

**FINAL  
ENVIRONMENTAL ASSESSMENT  
FOR THE PASO ROBLES PHASE II  
HABITAT CONSERVATION PLAN AND  
INCIDENTAL TAKE PERMIT APPLICATION**

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## EXECUTIVE SUMMARY

Carma Paso Robles, LLC (Applicant) is seeking authorization from the U.S. Fish and Wildlife Service (Service) under Section 10(a) of the federal Endangered Species Act of 1973, as amended, for incidental taking of the endangered golden-cheeked warbler (GCWA, *Setophaga [=Dendroica] chrysoparia*). The Applicant prepared a habitat conservation plan (HCP) in support of the application for an ESA Section 10(a) incidental take permit (ITP).

The proposed taking would be incidental to the otherwise lawful development and ongoing use of approximately 376 acres of land known as Phase II of the proposed Paso Robles Planned Development (subject property). The subject property is located on the south end of the City of San Marcos, west of Interstate Highway 35 (I-35) and south of McCarty Lane in southern Hays County, Texas. The Applicant requests the ITP for incidental taking of GCWAs associated with the removal or degradation of approximately 114.4 acres of occupied GCWA habitat within the subject property. The loss or degradation of this habitat is expected to harm GCWAs associated with up to two territories located within or partially within the boundary of the subject property. The Applicant also requests the approval of the HCP that describes measures the Applicant would take to minimize and mitigate to the maximum extent practicable the impacts of the proposed taking.

Issuance of the requested ITP and Service approval of the related HCP, the Proposed Action, is a federal action subject to analysis under the National Environmental Policy Act. This Environmental Assessment analyzes the impacts of the Proposed Action and the no alternative action on the human and natural environment.

The Proposed Action is the preferred alternative for this project because it provides conservation benefits to the GCWA in accordance with the issuance criteria for an ITP and is practical for the Applicant to implement with respect to the economic circumstances of the project. The Proposed Action would not result in a significant adverse impact to the human environment.

## 1. PURPOSE AND NEED

The U.S Fish and Wildlife Service (Service) is responding to Carma Paso Robles, LLC.'s (Applicant) request for incidental take authorization pursuant to section 10(a)(1)(B) of the federal Endangered Species Act of 1973, as amended (ESA) for the proposed development in the endangered golden-cheeked warbler (*Setophaga[=Dendroica]chrysoparia*, GCWA)<sup>1</sup> habitat. Without incidental take authorization, the proposed development could result in violation of the ESA. The Service's proposed action is the issuance of an incidental take permit (ITP) that provides a mechanism for the Applicant's compliance with the ESA and other Federal laws and regulations. The ITP, if issued, would authorize incidental take that may result from the otherwise lawful covered activities as described in Section 1 of the habitat conservation plan (HCP). The HCP describes the measures the Applicant intends to take to minimize and mitigate for the impacts of the proposed taking of GCWA to the maximum extent practicable, along with proposed water quality protection measures to avoid potential impacts to the Edwards Aquifer System and the protected aquatic species it supports off-site. The requested ITP, is for incidental take of GCWA on 114.4 acres within the 376 acre Paso Robles Phase II tract in Hays County, Texas.

Issuance of an ITP is a federal action subject to the requirements of the National Environmental Policy Act (NEPA) (42 USC 4321–4327). NEPA requires federal agencies to: 1) study proposed federal actions to determine if they will result in significant environmental impacts to the human environment, and 2) review the alternatives available for the project and consider the impact of those alternatives on the environment (42 USC 4332(c)). NEPA regulations at 40 Code of Federal Regulations (CFR) 1502.14 require that all reasonable alternatives be rigorously explored and objectively evaluated. CEQ defined "Reasonable Alternatives" as alternatives that are technically and economically practical or feasible and that meet the purpose and need of the proposed action (46 FR 18026(2)(a) ). The scope of NEPA requires that the agency consider the impacts of the action on the "human environment," including a variety of resources such as water, air quality, and cultural and historic resources.

## 2. PROPOSED ACTION

The Service proposes to issue an ITP to the Applicant to clear approximately 114.4 acres of GCWA habitat within the 376 acre Paso Robles Phase II tract in Hays County, Texas. The proposed taking would be incidental to the otherwise lawful development and ongoing use of approximately 376 acres of land known as Phase II (subject property) of the proposed Paso Robles Development. The subject property is located on the south end of the City of San Marcos, west of Interstate Highway 35 (I-35) and south of McCarty Lane in southern Hays County, Texas (Figure 1).

The 376-acre subject property is located adjacent to Phase I (969 acres) of the proposed 1,345-acre mixed use residential development known as the Paso Robles Development. Figure 2 shows the location of the subject property in relation to the Paso Robles Development conceptual land use plan.

The City of San Marcos approved the Paso Robles Development as a planned development district under Ordinance No. 2010-59 (as amended). The Paso Robles Development is subject to a land use plan and development standards that are legally binding regulations specified by the ordinance. The Applicant would also conduct its activities in accordance with all other applicable local, state, and federal laws and regulations. The development's conceptual land use plan features a range of low to medium-density housing, a golf course and other open spaces, neighborhood businesses, commercial uses, and associated

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

infrastructure (Figure 2). Low impact development practices, including providing open spaces and establishing buffers around on-site water features, are a significant focus of the Paso Robles Development. Open spaces are defined as land uses that are not associated with substantial amounts of impervious cover or buildings including the golf course, parks, green belts, water quality buffers, and other substantially undeveloped areas within the proposed development (Figure 2).

Development of the subject property would result in the loss or degradation of approximately 376 acres of juniper-oak woodland, 114.4 acres of which was surveyed and determined to be suitable habitat for the GCWA. Of this area, approximately 36.5 acres were identified by Horizon Environmental Services (Horizon) as occupied GCWA habitat (Horizon 2007b-2010) using U.S. Fish and Wildlife Service (Service) protocols (USFWS 2010). In consultation with the Service, the Applicant estimated the amount of habitat actually used by the GCWA based on breeding season survey data provided by Horizon from 2007, 2008, 2009, and 2010 and the maximum GCWA territory size of 57.2 acres reported in the literature (see Groce et al. 2010). Assuming the subject property can support a maximum of two GCWA territories (the highest number of GCWAs reported from the property by Horizon), the Applicant calculated the area of assumed occupied GCWA habitat within the subject property as  $57.2 \text{ acres} \times 2 \text{ GCWAs} = 114.4 \text{ acres}$  of assumed occupied habitat. The loss or degradation of this assumed occupied habitat may incidentally take GCWAs via harm, as defined by the Service regulation at 50 Code of Federal Regulations (CFR) 17.3. This habitat is associated with up to two GCWA territories that are located within or partially within the boundary of the subject property.

The Applicant 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 HCP describes measures the Applicant would take to minimize and mitigate to the maximum extent practicable the impacts of the proposed taking. The proposed conservation measures include observing seasonal clearing restrictions during the GCWA breeding season (March 1 through July 31), implementing oak wilt prevention measures during clearing activities, and purchasing 114.4 acres of GCWA conservation credits as mitigation for the impacts of the requested taking. The 1:1 ratio of conservation credits to occupied breeding habitat, in addition to other minimization measures, is similar to the Hays County Regional HCP which requires mitigation of 1:1 conservation to impacts for direct impacts. The difference is that this property has four years of survey data, which exceeds typical projects in the area. The survey data showed that up to two males occupied the property and although no females or juveniles were seen, data suggest the habitat may have been occupied, but limited to, two breeding territories. The applicant is proposing to mitigate for the loss of two territories at a 1:1 ratio.

Although habitat for listed aquatic species is not present within the subject property, the Applicant is conscious of possible ground and surface water impacts as a result of activities occurring at the subject property and therefore will be employing water quality protection measures to avoid and minimize any potential water quality impacts that may affect the Edwards Aquifer and the listed aquatic species it supports off-site. Therefore the Applicant will voluntarily provide stream and recharge feature buffers, impervious cover limits, and environmentally sensitive golf course management practices to avoid water quality impacts that might threaten protected aquatic species located downstream of the subject property.

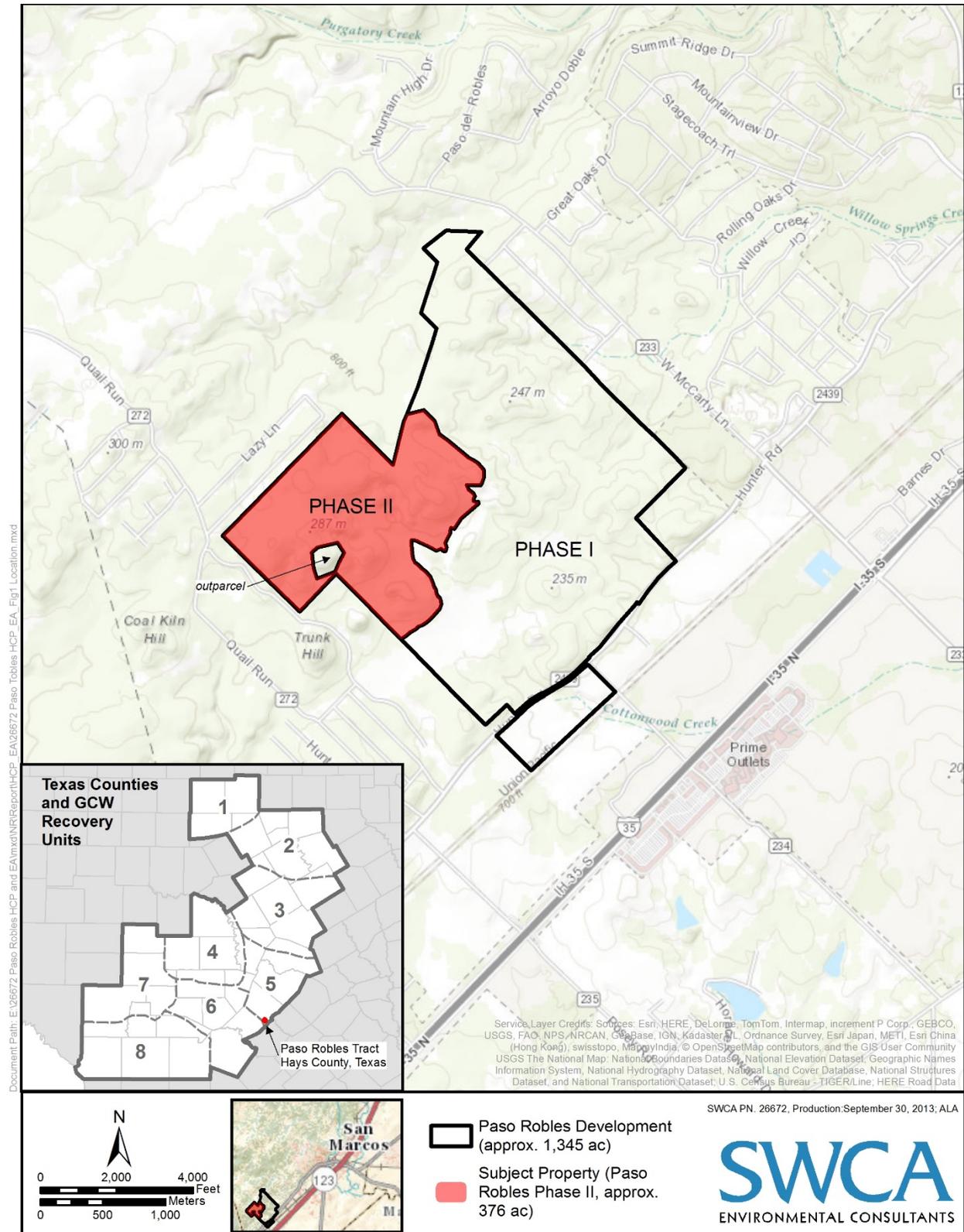


Figure 1. Location of the Subject Property



Figure 2. Conceptual Land Use Plan for the 1,345-acre Paso Robles Development

### **3. ALTERNATIVES CONSIDERED**

In addition to the Proposed Action described in Section 2, the Service considered the following alternatives.

#### **3.1. No Action Alternative**

Under a No Action alternative, the Applicant would not have developed an HCP or requested an ITP and the Service would not issue an ITP. Therefore, the Applicant would not develop of the subject property and would not implement the conservation measures described in the HCP. The Service would not be involved in the Applicant's proposed plans for the subject property under a No Action alternative.

For the purposes of this assessment, we use the applicant's No Action or "no build" alternative, meaning that the subject property would not be developed and habitats used by the GCWA would not be directly impacted by the Applicant's activities. The Service analyzed and described the likely maximum range of environmental impacts and benefits in this environmental assessment.

#### **3.2. Alternative Considered and Eliminated from Further Analysis**

The Applicant initially considered an alternative that would modify the proposed development plan for the subject property to reduce the area directly subject to development activities and preserve the remaining woodland on-site for the benefit of the species. Under a *reduced take* alternative, the Service would issue an ITP for take of the GCWA associated with Covered Activities conducted within a reduced development footprint. Development activities within the subject property would be modified to avoid the westernmost 250 acres of the subject property that include the occasionally occupied GCWA habitat delineated by Horizon (based on 2007 auditory flyover of one male). This remaining 250-acre parcel would meet the prime habitat patch size for GCWA indicated by Ladd and Gass (1999) and would be left undeveloped. This alternative would allow for the development of the remainder of the subject property and the Applicant would likely be able to mitigate for a reduced level of incidental take, largely limited to potential indirect habitat or disturbance impacts, with this on-site conservation land.

Elimination of this portion of the development, which has the most commanding views of the surrounding area, would be, according to the applicant, a significant economic hardship to the applicant. The conservation of these 250 on-site acres of only sparsely occupied GCWA habitat is also not likely to significantly contribute to the long-term status of the species because of the currently marginal quality of the habitat (based on habitat assessments conducted by the applicant and ground-truthed by Service biologists) and ongoing development in the surrounding area. Consequently this conservation land would likely become further isolated, less suitable, and less likely to be used by the GCWA over time.

Therefore, this alternative was not deemed to be practicable by the applicant and was not carried over for further analysis by the Service

### **4. AFFECTED ENVIRONMENT**

#### **4.1. Resources Considered for Detailed Analysis**

The following resources of the natural and human environment may be affected by the proposed incidental taking or conservation measures.

## 4.1.1. Water Resources

### 4.1.1.1. SURFACE WATERS

The subject property is located within the San Marcos watershed of the Guadalupe River Basin. General surface drainage is to the southeast, with topography ranging from 922 feet above mean sea level (msl) in the western portion and sloping to 760 feet above msl in the eastern portion. The subject property lies outside of any flood zones mapped by the Federal Emergency Management Agency (FEMA) (FEMA 2013).

