

SWCA

Habitat Conservation Plan for the Davis Ranch in San Antonio, Bexar County, Texas

SWCA Project Number 35606 and 37354

September 2018

SUBMITTED TO:

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HABITAT CONSERVATION PLAN FOR THE DAVIS RANCH IN SAN ANTONIO, BEXAR COUNTY, TEXAS

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1.0 INTRODUCTION

The Davis McCrary Property Trust (Permittee) seeks authorization under section 10(a)(1)(B) of the federal Endangered Species Act (ESA) for the incidental taking of the endangered golden-cheeked warbler (*Setophaga chrysoparia*; GCWA).¹ The proposed taking would be incidental to the otherwise lawful development, ongoing use, and maintenance of portions of the approximately 724-acre Davis Ranch (Plan Area). The Plan Area is located adjacent to the Government Canyon State Natural Area (GCSNA) approximately 1.5 miles west-northwest of the intersection of Galm Road and Farm-to-Market Road (FM) 1560 in northwestern Bexar County, Texas (Figure 1).

The ESA prohibits take of an endangered wildlife species unless authorized by the U.S. Fish and Wildlife Service (USFWS). The USFWS may authorize incidental take for non-federal actions (such as the development of Davis Ranch) by issuing an incidental take permit (ITP) under section 10(a)(1)(B) of the ESA. This Habitat Conservation Plan (HCP) supports an application to the USFWS for an ITP to authorize incidental take within the Plan Area. The Permittee seeks an ITP with a 30-year permit term (ITP Term) to capture future development of the Plan Area.

The Permittee has routinely acted in consideration of its environmental resources. In 1999, the Permittee transferred approximately 663 acres of Davis Ranch known as the Davis Ranch Upland Tract to the GCSNA in cooperation with the Trust for Public Land. The Texas Parks and Wildlife Department (TPWD) described this annexation as “a desirable addition to the park” providing benefit to the Edwards Aquifer through protection of the Edwards Aquifer Recharge Zone, as well as providing a conservation benefit to GCWAs. The Texas Parks and Wildlife Commission described the Davis Ranch Upland Tract as “heavily wooded” and containing “excellent habitat diversity” (TPWD 1999). More recently, the Permittee donated an additional approximately 3 acres of land within the Edwards Aquifer Recharge Zone along the northwestern portion of the Plan Area to the GCSNA. The Permittee is seeking an ITP to further its record of environmental stewardship while advancing development opportunities for the Plan Area.

2.0 REGULATORY FRAMEWORK

Section 9 of the ESA prohibits “take” of fish or wildlife species listed as endangered (16 U.S. Code [USC] 1538(a)). Take is defined in section 3 of the ESA as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (16 USC 1532(19)). USFWS’s ESA implementing regulations define “harm” as “an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering” (50 Code of Federal Regulations [CFR] 17.3). The same regulations define “harass” as “an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering” (50 CFR 17.3).

¹ The North American Checklist Committee of the American Ornithologist’s Union (AOU) published a change to the scientific name of the GCWA in the 52nd Supplement to the AOU Checklist of North American Birds (Chesser et al. 2011). AOU changed the scientific name for the GCWA from *Dendroica chrysoparia* to *Setophaga chrysoparia*.

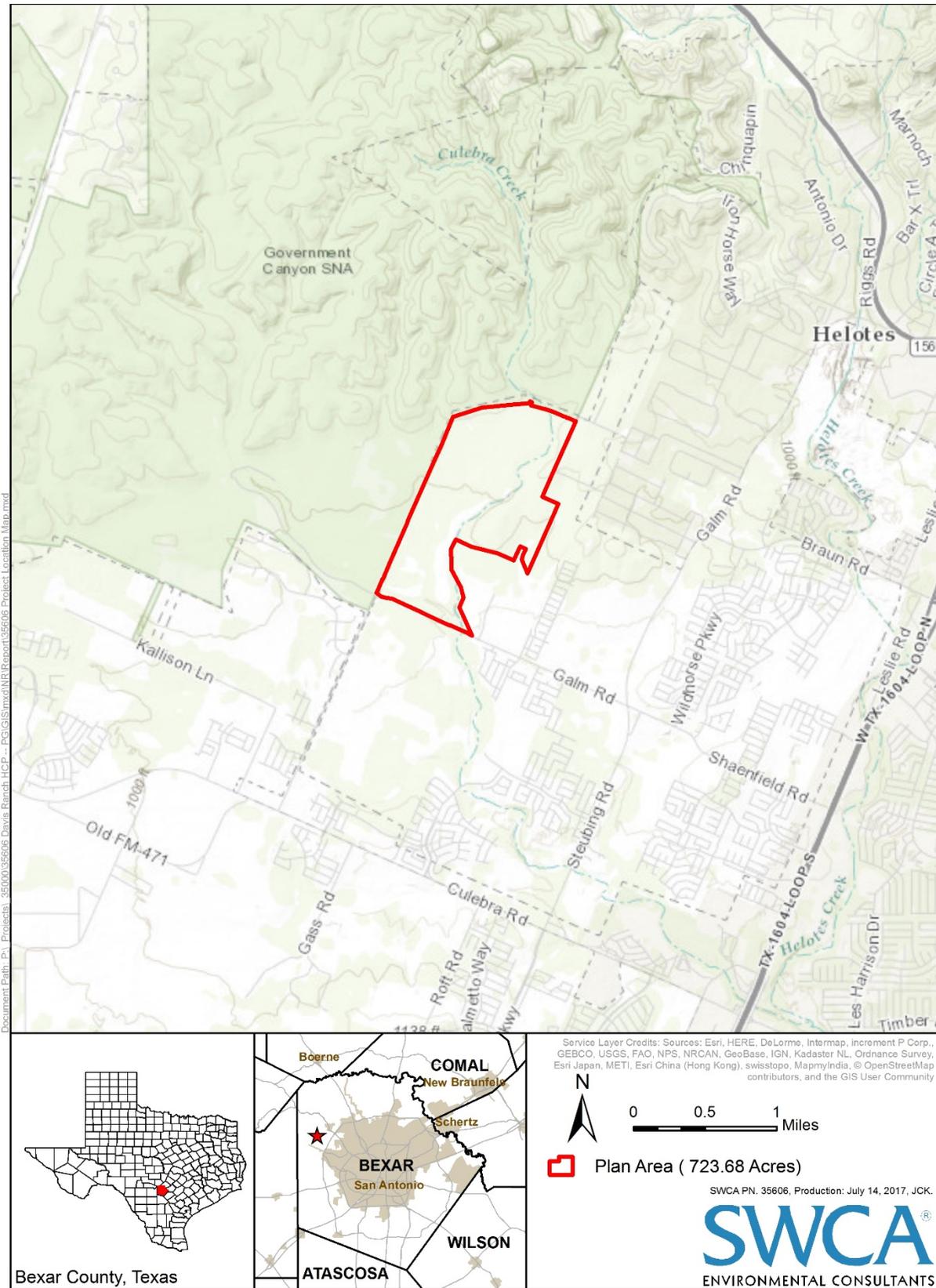


Figure 1. General location of the Plan Area.

The USFWS is directed to issue ITPs that authorize take that occurs incidental to otherwise lawful, non-federal activities in accordance with section 10(a)(1)(B) of the ESA. Section 10(a)(2)(B) of the ESA provides that the U.S. Secretary of the Interior shall issue an ITP if the applicant meets the following criteria (50 CFR 17.22):

1. the taking will be incidental;
2. the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such takings;
3. the applicant will ensure that adequate funding for the conservation plan and procedures to deal with unforeseen circumstances will be provided;
4. the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild;
5. the measures, if any, required under paragraph (b)(1)(iii)(D) of [50 CFR 17.22] will be met; and
6. he or she has received such other assurances as he or she may require that the plan will be implemented.

The USFWS' *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* (HCP Handbook) (USFWS and National Marine Fisheries Service [NMFS] 2016) provides guidance to ITP applicants and the USFWS regarding the preparation of HCPs and the process for obtaining an ITP.

3.0 PLAN AREA

3.1 Topography

The Plan Area for this HCP and the permit area for the ITP includes 723.68 acres of Davis Ranch (Figure 2). The Plan Area occurs at the base of the Edwards Plateau and appears on the Helotes, Texas, U.S. Geological Survey (USGS) 7.5-minute topographic map quadrangle (USGS 1992). Topography ranges from relatively flat to slightly hilly, with elevation increasing gradually toward the center and toward the northern boundary of the Plan Area. The total relief is approximately 110 feet with elevations ranging from approximately 950 to 1,060 feet above mean sea level.



Figure 2. Recent aerial imagery of the Plan Area.

