Appendix D

Cultural Resources Study

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CULTURAL RESOURCES ELEMENT OF THE CITY OF RIVERSIDE GENERAL PLAN UPDATE

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CONFIDENTIALITY

The site location data presented in this document, particularly site sensitivity location maps, are of a sensitive nature and must remain confidential. Caution must be exercised in distributing this information. Maps should be available only to managers, officials, and other professionals who have a legitimate "need to know," for purposes of avoiding site impacts during construction or otherwise managing historic properties during project implementation.

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1.0
INTRODUCTION

The City of Riverside's (hereinafter, the City) cultural heritage includes historical sites, structures, features, natural resources, and prehistoric and historical archaeological resources. Historical cultural resources throughout the community can enhance the charm of the City, offer opportunities to enrich the City's character, and form cornerstones of successful revitalization and preservation efforts within the City. Historical natural resources also add to the cultural heritage of the City; recognized natural resources include the Parent Naval Orange Tree, the Montezuma Bald Cypress Trees in Fairmont Park, the Palm Grove in Hunter Park, the Native Sycamore Tree in the middle of La Paz Lane, the Horse Chestnut Tree in the Victoria Avenue median, and the Chicago White Sox Redwood Tree.

In addition to historical sites, structures, features, and natural resources, hundreds of prehistoric and historical archaeological resources have been identified in and surrounding the City's General Plan study area. Archaeological resources are unique in that they are not readily visible to the common layperson, are typically discovered by trained archaeologists during pedestrian surveys conducted for local, state, or federal projects as required by the California Environmental Quality Act (CEQA) or the National Environmental Protection Act (NEPA), and require time, expertise, and a certain degree of confidentiality to excavate and inventory. Occasionally, buried archaeological resources are discovered accidentally by construction workers during ground disturbing activities such as grading or trenching. Due to their uniqueness, archaeological resource protection requires a unique blend of educational and regulatory efforts on the part of the City.

The purpose of this document is to update the *City of Riverside General Plan* adopted by the City Council on September 13, 1994. The *Historic Preservation Element of the City of Riverside General Plan* was recently prepared by Architectural Preservation Planning Services (APPS 2003), and adopted by the City's Planning Department on February 18, 2003. Although these two documents provide sufficient data regarding the City's historical sites, structures, features, and natural resources, very little information is provided concerning the City's historical and prehistoric archaeological resources. Therefore, the primary purpose of this document is provide the City with a comprehensive review of the current body of knowledge regarding the prehistoric and ethnographic cultural setting of the City's planning region; these data are supplemented with historical data provided in the City's 1994 *General Plan* and 2003 *Historic Preservation Element*, as well as the recently adopted *Riverside County Integrated Plan* (LSA 2000). Utilizing this background information and archaeological data collected specifically for this General Plan Update, the historical and prehistoric archaeological site sensitivity is evaluated for the City's 91,200-acre planning area, including the City's 50,580-acre Core Area of Influence and 40,620-acre Sphere of Influence.

In the following sections, the regulatory framework that dictates the City's treatment and protection of both its historical and archaeological resources is detailed in Chapter 2. Chapter 3 describes the environmental setting of the City's planning area as a basis for understanding the

types and distribution of cultural resources. The culture history of western Riverside County is reviewed in Chapter 4 to provide a context for understanding the types, nature, and significance of the prehistoric, ethnographic, and historical resources identified within the City's planning region. Chapter 5 describes the methodology used during the course of this investigation, as well as the methodology used to develop the archaeological sensitivity rankings and resultant maps for the City's planning area. The final chapter (Chapter 6) outlines the potential impacts to cultural resources by implementation of the City of Riverside General Plan Update, as well as the proposed mitigation measures that would reduce potential impacts on cultural resources to a level of insignificance.

2.0
REGULATORY FRAMEWORK

2.1 INTRODUCTION

Cultural resources in the State of California are recognized as non-renewable resources that require management to assure their benefit to present and future Californians. Therefore, cultural resources management work conducted as part of any proposed undertaking by the City must comply with applicable Federal, and/or State, and Local regulations designed to protect the City's rich cultural heritage. Brief descriptions of these regulations are provided below.

2.2 FEDERAL REGULATIONS PERTAINING TO CULTURAL RESOURCES

Although most projects conducted by the City would not be subject to federal regulations pertaining to cultural resources, a brief review of federal law sets the stage for understanding the state and local cultural resources guidelines. The California Environmental Quality Act (CEQA) and local City guidelines are then addressed in subsequent sections.

Enacted in 1966, the National Historic Preservation Act (NHPA) has become the foundation and framework for historic preservation in the United States. Briefly, the NHPA authorizes the Secretary of the Interior to expand and maintain a National Register of Historic Places (NRHP); it establishes an Advisory Council on Historic Preservation as an independent federal entity; requires federal agencies to take into account the effects of their undertakings on historic properties, and affords the Advisory Council a reasonable opportunity to comment on any undertaking that may affect historic properties listed, or eligible for listing, in the NRHP; and makes the heads of all federal agencies responsible for the preservation of historic properties owned or controlled by their agencies. In addition, the NHPA authorizes funding for state programs with provisions for pass-through funding and participation by local governments. In summary, the NHPA provides the legal framework for most state and local preservation laws.

The National Park Service has issued regulations governing the NRHP (36 CFR 60). Among the topics covered in detail in these regulations are the effects of listing under federal law, definition of key terms (e.g., building, site, structure, and district), nomination procedures, nomination appeals, and removing properties from the NRHP. Importantly, Section 60.4 of the regulations presents the criteria by which historic properties are evaluated for the NRHP.

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, 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 that are associated with the lives of persons significant in our past; or

(b) 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

(c) that have yielded, or may be likely to yield, information important in prehistory or history (36 CFR 60.4).

A point to be emphasized is that a historic property does not have to be nominated for, or listed in, the NRHP to be afforded protection under the NHPA. Indeed, *most* of the properties managed under this and other federal historic-preservation authorities have never been nominated for the NRHP. The significance of a historic district, site, building, structure or object–and thus its required consideration under the law–is determined by the property's *eligibility* for the NRHP with respect to the criteria set forth in 36 CFR 60.4.

The NHPA established the Section 106 review procedure to protect historic and archaeological resources that are listed in or eligible for listing in the NRHP from impacts of projects by a federal agency, projects funded or permitted by a federal agency, or projects located on federally-owned land or Native American-owned land. State Historic Preservation Officers and programs in all states and U.S. territories receive federal funding to carry out the provisions of the NHPA. This funding comes from a yearly appropriation by the legislative branch of the federal government. The NHPA requires that at least 10 percent of funds to the state be passed through to Certified Local Governments; the City of Riverside has been registered as a Certified Local Government since 1995 and has received several grants for local preservation projects. Thus, Federal Highway and Housing and Urban Development-funded Community Development Block Grant projects are examples of those City projects subject to Section 106 review.

2.3 STATE REGULATIONS PERTAINING TO CULTURAL RESOURCES

Excepting projects that receive federal pass-through funding for Certified Local Governments, such as the City of Riverside, cultural resources management work conducted as part of any proposed undertaking by the City must comply with the *California Environmental Quality Act* (CEQA) *Statutes and Guidelines* (California 1999). Enacted in 1971, CEQA directs lead agencies to first determine whether a cultural resource is a "historically significant" cultural resource. In the protection and management of the cultural environmental, CEQA guidelines provide definitions and standards for cultural resources management. The term "historical resource" is defined as follows:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in the *California Register of Historical Resources* (CRHR).

(2) A resource included in a local register of historical resources or identified as significant in a historical resource survey shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site area, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a cultural resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR, including the following:

(A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(B) Is associated with the lives of persons important in our past;

(C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

(D) Has yielded, or may be likely to yield, information important in prehistory or history.

The fact that a resource is not listed in, or determined to be eligible for listing in the CRHR, not included in a local register of historical resources . . ., or identified in a historical resources survey . . . does not preclude a lead agency from determining that the resource may be a historical resource [Title 14 CCR Section 15064.5(1)].

The term "unique archaeological resource" has the following meaning under CEQA:

An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historical event or person [Public Resources Code Section 21083.2(g)].

A project with an effect that may cause a substantial adverse change in the significance of a historical resource or unique archaeological resource is a project that may have a significant effect on the environment (California 1999:14). Effects on cultural properties that qualify as historical resources or unique archaeological resources can be considered adverse if they involve physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.

The cited statutes and guidelines specify how cultural resources are to be managed in the context of projects such as those proposed by the City. Briefly, archival and field surveys must be conducted, and identified cultural resources must be inventoried and evaluated in prescribed ways. Sites that may contain human remains important to Native Americans must be identified and treated in a sensitive manner, consistent with state law (i.e., Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98), as reviewed below.

> In the event that human remains are encountered during project development and in accordance with the Health and Safety Code Section 7050.5, the County Coroner must be notified if potentially human bone is discovered. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with Public Resources Code Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods.

Prehistoric and historical resources deemed "historically significant" must be considered in project planning and development. As well, any proposed undertaking that may affect "historically significant" cultural resources must be submitted to the State Historic Preservation Officer (SHPO) for review and comment prior to project approval by the responsible agency (in this case the City) and prior to construction. Subsequent sections of the *CEQA Guidelines* detail methods by which significant effects may be mitigated, and discuss procedures for treatment of human remains discovered in the course of project development.

The State of California Office of Historic Preservation (OHP) administers the California Register program. As a recipient of federal funding, the OHP meets the requirements of the NHPA with a SHPO who enforces a designation and protection process, has a qualified historic preservation review commission, maintains a system for surveys and inventories, and provides for adequate public participation in its activities. As the recipient of federal funds that require pass-through funding to local governments, the OHP administers the Certified Local Government program for the State of California. The OHP also administers the California Register of Historical Landmarks and California Points of Local Historical Interest programs (APPS 2003:10).

2.4 LOCAL REGULATIONS THAT PERTAIN TO CULTURAL RESOURCES

Title 20 (Cultural Resources Ordinance), Chapters 20.05 through 20.45, of the Riverside Municipal Code is the primary body of local historic preservation laws. Title 20 established the authority for preservation, the composition and administrative requirements of the Cultural

Heritage Board, criteria for evaluating projects affecting cultural resources, and procedures for protecting and designating significant cultural resources (APPS 2003:10).

Title 20 recognizes four types of local designations as follows:

(A) Cultural Heritage Landmark: A cultural resource of the highest order of importance.

(B) Structure of Merit: A cultural resource which is important, but at a lesser level of significance than a Cultural Heritage Landmark.

(C) Historic District: A geographically defined area within Riverside that has a significant concentration of cultural resources that represent themes important in local history.

(D) Neighborhood Conservation Areas: Similar to a Historic District, but with structures/resources of somewhat lesser significance and/or lesser concentration of resources.

Heritage Landmark and Structure of Merit designations may be initiated by the Riverside City Council, Cultural Heritage Board, or property owner and are designated by resolution of the City Council. Historic District and Neighborhood Conservation Area designations may be initiated by petition of property owners as well as the above entities; these are also designated by resolution of the City Council.

The relationship of historic preservation planning to the City's other planning activities requires a comprehensive approach. Although it is not required in state planning law, a historic preservation component was included in the *Community Enhancement Element of the City of Riverside General Plan*, adopted in 1994. The *Historic Preservation Element of the City of Riverside General Plan* (APPS 2003), adopted in February 2003, was created specifically to complement the present and future goals of land use planning for the City.

3.0
ENVIRONMENTAL SETTING

3.1 INTRODUCTION

Bordered to the north by the Santa Ana River, the City's planning area is located in the inland valleys of western Riverside County (see Figure 1). As shown in Figure 2, the City's planning area includes highly urbanized regions of Riverside and its suburbs, including Highgrove, Belvedere Heights, Casa Blanca, Arlington, La Sierra, La Sierra Heights, and Arlanza, as well as the more rural areas to the south and east of the City that contain extant citrus groves and small ranchettes. In the following sections, the environmental setting of the City's study region is briefly reviewed, followed by a discussion of the study area's cultural setting. For the most part, the environmental setting has been summarized from Applied EarthWorks' (Æ's) work at Diamond Valley Lake (DVL) and on the Inland Feeder Pipeline Project (IFP), located approximately 37 km (23 mi) south and 26 km (16 mi) east of the City's Sphere of Influence, respectively (Goldberg et al. 2001; McDougall et al. 2003a).

3.2 CLIMATE AND VEGETATION

The Mediterranean climate of the study area is characterized by hot dry summers, cool moist winters, a semi-arid precipitation regime, and significant changes of temperature and moisture according to elevation and exposure.

Prehistorically, the vegetation in the inland valleys of western Riverside County that characterize the study area likely included representative species of three major plant communities: valley grassland, Riversidian sage scrub (the interior variant of the coastal sage scrub community), and chamise chaparral (Munz and Keck 1959). Restricted riparian communities would have also occurred near springs or in places where groundwater was close to the ground surface, as well as along the Santa Ana River, Tequesquito Arroyo, and the perennial streams flowing through some of the major canyons (e.g., Mockingbird Canyon, Box Springs Canyon, Sycamore Canyon, Cajalco Canyon, and Olsen Canyon). Depending upon elevation and climate, various species from these communities were available from early spring until winter, and the leaves, stems, seeds, fruits, roots, and tubers from many of these plant species formed an important subsistence base for the Native American inhabitants of the study area (Bean and Saubel 1972; Bean and Vane 2001; Bettinger 1974; Munz 1974).

Important species in the valley grassland community, prior to extensive grazing by domestic livestock and historic agricultural pursuits, may have included rye grass (*Leymus condensatus*), blue grass (*Poa secunda*), bent grass (*Agrostis* spp.), needlegrass (*Stipa* spp.), and three-awn (*Aristida divaricata*) (nomenclature follows Hickman [1993]). Pollen from prehistoric valley sediments at DVL indicate that members of the sunflower family (*Asteraceae*) also were important components of the vegetation (Anderson et al. 1998). At present, in areas not utilized

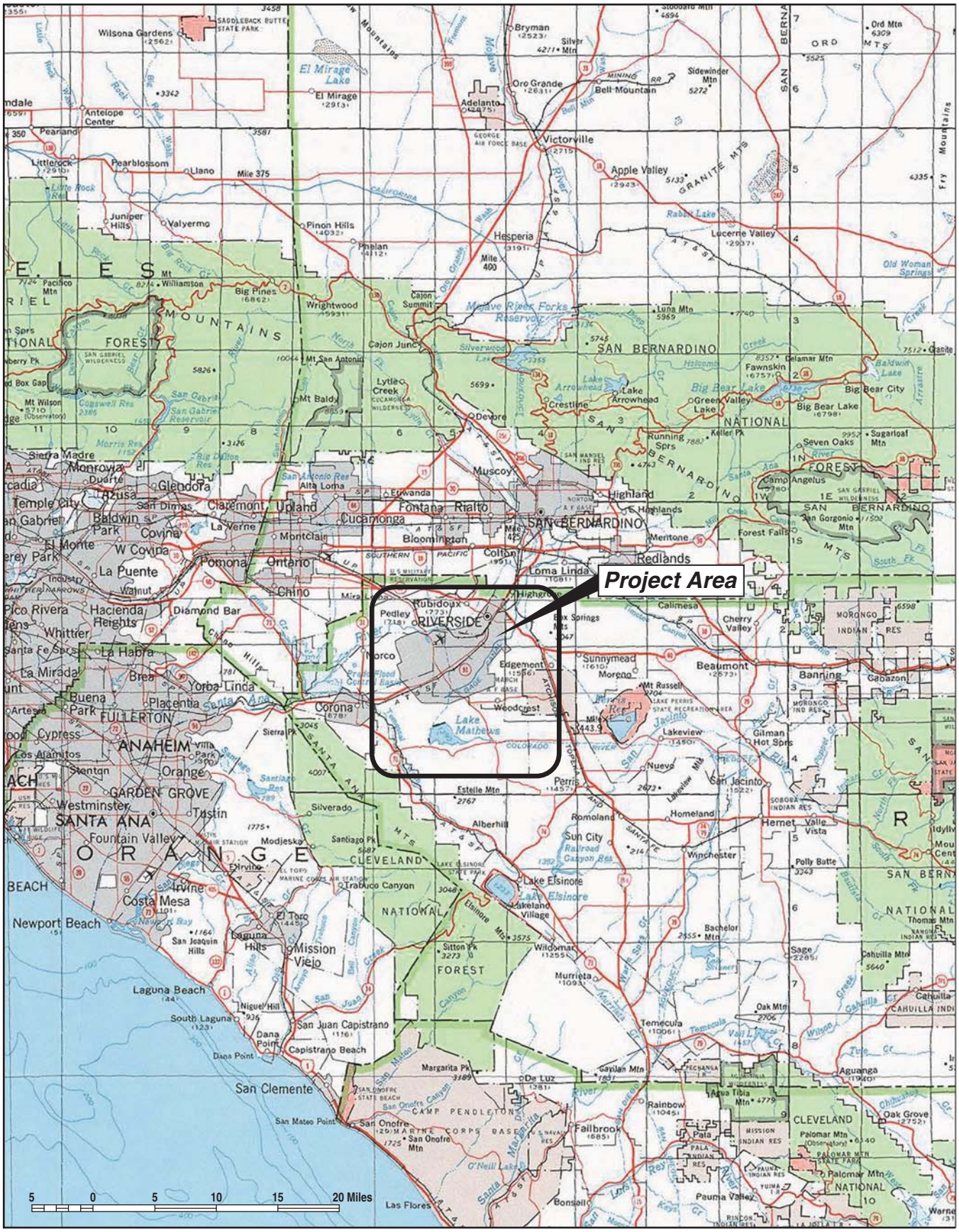

Figure 1 General location of the City of Riverside General Plan project study area.

