

**RECONNAISSANCE AND INTENSIVE SURVEY FOR THE  
SIXMILE CREEK FLOOD CONTROL IMPROVEMENTS AND  
SOUTH FLORES STREET BRIDGE REPLACEMENT,  
SAN ANTONIO, BEXAR COUNTY, TEXAS**

***DRAFT***

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## **MANAGEMENT SUMMARY**

The project consisted of reconnaissance survey of the 6.8-mile (10.9 kilometer) portion of Sixmile Creek for which flood control improvements are proposed, and intensive survey through backhoe trenching at South Flores Street for a proposed bridge replacement. The project area lies in south San Antonio, Bexar County, beginning at the San Antonio River on the east and running west and then northwest along the creek ending near Wagner Avenue. Much of the creek west of Roosevelt Avenue has been channelized. Maximum project width was 130 meters in Bellaire Park, but most of the project impacts fell within a 12-meter-wide corridor. The purpose of the cultural resources investigation was to determine the presence/absence of archeological resources and to identify those cultural resources to be further investigated to clarify their significance for inclusion in the National Register of Historic Places or for designation as a State Archeological Landmark. The project was carried out under Texas Antiquities Permit Number 5974.

Most of Sixmile Creek has been channelized, and therefore Geo-Marine conducted a windshield reconnaissance westward from Roosevelt Avenue to Wagner Avenue on the northwest at the upper end of its flow, and a reconnaissance walkover survey eastward from just west of Roosevelt Avenue to the San Antonio River, with careful examination of the creek banks in areas that indicated the potential for buried horizons. Backhoe trenching was undertaken at the Flores Street bridge replacement area. Fieldwork was undertaken on June 13, 21-22, 2011. Results of fieldwork indicated that the integrity of the deposits within the project area west of Roosevelt Avenue has been significantly impacted by the previous channelization of Sixmile Creek. Future channel improvements would not impact any deposits that have not already been impacted by previous construction; thus, no further work is recommended west of Roosevelt Avenue. The

project area to the east of Roosevelt Avenue, although unchannelized, has been exposed to significant erosion due to the high volume and velocity of water from the upstream channelization. However, several areas were encountered which are recommended for further archaeological investigations. Backhoe trenching is recommended in the area where the southern boundary of site 41BX789, a historic cemetery, approaches the northern edge of the current project area. Shovel testing is recommended along an intact low terrace which begins at the first treeline east of Roosevelt Avenue and continues eastward to the intersection of Sixmile Creek with East Ashley Road. Within this stretch, a historic structure identified as the Airport Captain's House, was encountered just outside of the project area. As glass fragments were found adjacent to the structure and close to the southern edge of the project area, shovel testing is recommended to determine if cultural materials associated with the structure extend into the project area. A more detailed assessment as to potential eligibility is also recommended for this structure. Additionally, although no evidence of site 41BX249 was observed on the ground surface during the walkover, shovel testing is also recommended at the eastern end of the project area where site 41BX249 is mapped along the artificial embankment within the project area boundary. Finally, several structures were found just outside of the project area south of East Ashley Road that may be historic in age. Since the structures will not be directly impacted by the proposed channel improvements, no further work is currently recommended. However, if future impacts are anticipated for these structures, archaeological and architectural considerations are recommended. No further work is recommended for the portion of the project area south of East Ashley Road or for other areas along the artificial embankment north of East Ashley Road.

The intensive survey conducted for the bridge replacement at South Flores Street and Roosevelt Avenue included four backhoe trenches excavated adjacent to the existing concrete channels. The excavations encountered disturbances associated with the previous channelization including fill up to a meter below the surface. A relatively intact profile was encountered below the fill in three of the four trenches; however, no artifacts or naturally buried living surfaces were encountered that would suggest that intact archaeological deposits or living surfaces are deeply buried in the APE. Thus, no further archaeological work is recommended in the area to be impacted by the proposed bridge replacement.

Upon the completion of the project, all data generated during the project will be curated at the Center for Archeological Research, the University of Texas at San Antonio.

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## **CHAPTER 1 INTRODUCTION**

The project consisted of a cultural resources reconnaissance survey of the 6.8-mile (mi; 10.9 kilometer [km]) portion of Sixmile Creek for which flood control improvements are proposed, and intensive survey through backhoe trenching at South Flores Street for a proposed bridge replacement (Geo-Marine project # 30242.08.01). The project area lies in south San Antonio, Bexar County, beginning at the San Antonio River on the east and running west and then northwest along the creek ending near Wagner Avenue (Figures 1 and 2). Much of the creek west of Roosevelt Avenue has been channelized. Maximum project width was 130 meters (m; 427 feet [ft]) in Bellaire Park, but most of the project impacts fell within a 12-m-wide (39 ft) corridor. The purpose of the cultural resources investigation was to determine the presence/absence of archeological resources and to identify those cultural resources to be further investigated to clarify their significance for inclusion in the National Register of Historic Places (NRHP), as per Section 106 of the National Historic Preservation Act of 1966, as amended, or for designation as a State Archeological Landmark (SAL) under the Antiquities Code of Texas. The project was carried out under Texas Antiquities Permit Number 5974.

Since most of Sixmile Creek west of Roosevelt Avenue has been channelized, Geo-Marine conducted a windshield reconnaissance westward from Roosevelt Avenue to Wagner Avenue on the northwest project terminus at the upper end of the creek flow. The reconnaissance survey of this portion of the corridor consisted primarily of windshield survey along streets adjacent to the creek, with photographs to identify impacted/non-impacted areas and those that might require additional investigation. Close examination of creek bank walls occurred in areas that indicated the potential for buried horizons.



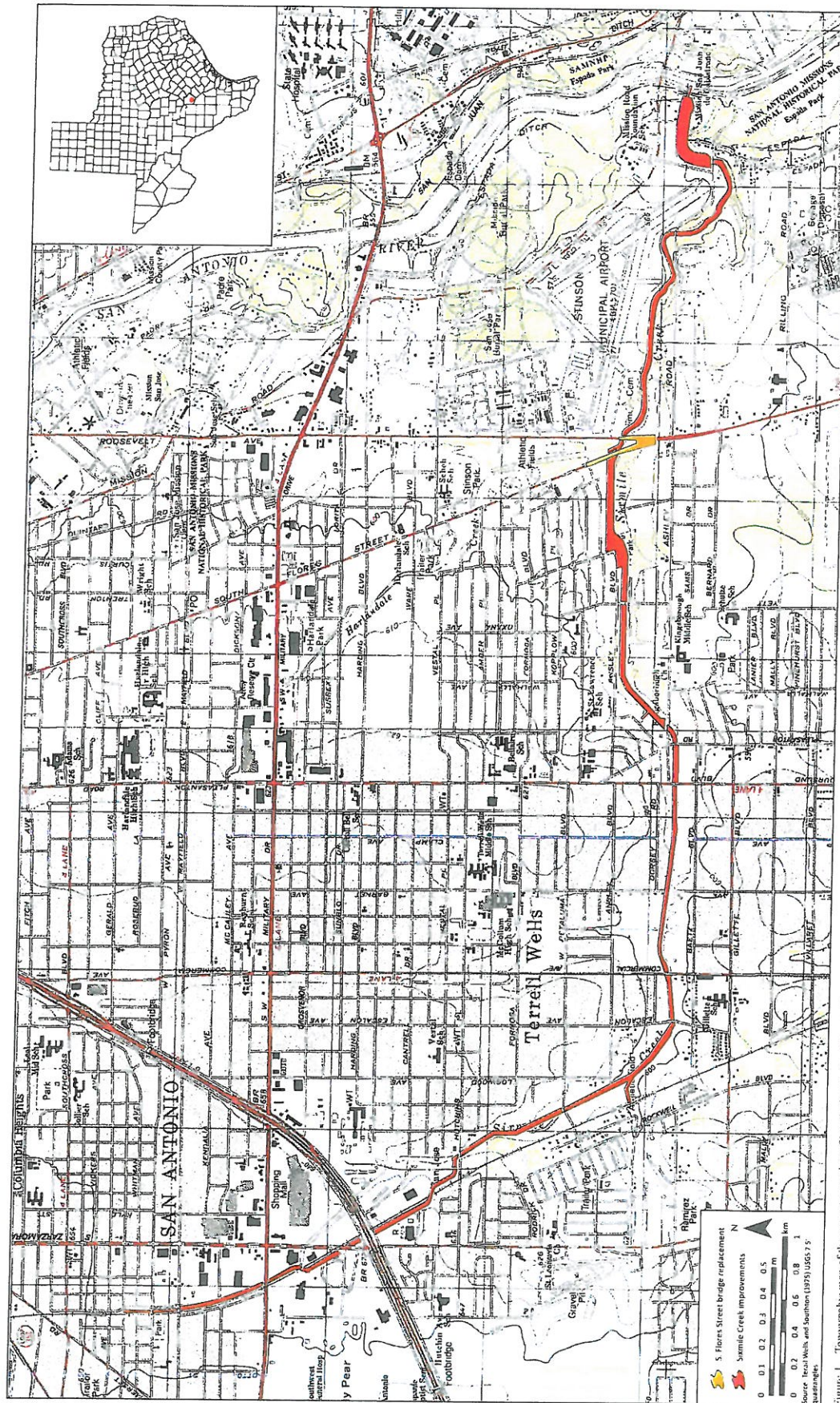


Figure 1 Topographic map of the project area along Svalmle Creek, San Antonio, Texas



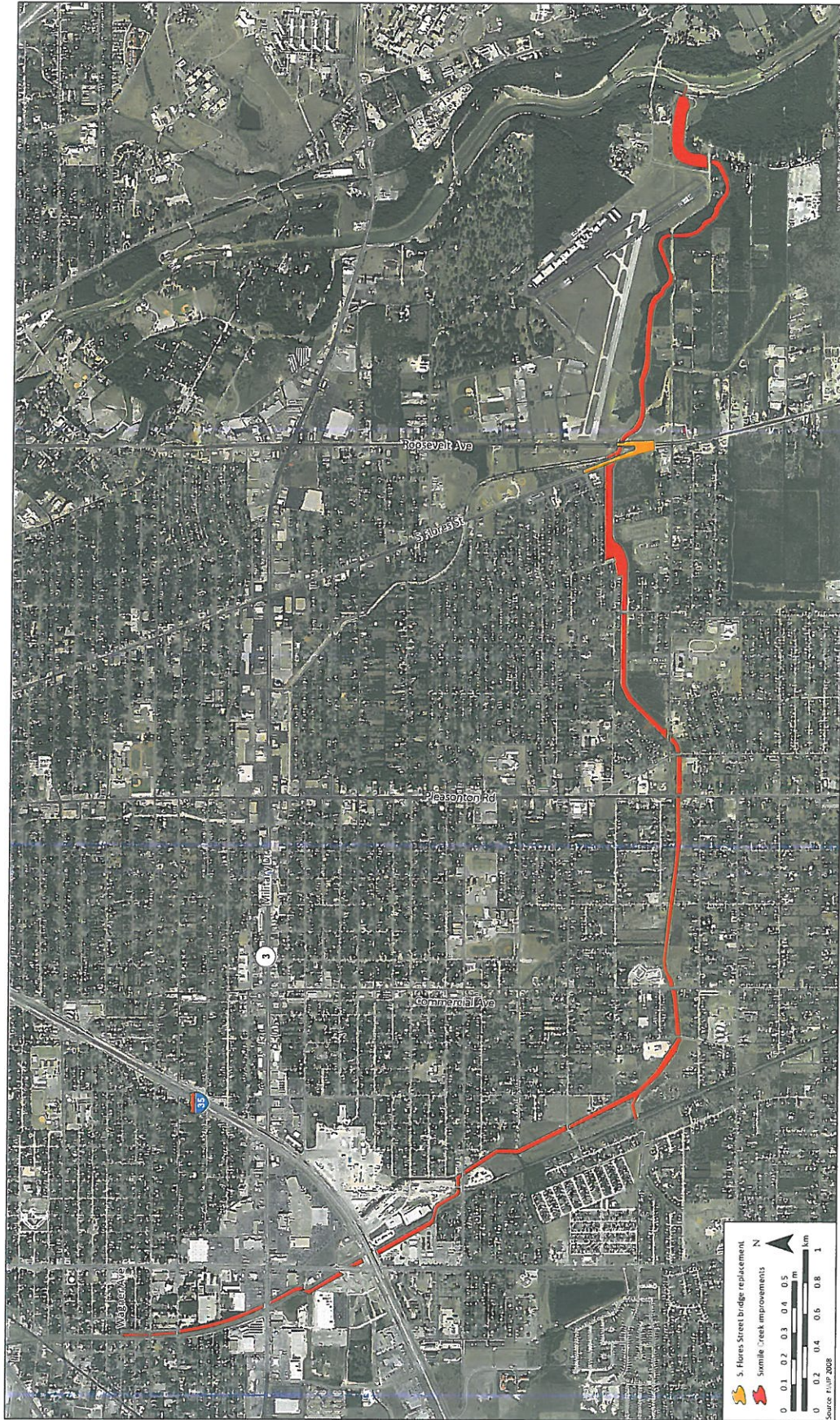


Figure 2. Aerial imagery of the project area along Sixmile Creek, San Antonio, Texas.



The area east of Roosevelt Avenue is less developed and crosses the San Antonio River floodplain. Therefore, a reconnaissance walkover survey eastward, from just west of Roosevelt Avenue, to the San Antonio River was undertaken with careful examination of the creek banks. Backhoe trenching was conducted in the Flores Street bridge replacement area. Several investigations have occurred along the north side of the creek in this area in response to the sensitivity zones associated with previously recorded site 41BX789, the paupers' cemetery (see Cave et al. 2003; Cox et al. 1989; Tiné 2008; Uecker 1996), as well as three San Antonio Water System (SAWS) projects (Green 2008; Tiné 2005; Tiné and Largent 2005); this work resulted in evidence of impacts and heavy use of fill materials in the upper sediments of the creek banks. Optimum placements of backhoe trenches within this portion of the project area were selected as a means of identifying buried land surfaces, locating buried sites, and documenting Holocene depositional environments, as well as for identifying disturbed areas. Backhoe trenches were placed in the floodplain of Sixmile Creek at its intersection with Flores Street and Roosevelt Avenue. The bridge was also evaluated for its historic eligibility.

Fieldwork was undertaken by Project Archeologist Ben Fullerton on June 13, 21-22, 2011. Upon the completion of the project, all data generated during the project will be curated at the Center for Archeological Research (CAR), University of Texas at San Antonio.



## **CHAPTER 2**

### **ENVIRONMENTAL SETTING**

#### **TOPOLOGY AND PHYSIOGRAPHY**

The Balcones Escarpment, a broad area of faulted limestone that forms the southern and eastern edge of the Edwards Plateau, primarily governs the regional physiography. This escarpment rises approximately 1,000 feet above the coastal prairie that lies to the south and east, and has a marked influence on the environmental setting. The escarpment extends from near Del Rio, Texas, about 160 miles to the west, through northern Bexar County, to Austin (70 miles to the northeast). Remnants of the escarpment extend as far north as Waco. This physical feature runs northeast to southwest through the San Antonio area.

To the northwest of the escarpment lies the Edwards Plateau, a rugged hilly region dissected by many small streams. Within the San Antonio region, the Edwards Plateau is drained by Cibolo and Balcones creeks and contains the headwaters of Culebra, Leon, and Salado creeks (Taylor et al. 1991:119). Plateau elevations range from 1,100 to 1,900 feet. Fenneman (1931) mapped the Edwards Plateau as part of the Great Plains Province.

The Gulf Coastal Plain (also called the Rio Grande Plain) Province lies southeast of the Balcones Escarpment. It consists of nearly level or undulating prairie, and elevations range from 450 to 700 feet. The Medina and San Antonio rivers, Cibolo Creek, and their tributaries drain the province (Taylor et al. 1991:119).