3.2 Geology

The Plan Area occurs along the southern edge of the Balcones Fault Zone (BFZ). During the middle Tertiary, structural down warping occurred to the southeast associated with the formation of the ancestral Gulf of Mexico. The earth's crust stretched in response and the BFZ formed along a zone of weakness, which today marks the boundary between the Edwards Plateau and the Gulf Coastal Plain throughout central Texas. This zone consists of a series of northeast-trending, predominantly normal, nearly vertical, en echelon faults. One mapped northeast-trending fault occurs along the northern edge of the Plan Area (Barnes 1984). Additionally, several mapped faults occur within the vicinity of the Plan Area (Barnes 1984). The Upper Cretaceous Austin Chalk and Pecan Gap underlay the Plan Area (Barnes 1984).

3.2.1 Bexar County Karst Zones

Veni (2003) delineated five Karst Zones to help assess the probability of rare or endangered karst invertebrate species occurring across Bexar County, Texas. Veni (2003) mapped boundaries for the Karst Zones based on lithology, the distribution of known caves and cave fauna at the time, and presumed geologic controls on cave development, with a focus on cavern development in the Edwards Group, Upper Glen Rose, Pecan Gap Chalk, and Austin Chalk geologic formations.

The Veni (2003) Karst Zones include:

- Karst Zone 1: Areas known to contain listed karst invertebrate species.
- Karst Zone 2: Areas having a high probability of containing habitat suitable for listed karst invertebrate species.
- Karst Zone 3: Areas that probably do not contain listed karst invertebrate species.
- Karst Zone 4: Areas that require further research but are generally equivalent to Zone 3, although they may include sections classified as Zone 2 or Zone 5 as more information becomes available.
- Karst Zone 5: Areas that do not contain listed karst invertebrate species.

The Plan Area occurs over Karst Zone 3. According to Pape-Dawson Engineers, Inc. (Pape-Dawson), prior to the initiation of work on this HCP, the Permittee transferred all areas of Karst Zone 1 that previously occurred within Davis Ranch to the GCSNA.² Section 5.1.1 further discusses the potential for federally listed karst invertebrates to occur within the Plan Area.

3.3 Vegetation Types within the Plan Area

Vegetation within the Plan Area consists predominantly of woodland (between 80% and 90%) and fallow pastureland (SWCA Environmental Consultants [SWCA] 2016c, 2016d). Woodlands within the Plan Area include mixed tree species including plateau live oak (*Quercus fusiformis*), Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), hackberry (*Celtis reticulata*), and mesquite (*Prosopis glandulosa*). Cedar elm trees and Texas red oak (*Quercus buckleyi*) are dominant along the banks of Culebra Creek. Mature Ashe juniper trees occur throughout the Plan Area in various densities. Tree canopy height of woodlands generally ranges from 18 to 40 feet, with average tree canopy height slightly higher along the banks of Culebra Creek and within low-lying areas. Woody canopy closure is relatively high and ranges from 75% to almost 100% within wooded portions of the Plan Area.

² Personal communication to SWCA from Trey Dawson, Pape-Dawson, via email on December 12, 2016.

Shrub layer species occur in low densities under canopy and in moderate densities along woodland margins. Shrub species include Texas persimmon (*Diospyros texana*), elbowbush (*Forestiera pubescens*), wafer ash (*Ptelea trifoliata*), Texas mountain laurel (*Sophora secundiflora*), and catclaw (*Senegalia roemeriana*). Deciduous holly (*Ilex decidua*) occurs along Culebra Creek.

King Ranch bluestem (*Bothriochloa ischaemum*) dominates the fallow pastureland, with various herbaceous species occurring in lower densities. Mesquite saplings and Texas prickly pear (*Opuntia engelmannii* var. *lindheimeri*) are invading many the fallow pasturelands.

3.4 Improvements and Existing Land Use

The Plan Area consists predominantly of undeveloped ranchland previously used for livestock grazing. Several structures occur within the Plan Area, including a tenant-occupied 1,256-square-foot residence accessible from a 2,320-foot-long driveway extending north from Galm Road. Several additional small shed-sized buildings are also present. The Plan Area is also accessible from a private two-track road (Silver Bells Road) extending 3,475 feet north from Galm Road. Approximately 5.4 miles of ranch roads of various condition are present across the Plan Area. The eastern boundary of the Plan Area is adjacent to an under-construction residential subdivision and existing low-density residential development. The GCSNA borders the Plan Area to the north and west. The southern boundary of the Plan Area abuts the right-of-way for Galm Road. Land south of the Plan Area and Galm Road is undeveloped, consisting of scrubby ranchland and pastureland.

4.0 COVERED ACTIVITIES

The activities covered by this HCP consist of the development, ongoing use, and maintenance of the Plan Area (Covered Activities). The Covered Activities include the selective clearing and/or modification of vegetation; the construction of homes and other buildings, roads, utilities, storm and water quality controls, and related infrastructure; and the ongoing use and maintenance of any infrastructure or other improvements for residential or other purposes (i.e., commercial), including ongoing vegetation maintenance as may be required.

The Permittee has not finalized development plans for the Plan Area; however, the Covered Activities may affect the entire Plan Area over the ITP Term. For this reason, this HCP assumes complete clearing of all vegetation, including any potential GCWA habitat within the Plan Area. The Permittee uses this assumption to capture the maximum amount of incidental take that might occur, with the understanding that this assumption does not necessarily represent the actual final development of the Plan Area. As described herein, the Permittee will only be required to mitigate for portions of the Plan Area where Covered Activities occur.

The Permittee will conduct the Covered Activities in accordance with applicable local, state, and federal regulations.

5.0 COVERED SPECIES

5.1 Evaluation Species

To identify the species for which the Permittee seeks incidental take coverage (Covered Species), the Permittee considered a comprehensive list of species that may occur within the Plan Area as identified by

the USFWS Information, Planning, and Conservation (IPaC) System Trust Resources Lists (Evaluation Species) (USFWS 2016a).

The Permittee considered each Evaluation Species based on its current listing status, its occurrence within the Plan Area, and the likelihood of the Covered Activities causing incidental take of the species (Table 1). Based on this review, the Permittee determined that the GCWA is the only species that satisfies these criteria for inclusion as a Covered Species. Aside from the GCWA, no other federally listed species, or candidates for such listing, occur within the Plan Area and will experience impacts as a result of the Covered Activities.

Table 1. Special Status Species Occurring in Bexar County, Texas

Species Name	Listing Status*	Habitat Characteristics	Likely Occurrence in the Plan Area
ARACHNIDS			
Bracken Bat Cave meshweaver (<i>Cicurina venii</i>)	FE	Karst features in north and northwest Bexar County.	Low – SWCA conducted a protocol karst survey on the Plan Area in 2016 (SWCA 2016a, 2016b) and did not identify any karst invertebrate habitat. The Plan Area occurs within Karst Zone 3. See Section 5.1.1 for additional discussion.
Cokendolpher Cave harvestman (<i>Texella cokendolpheri</i>)	FE		
Government Canyon Bat Cave meshweaver (<i>Cicurina vespera</i>)	FE		
Government Canyon Bat Cave spider (<i>Neoleptoneta microps</i>)	FE		
Madla Cave meshweaver (<i>Cicurina madla</i>)	FE		
Robber Baron Cave meshweaver (<i>Cicurina baronia</i>)	FE		
CRUSTACEANS			
Peck's Cave amphipod (<i>Stygobromus pecki</i>)	FE	Aquatic caves within the San Marcos and Comal Springs aquatic ecosystems and the San Antonio Segment of the Edwards Aquifer.	None – Suitable aquatic habitat is not present within the Plan Area and the Covered Activities will not measurably affect aquifer recharge.
AMPHIBIANS			
San Marcos salamander (<i>Eurycea nana</i>)	FT	Aquatic caves within the San Marcos and Comal Springs aquatic ecosystems and the San Antonio Segment of the Edwards Aquifer.	None – Suitable aquatic habitat is not present within the Plan Area and the Covered Activities will not measurably affect aquifer recharge.
Texas blind salamander (<i>Typhlomolge rathbuni</i>)	FE		
BIRDS			
Black-capped vireo (<i>Vireo atricapilla</i>)	FE	Oak-juniper woodlands with distinctive patchy, two-layered aspect. Shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover.	None – Potential habitat for the black-capped vireo (as described by Campbell 2003) is not present within the Plan Area.
Golden-cheeked warbler (<i>Setophaga chrysoparia</i>)	FE	Juniper-oak woodlands.	Known – GCWA habitat occurs within the Plan Area.
Whooping crane (<i>Grus americana</i>)	FE	Potential migrant via plains throughout most of the state to the coast.	Low – Bexar County occurs on the fringe of the whooping crane migration corridor and does not contain habitat generally used by this species.