Based on review of the United States Geological Survey (USGS) National Hydrography Dataset (NHD), National Wetlands Inventory (NWI), and current and past aerial imagery, two waterways and four waterbodies are present within the subject property (Figure 3). The two waterways include the uppermost reach of Cottonwood Creek and its tributary (Table 1). Downstream and off-site of the subject property, Cottonwood Creek joins York Creek, a tributary to the San Marcos River. NHD classifies both waterways as intermittent. Intermittent waterways typically do not have flowing water during dry periods and based on the review of the aerial imagery and USGS 7.5-minute topographic quadrangle, these features would only be expected to carry water during or immediately after significant rain events. These NHD-mapped waterways potentially meet the definition of waters of the U.S. under the federal Clean Water Act. A complete jurisdictional determination would be able to identify any other potentially jurisdictional waters not otherwise mapped by NHD within the subject property.

**Table 1.** NHD-Mapped Surface Waters within the Subject Property

Water ID	Description	Length (feet) or Area (acres) within Subject Property
<b>Waterways</b>		
Cottonwood Creek	Intermittent Waterway	3,343.4 feet
Tributary to Cottonwood Creek	Intermittent Waterway	2,194.6 feet
<b>Waterbodies</b>		
Waterbody 1	Perennial Lake/Pond	0.57 acre
Waterbody 2	Perennial Lake/Pond	0.13 acre
Waterbody 3	Perennial Lake/Pond	0.10 acre
Waterbody 4	Perennial Lake/Pond	0.11 acre

The NHD categorizes the four waterbodies identified in Table 1 as perennial lakes/ponds. NWI classifies these waterbodies further, describing them as seasonally or temporarily flooded and diked or impounded. As indicated by topography, there appears to be several additional waterways not mapped by NHD that may have the potential to be jurisdictional. The waterbodies located within the subject property have the potential to be connected to these waterways and therefore, also have the potential to be jurisdictional.

A review of NWI data also revealed no wetlands aside from the four waterbodies identified in Table 1.

#### **4.1.1.2. GROUND WATER**

The subject property is underlain by the San Antonio segment of the Edwards Aquifer; portions of the contributing and transition zones occur within the property (Figure 3). Surface runoff from the contributing zone could make its way into rivers and streams that flow over the Edwards Aquifer recharge zone. Within the transition zone of the Edwards Aquifer, surface drainage may encounter recharge features to the aquifer or contribute surface runoff to the recharge zone off-site. The Balcones Fault Zone occurs in the vicinity of the subject property, and mapped faults occur within the boundaries of the site (Blome et al. 2007) (Figure 3).

#### **4.1.2. Prime Soils and Unique Agricultural Lands**

The subject property includes the following soil map units: Comfort-Rock outcrop complex, 1 to 8 percent slopes (CrD), Krum clay, 1 to 3 percent slopes (KrB), Medlin-Eckrant association, 8 to 30 percent slopes (MED), Purves clay, 1 to 5 percent slopes (PuC) and Rumble-Comfort association, 1 to 8 percent slopes (RUD). CrD soils are a very shallow, stony clay soil over indurated limestone. KrB is a deep, fertile soil found on uplands with 0-5 percent slopes. MED is a deep to very deep heavy clay found on uplands with a greater than 5 percent slope. PuC is very shallow to shallow clay found on uplands that are less than 20 inches thick. RUD is a shallow to moderately deep soil on plane or slightly convex slopes (Batte 1984).

The Department of Agriculture defines prime and unique agricultural land as cropland, pastureland, rangeland, forest land or other land, but not urban built-up land, which is capable of being used as prime and unique farmland. All soils of the KrB map unit within Hays County are considered to be prime and unique agricultural soils. Approximately 15 acres of this type of soil are present within the subject property (Batte 1984) along the two on-site intermittent waterways in the southeastern corner of the subject property. However, this area is not cultivated and is covered by a mix of juniper and oak woodland. In addition, this area is surrounded by increasing residential development.

#### **4.1.3. Vegetation Communities**

The subject property is located within the Level III Edwards Plateau ecoregion and the Level IV Semiarid Edwards Plateau ecoregion, which supports primarily intermittent streams and arid-land trees, shrubs, and short grasses and is slightly drier than the rest of the Edwards Plateau. Vegetation on the subject property consists primarily of mixed juniper-oak woodlands with smaller sections of broadleaf evergreen woodlands, grassland, and evergreen shrublands (Texas Parks and Wildlife Department [TPWD] and Texas Natural Resources Information System [TNRIS] 2010) (Figure 4). Species associated with the woodlands and shrublands may include Ashe juniper (*Juniperus ashei*), plateau live oak (*Quercus fusiformis*), Texas oak (*Q. buckleyi*), cedar elm (*Ulmus crassifolia*), sugar hackberry (*Celtis laevigata*), post oak (*Q. stellata*), and eastern red cedar (*J. virginiana*). Species associated with the grassland may include little bluestem (*Schizachyrium scoparium*), Texas wintergrass (*Nassella leucotricha*), King Ranch bluestem (*Bothriochloa ischaemum* var. *songarica*), and Bermuda grass (*Cynodon dactylon*).

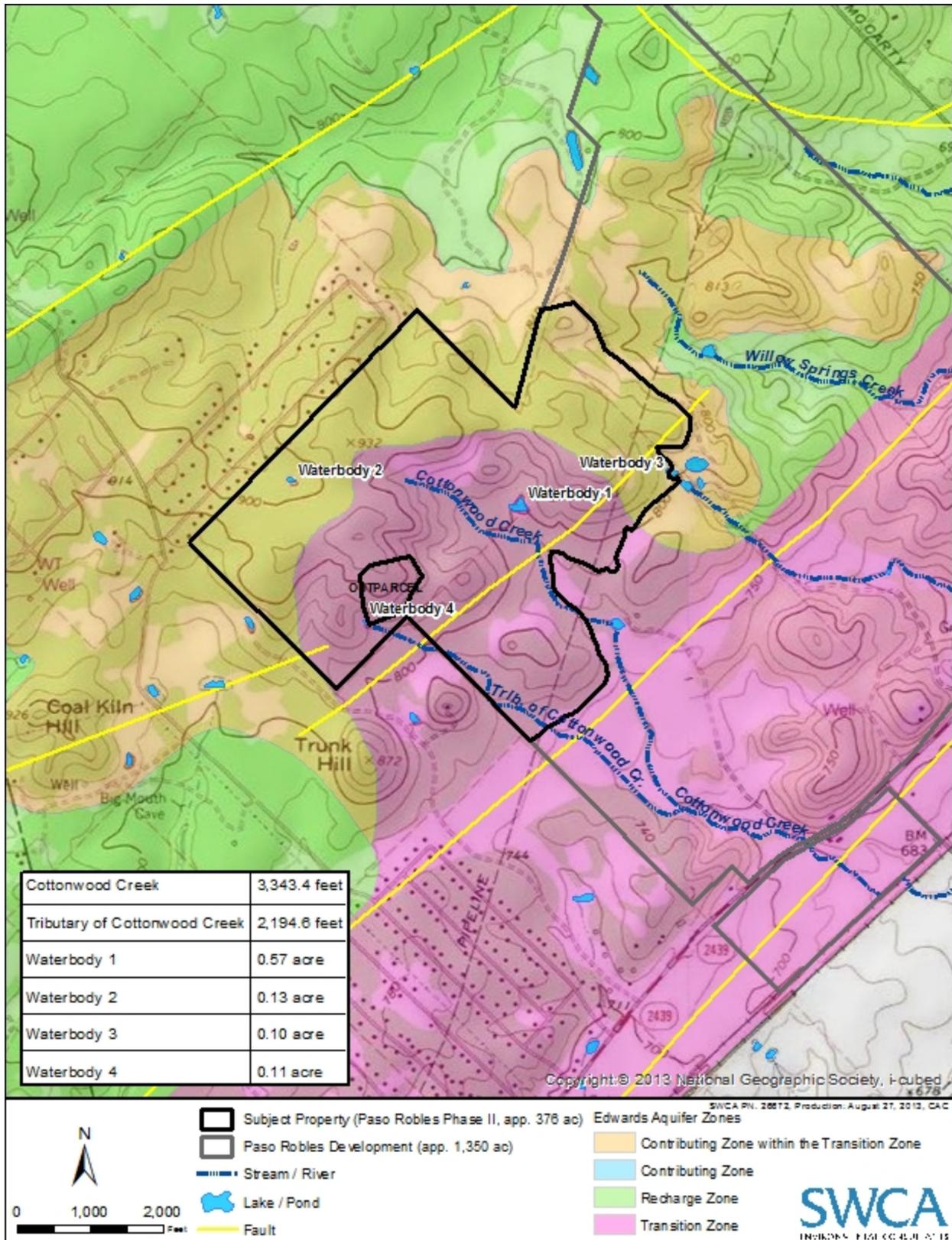


Figure 3. NHD-Identified Water Resources within the Subject Property

#### **4.1.4.HCP Covered Species**

The GCWA was emergency listed as endangered on May 4, 1990 (55 Federal Register [FR] 18844), and the final rule was published on December 27, 1990 (55 FR 53160). The biology, habitat requirements, and status of the GCWA are described in Groce et al. 2010. A discussion of the ecology and status of the GCWA population in Hays County, Texas, particularly in GCWA Recovery Region 5, is summarized in the *Hays County Regional Habitat Conservation Plan* (Loomis Partners et al. 2010).

Surveys of the subject property for the presence or absence of the GCWA were conducted in four consecutive years, from 2007 to 2010 (Horizon 2007b; 2008; 2009; 2010). The subject property appears to exhibit potential habitat characteristics for the GCWA based on aerial imagery and habitat models (Figure 5). These habitat characteristics are consistent with the description in Campbell (2003) of habitat types where GCWAs are expected to occur.

The breeding season surveys performed by Horizon per Service protocols (USFWS 2010) reported the following results, which are also depicted on Figure 5:

Horizon (2007b): “Survey results indicate that no GCWs were observed to be utilizing the subject site or immediately surrounding areas during the 21 surveys conducted by Horizon. On April 3rd 2007 one of our surveyors heard a male GCW but determined it was just flying by (transient). Efforts to confirm our negative survey results included the play back of prerecorded GCW vocalizations in all areas during the final (10, 11, 15, and 16 May 2007) surveying efforts.”

While surveyors recorded one auditory observation of a GCWA call from the subject property, the survey results suggest that this individual did not spend time on the property and indicate that no GCWAs established a breeding territory on the subject property during 2007.

Horizon (2008): “Survey results indicate that there was one GCW male (see picture 1 and 2) utilizing about five acres in section D from April 8th to April 17th (see table 2). The male GCW was observed forging [sic], vocalizing, and flying its territory (Figure 2). Other than the one male there were no other GCWs observed to be utilizing any other areas of the subject site or immediately surrounding areas during the 28 surveys conducted by Horizon. Efforts to confirm our negative survey results included the play back of prerecorded GCW vocalizations in all areas during the final (6, 7, 9, and 12 May 2008) surveying efforts.”

The 2008 survey report documents seven recorded locations of one GCWA male within the subject property during the 2008 breeding season. The observations were limited to an approximately 5-acre area. These seven locations were recorded on only two of the eight survey visits to the subject property.

Horizon (2009): “Survey results indicate that there were no GCWs observed to be utilizing any areas of the subject site or immediately surrounding areas during the 15 surveys conducted by Horizon. Efforts to confirm our negative survey results included the play back of prerecorded GCW vocalizations in all areas during the final (27 and 29 April; and 1 May 2009) surveying efforts.”

No observations of GCWAs were recorded on any part of the subject property in 2009. Since GCWAs tend to utilize the same or similar territories year after year, the results of the 2009 survey provide support for the lack of actual breeding activity on the subject property by the male observed the prior year. The lack of recorded occupancy in 2009 could also indicate that the 2008 male was in reality a transient bird that did not fully establish an actual territory that year.