The Blackland Prairie physiographic area falls along the base of the escarpment in the region in which the present project area is situated (Taylor et al. 1991). The Blackland Prairie is undulating and hilly, and elevations range from 700 to 1,000 feet. Within the San Antonio region, the Blackland Prairie is drained by the San Antonio River and by tributaries of the Medina River and Cibolo Creek (Taylor et al. 1991:119). This physiographic area is also known as part of the Taylor/Navarro Plain. Much of this plain is covered with gravelly terrace deposits, and some valleys are cut by stream erosion. Sixmile Creek, historically known as Piedras Creek, is a tributary of the San Antonio River and occurs inside the current project area.

## **HYDROLOGY**

The hydrology of the region is derived from subsurface aquifers and from surface drainages that emanate from the Balcones Escarpment. The Comanche Peak, Edwards, and Georgetown Limestone formations comprise a hydrologic unit known as the Edwards Underground Reservoir or Edwards Aquifer. This aquifer extends along the Balcones Fault Zone from Kinney County through Uvalde, Medina, Bexar, and Comal counties and terminates in Hays County. Seventeen cities, including San Antonio, and local communities depend on the Edwards Aquifer for their domestic water supply. The formations on the Edwards Plateau form an extensive perched water table, from which the residents derive their water. In places where the Edwards Plateau outcrops to the south, numerous springs and seeps occur and form the baseflow for several of the perennial streams in the area. The location of these springs and seeps influenced both prehistoric and historic settlement patterns in the area (Gerstle et al. 1978:26). In the area below the escarpment, where the Edwards Plateau outcrops, water reenters the formation through solution cavities that have developed along fractures in the limestone. Recharge to the aquifer is primarily from streams that flow across its outcrop in the Fault Zone, although some recharge is from direct precipitation on the outcrop.

At various places downslope from the recharge zones, water reaches the surface under hydraulic pressure through faults that reach the surface. These water sources have formed springs and artesian wells. Hill and Vaughn (1898) listed 40 artesian wells in San Antonio. Six major springs, as well as countless other small springs and seeps, are present in Bexar County. The San Antonio River occurs east of the project area. Sixmile Creek, a tributary west the river, flows across the project area. The alluvial valley of the creek and the river is considered to be a modern flood plain.

## **GEOLOGY AND GEOMORPHOLOGY**

The underlying geology for the portion of the project area east of about Pleasanton Road is Holocene Fluvial terrace deposits, and west of Pleasanton Road is Pleistocene Leona Formation (Bureau of Economic Geology 1982). The general soil associations for the portion east of about Pleasanton Road is the Venus-Frio-Trinity association, but the Lewisville-Houston-Black, terrace, association covers the western portion (Taylor et. al. 1991). The specific soils at the creek are Trinity and Frio, frequently flooded until north of Formosa Street where it falls on Lewisville silty clay, 1 to 3 percent slopes, ending on Lewisville silty clay, 0 to 1 percent slopes. Houston Black clay, terrace, 1 to 3 percent slopes are found adjacent along the corridor until reaching Petaluma Boulevard (Taylor et. al. 1991).

The underlying geology for the portion of the project from just west of Roosevelt Avenue to the San Antonio River is Holocene Fluvial terrace deposits (Bureau of Economic Geology 1982) and the general soil association for this area is the Venus-Frio-Trinity, which are deep, calcareous soils on bottomlands and terraces (Taylor et. al. 1991). The specific soils at the creek are Trinity and Frio, frequently flooded bounded by Lewisville silty clay, 1 to 3 percent slopes, north of the creek, and Houston Black clay, terrace, 1 to 3 percent slopes, south of the creek.

The underlying geology for the portion of the project area at the bridge replacement at South Flores Street is Holocene Fluvial terrace deposits (Bureau of Economic Geology 1982) and the general soil association for this area is the Venus-Frio-Trinity, which are deep, calcareous soils on bottomlands and terraces (Taylor et. al. 1991). The specific soils at the creek are Trinity and Frio, frequently flooded, bounded by Lewisville silty clay, 1 to 3 percent slopes, north of the creek and Houston Black clay, terrace, 1 to 3 percent slopes, south of the creek.

The San Antonio River within the Mission Reach portion of the project area has been totally modified and rechannelized by dredging, filling, bank stabilization, damming, and flood control developments, making characterization of the former channel pattern difficult. GeoProbes excavated in various terrace localities during previous work (Peter et al. 2006) suggest that, prior to modification, river bedload was predominantly sand and gravel with silts and clays forming the bulk of overbank flood deposits.

## CLIMATE

Bexar County is located on the edge of the Western Gulf Coastal Plain, resulting in a modified subtropical climate. The summer is hot, and daily maximum temperatures exceed 90°F over 80 percent of the time. Normal mean temperatures range from a low of 62.3°F in January to a high of 94.2°F in August. Mild weather prevails during much of the winter months; below-freezing temperatures occur on an average of about 20 days each year. Relative humidity averages about 80 percent during the early morning hours most of the year, and drops to near 50 percent in the late afternoon.

San Antonio is situated between a semi-arid area to the west and the coastal area of heavy precipitation to the southeast. The average annual rainfall of 27.89 inches (in) is sufficient for the normal production of most crops. Precipitation is fairly well distributed throughout the year, with the heaviest amounts occurring during May and September. Precipitation from April through September usually occurs as thunderstorms in which fairly large amounts fall in short periods of time, but most of the winter precipitation occurs as light rain or drizzle. Because of its proximity to the Gulf, storms of a tropical nature also occur and result in high winds and prolonged rainfall. Thunderstorms and heavy rainfalls have occurred in all months of the year. Hail of damaging intensity seldom occurs, but light hail is frequent in connection with the springtime thunderstorms. Measurable snow occurs only once in three or four years (Taylor et al. 1991:118–121).

## FLORA AND FAUNA

Bexar County is situated in a transitional zone between three physiographic regions, and therefore, the flora is a mixture of three biotic provinces: the Balconian (associated with the Edwards Plateau), the Texan (associated with the Blackland Prairie), and the Tamaulipan (associated with the South Texas Coastal Plain). Each is represented to varying degrees (Blair 1950).

Because of this edge setting, the indigenous native vegetation was likely quite diverse and abundant. Texas wintergrass (*Stipa leucotricha*), Texas grama (*Bouteloua rigidiseta*), and panic grass (*Panicum* sp.) are considered the dominant climax species, but other grasses such as big

bluestem (*Andropogon gerardi*), Indian grass (*Sorghastrum avenaceum*), switchgrass (*Panicum virgatum*), and side-oats grama (*Bouteloua curtipendula*) also would be found. Among the grasses are a wide variety of wildflowers including Indian blanket (*Gaillardia pulchella*), upright prairie coneflower (*Ratibida columnaris*), coreopsis (*Coreopsis* sp.), and Drummond skullcup (*Scutellaria drummondii*). Along waterways such as Leon Creek, woodlands consisted of cedar elm (*Ulmus crassifolia*), netleaf hackberry (*Celtis reticulata*), cottonwood (*Populus deltoides*), and pecan (*Carya illinoensis*) trees.

The indigenous native prairie supported herds of buffalo (*Bison bison*), antelope (*Antilocapra americana*), white-tailed deer (*Odocoileus virginianus*), peccary (*Pecar tajacu*), and numerous game birds. The urbanization of the area has caused most of the larger and more sensitive animals to vacate. The present fauna can be divided into two regimes: those inhabiting the urbanized portion and those inhabiting the bottomlands. Urban-tolerant animal and bird species include fox squirrels (*Sciurus niger*), English sparrows (*Passer domesticus*), rusty blackbirds (*Euphagus carolinus*), grackles (*Quiscalus* sp.), mockingbirds (Family Mimidae), robins (*Turdus* sp.) and chickadees (*Poecile* sp.). The bottomlands form a more protected habitat for wilder species. Beaver (*Castor canadensis*), armadillo (*Dasypus novemcinctus*), skunks (*Mephitis mephitis*), cottontail rabbits (*Sylvilagus* sp.), and opossums (*Didelphis virginiana*) inhabit the bottomlands. The number of bird species that visit bottomlands also may be high, as a large number of birds have been sighted in Bexar County. Black bullheads (*Ictalurus melas*), mosquitofish (*Gambusia affinis*), sailfin molly (*Poecillia latipinna*), warmouth (*Lepomis gulosus*), bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), Rio Grande perch (*Cichlasoma cyanoguttatum*), as well as introduced species of mouthbrooders, may inhabit the wetlands.

## CHAPTER 3 CULTURAL CONTEXT

The project area falls within the southern portion of the Central Texas archeological region. The archeological record for Central Texas reflects the full North American cultural sequence; therefore, evidence of human occupation spans a time period of roughly 12,000 years. The Central Texas cultural sequence presented in the following discussion is divided into region-specific cultural-historical periods within four broad cultural stages—Paleo-Indian, Archaic, Late Prehistoric, and Historic—that differentiate the broadly recognized North American cultural trends (Table 1). These four major cultural stages are briefly summarized in the following cultural history of the Central Texas area, which derives primarily from the work of Black (1989), Hester (2004), Prewitt (1981, 1985), Suhm (1960), Suhm et al. (1954), and Weir (1976).

Table 1  
Central Texas Cultural Sequence

| Stage            | Cultural-Historical Period | Date              |
|------------------|----------------------------|-------------------|
| Paleo-Indian     | Early                      | 10,000–8000 B.C.  |
|                  | Late                       | 8000–6000 B.C.    |
| Archaic          | Early                      | 6000–2500 B.C.    |
|                  | Middle                     | 2500–400 B.C.     |
|                  | Late                       | 400 B.C.–A.D. 700 |
| Late Prehistoric | Austin phase               | A.D. 700–1300     |
|                  | Toyah phase                | A.D. 1300–1500    |
| Historic         | Historic Native American   | A.D. 1500–1700    |
|                  | Historic Euro-American     | Post-A.D. 1500    |

## **PREHISTORIC CHRONOLOGY (10,000 B.C.–A.D. 1500s)**

### **Paleo-Indian**

The earliest widely accepted human occupation of North America is termed the Paleo-Indian stage (10,000–6000 B.C.). Cooler, wetter conditions were in place 12,000 years ago, and although a general drying trend continued through Paleo-Indian times, climatic conditions were more stable than during the subsequent Holocene. Human population during this period is often characterized as a culture of small but highly mobile bands of foragers who were specialized hunters of Pleistocene megafauna. Most Paleo-Indian sites are deeply buried and difficult to find, leaving the highly visible, but often fortuitously discovered, mammoth kill sites as the primary evidence of Paleo-Indian life-ways. Recent studies address this bias and emphasize that large kills probably contributed little to overall food requirements. Rather, a primary reliance on other game animals and plant resources was more likely (Ferring 1989). Subsistence in this period certainly included large herbivores such as mammoth, bison, and horse, but was probably based more consistently on smaller animals such as various species of turtle, land tortoise, alligator, mice, badger, and raccoon (Collins et al. 1989; Story 1990) and, presumably, also included an array of plants (Collins 1998). The defining Paleo-Indian trait is the fluted point tradition.

The Paleo-Indian stage in Texas, as across North America, is the earliest substantiated cultural period. The Paleo-Indian stage in Central Texas falls into early and late subperiods, which encompass three archeological complexes. The Llano and Folsom complexes comprise the Early Paleo-Indian subperiod (10,000–8000 B.C.), and the Late Paleo-Indian (8000–6000 B.C.) reflects the Plano complex. These complexes are not unique to Central Texas, for their ranges extended into the Southwest and Great Plains.

The Early Paleo-Indian subperiod is based on two projectile point styles: Clovis and Folsom. Projectile points of the Early Paleo-Indian period were made from high quality toolstone and indicate high technical skill in flaking, exhibiting a hallmark “flute,” which is a long, shallow flake scar that extends from the base toward the tip of the point on one or both sides. The Llano complex is represented by the Clovis projectile point, the oldest point type found in North America. Much research energy has been devoted to the makers of Clovis points, but the material record of Llano peoples is largely limited to hunting activities. Clovis assemblages include the

diagnostic fluted lanceolate Clovis point, along with engraved stones, bone and ivory points, stone bolas, and ochre (Collins 1995; Collins et al. 1992). Sites with Clovis components reported in Central Texas include Kincaid Rockshelter, Wilson-Leonard, Gault, Horn Shelter 2, Pavo Real, and Crockett Gardens. Surface finds of distinctive Clovis points are reported from a number of other localities (Meltzer and Bever 1995).

By about 11,000 years ago, the cool, wet climatic conditions of the Pleistocene had given way to Holocene warming and drying. This change coincides with the extinction of Pleistocene megafauna, most notably the mammoth, and is concurrent with the earliest record of the Folsom complex. Like the Llano complex, the Folsom complex is best known for the Folsom projectile point. Shorter than Clovis points, "classic" Folsom points exhibit fine parallel flaking and large flutes that extend across most of each face. Midland points, commonly believed to occur later in time, may represent unfluted Folsom points, apparently made to offset the production risks involved in fluting (Amick 1995). Another trademark of the Folsom complex is the association of Folsom points with the remains of now-extinct bison (*Bison antiquus*), usually found in the context of massive kills of bison herds run into ravines. Such sites are conspicuous, and thus much of what is known about Folsom subsistence and technology comes from lithic artifacts found at these sites or nearby processing sites. Folsom tool kits consisted of the fluted Folsom and the thin, unfluted (Midland) points, large thin bifaces, and end scrapers that were more conducive to specialized hunting, particularly of *Bison antiquus* (Collins 1995:382).

By approximately 10,000 years ago, the climate trended toward more moderate conditions, and the megafauna from the Early Paleo-Indian subperiod were no longer available. Most of the associated faunal evidence dated to the Late Paleo-Indian Plano complex reflects a human subsistence pattern based on deer and other smaller animals. Horn Shelter No. 2 (Forrester 1985) located on the Brazos River in Bosque County, Hinds Cave (Shafer and Bryant 1977) in Val Verde County, and Wilson-Leonard (Collins 1998) in Williamson County have yielded subsistence data indicating that a variety of vertebrate fauna was consumed by the Late Paleo-Indian peoples.

The Late Paleo-Indian Plano complex is represented by a greater diversity of projectile points (e.g., Plainview, Angostura, Scottsbluff, and Golondrina), which, still in lanceolate form, were unfluted. In contrast to evidence from the earlier subperiod, late subperiod points are associated



with modern bison (*Bison bison*) and often occur as surface finds throughout Central Texas. The beginning of Prewitt's (1981) Early Archaic, or Circleville phase, is considered in this report as the Late Paleo-Indian Plano complex but has also been called the "Pre-Archaic" (see Sollberger and Hester 1972). The Late Paleo-Indian Plano complex defies convenient labeling, as it exhibits a unique blend of lanceolate and stemmed points that appear to correspond with life-ways reflective of Archaic subsistence alongside Paleo-Indian mobility. Again, little is known about the complex in Central Texas, but toward the latter part of the Late Paleo-Indian period, lanceolate points began to be replaced by stemmed points. Settlement-subsistence strategies probably more closely approximated those of the Archaic than Early Paleo-Indian. More diverse sites are associated with this period, including not only the mass bison kills, which by the Late Paleo-Indian period consist only of modern bison (*Bison bison*), but also campsites and residences. The characteristics of the Wilson, Golondrina-Barber, and St. Mary's Hall components are more Archaic-like in that burned rock features are found, although the features are much smaller and contain less rock than the burned rock features in the subsequent Archaic.