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Species Name	Listing Status*	Habitat Characteristics	Likely Occurrence in the Plan Area
FISHES			
Fountain darter (<i>Etheostoma fonticola</i>)	FE	Resides in the San Marcos and Comal Springs aquatic ecosystems and the San Antonio Segment of the Edwards Aquifer. Activities that affect the water quality and quantity within the Edwards Aquifer Recharge or Contributing Zones may impact this species.	None – Suitable aquatic habitat is not present within the Plan Area and the Covered Activities will not measurably affect aquifer recharge.
INSECTS			
Ground beetles (<i>Rhadine exilis</i> and <i>R. infernalis</i>)	FE	Karst features in north and northwest Bexar County.	Low – SWCA conducted a protocol karst survey on the Plan Area in 2016 (SWCA 2016a, 2016b) and did not identify any karst invertebrate habitat. The Plan Area occurs within Karst Zone 3. See Section 5.1.1 for additional discussion.
Helotes mold beetle (<i>Batrissodes venyivi</i>)	FE		
Comal Springs dryopid beetle (<i>Stygoparnus comalensis</i>)	FE	Occur within the San Marcos and Comal Springs aquatic ecosystems and the San Antonio Segment of the Edwards Aquifer. Activities that affect the water quality and quantity within the Edwards Aquifer Recharge or Contributing Zones may impact this species.	None – Suitable aquatic habitat is not present within the Plan Area and the Covered Activities will not measurably affect aquifer recharge.
Comal Springs riffle beetle (<i>Heterelmis comalensis</i>)	FE		
MAMMALS			
Gray wolf (<i>Canis lupus</i>)	FE/SE	Formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands.	None – Likely extirpated in Texas.
Red wolf (<i>Canis rufus</i>)	FE/SE	Formerly known throughout eastern half of Texas in brushy and forested areas as well as coastal prairies.	None – Likely extirpated in Texas.
MOLLUSKS			
Golden orb (<i>Quadrula aurea</i>)	C/ST	Occurs within the Guadalupe, San Antonio, Lower San Marcos, and Nueces River basins in sand and gravel or mud.	None – Suitable aquatic habitat is not present for this species.
Texas fatmucket (<i>Lampsilis bracteata</i>)	C	Occurs in streams and rivers on sand, mud, and gravel substrates in the Colorado and Guadalupe River basins.	
Texas pimpleback (<i>Quadrula petrina</i>)	C/ST	Occurs within the Colorado and Guadalupe river basins in mud, gravel and sand substrates; generally in areas with slow flow rates.	
PLANTS			
Bracted twistflower (<i>Streptanthus bracteatus</i>)	C	Shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms. Several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations.	Low – Potential habitat not present within the Plan Area.

Species Name	Listing Status*	Habitat Characteristics	Likely Occurrence in the Plan Area
Texas wild-rice (<i>Zizania texana</i>)	FE	Occurs in the San Marcos Springs aquatic ecosystem. Does not occur in Bexar County; however, activities that affect the water quality and quantity within the Edwards Aquifer Recharge or Contributing Zones may impact this species.	None – Suitable aquatic habitat is not present within the Plan Area and the Covered Activities will not measurably affect aquifer recharge.

U.S. Fish and Wildlife Service (USFWS). 2016a. Information for Planning and Conservation (IPaC) Resources Report. Generated July 20, 2016.

* FE = Federally Endangered; FT = Federally Threatened; C = Federal Candidate for Listing; SE = State Endangered; ST = State Threatened

5.1.1 Bexar County Karst Invertebrates

In the spring of 2016, SWCA conducted USFWS-protocol presence/absence surveys (USFWS 2015a) for Bexar County karst invertebrates within the Plan Area (SWCA 2016a, 2016b). SWCA identified 30 potential karst features within the Plan Area. Pursuant to USFWS protocols, a USFWS-permitted biologist (Permit TE-800611) supervised the excavation and assessment of these 30 features. Chris Collins evaluated each feature for the presence of potential karst invertebrate habitat as defined by USFWS (2015a). None of the features exhibited the characteristics of potential karst invertebrate habitat.

The Permittee completed the due diligence investigations recommended by the USFWS for determining the presence or likely absence of listed karst invertebrates within the Plan Area. It is highly unlikely that the Covered Activities will take listed karst invertebrates; therefore, the Permittee is not requesting incidental take authorization for these species.

5.2 Covered Species – Golden-Cheeked Warbler

The USFWS listed the GCWA as endangered in 1990 (USFWS 1990a, 1990b). The breeding range of the GCWA is restricted to Texas where it occurs primarily in the Edwards Plateau and Cross Timbers regions of central and north-central Texas. Breeding habitat typically consists of relatively dense and mature woodland composed of a combination of Ashe juniper and broad-leafed hardwood tree species, especially oaks such as Texas red oak and plateau live oak. The USFWS has not designated critical habitat for the GCWA (USFWS 1992).

Most GCWAs arrive on their breeding grounds in early to mid-March and begin nesting shortly thereafter. For successful first nesting attempts, the fledging of young typically occurs in the first half of May. GCWAs generally begin their migration south in July or early August and winter in the highlands of southern Mexico and northern Central America (USFWS 1992). For the purposes of this HCP, the GCWA breeding season is between March 1 and July 31 (GCWA Breeding Season; Campbell 2003).

5.2.1 Golden-Cheeked Warbler Surveys within the Plan Area

USFWS-permitted biologists conducted USFWS-protocol presence/absence surveys for GCWA within portions of the Plan Area in 2007, 2013, and 2015 (Figure 3). In 2007, SWCA biologists conducted a presence/absence survey for GCWAs and black-capped vireos (*Vireo atricapilla*) on 350 acres of the Plan Area. SWCA (2007) detected only one GCWA within the survey area adjacent to the GCSNA over seven survey days. SWCA concluded that it was extremely unlikely that the detected male was maintaining a territory within the Plan Area in 2007, and was likely a transient individual (SWCA 2007).

In 2013, biologists with Pape-Dawson conducted a GCWA survey on 244 acres of the Plan Area. Pape-Dawson (2013) observed three to four GCWA detections on only one survey day, recording two individuals in the northwest portion of the survey area. Pape-Dawson concluded that the observed individuals were likely transient and there was no evidence that GCWAs regularly occupied the 2013 survey area. Pape-Dawson (2013) further concluded that the lack of regular occupation was likely a result of the “marginal quality of the habitat.”

In 2015, Pape-Dawson once again conducted a presence/absence survey within the 244-acre portion of the Plan Area considered in 2013 (however, the survey effort in 2015 was limited to portions of the tract with woody vegetation). Unlike previous survey efforts, Pape-Dawson identified GCWAs during five of the six 2015 survey days (Pape-Dawson 2015). During the 2015 survey, Pape-Dawson made 62 detections, leading biologists to conclude that four to five GCWA territories occurred within the Plan Area during the 2015 GCWA Breeding Season (Pape-Dawson 2015).

USFWS-permitted biologists have not surveyed the rest of the Plan Area for the presence of GCWAs; however, surveys conducted by TPWD within the GCSNA in 2017 documented occupancy within the GCSNA along the northern boundary of the Plan Area (see Figure 3) (GCWA observation data provided by Christina Williams, USFWS).

Table 2 summarizes GCWA detections within the Plan Area since 2007.

Table 2. Plan Area GCWA detection summary.

Year	Acres surveyed	Results- GCWA Detections	Results- Estimated Territories
2007	350	1	0
2013	244	3 to 4	0
2015	244	62	4 to 5
2017	GCSNA boundary w/ Davis Ranch	Documented occupancy	Documented occupancy

5.2.2 Golden-Cheeked Warbler Habitat Availability within the Plan Area

SWCA conducted a habitat delineation of the Plan Area in 2016 (SWCA 2016c, 2016d). As part of the habitat delineation, SWCA considered aerial imagery and modeled vegetation communities, available environmental reports including presence/absence survey data, and conducted a site inspection. SWCA delineated 567.12 acres of potential GCWA habitat within the Plan Area (SWCA 2016c, 2016d). For the purpose of this HCP, SWCA relied on aerial imagery to delineate an additional 84.98 acres of potential GCWA habitat within 300 feet of the Plan Area. Areas delineated as potential habitat by SWCA meet the habitat requirements described by Campbell (2003) (Figure 4). Non-habitat areas are primarily composed of mesquite trees, a mixture of mesquite and Ashe juniper trees, or fallow pastureland and occur primarily around the residence, along some woodland margins, and along roadways.

