, Transition Zone, Contributing Zone, and Contributing Zone within the Transition Zone." Map. Digital data. November 28, 2001. Austin, Texas.
- (TPWD) Texas Parks and Wildlife Department. Natural Diversity Database. 2013a. Elemental occurrence GIS data for Texas. Wildlife Diversity Program of TPWD. Received September 19, 2013.
- (TPWD) Texas Parks and Wildlife Department. 2013a. Freshwater Unionids of Texas ID Sheets 2013. Texas Mussel Watch, Austin, Texas. Contact: Marsha May, TPWD Texas Nature Trackers Biologist.
- (TPWD) Texas Parks and Wildlife Department. Natural Diversity Database. 2013b. Elemental occurrence GIS data for Texas. Wildlife Diversity Program of TPWD. Received September 19, 2013.

- (UCSB) U.S. Census Bureau. 2016. American Community Survey 5-year estimates.
- (TPWD) Texas Parks and Wildlife Department. Natural Diversity Database. 2014. Elemental occurrence GIS data for Travis County, Texas. Wildlife Diversity Program of TPWD. Received November 25, 2014.
- (USFWS) U.S. Fish and Wildlife Service. 1970. Part 17- Conservation of Endangered Species and other Fish or Wildlife (First List of Endangered Foreign Fish and Wildlife as Appendix A). 35 FR 8491-8498.
- (USFWS) U.S. Fish and Wildlife Service. 1978. Determination of Critical Habitat for the Whooping Crane. Federal Register 43 FR 20938-20942.
- (USFWS) U.S. Fish and Wildlife Service. 1985. Review of plant taxa for listing as endangered or threatened species; Notice of review. 50 FR 39526-39577.
- (USFWS) U.S. Fish and Wildlife Service. 1987. Determination of Black-capped Vireo to be an Endangered Species. 52 FR 37420-37423.
- (USFWS) U.S. Fish and Wildlife Service. 1988. Final Rule to Determine 5 Texas Cave Invertebrates to be Endangered Species. 53 FR 36029-36033.
- (USFWS) U.S. Fish and Wildlife Service, 1990a, Emergency Rule to List the Golden-cheeked Warbler as Endangered. 55 FR 18844-18845.
- (USFWS) U.S. Fish and Wildlife Service, 1990b, Final Rule to list the Golden-cheeked Warbler as Endangered. 55 FR 53153-53160.
- (USFWS) U.S. Fish and Wildlife Service. 1992. Golden-cheeked warbler (*Dendroica chrysoparia*) Recovery Plan. Albuquerque, New Mexico.
- (USFWS) U.S. Fish and Wildlife Service. 1993. Endangered and threatened wildlife and plants: Coffin Cave mold beetle (*Batrissodes texanus*) and the Bone Cave harvestman (*Texella reyesi*) determined to be endangered. 58 FR 43818-43820.
- (USFWS) U.S. Fish and Wildlife Service. 1996. Environmental Assessment and Habitat Conservation Plan. Issuance of an Endangered Species Section 10(a)(1)(B) Permit for the Incidental Take of the Golden-cheeked Warbler (*Dendroica chrysoparia*)

During Construction and Operation of the 128.2-acre Residential Development Lake Pointe IV. Austin, Travis County, Texas.

(USFWS) U.S. Fish and Wildlife Service. 1997. Endangered and threatened wildlife and plants; Final Rule to List the Barton Springs Salamander as Endangered. 62 FR 23377-23392.

(USFWS) U.S. Fish and Wildlife Service. 2007. 12-Month finding on a Petition to List the Jollyville Plateau salamander (*Eurycea tonkawae*) as Endangered with Critical Habitat. December 2007. 72 FR 71040-71054.

(USFWS) U.S. Fish and Wildlife Service. 2011. Endangered and Threatened Wildlife and Plants; Review of Native Species that are Candidates for Listing as Endangered or Threatened; Annual notice of Findings on Resubmitted Petitions; Annual Description of Progress on Listing Actions. 76 FR 66370-66439.

(USFWS) U.S. Fish and Wildlife Service. 2012. Endangered and Threatened Wildlife and Plants; Endangered Status for Four Central Texas Salamanders and Designation of Critical Habitat; Proposed Rule. 77 FR 50767-50854.

(USFWS) U.S. Fish and Wildlife Service. 2013a. Endangered and Threatened Wildlife and Plants; 90-day finding on a Petition to delist or Reclassify from Endangered to Threatened Five Southwest Species. 78 FR 55046-55051

(USFWS) U.S. Fish and Wildlife Service. 2013. Endangered and Threatened Wildlife and Plants; Review of native species that are candidates for listing as endangered or threatened; Annual notice of findings on resubmitted petitions; Annual descriptions of progress on listing actions. 78 FR 70104-70162.

(USFWS) U.S. Fish and Wildlife Service. 2015a. Environmental Conservation Online System (ECOS), Information, Planning, and Conservation System (IPaC). Accessed: January 2, 2015. <http://ecos.fws.gov/ipac/>.

(USFWS) U.S. Fish and Wildlife Service. 2015b. Critical Habitat Portal. Last Accessed: January 2, 2015. <http://ecos.fws.gov/crithab/>.

(USFWS) U.S. Fish and Wildlife Service. 2016. Endangered and Threatened Wildlife and Plants; Review of native species that are candidates for listing as endangered or

threatened; Annual notice of findings on resubmitted petitions; Annual descriptions of progress on listing actions. 81 FR 87246-87272.

(USFWS and NMFS) U.S. Fish and Wildlife Service and National Marine Fisheries Service. 1996. Habitat Conservation Planning and Incidental Take Processing Handbook.

(USFWS and NMFS) U.S. Fish and Wildlife Service. 2016. Habitat Conservation Planning and Incidental Take Processing Handbook.

Veni & Associates. 2007. Revised Geologic Controls on Cave Development and the Distribution of Cave Fauna in the Austin, Texas, Region. Prepared for the U.S. Fish and Wildlife Service.

Wahl, R., D.D. Diamond, and D. Shaw. 1990. The golden-cheeked warbler: a status review. Prepared for the U.S. Fish and Wildlife Service, Fort Worth, Texas.

Wilkins, N., R.A. Powell, A.A.T. Conkey, and A.G. Snelgrove. 2006. Population Status and Threat Analysis for the Black-capped Vireo. Department of Wildlife and Fisheries Sciences Texas A&M University.

Yearwood, J.F, K. Heidemann, Cha., Shell, Che. Shell, Walter Sidney Shell Management Trust, American Stewards of Liberty, and S. W. Carothers. 2014. Petition to delist the Bone Cave harvestman (*Texella reyesi*) in accordance with Section 4 of the Endangered Species Act of 1973. June 2, 2014.

13.0 LIST OF PREPARERS

- Steve Paulson – Principal, aci consulting
- Stephen Meyer – Ecologist, aci consulting

Figures

Appendix A:
Balcones Canyonlands Preserve, Land Management Plan, Tier II-C, South Lake Austin
Macrosite

Appendix B:
Memorandum of Understanding Between U.S. Department of the Interior, U.S. Fish and
Wildlife Service, and The Lower Colorado River Authority for The Purpose of
Providing Surface Water for Residents in Western Travis and Northern Hays Counties

Appendix C:
Cultural Resources Assessment

Appendix D:
Habitat Conservation Plan for the Lake Pointe Development
Austin, Texas

Appendix E:
aci consulting Habitat Assessment

Appendix F:
Waters of the U.S. Assessment