### Archaic

Toward the end of the Late Paleo-Indian period, a great variety of projectile point styles began to appear. The subsequent Archaic period (6000 B.C.–A.D. 700) is broadly characterized by stemmed and side-notched dart points and by the appearance of ground and pecked stone tools. The Archaic represents a more generalized style of hunting and gathering as a way of life, and the subsistence pattern may have become more diffuse, reflecting a greater exploitation of local environments as smaller game animals, fish, and wild plant foods increased in dietary importance. Like their predecessors, Archaic peoples apparently continued to follow a nomadic way of life, traveling seasonally to utilize different food resources in various localities (cf. Weir 1976). McGraw and Hinds (1987:47) have noted the following:

In northern and central Bexar County, major occupation sites are situated on stream terraces and are usually associated with one or a series of spatially proximate, often buried, burned rock middens. An extensive distribution of chipped stone debitage and a variety of diagnostic projectile points indicate recurring occupations that span several thousand years. Major Late Prehistoric sites, in contrast, are often physically discrete from these earlier sites.

The Archaic is generally divided into Early, Middle, and Late subperiods (Black 1989; Collins 1995; Story 1985) based on diagnostic projectile point styles and associated radiocarbon assays (Collins 1995). By the Middle Archaic in southern Central Texas, some regional distinctiveness is apparent archeologically, as evidenced primarily by increased techno-stylistic diversity among projectile point types. Interplay between influential factors of a population increase and the environmental change toward greater aridity and climatic variability probably drove adaptive change throughout the Archaic. The following discussion follows Story's (1985) broader subdivisions of the Early, Middle, and Late Archaic, although Prewitt's (1981) discussion of various phases within these periods provides much of the information discussed.

The most archeologically obvious changes from the Paleo-Indian to the Early Archaic (6000–2500 B.C.) are the appearance of ground stone implements and the shift from the lanceolate points of the Paleo-Indian tradition to the stemmed and side-notched dart points emblematic of the Archaic. Three recognized point styles (Angostura, Early Split Stem [Gower and Jetta], and Martindale-Uvalde) indicate that the makers tended to occupy the better-watered eastern part of the Edwards Plateau (Collins 1998:65). Assemblages also include Clear Fork and Guadalupe bifaces, manos, metates, hammerstones, burins, circular scrapers, and a variety of bifaces. Few burials have been assigned to this period (Prewitt 1981:77–79; Story 1985:34–35), and settlement/subsistence systems are “hypothesized to have been diffuse, utilizing a variety of resources and frequently shifting the loci of subsistence activities rather than intensifying the use of any specified resource” (Story 1985:39).

Projectile point types constitute the primary source of information about the Early Archaic, but Prewitt (1981, 1985) uses point types to define four phases: the Circleville, San Geronimo, Jarrell, and Oakalla. This refinement is questioned by some as unsubstantiated since few intact sites are known (see Black 1989:26; Black and McGraw 1985), but the tendency for many Early Archaic sites to occur around the Balcones Escarpment leads several researchers to infer that this area was a refuge from drier conditions in Central Texas and on the coastal plains (McKinney 1981; Story 1985). Concentrations of Early Archaic sites along the southern and eastern margins of the Edwards Plateau may be indicative of climatic conditions at the time, as these environments had more reliable water sources and a diverse subsistence base. The margins of the Edwards Plateau are ecotonal in character and may have provided reliable resources during times

of environmental stress (Story 1985:31, 34). Convincing paleoenvironmental data on the climatic conditions of this period is, nonetheless, still lacking.

Early Archaic sites are small (Weir 1976:115–122), suggesting that populations were highly mobile and that their densities were low (Prewitt 1985:217). Early Archaic sites are usually described as open campsites (such as Loeve, Wilson-Leonard, Richard Beene, Sleeper, Jetta Court, Youngsport, Camp Pearl Wheat, and Landslide) or lithic procurement stations. Only a few campsites located in rockshelters (e.g., Kincaid Rockshelter) occur on the Edwards Plateau during this period. The location of lithic procurement sites is determined by the natural distribution of cherts. Large and varied burned-rock features (Sleeper, Camp Pearl Wheat, Wilson-Leonard, Richard Beene) become common in the latter part of the Early Archaic, and domestic structures (Turkey Bend Ranch) and caches (Linder) are also known in the Early Archaic (Collins 1998:64; Thoms and Mandel 2005). Freshwater mussel, deer, and small game appear to have been important food resources. Hearths are occasionally found at Early Archaic sites and can be stone-lined, basin-shaped, or flat. The appearance of ground stone signifies a shift to plant resources, and the diversification of lithic technology appears to reflect an increased reliance on gathering.

The Middle Archaic (2500–400 B.C.) marks the first period of Central Texas distinctiveness as an archeological region. The subperiod exhibits more numerous and more varied sites than the preceding Early Archaic. This cultural manifestation is characterized by a population increase; the development of regionally distinct cultural patterns; and changes in settlement patterns, economic and social systems, and technology (Prewitt 1985). In addition, territorial boundaries may have begun to emerge (Story 1985:39).

Burned-rock middens, which often consist of massive amounts of fire-cracked limestone, are, however, the preeminent archeological features of the Middle Archaic. Many of these middens may represent earthen ovens used to process live oak acorns (see Weir 1976), as well as for roasting succulents or other plants and animals. Many Central Texas tree species disappeared from the paleoenvironmental record at this time, leaving live oak forests to dominate the landscape. A renewed focus on deer, which themselves were well suited for the oak-savanna environment, is likely. Weir (1976:124–130) suggests that an expansion of oak forests influenced the development of an economic system that focused on the exploitation of deer, acorns, and

other hardwood nuts. Prewitt (1985:222–226) notes that the abundance of rock middens indicates a greater reliance on plant foods, although tool kits still imply a strong reliance on hunting.

Middle Archaic sites in Central Texas are represented by rockshelters, campsites, lithic quarries, and kill sites (Weir 1976), as well as by the burned-rock middens that first appeared toward the end of the Early Archaic. Other features include basin hearths and large flat hearths. Data concerning mortuary practices are few except for the end of the Middle Archaic, for which cremations have been reported (Prewitt 1981:81). Three generalized point styles characterize this subperiod: Bell-Andice-Calf Creek, Taylor, and Nolan-Travis. Bifaces, a variety of scrapers, unifaces, and grinding stones are also present. Prewitt (1981:73) suggests that the proportion of projectile points (50 percent) compared to total number of tools is indicative of a balance between the exploitation of plant and animal resources.

Late Archaic (400 B.C.–A.D. 700.) life-ways began similarly to those of the Middle Archaic, but notable changes occurred, characterized by the emergence of new cultural patterns as well as the intensification of preexisting ones (Story 1985:45). Coastal marine shells, used either as ornaments or as raw materials for ornaments, were exchanged with inland groups, at least on a limited basis, in return for finished lithic tools and/or siliceous raw material (Story 1985:48). The use of burned-rock middens throughout the Late Archaic appears to have been a major part of the subsistence strategy as a decrease in the importance of hunting, inferred from the low ratio of projectile points in relation to other tools in site assemblages, may have occurred (Prewitt 1981:74). Bison, which had been absent from the area for most of the Archaic, however, were once again available in the region (Dillehay 1974).

Late Archaic sites include rockshelters, campsites, and large cemeteries. The establishment of these large cemeteries along drainages suggests strong territorial ties by certain groups (Story 1985:40). Cemeteries, burial sites where at least two individuals were buried in proximity, imply repeated use of space for the burial of a group of people's dead. The location and use of the larger cemeteries are believed to be the result of the same cultural group using a place on the landscape to reaffirm their rights of descent and control/access to critical resources (see discussions in Taylor 1998 and Taylor et al. 1995:627–631 ).

Late Archaic cemeteries in South and Central Texas exhibit a significant energy investment and often contain mortuary furniture. When artifacts are found in burial contexts, they represent discrete points in time, or part of the package of tools or objects that would have been used during a particular occupation period. Burial artifacts, then, provide the unique opportunity to glimpse an assemblage that may not be possible in other site contexts where multiple occupations may be overprinted, as is common in terrace settings. From general ethnographic studies of hunter-gatherer groups, it is suspected that grave goods represent a sampling of utilitarian and ornamental items used and possessed in life by those individuals, hinting at the social status and personae of the deceased (Binford 1971), and a recognition that such burial goods would be needed in the deceased's next life (Perttula 2001).

In Central Texas, on the Edwards Plateau, burials in sinkholes and caves appear to be relatively common. Below the escarpment, however, cemeteries are found along river drainages and often contain mortuary goods. There appears to be an association of deer antler and deer antler racks in late Middle Archaic and Late Archaic mortuary contexts. Evidence of this association is primarily based on items recovered from large burials in riverine settings at such sites as Loma Sandia (41LK28) in Live Oak County, Olmos Dam (41BX1) in the Blackland Prairie below the Edwards Plateau escarpment in Bexar County, and Ernest Witte (41AU36) along the lower Brazos River in Austin County (Perttula 2001).

More than 200 burials were interred in the large cemetery at Loma Sandia (Live Oak County) between 850 and 550 B.C., during the latter part of the Middle Archaic period (Taylor and Highley 1995). Loma Sandia burial goods contained the functional tool forms that a hunter/gatherer would need on a day-to-day basis. Analysis of the burials at this site revealed some disparity between grave goods associated with males and those associated with females. At this site, males exclusively had thin bifaces, unifaces, antler racks, and modified mussel shells, but women were found with shark teeth, asphaltum, and certain dart points (Morhiss, Abasolo, and Pedernales) (Lukowski 1988).

Many of these mortuary items provide evidence of interaction between the occupants of the site and groups from the Gulf Coast and Central Texas (Taylor and Highley 1995). The presence of marine shell, shark teeth, and Morhiss dart points indicates that the groups at Loma Sandia had extensive contact with coastal groups or visited the coast themselves (a distance of only 60–70

miles). Asphaltum residue was found on the stems of the dart points recovered at this site. Asphaltum was used as a hafting adhesive and would have been obtained as balls that wash up on the beach shore along the coastline. Stone tools made of high-quality Edwards chert probably also represent trade items.

At Olmos Dam (41BX1), a Late Archaic cemetery in Bexar County, the majority of the individuals had associated grave goods (Lukowski 1988). Included were freshwater and marine shell ornaments, red ochre, bone artifacts, and stone artifacts; especially numerous were antlers and antler racks. Many of the burials in this cemetery were lying in a flexed position. Some of the burials at the Olmos Dam site displayed evidence of violence, including a small dart point (possibly a Godley or a Palmillas) found within the skull of an adult male (Lukowski 1988). At Olmos Dam, unlike Loma Sandia, antler racks also covered the graves of women and children.

Excavations at the Ernest Witte site (41AU36), in Austin County on the Brazos River, encountered four separate burial episodes resulting in burial groups from the Middle Archaic (Group 1), the Late Archaic (Group 2), the Transitional Archaic (Group 3), and the Late Prehistoric (Group 4) (Hall 1981). Group 1 contained 61 interments with only one Pedernales point and six bone artifacts. Group 2, dating to the Late Archaic period, exhibited a significantly greater investment in mortuary tradition than did any of the other cemetery groups at this site. Group 2 contained 145 interments with grave artifacts of dart points, marine and freshwater shell ornaments, antler and antler racks, ochre, bone artifacts, and ground stone. Burial Group 3 consisted of 10 interments; the only associated artifacts were seven Godley points buried with one individual. Group 4 was composed of 13 interments with no associated mortuary furniture.

A rich Late Archaic mortuary tradition emerged in South Texas, where many large cemeteries exhibit common themes of grave offerings of marine and freshwater shell ornaments, antlers and antler racks, stone tools, and red ochre (Hester 1970, 1971). The flexed burial is also a common characteristic in all of these cemeteries. Other features found at Late Archaic sites include basin hearths, arcuate hearths, earth ovens, and mussel shell caches. The lithic assemblages contain a variety of dart point styles (e.g., Bulverde, Pedernales-Kinney, Lange-Williams-Marshall, Marcos-Montell-Castroville, Ensor-Frio-Fairland, and Darl); Erath, San Gabriel, and Hare bifaces; graters; scrapers; a variety of unifaces and bifaces; grinding stones; and boatstones. Except for Montell and Fairland, the point styles for the Late Archaic are among the most widely

distributed dart points (Prewitt 1985). Other artifacts include ulna flakers, bone beads and awls, stone and marine shell gorgets, and freshwater mussel shell pendants (Prewitt 1981:81–82).

### **Late Prehistoric**

The Late Prehistoric period (A.D. 700–1500) is marked by the replacement of atlatl-and-dart with bow-and-arrow technology. Ceramics were also adopted within this period. Basin-shaped and flat hearths and burned clay/charcoal lenses and pits are the predominant archeological features. There is a continuation of Late Archaic burial practices with flexed and semi-flexed burials occurring near habitation sites, usually in cemeteries but also as isolated occurrences. Some burials were cremations, carried away from cemeteries and placed in shallow pits.

The period is divided into two main periods, the Austin (A.D. 700–1300) and Toyah (A.D. 1300–1500), and each is marked by distinctive cultural traits. Jelks's (1953, 1962) work at the Blum Rockshelter and the Kyle site demonstrated the temporal separation between Austin and Toyah components—once believed to be contemporaneous—by locating stratigraphically distinct Perdiz arrow points above older Austin phase Scallorn arrow points. The Late Prehistoric chronology of southern Texas is closely aligned with that of Central Texas, particular in terms of Toyah cultural manifestations (Hester 1995:443).

The Austin phase is characterized by a shift to the use of the bow and arrow. Common are Scallorn and other related side-notched (e.g., Edwards) arrow points, as well as broad-based hunting and gathering as the main mode of subsistence (Turner and Hester 1999:173). Common artifacts for this period include numerous bifaces, Clear Fork gouges, scrapers, and grinding stones. Typical features include basin hearths, pits, and cemeteries. The interments at Austin phase cemeteries such as Loeve-Fox (41WM230; Prewitt 1974, 1981) and the Coleman site (41BX568; Potter et al. 2005) show evidence of increased nutritional stress and social violence. In addition, the mortuary program followed by Austin phase populations appears to contrast with that of the Late Archaic period peoples in the area (Potter et al. 2005). There is less investment in mortuary goods or personal adornment during this phase, and the antlers that occur in numerous Late Archaic cemeteries are poorly represented in Late Prehistoric cemeteries.



The broad-based subsistence patterns of the Austin phase focused largely on gathering, though hunting of deer along with exploitation of freshwater mussels and snails is also suggested to have been important (Prewitt 1981:83; Ricklis and Collins 1994). The diagnostic projectile points of the Austin period are the Scallorn and Granbury. Austin phase components have been found at sites along waterways throughout Bexar County (e.g., Cibolo Creek [sites 41BX379, 41BX746, 41BX1005], Salado Creek [sites 41BX699, 41BX1007, 41BX1433]), the San Antonio River [site 41BX567] and the Medina River [sites 41BX1076, 41BX1104]) (Texas Archeological Sites Atlas). Friday bifaces and unifaces, other bifaces, scrapers, ground stone, ulna flakers, and bone awls are among the wide variety of tools. Other artifacts include painted stones, bone beads, and marine shell beads and pendants. Projectile points are proportionately more common during the Austin phase as hunting appears to have become increasingly important. The widespread occurrence of Scallorn points outside of Central Texas and the frequency of marine shell indicate a broad cultural entity and/or extensive trade networks in the Late Prehistoric.

The Toyah phase is the best known of the Late Prehistoric phases. It is distinct from the preceding Austin phase and is marked archeologically by Perdiz and similar contracting-stem arrow points, pottery, beveled-edge bifacial knives, perforators, and end scrapers (Black 1986, 1989, Creel 1991; Hester 1980, 1995; Jelks 1962; Johnson 1994; Kelley 1986; Prewitt 1981). Perishable artifacts such as cordage and basketry are found at some sites. Corncobs have also been recovered, indicating either trade relations with agricultural peoples or some degree of horticulture (Prewitt 1981:74). Extensive trade relations are also indicated by the presence of Caddo ceramics, such as Bullard Brushed among other imported types. Toyah phase burials sometimes contain artifacts, but it is not established that these are grave goods. Perdiz and Cliffton points found in burials may be from fatal wounds and indicative of increased conflict. Sites in Bexar County associated with the Toyah phase have been recorded in Government Canyon (e.g., 41BX133, 41BX141) and along Cibolo Creek (41BX372), the Medina River (41BX528), and Culebra Creek (41BX1422, 41BX1423) (Texas Archeological Sites Atlas).