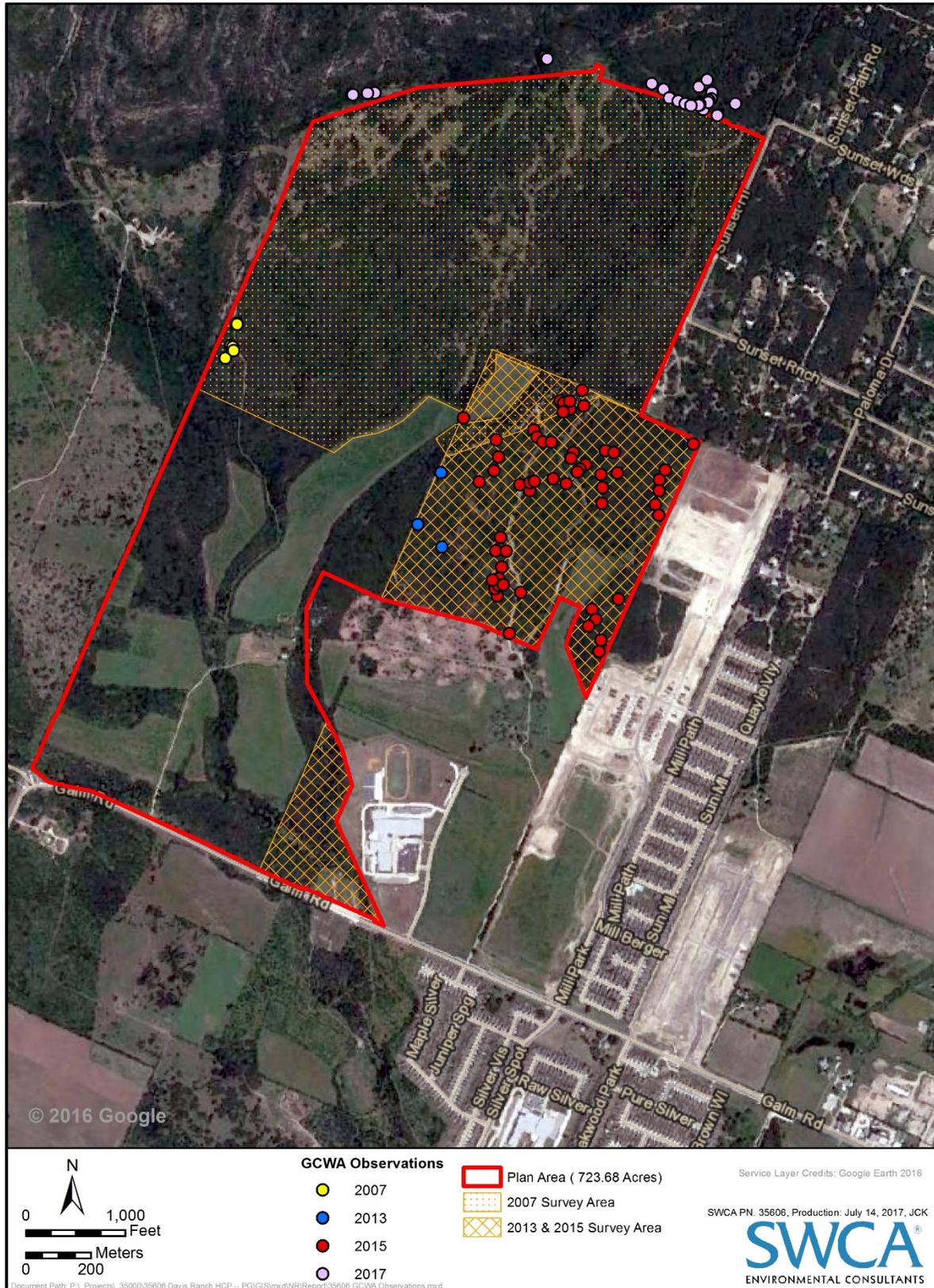


Figure 3. GCWA observations within and immediately adjacent to the Plan Area.

Note: Clusters of dots (observations) likely represent an individual GCWA.



Figure 4. SWCA's 2016 GCWA habitat delineation of the Plan Area.

6.0 INCIDENTAL TAKE AND IMPACTS

The Covered Activities may cause impacts that rise to the level of take, as defined by the ESA and its implementing regulations (definitions provided in Section 2.0 of this HCP), if they result in:

- Habitat modification or degradation that actually kills or injures individual GCWAs by significantly impairing their essential behavioral patterns such as breeding, feeding, or sheltering

This section identifies the total requested incidental take authorization (Section 6.1), describes how the Permittee will measure incidental take via the application of a habitat surrogate (Section 6.2), and outlines how the Covered Activities will result in impacts to GCWAs that might rise to the level of take (Section 6.3).

6.1 Requested Incidental Take Authorization

The Permittee is requesting an incidental take authorization for the modification of up to 652.1 acres of potential GCWA habitat in, and within 300 feet of, the Plan Area (Figure 4). As described herein, the actual number of acres of potential habitat modified directly or indirectly by the Covered Activities may be less than the requested take authorization. As described in Section 7.3, the Permittee will mitigate at different ratios for direct and indirect habitat modification to offset the varying degree of impacts of the associated taking on the species.

6.2 Establishing a Habitat Surrogate to Measure Incidental Take

The Permittee recognizes that take ideally should be quantified in HCPs in terms of the number of individuals of a listed species expected to be taken by a Covered Activity; however, USFWS precedent and federal courts permit use of a surrogate or proxy in circumstances where expressing take as a number of individuals is impracticable. See, e.g., *Oregon Natural Resources Council v. Allen*, 476 F.3d 1031 (9th Cir. 2007). Although there is no specific USFWS regulation or case of which the Permittee is aware that deals with the issue of using a surrogate for take in the ITP context, USFWS recently promulgated a rule specifically addressing the use of surrogates in the context of ESA Section 7 consultations (50 CFR 402.14). The surrogate rule indicates that use of a surrogate (e.g., “similarly affected species or habitat or ecological conditions”) is appropriate, if the biological opinion or incidental take statement (50 CFR 402.14):

- 1) describes the causal link between the surrogate and take of the listed species;
- 2) explains why it is not practical to express the amount or extent of anticipated take or to monitor take-related impacts in terms of individuals of the listed species; and
- 3) sets a clear standard for determining when the level of anticipated take has been exceeded.

For the purposes of this HCP, the Permittee proposes to measure incidental take in terms of the acres of GCWA habitat directly and indirectly modified by the Covered Activities. The use of potential habitat modified by the Covered Activities as a surrogate for incidental take of GCWAs meets the three conditions established in the USFWS surrogate rule described above.

Condition 1: *Describe the causal link between the surrogate and take of the listed species.*

The Permittee proposes to use acres of potential GCWA habitat directly or indirectly modified by the Covered Activities as a surrogate for the number of individual GCWAs taken by the Covered Activities. Direct and indirect habitat modification associated with the Covered Activities is the triggering action for any resulting take of GCWAs. Without modification of potential GCWA habitat, the Covered Activities would not cause take. Direct and/or indirect habitat modification may reduce the amount or quality of available GCWA habitat such that the habitat can no longer support breeding, feeding, and/or sheltering activities resulting in actual death or injury of individual GCWAs.

The Permittee does not expect the Covered Activities to result in take of GCWAs that do not use habitats directly or indirectly modified by the Covered Activities. The Permittee expects the number of GCWA individuals impacted by the Covered Activities to be proportional to the amount of direct habitat modification (i.e. more acres of habitat modification would result in more impacted individuals). The Permittee is adopting 300 feet as the area out to which direct habitat modification may result in indirect habitat modification, consistent with the USFWS's treatment of indirect impacts in every other GCWA ITP to-date.

The Permittee does not expect GCWAs to utilize vegetation types that do not meet the Campbell (2003) habitat definitions. Nor does the Permittee expect the Covered Activities to cause incidental take of GCWAs occurring more than 300 feet from habitat modification activities. Since potential GCWA habitat must be present and the Covered Activities must directly and/or indirectly modify that habitat for incidental take to occur, there is a causal link between acres of GCWA habitat modified by the Covered Activities and the number of GCWAs taken by the Covered Activities.

Condition 2: *Explain why it is not practical to express the amount or extent of anticipated take or to monitor take-related impacts in terms of individuals of the listed species.*

The number of individual GCWAs present within the Plan Area will fluctuate naturally on an annual basis. This is borne out within the Plan Area as surveys have shown inconsistent occupancy between available survey years (Section 5.2.1). For example, the population estimate for Davis Ranch varied greatly between 2007, when surveyors believed that GCWA observations represented transient individuals, as compared to 2015 when observations indicated that GCWAs were holding territories within portions of the Plan Area. Surveys within the Plan Area indicate fluctuating inhabitation at various locations, rendering anticipated take in terms of individuals difficult to accurately determine. GCWA are present within the Plan Area, but population and bird activities changed significantly during survey periods.

The effectiveness of bird surveys in counting the number of birds in an area (i.e., an absolute census of a population) can also be somewhat limited because, due to their frequent vocalizations, surveyors can more easily observe male GCWAs than females or fledglings during surveys (USFWS 2014). Beyond the difficulties of accurately determining the number of individuals exposed to the Covered Activities, it is also not possible to accurately predict or measure the number of individual GCWAs actually killed, wounded, or otherwise injured because of the Covered Activities. This is particularly true given that no direct impacts to GCWAs will occur (Section 6.3) because habitat modification will occur outside of the GCWA Breeding Season when GCWAs are not present. Any resulting take would occur later in time and would rely on GCWAs being unable to find suitable habitat for breeding, feeding, and sheltering behaviors during future GCWA Breeding Seasons.