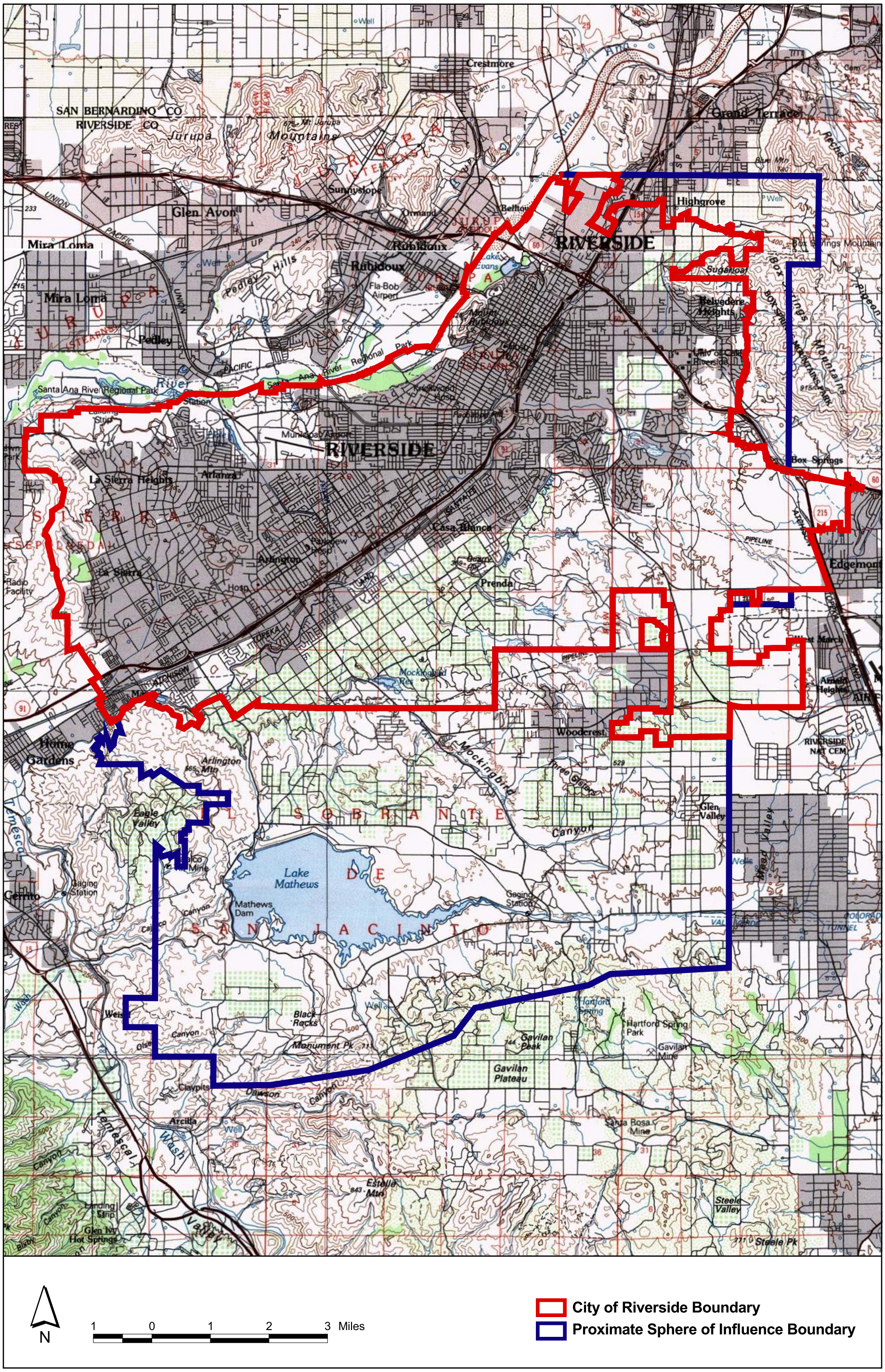

Figure 2 Location of the City of Riverside Core Area and proximate Sphere of Influence.

for agriculture or devoted to residential and commercial development, the valley grassland community is dominated by exotic species such as filaree (*Erodium cicutarium),* tansy mustard *(Descurainia pinnata),* tumble mustard (*Sisymbrium altissimus*), foxtail fescue (*Vulpia myuros*), barleys (*Hordeum* spp.), wild oats (*Avena* spp.), rye grass (*Lolium* spp.), cheat or brome grass (*Bromus* spp.), vinegar weed *(Trichostema lanceolatum*), and dove weed (*Eremocarpus setigerus*).

Currently, the Riversidian sage scrub community occurs on the hillslopes and granitic inselbergs that are scattered throughout the study area. This vegetation type likely occurred in these habitats during prehistoric times as well. Important perennials in this community are California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), black sage (*Salvia melifera*), white sage (*S. apiana*), brittle-bush (*Encelia farinosa*), spiny redberry *(Rhamnus crocea*), yellow bush penstemon (*Penstemon antirrhinoides*), bee plant (*Scrophularia californica*), orange bush monkey flower (*Mimulus longiflorus*), mesa prickly-pear (*Opuntia littoralis*), and valley cholla (*O. parryi*). Isolated stands of Our Lord's Candle (*Yucca whipplei*) are also present.

At slightly higher elevations, the chamise chaparral community borders the valleys on north-facing slopes, which are somewhat sheltered from direct sunlight and, hence, retain greater soil moisture. Dominant shrubs are chamise (*Adenostoma fasiculatum*), sugar bush (*Rhus ovata*), and buck brushes (*Ceanothus* spp.). Clumped stands of scrub oak (*Quercus dumosa*), coastal live oak (*Q. agrifolia*), spiny redberry, and holly-leaf cherry (*Prunus ilicifolia*) occur sporadically within this community where soil moisture is somewhat greater.

Where water is plentiful, the dominant species of the riparian community include willows (*Salix* spp.), cottonwood (*Populus fremontii*), and western sycamore (*Plantanus racemosa*), with an understory of mule fat (*Baccharis salicifolia*), nettle (*Urtica gracilis*), ragweed (*Ambrosia psilostachya*), and smartweed (*Ploygonum* spp.), as well as dense stands of the same plant species present in the immediately adjacent plant communities. In marshy or poorly drained areas, such as in the vicinity of Tequesquito Arroyo and along the Santa Ana River, species such as cattail (*Typha latifolia*), tule (*Scirpus* spp.), tule potato (*Sagittaria latifolia*), and wire grass (*Juncus* spp.) occur with saltbush (*Atriplex* spp.), salt grass (*Distichilis spicata*), smooth tarplant (*Hemizonia pungens* ssp. *laevis*), and pulsey (*Heliotropium curassavicum*) predominating in more alkaline habitats in the study area.

Other species found in several of the plant communities mentioned above include elderberry (*Sambucus mexicana*), goosefoot (*Chenopodium* spp.), blue dicks (*Dichelostemma capitatum*), Parry's larkspur (*Dephinium parryi*), chia (*Salvia columbariae*), coastal paintbrush (*Castilleja affinis*), common lomatium (*Lomatium utriculatum*), finger-leaved morning glory (*Calystegia macrostegia*), wild onion (*Allium* spp.), night shade (*Solanum xanti*), miniature lupine (*Lupinus bicolor*), silver buckwheat (*Eriogonum elongatum*), wild celery (*Apiastrum angustifolium*), legumes (Fabaceae), golden yarrow (*Eriophyllum confertiflorum*), Mariposa lily (*Calochortus* spp.), and amaranth (*Amaranthus blitoides*).

Farther to the north and east on the lower slopes of the San Bernardino and San Jacinto mountains, respectively, chamise chaparral gradually grades upward into manzanita chaparral and woodland communities, extending between 3,500 to 5,000 ft (1,067 to1,524 m) amsl. Other species include redshank or ribbon wood (*Adenostoma sparsifolium*), chamise, elderberry,

chokecherry, antelope bush (*Purshia glandulosa*), scrub oak, interior live oak, manzanita (*Arctostaphylos* spp.), and buckthorn (*Rhamnus* spp.).

In higher elevations of the San Bernardino and San Jacinto mountains montane forest occurs between approximately 5,000 to 7,000 ft (1,524–2,134 m) amsl. This zone is composed primarily of coniferous forests containing scattered oak (*Quercus* spp.), as well as willows and cottonwood along stream courses. Common species include ponderosa pine (*Pinus ponderosa*), Jeffery pine (*P. jeffreyi*), Coulter pine (*P. coulteri*), incense cedar (*Calocedrus decurrens*), manzanita, mountain mahogany (*Cercocarpus ledifolius*, *C. betuloides*) and, in protected areas, bigcone spruce (*Pseudotsuga macrocarpa*).

3.3 FAUNA

The faunal resources (mammalian) of the study area are described in the context of the three major vegetation communities that likely existed in the study area prior to extensive grazing by domestic livestock, historic agricultural pursuits, and extensive residential and commercial development. This is followed by a general discussion of the avifauna, reptiles, and amphibians found in the study area. The data presented herein have been compiled from the faunal species represented in the archaeological records of the DVL project area (McKim 2001), supplemented from data presented in Bettinger (1974) from archaeological studies at Lake Perris.

3.3.1 Valley Grassland Community

With very few exceptions, the valley floor is currently utilized almost entirely for residential and commercial development, transportation corridors, citrus orchards, ranches, and plowed agricultural crop-lands, which have been in existence since late 1880s when the valleys were first settled by non-Native peoples. Prior to historical development, the valley floors and the lower slopes of the hills bordering the valleys were intensively grazed by domesticated livestock (cattle and sheep) since the late 1700s. These practices have had large impacts on the composition and character of valley grassland vegetation community and, subsequently, on the types and relative numbers of faunal species that inhabit this community. Prehistorically, the valley floor was likely occupied by open grasslands dominated by perennial bunch-grasses and forbs, as well as native riparian communities where water was plentiful. Today, when left unplowed, the valley floor quickly becomes occupied by a dense cover of winter-sprouting, non-native annual grasses and forbs.

Fauna that likely occurred in abundance in the native valley grassland community included herbivorous and granivorous species tolerant of sparse vegetation cover and burrowing species that require relatively deep, friable soils such as pocket gophers (*Thomomys* sp.), and kangaroo rats (*Dipodomys* spp.). Of those species recovered in abundance in the prehistoric cultural assemblages, the valley grassland community would have been preferred by the black-tailed jackrabbit (*Lepus californicus*), pocket gophers, and kangaroo rats. Other common species such as the desert cottontail (*Sylvilagus audubonii*) would have made extensive use of valley grassland, but probably would have preferred valley edge areas where vegetative cover is more easily accessible. The Beechey ground squirrel (*Spermpophilus beecheyi*) would have also preferred the valley edge, as well as rocky outcrops and knolls on the valley floor. These last two species currently appear to exist in superabundance as the result of modern human activity,

which has increased suitable protective cover and den or burrow sites (e.g., abandoned irrigation pipes, road cuts, under buildings, etc.,), as well as providing wheat for hoarding ground squirrels.

Larger mammals found in the valley grassland community would have included carnivores and omnivores preying upon the abundant rodents, particularly the ubiquitous coyote (*Canis latrans*) and badger (*Taxidea taxus*), as well as the long-tailed weasel (*Mustela frenata*), striped skunk (*Musetela frenata*), and gray fox (*Urocyon cinereoargenteus*). Mule deer (*Odocoileus hemionus*) would have been encountered occasionally along the valley edges and near springs, but rarely on the open valley floor. Pronghorn antelope (*Antilocarpa americana*), although uncommon in the archaeological assemblages and currently extinct in this portion of Riverside County, would have been encountered exclusively on the open valley floor and near springs. Several species of mice (*Peromyscus* sp., *Reithrodontomys* sp., *Onychomys* sp.), as well as the California meadow vole (*Microtus californicus*) prefer grasslands and would have been abundant. However, these are quite rare in the archaeological record and may not have been important prehistoric subsistence resources.

3.3.2 Riversidian Sage Scrub Community

Occurring on the south-facing hillslopes and the lower portions of the north-facing hillslopes bordering the valleys, fauna common to the Riversidian sage scrub community include species with greater browse and cover requirements and include fewer numbers of granivorous and fossorial (burrowing) mammals owing to the shallow and rocky soils. Among the faunal taxa common in the archaeological assemblages, black-tailed jackrabbit are common in the more open aspects of the sage scrub community, but less common than in the grassland community of the valley floor. Desert cottontails are probably more common in the sage scrub than in valley grasslands, particularly at the interface between the two habitat types. Brush rabbits (*Sylvilagus bachmani*) are uncommon, but may be occasionally found in the denser aspects of the sage scrub community and along the interfaces with the chamise chaparral community found further up the hillslopes.

Wood rats (*Neotoma* sp.) are common in the sage scrub community around rock outcrops and along drainages, but are virtually absent from the valley grassland community. Pocket gophers are also common, but considerably less so than in the valley grasslands. The Pacific kangaroo rat (*Dipodomys agilis*) occupies the sage scrub community, whereas the Stephen's kangaroo rat (*D. stephensi*) and San Bernardino kangaroo rat (*D. merriami parvus*) occupy the valley grasslands and probably occurred in greater numbers than the Pacific kangaroo rat in prehistoric times. The Riversidian sage scrub community also harbors several species of mice (e.g., *Perognathus maniculatus*) that rarely appear in the archaeological record of the area and probably existed in slightly less abundance than those found in the valley grasslands. Larger mammals found in the sage scrub community include mule deer, coyote, bobcat (*Lynx rufus*), weasel, and striped skunk.

3.3.3 Chamise Chaparral Community

On the north-facing hillslopes, chamise (*Adenotsoma fasciculatum*) composes nearly pure stands, forming dense, nearly impenetrable, thickets, which are especially fire-prone and exhibit a faunal species diversity much lower than the vegetation communities described above. After a fire, chamise will quickly produce crown sprouts and proceed through a series of rapid growth stages,

with relatively short-lived herbaceous shrubs growing in height and providing a canopy cover; within five years, these shrubs subsequently die off and are replaced by chamise. During the chamise regrowth period, the numbers and diversity of plant and animal species in the chamise chaparral community is considerably higher and is likely comparable to that found in the Riversidian sage scrub community. Ethnographic and historical accounts describe the frequent use of fire by Native Americans (Lewis 1993), most likely to remove senescent stands of chamise chaparral and promote the growth of more useful herbaceous plant species and increase animal populations. Because of a very low diversity of plant species, the chamise chaparral community supports relatively few animal species and is primarily used as cover due to the dense thickets it forms.

Among those faunal taxa well represented in the archaeological assemblages of the general study region, mule deer make use of the chamise chaparral community for cover during periods of inactivity, but will forage primarily in the adjacent sage scrub community and the fringes of the valley grassland community, both containing a wider array of browse plants. Woodrats, particularly the dusky-footed woodrat (*Neotoma fuscipes*), also make use of these thickets as cover from aerial predators and as a source of building materials for their stick nests or middens. Brush rabbits also require dense thickets as cover and rarely venture more than 10 m (33 ft) from it; because of this and dietary requirements, brush rabbits will forage primarily in open areas within the chamise chaparral community and adjacent ecotonal habitats.