During the Toyah phase, a climatic shift to moister conditions allowed the savannas and grasslands to advance, bringing the return of the bison. Subsistence strategies shifted even further toward hunting in response to the reoccupation of Central Texas by bison (Dillehay 1974). Deer, however, probably continued to be an important resource (Black and McGraw 1985). The importance of bison to the Toyah economy is readily deduced from the makeup of artifact



assemblages represented at a number of archeological sites. The Buckhollow site (41KM16) produced an abundance of Perdiz arrow points of many varieties (Johnson 1994). Also found were Harahey knives, most of them exhibiting four beveled edges. The use wear is representative of cutting bison hides and flesh—a hypothesis supported by the recovery of large numbers of bison bones. Also indicative of the importance of bison is the recovery of large end scrapers from the site. The presence of edge rounding and polish on bit ends indicates use on fresh hides, most of which were probably bison (Johnson 1994). The Hinojosa site (41JW8), located in Jim Wells County in southern Texas, represents a Late Prehistoric Toyah base camp dating from A.D. 1300–1500 (Black 1986). Specialized hunting adaptations are evident from the archeological materials, though a broad subsistence base of fish, softshell turtle, aquatic birds, and mussel shell was also exploited. Deer figured prominently in the overall assemblage, with bison and pronghorn antelope also contributing a significant portion to overall subsistence (Black 1986). A significant component of the highly adaptive bison-oriented Toyah phase tool kit is the end scraper used for processing hides. Creel (1991) has suggested that these tools are indicative of the importance of trade in bison hides during the Late Prehistoric and Early Historic periods. Bison bones occur in great frequency in many Late Prehistoric Toyah phase sites. Excavations at 41LK201 and 41MC222 along the Frio River drainage contained abundant bison bone, with the latter site dating to around A.D. 1260–1290 (Hester 1980; Highley 1986).

## **HISTORIC CHRONOLOGY (POST-A.D. 1500s)**

### **Historic Native American**

The Historic period (post-A.D. 1500) in Central Texas represents the local expression of sweeping cultural change for native peoples across North America. Spanish missionization corresponds to the first European influence in Texas, but it probably did not have dramatic effects until the 1600s when native groups sought refuge at the missions from encroaching Apache and, later, Comanche groups. Changes through gradual cultural adoption and exchange of Spanish life-ways and materials occurred throughout the seventeenth century. After the 1700s, European material culture became pervasive. Metal, glass, European clothing, and guns became important to native peoples, replacing traditional items.

Prior to about 1725–1750, Apachean groups appear to have dominated the western portion of the Southern Plains, known as the High Plains, but after this time the area was increasingly controlled by the Comanche and Kiowa. On the eastern portion of the Southern Plains, within the area now known as the Lower Plains and Northcentral Texas, the Wichita tribes became dominant (Bell et al. 1967; Hofman 1989:91). The Comanche were a Shoshonean group originally residing along the upper Yellowstone and Platte rivers. About the beginning of the eighteenth century, they left those areas and began to migrate into the Southern Plains, where they drove a wedge between the Apache to the west (driving them farther south and west) and the Pawnee and Wichita to the east. By the early nineteenth century, their range was at its greatest extent, stretching from central Kansas to Austin, and from Oklahoma City westward to Raton Pass in New Mexico. The Comanche were nomadic Plains hunters, whose lifestyle depended upon the bison as a source of meat and raw material for clothing, shelter, etc., and upon the horse as a means of hunting and transport. The most important divisions of the Comanche included the Yamparika (root-eaters), who ranged along the Arkansas River; the Kotsoteka (buffalo-eaters), who were just to the south of the Yamparika; the Nokoni (wanderers), who occupied the territory along the Red River; the Quahadi (Antelope People), located on the High Plains; and the Penateka (honey-eaters), who were the southernmost Comanche grouping in Texas (Webb and Carroll 1952:1:385). Their earliest known raid in Texas was in 1758, when they helped in the destruction of the mission of San Sabá de la Santa Cruz in present-day Menard County; and for the next 117 years, they waged intermittent warfare first against the Spanish, then the Mexicans, the Texans, and, finally, the United States (Webb and Carroll 1952:1:385). In 1867, the Comanche were signatories to the Medicine Lodge Treaty with the United States in which they agreed to cede all of their territory except for a 5,546-square-mile reservation in southwestern Oklahoma. Following a general uprising of the Comanche and Kiowa in 1874, they were defeated by the United States army in 1875 and permanently confined to their Oklahoma reservation (Webb and Carroll 1952:1:385).

The early history of southern and Central Texas is the most richly documented in the state. The numerous expeditions into these parts of the region resulted in records and journals that provide sparse glimpses into the past of the native peoples. Nevertheless, limited ethnographic cultural data exist for the native groups that occupied this immediate area preceding the establishment of the missions. Campbell and Campbell (1996) present a list of the groups occupying Mission San Juan and Mission Espada, as well as the other missions in the area. For many of the groups listed; however, original territorial ranges can only be speculated, and their material culture

cannot be differentiated from other groups residing in the missions at the time. In the nineteenth century, the term “Coahuiltecan,” for Coahuilteco, was coined by a Mexican linguist for a related group of native languages in the region (Campbell and Campbell 1996:17). The name came from the Mexican state of Coahuila, which included the northern part of New Spain and most of the area occupied by present-day Texas. Over the last century, the term Coahuiltecan was widely adopted for use in referring to the whole of the native groups living on the southern Texas plains region and into Mexico. Although the term originally described a group of related languages, it devolved into a common misinterpretation that was applied to a widespread ethnically related culture believed to speak the same Coahuiltecan language. This terminology was far from correct. In fact, the people who were subsumed under this umbrella term represented distinct ethnic groups with distinct cultures and diverse languages and dialects (Hester 1998).

Few Historic Native American archeological sites have been investigated in the San Antonio/Bexar County area. Supposed sites relating to the Historic Indian contact period are usually characterized by multiple components that span a long period of time. Since the Historic Indian period lasted only roughly 200 years, the material evidence occurs at shallow depths below surface or entirely on the surface. Consequently, it is prone to modern disturbance. Stratigraphic separation between the Late Prehistoric and Historic Native American contact components is often limited or nonexistent. Excavations at site 41MC296, a Historic native encampment on Elm Creek in McMullen County, illustrate that European trade items were introduced to the South Texas native peoples in advance of the Spanish *entrada*. Conversely, at the Olmos Dam site (41BX1) in Bexar County, Historic-era seasonal encampments made by native peoples traveling the “Peyote Trail” to northern Mexico were documented as late as the 1920s (Lukowski 1988).

Numerous river crossing sites with possible contact period components were identified during historical research and survey for the Applewhite Reservoir in San Antonio. They include the Dolores/Perez/Applewhite Crossing (41BX682); Pampopa/Paso del Talon (41BX680), one of the documented crossings used by Native Americans prior to Spanish use; Sabinitas/Jett/Palo Alto Crossing (41BX857); and Paso de las Garzas (41BX697) (Hindes 1992). Archeological investigations were conducted at the Pampopa-Talon crossing site (41BX528), where important roads connecting San Antonio to points along the Rio Grande pass over the Medina River. Between 1731 and 1737, the Pampopa fled mission confinement and were pursued to their *rancherías* near the “Old Ford” of the Medina River. Historic accounts tell of encampments of

the Pampopa and other Indian groups nearby (Thoms and Ahr 1995). The Pampopa Crossing/Ford has been positively identified at sites 41BX527 and 41BX528 on the Medina River.

### **Spanish Exploration and Settlement**

The initial European presence in Texas occurred in 1519 when Álvarez de Piñeda mapped the coastline of Texas under the order of Francisco Garay, then governor of Jamaica. Piñeda laid claim to all the land between Florida and the Rio Grande in the name of the Spanish Crown. His explorations were followed by those of Alvar Núñez Cabeza de Vaca in the 1530s. Cabeza de Vaca was a member of the 1527–1528 expedition of Pánfilo de Narváez, a large expedition charged with surveying much of the land in the southeastern United States. While inland, the Narváez group became separated from the ships. Because of hostile Indians and food shortages, Narváez led his men in improvised watercrafts along the Gulf of Mexico coastline, hoping to reach the Pánuco River. A hurricane destroyed most of the group, but shipwrecked a few of the men, including Cabeza de Vaca, on the Texas coast, probably on present-day Galveston Island, in 1528. De Vaca lived among the coastal Indians for the next eight years. After being enslaved by hostile Indians, he eventually made his escape, arriving at a Mexican outpost to the west in 1536. He was the first non-Indian to wander through the Texas region, and his writings about his travels are the first accounts of the area, generating excitement over the prospect of gold and leading to subsequent Spanish expeditions to the region in search of the precious commodity. Soon, Spanish authorities commissioned Francisco Vázquez de Coronado, governor of the Mexican province of Nueva Galicia, to lead an expedition into the American Southwest in 1540 in search of the fabled Seven (Golden) Cities of Cibola to the north (Fehrenbach 1968:23). The expedition was a dismal failure in its attempt to find the legendary gold, but did succeed in exploring some of Texas and New Mexico. In 1539, Hernando de Soto's expedition landed in present-day Florida and over the next four years traveled across the southeastern United States. After de Soto's death at the Mississippi River, Luis de Moscoso de Alvarado took command of the expedition. By 1542, the Moscoso group had traveled as far west as Texas (Hester 1989:199) in an attempt to reach New Spain (present-day Mexico).

As it became apparent that there were no cities of gold to exploit, settlement was somewhat slowed until French interest in the region stimulated the Spanish to renew their colonizing efforts. After word came in 1685 that Rene-Robert Cavelier, Sieur de La Salle, had established an outpost somewhere on the Texas coast, the Spanish were motivated to send various expeditions to locate and eradicate the outpost. The threat that the French presented became almost an obsession with the Spanish:

The specter of French invasion brooded over the Spanish colony in New Mexico for nearly two centuries. Somewhere—perhaps from the wilds of New France, perhaps from the coast of the Gulf of Mexico, at some incalculable distance—an indeterminable number of Frenchman were periodically thought to threaten the silver mines of New Spain. . . . Beset with internal problems, woefully conscious of their weakness and isolation, New Mexicans started at the very shadow of intruders on the vague periphery of their province [John 1975:155].

This attitude encouraged the establishment of missions and presidios in East Texas to buffer against further French encroachment into the region (Fox 1989:85).

Alonso de León mounted various expeditions into Texas between 1686 and 1690. In 1691, Domingo Terán was appointed governor of the province. He, accompanied by Padre Massanet, set out to determine what French activities were occurring in the region and to establish a series of missions among the Indians. In this pursuit, they came into the region of San Antonio, both commenting on the fine plains and large numbers of buffalo they encountered (McGraw and Hinds 1987:64). Padre Massanet called the area “San Antonio de Padua” in honor of St. Anthony of Padua and suggested that it would make a suitable location for a mission. A small garrison of men was left there, and the Presidio of San Antonio de Béxar was initiated (McGraw and Hinds 1987:64). At least one source believes that the site of the presidio was initially called “the ‘level lands without woods’ which . . . de Terán and Massanet crossed when they continued their journey” (Habig 1968:160).

Activities in the area were curtailed during the Eleven Years’ War of Spanish Succession (1702–1713); but when the Frenchman Louis Juchereau de St. Denis traveled over much of the province undetected in 1714, the Spanish were galvanized into action. A series of missions was planned throughout the frontier areas of New Spain. For example, in 1716, an expedition led by Captain Domingo Ramón set out for East Texas to establish missions and a presidio, including one at a site between the Red and Sabine rivers at Los Adaes (de la Teja 1988:51–51).

In response to the remoteness of the settlements in East Texas, the Spanish soon recognized that a “way-station” was necessary to bridge the distance between the newly settled missions and San Juan Bautista on the Rio Grande. The need for an intermediate location had been evident for some time, and “Terán . . . considered the upper San Antonio River valley, with its abundant water supply, woods and agricultural land, the ideal site for missions and towns” (de la Teja 1988:53). Of like mind was Fray Antonio de San Buenaventura Olivares who had been impressed with the area during his visit in 1709. Martín de Alarcón, who had been recently appointed as governor to the province, considered the opinions. It was decided that two missions were to be founded: one on the San Antonio River and one on the San Colorado River, with the former established first. The viceroy ordered not only missionaries and soldiers to populate the new missions, but settlers and families, artisans, and livestock as well (de la Teja 1988:55).

The three-pronged approach that the Spanish used for settlement—which included presidio, mission, and civilian settlements—proved to be more successful than the establishment of mission and presidio or presidio alone (Gilmore 1991). This was certainly true in the case of San Antonio. On May 1, 1718, a group led by Alarcón and including Fray Olivares founded the Mission San Antonio de Valero on San Pedro Creek, and on May 5, 1718, the presidio and the villa of San Antonio de Béxar were established. Although ceremonially the city was founded in 1718, no actual construction was begun until 1719 due to the lack of men and materials (McGraw and Hindes 1987:66).

A total of five missions was eventually built on the San Antonio River, all within a 12-mile radius of the present city of San Antonio. They are, in order of establishment, Mission San Antonio de Valero (1718), Mission San José (1720), Mission Nuestra Señora de la Purísima Concepción (1731), Mission San Juan de Capistrano (1731), and Mission San Francisco de la Espada (1731). The last three had initially been established in East Texas, but were relocated to the San Antonio River area. All of the missions in present-day San Antonio were administered by the order of Saint Francis. San José was under the authority of the College of Zacatecas, and the remaining four were under the authority of the College of Querétaro. In 1773, all the San Antonio missions were placed under the auspices of the College of Zacatecas (Jackson 1986:33). Each ministered to different groups of Indians.

In 1722, a short-lived mission, San Francisco Xavier de Najera, was founded for 50 families of Erevipiami Indians brought in from the Brazos River. This mission was closed in 1726 with the residents probably being absorbed into Mission Valero (Schuetz 1968:11). One source (Scurlock et al. 1976:133) places the location of this mission somewhere midway between Missions San Antonio de Valero and San José.

During the early 1700s, population growth was slow in the San Antonio area. Initially, most inhabitants were members of military households. Alarcón's first settlement had included "an engineer, stone mason, blacksmith, and a number of women and children" (de la Teja 1988:56). Fray Celiz, the chronicler of the Alarcón expedition, noted that the first attempts in 1718 to locate settlement sites were unsuccessful. A stable water supply for the missions was necessary for both crop production and human and animal consumption. Because of the relatively arid San Antonio environment, the missions needed an effective way to enhance the available water supply. The Franciscans adopted a system of irrigation ditches—called *acequias*—introduced into Spain by Moslems, and began construction in 1719 on a 15-mile network of seven gravity-flow ditches, five dams, and an aqueduct to distribute water to about 3,500 acres of cultivated land (National Park Service [NPS] 2005). Once the first of the *acequias* was operational, settlers "expected a large crop of maize, beans, and other produce" (de la Teja 1988:57).

By 1721, San Antonio had become a series of wood and mud huts (*jacales*), typical of a Spanish frontier settlement. All settlers, both military and civilian, were dependent on the garrison for defense, communications, and, initially, civil administration. The missions of San Antonio attracted a variety of Indian groups, primarily Coahuiltecan and Karankawan hunter-gatherers, during the mid 1700s, but also attracted Indians of other origins, some of whom were fleeing Spanish disruptions in Nuevo León and other regions of northern Mexico (Hester 1989:200). However, not all Indian groups were interested in what the missions had to offer:

When our arms were first introduced in Texas, our foremost object was the propagation of faith, by the means of evangelic predication; but, notwithstanding the endeavors and apostolic zeal of the Reverend Missionaries, we could not succeed in gathering the Indians around the Missions. Used to a roving and unrestrained life, the Nations of that extended territory refused to submit to the merciful yoke of the Church, finding it rather burdensome, owing to their depraved habits. Unable to attract them to us of their own free will, we never availed ourselves of force. . . . [Buquor 1935:2].