As described in detail in Section 6.4, GCWAs can occur at higher densities following habitat disturbance and shift breeding territories between breeding seasons. Given the natural variation in how GCWAs utilize their breeding range, it would not be practical to assess take based on the number of GCWA individuals

one might expect to return during any given year to a certain portion of the Plan Area. At best, any calculation of the number of individuals impacted by the Covered Activities would rely on historical trends and assumptions. There would be no way of knowing if a reduction in the number of GCWA individuals returning to remaining habitat within the Plan Area following habitat modification in another portion of the Plan Area was the result of reduced habitat, natural attrition, reconfigured territory boundaries, or other causes. Even if the habitat modification were responsible for the reduced population, it would not be possible to know if the individuals that did not return actually suffered a disruption to breeding, feeding, and/or sheltering such that death or injury occurred, or rather simply relocated to replacement habitat elsewhere.

The use of direct and indirect habitat modification as a habitat surrogate provides a clear and measurable metric because, in general, GCWA habitat conditions do not vary significantly between breeding seasons as compared to GCWA population counts.

Condition 3: *Set a clear standard for determining when the level of anticipated take has been exceeded.*

The acreage of potential GCWA habitat modified by a particular Covered Activity is a relatively stable metric compared to the variability of the number, size, and location of individuals or breeding territories on the same acreage that may vary from year to year. The USFWS generally considers all vegetation meeting the habitat conditions outlined in Campbell (2003) as potentially suitable GCWA habitat. SWCA delineated potential GCWA habitat within and within 300 feet of the Plan Area (SWCA 2016c, 2016d). This habitat delineation serves as the basis for determining habitat within the Plan Area for the purposes of this HCP. Using this delineation, the Permittee can precisely measure the amount of potential GCWA habitat modified by the Covered Activities through desktop use of ArcGIS software by overlaying the land plans and the habitat delineation. Where the Covered Activities are co-located with delineated habitat, the Permittee will deduct the total acres of potential habitat modified because of the Covered Activity from the authorized take allowance.

This HCP identifies the maximum number of acres that the Covered Activities may directly or indirectly modify. These estimates assume that the Permittee will completely clear all potential GCWA habitat within the Plan Area. The Permittee cannot exceed the maximum requested take authorization as long as the Permittee limits direct habitat modification to within the boundaries of the Plan Area. More likely, the Permittee will leave portions of the Plan Area unmodified and underutilize its take authorization. Either way, the Permittee can easily measure the total number of GCWA habitat acres modified in any given year and will provide that information annually to the USFWS through annual reporting (Section 9.1). As a result, the USFWS will be able to track the amount of take used and remaining incidental take authorization associated with this HCP. The use of the habitat surrogate provides the Permittee and the USFWS a precise method for determining the Permittee's compliance with the take authorization specified in the ITP.

The use of habitat acres directly and indirectly modified as a surrogate for the number of GCWAs taken by the Covered Activities meets the conditions set forth by the USFWS (2015b), and provides a widely used, practical means of quantifying the impact of the Covered Activities on GCWAs.

6.3 Direct and Indirect Impacts to Golden-Cheeked Warblers

The USFWS defines direct impacts as those “that are caused by the action and occur contemporaneous with the action” (USFWS 2016b). Indirect effects are those “that are caused by the proposed action and are later in time, but still are reasonably certain to occur” (50 CFR 402.02).

The Permittee does not expect any direct impacts to GCWA individuals, such as may result in direct killing or wounding of individual birds, to result from the Covered Activities. The Permittee will conduct all GCWA habitat clearing and/or modification in the Plan Area during the times of year when GCWAs are not present in Texas (August 1 through February 28), so no potential exists for potential habitat clearing and/or modification to destroy occupied GCWA nests or harm recently fledged but still relatively immobile young.

The USFWS believes harm can occur via modification of habitats used by individual GCWAs, even if those individuals are not present at the time of the activity, if the habitat modification leads to the actual death or injury of an individual later in time or at a distance removed from the site of the activity.

The Permittee expects to develop the Plan Area over time and will delineate certain “Development Areas” within the Plan Area over the ITP Term as such areas become the subject of development. Development Areas are expected to be those areas included in a plat submitted for approval by the City of San Antonio, or similar area inclusive of lands to be physically modified and associated small or narrow open spaces (such as playgrounds, common areas, drainage easements, or similar). Acres of GCWA habitat, as mapped in Figure 4, that occurs within a Development Area will be deemed subject to direct habitat modification. Acres of GCWA habitat that is adjacent to a Development Area, but outside of the Plan Area and extending out to a distance of 300 feet (see Figure 4), will be deemed subject to indirect habitat modification.

The Permittee is requesting incidental take authorization for up to 567.12 acres of direct habitat modification and an additional 84.98 acres of indirect habitat modification within 300 feet of the Plan Area.

6.4 Impact of the Taking

The Permittee concludes that the expected impact of the taking is relatively minor with respect to the status of the species in a local, regional, or range-wide context. This conclusion is the basis for the proposed conservation program and relies on:

- 1) the relatively small area of occupied GCWA habitat subject to direct and indirect modification compared to the amount of habitat available for the species;
- 2) the anticipated effects of the Covered Activities on GCWA will mostly be sub-lethal, causing displacement of individuals or reconfiguration of territory boundaries (with possible decreases in reproductive output), but only rarely causing actual death of an individual.

The Permittee is requesting incidental take authorization sufficient to cover the complete clearing of the Plan Area. Since it is unlikely that the Permittee will completely clear the entire Plan Area, this represents the maximum potential habitat that the Covered Activities could modify. Combining the anticipated acres of direct and indirect habitat modification (652.1 acres), the Permittee’s requested amount of take represents approximately 0.02% of the approximately 2,778,207 acres of seasonally occupied GCWA habitat across the breeding range (Morrison et al. 2010).

The number of GCWAs that use the Plan Area is unknown and likely changes over time. However, the density of GCWA territories in habitats within Bexar, Kendall, and Comal Counties (Recovery Region proposed by Groce et al [2010]) ranges from 5,548 to 11,095; when assuming average density of singing males ranges from 2.0 (Pulich 1976) to 4.1 (Cooksey and Edwards 2008) per 100 acres. Average territory density ranging between 2.0 to 4.1 males per 100 acres is discussed within Southern Edwards Plateau HCP (SEP HCP). Therefore, the number of GCWA territories that may be lost as a result of the Covered Activities, which are assumed to remove all of the habitat within the Plan Area over the ITP term, could

range from 13 to 26. The GCWA territories affected by the Covered Activities could, in a worst-case scenario, be lost to the population. Potential habitat loss (acreage) within the Plan Area represents approximately 1.0% of GCWA habitat on local scale (within 10-mile dispersal radius) and less than 0.3% on regional (Bexar, Kendall, Comal Counties) or range wide scales (Table 3). Similarly, the lost number of potential territories within the Plan Area represents approximately 1% on a local scale and less than 0.3% of GCWA territory loss on regional and range wide scales (Table 3). However, since most of the impacts of the take are expected to be sub-lethal, the loss of territories within the Plan Area may not necessarily translate into a complete loss of the productivity of the displaced individuals.

Table 3. Potential habitat loss within the Plan Area compared to local, regional, and range wide scales.

Location	Total Habitat (Acres)	Estimated Territories (2 to 4.1 per 100 acres)	Estimated Take- Habitat Acres (%)	Estimated Take-Territories (%)
*10-mile Radius Around Plan Area	64,467	1,289 to 2,643	1.01%	0.98 to 1.01%
*Bexar/Kendall/Comal Counties	277,384	5,548 to 11,373	0.24%	0.23%
*Texas Breeding Range	2,778,207	55,564 to 113,907	0.02%	0.02%
*Morrison et al. (2010) potential habitat model with ≥50% probability of occupancy				

7.0 CONSERVATION PROGRAM

Permittees for an ITP must demonstrate that they will “to the maximum extent practicable, minimize and mitigate the impacts of such taking” (16 USC 1539). When determining whether a permittee has met their statutory issuance criteria, the USFWS considers if the conservation program “includes both minimization and mitigation measures in a manner that offsets the impacts of the taking to the maximum extent practicable” (USFWS and NMFS 2016). The ESA and its implementing regulations do not include any requirement for implementing minimization and mitigation measures sequentially, and permittees are not obligated to avoid impacts to the species. Court decisions including the recent case of *United Neighbors United, Inc. v. Sally Jewell et al.* support this position. The judge in that case ruled that even though one could interpret the statute as requiring minimization prior to mitigation, “the statute doesn’t compel its preferred application.”

7.1 Biological Goals and Objectives

Biological goals and objectives “guide management actions taken for an HCP to meet its conservation vision” (USFWS and NMFS 2016). Biological goals are broad guiding principles that describe the desired condition and biological needs of the species, whereas biological objectives “provide the foundation for determining the conservation measures, monitoring direction, and evaluating the effectiveness of the conservation strategy” (USFWS and NMFS 2016).