Avifauna characteristic of the study area, particularly the shrub dominated vegetation communities, include California quail (*Callipepla californica*), western scrub jay (*Aphelocoma coerulescens*), common raven (*Corvus corax*), bushtit (*Psaltriparus minimus*), wrentit *(Chamaea fasciata*), California thrasher (*Toxostoma redivivum*), California towhee (*Pipilo crissalis*), Bell's sage sparrow (*Amphispiza belli belli*), and California gnatcatcher (*Polioptila californica californica*). Greater roadrunner (*Geococcyx californianus*) is found both in the valley grassland and sage scrub communities. Common raptors include Great Horned owl (*Bubo virginianus*), burrowing owl (*Athene cunicularia*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*).

Reptiles include the coast horned lizard (*Phrynosoma coronatum*), western fence lizard (*Sceloporus occidentalis*), granite spiny lizard (*S. orcutti*), coastal rosy boa (*Lichanura trivirgata rosafusca*), red racer (*Masticophis flagellum*), striped racer (*M. lateralis*), gopher snake (*Pituophis melanoleucus*), California kingsnake (*Lampropeltis getulus*), southern Pacific rattlesnake (*Crotalus viridis*), and northern red-diamond rattlesnake (*C. ruber ruber*).

In and adjacent to wetland areas, the Pacific tree frog (*Hyla regilla*) and the western toad *(Bufo boreas*) can be found; the southwestern pond turtle (*Clemmys marmorata*) may have also occurred prehistorically.

4.0
CULTURAL SETTING

4.1 INTRODUCTION

Riverside's historic buildings, structures, objects, landscapes and neighborhoods, and prehistoric and historical archaeological sites are physical reminders of the ways in which early inhabitants and later citizens of Riverside used and developed the land. These cultural resources represent contexts or themes important in the history of the City; they not only provide a broad understanding of the City's settlement and development patterns, but also identify cultural resource types that reflect those patterns and give the City its unique character and identity.

In the following sections, the cultural history of western Riverside County is reviewed to provide a context for understanding the types, nature, and significance of the prehistoric, ethnographic, and historical cultural resources identified within the greater City of Riverside study region

4.2 PREHISTORIC CULTURAL SETTING

4.2.1 Introduction

This section describes the prehistoric cultural setting of the study area to provide a context for understanding the types, nature, and significance of the prehistoric cultural resources identified within the general study region. The data presented, herein, regarding the sequence of prehistoric use, adaptation, and occupation of the interior valleys and mountain localities that include Riverside's study area, are summarized from a synthesis of more than 10 years of archaeological research conducted at DVL as part of the Eastside Reservoir Project, located approximately 37 km (23 mi) southeast of the City's Sphere of Influence (Goldberg et al. 2001; McDougall et al. 2003b). To further understand the types and nature of the prehistoric cultural deposits identified in the study region within the frame of a wider geographical context, a review of the coastal (Wallace 1955, 1978; Warren 1968) and desert (Warren and Crabtree 1972; Warren 1980) regional chronologies to which most researchers have subscribed is also provided.

For the most part, the prehistory of inland valleys of southern California that characterizes the City's study area has been less thoroughly understood than that of the adjacent desert and coastal regions. Prior to the DVL cultural resources studies, no comprehensive synthesis had been developed specifically for the interior valley and mountain localities of cismontane southern California that characterize the study region surrounding the City. The lack of an adequate culture history for this portion of California can be attributed to at least three major factors: (1) the nature and scope of investigations in the region, where research has been concentrated for the most part at single sites or on specific problems; (2) the complex historical sequence of investigations and discoveries, combined with a tendency on the part of many authors to explain similarities in assemblages to cultural diffusion; and (3) the confusion of typological and chronological terminology, which has led to ill-defined units that alternately describe time

periods, tool morphology, social groupings, or technological adaptations (see Goldberg and Arnold 1988).

Two regional chronologies are widely cited in the archaeological literature for the prehistory of the coastal regions of southern California (Wallace 1955, 1978; Warren 1968). These chronologies are generalized temporal schemes based on the presence or absence of certain artifact types; both chronologies span the known prehistoric occupation of coastal southern California. The units used by Wallace are "horizons" or "periods," which are extensive in space but restricted in time. The units employed by Warren are "traditions," which may be spatially restricted but display temporal continuity. A more recent chronological synthesis for coastal southern California has been provided by Koerper and Drover (1983). This synthesis employs Wallace's (1955) horizon terminology, but uses radiometric data to order stylistic changes observed in the artifact assemblages, which are interpreted as temporal indications of cultural change over time.

For the desert regions of southern California, Warren and Crabtree also constructed a chronology based on the temporal concept; they used projectile points as period markers and radiocarbon assays to provide absolute dates (Warren and Crabtree 1972). Eight years later Warren (1980), in his overview of the Amargosa-Mojave Basin Bureau of Land Management Planning Units, presented a slightly modified version of the earlier Warren-Crabtree chronology. In this chronology, Warren (1980) retained the temporal period as the basic unit, but changed some of the absolute dates.

In the absence of absolute chronological indicators for most inland sites, researchers have generally employed typological cross-dating of artifact types from either coastal or desert sequences, often as the sole means for assigning age to archaeological sites within the interior valleys of southern California, including western Riverside County. However, two large reservoir projects, first the Perris Reservoir Project (O'Connell et al. 1974), and then most recently, the DVL Project (Goldberg et al. 2001), generated large data sets that have built upon one another to provide a basis for resolving some of these regional discrepancies. Thus, the following discussion of the prehistoric cultural setting for the City's study region is drawn from the cultural sequence recently developed for the DVL study area. This chronology is based first on artifact cross dating and geomorphological interpretations, and then refined with radiocarbon and obsidian hydration dates (Onken and Horne 2001; Robinson 1998, 2001). The resultant chronology draws heavily on a cultural sequence defined by Warren (1984) that is based largely on archaeological work conducted in the Colorado and Mojave Deserts.

However, because Warren's chronology used temporal period names that suggest links to the Mojave Desert, these were replaced in the DVL chronology by value-neutral terms.

4.2.2 Paleoindian Period (ca. 12,000–9500 B.P.)

The Paleoindian Period is marked by deglacial climatic changes that began by about 13,000 before present (B.P., [i.e., 1950]) (Gosse et al. 1995; Mix 1987; Sowers and Bender 1995). In the desert interior, the change from glacial to postglacial ecosystems began by at least 11,700 B.P. (Spaulding 1995), but took millennia to complete. Paleoclimatic and paleoecological data suggest that until about 7500 B.P. the prevailing westerly air flow pattern weakened, while the desert interior received moist monsoonal flow from the southeast (Davis and Sellers 1987;

Spaulding and Graumlich 1986). This monsoonal flow was blocked from reaching the inland valleys of western Riverside County by the Transverse and Peninsular ranges (Spaulding 2001). This resulted in the interior deserts having considerably higher levels of effective moisture than present. Thus, the desert interior was apparently less arid than cismontane southern California during this period, and possessed an abundance of water sources and relatively productive ecosystems (Van Devender et al. 1987).

Warren's (1968, 1980) earliest interval of southern California prehistory is the "San Dieguito Tradition," beginning 10,000 B.P. and best defined in the coastal San Diego area (True 1958). Wallace (1978) calls this interval "Period I: Hunting" and considers it to begin about 12,000 B.P. Further to the east, the "San Dieguito Tradition" is relatively coeval to the "Lake Mojave Period," an expression of the so-called "Western Pluvial Lakes Tradition," presumed to begin somewhat earlier than 9500 B.P. and lasting to perhaps 7000 B.P. in the southwestern Great Basin (Basgall and Hall 1993; Warren 1980, 1984). Wallace (1978:27) noted the close correspondence between the "Western Pluvial Lakes Tradition" and the "San Dieguito Tradition" and suggested that the two traditions most likely represent regional variants of an early hunting tradition that prevailed over a wide geographical area.

Both coastal and desert region designations for the early Holocene refer to a long period of human adaptation to environmental changes brought about by the transition from the late Pleistocene to the early Holocene geologic periods. As climatic conditions became warmer and more arid, Pleistocene megafauna perished abruptly between 13,000 and 10,000 B.P. Human populations responded to these changing environmental conditions by focusing their subsistence efforts on the procurement of a wider variety of faunal and floral resources.

These early occupants of southern California are believed to have been nomadic large-game hunters whose tool assemblage included percussion-flaked scrapers and knives; large, well-made fluted, leaf-shaped, or stemmed projectile points (e.g., Lake Mojave, Silver Lake); crescentics; heavy core/cobble tools; hammerstones; bifacial cores; and choppers and scraper planes. Both Warren and Wallace suggest that the absence of milling tools commonly used for seed preparation indicates that an orientation toward hunting continued throughout this phase.

Nonetheless, based on ethnographic models developed for hunting-gathering groups throughout the world, populations of this phase undoubtedly exploited plant resources as well. Indeed, most Lake Mojave deposits investigated in the southwestern Great Basin have yielded some amount of milling equipment, usually large slabs with ephemeral wear and handstones, implying regular, albeit limited, use of vegetal resources (Basgall and Hall 1993:19). Although intact stratified sites dating to this period are very scarce, the limited data do suggest that the prehistoric populations of this period moved about the region in small, highly mobile groups, with a wetland-focused subsistence strategy based on hunting and foraging. Sites dating from this interval have generally been found around early Holocene marshes, lakes, and streams which dominated much of the landscape. There is also some evidence that these early groups may have been semisedentary and used marine as well as floral resources along certain areas of the southern California coast (Gallegos 1987; Koerper et al. 1991).

As shown above, traditional theories have often stereotyped these terminal Pleistocene/early Holocene populations as highly mobile microbands with a wetland-focused subsistence strategy based on hunting and foraging. However, recent studies in South America at Monte Verde in

southern Chile (Dillehay 1989, 1997; Meltzer et al. 1997), Monte Alegre in the Brazilian Amazon (Roosevelt et al. 1996), and in the high Andes (Bruhns 1994; Lynch 1980), as well as archaeological evidence from North America show that human populations in the New World had settled in more diverse environments, and had developed a much wider range of cultures and adaptations during this period than previously supposed (Moratto 1998:5).

Thus, given the current knowledge, one would expect to find archaeological sites in California dating to the Latest Pleistocene and Early Holocene (Moratto 1998:8). These sites may yield only meager evidence of human activity, or they may be richly endowed with flaked and ground stone tool kits, ecofacts, and possibly evidence of habitation structures. Such sites may be found in large, protected caves situated above floodplains but near economically important resources in coastal, lakemarsh, and valley/riparian environments. Other areas that may be expected to contain archaeological components of late Pleistocene age include quarry sites where high quality toolstone could be obtained, as well as stable landforms above high stands of pluvial lakes, along ridge systems and in mountain passes likely to have served as travel routes, and stable, old surfaces along the coast where marine encroachment was minimal during the past 15,000 years (Moratto 1998:10–11).

No archaeological sites dating to the Paleoindian Period have been identified within the vicinity of the City's study region. However, the regional lack of archaeological evidence dating to this period may be due to adverse climatic conditions which appear to have prevailed throughout cismontane southern California during this time. As was noted above, the desert interior may have been more suitable to prehistoric occupation than the interior valleys of southern California during this time period. Assuming that early human population densities were low and that people were dispersed over the landscape primarily in small mobile groups, there may have not been sufficient population pressure to force occupation of environmentally marginal areas that may have characterized much of the current study region. It is more likely that Paleoindian populations in southern California were centered on the coastal or interior desert regions or around the few large, reliable, drought-resistant water sources present within the inland valley areas, such as those that existed at Lake Elsinore (Grenda 1997), Mystic Lake in the San Jacinto Valley (McDougall et al. n.d.), and possibly in the Cajalco Basin which now forms Lake Mathews (McDougall et al. 2003b).

4.2.3 Early Archaic Period (ca. 9500–7000 B.P.)

The Early Archaic period saw a continuation of the weather patterns described above for the latest Pleistocene/Early Holocene period, with the desert interior apparently much more favorable for human occupation than the cismontane valleys of southern California. It has been postulated that small, highly mobile groups still traveled over a wide home range utilizing highly portable tool kits to procure and process critical resources, with brief and anticipated intervals of seasonal sedentism. However, because of the arid conditions within the interior valley areas, prehistoric use of the general study area would still have been negligible; populations would still have favored the coastal or interior desert regions. Nonetheless, those populations exploiting the interior valleys would still have been tethered to the few reliable, drought-resistant water sources such as Lake Elsinore, Mystic Lake, and possibly the Cajalco Basin (Goldberg et al. 2001).

Archaeological sites documented within the vicinity of the City's study area dating to the Early Archaic or containing meager evidence suggestive of sporadic use during this time period are

rare, supporting the hypothesis of negligible prehistoric use of the inland valley areas of Riverside County during this period. Within the DVL study area, only two site components are firmly dated to the Early Archaic. One component includes a single human burial at CA-RIV-5786 dating to 7380 " 300 B.P. and capped by several large, highly shaped metates (McDougall 1995). The second is the lower cultural component at CA-RIV-5086, a small temporary camp dated with obsidian hydration data and stratigraphic information to the Early Archaic; this component contained a relatively sparse scatter of flaked and ground stone artifacts and faunal remains, but no cultural features, suggesting that CA-RIV-5086 was initially utilized as a resource extraction locale, possibly situated adjacent to a wetlands environment during the Early Archaic period.

Although much of the data gathered during the DVL studies seem to corroborate the notion of sporadic use of the study region by small, highly mobile bands utilizing highly portable tool kits during the Early Archaic, the data from CA-RIV-5786, and one other site (CA-RIV-6069) investigated recently, seem to contradict this theory. Identified during the Metropolitan Water District's Inland Feeder Pipeline Project, CA-RIV-6069 is situated on an alluvial fan emanating north from the Lakeview Mountains in western Riverside County, just above the floor of the San Jacinto Valley and south of Mystic Lake; numerous springs are present along the mountain front overlooking the embayment (McDougall et al. n.d.). The cultural deposits at CA-RIV-6069 were encountered at depths ranging from 1.5 m (5 ft) to 3.9 m (13 ft) below the modern ground surface; the vertical distribution of cultural materials and features documented indicate that two distinct cultural strata representing two periods of cultural occupation are present. A more intensive cultural occupation was encountered between approximately 2.7 m (9 ft) to 3.9 m (13 ft) below the modern ground surface; eight radiocarbon assays from cultural features identified in this lower component range from 7940 to 8370 B.P. A less intensive period of site use is represented by materials and features encountered between 1.5 (5 ft) to 2.4 m (8 ft) below the ground surface; charcoal recovered from an intact fire hearth within the upper component was assayed to 2230 B.P., or to the Late Archaic Period. These data suggest that the lower component at CA-RIV-6069 is the oldest prehistoric cultural deposit ever investigated in the greater San Jacinto Valley, and among the oldest deposits ever investigated in inland southern California.

Emergency data-recovery excavations in a portion of CA-RIV-6069 yielded an extensive assemblage of flaked and ground stone tools, marine and terrestrial faunal remains, and bone and shell tools and ornaments. Additionally, 15 discrete cultural features were identified, including intact fire hearths, ground stone artifact caches, and concentrations of artifacts, fire-altered rock, and unmodified manuported cobbles representing remnants of former activity areas; 12 of these cultural features were encountered within the lower cultural component. It should also be noted that the lower component identified at CA-RIV-6069 yielded 37 intentionally molded and fired ceramic objects, possibly the oldest ceramic industry identified to date in the Western Hemisphere (McDougall et al. n.d.). As well, the presence of numerous cultural features at CA-RIV-6069, and the extreme degree of fragmentation, fire-alteration, and reuse/recycling of large, highly-shaped ground stone implements suggests fairly intensive, residential use (either repeated or long term) of CA-RIV-6069 during the Early Archaic. The presence of several artifact caches suggest that site reuse was anticipated. Thus, CA-RIV-6069 may have been a destination point with a predictable resource base that was located on a scheduled, seasonal collecting round. Resource predictability, and the planning depth and organizational characteristics necessary to

take full advantage of it, fostered expectations of site reoccupation and longer-term residential occupations.

One other site containing an Early Archaic component worthy of note is CA-RIV-2798/H, or the Lake Elsinore Site. CA-RIV-2798/H is situated at the mouth of the outlet channel of Lake Elsinore, one of the only natural lakes in southern California. Data-recovery excavations at the site, conducted in 1993 by Statistical Research, Inc., revealed stratified cultural deposits attaining depths of nearly 3 m a(10 ft) and containing a fairly large assemblage of flaked stone tools (bifaces, unifaces, projectile points, small flake tools, and crescents); a variety of ground stone implements were also collected (Grenda 1997). Documented features include several fire hearths and hearth clean-out refuse deposits, rock clusters, and ground stone caches. Of the eight radiometric assays available for the site, one assay of 8400 " 60 B.P. from marine shell, coupled with the crescents, suggests that the initial occupation of the Lake Elsinore site may have occurred during the later portion of the Early Holocene (Grenda 1997:279). Two additional radiometric assays (4800 " 60 B.P. and 4530 " 80 B.P.) and six dart points, as well as several cultural features indicate that the site occupation intensified during the Middle Holocene; during subsequent periods of the Late Holocene, site occupation apparently became more sporadic and less intensive (Grenda 1997:279–284).