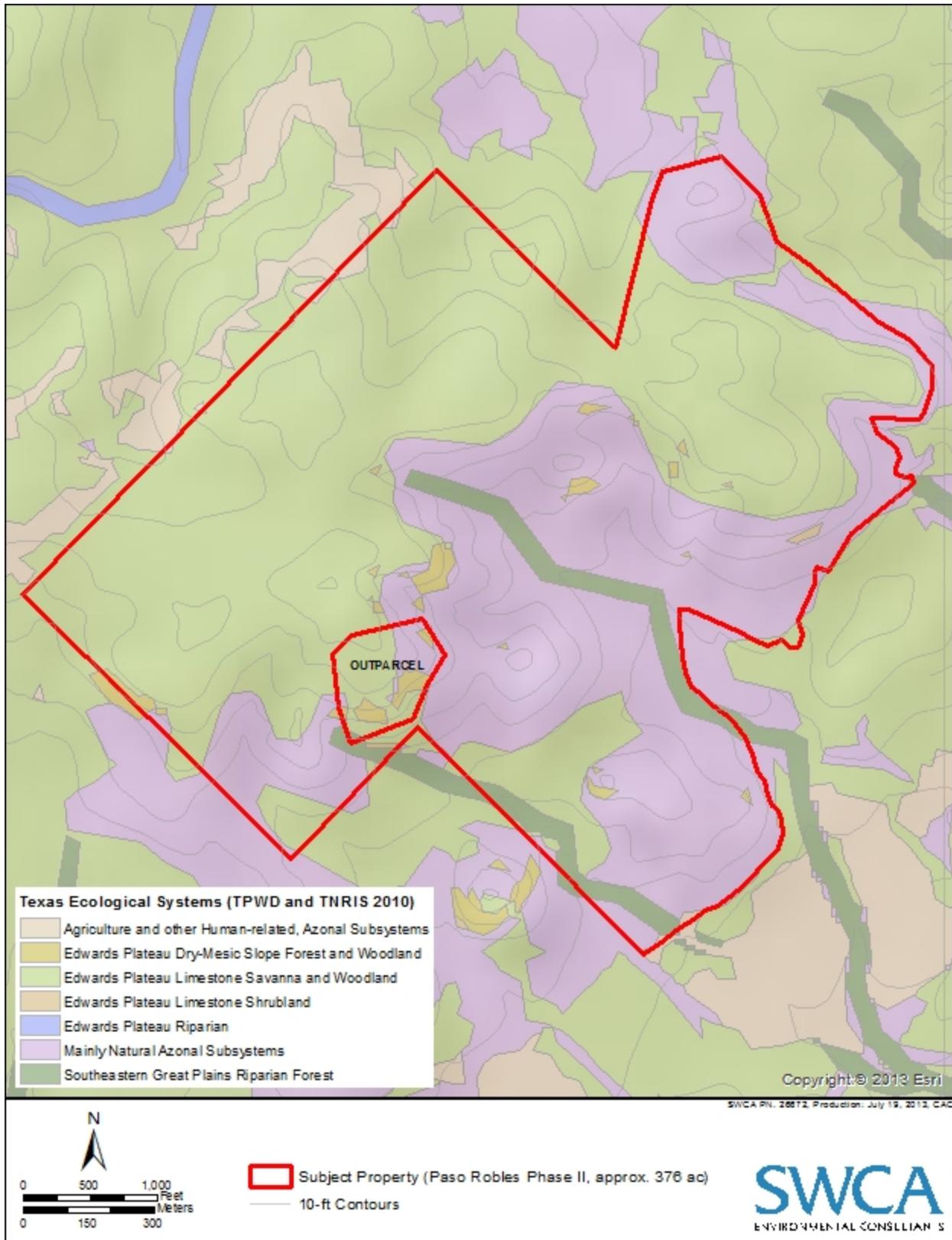
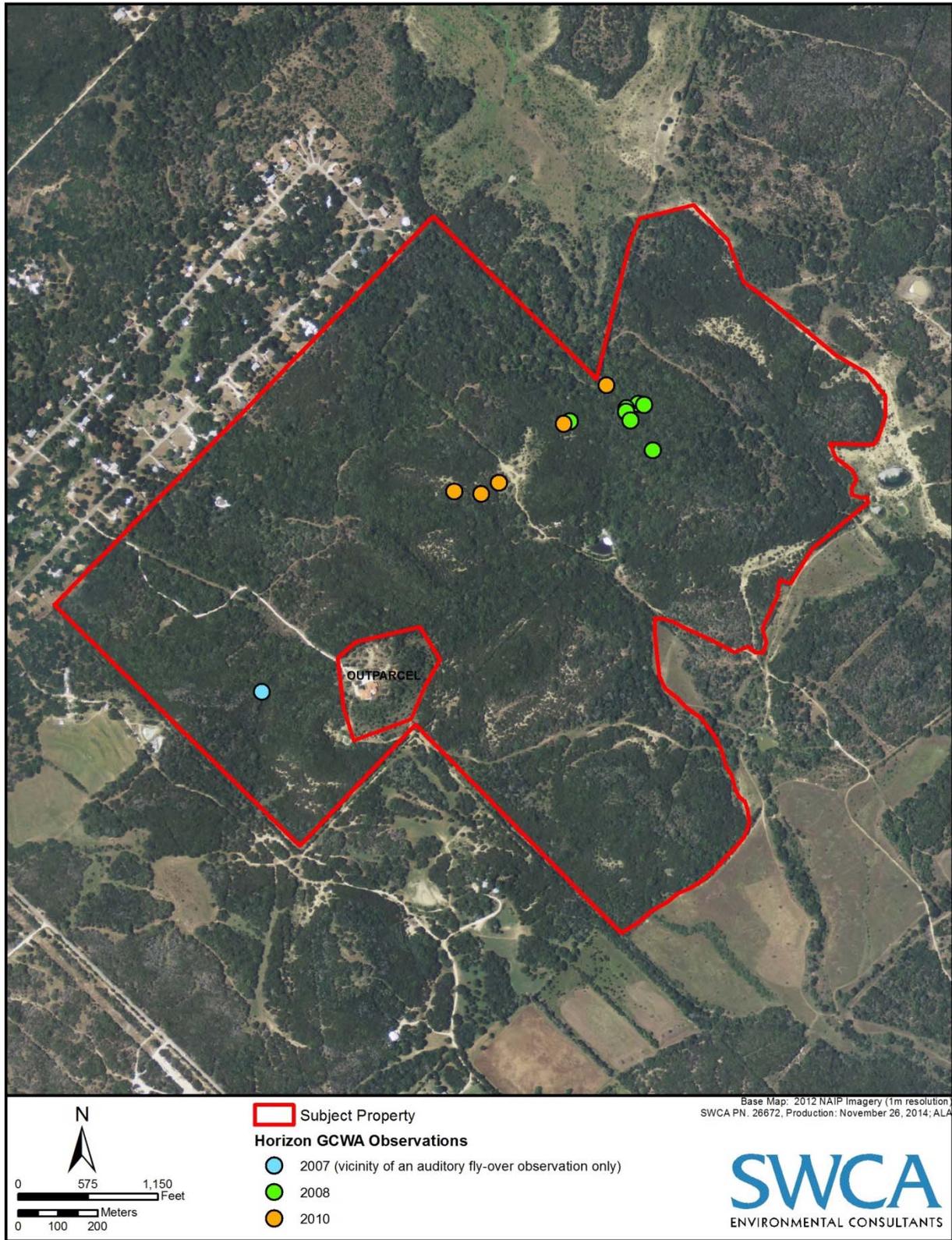


Figure 4. Vegetation Communities in the Vicinity of the Subject Property



**Figure 5.** GCWA Observations within the Subject Property Using USFWS (2010) Presence/Absence Survey Protocols

Horizon (2010): “Survey results indicate that there were 2 GCW males (see picture 1 and 2) utilizing about five acres each in section D and C from April 16th to May 7th (Table 2). The male GCW’s were observed forging [sic], vocalizing, and flying about the restricted areas (Figure 2). Behavior exhibited by these two males was consistent with territorial defense. However, other than these two males, there were no other GCWs observed to be utilizing any portions of the subject site or immediately surrounding areas during the 24 surveys conducted by Horizon. No females or fledglings were observed. Efforts to confirm other GCW utilization of the property included the play back of prerecorded GCW vocalizations in all areas during the final (20 April, 3, 5 and 7 May 2010) surveying efforts. No responses to these recorded vocalizations were observed. It is our opinion that these two birds were unpaired, possibly 1st year males.”

Horizon reported the presence of two separate male GCWAs on the subject property during the 2010 breeding season, documenting observations of one or two GCWAs on nine of the 24 visits to the property. As noted by Horizon, these two GCWAs appeared to vocally defend territories, but neither was observed in the presence of female or juveniles that would suggest successful pairing or reproduction.

Horizon concludes the 2010 survey report with the following assessment:

“The lack of documented nesting activity on the site following four years of consecutive survey efforts continues to document the overall poor habitat quality of the subject site despite the presence of suitable vegetative characteristics and occasional utilization by single male GCWs. We believe this to be due to habitat fragmentation and the generally isolated nature of the on-site habitat areas from other significant blocks of suitable GCW habitat in Hays or Comal counties.”

The Horizon surveys indicate that the subject property may not be consistently occupied by GCWAs. The subject property has been shown to support the feeding and sheltering activities of two males. In two of the four years of surveys no GCWAs were documented actively using the subject property (although, according to Horizon (2007b), one GCWA was observed flying over the subject property in 2007). During the two, non-consecutive years when one or two GCWAs were observed within the subject property, the area of documented use covered an area of no more than approximately 37 acres of the 376 acres of potential habitat available for GCWA use within the subject property.

#### **4.1.5. Other Wildlife**

##### **4.1.5.1. GENERAL WILDLIFE COMMUNITIES**

Wildlife species that would be expected to utilize the habitats present on the subject property include a number of terrestrial woodland birds, mammals, reptiles, and some amphibians (Kutac and Caran 1994). Many species that would be expected to occur on the property are abundant to common in both undeveloped and suburban settings.

##### **4.1.5.2. WILDLIFE SPECIES OF CONCERN**

Hays County is included in the range of several species protected by the ESA and bird species protected by the Migratory Bird Treaty Act (MBTA).

Within the Edwards Aquifer system, five aquatic species are listed as federally endangered and one is listed as federally threatened. Because the subject property lies within both the Transition and

**Table 2.** Edwards Aquifer Species that have the Potential to be Affected by Activities Occurring in the Edwards Aquifer Contributing and Transition Zones.

Species	Listing Status	Edwards Aquifer Association	Current Known Range or Distribution	Distance to Nearest Known Locality from Subject Property	Comments
<b>AMPHIBIANS</b>					
San Marcos salamander ( <i>Eurycea nana</i> )	FT/ST	Spring outlets and spring runs	Spring Lake and immediately below Spring Lake Dam	Approx. 5 miles (Spring Lake)	Critical habitat designated from Spring Lake to 164 feet downstream of Spring Lake Dam
Texas blind salamander ( <i>Eurycea rathbuni</i> )	FE/SE	Subterranean aquifer passages	Aquifer beneath and near San Marcos; Possibly also near the New Braunfels area	Approx. 2.2 miles (Frank Johnson's Well and Primer's Fissure)	Collections from Frank Johnson's Well and Primer's Fissure (the closest known observations) were made in 2013, 2014, and 2015 by SMARC. Closest recent collections are from Ezell's Cave located approx. 2.8 miles from the project area.
<b>FISHES</b>					
Fountain darter ( <i>Etheostoma fonticola</i> )	FE/SE	Spring runs	Spring Lake and Upper San Marcos River to the San Marcos wastewater treatment plant outfall; Headwaters of the Comal River and Landa Lake	Approx. 4.3 miles (San Marcos wastewater treatment plant)	Critical habitat designated from Spring Lake to 0.5 mile downstream of the IH35 dam
<b>INSECTS</b>					
Comal Springs dryopid beetle ( <i>Stygoparnus comalensis</i> )	FE/SE	Spring outlets and spring runs	Comal Springs and Fern Bank Springs	Approx. 10 miles (Fern Bank Springs)	Critical habitat designated at Comal Springs and Fern Bank Springs
Comal Springs riffle beetle ( <i>Heterelmis comalensis</i> )	FE/SE	Spring runs	Headwaters of San Marcos River and Comal River	Approx. 5 miles (Spring Lake)	Critical habitat designated at Spring Lake and Landa Lake
<b>PLANTS</b>					
Texas wild-rice ( <i>Zizania texana</i> )	FE/SE	Spring outlets	Spring Lake and the upper reaches of the San Marcos River to just downstream of the San Marcos wastewater treatment plant	Approx. 4.3 miles (San Marcos wastewater treatment plant)	Threatened by sedimentation from urbanization in the watershed

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

Contributing Zones of the Edwards Aquifer and a mapped fault traverses the property (Figure 3), there is potential for project related activities to affect the Edwards Aquifer and the species it supports.

The main threats to the aquatic species are the reduction in spring flow and a decrease in water quality (Eckhardt 2013). These six federally listed species of the Edwards Aquifer are generally described in Table 2.

The Service operates a national fish hatchery, the San Marcos Aquatic Resources Center (SMARC) located approximately 0.5 mile southeast of the Paso Robles Development and maintains at this site some captive populations of the federally listed aquatic species presented in Table 2. The Service currently uses water drawn from two wells located near the fish hatchery to house and propagate these captive populations. The wells are located over the Edwards Aquifer Transition Zone approximately 750 feet and 1,200 feet from the northeast corner of the subject property. Groundwater studies in the region indicate that the dominant flow of groundwater in the vicinity of the Paso Robles Development moves to the northeast, towards San Marcos Springs (Musgrove and Crow 2012). These studies suggest that any groundwater infiltrating the aquifer from portions of the subject property that lie over the Edwards Aquifer Recharge Zone or that recharges elsewhere from contributing zone runoff is also likely to travel to the northeast toward the wells that supply the fish hatchery.

The MBTA makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit. The MBTA protects over 800 bird species, including most native bird species, and permits game bird hunting. The majority of the bird species that are found within the subject property are protected by the MBTA.

#### **4.1.6. Climate**

Temperatures in Hays County, Texas are typical of subtropical-subhumid to semiarid climates, ranging from the mid-30s (degrees Fahrenheit) during the winter to the upper 90s (degrees Fahrenheit) during the summer. Precipitation in the region averages approximately 36 inches of rain per year, with most rainfall occurring in the late spring and early fall months. Although it is typically in the form of rain, traces of snow, sleet, and hail have been occurred in the area. Severe or high-impact weather events, including flash floods and periods of drought, are common (Nielsen-Gammon 2008).

#### **4.1.7. Air Quality**

The Clean Air Act requires that the U.S. Environmental Protection Agency (USEPA) set air quality standards, referred to as the National Ambient Air Quality Standards (NAAQS). Areas that do not meet the NAAQS are referred to as *non-attainment* areas. Hays County is currently in attainment status for all criteria pollutants (USEPA 2012).

#### **4.1.8. Noise**

The subject property is located in an area with a mix of undeveloped farm and ranch lands and suburban or ex-urban residential development (Figure 6). Traffic from local residents travelling along Hunter Road is likely to be the primary source of ambient noise in the vicinity. Construction noise associated with new development and noise from agricultural and land management operations, such as the operation of equipment and machinery for brush management, access road maintenance, and similar activities, is also expected to occur occasionally.

#### **4.1.9. Land Use**

The subject property is comprised of undeveloped and vacant land (Figure 6) located within the jurisdiction of the City of San Marcos. Several caliche and dirt roads are present throughout the property.

Land uses in the general vicinity of the subject property include mostly a mix of single-family residential properties and farm and ranch lands (Hays Central Appraisal District [HCAD] 2012) (Figure 6). Partially built-out residential subdivisions (i.e., Sleepy Hollow, Deerwood Estates) surround the subject property to the northwest and south while lands surrounding the eastern extent remain undeveloped in the Paso Robles Development.

#### **4.1.10. Socioeconomics**

The subject property lies within a moderately populated part of Hays County (2010 Census Tract 106.00), with a population density of approximately 245 people per square mile. The human population is denser in small areas to the northeast representing the City of San Marcos, exceeding 1,500 people per square mile, but the majority of the surrounding areas have populations at or below 1,000 people per square mile (ESRI 2013) (Figure 7). Other characteristics of the local and regional human population are listed in Table 2. The local human population has a lower proportion of minority or low-income residents than the rest of Hays County or the State of Texas.

Hays County is one of the fastest growing populations in Texas. The county's human population is expected to increase from approximately 157,107 in 2010 to 375,873 by the year 2040 (Loomis Partners et al. 2010). Hays County is expected to experience a population increase of approximately 176 percent over this period, with most of this growth occurring along the I-35 corridor near the cities of Buda, Kyle, and San Marcos (Loomis Partners et al. 2010). Despite this increase in growth, Hays County remains mostly rural as agricultural practices continue to dominate throughout the county (Table 3).