The biological goals and objectives for this HCP are as follows:

1. **Biological Goal:** The Permittee will avoid direct impacts to individual GCWAs.
 - a. **Biological Objective:** The Permittee will implement minimization measures including avoiding all habitat clearing during the GCWA Breeding Season (Section 7.2) that eliminate the potential for direct impacts to individual GCWAs.
2. **Biological Goal:** The Permittee will mitigate appropriately for direct and indirect GCWA habitat modification resulting from the Covered Activities (Section 7.3).
 - a. **Biological Objective:** The Permittee will provide mitigation prior to the exercise of its incidental take authorization for each Development Area.
 - b. **Biological Objective:** The Permittee will provide mitigation for impacts to the GCWA caused by direct and indirect habitat modification resulting from the Covered Activities. Such mitigation will be commensurate with the extent and magnitude of the habitat modification (Section 7.3.1).
 - c. **Biological Objective:** The Permittee will purchase conservation credits from USFWS-approved conservation banks that are obligated to perpetually manage and monitor preserve lands for the benefit of the GCWA pursuant to preserve-specific land management plans.

7.2 Minimization Measures

7.2.1 Seasonal Clearing Restrictions

The Permittee will refrain from conducting clearing in designated potential GCWA habitat within the Plan Area during the GCWA Breeding Season.

7.2.2 Oak Wilt Prevention

While conducting vegetation clearing and/or modification, the Permittee will direct contracted work crews to follow the Texas Forest Service or professional arborist's guidelines for the prevention of the spread of oak wilt. The Texas Forest Service recommends eliminating diseased red oaks, handling firewood properly, and painting wounds on healthy oaks to prevent the spread of oak wilt. The Permittee will direct work crews to avoid all wounding of oaks (including those caused by trimming, limbing, and pruning) between February and June (Texas A&M Forest Service 2015). The least hazardous periods for trimming are during the coldest days in midwinter and extended hot periods in mid to late summer. Regardless of season, work crews should treat all trimming cuts or other wounds to oak trees, including freshly cut stumps and damaged surface roots, immediately with a wound or latex paint to prevent exposure to contaminated insect vectors.

7.3 Mitigation Measures

7.3.1 General Mitigation Strategy and Framework

The Permittee is seeking an ITP to authorize incidental take associated with Covered Activities as they occur within the Plan Area. The Permittee, as the current landowner for the Plan Area, seeks this

authorization to accommodate reasonable development of the Plan Area by the Permittee or other parties that may purchase some or all of the Plan Area in the future. The Permittee proposes an approach to the conservation program that will allow the Permittee to develop or convey Development Areas delineated within the boundary of the Plan Area with assurances that incidental take authorization applies to the Development Area regardless of who owns or ultimately conducts Covered Activities within it. In cases where the Permittee is responsible for any direct or indirect habitat modification, the Permittee will mitigate for habitat modification as described below. In cases where the Permittee conveys ownership of one or more Development Areas to another person or entity, the Permittee proposes to extend incidental take coverage to that entity through issuance of a Certificate of Inclusion (Section 7.3.2). This HCP refers to individuals and/or entities receiving incidental take authorization through a Certificate of Inclusion as “Participants”.

The Permittee and Participants are subject to the mitigation framework described by this HCP. Any time a Permittee or Participant wishes to implement a Covered Activity and utilize its incidental take authorization, they will follow the same process:

1. **Define the boundary of the Development Area and determine the total number of acres of direct and indirect habitat modification associated with the Development Area:** The Permittee provided a habitat delineation (Figure 4) that represents the extent of potential GCWA habitat subject to direct and indirect modification under this HCP. The Permittee will calculate the acreage of direct habitat modification (i.e., GCWA habitat, as mapped in Figure 4, that occurs within the boundary of the Development Area) and indirect habitat modification (i.e., GCWA habitat, as mapped in Figure 4, that is adjacent to the Development Area and outside of the Plan Area to a distance of 300 feet) associated with the Development Area.
2. **Provide mitigation to offset the impacts to GCWAs resulting from the direct and indirect habitat modification:** Prior to initiating the Covered Activities within a particular Development Area, the Permittee or Participant will purchase GCWA conservation credits from a USFWS-approved conservation bank whose service area includes the Plan Area. Alternatively, the Permittee may seek conservation credits from an out of service conservation bank with USFWS approval. The Permittee or Participant will purchase GCWA conservation credits commensurate with the total acres of direct and indirect habitat modification resulting from the Covered Activities associated with a particular Development Area. Mitigation will be provided at the following ratios (mitigation credits : acre of impact):
 - a. 2:1 for direct habitat modification,
 - b. 0.5:1 for indirect habitat modification.

The Permittee is aware of two USFWS-approved conservation banks that have GCWA conservation credits available for purchase with a service area that includes the Plan Area: the Bandera Corridor Conservation Bank and the Festina Lente Conservation Bank. Both banks provide GCWA conservation credits backed by permanently protected GCWA habitat managed and monitored for the long-term benefit of the species. These banks protect several thousand acres of GCWA habitat that is adjacent or near to other protected properties with GCWA habitat. Together this cluster of protected properties forms a focal area for GCWA conservation that contributes substantially to the recovery of the species. The USFWS’s standards for conservation banks ensure that the quality of this off-site mitigation provides long-term value to the target species (USFWS 2003).

Other USFWS-approved conservation banks may become available over the ITP Term that could provide GCWA conservation credits for the Permittee and/or Participants. Nothing in this HCP requires the Permittee or any Participant to purchase conservation credits from any particular bank.

3. **Conduct the Covered Activities:** After securing the appropriate mitigation, the Permittee or Participant may conduct the Covered Activities with that Development Area pursuant to the terms and conditions of the ITP, including application of the minimization measures described in Section 7.2.
4. **Provide notification to the USFWS:** This HCP clearly defines areas of potential GCWA habitat (Figure 4) and what constitutes direct and indirect habitat modification as they apply to the strategy included herein. As such, the Permittee does not anticipate requiring approval from the USFWS for the Permittee or a Participant to mitigate for individual Development Areas through this HCP. Rather, following acceptance of a Participant and completion of the purchase of conservation credits, the Permittee or Participant will provide the USFWS a summary document that includes:
 - a. the mitigation assessment completed as part of the transaction;
 - b. proof of secured mitigation; and,
 - c. Agreement of Inclusion documentation (Section 7.3.2).

7.3.2 Agreements of Inclusion

The Permittee anticipates that it will, from time to time, sell or otherwise convey portions of the Plan Area to other individuals or entities for development, use, and occupation (i.e. Development Areas). The Permittee is seeking an ITP to establish regulatory certainty that the Permittee or Participants can lawfully develop the Plan Area without ESA-related scheduling delays. The Permittee proposes to enter into Agreements of Inclusion with Participants engaging in Covered Activities within Development Areas. By entering into an Agreement of Inclusion, the Participant agrees to comply with the terms and conditions of the HCP and ITP. In exchange, the Participant receives the full benefits and assurances provided by the ITP, including receiving authorization for incidental take resulting from the Covered Activities.

Given the uncertainty associated with the precise development plan for the Plan Area, the Permittee recognizes that the exact terms of any Agreement of Inclusion will vary based on the Participant. The Permittee acknowledges that several general provisions will apply to all Agreements of Inclusion (i.e. the Participant must comply with the terms and conditions of the HCP and ITP including the requirement for acquiring mitigation prior to conducting any Covered Activity and implementing the minimization measures). As such, the Permittee will provide the USFWS with an Agreement of Inclusion form for USFWS' review and approval prior to entering into any Agreement of Inclusion with a Participant. The Agreement of Inclusion form will highlight any areas subject to negotiation between the Permittee and the Participant. In particular, the Permittee anticipates that the person and/or entity responsible for purchasing mitigation (the Permittee or the Participant) will vary between Agreements of Inclusion, though the Permittee expects that purchasing mitigation will most frequently be the responsibility of the Participant. In all cases, executed Agreements of Inclusion will identify the extent of direct and indirect habitat modification (as defined in Section 6.3 and 7.3 of this HCP) and the party responsible for purchasing mitigation. The Agreement of Inclusion will also bind Participants to following the minimization measures (Section 7.2) and securing all mitigation prior to implementation of any Covered Activity.

As long as the ITP remains in effect and a Participant complies with its Agreement of Inclusion, that Participant shall have, with respect to the Development Area covered by the Agreement of Inclusion, the

full benefits and authorities of the ITP. This is consistent with the approach USFWS has taken in other HCPs where participants receive incidental take authorization after entering into a participation agreement. In the event that USFWS seeks to suspend, terminate, or revoke the ITP for reasons not the fault of a Participant, the USFWS shall seek to craft a remedy that does not affect that Participant's rights, benefits, and responsibilities under the ITP prior to suspending, terminating, or revoking the ITP. If it is not practicable to craft such a remedy and USFWS suspends, terminates, or revokes the ITP, the USFWS will process for issuance to any such Participant an ITP conferring the same rights, benefits, and responsibilities with respect to the Participant's property as provided under the ITP. Such subsequent ITP will not contain additional requirements or conditions beyond those applicable to the Participant under its Agreement of Inclusion.