In sum, few sites dating to the Early Archaic have been documented within the regional study area, supporting the theory of negligible use of the inland areas of southern California at this time because of arid conditions. Many of these sites contain only scant evidence of Early Archaic use in the form obsidian hydration rind measurements, suggesting ephemeral site use by small, highly mobile groups. However, some sites dating to this time period do contain evidence of fairly sedentary residential occupations, and evidence that site reuse was anticipated, suggesting a predictable availability of water and other critical resources. These sites have been found invariably near large, drought-resistant, inland water sources, and may have been destination points on a scheduled, seasonal round.

4.2.4 Middle Archaic Period (ca. 7000–4000 B.P.)

The Middle Archaic saw a reversal of the weather patterns which had prevailed throughout much of cismontane southern California for several millennia. By about 6000 B.P., local environmental conditions ameliorated while conditions in the deserts deteriorated, reaching maximum aridity of the postglacial period (Antevs 19552; Hall 1985; Haynes 1967; Mehringer and Warren 1976; Spaulding 1991, 1995). Spaulding (2001) proposes that a westerly air flow pattern returned to southern California, while the monsoonal weather patterns in the deserts retreated. As a result, the inland areas may have seen increased effective moisture, while the interior deserts, no longer receiving moist monsoonal flow and now in the rainshadow of the Transverse and Pennisular Ranges, became quite arid. This suggests that cismontane southern California, including the inland valleys of western Riverside County, may have been a relatively more hospitable environment than the interior deserts during the middle Holocene.

Due to both the amelioration of the local environmental conditions and the deterioration of the conditions in the interior deserts, it was postulated that the inland areas of cismontane southern California would see an increase in prehistoric use and occupation after about 6000 B.P. as compared to the earlier periods (Goldberg et al. 2001). This hypothesis appears to have been validated by the DVL studies, where at least 19 archaeological localities were dated to the

Middle Archaic. These Middle Archaic components include several intensively used residential bases and/or temporary camps containing abundant cultural debris including temporally diagnostic artifacts (Pinto and Silver Lake projectile points, crescents), at least nine complex lithic scatters which appear to have functioned as resource extraction and processing sites, and one human burial covered with large rocks and ground stone artifacts. In addition, evidence of ephemeral Middle Archaic use is present at several sites in the form of isolated radiocarbon-dated features and/or sparse scatters of obsidian debitage dated by obsidian hydration methods. The more intensively used residential locations occur along alluvial fan margins, while less intensively used areas tend to be situated on arroyo bottoms or upland benches (Goldberg et al. 2001).

In coastal southern California, the early traditions gave way to what Warren refers to as the "Encinitas Tradition" by about 7000 to 8000 B.P.; Wallace's "Period II: Food Collecting" also would be subsumed under this tradition. Inland San Diego County sites dating to this period have been assigned to the "La Jolla/Pauma Complex" by True (1958). This interval has been described frequently as the "Milling Stone Horizon" because of the preponderance of milling tools in the archaeological assemblages of sites dated to this era (Basgall and True 1985; Kowta 1969; Wallace 1955).

In the coastal and inland regions of southern California, this period of cultural development is marked by the technological advancements of seed grinding for flour and possibly the first use of marine resources, such as shellfish and marine mammals. The artifact inventory of this period is similar to that of the previous period and includes crude hammerstones, scraper planes, choppers, large drills, crescents, and large flake tools. This assemblage also includes large leaf-shaped projectile points and knives; manos and milling stones used for hard-seed grinding; and likely nonutilitarian artifacts, such as beads, pendants, charmstones, discoidals, spherical stones, and cogged stones (Kowta 1969; True 1958; Warren et al. 1961).

Although sites assigned to this stage of cultural development are similar in many respects, their content, structure, and age can vary. This variability is largely due to geographical differences between the coast and interior; the primary difference between the archaeological assemblages of coastal and inland sites appears to be related to subsistence. Coastal occupants gathered fish and plant resources, while hunting was generally less important (projectile points are rare). The inland occupants primarily collected hard seeds and hunted small mammals; therefore, projectile points are more common in inland assemblages. King (1967:66–67) suggests that the coastal sites probably represent more permanent occupations than are found in the interior, since coastal inhabitants were sustained by more reliable and abundant food resources. A more mobile subsistence round was likely necessary for inland inhabitants. It is possible, too, that inland and coastal sites of this period represent seasonal movement by the same groups of people.

In the desert regions of southern California, the "Pinto Period" succeeded the "Lake Mojave Period," beginning at approximately 7000 B.P. and lasting to 4000 or 3500 B.P. Relatively recent paleoecological and paleohydrological evidence suggests maximum aridity in the desert regions between ca. 7000 and 5000 B.P., with amelioration beginning at approximately 5500 B.P. and continuing through 4000 B.P. (Spaulding 1991, 1995). As an adaptive response to these changing climatic conditions, the Pinto Period is characterized by necessary shifts in prehistoric subsistence practices and adaptations, with greater emphasis placed on the

exploitation of plants and small animals than the preceding Lake Mojave Period, as well as a continued focus on artiodactyls (Warren 1980, 1984).

The distinctive characteristics of the "Pinto Basin Complex" as defined by Campbell and Campbell (1935) are projectile points of the Pinto series, described by Amsden (1935) as weakly shouldered, indented-base projectile points that are coarse in manufacture as well as form. Other diagnostic artifact types of this period include: large and small leaf-shaped bifaces; domed and heavy-keeled scrapers; numerous core/cobble tools; large blocky metates evincing minimal wear and small, thin, extensively used milling slabs; and shaped and unshaped manos. Throughout most of the California desert region, sites containing elements of the Pinto Basin Complex (e.g., those in the Pinto Basin, Tiefort Basin, Salt Springs, and Death Valley) are small and usually limited to surface deposits suggestive of temporary and perhaps seasonal occupation by small groups of people (Warren 1984:413).

Interestingly, one site discovered during the DVL studies evinces purely Lake Mojave and Pinto period materials. This site, CA-RIV-5045, also known as the Diamond Valley Pinto Site, is very unique in that Pinto and Lake Mojave materials are found within well-stratified, radiometrically defined cultural deposits. In addition to the numerous dart projectile points recovered indicative of the Pinto period (i.e., Pinto-series and Silver Lake-series), these deposits contain abundant and diverse faunal assemblages, an extensive array of flaked stone tools and ground stone implements, as well as intact cultural features ascribable to specific periods of occupation. Radiometric data, feature types, and artifact/ecofact assemblage characteristics indicate that CA-RIV-5045 was occupied most intensively between 6200–5600 B.P., and functioned as a winter-time residential base during this period (McDougall 2001).

As was noted earlier, it was posited that cismontane southern California would see an increase in human activity after about 6000 B.P. in response to changing environmental conditions. At this time, local environmental conditions ameliorated and conditions in the interior deserts reached the maximum aridity of the postglacial period. The number of sites dating to the Middle Archaic documented at the DVL certainly increased during this period, and it is plausible that the apparent increase in human use and occupation of the DVL study area during the Middle Archaic is related to both the amelioration of the local environment and the deterioration of the desert interior (Goldberg et al. 2001).

The distribution of sites and variety of site types (i.e., residential bases, temporary camps, and ephemeral resource extraction and processing sites) dating to the Middle Archaic at the DVL suggest that overall use of the study area likely conformed to a rest-rotation collecting strategy involving relatively brief intervals of sedentism during the midwinter ebb of yearly productivity, followed by warm-season residential movements through a series of resource procurement camps in a seasonal round (Goldberg and Horne 2001). A key feature of rest-rotation collecting is a reliance on stored foods during the interval of winter sedentism. Logistic mobility, or the collection and transport of critical resources to the home residential base, also played an important role in resource procurement, especially during the interval of seasonal sedentism and consumption of stored foods. Another key feature of this strategy is the regular rotation of settlements on a yearly or multiyearly basis to new areas to avoid the declining rates of return associated with continuous exploitation of the same areas.

It is of interest that although the indices used to measure residential mobility for the Early and Middle Archaic components documented at the DVL study area indicate that these early components evince a more mobile land-use strategy than later periods, and that the Middle Archaic strategy registers more mobile than the Early Archaic strategy, most data convincingly show that neither of these early periods can be characterized as fully mobile. The fragmentation of bottom grinding stones (i.e., metates, milling slabs), ranging between 80 and 100 percent for nearly all DVL components throughout prehistory, clearly indicates that occupations were fairly sedentary or that sites were consistently reused, with ground stone being cached and reused until it was no longer functional (Klink 2001a). In addition, the occurrence of artifact and toolstone caches at several Middle Archaic sites suggests that site reuse was anticipated (Horne 2001).

4.2.5 Late Archaic Period (ca. 4000–1500 B.P.)

The Late Archaic Period was one of cultural intensification in southern California. The beginning of the Late Archaic coincides with the Little Pluvial, a period of increased moisture in the region. Effective moisture continued to increase in the desert interior by approximately 3600 B.P., and lasted throughout most of the Lake Archaic. This ameliorated climate allowed for more extensive occupation of the region. By approximately 2100 B.P., however, drying and warming increased, perhaps causing resource intensification.

At the DVL study area, 23 archaeological localities show evidence that their primary use was during the Late Archaic, while eight others yielded evidence of some activity during the period. Late Archaic site types documented within the DVL study area include residential bases with large, diverse artifact assemblages, abundant faunal remains, and cultural features, as well as temporary bases, temporary camps, and task-specific activity areas. In general, sites showing evidence of the most intensive use tend to be on range-front benches adjacent to permanent water sources such as perennial springs or larger streams, while less intensively used locales occur either on upland benches or on the margins of active alluvial fans (Goldberg 2001).

Evidence from the DVL also suggests increased sedentism during this period, with a change to a semi-sedentary land-use and collection strategy. The profusion of features, and especially refuse deposits in Late Archaic components, suggests that seasonal encampments saw longer use and more frequent reuse than during the latter part of the Middle Archaic, with increasing moisture improving the conditions of southern California after ca. 3100 B.P. (Horne 2001; Spaulding 2001). Drying and warming after ca. 2100 B.P. likely extracted a toll on expanding populations, influencing changes in resource procurement strategies, promoting economic diversification and resource intensification, and perhaps resulting in a permanent shift towards greater sedentism (Goldberg 2001).

Technologically, the artifact assemblage of this period was similar to that of the preceding Middle Archaic; new tools were added either as innovations or as “borrowed” cultural items. Diagnostic projectile points of this period are still fairly large (dart point size), but also include more refined notched (Elko), concave base (Humboldt), and small stemmed (Gypsum) forms (Warren 1984). Late in the period, Rose Spring arrow points appeared in the archaeological record in the deserts, reflecting the spread of the bow and arrow technology from the Great Basin and the Colorado River region. However, this projectile point type was not found at the DVL study area, and there is no evidence suggesting that the bow and arrow had come into use at this time in the inland regions of southern California.

Concerning the cultural sequences for Late Archaic coastal sites, for the period after about 5000 B.P., Warren (1968) and Wallace (1978) diverge in their chronological sequences for the coastal regions of southern California. Warren's "Encinitas Tradition" includes all areas outside the Chumash territory of the Santa Barbara coastal zone and continues until approximately 1250 B.P. Wallace, on the other hand, identifies a transition beginning approximately 5000 B.P., marking the onset of "Period III: Diversified Subsistence." In his original 1955 sequence, Wallace said this period, generally referred to as the "Intermediate Horizon," was largely based on changes in the archaeological assemblages of sites from the Santa Barbara coastal region. This horizon is characterized by a greater variety of artifacts, suggesting a greater variety of utilized food resources. Although this interval of human occupation in coastal southern California is poorly defined and dated because of the paucity of representative sites, many researchers in southern California have retained Wallace's original "Intermediate Horizon" as a classification for sites dating between 5000 and 1500 B.P.

The subsistence base during this period broadened. The technological advancement of the mortar and pestle may indicate the use of acorns, an important storable subsistence resource. Hunting also presumably gained in importance. An abundance of broad, leaf-shaped blades and heavy, often stemmed or notched projectile points have been found in association with large numbers of terrestrial and aquatic mammal bones. Other characteristic features of this period include the appearance of bone and antler implements and the occasional use of asphaltum and steatite. Most chronological sequences for southern California recognize the introduction of the bow and arrow by 1500 B.P., marked by the appearance of small arrow points and arrow shaft straighteners.

Some archaeologists have suggested that the changes in the coastal artifact assemblages dating to this period were the result of an influx or incursion of "Shoshonean" people from interior desert areas to the coastal regions (Rogers 1929; Wallace 1978). However, there is virtually no agreement among researchers as to the timing of the initial Shoshonean incursion into the study region; estimates generally range from 1000 to more than 6000 years ago, and few researchers acknowledge or question the assumption that Shoshoneans arrived to the study region and replaced some other cultural group (Goldberg and Arnold 1988:50–56). Other archaeologists suggest that cultural transition from the earlier "Milling Stone Horizon" to the succeeding "Intermediate Horizon" coastal and inland assemblages reflects progressive economic changes (e.g., trade) rather than population replacement (King 1982; Koerper 1981; Moratto 1984:164).

In general, cultural patterns remained similar in character to those of the preceding horizon. However, the material culture at many coastal sites became more elaborate, reflecting an increase in sociopolitical complexity and increased efficiency in subsistence strategies (e.g., the introduction of the bow and arrow for hunting). The settlement-subsistence patterns and cultural development during this period are not well understood because of a lack of data; however, the limited data do suggest that the duration and intensity of occupation at the base camps increased, especially toward the latter part of this period.

In the eastern desert regions of southern California, the "Gypsum Period" (ca. 4000 to 1500 B.P.) is generally coeval with Wallace's "Intermediate Horizon." A trend toward increasing effective moisture, which began in the late middle Holocene, culminated in a pronounced pluvial episode between approximately 3700 and 3500 B.P. At that time, a number of basins in the Mojave and Owens river drainages supported perennial lakes (Enzel et al. 1992). No comparable events are

evident earlier in the paleohydrological record, developed largely since Warren's (1984) work, that date to 5000 to 4500 B.P., the dates that encompass Warren's so-called "Little Pluvial." After the end of pluvial conditions (ca. 3500 B.P.), conditions typified by greater effective moisture appear to have persisted until approximately 3,000 years ago. An episode of aridity exceeding that of the present may have occurred about 2500 B.P., but there is evidence for increased effective moisture again between approximately 2000 and 1400 years B.P. (Spaulding 1990, 1995).

In addition to diagnostic projectile points, Gypsum Period sites include leaf-shaped points, rectangular-based knives, flake scrapers, T-shaped drills and, occasionally, large scraper planes, choppers, and hammerstones (Warren 1984:416). Manos and milling stones are also common. A technological innovation introduced during this period was the mortar and pestle, used for processing acorns and hard seeds, such as those derived from the hollyleaf cherry and mesquite pod. This correlates with a warming and drying trend that began around 2100 B.P., which appears to have resulted in resource intensification. In addition, the frequencies of grinding tools show increasing importance of plant foods throughout the Late Archaic, with a substantially greater emphasis after 2000 B.P. (Goldberg 2001). Other artifacts include arrow shaft smoothers, incised slate and sandstone tablets and pendants, bone awls, *Olivella* shell beads, and *Haliotis* beads and ornaments. A wide range of perishable items dating to this period was recovered from Newberry Cave, including atlatl hooks, dart shafts and foreshafts, sandals and S-twist cordage, tortoise-shell bowls, and split-twig animal figurines. The presence of both *Haliotis* and *Olivella* shell beads and ornaments and split-twig animal figurines indicates that the California desert occupants were in contact with populations from the southern California coast, as well as the southern Great Basin (e.g., Arizona, Utah, and Nevada).

Technologically, the artifact assemblage of this period is similar to that of the preceding Pinto Period; new tools also were added either as innovations or as "borrowed" cultural items. Included are the mortar and pestle, used for processing hard seeds (e.g., mesquite pods), and the bow and arrow, as evidenced by the presence of Rose Spring projectile points late in this period. Ritual activities became important, as evidenced by split-twig figurines (likely originating from northern Arizona) and petroglyphs depicting hunting scenes. Finally, increased contact with neighboring groups likely provided the desert occupants important storable foodstuffs during less productive seasons or years, in exchange for valuable lithic materials such as obsidian, chalcedonies, and cherts. The increased carrying capacity and intensification of resources suggests higher populations in the desert with a greater ability to adapt to arid conditions (Warren 1984:420).