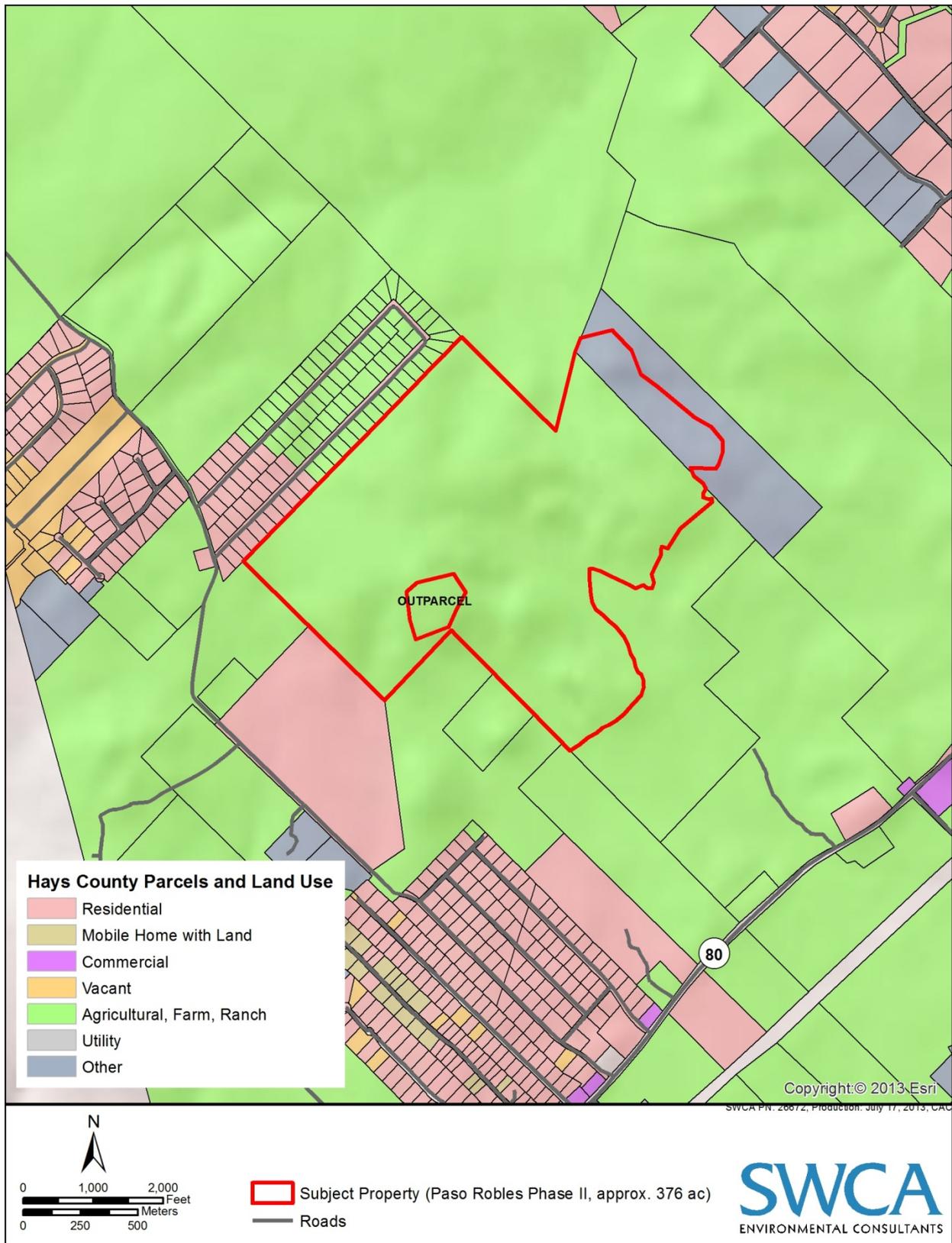


Figure 6. Parcels, Subdivisions, and Land Uses in the Vicinity of the Subject Property

**Table 3.** Population and Income Characteristics for the Local and Regional Community

Category	Census Tract 106.00	Hays County	Texas
<b>Population , Race, and Ethnicity (Census 2010 Counts)</b>			
Total Population	9,265 <i>5.9% of county population</i>	157,107 <i>0.6% of state population</i>	25,145,561
Hispanic or Latino Population	2,276 <i>24.6% of CT population</i>	55,401 <i>35.3% of county population</i>	9,460,921 <i>37.6% of state population</i>
Non-white Race or Multi-racial Population	1,099 <i>11.9% of the CT population</i>	30,395 <i>19.3% of county population</i>	7,444,009 <i>29.6% of state population</i>
<b>Language (2007-2011 American Community Survey 5-year Estimates)</b>			
Population 5 Years and Over (speaking population)	8,781	142,474	22,850,447
English Only Speakers	7,185 <i>81.8% of CT speaking population</i>	109,209 <i>76.7% of county speaking population</i>	14,997,845 <i>56.6% of state speaking population</i>
Speak English Less Than "Very Well"	203 <i>2.3% of CT speaking population</i>	9,061 <i>6.4% of county speaking population</i>	3,305,329 <i>14.5% of state speaking population</i>
<b>Employment and Income (2007-2011 American Community Survey 5-year Estimates)</b>			
Population 16 years and Over (employable population)	7,568	119,554	18,747,892
In Labor Force	5,047 <i>66.7% of CT employable population</i>	78,694 <i>65.8% of county employable population</i>	12,285,284 <i>65.5% of state employable population</i>
Not in Labor Force	2,521 <i>33.3% of CT employable population</i>	40,860 <i>34.2% of county employable population</i>	6,462,608 <i>34.5% of state employable population</i>
Median Household Income (dollars)	\$61,682 <i>105.9% of county median household income</i>	\$58,247 <i>114.4% of state median household income</i>	\$50,920
Mean Household Income (dollars)	\$73,087 <i>98.1% of county mean household income</i>	\$74,507 <i>105.3% of state mean household income</i>	\$70,777
Percent of People Living Below the Poverty Level	8.3%	16.4%	17.0%
<b>Housing (U.S. Census Bureau 2010)</b>			
Total Housing Units	3,892	59,417	9,977,436

U.S. Census Bureau (2010, 2011).

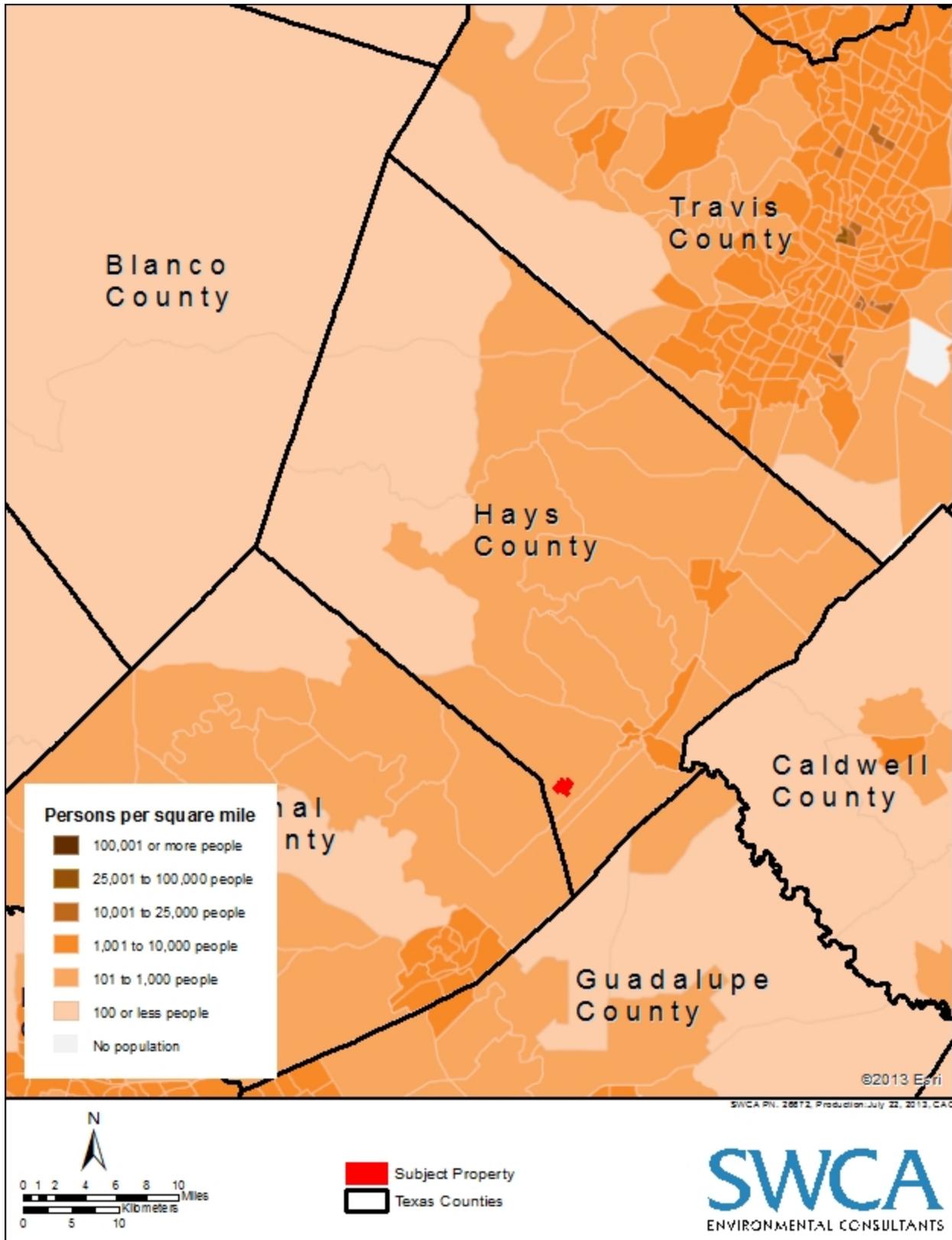


Figure 7. Population Density in the Region of the Subject Property

## 4.2. Resources Not Considered for Detailed Analysis

Resources not considered for detailed analysis are those that are not expected to be affected by the Proposed Action or the alternative actions because they are not known or are highly unlikely to be associated with the Proposed Action.

### 4.2.1. Other Species of Concern

Texas Parks and Wildlife Department (TPWD) identifies the following species occurring in Hays County, Texas, that are protected under state or federal endangered species regulations or species that are under consideration for such protection (Table 4). Aside from the GCWA and Edwards Aquifer species (which are addressed in Sections 4.1.4 and 4.1.5, respectively), none of the remaining state or federal special status species are either known or likely to occur within, beneath, or be indirectly affected by activities within the subject property. Therefore, these other special status species are not considered for further analysis.

**Table 4.** Other Special Status Species Occurring in Hays County, Texas

Species Name	Listing Status*	Habitat Characteristics	Likely Occurrence on Subject Property
<b>AMPHIBIANS</b>			
Barton Springs salamander ( <i>Eurycea sosorum</i> )	FE/SE	Spring outlets and subterranean water-filled caverns of the Barton Springs segment of the Edwards Aquifer	None—Paso Robles is south of a groundwater divide separating the Barton Springs and San Antonio segments of the Edwards Aquifer. Neither surface nor groundwater from the Paso Robles property reaches areas known to support the Barton Springs salamander.
Blanco blind salamander ( <i>Eurycea robusta</i> )	ST	Water-filled subterranean caverns; may inhabit deep levels of the Balcones aquifer to the north and east of the Blanco River	Highly Unlikely – subject property is not associated with any known aquatic cave systems nor does it have a connection to habitat
<b>BIRDS</b>			
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	ST	Year-round resident and local breeder in west Texas; occupies wide range of habitats during migration	Highly Unlikely – subject property offers no breeding habitat or unique migratory habitat (such as landscape edges)
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	ST	Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water	None – subject property lacks appropriate vegetation and aquatic environment
Black-capped vireo ( <i>Vireo atricapilla</i> )	FE/SE	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 – Vegetation structure on the subject property is not representative of suitable vireo habitat
Sprague's pipit ( <i>Anthus spragueii</i> )	C	Only present in Texas during migration and winter, mid-September to early April; can be locally common in coastal grasslands, uncommon to rare further west	None – subject property lacks coastal or inland grassland vegetation

**Table 4.** Other Special Status Species Occurring in Hays County, Texas

Species Name	Listing Status*	Habitat Characteristics	Likely Occurrence on Subject Property
Whooping crane ( <i>Grus americana</i> )	FE/SE	Potential migrant via plains throughout most of state to coast	Highly Unlikely – subject property lacks migratory stop-over or feeding habitats
Zone-tailed hawk ( <i>Buteo albonotatus</i> )	ST	Arid open country, including open deciduous or pine-oak woodland	None – subject property lacks appropriate woodland vegetation
<b>FISHES</b>			
San Marcos gambusia ( <i>Gambusia georgei</i> )	FE/SE	Formerly known from upper San Marcos River	None – Extinct
<b>MAMMALS</b>			
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 – Extirpated from Texas
<b>REPTILES</b>			
Cagle's map turtle ( <i>Graptemys caglei</i> )	ST	Endemic to the Guadalupe River System; shallow water with swift to moderate flow and gravel or cobble bottom, connected by deeper pools with a slower flow rate; gravel bars and transition areas between riffles and pools especially important in providing insect prey	None – subject property lacks appropriate aquatic habitat or connection to habitat
Texas horned lizard ( <i>Phrynosoma cornutum</i> )	ST	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees	Highly Unlikely – subject property is densely vegetated with juniper-oak woodlands
<b>MOLLUSKS</b>			
False spike mussel ( <i>Quadrula mitchelli</i> )	ST	Surface water substrate; Rio Grande, Brazos, Colorado, and Guadalupe (historic) River basins	None – Species is possibly extirpated in Texas
Golden orb ( <i>Quadrula aurea</i> )	FC/ST	Surface water substrate; Guadalupe, San Antonio, Lower San Marcos, and Nueces River basins	Not Likely— Nearest known live individual is located approximately 25 miles downstream from the Paso Robles site. The proposed project includes strong water quality protection measures that will avoid significant water quality impacts to the species.
Texas fatmucket ( <i>Lampsilis bracteata</i> )	FC/ST	Surface water substrate; Colorado and Guadalupe River basins	None—Not known to occur in the San Marcos River basin. The confluence with the Guadalupe River is approximately 40 miles from the Paso Robles site.

**Table 4.** Other Special Status Species Occurring in Hays County, Texas

Species Name	Listing Status*	Habitat Characteristics	Likely Occurrence on Subject Property
Texas pimpleback ( <i>Quadrula petrina</i> )	FC/ST	Surface water substrate; Colorado and Guadalupe River basins	Not Likely— Suspected habitat may occur more than 5 miles from the project site. Paso Robles will employ strong water quality protection measures, including robust stream and recharge feature buffers, impervious cover limits, and environmentally sensitive golf course management practices to avoid significant water quality impacts to the species.
<b>PLANTS</b>			
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	Not Likely— subject property lacks mesic canyons or steep drainages that would provide habitat for this species.

Texas Parks and Wildlife Department (TPWD). Annotated county lists of rare species – Hays County. Last revision: October 2, 2012.

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

### 4.2.2. Geology

The Buda Limestone and Del Rio Clay, undivided formations underlie the subject property. Neither the authorization of incidental take of the GCWA nor the implementation of the HCP conservation program is expected to affect this underlying geology. Therefore, this resource is not considered for further analysis.

### 4.2.3. Wetlands and Floodplains

No wetlands or floodplains are present within the subject property (Service 2012, FEMA 2013). Therefore, no impacts to these resources are expected as a result of the considered alternatives and thus are not considered for further analysis.

### 4.2.4. Visual and Aesthetic Resources

The subject property is located among existing residential subdivisions, is adjacent to roads and utility infrastructure, and lacks unique or significant physical characteristics or landforms (such as canyon views, riparian corridors, or expansive undeveloped vistas) that would significantly affect the visual or aesthetic qualities of the region. Therefore, this resource was not considered for detailed analysis.

### 4.2.5. Cultural Resources

A cultural resources background review was conducted to determine if the subject property had been previously surveyed for cultural resources or if any archaeological sites have been recorded within or near the subject property (SWCA 2013a). The review revealed that portions of the subject property have been previously surveyed and six cultural resource sites were located within the property. One site (41HY194)

was recorded as an isolated biface fragment in an upland portion of the subject property in 1986 and is not eligible for nomination to the National Register of Historic Places (NRHP) or as a State Antiquities Landmark (SAL) (Texas Historical Commission (THC) 2013). An additional five cultural resource sites were identified by Horizon in 2007 (41HY437, 41HY438, 41HY439, 41HY443, and 41HY444) (Horizon 2007a). Horizon determined that all of these sites were prehistoric lithic scatters of unknown ages, located in rocky, upland settings. No diagnostic artifacts or features were observed and the sites were solely surficial in nature. Based on the lack of temporal association and potential for intact buried components, Horizon preliminarily concluded that the sites are not considered eligible for nomination to the NRHP or as a SAL (Horizon 2007a). Because these sites are likely to be ineligible for NRHP or SAL nomination, no impacts to these resources are expected as a result of the considered alternatives and therefore are not considered for further analysis.