Additionally, the USFWS will not consider a breach by a Participant of its obligations under an Agreement of Inclusion to be a violation by the Permittee or any other Participant. In the event a Participant has materially breached its Agreement of Inclusion and, after reasonable notice and opportunity to cure, such Participant fails to cure, remedy, rectify, or adequately mitigate the effects of such breach, then the Permittee may, and shall if so directed by USFWS, terminate that Participant's Agreement of Inclusion.

The Permittee will submit executed copies of all Agreements of Inclusion to the USFWS as part of the reporting requirements identified in Section 7.3.1 and 9.1 of this HCP.

7.3.3 Participation in the Southern Edwards Plateau Habitat Conservation Plan

The USFWS approved the SEP HCP in December 2015, and began accepting participants in the spring of 2017. The Permittee or any individual or entity wishing to conduct Covered Activities within the Plan Area may, at their discretion, choose to participate in the SEP HCP rather than the conservation program prescribed by this HCP. If the Permittee or other individual or entity opts to participate in the SEP HCP for any portion of the Plan Area, mitigation would be provided pursuant to the participation requirements of the SEP HCP. Notwithstanding the foregoing, the Permittee is under no obligation to participate in the SEP HCP.

7.4 Off-Set the Impacts of the Taking

The ESA requires that in order for USFWS to issue an ITP, it must find that "the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking" (USFWS and NMFS 2016). Current USFWS guidance indicates that a Permittee should "strive to fully offset their impacts through implementation of the conservation program" (USFWS and NMFS 2016). While the Permittee does not believe that USFWS guidance is in line with the actual legal requirements established by section 10 of the ESA and, specifically, disagrees that impacts must be "fully offset," the Permittee nevertheless has included an analysis of whether, and to what degree, the conservation program established in this HCP fully offsets the impacts proposed hereunder.

As described in Section 6.4, the Permittee believes that the impact of the taking resulting from the Covered Activities will be relatively minor with respect to the species on a holistic species-wide level. The current scientific understanding of the GCWA life history and available data on the Plan Area support this analysis of the magnitude of the impact of the taking. To mitigate for the taking, the Permittee and any Participants will provide perpetually protected off-site habitat to mitigate for each acre of potential GCWA habitat modified within the Plan Area. Because the Permittee or Participant will secure mitigation through the purchase of USFWS-approved GCWA conservation banks, the USFWS has already vetted and approved this off-site habitat as appropriate mitigation for impacts to GCWA habitat.

Conservation banks approved by the USFWS provide high-quality habitat protected in perpetuity and managed for the benefit of the target species, in this case GCWAs. Conservation banks require funding assurances that the bank sponsor will implement the management and monitoring program approved by the USFWS. By design, conservation banks provide suitable mitigation for impacts to GCWA habitat that occurs elsewhere. The Permittee is proposing a 2:1 mitigation ratio for direct habitat modification within the Plan Area. As a result, the Permittee is providing two acres of high quality, perpetually protected, actively managed, and routinely monitored GCWA habitat for each acre of inconsistently occupied habitat that is modified within the Plan Area.

The proposed mitigation ratios are consistent with the ratios prescribed in the SEP HCP. The Plan Area occurs entirely within Bexar County (the plan area for the SEP HCP) so the same rationale for authorizing these ratios under the SEP HCP apply. Specifically, the SEP HCP anticipates that these mitigation ratios are sufficient to offset impacts to up to 9,371 acres of GCWA habitat loss in Bexar County. Presumably, the development models used in the SEP HCP capture some, if not all, of the estimated direct and indirect habitat modification anticipated from the Covered Activities associated with this HCP.

According to the SEP HCP habitat loss projections, “51,150 acres of potential GCWA habitat in [Bexar County] could be lost to land development activities over the next 30 years” (Bowman Consulting Group, LTD 2015). Despite this projected habitat loss, the SEP HCP concludes that an additional 574,000 acres of potential habitat remains available that could allow the USFWS’s recovery goals for the GCWA to be satisfactorily met (Bowman Consulting Group, LTD 2015). Based on this accepted modeling and analysis from the SEP HCP that indicates that the impact of taking up to 51,150 acres of potential GCWA habitat from within Bexar County will not catastrophically affect the species as a whole, the Permittee believes that providing mitigation at the same ratio as the SEP HCP is appropriate. It is likely that the habitat loss projections utilized in the SEP HCP capture the habitat modification proposed for the Plan Area.

The proposed mitigation ratios exceed those adopted in the majority of approved Central Texas HCPs. According to the HCP Handbook, field offices “should strive to ensure their decisions, recommendations, standards of adequacy, processing, etc. are consistent with implementation of the HCP program and standards used throughout the country” (USFWS and NMFS 2016). Mitigation ratios for GCWAs in previous local HCPs include: the SEP HCP (2:1; Bowman Consulting Group, LTD 2015), the Anderson Tract HCP (1.25:1; SWCA 2014), the Paso Robles HCP (1:1; SWCA 2015), the Hays County Regional HCP (1:1; Loomis et al. 2010), the Comal County Regional HCP (1:1 to 3:1; SWCA et al. 2013), the Williamson County Regional HCP (1:1 to 2:1; SWCA et al. 2008), and the Balcones Canyonlands Conservation Plan (1:1; City of Austin and Travis County 1996).

Consistent with the established mitigation standard for GCWAs and assuming the entire Plan Area is developed and the maximum take authorization exercised, the Permittee will provide perpetual protection of 1,176.73 acres of high quality, managed, perpetually protected GCWA habitat. This represents nearly double the maximum acreage of habitat that might be directly (567.12 acres) and indirectly (84.98 acres) modified by the Covered Activities.

7.5 Adaptive Management

The USFWS considers adaptive management “a tool to address uncertainty in the conservation of a species covered by an HCP” (USFWS and NMFS 2016). The HCP Handbook establishes the USFWS’s intent, where appropriate, to include adaptive management principles in the operating conservation program for an HCP to address uncertainty regarding natural resource management. For this conservation program, adaptive management will be largely the responsibility of the USFWS-approved third-party conservation bank providing GCWA conservation credits to the Permittee and/or Participants.

Exceptions to conservation bank-responsible adaptive management are difficult to predict, but might include shifting the GCWA Breeding Season if GCWAs arrive or depart earlier or later than the currently anticipated GCWA Breeding Season because of climate variation. Another example would be responding to advancements in the scientific understanding of oak wilt and methods to control and treat for the disease. The Permittee and the USFWS must mutually agree in writing to any adaptive management decision prior to its implementation.

8.0 FUNDING PLAN

The Permittee must provide assurances to the USFWS that adequate funding is available to implement the HCP as one of the criterion for ITP issuance. Since the Permittee commits to purchasing GCWA conservation credits prior to conducting Covered Activities within the Plan Area, the Permittee necessarily demonstrates that the funding will be available to implement the conservation program in advance of any authorized taking. If for some reason funding is not available to implement the conservation program, the taking will not occur. The Permittee anticipates that the total cost to purchase 1,176.73 conservation credits will be between \$5,295,285 and \$5,883,650, based on a current quoted market price of between \$4,500 and \$5,000 per conservation credit.³ The Permittee acknowledges that this amount may fluctuate due to inflation over the ITP Term since the Permittee and any Participants will purchase mitigation as needed over time rather than all at once.

Whenever the Permittee or Participant provide mitigation, funds to mitigate will originate directly from income generated on current or anticipated land transactions. As a result, undeveloped land generates less income for the Permittee and any Participants, therefore limiting the available financial resources to fund associated mitigation. It would not be feasible for the Permittee or Participant to pay for mitigation to portions of the Plan Area that extend beyond the area of direct and indirect habitat modification as described herein. For this reason, the Permittee is proposing an approach in this HCP allowing the Permittee or Participant to define the boundaries of Development Areas and any associated direct and indirect habitat modification prior to requiring the payment of mitigation fees to correlate the cost of mitigation to the habitat modification. In all cases, the Permittee or Participant will purchase all necessary mitigation prior to implementing the Covered Activities, ensuring implementation of the conservation program.

9.0 REPORTING AND PLAN ADMINISTRATION

9.1 Annual Reporting

The Permittee will submit a memorandum to the USFWS by January 15 of each calendar year that provides a summary of the total number of Development Areas encumbered under the HCP and the total acres of incidental take authorization used as of the date of the memorandum. Once development of the Plan Area is complete, whether or not the Permittee utilizes all incidental take authorization granted under the ITP,

³ Personal communication with Jesse McClean, Bandera Corridor Conservation Bank, October 3, 2016, and formal quote received from Kari Anne Sutton on behalf of the Festina Lente Conservation Bank

the Permittee will submit a final memorandum documenting such to the USFWS and subsequent reporting will not be required.