4.2.6 Saratoga Springs Period (ca. 1500–750 B.P.)

Because paleoenvironmental conditions were little changed from the preceding period, cultural trends in the early portion of the Saratoga Springs Period were, in large part, a continuation of the developments begun during the end of the Late Archaic Period. However, the Medieval Warm, a period of even more persistent drought, began by 1060 B.P., and conditions became significantly warmer and drier. These climatic changes were experienced throughout the western United States (Jones et al. 1999; Kennett and Kennett 2000), although the inland areas of cismontane southern California may have been less affected than the desert interior. The Medieval Warm continued through the first 200 years of the Late Prehistoric Period until approximately 550 B.P. (Spaulding 2001).

Firm evidence of Saratoga Springs Period occupation was documented at seven site components within the DVL study area, while three other sites exhibit evidence of ephemeral use at this time. Six other localities within the DVL study area yielded either obsidian with hydration bands suggesting Saratoga Springs age or Saratoga Springs projectile points (a large triangular form associated with use of the bow and arrow which began to appear in the DVL study area at this time) but without evidence of sustained site use during this period. The focal shift of prehistoric activity from alluvial fan margins to mountain-front benches adjacent to permanent water sources, which was initiated during the Late Archaic, is also evidenced in the Saratoga Springs site locations (Goldberg 2001).

Within the DVL study area, the Saratoga Springs Period is seemingly marked by a reduction in the number of refuse deposits and, to a slightly lesser extent, hearths. Interestingly, when accounting for sample size, the frequency of artifact and toolstone caches was more than doubled during the Saratoga Springs Period from the preceding Late Archaic, while the frequency of human remains reached the highest point of any time in the archaeological record. Midden-altered sediments also appear for the first time during this period (Horne 2001).

However, it is of interest that most Saratoga Springs components identified within the DVL study area actually date to the Medieval Warm Interval; only one component did not. When components dating to the Medieval Warm segment of the Saratoga Springs Period are segregated and combined with Medieval Warm components from the Late Prehistoric Period, it reveals that the frequency of refuse deposits and artifact and toolstone caches during the Medieval Warm is slightly higher than during the Late Archaic and much higher than during the latter portion of the Late Prehistoric Period. The frequency of human remains (all of which are unburned) during the Medieval Warm is also much higher than during the Late Archaic and Protohistoric Period; no human remains were found in components of the Late Prehistoric Period after the Medieval Warm Interval (Horne 2001).

During the DVL studies, it was anticipated that intensive use of the inland areas of cismontane southern California during the Medieval Warm may have been curtailed altogether owing to inhospitable climate and concomitant decline in water and food sources. However, while land-use and procurement strategies experienced profound changes at this time, the response to deteriorating conditions was not abandonment of the inland areas, but rather intensification. Apparently, climatic conditions of warming and drying that may have begun ca. 2100 B.P., toward the end of the Late Archaic, had already triggered an intensification process that established productive strategies for dealing with resource stress. With the onset of the Medieval Warm, those strategies were further refined and intensified (Goldberg 2001).

Not only did the data indicate that the DVL study area was used on at least a semi-permanent basis during the Medieval Warm Interval, but that residential bases show evidence (e.g., refuse deposits, midden development) that activities intensified at those settlements. People were also intentionally caching toolstone and ground stone tools, suggesting that they anticipated returning to the same locations. Characteristics of the DVL ground stone assemblages from the Medieval Warm demonstrate that plant foods were more important than in any other prehistoric period; plant processing intensified and acorns apparently became an important staple (Klink 2001a). The faunal assemblages also show that resource stress was accommodated with similar strategies by intensifying the use of lagomorphs and by further expanding diet breadth, adding animals (i.e. medium-sized carnivores) to the diet that were rarely consumed during other periods of

prehistory (McKim 2001). The most abundant evidence of trade also occurs in the Medieval Warm components identified at the DVL, suggesting that this was another mechanism for dealing with resource stress (Goldberg 2001).

Throughout much of the California desert regions to the east, the Saratoga Springs Period saw essentially a continuation of the Gypsum Period subsistence adaptation. Unlike the preceding period, however, the Saratoga Springs Period is marked by strong regional cultural developments, especially in the southern California desert regions, which were heavily influenced by the Hakataya (Patayan) culture of the lower Colorado River area (Warren 1984:421-422). Specifically, turquoise mining and long distance trade networks appear to have attracted both the Anasazi and Hakataya peoples into the California deserts from the east and southeast, respectively, as evidenced by the introduction of Buff and Brown Ware pottery and Cottonwood and Desert Side-notched projectile points. The initial date for the first Hakataya influence on the southern Mojave Desert remains unknown; however, it does appear that by about 1000 to 1100 B.P. the Mojave Sink was heavily influenced, if not occupied by, lower Colorado River peoples.

Lake Cahuilla is believed to have refilled the Coachella Valley around 1450 B.P., and was the focus of cultural activities such as exploitation of fish, water fowl, and wetland resources during this period. Desert people, speaking Shoshonean languages, may have moved into southern California at this time; the so-called "Shoshonean Intrusion." Brown and Buff Ware pottery first appeared on the lower Colorado River at about 1200 B.P., and started to diffuse across the California deserts by about 1100 B.P. (Moratto 1984:425). Associated with the diffusion of this pottery were Desert Side-notched and Cottonwood Triangular arrow projectile points dating to about 800 to 850 B.P., suggesting a continued spread of Hakataya influences.

However, about 1060 B.P., environmental conditions became notably warmer and drier. This period of intense drought, the Medieval Warm, extended throughout the Southwest, and led to the withdrawal of Native American populations from marginal desert areas to more reliable, drought-resistant water sources such as the Colorado River and Lake Cahuilla, the episodic presence of which was not climatically controlled but dependent upon natural discharges from the Colorado River, and which experienced two, if not three, high stands during the Medieval Warm Interval (Waters 1983).

Along the southern California coastal regions, reliance on the bow and arrow for hunting, along with the use of bedrock mortars and milling slicks, mark the beginning of the tradition denoted as the "Late Prehistoric Horizon" by Wallace (1955) and the "Shoshonean Tradition" by Warren (1968), dating from about 1500 B.P. to the time of Spanish settlement (approximately A.D. 1769). Late prehistoric coastal sites are numerous. Diagnostic artifacts include small triangular projectile points, mortars and pestles, steatite ornaments and containers, perforated stones, circular shell fishhooks, and numerous and varied bone tools, as well as bone and shell ornamentation. Elaborate mortuary customs, as well as generous use of asphaltum and the development of extensive trade networks, are also characteristic of this period.

4.2.7 Late Prehistoric Period (ca. 750–410 B.P.)

The Medieval Warm extended into the Late Prehistoric Period, ending about 550 B.P. The cultural trends and patterns of land use that characterized the Medieval Warm Interval, including

the portion that extends into the earlier part of the Late Prehistoric Period, were discussed above. At the end of the Medieval Warm, however, and lasting throughout the ensuing Protohistoric Period (410–150 B.P.), a period of cooler temperatures and greater precipitation ushered in the Little Ice Age during which time ecosystem productivity greatly increased along with the availability and predictability of water (Spaulding 2001).

Also during this period, Lake Cahuilla began to recede (Waters 1983), and the large Patayan populations occupying its shores began moving eastward to the Colorado River basin or westward into areas such as Anza Borrego, Coyote Canyon, the Upper Coachella Valley, the Little San Bernardino Mountains, and the San Jacinto Plain (Wilke 1976:172–183). The final desiccation of Lake Cahuilla, which had occurred by approximately 370 B.P. (A.D. 1580), resulted in a population shift away from the lakebed into the Peninsular Ranges and inland valleys to the west, and the Colorado River regions to the east.

With the return of more mesic conditions after approximately 550 B.P., resulting in less resource stress, the DVL studies show that people returned to a less intensive, semi-sedentary land-use strategy similar to that identified for the Late Archaic Period. Within the DVL study area, evidence of intensive occupation dating to the Late Prehistoric Period occurs at five residential sites comprising 16 separate components; all of these coincide with sites that were occupied during earlier periods, and all are situated on elevated bedrock benches near active springs and overlook the valley floor (Goldberg 2001).

By segregating those components dating to the Medieval Warm Interval from other Late Prehistoric components, the differences between land-use strategies for these periods can be demonstrated. The DVL studies show that after the Medieval Warm Interval there was a quite unexpected reduction in the number and frequency of refuse deposits, as well as fire-altered rock weight and midden development. The number and frequency of artifact and toolstone caches were also reduced, while hearth features were slightly more common. Rock art also first appeared in association with Late Prehistoric components which post-date the Medieval Warm Interval. The decrease in the number of artifact and toolstone caches and the first appearance of rock art during this period suggests that residential sites may have been occupied year-round (Horne 2001).

Mortars and pestles and other grinding tools also declined in importance after the Medieval Warm in the DVL site components, suggesting that the intensive procurement and processing of acorns and other plant foods was no longer as critical as previously; this pattern is further supported by a decline in the effort expended in shaping grinding tools (Klink 2001a). A reduction in emphasis on plant foods, and especially acorns, which require intensive preparation, likely accounts for the reduction in refuse deposits, fire-altered rock weights, and midden development at the end of the Late Prehistoric. It is possible that the portable milling toolkit was supplemented substantially by bedrock milling features; however, bedrock features cannot be dated, and so cannot be assigned to any particular time period(s). Percentages of projectile points also increased somewhat after the Medieval Warm; Cottonwood Triangular points began to appear in inland assemblages at this time, and Obsidian Butte obsidian became much more common, suggesting an increased focus on large mammals. However, the lower ratio of late-stage bifaces indicates that hunting methods returned to random-encounter strategies, rather than the logistical forays of the preceding period (Klink 2001b). Of particular note, faunal assemblages produced an anomalously high lagomorph index after the Medieval Warm,

suggesting a very wet climatic regime with dense undergrowth well suited to cottontails (McKim 2001). Finally, the percentage of nonutilitarian artifacts declined considerably, suggesting that trade was no longer critical for assuring food supplies (Klink 2001c).

4.2.8 Protohistoric Period (ca. 410–180 B.P.)

The ameliorated, productive conditions of the Little Ice Age continued throughout the Protohistoric Period. Generally speaking, sedentism intensified during the Protohistoric Period, with small, but apparently fully sedentary villages forming. Increased hunting efficiency (through use of the bow and arrow) and widespread exploitation of acorns and other hard nuts and berries (indicated by the abundance of mortars and pestles) provided reliable and storable food resources. This, in turn, promoted greater sedentism. Related to this increase in resource utilization and sedentism are sites with deeper middens, suggesting central-based wandering or permanent habitation. These would have been the villages, or rancherias, noted by the early nonnative explorers (True 1966, 1970).

Within the DVL study region, the most striking change in material cultural in this period was the local manufacture of ceramic vessels and ceramic smoking pipes. Although pottery was known in the Colorado Desert as long ago as 800 B.P., ceramic technology in the project region appears to date to approximately 350 B.P. Also during this interval, abundant amounts of obsidian were imported into the region from the Obsidian Butte source, located in the southeastern Salton Sea Basin and exposed by the dessication of Lake Cahuilla. In addition, Cottonwood Triangular points were supplemented by Desert Side-notched points during this period. Late in this period, some European trade goods (i.e., glass trade beads) were added to the previous cultural assemblages (Meighan 1954).

Based on work in the San Luis Rey River Basin in northern San Diego County, Meighan (1954), True (1970), and True et al. (1974, 1991) have defined two Late Prehistoric/Protohistoric Period complexes that are worthy of mention. The "San Luis Rey I Complex" existed from approximately 600 to 250 B.P., and is typified by grinding implements, small triangular projectile points with concave bases, stone pendants, *Olivella* shell beads, quartz crystals, and bone tools. The "San Luis Rey II Complex," lasting from about 250 to 150 B.P., is very similar, but with the addition of ceramic vessels (including cremation urns), red and black pictographs, glass beads, metal knives, and steatite arrow straighteners. True et al. (1974) believe that the San Luis Rey complexes developed out of the earlier La Jolla/Pauma cultural substratum, and are the prehistoric antecedents to the historically known Luiseño Indians.

The Hakataya influence in coastal and inland southern California regions appears to have diminished during the late Protohistoric Period when the extensive trade networks along the Mojave River and in Antelope Valley appear to have broken down and the large village sites were abandoned (Warren 1984:427). Warren (1984:428) suggests that the apparent disruption in trade networks may have been caused by the movement of the Colorado River basin Chemehuevi populations southward across the trade routes during late Protohistoric Period.

Within the DVL study area, all five village clusters located on elevated bedrock surfaces near active springs and overlooking the valley floor that were occupied during the Late Prehistoric Period saw continued occupation in the Protohistoric Period. Most archaeological data from the DVL site components dating to the Protohistoric Period indicate that a fully sedentary land-use

strategy was adopted during this period. Given the spatial coincidence of the Protohistoric villages with residential sites of the Late Prehistoric Period, this sedentism appears to have been a further intensification of patterns established in the earlier period. At that time, resource stress did not appear to have been an issue; resource niche widths were expanded, and intensive resource processing that had been required during the Medieval Warm Interval appeared not to have been necessary. However, even though the climatic conditions of the Little Ice Age afforded a very productive environment during both the Late Prehistoric and Protohistoric periods, land-use strategies intensified during the later period. The use of plant food increased, as did the intensity of the processing effort. The Protohistoric Period exhibited the highest ranks for fire-altered rock and midden development, as well as rock ring foundations for brush dwellings, storage facilities, and ceremonial areas with rock art and rock enclosures; overall, there was a fluorescence of feature types and numbers at this time (Horne 2001). The faunal data for this period indicate a decrease in faunal diversity, and signify a reduction in diet breadth as well as greater intensification (McKim 2001).

The intensification in land use during the Protohistoric Period seen in the DVL assemblages mirrors changes that occurred at the end of the Late Archaic when it is hypothesized that the collecting strategy evolved from rest-rotation to semi-sedentary. Climatic degradation causing resource stress, beginning about 2100 B.P., is thought to have triggered that shift. If the environment during the Protohistoric Period was just as productive as during the earlier portion of the Little Ice Age (Late Prehistoric Period), what then accounts for land-use intensification at this time? Apparently resources were stressed again, but not by deteriorating productivity of the environment, but rather by population growth which likely led to competition for food, and possibly water and fuel resources. While preceding periods of stress could have been relieved by expansion of territory and diet breadth, increasing populations would have precluded the opportunity for territory expansion. Therefore, it is hypothesized that the shift to a fully sedentary strategy was brought about by population stress, which itself was initiated during the Late Prehistoric Period when the environment was productive and populations were very successful at exploiting that productivity (Goldberg 2001).

Other archaeological patterns exhibited by the DVL Protohistoric components were likely a result of sedentism and protection of territories. As it is today, logistical mobility would have become essential for provisioning fully sedentary communities. With lower temperatures during the Little Ice Age but no source of fuel wood in or near the DVL study area, procurement of fuel may have become an increasingly important element of logistical provisioning. Although there was a fluorescence of feature types and numbers at the DVL sites dating to the Protohistoric Period, the number of artifact and toolstone caches reached an all-time low; toolstone and artifact caches would no longer have been required because there were year-round occupants at residential bases. Due to increased territoriality, resource intensification would have been required because territorial and resource niche-width expansion was no longer a viable option. Likewise, along with increasing territorial circumscription would have come the inevitable fact that residential bases were occupied longer than the inhabitants had originally anticipated; moving the residential base may no longer have been an option. As well, trade and ceremonial gatherings with other groups would have helped maintain social relationships and ensure food resources. Finally, sedentism and the need to protect critical resources from competitors may have eventually led to conflict. Protohistoric patterns of raw material procurement indicate that desert materials (obsidian and chert) gained prominence, while other relatively closer sources of exotic raw materials from the west (basalt, andesite, rhyolite, metavolcanic rock, and Piedra de

Lumbre "chert") were little used, suggesting that territorial boundaries, at least to the west, had become established. While there was no direct evidence of physical conflict at any of the DVL sites, the locations of villages on elevated bedrock surfaces overlooking the valley may have been designed to afford views of intruders; an increase in projectile points may reflect a need for defensive weapons (Goldberg et al. 2001).