#### **4.2.6. Public Health and Safety**

The Proposed Project is not expected to affect public health and safety since it would be designed and constructed in accordance with all applicable local, state, and federal regulations. Therefore, public health and safety issues are not considered for further analysis.

#### **4.2.7. Energy and Depletable Resource Requirements and Conservation Potential**

The Proposed Project does not include an energy or natural resource extraction element. Therefore, these resources are not considered for further analysis.

#### **4.2.8. Environmental Justice**

Executive Order (EO) 12898 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. For the purpose of this environmental assessment, 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 percent of the total population for the census tract or the percentage of minority persons in the local census tract is meaningfully greater than the percentage for Hays County. A low-income community for the purpose of this environmental assessment is defined as one where the percentage of persons within the local census tract classified by the U.S. Census Bureau as living below the poverty level exceeds the overall percentage for Hays County.

Review of U.S. Census Bureau data from the 2010 decennial census and the estimates from the 2007-2011 American Community Survey revealed no minority or low income communities within the Census Tract encompassing the subject property (see Table 3). Therefore, environmental justice was not considered for detailed analysis.

## **5. ENVIRONMENTAL CONSEQUENCES**

### **5.1. Analysis Framework**

The scope of a NEPA analysis associated with an HCP addresses "the direct, indirect, and cumulative effects of the proposed incidental take and the mitigation and minimization measures proposed from implementation of the HCP" (Service and National Marine Fisheries Service [NMFS] 1996, page 5-1, emphasis added). In this case, the proposed incidental take involves the removal or alteration of woodland vegetation used by the GCWA by mechanical means and the conservation measures involved

in observing seasonal clearing restrictions, implementing oak wilt prevention measures, and contributing to the protection and management of GCWA habitat off-site.

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 EA is to determine whether or not the proposed action has significant effects on the quality of the natural, physical, and human environment. The potential significance of an effect should be considered in the context of the direction of the effect (adverse or beneficial), the relative duration of the effect, the relative magnitude or intensity of the effect, and the relative geographic scale of the effect.

NEPA regulations require the analysis of “no action” as a benchmark that enables decision makers to assess the relative magnitude of environmental effects of the action alternatives (Service 2003, 40 CFR 1502.14(d)). If no difference is anticipated between 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 are based on the 10 factors to be considered for determining intensity (40 CFR 1508.27):

- **Direction 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 subject property (project scale effect) or extend beyond the limits of the subject property. Local scale effects would influence the affected resources on adjacent properties or the immediate vicinity of the subject property. 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.

## 5.2. Summary of Potential Impacts

A summary of the potential environmental consequences of the alternative actions is provided in Table 5. More complete descriptions of potential environmental effects are included in the following sections. The intensity of potential impacts to the environment is defined as follows:

- None: Effects are not anticipated for the specific resource from the action.
- Negligible: Effects would be at or below the level of detection and would be so slight that they would not be of any measurable or perceptible consequence.
- Minor: Effects would be measurable or perceptible, but would be localized within a small area.
- Moderate: Effects would occur over a large enough area that the change would be readily measurable. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.
- Major: Effects would be readily apparent and would be substantial in area. Extensive mitigation would be needed to offset adverse effects, and its success would not be assured.

**Table 5.** Summary of the Relative Significance of the Potential Environmental Consequences

Resource	No Action Alternative	Proposed Action Alternative
Water Resources	None	Negligible to Minor
Prime Soils and Unique Agricultural Lands	None	Minor
Vegetation Communities	None	Minor
HCP Covered Species	None	Minor
Other Wildlife (including Edwards Aquifer species and migratory birds)	Minor,	Minor
Climate and Climate Change	None	Negligible
Air Quality	None	Negligible
Noise	None	Negligible
Land Use	Negligible	Negligible
Socioeconomics	Negligible to moderate,	Negligible to moderate,

## 5.3. Effects Analysis

Significance determination for each resource will be based upon the relative intensity of the Proposed Action Alternative to the No Action Alternative (existing condition) and the context of the project site to the local area, the county, state, and global scale. Due to the small project size, if the impact on a local level is not significant, discussions of impacts in the context of a larger scale would be similarly not significant unless otherwise stated.

### 5.3.1. Water Resources

Effects to water resources may occur in relation to the alteration of surface conditions during land clearing activities, such as increased erosion or sedimentation of local surface waters or increased surface runoff from bare ground.

#### **No Action Alternative**

Under the No Action alternative, there would be no impacts to surface waterways or waterbodies within the subject property. No changes to groundwater resources would be anticipated under the No Action alternative and no compliance with the TCEQ’s Edwards Aquifer Rules would be necessary.

#### **Proposed Action Alternative**

The subject property contains waterways that potentially meet the definition of a water of the U.S. under the federal Clean Water Act or that otherwise convey surface runoff to the tributary system of the Guadalupe River. These waterways may also convey runoff to Edwards Aquifer recharge features either on or off site.

Under the Proposed Action, Covered Activities within the subject property and within the Paso Robles Development would be implemented in accordance with all applicable federal, state, and local water resource protection regulations, which would substantially minimize potential impacts to surface and ground water resources. Such regulations include the federal Clean Water Act, state Edwards Aquifer Rules, City of San Marcos Land Development Code, and the City of San Marcos Ordinance No. 2010-59 (as amended) that establishes the Paso Robles Development District and related Land Use Plan and Development Standards. These water quality protections include robust stream water quality zone buffers, water quality ponds, and sensitive karst feature buffers throughout the entire Paso Robles Development (in addition to the subject property) that meet or exceed both TCEQ and City of San Marcos standards. Stream water quality zone buffers, water quality ponds, and sensitive recharge feature buffers identified within the Paso Robles Development are provided in Figure 8.

The land plan for the Paso Robles Development includes stream buffers that meet or exceed the City of San Marcos standards as identified in Table 6. Within the subject property, a 475-foot portion of Cottonwood Creek was identified as requiring a 50-foot water quality zone buffer (Figure 8).

**Table 6.** City of San Marcos Stream Water Quality Zone Buffers (Section 5 of the City of San Marcos Land Development Code)

Buffer Zone Type	Required Water Quality Zone Buffer	
	<i>Outside Edwards Aquifer Recharge Zone</i>	<i>Inside Edwards Aquifer Recharge Zone</i>
FEMA-designated Floodplain	100 feet from edge of FEMA-defined floodway, not to exceed the width of the 100-year floodplain	Add 100 feet to standard water quality zone
Outside of FEMA Floodplains		
Minor Waterways Outside of Edwards Aquifer Recharge Zone <i>contributing drainage area of 120 to 250 acres</i>	50 feet from centerline	150 feet from centerline
Minor Waterways Within Edwards	50 feet from centerline	150 feet from centerline

**Table 6.** City of San Marcos Stream Water Quality Zone Buffers (Section 5 of the City of San Marcos Land Development Code)

Buffer Zone Type	Required Water Quality Zone Buffer	
	<i>Outside Edwards Aquifer Recharge Zone</i>	<i>Inside Edwards Aquifer Recharge Zone</i>
Aquifer Recharge Zone <i>contributing drainage area of 50 to 250 acres</i>		
Intermediate Waterway <i>contributing drainage area of 250 to 1,000 acres</i>	100 feet from centerline	200 feet from centerline
Major Waterway <i>contributing drainage area of more than 1,000 acres</i>	200 feet from centerline	300 feet from centerline

In addition to the stream water quality zone buffers, 33 potential groundwater recharge features (including 25 solution cavities, sinkholes, ponds, and wells; and 8 faults) were identified throughout the Paso Robles Development (Harper 2008). None of the faults were determined to be sensitive recharge features; however, several of the remaining features were judged to be sensitive recharge features. With the concurrence of the TCEQ and the City of San Marcos, the Applicant has established buffers of natural vegetation ranging from 50 to 200 feet surrounding these features. Note that none of these buffered features are located specifically within the boundaries of the subject property (Figure 8). The nearest sensitive recharge feature is located approximately 415 feet to the east of the subject property. The Applicant has proposed to apply several other water quality protections across the entire Paso Robles Development, including the implementation of water quality structural controls designed to remove a minimum of 85 percent of total suspended solids, which exceeds TCEQ standards; the development of a Watershed Protection Plan that demonstrates compliance with the City of San Marcos’ environmental and flood control standards; exceedance of percent open space requirements, certification through the *Audubon International Signature Program for Golf Courses* (Audubon International 2013); and, use of treated effluent from the City of San Marcos Waste Water Treatment Plant to irrigate the proposed golf course and other common spaces. A detailed description of these additional water quality protections are provided in the *Habitat Conservation Plan for Phase II of the Paso Robles Development* (SWCA 2013b). The adherence to these strict water quality protection measures are expected to substantially minimize potential impacts to surface and ground water resources from the Proposed Project and effects to water quality are expected to be minor.

Under the Proposed Action, the land would be cleared for development purposes. At that time, potentially adverse effects to local and regional water resources may be possible, particularly during the period immediately after the clearing. Specifically, some vegetation clearing and related soil disturbance could affect the quality of stormwater runoff from construction sites. After construction, runoff from roads could cause some oils, grease, and other materials from vehicles to leach into soils or be carried in runoff. However, the proposed development activities include compliance with the water quality protection measures previously listed, which would substantially minimize these effects. Therefore, effects to water quality from the Proposed Project are expected to be minor.

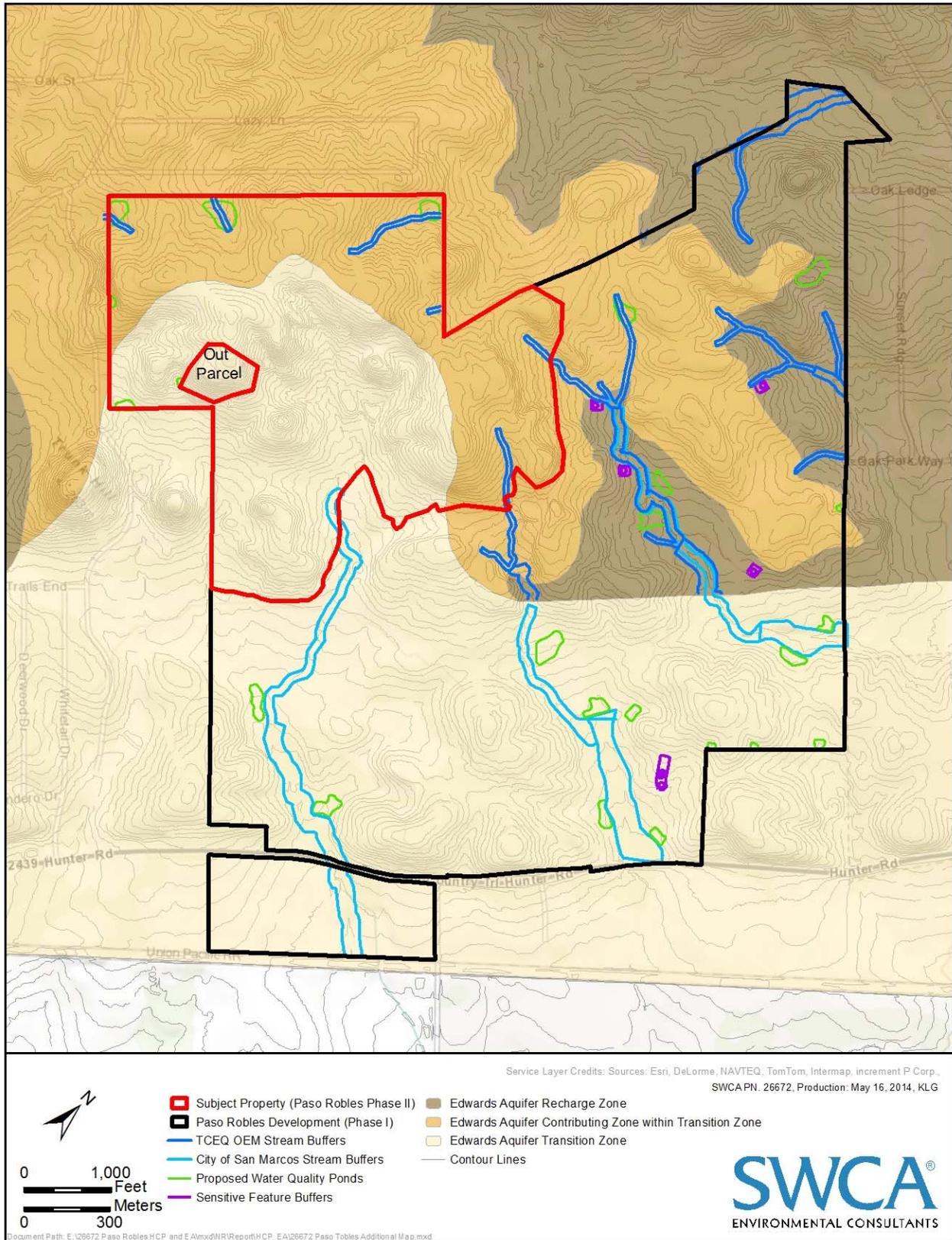


Figure 8. Water Quality Protections within the Paso Robles Development

Development of the subject property would alter, to some degree, the local hydrology and amount of water available to downstream areas. However, impervious surfaces, such as roads, sidewalks, and buildings reduce the area available for rainwater to percolate into the soil, generally resulting in two types of indirect effects to ground water resources when rainfall occurs: a decrease in water available for recharging the local aquifer, and an increase in the amount of runoff that flows into low-lying areas. Stormwater management systems and heavy regulation by the TCEQ Edwards Aquifer Protection Program would help mitigate many of the impacts associated with runoff from impervious surfaces. However, extreme rainfall events may exceed the capacity of most stormwater systems, and some runoff could be transported offsite. Although additional environmental studies would likely be conducted in association with any future construction, it is not believed that there would be significant impacts to the hydrology or water quantity resulting from the Proposed Project.

The proposed conservation measures would permanently protect undeveloped land off-site, but given the scale of the conservation measures, the potentially beneficial effects to water resources are likely to be negligible to minor.

Overall, the negative effects on hydrology and water quantity are believed to be minor under this alternative.

### **Cumulative Effects**

The potential cumulative effects to surface and ground water resources in Hays County are likely to be minor given the existing state and federal protections for these resources, and any additional future local regulations that may come with annexation of the area into the City of San Marcos.

### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative are insignificant relative to the anticipated effects of the No Action Alternative. This is based upon the required state and Federal measures to protect these surface and ground water resources as described above. The small relative size of the project site and the resources anticipated to be impacted will not be of an intensity to have a significant impact locally, regionally, or nationally. The potential cumulative effects to surface and ground water resources are anticipated to be minor due to current state and Federal regulations. Therefore, no significant impacts are anticipated to surface and ground water resources.