Mission settlements were disrupted frequently from 1721 to 1749 by raiding Apaches. Even after a formal truce had been signed in 1749, thievery and limited hostilities took place throughout the rest of the century (de la Teja 1988:61). Hostilities also were occurring with various Comanche bands, who disapproved of the tentative link between the Spanish and the Apache during the last half of the 1700s.

At the expense of the Spanish Crown, colonists from the Canary Islands had been sent to colonize other areas with great success. The harsh economic conditions that existed on the islands, coupled with the promise of land, made the islanders eager emigrants (de la Teja 1988:67). On March 9, 1731, a group of colonists from the Canary Islands came to the area and were to have a profound effect on the region. As originally conceived, an additional 400 islander families would immigrate into the region. When it became apparent that this endeavor would be too costly, the idea was abandoned and no additional families were ever recruited (de la Teja 1988:68). The Canary Islanders were given control over lands previously allotted to the military settlers. They also were given control over the town council and effectively barred established settlers from participating in local government (de la Teja 1988:68). Eventually, local elections took place in which the sitting council elected its successors. Although these elections were full of irregularities, in the end they did provide a means by which new settlers could share in town government.

Initially, town lots were only distributed among Canary Islanders. The distribution of land to the islanders involves the first record of the San Antonio Town Tract (on which the city proper is located). Captain Juan Antonio Pérez de Almazán, who served as commander and superior justice (*justicia mayor*) of San Antonio, began to lay the tract for the town of San Antonio in 1731. He had to work around the existing presidio and missions (de la Teja 1988:122) because, in general, the land west of San Pedro Creek was considered less desirable because of its vulnerability to Indian attack.

Population growth in the area continued at a steady rate due to a variety of factors and in part to established access into the region via *El Camino Real*, also known as the King's Highway or the Old San Antonio Road. This "road" was not one fixed route, but one that altered with the season and the year. San Antonio de Béxar, as an established way-station, became a hub for the various routes (McGraw and Hindes 1987).



Land use outside of Béxar during the Spanish period was chiefly confined to large-scale ranching activities. Ranching during the eighteenth century was very relaxed. Round-ups amounted to little more than the gathering of wild, unbranded stock when meat or hide and tallow were needed (McGraw and Hinds 1987:71). This lax attitude can be attributed primarily to the small population and the lack of markets. However, some ranches in what is today Bexar County were more productive (McGraw and Hinds 1987:72).

Outside political factors during the latter half of the eighteenth century had a great impact on the region. The completion of the Seven Years' War (1754–1762) and the signing of the Treaty of Paris in 1763 resulted in the French and Spanish ceding most of the lands east of the Mississippi River to England, and Spain acquiring the Louisiana Territory from France. This, of course, put an end to the years of Spanish paranoia and called for a reassessment of the situation in New Spain (McGraw and Hinds 1987:74). Local effects included the selection of Béxar as the new provincial capital.

The American Revolution encouraged economic growth in the region. Cattle from the ranches in the Béxar area were rounded up for sale in Louisiana to the Spanish who were fighting the British along the Gulf Coast (McGraw and Hinds 1987). Another change in the region was the beginning secularization of the missions by 1794. Secularization—the transition from mission status into secular Spanish society, based on official royal decree—was in part a result of the missions' decline in status as a response to the removal of the French threat. The second factor in secularization was the decline of the missions' indigenous inhabitants in the 1790s as those populations assimilated into Spanish society, achieving a major goal of the mission system, through intermarriage or conversion to Christianity. Pressure from the surrounding civilians for mission farmland (*labores*) increased as mission populations fell, and eventually secularization was complete by 1824 as the last of the *labores* were privatized, divided, and distributed among the remaining mission Indians and the local population (Reese 1995:K-9; Spanish Missions 2001).

Political events continued to have a rapid impact on the region. The Louisiana Purchase in 1803 brought about the establishment of a “no-man’s land” between the Texas and Louisiana border. Both Spain and America were eager to avoid a costly war. The Louisiana Purchase, however, did

generate increased American interest in Texas. Many from the former French province were eager to emigrate:

In view of the fact that the said province has been retroceded to the French Republic and they have sold it to the United States of America, numerous noble, influential, and rich families, as well as some poor ones, desire to move to the provinces under your command in order that they might live under the Spanish flag and enjoy the same kind treatment that they, as well as their predecessors, have previously enjoyed. . . . the universal love and loyalty felt for the Spanish government is so great that we are satisfied and believe there will be more than a thousand families, more than two hundred of them of the Spanish nation, who will come as soon as they sell their lands . . . [Hatcher 1934:278].

This kind of attitude was not, however, prevalent throughout the Spanish colonies. Growing discontent with Spanish rule (which had been rapidly deteriorating) in the provinces resulted in 10 bitter years of strife, beginning in 1810 and culminating with Mexican Independence in 1821. These years had a profound effect in the region of what is today San Antonio. Filibusterers, encouraged by the claim that Texas was actually American territory, made forays into the province. In addition, battles were waged between Spanish loyalists and revolutionaries, and control of San Antonio de Béxar changed back and forth several times. In a particularly bloody incident, 1,000 persons in the province who were, or were accused of being, revolutionaries were rounded up and executed or exiled. Much of the improved farmland around Béxar was left fallow, and the town itself was almost abandoned because of the scarcity of food (Fehrenbach 1968:130).

### **Mexican Statehood**

The period following Mexican Independence brought a slow improvement in the conditions around San Antonio de Béxar. Beginning in 1823, immigration laws were changed to allow *empresarios* to offer lands to heads of families willing to settle in Texas. The policy had been initially investigated by the Spanish as a means of securing its territory and providing a buffer zone against Indian attack. In fact, Moses Austin had applied for and received permission to bring American colonists to Texas in 1821, before Mexican Independence (Fehrenbach 1968:135). Austin had been granted the right to settle 300 families in Texas, but he never saw his grant. By the time he returned to his home in Missouri, his health had broken, and before his death he only had time to beg his son Stephen to carry out his plans (Fehrenbach 1968:136).

Stephen F. Austin willingly followed in his father's footsteps, and because of the liberal land policies, first of Spain and later of Mexico, he had many eager volunteers ready to accompany him. Colonists had to have good moral character and were required to become Spanish (then Mexican) citizens. They were also required to convert to Catholicism, although this requirement was not rigorously enforced. Under Spanish/Mexican law, land was distributed as follows: one labor (177 acres) to each family engaged in farming, one league (4,428 acres) to each family engaged in ranching, and one-third league (1,476 acres) to each single rancher (Fehrenbach 1968:140). The government charged a flat title fee, and Austin received a fee. The law required the land to be developed in two years or be forfeited. In all, 297 titles were issued, and only seven were forfeited. Most of the settlers claimed to be ranchers for obvious reasons.

In San Antonio de Béxar, local politics were affected by the Mexican Constitution of 1824. Former Spanish provinces were turned into sovereign states, and Texas and Coahuila were combined into one state with Saltillo named as its capital. The legislature of Coahuila passed its own colonization laws in 1825. This continued to open up the area to Euro-American settlement, and in all, there were some 26 *empresarios* in colonial Texas.

After a decade of *empresarios*, over 20,000 Euro-Americans, with their slaves, were in Texas. The impact of this can be understood when realizing that the *empresarios* managed to settle more of Texas in a decade than the government of Spain had settled in three centuries.

One of the effects of increased immigration was the opening and improvement of roadways, many of which followed the earlier Spanish *caminos*. The influx of settlers into the region brought changes in local politics as well, with Anglo-American immigrants gaining more power. In many areas of Texas, Mexicans were becoming politically overshadowed by the new immigrants. This situation alarmed the Mexican government, who passed the Decree of April 6, 1830, prohibiting the further "colonization of Mexican territory by citizens of adjacent countries—meaning the United States" (Fehrenbach 1968:165). This decree also prohibited the importation of slaves and further alienated the Anglo-American settlers.

From 1832 to 1835, a series of conflicts and temporary solutions continued to drive a wedge between Texas and Mexico. When the Texans met in San Felipe de Austin in 1835, they adopted resolutions and framed a state convention (to form a separate state from Coahuila). Shortly

afterward, when it became known that a Mexican army under Presidente Antonio López de Santa Anna had crossed the Rio Grande bound for San Antonio de Béxar to squelch the rebellious Texans, a call to arms was issued, and hostilities were begun in earnest (Fehrenbach 1968:193).

Many of the conflicts of what would come to be known as the Texas Revolution, were fought in and around the modern city of San Antonio. These engagements culminated in the battle at the Alamo (formerly Mission San Antonio de Valero) in the spring of 1836. At the same time that the Alamo was under siege, elected representatives of the Texans were meeting at Washington-on-the-Brazos, and on March 2, 1836, the Texas Declaration of Independence was signed. After his victory at the Alamo, Santa Anna's forces were defeated by the Texans at the Battle of San Jacinto, and the Republic of Texas was born.

### **Texas Republic**

In 1836, the Republic of Texas was a “backwater” with about 40,000 residents, most of whom were subsistence farmers. When elections were first held in 1836, the Texans voted overwhelmingly to approve a union with the United States, but the issue of slavery stood in the way of annexation for 10 years.

The government of the new Republic was a loosely organized affair. Among the many problems facing the new Republic was the fact that “[t]here was no money economy, nor any money. There were no banks or improved roads or organized schools. There was no industry—everything from pins to powder had to be imported from the United States” (Fehrenbach 1968:247). The Texans quickly replaced the old Spanish/Mexican conventions with the more familiar American ones.

Bexar County was formed in 1836, with a population that was predominantly Mexican. However, the new Republic was eager to encourage immigration, and it did so by offering its most abundant commodity—land. Travelers across the region wrote enthusiastic letters back home.

Texas is certainly one of the finest countries in the world, the salubrity of her climate and the luxuriance of her soil is beyond doubt unparalleled in the known world,—here it seems to be one perpetual spring [Hale 1836].

Under the Republic of Texas Constitution, settlers fell into one of three classes, which dictated the disbursal of land:

First Class—arrived before March 2, 1836  
Heads of Household: one league and one labor  
Single Man: one-third league

Second Class—arrived between March 2, 1836, and October 1, 1837  
Heads of Household: 1,280 acres (about one-third league)  
Single Man: 640 acres

Third Class—arrived between October 1, 1837, and January 1, 1840  
Heads of Household: 640 acres  
Single Man: 320 acres.

The new settler to Texas had to find unclaimed land on his own and often would not be able to procure land in his county of residency. The responsibility for providing witnesses who could attest to the arrival date fell to the settler, as did the costs for the survey and filing fees. In most counties, the Board of Land Commissioners went to work without delay because of the extreme importance of land to the citizens. The later land laws established under the State of Texas were set up in much the same way, but with land also being granted preemptively, through “squatters’ rights.” Land also was distributed in differing amounts for military service. “Thus it, was virtually impossible, theoretically, for a Texas family to be landless” (Fehrenbach 1968:283).

With the question of annexation to the United States unanswered, Mexico again laid claim to Texas as part of its territories in 1837. During this period, San Antonio and Bexar County once more became the setting for numerous hostilities between Mexican and Texan forces. Finally, after truce had been declared in 1843, the question of annexing Texas was once again raised in the U.S. Congress. By this time, sentiment had shifted in the United States, and on December 29, 1845, Texas was annexed officially.

Near the current project area, the community of Berg’s Mill was named for a milling operation that was started initially during the Republic period. Berg’s Mill was established around 1840 by Roderick T. Higginbotham, who began a saw-and-grist mill in that location (Scurlock et al. 1976:229). He apparently held the mill until 1842, when he sold all or part of it to his brother-in-

law William P. Kerr. The mill was probably at the same location as a stone building remnant that has been identified variously as “the stone ruin at Berg’s Mill,” or “Arnold’s Mill” after Hendrick Arnold. Arnold was a “free black” man who came to Texas from Mississippi and settled in Austin’s Colony on the Brazos River around 1826 (Scurlock et al. 1976:229). He later relocated to San Antonio. Although some degree of uncertainty exists as to when the mill property transferred to Arnold, it is nevertheless known that he died in the cholera epidemic of 1849 (Scurlock et al. 1976:233).

This same property eventually came into the hands of Colonel L. W. Ashley and through him to Henry L. and Louis S. Berg around 1879. They established a profitable wool-washing mill (several landowners in the area owned sheep) and cotton gin on the property (Scurlock et al. 1976:235). They ran the mill successfully until they had a financial reversal that led eventually to the transfer of the property to Gustave Hellmans in 1888. The location of “Hellmans” can be seen on the 1903 USGS map for San Antonio, Texas. This mill was subsequently sublet and the wool business phased out around 1900. The cotton gin apparently remained active until 1910 (Scurlock et al. 1976:238).

### **American Statehood**

The annexation of Texas by the United States brought about many changes in the region. Commerce, which had faltered in the Republic period during hostilities with Mexico, improved. San Antonio became a center for stagecoach travel into the region (McGraw and Hinds 1987:95). Immigration from the rest of the United States increased rapidly, as did the arrival of refugees from abroad. The population became much more diversified. One interesting fact relating to San Antonio is that “by 1850, and for many years afterward, European, mostly German, immigrants in San Antonio outnumbered both Mexicans and Anglos” (Fehrenbach 1968:285).

During the early years of statehood, the San Antonio region continued to be “Anglicized.” This was true in all areas and was demonstrated by a growing use of more “Anglo” types of architecture and building materials. In San Antonio itself, small businesses thrived and fledgling industries developed.



In Texas, the political situation, like that throughout the United States, was uneasy during the 1850s. When the rest of the South seceded from the Union in 1860–1861, the state of Texas voted overwhelmingly to follow. In general, the region around San Antonio fared better than most during the Civil War. When San Antonio was named the headquarters for the Cavalry of the West in 1864, some of the smaller communities actually benefited from this posting as a result of the increased travel through the region (McGraw and Hindes 1987:99).

The initial years after the Civil War, however, brought several setbacks in the region. Much of the area had suffered from a severe drought in 1863. In some areas where slaves once had worked large plantations, tenant farming became the norm. In the latter years of the century, land speculation seemed to be very common.

After Reconstruction, the community of Berg's Mill began to take shape around the milling operations. In 1885, the San Antonio and Aransas Pass Railroad made its first stop at the Berg's Mill Railroad Depot and Platforms. Bergs Station can be seen on the 1903 USGS map for San Antonio, Texas, along with several other structures. Sometime prior to 1914, a cotton platform was added but its use was discontinued in 1935 (Scurlock et al. 1976:130). The Berg's Mill community also had a schoolhouse that initially was a one-room structure, built prior to 1904. A four- or five-room building was constructed around 1914 to replace the original school (Scurlock et al. 1976:140). According to Scurlock et al. (1976) there were several other historic structures at the Berg's Mill community: the Mariano Zúñiga House, formerly a one-room adobe structure built during the last half of the nineteenth century; the Antonia Hurón House, an adobe structure constructed about 1850; the Kunze Store and Saloon, built in the 1880s; Berg's Mill Movie and Community Building, built around 1913; and the Chapa Store, built about 1929 by Ernst Kunze (who owned the store and saloon) from materials removed from the Movie and Community Building.

In 1913 and 1919 the city of San Antonio experienced record rainfall and flooding. In 1920, the city began to seek a solution to the flooding hazards that existed along the San Antonio River. The primary concern was to enable the river to carry a greater capacity of water that would accommodate the "hundred-year flood." After much deliberation, the city settled on the construction of a detention reservoir on the Olmos by raising a concrete dam and a cut-off across the Great Bend to shorten the channel and allow for a better slope. In 1923 taxpayers voted to

approve flood prevention bonds in order to carry out the proposed construction. Between 1923 and 1941 the river project was completed and included massive alterations of the stream for flood control as well as downtown river beautification (Fox et al. 2002).