4.3 ETHNOHISTORIC CULTURAL SETTING AND ETHNOGRAPHY

4.3.1 Introduction

Archival and published reports suggest that the City's study region is situated within the westernmost extent of traditional Cahuilla territory, near the southern boundary of the Serrano territory; it is also possible that the Luiseño may have occupied the study region during the post-contact period. All of these cultural groups belonged to nonpolitical, cultural nationalities speaking languages belonging to the Takic branch of the Shoshonean family, a part of the larger Uto-Aztecan language stock. (Bean 1978:576).

In the following sections, specific aspects of Cahuilla, Serrano, and Luiseño ethnography and ethnohistory are explored. This information has been summarized from reports entitled *Ethnographic Overview of the Inland Feeder Pipeline Project* (Bean and Vane n.d.) and *Eastside Reservoir Phase III Ethnography and Ethnohistory* (Bean and Vane 2001); interested readers are encouraged to review these very thorough documents.

4.3.2 Social Structure

Prior to the Mission Period (i.e., prior to 1769), the Cahuilla, Serrano and Luiseño had nonpolitical, nonterritorial patrimoieties that governed marriage patterns as well as patrilineal clans and lineages. The words for these moieties mean "Coyote" and "Wildcat."

These cultural groups had political-ritual-corporate units (clans) composed of three to 10 lineages, distinctly different, named, claiming a common genitor, with one lineage recognized as the founding lineage (Bean 1978:580; Bean and Vane n.d.:13). Clans owned a large territory in which each lineage owned a village site and specific resource areas. Clan lineages cooperated in large communal subsistence activities (e.g., animal drives and hunts, controlled burning), and in performing rituals. Founding lineages often owned the office of ceremonial leader, the ceremonial house, and a ceremonial bundle (Bean and Vane 2001:V.A-2-5).

4.3.3 Subsistence

The Cahuilla, Serrano, and Luiseño were, for the most part, hunting, collecting, and harvesting peoples. Clans were apt to own land in valley, foothill, and mountain areas, providing them with the resources of many different ecological niches. Individual lineages or families owned specific resource areas within the clan territory.

Although any given village had access to less than the full panoply of necessary resources, briskly flourishing systems of trade and exchange gave them access to the resources of their neighboring villages and of distant peoples. Rules that forbade marriage to anyone related

within five generations or belonging to the same moiety ensured that everyone had relatives living in many ecozones, an important arrangement because relatives were invited to ceremonies. The ceremonial exchange of gifts between hosts and guests under the direction of the chiefs and shamans at such events provided a way for drought-stricken groups to get food in exchange for treasure goods. Thus, oscillations in the subsistence goods supply were offset by "banking" human effort in the production of treasure goods.

As in most of California, acorns were a major staple, but the roots, leaves, seeds, and fruit of many other plants were also used. Fish, birds, insects, and large and small mammals were available. Mountain sheep (*Ovis canadensis*), deer, and antelope were some of the large mammals hunted. Now extinct in this part of California, antelope were once numerous in the area (Harrington n.d.). The San Jacinto Valley is on the Pacific Fly-way for migratory birds; hence, ducks, geese, and other migratory birds would land on the small lakes and could be caught. Mountain lion, black bear, grizzly bear, deer, and wild boar were hunted there in historic times (Quimby 1975:37).

To gather these food resources and to prepare them for eating, the Cahuilla, Serrano, and Luiseño had an extensive inventory of equipment. The throwing stick and bow and arrow were the most important hunting tools for killing game, but snares, traps, slings, decoys, disguises, and hunting blinds were also part of the hunting technology. For fishing, nets, traps, spears, hooks and lines, and fish poisons were used. Many villages had access to creeks and rivers and to ancient Lake Cahuilla until its last dessication about 400 to 450 years ago, and during subsequent brief stands during the mid-1800s. Gathering required few tools: poles for shaking down pine nuts and acorns, cactus pickers, chia hooks, seed beaters, digging sticks and weights for digging sticks, and pry bars. Material culture items associated with transportation were mainly used to move food and included burden baskets, carrying nets, game bags, and saddle pads.

Food was usually stored in large storage baskets. Pottery ollas and baskets treated with asphaltum were also used to store and carry water and seeds. Wood, clay, and steatite were used to make jars, bowls, and trays. Skin and woven grass were used to make bags. Food processing required hammers and anvils for cracking nuts; mortars and pestles for grinding acorns and other hard nuts and berries; manos and metates for grinding seeds and berries; winnowing shells and baskets; strainers; leaching baskets and bowls; knives made of stone, bone, wood, and carrizo cane; bone saws; and drying racks made of wooden poles to dry fish. Basket mortars, with asphaltum used to attach an open-bottomed basket to a mortar, were important for food processing. Food was served in wooden and gourd dishes and cups and in basket bowls that were sometimes tarred. Wood, shell, and horn were used for spoons.

4.3.4 Shelter

Cahuilla, Serrano, and Luiseño shelters were made of brush, although some were wattled and plastered with adobe mud. In prehistoric times, these shelters are believed to have been dome-shaped; during post-contact times they tended to be rectangular. The entry way into the shelter was usually covered with hides or woven mats, and one or more holes were left open at the roof peak for smoke to escape. Most of the domestic activities were preformed outside the shelters within the shade of large, expansive ramadas. Within each village, the chief's house was the

largest and was usually next to the ceremonial house. Each village also had a men's sweat house and several granaries (Bean 1978:578; Bean and Vane 2003 n.d.:7–13).

4.3.5 Religion, World View, and the Sacred

The Cahuilla, Serrano, and Luiseño, like other California Indians, understand the universe in terms of power, and power, believed to be sentient and to have will, was assumed to be the principal causative agent for all phenomena. Unusual natural phenomena are viewed as especially sacred, being the repositories of concentrations of power. Mountain tops, and especially particular mountain tops, are held sacred, as are unusual rock formations, springs, and streams. Rock art sites are sacred, having been the sites of ceremonies. Burial and cremation sites are also sacred, as are many other places of residual power. In addition, various birds, but especially eagles, condors, hawks, and other birds of prey and their symbolic representations, are revered as sacred beings of great power and were sometimes ritually killed and mourned in mortuary ceremonies similar to those for human elites. For this reason, bird cremation sites are sacred.

Because of these strong beliefs, rituals were a constant factor in the life of every Native American individual. Some rituals were scheduled and routine (e.g., birth, puberty, death, mourning, and the eagle ritual and first fruits rites), while others were sporadic and situationally performed (e.g., deer ceremony, bird dance, enemy songs, and the rain ritual) (Bean and Vane 2001:VII.A-3-10).

4.3.6 The Proto-Historic/Pre-Reservation Period

Although the Spanish began establishing missions in California in 1769, the Native Americans living in the localized study region likely had very little direct contact with the non-native settlers until the turn of the century (Bean and Vane 2001:MS-7). The establishment of Mission San Gabriel in 1771 would eventually have the most direct impact on the native inhabitants of western Riverside County. Mission San Gabriel, like other California missions, began baptizing people who lived in the immediate vicinity of the mission; however, as time went on the Mission Fathers went further and further away in search of converts.

Research into the baptismal and other records of Mission San Gabriel, indicates that the native peoples who occupied and used the general study area during the late 1700s and early 1800s spoke the Cahuilla, Serrano, and Lusieño languages, and were reportedly forcibly brought into Mission San Gabriel and baptized during the 1810s. Consequently, these traditional Indian communities were left economically devastated because significant portions of the labor force were removed; there were fewer people to hunt and collect food, to take care of the sick, young, and elderly, to defend territorial rights against other native groups or poachers, and to authenticate the culture's stories and traditions (Bean and Vane 2001:MS-7). Unfortunately, the Indians at the missions did not fair much better. Although there was always a reliable source of food and shelter, Indian life at the mission was foreign and often very cruel. As well, life expectancy for the "converts" was cut short by disease and strenuous labor, and most were forced to abandon their traditional customs, beliefs, and rituals.

Mexico established its independence from Spain in 1821, and secularization of the California missions began towards the end of the 1820s. During the late 1820s and early 1830s, many of

the mission-established ranchos continued to prosper, employing many Indian laborers to tend livestock. On August 17, 1833, the Mexican Congress passed the Secularization Act which placed all mission property into the charge of civil administrators. On orders from the President of the Republic, Governor Figueroa of California issued his decree in August, 1835 requiring the restructuring of 10 designated missions into pueblo towns and the redistribution of mission lands into private ownership (Elliot 1883:27). In the resulting shuffle and land grab, the Native inhabitants of western Riverside County who had been supported by Franciscan paternalism were not entirely cut free without cultural protection. The former Mission Indians became the most vulnerable victim populations, and their numbers were rapidly decimated by disease and culture shock. Many Indians surviving on rancherias throughout the valleys apparently experienced mainly a change of masters, from padre to Californio ranchero. This relationship of Californio "padrón" and Indian stock tender worked as well as any system could for the aboriginal population. Large numbers of the Indians that had worked on the missions, however, were forced to leave and fend for themselves. Some moved to the pueblos and worked as laborers, skilled workers, or domestic servants, while others tried to find work at the ranchos as vaqueros (cowboys) or work in the vineyards and orchards. Quite understandably, however, many Indian "converts" joined the non-missionized Indian groups in the inland mountain and desert regions (Bean and Vane 2001:IX.C-10). It should be noted that the main scourge of these Native Americans was disease, more than violence or physical abuse (Arnold et al. 1987).

By the 1840s, many of the Indian populations in southern California had experienced years of extreme social stress and were estranged from their traditional cultural practices and peoples. It was a time of social, economic, and cultural readjustment for them and their leaders; contagious diseases had decimated their populations; many had lost their traditional lands and political autonomy; and others had been enslaved (Bean and Vane 2001:MS-8). In 1848, gold was discovered in California, and by the end of 1849 more than 40,000 people had arrived in the state by ship alone. In addition, people came overland from eastern United States, Sonora, and Mexico. Many of these new comers had no regard for the Indians or their concerns, and they would displace, kill, and use the Indians to suit their own interests (Bean and Vane 2001:IX.D-21). Although the major impact of this invasion was on northern California, the Indians of southern California were also affected.

California became a member of the United States in 1850. The 1850s, therefore, was a critical decade for Native Americans in southern California, in that they now were under the rule of a country with very different attitudes, philosophies, and strategies regarding the development of land; the Americans firmly believed in Manifest Destiny and that it was morally right to change or abolish any cultural ways that were inconsistent with those of the United States (Bean and Vane 2001:IX.E-1).

Because of the land ownership issues and ongoing conflicts between the new settlers and the Indians, the United States appointed three commissioners to make treaties with the various Indian groups in California. In 1852 a treaty was signed by Cahuilla, Serrano, and Luiseño leaders at Temecula. In this treaty, the Indian chiefs and captains acknowledged the sovereignty of the United States, and promised to refrain from acts of hostility and aggression against its citizens, to live at peace among and between themselves, and to conform to the laws and regulations of the Indian Bureau. In return, the United States was to set aside for them a considerable territory, and to furnish them with specified supplies of food, clothing, livestock, supplies and equipment as well as to provide school teachers and skilled craftsmen to teach them

what they needed to know. Although the Indians abided by the terms of this treaty, it was never ratified or recognized by the United States government (Bean and Vane 2001:IX.E-12-13).

More and more settlers arrived in southern California through the late 1850s, 1860s, and 1870s. Indians who had established farms often lost them to settlers, and those who lived and worked on the large ranchos were usually evicted. By the 1870s, Indian agents and inspectors sent by the United States government filed report after report with recommendations as to where Indian reservations might be put in western Riverside County. In 1875, President U. S. Grant began setting aside reservations, although many changes would be made to his original executive orders due to faulty surveys.

The San Manuel Indian Reservation, located in the foothills of the San Bernardino Mountains, north of the community of Highland, was established in 1891 for members of the Serrano cultural group. The Morongo Indian Reservation, situated along Interstate 10 near Banning at the western edge of the San Gorgonio Pass, was established in 1908 and is home to both Cahuilla and Serrano peoples. The Cahuilla Indian Reservation, centered along Cahuilla Creek and Cahuilla Mountain in the Santa Rosa range, was established in 1875. Earlier that year, the Temecula Indians, largely composed of Luiseño Indians, were evicted from their traditional village at Temecula and were eventually settled in 1882 at the Pechanga Indian Reservation, approximately five miles southeast of their original village. The Soboba Indian Reservation, located north of the San Jacinto River at the base of the San Jacinto Mountains, was later established in 1883; this reservation is composed largely of Cahuilla, Luiseño, and Serrano peoples.

4.3.7 Prehistoric and Ethnohistoric Cultural Resource Types

The fertile valleys and canyons fed by the Santa Ana River and its tributaries and sheltered by Mount Rubidoux and the Box Springs Mountains were home to the Cahuilla and Serrano Indians, and possibly the Luiseño Indians, who had inhabited the area for many hundreds, if not thousands, of years.

Prehistoric and ethnohistoric archaeological sites likely to be found within the City's planning area include: villages represented by residential bases with house features (stone and/or adobe), storage features, human burials and cremations, rock art (pictographs and/or petroglyphs); temporary encampments represented by flaked and ground stone scatters with fire hearths and possibly storage features; resource procurement and processing sites represented by bedrock milling stations, tool stone quarries, flaked and ground stone artifact scatters, and/or hunting blinds; trails demarked by cairns and possibly rock art; isolated cultural features such as rock art, intaglios, and/or shrines; isolated flaked or ground stone artifacts; and traditional cultural landscapes/sacred places that may include important gathering or collecting places, springs, mountain tops or rock outcroppings, burial grounds, etc.

4.4. HISTORICAL CULTURAL SETTING

The historical background of the general Riverside study area is best presented by adhering to the familiar divisions of local history which have become standardized in the area literature. Beginning with the Spanish Mission Period in 1769, the progression moves rapidly through the

poorly documented Mexican Rancho Period into the American Period. The following historical setting for the City's study area is summarized and paraphrased from documents recently prepared for the City and Riverside County, including the *Historic Preservation Element of the City of Riverside General Plan* (APPS 2003) and the *Existing Setting Report for the Riverside County Integrated Project* (LSA 2000). This information was supplemented by data collected during studies completed for the Metropolitan Water District of Southern California at Lake Mathews (McDougall et al. 2003b).

4.4.1 Native American and Early European Settlement (Pre-1830s)

In California, the historical period is generally associated with the founding of the first mission, *San Diego de Alcata*, in 1769. However, in Riverside County, its entrance into the historic record did not occur until 1772 when Lieutenant Pedro Fages, the military governor of San Diego in search of deserting soldiers, inadvertently crossed the San Jacinto Valley, immediately east of the City's Sphere of Influence (LSA 2000:4.6-21; Priestly 1972:x). Later in 1774, Juan Bautista de Anza and his expedition left the Mission in Tubac (near present day Tucson) and headed west seeking an overland route to Alta California. Heading north and west, de Anza skirted the Santa Rosa Mountains and made his way up through Coyote Canyon (Brown 1985; LSA 2000:4.6-21). The following day, de Anza descended into the San Jacinto Valley, likely passing through Riverside's Sycamore Canyon and Tequesquite Arroyo, and camped near what is now Pedley Meadows.

Cultural resource types for this period may include protohistoric archaeological sites and sacred places similar to those described above for Native American sites. Very little evidence of early European settlement should exist with the City's study area; however, if present, it may be documented through written histories and evidenced in archaeological sites and artifacts (APPS 2003:12).

4.4.2 Spanish Mission Period (1769–1833)

Although de Anza's vivid portrayal of the expedition created enthusiasm for future travelers into Alta California, early settlement in Riverside County was slow and sporadic. During the Mission Period of California history (1769–1833), Riverside County proved to be too far inland to establish missions or asistencias.

Leandro Serrano is credited to be the first non-native to settle in the Riverside County area. In 1818, Serrano obtained permission from priests at the San Luis Rey Mission in northern San Diego County to settle "five leagues of land in the Temescal," located just southwest of the City's Sphere of Influence in the Temescal Valley. Later in 1821, Native American neophytes from San Gabriel Mission established Rancho San Gorgonio near Banning and Beaumont, several miles east of the City's Sphere of Influence (LSA 2000:4.6-27).

4.4.3 Mexican Rancho Period (1834–1848)

After Mexico successfully overthrew Spanish rule in 1821, the Mexican government passed the Secularization Act in 1833. Passage of this act resulted in reorganization of the missions into parish churches wherein the former missions lost their vast land holdings to the hands of private Mexican citizens and released their neophyte Native American "workers" to fend for themselves.

During the resultant Rancho Period (1834–1848), ranchos were predominately devoted to the cattle industry and large tracts of land were devoted to grazing.