### ***5.3.2. Prime Soils and Unique Agricultural Lands***

Effects to soils in may occur in relation to the alteration of surface conditions during construction of the Proposed Project, such permanent or temporary removal of soils, erosion of soils, and conversion of prime farmland.

#### **No Action Alternative**

Under the No Action alternative, there would be no impacts to prime soils or unique agricultural lands within the subject property because the Proposed Project would not be developed.

#### **Proposed Action Alternative**

Approximately 4 percent of the subject property potentially contains prime farmland soils (15 acres; Figure 3). Specific site plans for the residential community have yet not been developed, so the amount of disturbance of this type of soil remains unknown at this time. However, these soils are limited to the drainages along the on-site intermittent waterways, which are planned to be avoided and buffered (Figure

2). The physical properties of this type of soil could be temporarily or permanently converted by changing the soil composition and characteristics or replacing this type of soil altogether with fill materials. However, the subject property is currently not cultivated nor is surrounded by agricultural lands. It is instead covered by a mix of juniper and oak woodland and is surrounded by residential development. No actively cultivated lands would be impacted by the Proposed Project and therefore, negative effects to prime soils and unique agricultural lands are expected to be negligible.

### **Cumulative Effects**

Approximately 28 percent (122,655 acres) of Hays County contains prime farmland soils, most of which occur east of I-35 (USFWS 2010a). The portion of the Proposed Project that contains prime farmland soils includes 15 acres along on-site ditches (see Section 4.1.2). These 15 acres contribute approximately 0.01 percent to the county's total amount of prime farmland soils. Therefore, the potential cumulative effect to prime and unique agricultural soils in Hays County is negligible.

### **Significance Analysis**

There is a negligible difference between the anticipated effects of the Proposed Action Alternative compared to the effects of the No Action Alternative. This is based on the fact that the proposed project area contains only 15 acres of prime farmland soils, and these soils are limited to the drainages along the on-site intermittent waterways, which are planned to be avoided and buffered as described above. In addition, the subject property is currently not cultivated, nor are the adjacent parcels. It is instead covered by a mix of juniper and oak woodland and is surrounded by residential development. As a result, neither the No Action Alternative nor the Proposed Action Alternative will have significant impacts to prime farmland soils. As a result of the small amount of prime farmland soils impacts, the anticipated impact will not be of an intensity to have a significant impact locally, regionally, or nationally. Therefore, impacts to prime farmland soils are anticipated to be minor.

## ***5.3.3. Vegetation Communities***

Effects to vegetation communities would be related to the removal or alteration of the existing stands of juniper-oak woodland and juniper shrubland within the subject property. This natural vegetation would likely be replaced with either landscaping or opportunistic plant communities that recolonize disturbed areas after clearing or roads or residential housing, depending on the detailed land use plan.

### **No Action Alternative**

Under the No Action alternative vegetation within the subject property would remain unchanged. No impacts to the composition, structure, or health of general vegetation communities within the subject property are expected to occur because the Proposed Project would not be implemented.

### **Proposed Action Alternative**

Under the Proposed Action, approximately 376 acres of juniper-oak woodland and juniper shrubland within the subject property would be removed or altered. There is some expectation that native, drought tolerant plants will be used throughout the residential landscapes. Regardless, potential adverse impacts to vegetation communities would likely be minor over the long-term since juniper-oak woodlands and juniper shrublands are common across the local and regional landscape of Hays County.

### **Cumulative Effects**

Estimates of forest land cover in Hays County as of 2010 included nearly 184,005 acres (Loomis Partners, Inc. 2010). When comparing the potential removal and alteration of the 376 acres on the subject property to the total amount of forested vegetation in the county approximately 0.2 percent will be affected. The cumulative losses of vegetative communities are considered minor.

### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative on the vegetation communities are minor relative to the anticipated effects of the No Action Alternative. This is based on the fact that only 376 acres (0.2 percent) of the total forested vegetation in the county will be affected by the proposed action. The potential cumulative effects to the vegetative community are anticipated to be minor due to the commonality of juniper-oak woodlands and juniper shrubland throughout Hays County. As a result, the resources anticipated to be impacted will not be of an intensity to have a significant impact locally, regionally, or nationally. Therefore, minor impacts to the vegetative community are anticipated.

### **5.3.4. HCP Covered Species**

The GCWA would be adversely affected by the loss of habitat on the subject property, but would also benefit from the proposed conservation measures. While the ITP would be issued for a period of 10 years, impacts to the GCWA are evaluated based on a 30 year period by use of the Hays County HCP to determine environmental consequences.

#### **No Action Alternative**

Under the No Action alternative, GCWA habitat would not be removed or altered because the Proposed Project would not be implemented.

#### **Proposed Action Alternative**

Under the Proposed Action, existing stands of juniper-oak woodland and juniper shrubland within the subject property would be removed or altered. The expected impacts of the Proposed Action on the GCWA are described in the *Habitat Conservation Plan for Phase II of the Paso Robles Development in San Marcos, Hays County, Texas* (SWCA 2013c). Generally, direct impacts to individual GCWAs would be avoided by conducting the proposed vegetation clearing while the species is not present in central Texas.

Indirect impacts would occur from the loss of potentially suitable GCWA habitat within the 376-acre subject property; however, these impacts would be negligible to the overall conservation of the GCWA. GCWA density is low despite the appearance of suitable habitat. Specifically, while the entire 376-acres appeared to be potentially suitable GCWA habitat, only 114.4 acres or 30 percent have been determined to be occupied by up to two GCWA males in any given year and this is the very maximum as Horizon (2012) determined that only 36.5 acres or less than 10 percent were indeed occupied habitat. The remaining potentially suitable GCWA habitat within the subject property is not actually utilized by the species.

The loss of 114.4 acres of GCWA habitat is not likely, individually or cumulatively, to have more than a minor effect on the overall distribution, long-term survival, or recovery of the GCWA, either range-wide or in Hays County, where the proposed action would contribute 0.52 percent to the 22,000 acres of expected impacts to GCWA habitat from covered activities over the next 30 years. (Loomis Partners, Inc. et al. 2010, pg i). Individually, the effect of losing approximately 114.4 acres of occasionally occupied GCWA habitat is minor (0.07%) with respect to the estimated 170,355 acres of suitable habitat in Hays County. However, the effect of impacting 114.4 acres of habitat is measurable and mitigation is necessary.

Given the small scale of the proposed conservation measures, it is expected that the GCWA would experience a similarly minor beneficial effect as a result of the avoidance, minimization, and mitigation measures. Although these benefits would be long-term, since the purchase of credits from an approved conservation bank will likely involve habitat with recovery potential.

### **Cumulative Effects**

As documented in the *Hays County Regional Habitat Conservation Plan* (Loomis Partners et al. 2010) and analyzed in the biological opinion for that HCP, cumulative habitat losses over 30 years are not expected to result in jeopardy of the GCWA, preclude attainment of GCWA recovery objectives in Hays County, nor extirpate the GCWA from Hays County. Of the total 170,335 acres of modeled potential GCWA habitat in Hays County (Loomis Partners, Inc. et al. 2010, page 58), it is projected that land development activities over the next 30 years will result in the loss of approximately 22,000 acres (Loomis Partners, Inc. et al. 2010). However, approximately 130,335 acres of GCWA habitat are projected to remain unaffected in the county (170,335 acres minus 22,000 acres). The cumulative losses of GCWA habitat similar to those occurring on the subject property over the next 30 years in Hays County are expected to affect 0.13 percent of the currently available GCWA habitat (170,335 acres). Based on the above 30-year estimates, the cumulative loss of 114.4 acres to GCWA are considered minor.

### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative on the HCP covered species are minor relative to the anticipated effects of the No Action Alternative. This is based on the small relative size of the project site to the availability of GCWA habitat within Hayes County and the mitigation that is part of the proposed action. The potential impacts of the action along with the anticipated cumulative effects to the GCWA are minor within the county and across the range of the species. As a result, the resources anticipated to be impacted will not be of an intensity to have a significant impact locally, regionally, or nationally. Anticipated effects of the proposed action alternative to the HCP covered species are minor.

### **5.3.5. Other Wildlife**

Effects to general wildlife communities and migratory birds under the No Action alternative would be most closely related to the removal of relatively common woodland and shrubland habitats and disturbances caused by noise and activity associated with machinery and work crews. These direct effects could cause some species that are sensitive to such disturbances to leave the area or be adversely affected. Indirectly, project-related pollutants transmitted through uncontrolled runoff or groundwater infiltration could decrease aquatic habitat quality of other species of concern not covered by the HCP, such as protected aquatic Edwards Aquifer species, including captive populations maintained at the San Marcos Aquatic Resource Center fish hatchery. In addition, replacement of native habitats with residential habitats could cause other urban-tolerant species to relocate to the subject property. Conservation actions

under the Proposed Action would protect and manage similar habitats for the benefit of the GCWA, which would also benefit other conspecific wildlife. Additionally, the strong water quality protection measures under the Proposed Action would reduce potential water quality impacts for the benefit of the protected aquatic Edwards Aquifer species.

### **No Action Alternative**

Under the No Action alternative, there would be no direct impacts to general wildlife communities and wildlife species of concern such as migratory birds and aquatic species inhabiting the Edwards Aquifer or captive populations maintained at the fish hatchery because the Proposed Project would not be developed. While habitats on the subject property would remain undisturbed, general wildlife communities and migratory birds utilizing the subject property would be likely to experience gradual changes due to increasing population and corresponding land development expected in the surrounding region (CAMPO 2010a, 2010b). These changes would likely be beneficial to some species and negative to others.

As currently lands adjacent to the subject property become built-out, species that are sensitive to urban activity would be expected to be replaced by more urban tolerant species. This may indirectly affect the composition of the wildlife community in the subject property. However, aside from the GCWA, wildlife species and migratory birds likely to be utilizing the subject property are not known to be particularly unique or sensitive and are commonly found to some extent in both rural and urban environments. Given the current composition of the wildlife community in the vicinity of the subject property, the ultimate long-term effects to wildlife species and migratory birds in the local and regional environment are likely to be minor.

For context on the potential magnitude of this effect, Section 4.4 of the Service's Environmental Impact Statement for the Hays County RHCP describes the general wildlife communities of Hays County and the anticipated effects to wildlife communities under baseline "no action" conditions. In this context, on a county-level, impacts to general wildlife communities were described as potentially "moderate, direct, and indirect impacts to wildlife populations through habitat changes, introduction of non-native species, and other alterations to the natural balance of native wildlife species." Therefore, as the subject property only involves a very small proportion of the total area of Hays County, the relative magnitude of the effect of No Action on wildlife communities is expected to be diminished to minor levels.

For wildlife species of concern that use the aquatic surface and subterranean habitats of the Edwards Aquifer and the captive populations maintained at the fish hatchery, increasing land development in the surrounding region has the potential to have an overall cumulative negative effect. However, this effect is expected to be minor as all land development activities over the Edwards Aquifer are required to strictly adhere to the Edwards Aquifer Rules administered by the TCEQ to provide protection to the sensitive ground water resource and the aquatic species that inhabit it.

### **Proposed Action Alternative**

Under the Proposed Action, it is expected that the land will be cleared for development purposes. The loss of the woodland and shrubland habitats on the subject property would intensify the transition from rural to urban community composition in the immediate area. However, juniper-oak woodlands and juniper shrublands are common across the local and regional landscape and offer abundant replacement habitats. The current composition of the general wildlife community in the subject property includes many species that are common to both urban and rural environments. Many of the anticipated changes to wildlife communities in the local area are expected even without the removal of vegetation on the subject property. Given the current composition of the general wildlife species and migratory birds within the subject property, the ultimate long-term effects to wildlife communities in the local and regional environment are likely to be minor because most species are common and can move to other locations.

Contributing to the perpetual protection and management of GCWA habitat off-site by the purchase of credits from an approved conservation bank would be expected to have only negligible to minor long-term benefits for similar assemblages of wildlife species and migratory birds, given the abundance of these habitats across the regional landscape and because many common species are found in both rural and suburban areas. While there will be land development in the immediate vicinity of the subject property this would occur in phases, sporadically, and/or over several years, which would allow wildlife populations to habituate or find more suitable habitat that is abundant throughout Hays County (approximately 184,000 acres) and other adjacent counties.

Similar to the No Action alternative, impacts to the Edwards Aquifer species, including those captive populations maintained at the San Marcos Aquatic Resource Center fish hatchery, resulting from the Proposed Action are expected to be avoided because of the water quality protection measures as proposed by the applicant (discussed in Section 5.3.1) will be reasonably certain to avoid water quality impacts that result in taking any federally listed or candidate aquatic species within the Edwards Aquifer system. Additionally, most of the Paso Robles Development occurs over areas that do not directly recharge to the aquifer. While there is a potential for recharge originating from the subject property to appear in the fish hatchery wells (Musgrove and Crow 2012), the contribution of any such recharge to the quality or quantity of water pumped from these wells is likely to be negligible to minor. The subject property occurs over areas that do not directly recharge to the aquifer. Stormwater from these areas primarily collects in surface streams and flows downstream and to the east across the Edwards Aquifer Transition Zone where it exits the aquifer system just east of the property boundary. Therefore, there is little opportunity for rainfall incident on the Paso Robles Development to enter the aquifer at a point where uptake through the fish hatchery wells is likely. Furthermore, Musgrove and Crow (2012) determined that water pumped from the fish hatchery wells is not local, but rather regionally sourced, further reducing the potential for the Proposed Project to affect the water chemistry at the hatchery. Coupled with intensive water quality protection standards (Section 5.3.1.), impacts from the contribution of any such recharge to the quality or quantity of water pumped from these wells is not expected to cause a material, or even detectable, change in water chemistry at the fish hatchery wells. However, SMARC has been monitoring water quality at the two wells near the subject property for a baseline for two years and will be able to tell if water quality drops after development begins. Development on the subject property is not reasonably expected to result in take of any Edwards Aquifer species. In addition the Proposed Action would not adversely modify any designated critical habitat for federally listed Edwards Aquifer species (Service 2011).

### **Cumulative Effects**

As described in the *Hays County Regional Habitat Conservation Plan* (Loomis Partners et al. 2010), the cumulative effects of anticipated land use changes over the next 30 years within Hays County (mostly related to expanding land development) may be expected to alter the natural composition and stability of native wildlife communities. While the CAMPO anticipates an increase in population and associated residential development in the vicinity of the subject property from >0 and <2 persons per acre in 2010 (CAMPO 2010a) to >5 and <10 persons per acre in 2035, this area will still be considered a “low intensity” zone by the City of San Marcos (2013b). The potential significance of the resulting shift in wildlife communities is likely to be minor given the current mix of rural and urban land uses already present in the area, indicating wildlife in the area are habituated to existing disturbances. In addition, throughout the 434,335-acre county, approximately 89 percent is expected to remain undeveloped through 2040 (Loomis Partners et al. 2010), overall indicating that the subject property, coupled with other planned development in the area, is expected to have a minor impact on wildlife communities

### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative are minor relative to the anticipated effects of the No Action Alternative for other wildlife. This is based upon the fact that conservation actions under the Proposed Action would protect and manage similar habitats for the benefit of the GCWA, which would also benefit other conspecific wildlife. Additionally, the strong water quality protection measures under the Proposed Action would reduce potential water quality impacts for the benefit of the protected aquatic Edwards Aquifer species, as described above. In addition, the small relative size of the project site and the resources anticipated to be impacted will not be of an intensity to have a significant impact locally, regionally, or nationally. Therefore potential direct, indirect, and cumulative effects of the proposed action on other wildlife are anticipated to be minor.