### **PREVIOUS ARCHEOLOGICAL INVESTIGATIONS**

Prior to the beginning of this project, a detailed review of the site files curated at CAR at the University of Texas at San Antonio (UTSA) and at the Texas Archeological Research Laboratory (TARL) at the University of Texas at Austin (Largent and Duke 2003) indicated that in excess of 40 recorded sites occur within a 1-km (0.6-mi) radius of the project area (Table 2). Most of these sites are part of the nearby San Antonio Missions National Historic Park (SAMNHP) that was designated as the result of the Mission Parkway Survey conducted by the Texas Historical Commission (THC) (Scurlock et al. 1976). Many sites from the SAMNHP are labeled with “MP” numbers rather than state trinomial site numbers. The MP-designated sites are typically old houses, some of which are still occupied, or sites whose locations were provided by local informants but not necessarily verified in the field. In fact, Stinson Airport is designated MP 66 within the historic district.

Review of the Texas Archeological Sites Atlas showed numerous surveys conducted east of Roosevelt Road and include the project area. Archeological projects have been conducted both within the airport and in the nearby vicinity. NPS, city of San Antonio, UTSA, CAR, and the THC performed many of these investigations, the majority of which consisted of small projects related to the changing management needs at the historic missions (see Escobedo 1984; Fox 1993; Fox and Hester 1976; Gross 1998; Ivey and Fox 1999; Killen and Scurlock 1977; Meissner 1998; Meskill 1992; Turner 1988). Archeologists with the State Department of Highways and Public Transportation tested 41BX252 in the Mission Parkway, which was to be affected by the construction of Interstate 410 (Clark 1986) and also recorded prehistoric site 41BX706. In addition, Geo-Marine conducted several projects along Sixmile Creek and within Stinson Airport during recent years (Largent and Duke 2003; Tiné 2005, 2008; Tiné and Largent 2005), as well as within the SAMNHP (Osburn et al. 2007; Peter et al. 2006).

Table 2  
Previously Recorded Sites within 1 Kilometer of the Project Area

| Site Number | Site Type                              | Site Status† |
|-------------|--|--------------|
| 41BX4       | Mission San Francisco de la Espada     | SAMNHP       |
| 41BX5       | Mission San Juan Capistrano            | SAMNHP       |
| 41BX242     | Historic house                         | SAMNHP       |
| 41BX243     | Historic house                         | SAMNHP       |
| 41BX244     | Historic houses (3)                    | SAMNHP       |
| 41BX246     | Historic stone ruin                    | SAMNHP       |
| 41BX247     | Historic foundations                   | SAMNHP       |
| 41BX248     | Prehistoric lithic scatter             | SAMNHP       |
| 41BX249*    | Prehistoric lithic scatter             | SAMNHP       |
| 41BX250*    | Historic foundations                   | SAMNHP       |
| 41BX251     | Prehistoric/historic artifact scatter  | SAMNHP       |
| 41BX252     | Historic artifact scatter              | SAMNHP       |
| 41BX253     | Historic house                         | SAMNHP       |
| 41BX254     | Prehistoric lithic scatter             | SAMNHP       |
| 41BX255     | Historic mound and prehistoric lithics | SAMNHP       |
| 41BX256     | Prehistoric/historic artifact scatter  | SAMNHP       |
| 41BX260*    | Historic house                         | PE           |
| 41BX261     | Historic house                         | PE           |
| 41BX265     | Historic mill                          | SAMNHP       |
| 41BX268     | Acequia                                | SAMNHP       |
| 41BX269     | Historic irrigation ditch              | SAMNHP       |
| 41BX280     | Espada Dam and Acequia                 | SAMNHP       |
| 41BX281*    | Espada Aqueduct                        | SAMNHP       |
| 41BX340     | Prehistoric artifact scatter           | SAMNHP       |
| 41BX341     | Historic artifact scatter              | SAMNHP       |
| 41BX696*    | San Antonio Pottery                    | Not Eligible |
| 41BX706     | Prehistoric lithic scatter             | SAMNHP       |
| 41BX789*    | Historic cemetery                      | PE           |
| MP 27       | Bergs Mill bridge                      | SAMNHP       |
| MP 34       | Historic mill location                 | SAMNHP       |
| MP 37       | Historic tavern location               | PE           |
| MP 38       | Bergs Mill store location              | SAMNHP       |
| MP 52       | Historic house                         | PE           |
| MP 57       | Historic house location                | PE           |
| MP 60       | Historic house                         | PE           |
| MP 61       | Historic schoolhouse                   | PE           |
| MP 62       | Prehistoric artifact scatter           | PE           |
| MP 63       | Historic plane crash                   | PE           |
| MP 66       | Historic airport                       | SAMNHP       |
| MP 79       | Historic house                         | PE           |
| MP 80       | Historic mill location                 | SAMNHP       |
| MP 81       | Historic house                         | SAMNHP       |
| MP 83       | Historic house                         | PE           |

†Key: \* = site located within or adjacent to (within 200 m) the project area;

PE = potentially eligible for inclusion in the NRHP;

SAMNHP = San Antonio Missions National Historic Park (all sites eligible as part of National Historic District)

(Source: Largent and Duke 2003; Scurlock et al. 1976)

Within approximately 100–200 m (328–656 feet) of the current project area are six previously recorded sites: 41BX249, 41BX250, 41BX260, 41BX281, 41BX696, and 41BX789 (Figure 2). Site 41BX249 is the only one of these sites actually within the project corridor and is situated on the south side of Sixmile Creek. The site was recorded in 1974 as part of the Mission Parkway project and consists of a lithic scatter of flakes, a broken point, a hammerstone, a core, and shell fragments (Texas Archeological Sites Atlas). It is within the SAMNHP and is considered eligible as part of the district.

Site 41BX250, also recorded in 1974 as part of the Mission Parkway project, is approximately 40–50 m to the south of the project area, just southwest of site 41BX249 (Texas Archeological Sites Atlas). The site is the foundation of a one-room stone house, which until recently was still standing. Doorways are evident on the east and west sides of the former house, fireplace remains are evident in the south wall, and the plaster remnants exhibit a heavy lime content. The earliest known occupant was a man named Cazetano Huron, and the last known residents were the Grenado family. It is within the SAMNHP and is considered eligible as part of the district.

Site 41BX260, recorded in 1974 as part of the Mission Parkway project, is an adobe house approximately 100 m south of the project area (Texas Archeological Sites Atlas). The house, which is still occupied, is a one-room white painted stucco incorporated into a larger wooden structure. It is within the SAMNHP and is considered potentially eligible.

Site 41BX281 is the Espada Aqueduct, which partially parallels the south side of Sixmile Creek (Texas Archeological Sites Atlas). Along this stretch of the creek, it is about 100 m south of the project area. It is within the SAMNHP and is considered eligible as part of the district.

Site 41BX696 is the San Antonio Pottery and is situated along the north-trending Sixmile Creek section of the project area, approximately 200 m to the east of the creek. The site, which was recorded in 1985, represents a twentieth-century pottery that produced utilitarian stoneware and flowerpots of white Bristol glaze, blue speckled Bristol glaze, and some decorative yellow glaze wares, as evident from the collected artifacts (Texas Archeological Sites Atlas). In addition to the pottery fragments, old storage sheds, a frame workshop building, a round downdraft kiln, and a large clay blunger are still extant onsite. No living quarters were in existence when the present owner purchased the property, but the present residence was likely the sales shop in the past.

Although the site was judged to be not of exceptional importance, the recorder recommended photographs and measurements of the buildings, since they are in danger of being destroyed when the property is sold.

Site 41BX789, a historic paupers' cemetery, was initially recorded by Cox et al. (1989) of CAR during an archeological survey of Stinson Municipal Airport (Texas Archeological Sites Atlas). The cemetery is in the southwest corner of the airfield, adjacent to the north side of the current project area. Although its boundaries have not been clearly defined, several archeological investigations related to the cemetery have been conducted. In 1994, burials were discovered when a storm drain was installed across the northern taxiway. St. Mary's University identified, excavated, and relocated the burials of nine individuals (Uecker 1996). Grave markers associated with five of the burials were discovered below the ground surface, and all of the dates occurred in the mid to late 1930s (Uecker 1996). In 2002, Alianza, LLC, attempted to locate and map known burials in order to facilitate future planning of improvements to the airfield (Cave et al. 2003). Investigations included archival studies, informant interviews, and both invasive (mechanical excavation) and noninvasive (ground-penetrating radar, magnetometer, and metal detector) subsurface methods. A 2004 Geo-Marine survey for a SAWS sanitary sewer pipeline (Tin  and Largent 2005) included a portion of the proposed pipeline inside Stinson Municipal Airport, where archeologists monitored the boring of the two geotechnical and environmental core holes along the proposed pipeline corridor in the area thought to be closest to the cemetery but identified no evidence of burials. Nevertheless, two 4-inch-diameter holes were not considered sufficient to presume an absence of burials within the project corridor, and gradual, systematic mechanical scraping of the proposed pipeline easement between the airport runways and Sixmile Creek was recommended. Those scraping exercises were carried out the following year (Tin  2005), and no burials were identified. Geo-Marine, Inc. (Tin  2008), conducted archeological investigations for a proposed training helipad and a new taxiway inside Stinson Municipal Airport. The location of the proposed helipad was immediately west of the marked paupers' cemetery. Because unmarked burials had been encountered on the property in the past and in light of the proximity of the proposed construction projects to the known burials, backhoe scraping investigations were conducted to determine if unmarked human graves were present. No evidence of burials was observed. Based on these observations and results of previous investigations near the proposed taxiway, the conclusion was that the probability for human interments within these areas was extremely low.



In addition to the above sites that are within 200 m of the current project area, several other nearby sites within the 1-km radius have undergone testing/data recovery investigations. Geo-Marine, Inc. (Osburn et al. 2007), conducted Phase II archeological investigations at four sites within the Historical Mission Reach Project Area during the summer of 2006. The four sites being investigated were located during a previous inventory conducted by Geo-Marine in 2005 (Tin  and Largent 2005). Sites 41BX254 and 41BX256 are located within the boundary of the San Antonio Missions National Historic Park roughly 500 and 600 m, respectively, south of the current project area (Texas Archeological Sites Atlas) (sites 41BX1621 and 41BX1628 are well beyond the current project area). Both sites 41BX254 and 41BX256 were already listed on the NRHP, so the research objective was to perform limited excavations sufficient to recommend an appropriate data recovery plan using state-of-the-art techniques. In 2008, the United States Army Corps of Engineers (USACE), Fort Worth District, authorized Ecological Communications Corporation to conduct archeological data recovery excavations at sites 41BX254, 41BX256, and 41BX1628 (Padilla and Nichols 2010). The excavations documented 60 features, most of which consisted of fire-cracked rocks and slabs interpreted as cooking hearths and/or associated discard piles; one extensive Middle Archaic feature was interpreted as the remains of a wattle and daub habitation structure. Each of the sites consisted of multiple, intact components. Site 41BX254 contained Early Archaic through Protohistoric manifestations, 41BX256 yielded Early Archaic through Spanish Colonial manifestations, and 41BX1628 revealed Early Archaic through Late Prehistoric manifestations. Concurrent with the archeological investigations, a geoarcheological study further refined the existing alluvial chronology of the San Antonio River deposits, and developed a functional Holocene alluvial stratigraphy extending back to approximately 8,000 years before the present.



## **CHAPTER 4 METHODS**

The cultural resources investigation was undertaken with two goals in mind: to determine if historic and prehistoric archeological resources occur within the designated project area and to make recommendations for additional fieldwork necessary to satisfy obligations under the NRHP and the Antiquities Code of Texas eligibility criteria.

### **ARCHIVAL RESEARCH**

Prior to fieldwork, GMI personnel performed a search of the available data sources. Records maintained by the THC, CAR at the University of Texas at San Antonio, and TARL at the University of Texas at Austin were reviewed to identify known sites within 1 km (0.6 mi) of the project area. A literature review to obtain information from previous investigations and data from geologic maps, soil surveys, and aerial photographs was undertaken. This information was used to determine the locations all known archeological sites as well as national and state historic landmarks and historic cemeteries.

### **ARCHEOLOGICAL SURVEY**

A reconnaissance (windshield and walkover) survey of the acreage complied with the current reconnaissance survey standards as devised by THC. The windshield reconnaissance was undertaken west of Roosevelt Avenue, and a walkover survey was conducted east of Roosevelt

Avenue. The reconnaissance survey was to determine the potential for archeological deposits, what previous impacts may have affected any cultural resources present, and what additional fieldwork might be necessary prior to the proposed flood control improvements. Careful examination of the creek banks along Sixmile Creek helped to determine the potential for buried deposits. No shovel tests were excavated during this reconnaissance survey.

Field notes detailing the survey conditions, landscape features, level of disturbance, and initial interpretations of the cultural resources were maintained. A complete photographic record was kept and used to record any identified cultural remains, general topography, environmental conditions, current land use, and other factors at the time of the survey. All photographs were documented as to date; digital format was used to record the work conducted. Photographs were used to document any damage evident to the cultural resources by vandalism, construction, earth disturbances, or other disturbances of any kind.

### **BACKHOE TRENCHING**

Four backhoe trenches were excavated to better assess the potential for buried cultural resources. All trenches were placed near the convergence of Sixmile Creek with Roosevelt Avenue and South Flores Street, where the bridge will be replaced. Backhoe Trenches (BHTs) 1, 2, and 4 were placed between the two roadways: BHT 1 was south of Sixmile Creek, and BHTs 2 and 4 were north of the creek. BHT 3 was excavated in the northwest quadrant of the creek and South Flores Street. Trenches were generally excavated in 10-centimeter (cm; 4 in) intervals to varying depths ranging from 2 meters to 3 meters below the surface, and were usually 6 m (20 ft) in length and 2 m (6.6 ft) in width. Samples of backdirt from the trenches was screened through 0.25-in (0.635 cm) hardware cloth and deposits from which the dirt was recovered were noted. Any artifactual material recovered from trenches would be collected and analyzed. Detailed notes and photographs were taken. Should any cultural resources site have been located within a trench, the site would have been recorded to the extent possible within the backhoe trench.

## SITE DEFINITION

A site is defined on the basis of content and extent. For surficial materials, a site is defined as five or more cultural items of at least two different artifact materials or classes (e.g., prehistoric stone tool manufacturing debris exhibiting different raw materials, or manufacturing debris in combination with stone tools; or for historic materials, several different historic-era ceramic [or glass] types, or ceramics in addition to glass) within a 20-m (65.6-ft) square. When a shovel test yields cultural material, additional shovel tests are excavated in a cruciform pattern at 5-m (16.5-ft) intervals around the initial test until two sterile shovel tests are encountered in each cardinal direction. The site limit is then defined within the extent of surface artifact scatter and/or positive shovel tests. Cultural remains meeting these criteria are designated as a site, recorded on a Texas Archeological Site Data Form, and submitted to TARL for official site trinomial assignment. Conversely, the discovery of one or two cultural items (either surface or subsurface) not meeting these criteria is considered an isolated occurrence of human activity and is simply documented by location and content as a "locality"; likewise, historic-era material representing an obvious single-event trash dump is not considered a site, with only location and content documented.

Should a site be identified, the site form records locational information, vegetation cover, contextual integrity, estimated temporal period, and artifactual material noted is completed for each site. A scaled pace-and-compass map is prepared in pencil for each site on metric graph paper. Sufficient information is recorded to permit the completion of site forms approved by the THC for sites located in Texas.

A complete photographic record is kept and used to record identified the cultural remains, the general topography and condition of the site area at the time of the survey, and the field techniques and methodology employed. All photographs are documented as to date; digital format is used to record the work conducted. Each site is photographed from at least two viewpoints, including in the image any damage evident to the cultural property by vandalism, construction, or earth disturbances of any kind.