Until the Goldrush of 1849, livestock and horticulture dominated the economics of California (Beattie and Beattie 1939; Brown 1985; Ingersoll 1904; LSA 2000:4.6-27). Sixteen ranchos were granted in Riverside County, with the first of these, Rancho Jurupa, granted to Juan Bandini in 1839. Encompassing approximately 32,000 acres, Rancho Jurupa was centered west of Norco and east of the Prado Basin along the Santa Ana River, west of the of the City's Core Area of Influence.

Settlement continued to develop through the years along the Santa Ana and San Jacinto rivers. With the influx of new settlers, some of the larger ranchos were subdivided into smaller parcels. Among the new settlers was Louis Rubidoux who purchased 6,700 acres in the center of Rancho Jurupa. After his death in 1868, a portion of his ranch would become part of Riverside Colony (Brown 1985; LSA 2000:4.6-27).

In addition to Juan Bandini and Louis Rubidoux, other early rancheros and land grant holders included Cornelius Jenson, Benjamin Ables, Arthur Parks, and J. H. Stewart. Across the Santa Ana River to the northwest were two Spanish-speaking towns, Agua Mansa and La Placita, settled by migrants from New Mexico. All of these settlements were established in the area prior to John W. North's establishment of the Riverside Colony in 1870 (APPS 2003:12).

Historic resource property types characteristic of the Mission and Rancho periods in the City's planning area may include adobe dwellings, archaeological sites, artifacts, and cultural landscapes that echo the Spanish Mission and California Ranchero periods of California history; these are generally documented through written histories and are evidenced in archaeological sites and cultural landscapes (APPS 2003:12).

4.4.4 American Period (1848–present)

With the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican American War, California entered into the American Period and, in 1850, became a recognized U.S. state. In 1858 the first Butterfield Stage carried overland mail from Missouri through Temecula to Los Angeles. Although this stage route provided a relatively reliable, fast link to the rest of the nation, the catastrophic floods of 1862 and the smallpox epidemic of 1862–1863 which took thousands of lives in southern California did little to encourage settlement in Riverside County. Additionally, after the deluge in the winter of 1862–1863, almost no rain fell in southern California until the February, 1864, by which time thousands of livestock had died from hunger and thirst. One estimate based on census data showed a loss of some 71 percent of the total cattle in Los Angeles County (Cleland 1941:180). Considering that cattle-ranching had been the dominant occupation of the Californio residents of the Riverside and San Bernardino valleys up to this time, the impact of this series of catastrophes can be easily imagined. Still, through the 1860s to 1870s, the greater Riverside area continued to draw settlers and tradesmen; however, growth in the county remained slow until after the Civil War and the completion of the transcontinental railroad.

By 1869, several land speculators and developers arrived in southern California. Judge John Wesley North and a group of associates and co-investors from Tennessee hoped to develop a silk

growing colony on a portion of the former Jurupa Rancho. This included the settlement of the "Mile Square," which included the present location of Riverside, then located in San Bernardino County (Patterson 1996; Riverside Municipal Museum n.d.). The colony was named the "California Silk Center Association" but failed shortly after it was organized.

In the fall of 1870, John North, Charles Felton, John Broadhurst, James Greves, John Stewart, and Tom Cover, as superintendent of canal construction, formed the Southern California Colony Association. Within a few months, the new colonists voted to name their "colony" Riverside; laid out on a square mile plan, North's vision included small-scale farms fed by Cover's irrigation ditch. The first plantings for the new colony included citrus, wine and raisin grapes, almonds, walnuts, and reportedly opium poppy (Brown 1985; LSA 2000:4.6-28). The site of John North's original home in Riverside is preserved as John North Park.

The most important event of the 1870s was the arrival of the Southern Pacific Railway into nearby Colton, four miles to the north (Raup 1940:35), resulting in an influx of new settlers. During the 1870s, land to the south and east of the original "Mile Square" was settled by homesteaders, among whom were Samuel Cary Evans and William T. Sayward, who established the Hartshorn Tract and the Riverside Land and Irrigating Company. Evans was also a banker and land speculator who soon gained a monopoly over the community's water rights (Patterson 1996). The Riverside Land and Irrigating Company soon turned to Matthew Gage, a recent Canadian immigrant who began improving the area in regards to water systems; he helped establish a 23-mile long canal system, known as the Gage Canal, that would provide a readily available water supply to the eastern plain of Riverside and foster settlement to the area (Patterson 1996). With this much needed water supply, the settlers could focus on irrigation and agriculture. Perhaps one of the most influential early settlers in Riverside during this period was Eliza Tibbets who planted the first two navel orange trees, acquired from Brazil, in the Riverside colony. Mrs. Tibbets' oranges flourished and provided the bud grafts for the Washington Navel Orange, setting the foundation for Riverside's hugely successful citrus industry that included oranges, lemons, and limes (Brown 1985; LSA 2000:4.6-28).

In approximately 1880, several Chinese countrymen founded the first Riverside Chinatown in the block bounded by Main and Orange, and 8th and 9th streets. Of all the immigrants flooding into southern California at the time, the Chinese, in particular, were noteworthy in their knowledge of picking and packaging of citrus, a skill they brought with them from their homeland. Chinese immigrants also worked as house servants and cooks, and formed the major work force in digging the Gage Canal. Several thousand Chinese were also involved in constructing the California Southern Railroad in 1882 and the Santa Fe Railroad through Riverside in 1885; these workers flooded into Riverside's Chinatown. The presence of a Chinatown in the commercial district of Riverside, however, aroused considerable alarm among the Anglo businessmen, ensuing in a long fight to evict the immigrants. Thus, due to growing consternation among Anglo businessmen and unemployed Anglos, the Chinese immigrants in Riverside agreed to move their settlement out of the downtown district to a 6.3 acre site in Tequesquite Arroyo, bounded by Tequesquito Avenue on the south, Brockton Street on the east, Pine Street on the west, and the steep arroyo slope on the north. In 1888 the Quong Nim and Company purchased and acquired title to Riverside's new Chinatown. While no longer visible because it has been buried beneath several feet of fill sediments at the request of the last Chinese owner, George Wong, Riverside's Chinatown housed and catered to approximately 2,500 Chinese laborers until the 1920s.

By 1883, when Riverside incorporated as a city, it became one of the wealthiest cities in the United States due to its growing citrus industry. With the completion of the Gage Canal in 1886, the colony of Riverside grew at a remarkable rate; land sales and bumper citrus harvests created a very wealthy corporate class. Buildings such as the Loring Opera House, the Riverside National Bank, and the Glenwood Mission Inn were symbols of the City's economic growth. Also during the 1880s, a railroad depot was constructed along the east side of the Riverside Colony, with citrus packing houses situated along the railroads; citrus groves extended to the south and east, with residential areas being intermingled within the groves. Street grids, following government survey lines, were set out, with the city expanding from its original mile-square lot, to 52 square miles; this expansion included the annexation of smaller communities to the east and southeast (Patterson 1996).

Historic property types characteristic of the early colonization and subsequent growth of the city include houses and churches, agri-industrial buildings, railroad structures, cultural institutions and parks, bridges and street patterns, early water distribution features and canals, and land-use patterns. Earlier houses were typically vernacular, wood frame, one or two story structures with a simple rectangular or "L" plans and gable roofs. Ornamentation, utilizing styles of Queen Ann, Stick, Eastlake, Italianate, and Greek, Gothic, and Colonial revivals, was usually confined to the porches and at the gable peaks. Commercial structures were usually brick with cast iron storefronts, while agri-industrial buildings were either brick or wood frame (APPS 2003:13–14).

During the land boom of the 1880s, the Santa Fe and Southern Pacific Railroads fed the land grab with their rate wars; on March 10, 1886, it cost only $23 to travel from New York to southern California (Dumke 1970:25). The land boom dramatically increased the competition among the various community water companies and irrigation projects. By incorporating, the various water companies solidified their older claims and acquired capital. In 1887, the State Legislature passed the Wright Irrigation District Law which authorized the issue of local bonds to finance water development. These bonds became popular investments and water companies proliferated.

By the late 1880s and early 1890s, conflicts and discontent between the cities of Riverside and San Bernardino led to the establishment of a new county. Portions of the Temecula and San Jacinto Valleys (then in San Diego County) joined with the residents of Riverside to form a new county seat in May 1893, leading to the formation of Riverside County. Also in 1893, a group of Riverside growers formed the Pachappa Orange Growers Association; within a year, the exchange became known as Sunkist Growers, Inc. In 1900, two of Sunkist's local "exchanges" combined to form the Arlington-Heights Exchange. Soon after the turn of the century, Riverside credited itself in having formed the most successful agricultural cooperative in the world, the California Fruit Growers Exchange, known by its trademark, *Sunkist* (APPS 2003:144, LSA 2000:4.6-29).

In 1906, the Regents of the University of California established the Citrus Experiment Station in the eastern portion of the city. A world class research institution, the Citrus Experiment Station was later moved to the present campus of the University of California, Riverside. Early citriculture required labor-intensive man-power, resulting in a huge influx of immigrants from all over the world, including eager, but poor, immigrants from China, Japan, Italy, and Mexico, and later the Dust Bowl of America during the Great Depression. As a result, Riverside developed a substantial ethnic community, including Chinatown, the predominately Hispanic community of

Casa Blanca, as well as settlements of Japanese and Korean immigrants. Many of these individuals assisted in the development and advancement of citrus packing concepts, machinery, rail shipments, as well as the techniques for scientific growing, mechanized packing, and pest management. Further, citrus laborers and railroad workers living in the community could often obtain small parcels of land from the growers, who hoped to retain a permanent labor supply (California Department of Parks and Recreation 1988).

Historic resource property types associated with the Riverside's immigration and ethnic diversity are primarily residential buildings and neighborhoods that were constructed in areas that were close to work activities of the inhabitants. These buildings are mostly vernacular, with many having modest stylistic features such as full front porches, bay windows, and ornamental detailing of the period in which they were constructed (APPS 2003:14-15).

Riverside continued to grow throughout the 1900s, with the citrus industry continuing to grow as well. By the 1910s, growers associations began constructing worker housing to attract additional laborers (California Citrograph 1910). Many of these worker or labor camps were located in the Arlington Heights vicinity, near what is now Canyon Crest. Also in 1910, William Childs, Frank A. Tetley, and W.B. Merriman formed a partnership to develop 200 acres of land, known as the Monte Vista Nursery, northeast of Riverside in the Canyon Crest area, and which utilized water from the nearby Gage Canal (Olivier et al. 1999).

Soon after the turn of the century, Frank A. Miller, who had arrived in Riverside during its late colonial years, became the City's preeminent community builder and promoter. For the first three decades of the twentieth century, Miller strove to create a Protestant version of the California Mission Period for the City through carefully crafted symbols and themes. His first and most noteworthy effort came in the form of the New Glenwood Hotel (later known as the Mission Inn), first opened in 1876 as a 12-room guest house. Through the years Miller added to the building and made the Mission Inn a shrine to California's Spanish heritage. The Mission Inn made Riverside the center for the emerging Mission Revival Style in southern California and made the City the desired residential, cultural, and recreational destination of the wealthy railroad set of the early twentieth century; the City also supported an opera house, theater, symphony, and several golf courses (APPS 2003:15).

Historic resource property types characteristic of Riverside's period of boosterism and cultural development are characterized by its Spanish Colonial past as idealized in the Mission Inn as well as in numerous civic and commercials buildings constructed in the City's downtown. Other property types also encompass references to American Colonial Revival in residential buildings and Beaux Arts Classicism in major civic and institutional buildings (APPS 2003:15).

Later development in the Riverside area included the subdivision of portions of Arlington Heights in the late 1920s, and the subsequent addition of Camp Haan, later March Field, March Air Force Base, and March Air Reserve Base, east of the City. After World War I, Riverside County prospered; previously undeveloped areas were subdivided and residential tracts were developed. During World War II, the local citrus industry (i.e., Food Machinery Corporation, Hunter Engineering, the Rohr Corporation, the Lilly Tulip Corporation, and Bourns Incorporated) joined with the military to construct water landing crafts for the war effort (Riverside Museum Press n.d.).

Following World War I, early historic resource property types are represented by Arts and Crafts styles, including the California Bungalow, two-story Craftsman, Prairie, and English cottage/Tudor Revival. In addition, styles that referenced the American Colonial period and French, Spanish-Italian Renaissance, and English architecture were also popular. Beaux Arts Classicism reached its peak in the post World War I period civic architecture, while Gothic Revival and Spanish Colonial Revival influenced designs for churches (APPS 2003:16).

Riverside's second major boom in residential development occurred in the post World War II period with the development of affordable suburban housing tracts with nearby commercial centers. In 1954, another expansion of the City occurred with the addition of 39 square miles within the City limits. This expansion was followed by the construction of several highways under the Interstate Highway Act of 1956, whereby State Route 91 and U.S. Route 60 were built. Also in the mid-1950s, the University of California selected Riverside as the site for an undergraduate liberal arts college. Growing out of the original Citrus Experiment Station, the University of California at Riverside is now a world-renowned research center for plant pathology, citrus cultivation, and other disciplines (APPS 2003:16).

Historic resource property types characteristic of the post World War II years include tracts of post-war vernacular style houses. These one-story residences were modest in size and typically had wood or stucco siding and attached garages; the tracts themselves were designed with curving street patterns. Commercial centers built during this period include the Brockton Arcade (APPS 2003:17).

Located within Riverside's southernmost Sphere of Influence, the Cajalco Basin and its history are worthy of mention. The Cajalco Basin, now inundated by Lake Mathews, was named for the old Cajalco tin mine located in the Temescal Mountains to the west. There are conflicting reports as to exactly when tin was first extracted from the Cajalco/Temescal deposits. Some sources claim that the Cajalco Mine was claimed originally by Daniel Sexton, a jack-of-all-trades who arrived in California via the Santa Fe Trail with the Workman Rowland party in 1841 (LeCount and Weber 1992). Purportedly, the location of the tin deposits was passed down to Sexton in 1856 by Native Americans who were not only aware of the mineral, but considered it to be medicinal. Other sources allege that Mexican miners mistook the tin ore for silver (Swope and Rosenthal 1996). It is known, however, that the land was leased to S. C. Bruce in 1860 by Don Abel Stearns, who was the owner of El Rancho Sobrante de San Jacinto at that time, explicitly for the exploration of tin (Swope and Rosenthal 1996). Over the next five years, Don Abel Stearns regained control of the Cajalco Mine and ran a small-scale operation known as the Temescal Mining Company (Chaput 1985). As reported by J. W. Furness (1928), the Cajalco Tin Mine may have been the site of the first tin discovery in the United States.

Between the years 1868 and 1892, ownership of the mine changed hands several times, but finding the ore to be of low-grade and too expensive to process lucratively, all ventures failed. Fueled by the nation's increasing demand for a domestic supply of tin to feed the tinplate industry, several exploratory efforts followed over the years. This cycle of exploration and abandonment reached its peak in 1942 when the Dodge Construction Company set up a state-of-the-art 100-ton mill and processed 1,400 tons of surface vein material. However, similar to the circumstances encountered by the previous mine owners, the low-grade ore was found to be too expensive to process and the operation ceased in 1945. In 1960, the property was acquired by

the Lake Mathews Farming Company of Corona, and was converted to agricultural uses (Swope and Rosenthal 1996; McDougall et al. 2003b).

In addition to mining, the Cajalco Basin became the site of agricultural colonization starting around 1917 and lasting until 1935. The Lawrence Holmes colony venture was an agricultural enterprise centered around the production of carob. Holmes was convinced that carob bean products could be used to relieve potential world food shortages (LeCount and Weber 1992; Patterson 1976). Holmes sold tracts of up to 20 acres with specially propagated carob trees (*Ceratonia siliqua*) at $450 per acre, which included the preparation of soil, planting, budding, and care of the trees, as well as the payment of taxes for four years (Gunther 1984). To process and market both his and his client's carob products, Holmes formed the Carob Growers Product Company (LeCount and Weber 1992; Patterson 1976). Holmes campaigned for the Metropolitan Water District of Southern California (Metropolitan), ignorant to the fact that the District had chosen the Cajalco Basin to be the site of their largest reservoir. Using its power of Eminent Domain, Metropolitan acquired Holmes' property in 1935 for construction of the reservoir now known as Lake Mathews (Gunther 1984).

5.0
STUDY METHODS AND RESULTS

5.1 INTRODUCTION

A variety of sources was consulted as part of the project's cultural resources investigation. Included were archaeological cultural resources records and literature housed at the Eastern Information Center (EIC) of the California Historical Resources Information System, at the of the University of California, Riverside, Department of Anthropology. Information pertaining to the City's historical structures and natural features was gathered primarily from two documents recently prepared for the City and Riverside County, including the *Historic Preservation Element of the City of Riverside General Plan* (APPS 2003) and the *Existing Setting Report for the Riverside County Integrated Project* (LSA 2000), supplemented with data gathered from several national and state historical resources websites.