### **5.3.6. Climate**

It is possible that the global climate may be affected by the use of equipment and machinery to clear vegetation and vehicles to transport materials and workers to and from the site. These types of machines generate some level of greenhouse gas emissions. All three of the major greenhouse gases, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), are produced by the burning of fossil fuels used to run heavy equipment, heavy and light trucks, and passenger vehicles.

#### **No Action Alternative**

Under the No Action alternative, there would be no impacts to the global climate because the Proposed Project would not be developed.

#### **Proposed Action Alternative**

Under the proposed project, it is expected that the land will be cleared for development purposes. Therefore, it is inevitable that some level of greenhouse gases would be emitted through the operation of land clearing-related equipment onsite and the operation of worker and supply vehicles traveling to and from the subject property. However, the contribution of these emissions to projections of global climate change is immeasurably small short-term minor and long-term negligible.

#### **Cumulative Effects**

Based on projections made by the Intergovernmental Panel on Climate Change (Intergovernmental Panel on Climate Change [IPCC] 2007), climate conditions in the region are expected to become warmer and drier. By the year 2050, the average annual temperature in the region could increase by 3.6 to 4.5 °F. Temperatures in the summer months are projected to increase with more days above 100° F, which would ultimately lead to dryer conditions and freezing temperatures are expected to become more rare over the winter months (ATMOS Research & Consulting 2014). Average annual precipitation is predicted to decrease very little in Central Texas, though the amount of rainfall extremes (i.e., flood events) is expected to slightly increase (ATMOS Research & Consulting 2014). The potential significance of these changes to the human environment is not well understood at this time.

#### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative are consistent with the anticipated effects of the No Action Alternative for climate. It is anticipated that some level of greenhouse gases would be emitted through the operation of land clearing-related equipment onsite and the operation of worker and supply vehicles traveling to and from the subject property. However, based upon the small relative size of the project site and the anticipated time it will take to clear the area, the contribution of these emissions

to projections of global climate change is immeasurably small and ultimately negligible. Potential cumulative impacts are not expected to be of an intensity to have significant impacts locally, regionally, or nationally. Therefore, negligible impacts to climate are anticipated.

### **5.3.7. Air Quality**

Short-duration effects to air quality may arise from the use of equipment and machinery during clearing of woodland vegetation from the subject property that could result in localized criteria pollutant emissions (i.e., exhaust or dust) being released into the environment. Long-term effects to air quality may occur from the added release of exhaust from residential or maintenance vehicles on the site once developed.

#### **No Action Alternative**

Under the No Action alternative, there would be no impacts to air quality because the Proposed Project would not be developed.

#### **Proposed Action Alternative**

The Proposed Project would be implemented in accordance with all applicable federal, state, and local air quality protection regulations, which would substantially minimize potential impacts to air quality. Given the size of the subject property, the potential air quality impacts from the use of equipment and machinery to clear vegetation would last for only a few days. Once the clearing is completed and ground surfaces stabilized, no additional air quality impacts would be expected. While long-term effects are expected to result from additional vehicle emissions associated with the residents using the subject property, these emissions would contribute negligibly and not lead to an exceedance of any criteria pollutants in the region because the residential footprint is small (i.e., less than the total 376-acre development as portions of the site would be maintained as a park or golf course) and Hays County is expected to remain in NAAQS attainment status through the 10-year life of the ITP and beyond (USEPA 2012). Therefore, the effects of the Proposed Action on air quality are negligible. Proposed conservation measures would not be expected to have any more than a negligible effect on air quality.

#### **Cumulative Effects**

Cumulatively, air quality in Hays County is monitored and regulated through the Clean Air Act. Programs that are in place to comply with the Clean Air Act ensure that air quality meets federal standards. Therefore, significant adverse cumulative effects are not expected.

#### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative on air quality are consistent with the anticipated effects of the No Action Alternative. Short-duration effects to air quality may arise from the use of equipment and machinery during clearing of woodland vegetation from the subject property that could result in localized criteria pollutant emissions (i.e., exhaust or dust) being released into the environment. However, based upon the required state and Federal laws that protect air quality as well as the small relative size of the project site and short-term duration of the clearing, impacts anticipated to occur will not be of an intensity to have a significant impact locally, regionally, or nationally. Therefore, negligible impacts to air quality are anticipated.

### **5.3.8. Noise**

Similar to air quality impacts, short-duration effects on area noise levels would likely occur as a result of the limited and localized operation of equipment and machinery to clear woodland vegetation from the subject property. Other long-term effects resulting from noise may occur from the added presence of residential or maintenance vehicles on the site once developed.

#### **No Action Alternative**

Under the No Action alternative, there would be no noise impacts to humans or wildlife because the Proposed Project would not be developed.

#### **Proposed Action Alternative**

Under the proposed HCP, it is expected that the land will be cleared for development purposes. Given the size of the subject property, the potential noise impacts from the use of equipment and machinery to clear vegetation would last for only a few days. Once the clearing is completed, no additional noise impacts would be expected. Noise pollution from additional vehicles associated with the residents using the Subject Property could occur over a long-term duration. However, the small size of the project, presence of surrounding similar development, and the time it would take to fully build out (i.e., several years) would increase the current ambient noise in the vicinity on an incremental scale and maintain acceptable noise levels throughout the life of the ITP. Therefore, the effects of the proposed HCP on noise are negligible. The proposed conservation measures would not be expected to have any more than a negligible effect on noise.

#### **Cumulative Effects**

Ambient noise in the local vicinity of the subject property would be expected to increase over time as the area becomes more developed and traffic on area roads increases. One major arterial and several minor arterials and collector lines are proposed for construction in the vicinity of the subject property (City of San Marcos 2013a), which would contribute to the overall ambient noise increase in the area. The Proposed Project would also contribute to the increase in noise related effects in the vicinity; however, this contribution to cumulative noise effects would be temporary and negligible.

#### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative for noise are consistent with the anticipated effects of the No Action Alternative. Short-duration effects on area noise levels would likely occur as a result of the limited and localized operation of equipment and machinery to clear woodland vegetation from the subject property. Other long-term effects resulting from noise may occur from the added presence of residential or maintenance vehicles on the site once developed. The anticipated impacts on noise levels relative to the cumulative effects of actions reasonably certain to occur in the vicinity of the project site are negligible. The small relative size of the project site and short-term duration of the clearing, impacts anticipated to occur will not be of an intensity to have a significant impact locally, regionally, or nationally. Therefore, negligible impacts from noise are anticipated.

### **5.3.9. Land Use**

The proposed project could contribute to a shift from a predominantly rural environment to a suburban environment.

### **No Action Alternative**

Land uses in the vicinity of the subject property are already shifting from rural farming and rangeland to suburban residential uses. While the subject property would remain undeveloped, the lands surrounding it would be developed for residential use. Therefore, the No Action alternative would have a negligible effect on the mix of land uses in the region, as both rural and residential uses are common in the area.

### **Proposed Action Alternative**

Under the proposed project, the land use of the 376-acre subject property would be converted from an undeveloped and vacant parcel to a low-density, mixed-use suburban development. This conversion is not particularly unique to the area as tracts of land in the vicinity and adjacent to the subject property have previously been converted in the same manner, though some may be more residential than others. While portions of the county are developed, the vast majority of it remains undeveloped at present. In 2001, developed lands consisted of approximately 23,518 acres, which was 5.4 percent of the county (Loomis Partners, Inc. et al. 2010, page 11). By 2040, Hays County is expected to have converted an additional 48,095 acres into developed lands, which is a total of 16.3 percent of the 437,335-acre county (Loomis Partners, Inc. et al. 2010). The 376-acre subject property's contribution to the total anticipated developed lands is negligible at 0.78 percent.

The conservation program would permanently protect 114.4 acres of undeveloped land from future transition to urban uses. However, given the relatively small area to be protected, the potential benefits of this conservation measure on land uses in the region are also negligible because the proposed conservation actions contribute 0.6 percent when compared to the overall scale of the 18,880 acres of permanently protected lands in Hays County expected by 2040, due to the Hays County Regional HCP.

### **Cumulative Effects**

Cumulatively, the effects of future population growth in southwest Hays County are expected to result in the development of approximately 48,095 acres over the next 30 years (Loomis Partners, Inc. et al. 2010). However, the many existing conservation actions that have occurred within this area already protect many thousands of acres of natural areas, parks, preserves, greenbelts, and other open spaces (i.e., golf courses or water quality buffers). Of these preserved areas, approximately 9,880 acres are considered to be potential GCWA habitat. An additional 9,000 acres of protected GCWA habitat is expected over the life of the *Hays County Regional Habitat Conservation Plan* (Loomis Partners, Inc. et al. 2010). Therefore, the region will retain a mix of developed and undeveloped land uses over time. Cumulative land use effects are likely to have a moderate adverse effect on the human environment.

### **Significance Analysis**

The anticipated effects of the Proposed Action Alternative on land use are consistent with the anticipated effects of the No Action Alternative. The proposed project could contribute to a shift from a predominantly rural environment to a suburban environment. The 376-acre subject property would be converted from an undeveloped and vacant parcel to a low-density, mixed-use suburban development. Tracts of land in the vicinity and adjacent to the subject property have previously been converted in the same manner, though some may be more residential than others. Based on the small relative size project site and its minor contribution to the total anticipated developed lands (0.78 percent), impacts anticipated to occur will not be of an intensity to have a significant impact locally, regionally, or nationally. Therefore, in light of the direct, indirect and cumulative effects on land use, the impacts of the proposed Action Alternative are anticipated to be negligible.

### **5.3.10. Socioeconomics**

The Proposed Project involves preparing the subject property for future residential development by clearing woodland vegetation. The Proposed Project could have an effect on the local job market as work crews are hired to complete the work. Ultimately, development of the subject property for residential purposes could alter the size of the local population or the racial, ethnic, or income distribution of the population. On an individual project level, the Proposed Project could have economic implications for the Applicant.

#### **No Action Alternative**

Under the No Action Alternative, the Applicant would construct Phase I of the Paso Robles Planned Development, which encompasses approximately 969 acres and would feature a range of low to medium-density housing, a golf course and other open spaces, neighborhood businesses, commercial uses, and associated infrastructure. Collectively, the entire proposed development would increase housing by up to 3,450 units in Hays County. Since the 376-acre Subject Property would not be developed, however, not all of this housing increase would be recognized within the County. For the purposes of this EA, it is assumed that Phase I would develop approximately 70% (2,415 homes) of the total potential housing units, increasing available County housing by approximately 4.1%. Assuming an average household size of 2.7 individuals (per Census 2010 results for Hays County), the partial development could increase total population by as much as 6,520 residents. This represents a potential population increase of 5.5% if all buyers were previously located outside of the County.

In 2014, median real estate taxes for homes with a mortgage within the closest census tract were \$3,718 (Census 2010-2014 American Community Survey Estimates). Therefore, at full build out of Phase I the proposed development could generate an estimated 9 million in property taxes.

For the local and regional population, the No Action alternative would have only a moderate effect on the total population and a negligible effect on the demographic make-up of the population. There would be some level of effect resulting from the lack of employment opportunities for work crews to clear the land and develop the Proposed Project; however, any effects on the local economy are likely to be negligible within Hayes County or the State of Texas due to the size of their economies relative to the impact of Phase I of this project.

#### **Proposed Action Alternative**

Under the Proposed Action, the Applicant would construct both phases of the Paso Robles Planned Development, adding approximately 1,035 homes. Therefore, at full build out the proposed development could generate an estimated additional 3.8 million in property taxes, while increasing housing availability by 2.4% in Hays County and increasing total population by as much as 2.3%.

The approved project is expected to cost approximately \$145 million in construction and infrastructure expenses less a tax increment reinvestment zone (SMM 2010; City of San Marcos 2010 and 2014). While the number of construction jobs created during development is hard to quantify; as will be the number of service sector jobs created to maintain the houses and golf course, the local economy will see some increase in employment both temporarily and more long-term. The cost of the development and the long-term tax revenue generated for the proposed project is likely to have a moderate socioeconomic impact to the City of San Marcos, which would be a minor impact to the socioeconomics of Hayes County and would be negligible at the scale of the State. The Proposed Action would have only a moderate to negligible effect on the population, demography, and economy of the local or regional area.

## **Cumulative Effects**

The long-term socioeconomic effects of anticipated development in Hays County is described in the Final Environmental Assessment for the Hays County Regional Habitat Conservation Plan (USFWS, 2010), and is incorporated hereto by reference. This 376-acre project site, while not specifically named, is part of the growth anticipated within Hayes County during the 30-year term of the Hays County Regional HCP. The anticipated number of acres likely to be developed both for private and public projects is anticipated to be 57,695 acres of the 434,335 acres that makes up the County. It is anticipated that by 2040, Hays County will have a population will reach 375,873. The county is anticipated to experience a 4.4 percent average growth in jobs over this same period, with a 4 percent average annual increase in per capita income

## **Significance Analysis**

The anticipated effects of the Proposed Action Alternative on socioeconomics are similar with the anticipated effects of the No Action Alternative. The Proposed Project could have an effect on the local job market as work crews are hired to complete the work. Ultimately, development of the subject property for residential purposes could alter the size of the local population or the racial, ethnic, or income distribution of the population. In light of the cumulative effects anticipated in the area of the project and Hayes county, the socioeconomic effects of this project are anticipated to be negligible to moderate based upon scale. These impacts are not anticipated to be significant locally, regionally, or nationally.

## **6. CONCLUSIONS**

The Proposed Action is the Applicant’s preferred alternative for this project because it provides conservation benefits to the GCWA in accordance with the issuance criteria of an ITP and is practical for the Applicant to implement with respect to the economic circumstances of the project. Neither the Proposed Action nor the two alternatives would have a significant direct, indirect, or cumulative effect on the human environment as described in the Effects Analysis in Section 5. The potential effects of the action alternatives to environmental resources would be generally negligible to minor in nature, particularly when compared to the expected effects of the baseline No Action alternative (see Table 7).