Surface collections of both historic and prehistoric materials involve only temporally diagnostic artifacts or tools. For prehistoric material, this includes all ceramic body sherds or rims, projectile points, biface preforms, finished tools, or well-made cores. For historic artifacts,

material to be collected includes decorated ceramics, decorated or embossed glass, and pieces with maker's marks or indications of manufacturing technology. In addition, samples are collected of all earthenwares and stonewares, any window glass, colored glass, and nails that may be present on the surface that would aid in site age determination. Conversely, all cultural materials from shovel tests are collected for later analysis in the Geo-Marine laboratory, unless a "no collection" policy is in effect. If that is the case, subsurface and diagnostic surface materials are analyzed in the field, photographed, and returned to the excavation unit from which they were recovered.

Each site located is identified by a temporary marker placed on the site. The marker has an identifying number in the form of "GMI-XXX." This number is a temporary field number only. Site designations is applied only to clusters of artifacts (whether surface or subsurface) that represent occupation or activity areas meeting the above site definition. Field notes concerning sites are maintained by the project archeologist. These field notes document site conditions, vegetation cover, and initial interpretations of the cultural property.

## **ELIGIBILITY CRITERIA**

### **National Register of Historic Places Criteria**

The assessment of significance of cultural resources properties is based on federal guidelines. The criteria to evaluate properties for inclusion in the NRHP are codified under the authority of the National Historic Preservation Act of 1966. Based on regulations set forth by the Advisory Council on Historic Preservation (ACHP), any resource that is included in or eligible for inclusion in the National Register is a "historic property." According to federal regulations, "The term 'eligible for inclusion in the National Register' includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria" (36 CFR §800.2 [e]). The ACHP has set forth the following guidelines to define significance and to determine eligibility of cultural resources:

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, material, workmanship, feeling, and association and

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded or may be likely to yield, information important in prehistory or history [39 CFR, Part 60].

### **Texas State Archeological Landmark Criteria**

State Archeological Landmarks are designated by the Texas Historical Commission and receive legal protection under the Antiquities Code of Texas. For a building, listing in the National Register of Historic Places is a prerequisite for State Archeological Landmark designation.

State Archeological Landmark designation stipulates that the property cannot be removed, altered, damaged, salvaged, or excavated without a permit from the THC. This designation encourages preservation and ensures that resources that cannot be preserved are at least properly documented.

Under the Texas Antiquities Code at the state level, archeological sites may be considered significant and be recognized or designated as an SAL provided that at least one of the following conditions is met:

- (1) The archeological site is situated on lands owned or controlled by the State of Texas or one of its political subdivisions; or
- (2) The archeological site is situated on private lands that have been specifically designated as an SAL . . . and fits at least one of the following criteria:
  - (A) Preservation of materials must be sufficient to allow application of standard archeological techniques to advantage;
  - (B) The majority of artifacts are in place so that a significant portion of the site's original characteristics can be defined through investigation;
  - (C) The site has the potential to contribute to cumulative culture history by the addition of new information;
  - (D) The site offers evidence of unique or rare attributes; and/or
  - (E) The site offers a unique and rare opportunity to test techniques, theory, or methods or preservation, thereby contributing to scientific knowledge [Texas Natural Resources Code 1977; Title 9, Chapter 191, Texas Antiquities Committee, Section 191.094 and Chapter 41.7, Antiquities Code of Texas].

If a property is owned by the city, it technically meets SAL Condition 1, regarding political subentities of Texas. At issue, however, is whether a site meeting that criterion is significant and eligible for designation as an SAL or for inclusion in the National Register.

#### **CURATION FACILITY**

Upon the completion of this project, all data generated from this project will be curated at the Center for Archeological Research, the University of Texas at San Antonio.



## **CHAPTER 5**

### **RESULTS OF INVESTIGATIONS AND RECOMMENDATIONS**

#### **RECONNAISSANCE**

The reconnaissance was divided into two segments which are described separately below: west of Roosevelt Avenue and east of Roosevelt Avenue. On the west side, the reconnaissance survey was initiated at Roosevelt Avenue and progressed approximately 5 miles to the western extent of the project area near Wagner Avenue (see Figure 2). The entire Sixmile Creek channel within this stretch has been lined with concrete (Figure 3), and the banks flanking the channel have been constructed with fill and/or from sediments and gravels pushed aside from the stream bed during construction (Figure 4). The channelization, which according to historic topographic maps occurred sometime between 1927 and 1953, has removed evidence of the natural meanders of Sixmile Creek and the concrete slope extending from the stream bed to the ground surface has obscured cutbank profiles. As a result, the project area within this 5-mile stretch is highly homogenous and no high probability landforms for cultural materials could be identified. However, given the degree of disturbance, it is unlikely that intact deposits remain immediately adjacent to the Sixmile Creek channel west of Roosevelt Avenue. The areas immediately adjacent to the channelized creek in this area have also been impacted by rapid urban development resulting in dense residential and commercial build-up which also obscured visual examination. Since the depth of the proposed channel improvements will not extend beyond depths already impacted by previous channelization efforts, it is very unlikely that the proposed channel improvements would encounter intact archaeological materials west of Roosevelt Avenue.



Figure 3. A representative view of the channelization west of Roosevelt Avenue.



Figure 4. A representative view of the fill used to construct the banks flanking the Sixmile Creek channel west of Roosevelt Avenue.

According to a 1903 USGS topographic map, the approximate 2.25-mile stretch between Wagner Avenue at the northwestern extent of the project area to the point at which the project area begins to run east-west was never part of the original Sixmile Creek meander belt (Figure 5); thus, there is a low probability for prehistoric sites within this stretch. There are several structures mapped on historic topographic maps along this stretch; however, the construction of the concrete channel and other modern construction activities has destroyed these structures. No traces of the structures were found during the reconnaissance.

The reconnaissance continued east of Roosevelt Avenue onto Stinson Airport property and progressed east to the point at which the end of the project area meets the San Antonio River (Figure 6). The project area within this approximate 1.7-mile stretch falls within the National Register District known as the San Antonio Missions National Historic Park (SAMNHP). As a result, the area was inspected closely for historic materials on the ground surface, particularly at the eastern edge of the project area where numerous archaeological sites associated with the SAMNHP have been recorded. In addition, the approximate boundary of site 41BX789, a historic cemetery, extends to the northern edge of the project area just east of Roosevelt Avenue (see Figure 6). No evidence of the cemetery or burials was found during the walkover; however, backhoe trenching is recommended in this area to determine if the cemetery extends into the project area.

Aside from several small concrete sections at road crossings (Figure 7), the stream channel east of Roosevelt Avenue has not been previously channelized. Thus, this stretch has a greater archaeological preservation potential relative to the project area west of Roosevelt Avenue. Unfortunately, due to the extensive channelization west of Roosevelt Avenue, the amount and velocity of water moving through this unchannelized downstream section is significantly greater than what would have been typical prior to the channelization. This process has resulted in extensive erosion along the stream banks and significant removal of intact deposits where cultural materials may have once been preserved (Figure 8). Soil profiles exposed in these eroded areas showed a relatively thin A horizon (less than 80 cmbs) underlain by a sterile B horizon (Figure 9). No buried horizons were observed below the onset of the B horizon in any exposure throughout the project area.



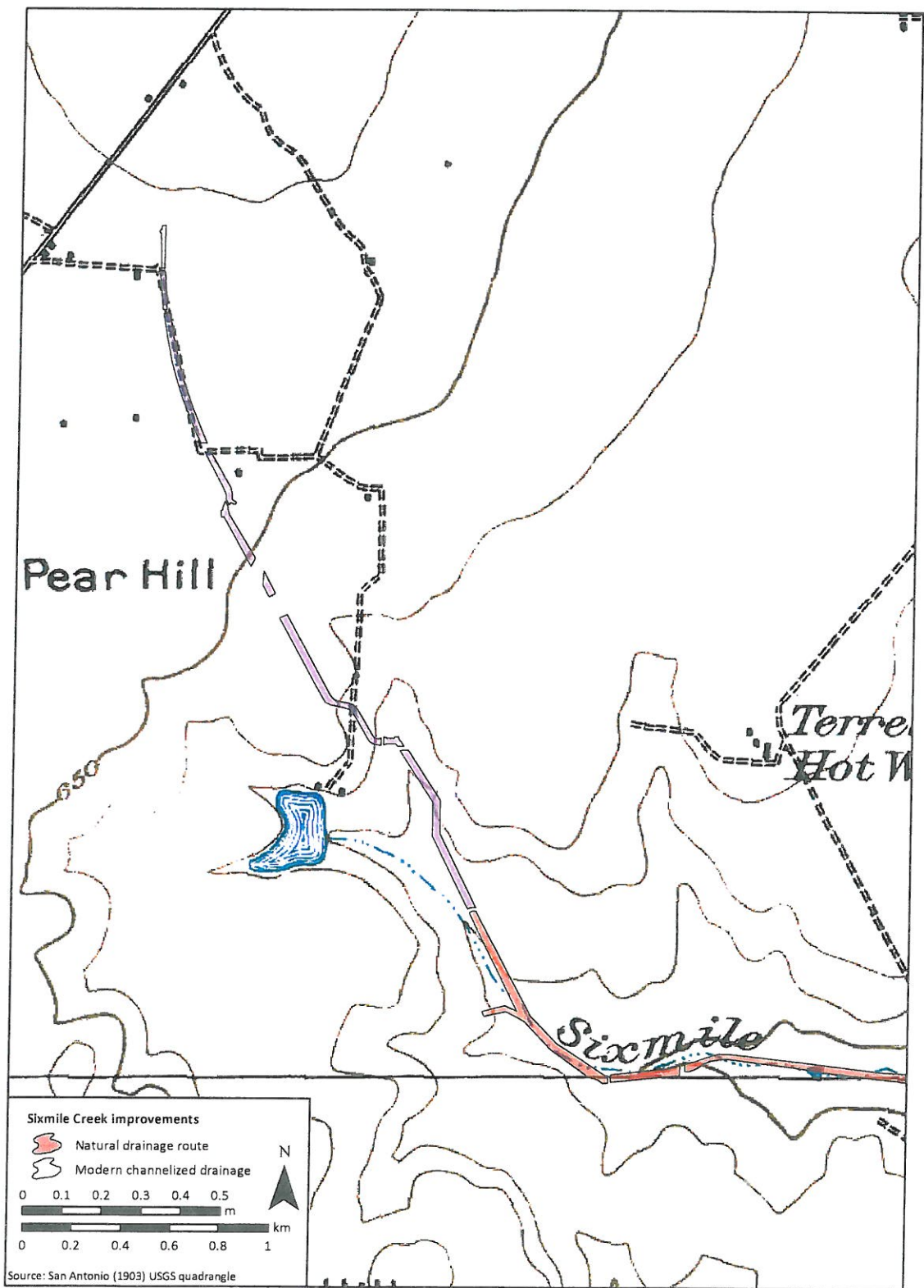


Figure 5. 1903 topographic map showing the original path of Sixmile Creek relative to the modern channelization path.

IMAGE RESTRICTED

Source: NHP, OAS, 1994

Figure 6. Previously recorded sites and cemeteries east of Roosevelt Avenue.



Figure 7. Concrete channelization east of Roosevelt Avenue, looking northwest.



Figure 8. Typical view of erosion of the stream banks east of Roosevelt Avenue, looking east.



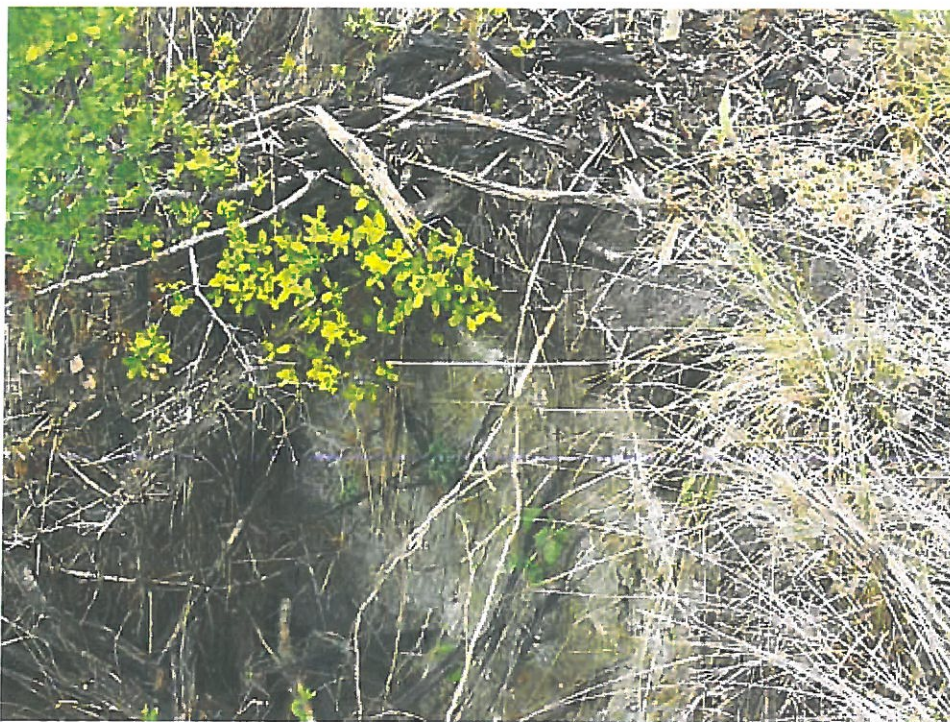


Figure 9. Typical soil profile east of Roosevelt Avenue showing a thin A horizon underlain by a sterile B horizon, looking east.

The vast majority of the project area east of Roosevelt Avenue falls either within the active channel and/or within the steeply eroded banks; thus, there is a low probability that future construction in these areas would encounter intact archaeological materials. On the other hand, several areas within the project area were encountered during the walkover east of Roosevelt that appeared to retain intact deposits where cultural materials may be preserved. In particular, an intact low terrace is present beginning at the first tree line east of Roosevelt Avenue and continues until the intersection of the creek with East Ashley Road (Figure 10). Along this stretch, a historic structure, determined to represent the Airport Captain's House, was encountered in an open field just south of the project area (Figure 11). The structure appears on the 1953 topographic map but is not present on the 1927 topographic map. As a result, the structure is considered historical and was likely built in the 1940s in association with the construction of Stinson Airport. While the structure itself does not overlap with the current project area boundary, an artifact scatter consisting of bottle glass and window glass was found on the surface near the southern edge of the project boundary (Figure 12). As the scatter was





Figure 10. An intact low terrace beginning at the first tree line east of Roosevelt Avenue, looking east.



Figure 11. The Airport Captain's house on the south bank of Sixmile Creek just outside of the project area, looking southeast.



Figure 12. Bottle glass and window glass on the surface of a concrete feature associated with the Airport Captain's house, looking down.

found on top of an unknown concrete feature that appears to have been associated with the structure (Figure 13), it is likely that the glass fragments observed are also associated with the structure. Shovel testing is recommended in this area to determine if cultural materials associated with the Airport Captains House do in fact extend into the project area. In addition, a more detailed assessment by an architectural historian as to potential eligibility is recommended for this structure.

Progressing to the east, the project area crosses East Ashley Road where a portion of the creek has been channelized with concreted gravels (Figure 14). The vast majority of the project area within the section south of East Ashley Road is encompassed almost entirely by the existing channel and eroded stream banks. Overall, this section was found to retain very little integrity. Several structures were encountered just outside of the project area along the south stream bank south of East Ashley Road that are potentially historic in age (Figure 15); however, since they will not be directly impacted by the proposed channel improvements no further work is





Figure 13. Concrete feature in relation to the Airport Captain's House, looking south.