9.2 Permit Renewal

This HCP is eligible for renewal pursuant to federal regulation and the HCP Handbook (USFWS and NMFS 2016). If the Permittee files such a request at least 30 days prior to the permit expiration date, the permit will remain valid while the request is being processed (50 CFR 13.22). If the Permittee fails to file a request at least 30 days prior to permit expiration, the permit will become invalid on the original expiration date. The USFWS will honor the No Surprises assurances provided through the ITP to the extent the assurances comply with the statutory and regulatory requirements in place at the time of the renewal request.

9.3 Permit Amendments

The Permittee may request clarifications or administrative amendments from the USFWS to address “small errors, omissions, or language that may be too general or too specific for practical application” found in the HCP or ITP (USFWS and NMFS 2016). The Permittee will submit requested clarifications to the USFWS in writing for review and concurrence. Clarifications do not open the HCP to additional review under NEPA. The USFWS and the Permittee will retain all clarifications that affect future implementation of the HCP as part of the administrative record.

The Permittee and/or the USFWS may initiate an amendment to the HCP at any time. Amendments require mutual, written consent and approval by both the USFWS and the Permittee. Amendments may occur via an “exchange of formal correspondence, addenda to the HCP, revisions to the HCP, or permit amendments” (USFWS and NMFS 2016).

In general, the Permittee and USFWS will address minor changes to the conservation measures via formal correspondence or addenda to the HCP and such changes will not re-open the HCP to the NEPA or ESA section 7 processes. If the proposed changes increase the incidental take authorization, or modify the Covered Activities “in ways not analyzed in the original NEPA or Section 7 documents,” a permit amendment is required (USFWS and NMFS 2016). In instances where the proposed amendment does not result in increased levels of incidental take or expand the effects assessed during the initial NEPA process, proposed amendments will not likely trigger additional NEPA analysis and review (USFWS and NMFS 2016). While the USFWS ultimately retains discretion over the level of review needed to incorporate the amendment, the Permittee anticipates the USFWS will require publication in the *Federal Register* when the proposed changes include (USFWS and NMFS 2016):

- addition of new species, either listed or unlisted;
- increased level or different form of take for the covered species;
- changes to funding that affect the ability of the permittee to implement the HCP;
- changes to covered activities not previously addressed;
- changes to covered lands; and
- significant changes to the conservation strategy, including changes to mitigation measures.

To amend the HCP or ITP, the initiating party must identify: (1) the original text as it appears in the HCP or ITP; (2) the proposed new text; (3) the reasoning and justification for the proposed change; and (4) the intended effect of the proposed change. If the USFWS initiates the proposed amendment, the Permittee

must provide written approval of the amendment before it becomes effective. If the Permittee initiates a proposed amendment, the USFWS will review the proposed amendment and if it concurs, will provide written confirmation to the Permittee. If additional NEPA analysis is not required, the amendment will automatically become effective on the date the USFWS provides confirmation, unless the Permittee and the USFWS mutually agree to an alternative effective date. If additional NEPA analysis is required, the Permittee will coordinate with the USFWS to satisfy these requirements.

10.0 NO SURPRISES POLICY AND ASSURANCES

10.1 Changed Circumstances

Under the No Surprises Rule (Federal Register 63:8859, codified at 50 CFR 17.22, 17.32, 222.2), the USFWS assures incidental take permittees that, as long as an approved HCP is being properly implemented, no additional land use restrictions or financial compensation will be required of the permittee with respect to the covered species (in this case, the GCWA). These assurances remain in effect even if unforeseen circumstances arise after the USFWS issues the ITP that indicate the necessity of additional mitigation. To the extent that changed circumstances are included in the HCP, the permittee must implement the appropriate measures in response to the changed circumstances if they occur. The No Surprises Rule defines “changed circumstances” as “circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the USFWS and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events).”

The Permittee and the USFWS agree that a changed circumstance will have occurred if, at the time the Permittee or a Participant wishes to begin implementation of the Covered Activities, GCWA conservation credits from a USFWS-approved conservation bank with a service area covering the Plan Area are not available for purchase. The Permittee or Participant will notify the USFWS in writing and request authorization to purchase conservation credits from another conservation bank, if available, even if that bank does not include the Plan Area within its service area. The USFWS will not unreasonably withhold approval nor require additional mitigation if the only available conservation bank does not include the Plan Area in its service area.

If there are no conservation banks with available GCWA credits, the Permittee or Participant will notify the USFWS in writing that no mitigation credits are available for purchase and will work with the USFWS to identify an appropriate mitigation alternative. The USFWS will consider alternate forms of mitigation and, if consistent with the scope and intent of the original mitigation proposal, the USFWS will not unreasonably withhold approval for an alternate form of mitigation.

The Permittee also acknowledges the circumstance where after ITP issuance, but before wooded vegetation clearing and/or modification, wildfire, drought, or flood could destroy GCWA habitat within the Plan Area. In this circumstance and with Service coordination and approval, the Permittee will only mitigate for portions of the Plan Area that continue to meet the Campbell (2003) definition of potential habitat. If the Permittee already purchased GCWA conservation credits as described in the conservation program, the Permittee may seek to return the purchased but unused conservation credits to the third-party conservation bank, reserve the unused conservation credits for another use, or may sell or otherwise transfer the unused conservation credits to another party for use as GCWA mitigation, pursuant to the terms of the agreement with the mitigation banker.

In the event the USFWS delists the GCWA, the Permittee shall have the discretion to withdraw from this HCP and the associated ITP any portion of the Plan Area for which the Permittee or a Participant has not already provided mitigation. The Permittee will provide notice to the USFWS in writing of any such withdrawal.

If additional conservation or mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in this HCP, so long as the Permittee is in compliance with the provisions of the HCP, the USFWS will not require any conservation or mitigation measures in addition to those provided for in this HCP without the written consent of the Permittee.

10.2 Unforeseen Circumstances

“Unforeseen circumstances” are changes in circumstances affecting a species or geographic area covered by an HCP that plan developers and the USFWS could not have reasonably anticipated at the time of the conservation plan’s negotiation and development, and that result in a substantial and adverse change in the status of any covered species. The USFWS will have the burden of demonstrating that unforeseen circumstances exist and must base the determination on the best scientific and commercial data available. The USFWS shall notify the Permittee in writing of any unforeseen circumstances the USFWS believes to exist.

The No Surprises Rule states that the USFWS may require additional conservation measures of an incidental take permittee as a result of unforeseen circumstances “only if such measures are limited to modifications within conserved habitat areas, if any, or to the conservation plan’s operating conservation program for the affected species, and maintain the original terms of the conservation plan to the maximum extent possible.” The USFWS shall not require the commitment of additional land, water, or financial resources by the permittee without the consent of the permittee, or impose additional restrictions on the use of land, water, or other natural resource otherwise available for use by the permittee under the original terms of the ITP. No Surprises assurances apply only to the species adequately covered by the HCP (i.e., the GCWA), and only to those permittees who are in full compliance with the terms of their plan, permit, and other supporting documents, as applicable.

11.0 ALTERNATIVES CONSIDERED

Section 10(a)(2)(A) of the ESA requires that HCPs include a description of the “alternative actions to such taking the Permittee considered and the reasons why such alternatives are not being utilized.”

11.1 No Take Alternative

Under a no take alternative, the Permittee would not seek an ITP under section 10(a) of the ESA. The Permittee would not remove or degrade habitat in a manner that would result in an incidental taking of the GCWA. For the purposes of this analysis, the no take alternative assumes equivalency to a “no build” alternative, meaning the Permittee would neither develop the Plan Area nor directly alter habitats used by the GCWA. The Permittee has not chosen this alternative because it does not fit the economic plan of the Permittee.

11.2 Reduced Take Alternative

Under a reduced take alternative, the Permittee would seek an ITP under section 10(a) of the ESA, but would request less incidental take authorization. The Permittee would limit development within the Plan Area to reduce the total extent of direct and indirect habitat modification expected to result from the Covered Activities. The Permittee determined that this alternative is too restrictive to support the long-term development goals for the Plan Area.

11.3 Exclusive Participation in the Southern Edwards Plateau HCP

As described in Section 7.3.3, the Permittee will consider participation in the SEP HCP when evaluating Development Areas. The Permittee acknowledges that participation in the SEP HCP presents a viable alternative to acquiring its own HCP, but notes that participation in the SEP HCP is voluntary. The Permittee wishes to retain operational control over implementation of their own HCP and compliance with the associated ITP. Though the Permittee expects that the terms and conditions of this HCP will be largely consistent with the participation obligations set forth in the SEP HCP, the Permittee will not be subject to application and administrative fees imposed by the SEP HCP. Further, the Permittees desire the ability to receive mitigation credit for indirect habitat modification when calculating mitigation costs for direct habitat modification which is not possible under the SEP HCP if the Permittee wishes to mitigate for impacts to isolated portions of the Plan Area separately. The Permittee acknowledges that in some cases participation in the SEP HCP may be preferred and nothing in this HCP precludes that possibility. Notwithstanding the foregoing, Permittee is under no obligation to participate in the SEP HCP.

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