**Table 7.** Significance Analysis of Environmental Consequences of the Considered Alternatives

<b>Resource</b>	<b>No Action Alternative (Baseline) Impact Significance</b>	<b>Proposed Action Impact Significance</b>	<b>Significance Compared to Baseline</b>
Water Resources	None	, negligible to minor	No Significant Impact
Prime Soils and Unique Agricultural Lands	None	minor	No Significant Impact
Vegetation Communities	None	minor	No Significant Impact
HCP Covered Species	None	Localized, long-term minor and minor beneficial effects	No Significant Impact
Other Wildlife (including Edwards Aquifer species and migratory birds)	Minor	Minor	No Significant Impact
Climate and Climate Change	none	minor	No Significant Impact
Air Quality	none	negligible	No Significant Impact
Noise	none	negligible	No Significant Impact

**Table 7.** Significance Analysis of Environmental Consequences of the Considered Alternatives

<b>Resource</b>	<b>No Action Alternative (Baseline) Impact Significance</b>	<b>Proposed Action Impact Significance</b>	<b>Significance Compared to Baseline</b>
Land Use	negligible	negligible	No Significant Impact
Socioeconomics	Moderate to Negligible	moderate to negligible	No Significant Impact

## 7. REFERENCES

- ATMOS Research & Consulting. 2014. Climate Change Projections for the City of Austin. Draft Report April 2014. Available at: [https://austintexas.gov/sites/default/files/files/Sustainability/atmos\\_research.pdf](https://austintexas.gov/sites/default/files/files/Sustainability/atmos_research.pdf). Accessed on: August 27, 2015.
- Audubon International. 2013. Audubon Cooperative Sanctuary Program for Golf. <http://www.auduboninternational.org/acspgolf>. Last accessed October 10, 2013.
- Bandera Conservation Corridor, LLC and U.S. Fish and Wildlife Service. 2011. Bandera Corridor Conservation Bank Agreement, executed August 2011. 26pp + appendices.
- Batte, C. D. 1984. *Soil Survey of Comal and Hays Counties-Texas*. U.S. Gov. Print. Office, Washington, D.C.
- Blome, C.D., J.R. Faith, and G.B. Ozuna. 2007. Geohydrologic framework of the Edwards and Trinity aquifers, south-central Texas. U.S. Geological Survey. Fact Sheet 2006–3145. Reston, Virginia. 1 page plus attachments.
- Chesser, R. Terry, Richard C. Banks, F. Keith Barker, Carla Cicero, Jon L. Dunn, Andrew W. Kratter, Irby J. Lovette, Pamerla C. Rasmussen, J.V. Remsen, James D. Rising, Douglas R. Stotz, and Kevin Winker. 2011. Fifty-second supplement to the American Ornithologists' Union check-list of North American Birds. *The Auk*, Vol. 128, Number 3, pages 600 – 613. July 2011.
- Campbell, L. 2003. Endangered and threatened animals of Texas: their life history and management. Texas Parks and Wildlife Department, Austin, Texas. 127 pp.
- Capital Area Metropolitan Planning Organization (CAMPO). 2010a. Population Density in 2010 Plan Scenario, CAMPO Region. <http://campotexas.wpengine.com/wp-content/uploads/2013/10/Population-Density-in-2010-Plan-Scenario.pdf>. Accessed July 8, 2015.
- . 2010b. Population Density in 2035 Plan Scenario, CAMPO Region. <http://campotexas.wpengine.com/wp-content/uploads/2013/10/Population-Density-in-2035-Plan-Scenario.pdf>. Accessed July 8, 2015.
- City of San Marcos. 2010. A resolution of the city council of the City of San Marcos, Texas, approving a development agreement with Carma Paso Robles, LLC; and declaring an effective date. Resolution No. 2010-148R. Adopted on October 5, 2010.
- . 2013a. Major thoroughfare plan map. City of San Marcos, Transportation Master Plan. Available at: [http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDIQFjAB&url=http%3A%2F%2F66.90.243.131%2Fpostedagenda%2FAttachmentViewer.aspx%3FAttachmentID%3D2294%26ItemID%3D913&ei=H-f7UemBEuHsigKzk4HgBQ&usg=AFQjCNGeguGwpI6dPzOO8L3xOxLEwsKz6w&sig2=Kab99jGxFkCDoQ\\_sVs0O3g&bvm=bv.50165853,d.cGE&cad=rja](http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDIQFjAB&url=http%3A%2F%2F66.90.243.131%2Fpostedagenda%2FAttachmentViewer.aspx%3FAttachmentID%3D2294%26ItemID%3D913&ei=H-f7UemBEuHsigKzk4HgBQ&usg=AFQjCNGeguGwpI6dPzOO8L3xOxLEwsKz6w&sig2=Kab99jGxFkCDoQ_sVs0O3g&bvm=bv.50165853,d.cGE&cad=rja). Accessed on August 2, 2013.
- . 2013b. Vision San Marcos: A River Runs Through Us. Comprehensive Plan. <http://www.sanmarcostx.gov/modules/showdocument.aspx?documentid=7727>. Accessed on July 8, 2015.
- . 2014. City of San Marcos Meeting Minutes City Council. Dated September 2, 2014. [http://sanmarcos-tx.granicus.com/MediaPlayer.php?view\\_id=9&clip\\_id=843&meta\\_id=39600](http://sanmarcos-tx.granicus.com/MediaPlayer.php?view_id=9&clip_id=843&meta_id=39600) Accessed on July 8, 2015.

- Eckhardt, G. 2013. Endangered Species of the Edwards Aquifer. Available at: <http://www.edwardsaquifer.net/species.html>. Accessed on July 24, 2013.
- ESRI. 2013. USA population density. Environmental Systems Research Institute Base map data layer. [http://goto.arcgisonline.com/maps/Demographics/USA\\_Population\\_Density](http://goto.arcgisonline.com/maps/Demographics/USA_Population_Density). Accessed July 25, 2013.
- Groce, J.E., H.A. Mathewson, M.L. Morrison, and N. Wilkins. 2010. Scientific evaluation for the 5-year status review of the golden-cheeked warblers. Prepared for the U.S. Fish and Wildlife Service. Texas A&M University, College Station, Texas. Institute of Renewable Natural Resources and the Department of Wildlife & Fisheries Sciences. 194 pp.
- Federal Emergency Management Agency (FEMA). 2013. DFIRM Map Nos. 48209C0459F, 48209C457F, 48209C0476F, and 48209C0478F. Available at: <https://hazards.fema.gov/femaportal/wps/portal>. Accessed July 25, 2013.
- Harper, J.J. 2008. Geological assessment of the Paso Robles Project Site, San Marcos, Texas. Prepared for Carma Paso Robles LLC. Austin, TX. 30pp.
- Hays Central Appraisal District (HCAD). 2012. 2012 property appraisal records. Available at: [www.hayscad.org](http://www.hayscad.org). Accessed July 25, 2013.
- Horizon Environmental Services, Inc. (Horizon). 2007a. Archaeological Survey Progress Summary, Center Point Tract, San Marcos, Hays County, Texas. HJN 070016AR. Letter report submitted to Smith, Robertson, Elliot, Glen, Kein, and Bell, LLP on August 7, 2007.
- . 2007b. Results of golden-cheeked warbler survey on approximately 1300-acre parcel of Center Point Tract, San Marcos, Hays County, Texas. HJN 070016TE. Letter report submitted to Carma Texas, Inc. May 16, 2007.
- . 2008. Results of golden-cheeked warbler survey on approximately 1300-acre parcel of Center Point Tract, San Marcos, Hays County, Texas. HJN 070016TE. Letter report submitted to Carma Texas, Inc. May 28, 2008.
- . 2009. Results of golden-cheeked warbler survey on approximately 400-acre parcel of Center Point Tract, San Marcos, Hays County, Texas. HJN 070016 TE 03. Letter report submitted to Carma Texas, Inc. May 4, 2009.
- . 2010. Results of golden-cheeked warbler survey on approximately 400-acre portion of Paso Robles, San Marcos, Hays County, Texas. Letter report submitted to Carma Texas, Inc. June 1, 2010.
- . 2012. Figure 2 – GCW territory map – Paso Robles Tract, Center Point Road, San Marcos, Hays County, Texas. June 8, 2012.
- Johnson, K.T., Wickham-St. Germain, M., Ko, S. and Huling, S.G. 2012. Binary Mixtures of Permanganate and Chlorinated Volatile Organic Compounds in Groundwater Samples: Sample Preservation and Analysis. *Ground Water Monit. Remed.*, 32(3), Summer 84–92.
- Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, United Kingdom, and New York, New York (online). Available at: [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/ch1.html](http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch1.html). Accessed July 25, 2013.
- Kutac, E.A. and S.C. Caran. 1994. Birds and other wildlife of south central Texas: a handbook. University of Texas Press, Austin, TX. 203 pp.

- Ladd, C.; Gass, L. 1999. Golden-cheeked Warbler *Dendroica chrysoparia*. In: Poole, A.; Gill, F. (ed.), *The birds of North America*, No. 420, pp. 1-24. The Academy of Natural Sciences, Philadelphia and the American Ornithologists' Union, Philadelphia and Washington, DC.
- Loomis Partners, Inc. (Loomis Partners). 2011. Southern Edwards Plateau Habitat Conservation Plan – Application Draft, version December 19, 2011. Prepared for County of Bexar, Texas. Austin, TX. 174 pp+ attachments.
- . Smith, Robertson, Elliott, Glen, Klein, and Bell, LLP; Zara Environmental, LLC; J. Lessard; Texas Perspectives, LLC; and Captiol Market Research. 2010. Hays County Regional Habitat Conservation Plan. Prepared for Hays County Commissioners' Court, San Marcos, Texas. 159 pp.
- Musgrove, M., and Crow, C.L., 2012, Origin and characteristics of discharge at San Marcos Springs based on hydrologic and geochemical data (2008–10), Bexar, Comal, and Hays Counties, Texas: U.S. Geological Survey Scientific Investigations Report 2012–5126, 94 p.
- Nielsen-Gammon, J.W. 2008. The changing climate of Texas. *in* The impact of global warming on Texas, J. Schmandt, J. Clarkson, and G.R. North, eds. University of Texas Press. Austin, Texas. 33 pp.
- San Marcos Mercury (SMM). 2010. City council hires Nuse, approves Robles deal. <http://smmercury.com/2010/10/06/city-council-hires-nuse-approves-paso-robles-deal/>. Accessed on July 8, 2015.
- SWCA Environmental Consultants (SWCA). 2013a. Cultural Resources Background Review for the 376-acre Paso Robles HCP/EA Project, SWCA Project No. 26672.
- . 2013b. Habitat Conservation Plan for the Paso Robles Development in San Marcos, Hays County, Texas. Prepared for Carma Paso Robles, LLC, Austin, Texas. SWCA Project Number 26672. 26 pp.
- . Smith, Robertson, Elliott, Glen, Klein, and Bell, LLC; Prime Strategies, Inc.; Texas Perspectives, Inc.; and Capitol Market Research, Inc. 2009. Draft Comal County regional habitat conservation plan (April 1, 2009). Prepared for Comal County Commissioners' Court, New Braunfels, Texas. SWCA Project Number 12659-139-AUS. 126 pp.
- Texas Historical Commission (THC) 2013 Texas Archeological Sites Atlas (TASA) Electronic Database. <http://nueces.thc.state.tx.us/>. Accessed July 25, 2013.
- Texas Parks and Wildlife Department (TPWD) and Texas Natural Resource Information System (TNRIS). 2010. Texas vegetation classification project – Phase 3. GIS raster data and interpretive guide.
- U.S. Census Bureau. 2010. Census 2010 Summary File 1 – profile of general population and housing characteristics. <http://www.census.gov/2010census>. Accessed July 25, 2013.
- . 2011. 2007-2011 American Community Survey 5-year estimates – selected social and economic characteristics in the United States. <http://factfinder2.census.gov>. Accessed July 25, 2013.
- U.S. Environmental Protection Agency (USEPA). 2012. Air Quality Designations for the 2008 Ozone National Ambient Air Quality Standards. Implementation of the 2008 National Ambient Air Quality Standards for Ozone: Nonattainment Area Classifications Approach, Attainment Deadlines and Revocation of the 1997 Ozone Standards for Transportation Conformity Purposes. Final Rules, May 21, 2012. Federal Register 77(98):30088–30160.
- U.S. Fish and Wildlife Service (Service). 2003. Fish and Wildlife Service NEPA reference handbook. [www.fws.gov/r9esnepa/NEPA%20Handbook%20TOC.pdf](http://www.fws.gov/r9esnepa/NEPA%20Handbook%20TOC.pdf).

- . 2010a. Final Hays County Regional Habitat Conservation Plan Environmental Impact Statement. Final May 1, 2010. Austin, Texas. 05pp. <http://www.hayscountyhcp.com/docs/BP031334%20FINAL%20EIS%20Hays%20County%20RHCP%20May%201%202010.pdf>. Accessed September 1, 2015.
- 2010b. USFWS Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys and Habitat Assessments for Endangered Golden-cheeked Warblers. [http://www.fws.gov/southwest/es/Documents/R2ES/GCWA\\_Survey\\_Guidelines\\_20100113.pdf](http://www.fws.gov/southwest/es/Documents/R2ES/GCWA_Survey_Guidelines_20100113.pdf). Accessed July 8, 2015.
- . 2011. Biological and Conference Opinions for the Edwards Aquifer Recovery Implementation Program Habitat Conservation Plan – Permit TE-63663A-0 (Consultation No. 21450-2010-F-0110). Austin, Texas. Available at: [http://www.eahcp.org/files/admin-records/NEPA-and-HCP/USFWS\\_Bio\\_and\\_Conference\\_Opinion\\_3-25-13.pdf](http://www.eahcp.org/files/admin-records/NEPA-and-HCP/USFWS_Bio_and_Conference_Opinion_3-25-13.pdf). Accessed on August 6, 2013.
- . 2012. National Wetland Inventory. Wetlands Data file for Google Earth. Last revised October 1, 2012. <http://www.fws.gov/wetlands/Data/Google-Earth.html>. Accessed July 25, 2013.
- . and National Marine Fisheries Service (NMFS). 1996. Habitat conservation planning handbook. USFWS and NMFS, Washington, DC. November 1996.

## **APPENDIX A**

### **List of Preparers and Agencies Consulted**

**Table A-1. List of Preparers and Agencies Consulted.**

<b>Company/Agency</b>	<b>Preparer / Consulted Staff</b>
Horizon Environmental Services	Abby Peyton, Cultural Resource Project Manager (2007) Greg Sherrod, Environmental Specialist (2008, 2009, 2010) Lee Sherrod, Vice President (2007, 2008, 2009, 2010) Scott Flesher, Environmental Project Manager (2008) Shannon Dorsey, Principal, Ecology Group Manager (2007, 2008)
SWCA Environmental Consultants	Kaolin Young, Environmental Specialist (2014) Ken Lawrence, Field Director/Archaeologist (2013) Kensley Greuter, Project Manager/Certified Wildlife Biologist (2014, 2015)
U.S. Fish and Wildlife Service	Moni Belton, Fish and Wildlife Biologist , Texas Coastal ESFO Tanya Sommer, Chief, HCP and Section 7 Branch, Austin ESFO Adam Zerrenner, Field Supervisor, Austin ESFO Tom Brandt, Project Leader, San Marcos Aquatic Resource Center Kenneth Ostrand, Deputy Center Director, SMARC
Texas Commission on Environmental Quality	Carolyn Runyon, Water Section Manager (2013)
Texas Historical Commission (SHPO)	Jonathan H. Jarvis, TexSite & Atlas Coordinator (2007)
Texas Parks and Wildlife Department	Bob Gottfried, Texas Natural Diversity Database Administrator (2013)