Figure 14. Concrete and gravel channelization along Sixmile Creek south of East Ashley Road, looking southeast.



Figure 15. Structure encountered just outside of the project area along the south stream bank south of East Ashley Road, looking southeast.

recommended for the structures at this time. Extensive modern trash dumps (Figure 16) and large concrete chunks (Figure 17) were found within the project area north of the structures. Overall, the area south of East Ashley Road is highly disturbed and does not warrant further archaeological considerations.

At the eastern end of the project area, the creek crosses north of East Ashley Road and continues east until it reaches the San Antonio River (see Figure 6). This area is encompassed entirely by broad artificial embankments and no areas with intact deposits were encountered within the project area (Figure 18). Site 41BX249 is mapped within the project area near the eastern end; however, no evidence of the site was found on the ground surface during the walkover. The site location is currently mapped along the side slope of the embankment (Figure 19); however, after reviewing the original field notes when the site was originally recorded, it is possible that the site is actually located just south of the embankment but was misplotted in the Site Atlas. Shovel testing is recommended near this site location to determine if the site is located within the project area.





Figure 16. Representative view of the numerous modern trash dumps within the project area along the south stream bank south of East Ashley Road, looking south.



Figure 17. Large concrete chunks embedded in the eroding stream banks south of East Ashley Road, looking west.





Figure 18. Representative view of the broad artificial embankments present at the eastern end of the project area north of East Ashley Road, looking northwest.



Figure 19. Mapped location of site 41BX249 (foreground) on the south embankment of Sixmile Creek, looking west.

## INTENSIVE SURVEY AT SOUTH FLORES STREET

The intensive survey with backhoe trenching was conducted along South Flores Street and Roosevelt Avenue where the proposed bridge replacement will occur (Figure 20). The current bridge structure at South Flores and Sixmile Creek (Figure 21) was considered for NRHP and SAL eligibility, but the original historic bridge has been replaced entirely with modern structural materials and is thus considered non-historical. The majority of the area to be impacted by the bridge replacement, primarily where South Flores Street and Roosevelt Avenue converge, consists of paved surfaces which GMI personnel were not permitted to penetrate with machinery (Figure 22). In addition, several buried utility lines and low-hanging power lines along the roadways prevented excavation immediately adjacent to Roosevelt Avenue and South Flores Street (see Figure 20). Impacts from the utility installation and grading for road construction and repair would have disturbed the upper 3 feet in this area as well. As a result, the trenches were excavated immediately adjacent to the existing concrete channel where maximum impacts would occur with the proposed construction. The goal was to determine if deeply buried cultural materials or preserved living surfaces are present in the area to be disturbed by the proposed bridge replacement.

Four backhoe trenches were excavated during the intensive survey portion of the project (see Figure 20; Table 3). Trench 1 was excavated in the median between South Flores Street and Roosevelt Avenue, Trench 2 was excavated in a thin strip of land between South Flores Street and the South Flores Tributary, Trench 3 was excavated west of South Flores Street and north of Sixmile Creek, and Trench 4 was excavated just east of the South Flores Tributary within the Stinson Park boundary. Overall, the sediments were found to be in a disturbed context with fill extending up to a meter below the surface. Below the fill, an intact A horizon was found in Trenches 1-3, but was missing in Trench 4. In Trenches 1-3, the A horizon was approximately 30 cm thick and was underlain immediately by a culturally sterile B horizon (Figure 23). In Trench 4, the fill was underlain immediately by the B horizon indicating that the A horizon was likely stripped of during construction of the concrete channel (Figure 24). Limestone bedrock was typically encountered within 2-3 meters below the surface. No cultural materials were found in any of the trenches and no naturally buried living surfaces were found to suggest that intact archaeological deposits are deeply buried in the APE. Thus, no further archaeological work is recommended in the area to be impacted by the proposed bridge replacement.



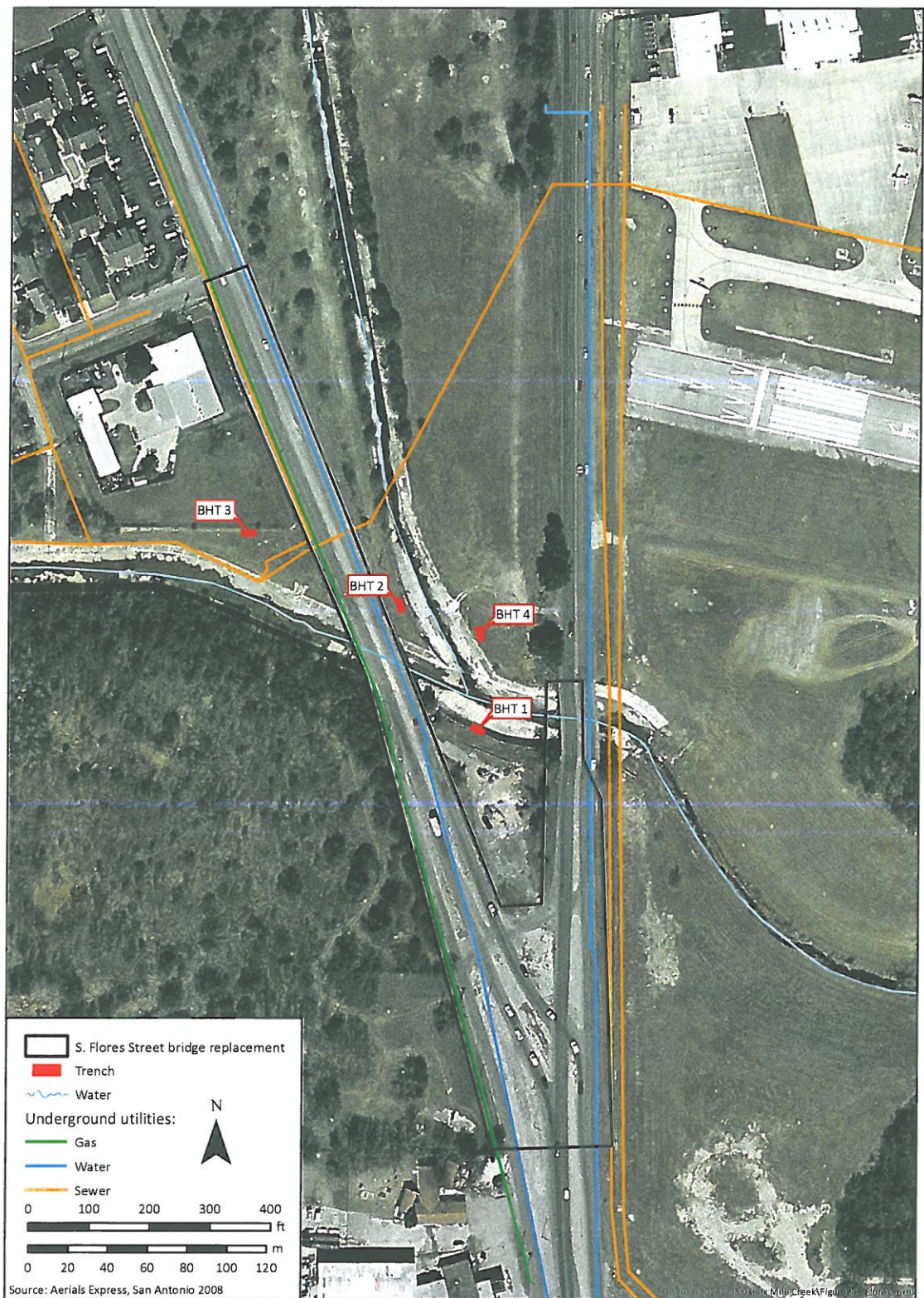


Figure 20. Intensive survey project area for the proposed bridge replacement South Flores Street and Roosevelt Avenue.





Figure 21. Bridge structure at South Flores Street and Sixmile Creek, looking north. Note that modern structural materials have replaced the original historical structure.



Figure 22. Overview of the intensive survey project area at South Flores Street and Roosevelt Avenue, looking south.

Table 3  
Backhoe Trenches (BHT) at South Flores Street and Roosevelt Avenue

| BHT # | Soil Description   | Contents              |
|-------|--|-----------------------|
| 1     | 0-10 cmbs; dark grayish brown (10YR 4/2) loam (Fill)   | No cultural materials |
|       | 10-50 cmbs; yellowish brown (10YR 5/6) clay loam with grayish brown (2.5Y 5/2) mottles with white silt intermixed (Fill)   | No cultural materials |
|       | 50-90 cmbs; black (10YR 2/1) compact clay with iron coated threads and few limestone gravels   | No cultural materials |
|       | 90-180 cmbs; light olive brown (2.5Y 5/4) friable loam, abundant calcium carbonate nodules   | No cultural materials |
|       | 180-200 cmbs; brown (7.5YR 4/4) shale bedrock  | No cultural materials |
| 2     | 0-20 cmbs; light olive brown (2.5Y 5/3) dry compact loam mottled very dark grayish brown (10YR 3/2) and dark yellowish brown (10YR 3/4) with gravels and snail shells (Fill) | No cultural materials |
|       | 20-50 cmbs; very dark gray (10YR 3/1) dry compact loam with, snail shells, small gravels, and worm castings of light olive brown (2.5Y 5/3)                                  | No cultural materials |
|       | 50-90 cmbs; light olive brown (2.5Y 5/3) loam  | No cultural materials |
|       | 90-160 cmbs; yellowish brown (10YR 5/6) clay, mottled very dark grayish brown (10YR 3/2), abundant calcium carbonate   | No cultural materials |
|       | 160-200 cmbs; brownish yellow (10YR 6/8) clay with reddish brown (2.5YR 4/4) clay  | No cultural materials |
|       | 200-240 cmbs; brownish yellow (10YR 6/8) moist clay with light gray (5Y 7/2) mottles   | No cultural materials |
|       | 240-300 cmbs; light gray (5Y 7/2) moist clay with brownish yellow (10YR 6/8) mottles   | No cultural materials |
| 3     | 0-20 cmbs; grayish brown (10YR 5/2) compact loam mottled yellowish brown (10YR 5/4), abundant gravels (Fill)   | No cultural materials |
|       | 20-50 cmbs; pale brown (10YR 6/3) compact loam, natural gravels (Fill)   | No cultural materials |
|       | 50-100 cmbs; very dark grayish brown (10YR 3/2) compact clay   | No cultural materials |
|       | 100-160 cmbs; light yellowish brown (2.5Y 6/3) dry compact clay with abundant calcium carbonate nodules  | No cultural materials |
|       | 160-200 cmbs; light olive brown (2.5Y 5/6) moist clay with few calcium carbonate nodules   | No cultural materials |
|       | 200-220 cmbs; limestone bedrock, boulders and soft caliche   | No cultural materials |
| 4     | 0-50 cmbs; dark grayish brown (10YR 4/2) loam mottled very dark grayish brown (10YR 3/2) and yellowish brown (10YR 5/4) with gravels and calcium carbonate threads (Fill)    | No cultural materials |
|       | 50-80 cmbs; light yellowish brown (10YR 6/4) sand intermixed with asphalt and gravels (Fill)   | No cultural materials |
|       | 80-120 cmbs; light gray (2.5Y 7/2) compact silt (Fill)   | No cultural materials |
|       | 120-180 cmbs; brownish yellow (10YR 6/8) moist clay with light gray (5Y 7/2) mottles (Fill)  | No cultural materials |
|       | 180-270 cmbs; light gray (5Y 7/2) moist clay with brownish yellow (10YR 6/8) mottles   | No cultural materials |
|       | +270 cmbs; impenetrable bedrock  | No cultural materials |





Figure 23. Trench 3 north wall profile with scale, looking north.

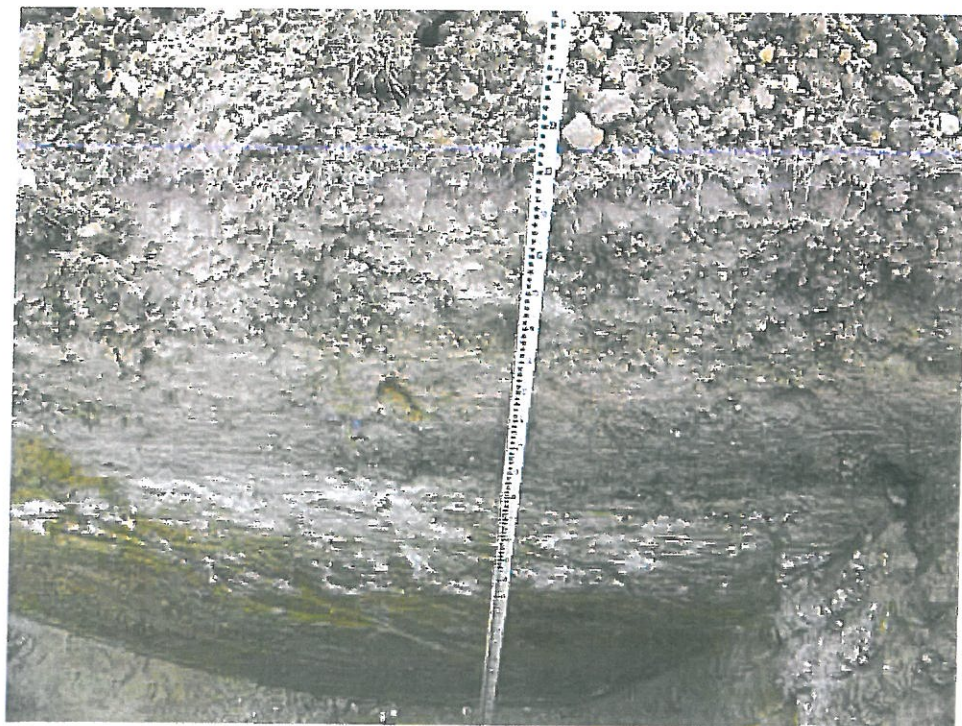


Figure 24. Trench 4 west wall profile with scale, looking west.



## Recommendations

The reconnaissance indicated that the project area west of Roosevelt Avenue has been significantly impacted by the previous channelization and will require no additional archaeological work. East of Roosevelt Avenue, several areas were encountered that are recommended for further archaeological considerations (Figure 25). Backhoe trenching is recommended where the southern boundary of site 41BX789, a historic cemetery, intersects with the northern boundary of the project area. Shovel testing is recommended along an intact low terrace beginning at the first tree line east of Roosevelt Avenue and continuing until the intersection of the creek with East Ashley Road. Within this stretch, a historic structure identified as the Airport Captain's House, was encountered. While the structure falls well outside of the project area, artifacts were found on the surface near the southern edge of the project area. Shovel testing is recommended here to determine if cultural materials associated with the structure extend into the project area. A more detailed assessment as to potential eligibility is also recommended for this structure. No further work is recommended for the portion of the project area south of East Ashley Road due to the lack of intact deposits. However, several structures were found just outside of the project area south of East Ashley Road that may be historic in age. Since the structures will not be directly impacted by the proposed channel improvements, no further work is currently recommended. However, if future impacts are anticipated for these structures, archaeological and architectural considerations are recommended. However, north of East Ashley Road, at the eastern end of the project area, shovel testing is recommended where the location of site 41BX249 is mapped along an artificial embankment. Aside from this, no further archaeological work is recommended along the artificial embankment north of East Ashley Road.

The intensive survey conducted for the bridge replacement at South Flores Street and Roosevelt Avenue included four backhoe trenches excavated adjacent to the existing concrete channels. The excavations encountered disturbances associated with the previous channelization including construction fill found up to a meter below the surface. A relatively intact profile was encountered below the fill in three of the four trenches; however, no artifacts or naturally buried living surfaces were encountered that would suggest that intact archaeological deposits are deeply buried in the APE. Thus, no further archaeological work is recommended in the area to be impacted by the proposed bridge replacement.

IMAGE RESTRICTED

0 100 200 300 400 500  
Source: NADP 2008, NHD



Figure 25. Recommended archaeological work east of Roosevelt Avenue.

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