Based on data gathered during the literature and records searches, the archaeological sensitivity was evaluated and subsequently ranked for both the City's 50,580-acre Core Area of Influence and 40,620-acre Sphere of Influence. Although the City's sensitivity for historical structures and natural features has been documented previously (APPS 2003; LSA 2000), a brief review of these historical resources is provided below, followed by a detailed discussion of the study methods utilized to derive the resultant archaeological sensitivity rankings.

5.2 CULTURAL RESOURCES LITERATURE AND RECORDS SEARCH

In regards to historical structures and natural features, the City of Riverside, in 1977, was one of the first cities in California to enter into an agreement with the State Office of Historic Preservation to conduct a historic resources survey. As a result of these surveys, conducted between 1977 and 1980, more than 6,000 properties had been documented; of these, approximately 1,200 had been recorded on the State Historic Resources Inventory forms. As of 1980 the City designated 40 buildings as local landmarks as well as 27 Cultural Heritage Board objects. In 2000 a historic resources survey was completed for the Eastside and Casa Blanca neighborhoods, resulting in the recordation of approximately 1,400 additional structures on State Historic Resources Inventory Forms. As of 2002, the City had recorded 108 City Landmarks, more than 1,000 Structures of Merit, nine Historic Districts, three Neighborhood Conservation Areas, and 20 National Register of Historic Places properties (APPS 2003:9). Currently, the City's only designated archaeological resource is the Chinatown site. The following Historic Districts and Neighborhood Conservation Areas have been designated in the City:

Historic Districts
Seventh Street (estab. 1980)
Prospect Place (estab. in 1986)
Rosewood Place (estab. in 1986)
Wood Streets (estab. in 1986)

Neighborhood Conservation Areas
Old Magnolia (estab. in 1981)
Twogood Orange Grove Tract (estab. 1981)
Wood Streets (estab. in 1981)

Mission Inn (estab. in 1986, City Center District)
Mount Rubidoux (estab. in 1987)
Heritage Square (estab. in 1988, Mile Square East District)
Seventh Street East (estab. in 1989)
Colony Heights (estab. in 1998, portion of the Mile Square West District)

Two new Historic Districts have also been proposed for designation after a resurvey of the "Mile Square" area was completed in 2000 in conjunction with the Downtown Specific Plan: Mile Square Northwest and Mile Square Southwest (APPS 2003:8, 26).

Based on data gathered from the *Historic Preservation Element of the City of Riverside General Plan* (APPS 2003) and the *Existing Setting Report for the Riverside County Integrated Project* (LSA 2000), Table 1 lists the historical structures and natural features in the City's Core Area and Sphere of Influence recognized at the national, state, and local levels.

For prehistoric and historical archaeological resources, a literature and records search of the general project location was completed by two Applied EarthWorks archaeologists at the EIC between July 16 and July 21, 2003. For purposes of this investigation, maps examined for the entire 91,200 acre study area included the Riverside West, Riverside East, Fontana, San Bernardino South, Corona North, Lake Mathews, and Steele Peak 1:24,000-scale U.S.G.S. topographic maps. Data gathered included plotting the locations of all previously identified archaeological sites, a listing of all manuscript files pertaining to cultural resources studies, and estimations regarding previous archaeological survey coverage per square mile.

Results of the archaeological literature and records search at the EIC indicate that more than 310 cultural resources investigations have been completed within the City's study area; due to the sheer volume of documents and budgetary constraints, copies of the reports were not gathered at the EIC. These cultural resources studies resulted in the identification and documentation of more than 800 prehistoric and historical archaeological sites. Specifically within the City's Core Area of Influence, 538 prehistoric sites, 51 historical sites, and five sites containing both prehistoric and historical remains have been documented; within the City's Sphere of Influence an additional 199 prehistoric sites, eight historical sites, and one site containing both prehistoric and historical remains have been documented. Again, due to the sheer volume of site records and budgetary constraints, copies of these site records were not gathered at the EIC. However, a sample of 60 archaeological site records was randomly selected for review.

Prehistoric archaeological site types are predominately bedrock milling stations containing bedrock milling slicks and mortar cups. Other prehistoric site types include: flaked and ground stone scatters; lithic quarry locations exploited for stone tool manufacture; and several large village locations containing flaked and ground stone tools, bedrock milling features, pictographs and petroglyphs, and house pit features. Historical archaeological site types include: numerous canals and canal remnants (e.g., Pedley Canal, Gage Canal, Upper/Lower Riverside Canal, Evans Pellistier Ditch) and associated pumphouses dating to the late 1800s and early 1900s; mines (e.g., Cajalco Tin Mine, Quartz Queen [Indian Queen] Mine); Riverside's Chinatown; Pacific Electric Railway transfer stations; and historical structural remains associated with former homestead locations. It should be noted that other types of historical archaeological resources, such as buried hollow features containing historical refuse deposits, are often associated with standing historical structures.

Table 1 Landmarks and Resources within the Planning Area

RESOURCE NAME*	NRHP	NHL	CRHL	CPHI	SHP	RCHL	RCL	HABS/HAER
All Souls Universalist Church	X							
Arcade Building							X	
Arlington Branch Library and Fire Hall	X						X	
Arlington Heights Citrus Landscape								X
Batkin-Chrysler House							X	
Benedict Castle							X	
Benjamin Rockhold House								X
Bonnett Building							X	
Buena Vista Bridge							X	
Buena Vista Drive & Carlson Park							X	
California Citrus Heritage Recording Project								X
California Citrus State Historic Park					X			
Chicago White Sox Redwood Tree							X	
Citrus Experiment Station				X		X		
Collier House							X	
Collins-Seaton House							X	
Cornelius and Mercedes Jenson Ranch			X			X		
Cressman House							X	
De Anza Crossing of Santa Ana River			X					
Devine House							X	
Edgewild							X	
Estudillo House							X	
Evans Adobe							X	
Evergreen Cemetery and Riverside Mausoleum							X	
Fairmont Park							X	
Fairmont Park Bandshell							X	
First Christian Church Parsonage							X	X
First Church of Christ, Scientist	X						X	
First Congregational Church of Riverside	X			X		X	X	
Former YMCA Building							X	
Fox Theater							X	
Gage Irrigation Canal							X	X

Table 1 Landmarks and Resources within the Planning Area

RESOURCE NAME*	NRHP	NHL	CRHL	CPHI	SHP	RCHL	RCL	HABS/HAER
Grant School							X	
Greystones							X	X
Hammer-Walliham House							X	
Harada House	X	X					X	
Hartree Grove							X	
Harwood Hall House							X	
Heritage House	X						X	
Hole Mansion							X	
Hoover House							X	
Horse Chesnut Tree							X	
Irvine House							X	
Jarvis House							X	
Jensen Alvarado Ranch	X		X			X		
John W. North Park				X		X	X	
Lerner Building							X	
Loring Block	X							
Louis Rubidoux House (site)			X	X		X		
M.H. Simon Undertaking Chapel	X						X	
Magnolia United Presbyterian Church							X	
McIntyre House							X	
Mission Court Bungalows	X							
Mission Inn	X	X	X	X		X	X	
Mitchell House							X	
Montezuma Bald Cypress Trees							X	
Moulton House							X	
Mount Rubidoux				X		X	X	
National Orange Company Packing House (burned)								X
Native Sycamore Tree							X	
Neighbors of Woodcraft	X							
New Jerusalem Church							X	
Newman Park and the De Anza Statue							X	

Table 1 Landmarks and Resources within the Planning Area

RESOURCE NAME*	NRHP	NHL	CRHL	CPHI	SHP	RCHL	RCL	HABS/HAER
North Park							X	
Old City Hall							X	
Old YWCA Building	X						X	
Orchard House							X	
Palm Elementary School							X	
Palm Grove in Hunter Park							X	
Parent Navel Orange Tree			X			X	X	
Raeburn							X	
Riverside Art Museum							X	
Riverside Chinatown Site	X			X		X	X	
Riverside City College Quadrangle							X	
Riverside County Courthouse				X		X	X	
Riverside Municipal Museum (old PO)	X						X	
Riverside Municipal Auditorium	X						X	
Riverside-Arlington Heights Fruit Exchange	X							
Robert Bettner House							X	
Rockledge							X	
Rooselvelt Palm							X	
Rouse's Department Store							X	
Rubidoux Grist Mill (site)			X	X		X		
Rumsey House	X							
San Pedro, LA & Salt Lake Railroad Depot	X						X	
Sherman Institue Administration Building	X						X	
Shields House							X	
Stone House							X	
Streeter House							X	
Sutherland Fruit Company	X							
Trujillo Adobe				X		X	X	
Union Pacific Depot							X	
University Heights Junior High School	X						X	
Universalist-Unitarian Church							X	
Victoria Avenue	X						X	

Table 1 Landmarks and Resources within the Planning Area

RESOURCE NAME*	NRHP	NHL	CRHL	CPHI	SHP	RCHL	RCL	HABS/HAER
Victoria Bridge							X	X
Waite House							X	
Ward House							X	
WCTU Fountain								
Weber House							X	
White Park							X	
William Childs House	X						X	

***Sources:**
City of Riverside General Plan (Riverside 1994)
Historic Preservation Element (APPS 2003)
Existing Setting, Riverside County Integrated Project (LSA 2000)
CA Department of Parks and Recreation Website
National Register of Historic Places Website
National Historical Landmarks Website
CA Department of Parks and Recreation Website
CA Office of Historic Preservation Website

Acronyms:
NRHP: National Register of Historic Places
NHL: National Historic Landmark
CRHL: California Registered Historical Landmark
CPHI: California Point of Historical Interest
SHP: State Historical Park
RCHL: Riverside County Historical Landmark
HABS/HAER: Historic American Building Survey/Historic American Engineering Record

5.3 ARCHAEOLOGICAL RESOURCES SENSITIVITY RESULTS

As stated in Chapter 1, the purpose of this document is to update the *City of Riverside General Plan* adopted by the City Council on September 13, 1994. The *Historic Preservation Element of the City of Riverside General Plan* (APPS 2003) was recently adopted by the City's Planning Department on February 18, 2003. Although, these two documents provide sufficient data regarding the City's historical sites, structures, features and natural resources, very little information is provided in these documents concerning the City's archaeological resources. Thus, the primary objective of this section is to provide the City with a sensitivity ranking for archaeological resources throughout the City's 91,200-acre planning area.

Several steps were completed in the archaeological sensitivity study. Initially, the archaeological survey coverage for each section of land (i.e., 640 acres) within the City's planning area was estimated during the archaeological literature and records search at the EIC. The resulting survey coverage was then ranked as Low, with zero or 30 percent of that square mile having been surveyed previously for cultural resources, Medium, with 31 to 75 percent of that square mile having been surveyed previously, and High, with 76 to 100 percent of that square mile having been surveyed previously. The resultant map of the City's planning area is depicted in Figure 3.

As shown, much of the urbanized regions within the City's planning area have had very little archaeological survey coverage, likely because many of these areas consisted of a "built environment" prior to the enactment of environmental laws requiring archaeological resources surveys in the mid-1970s. Other areas with little or no survey coverage include mountainous areas (e.g., the Box Springs Mountains) and extant citrus groves where no development activities have been undertaken since the mid-1970s (see Figure 2). Areas with "Medium" survey coverage are scattered throughout the City's planning areas and are predominately adjacent to those areas with minimal or no survey coverage adjacent to the urbanized areas. Interestingly, areas ranked as having "High" survey coverage are those areas adjacent to the City proper where recent residential communities have been established, such as the community of La Sierra, portions of the Sycamore Canyon area east of the community of Edgemont, portions of Mockingbird Canyon, and areas along Cajalco Creek and surrounding Lake Mathews. It should be noted that although Lake Mathews was constructed during the 1950s, recent Metropolitan Water District projects at Lake Mathews required lowering the lake level by several hundred feet; due to the newly exposed surfaces, Metropolitan hired a consultant to survey these areas and document the numerous prehistoric and historical sites that were exposed (see McDougall et al. 2003b).

The second step in the sensitivity ranking process involved plotting the location of all previously recorded archaeological sites on the appropriate 1:24,000-scale U.S.G.S. topographic maps (i.e., Riverside West, Riverside East, Fontana, San Bernardino South, Corona North, Lake Mathews, and Steele Peak). Based on known archaeological site distributions in each section of land within the City's planning area, known site densities were then ranked as being either Low, with zero to six archeological sites per square mile, Medium, with seven to 20 archaeological sites per square mile, or High, with more than 21 archeological sites per square mile. As shown in Figure 4, site densities are highest in the well-watered canyons and stream courses found in Mockingbird Canyon and Sycamore Canyon, located south and southeast of the City, as well as

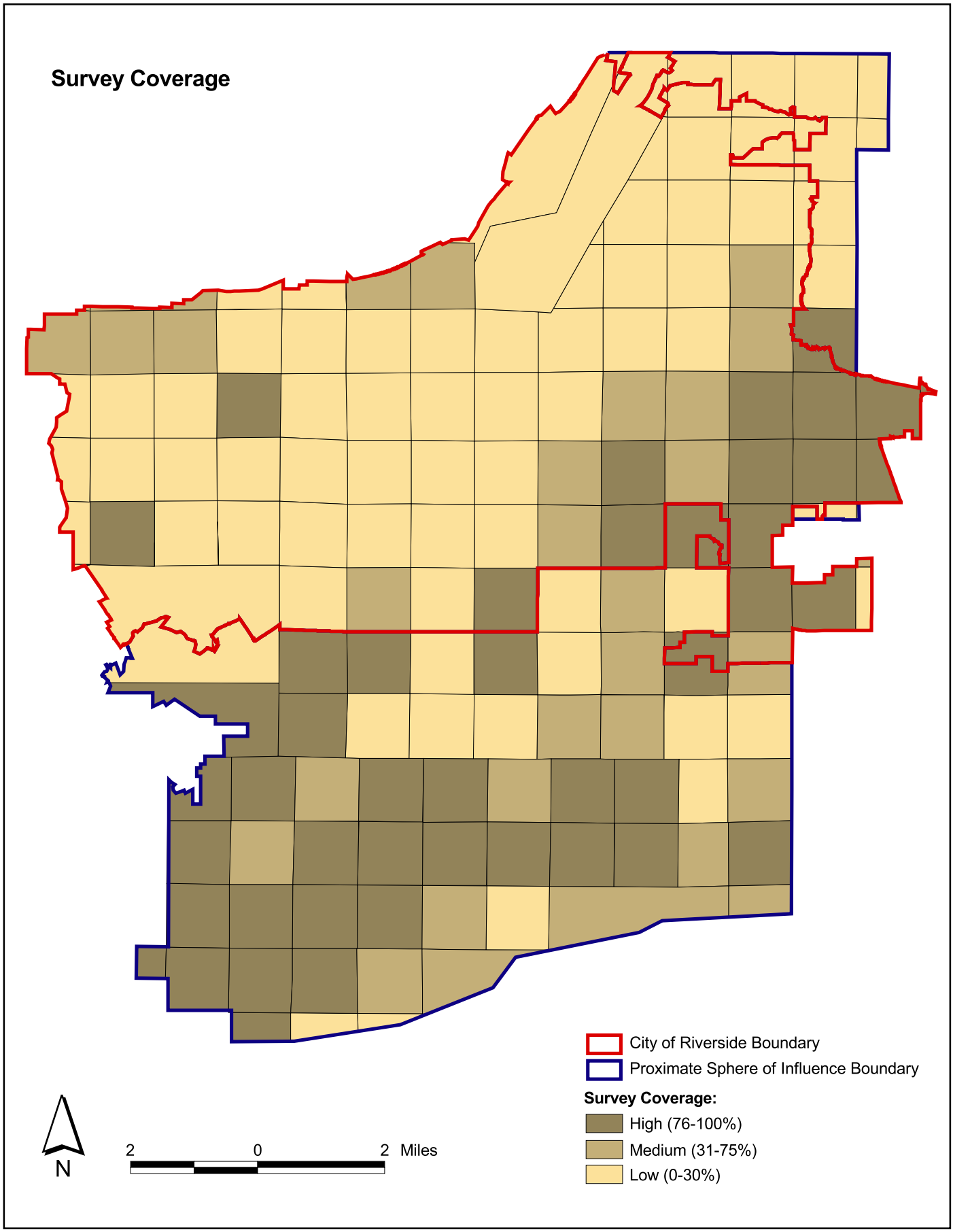

Figure 3 **Survey coverage for the City of Riverside and Proximate Sphere of Influence.**

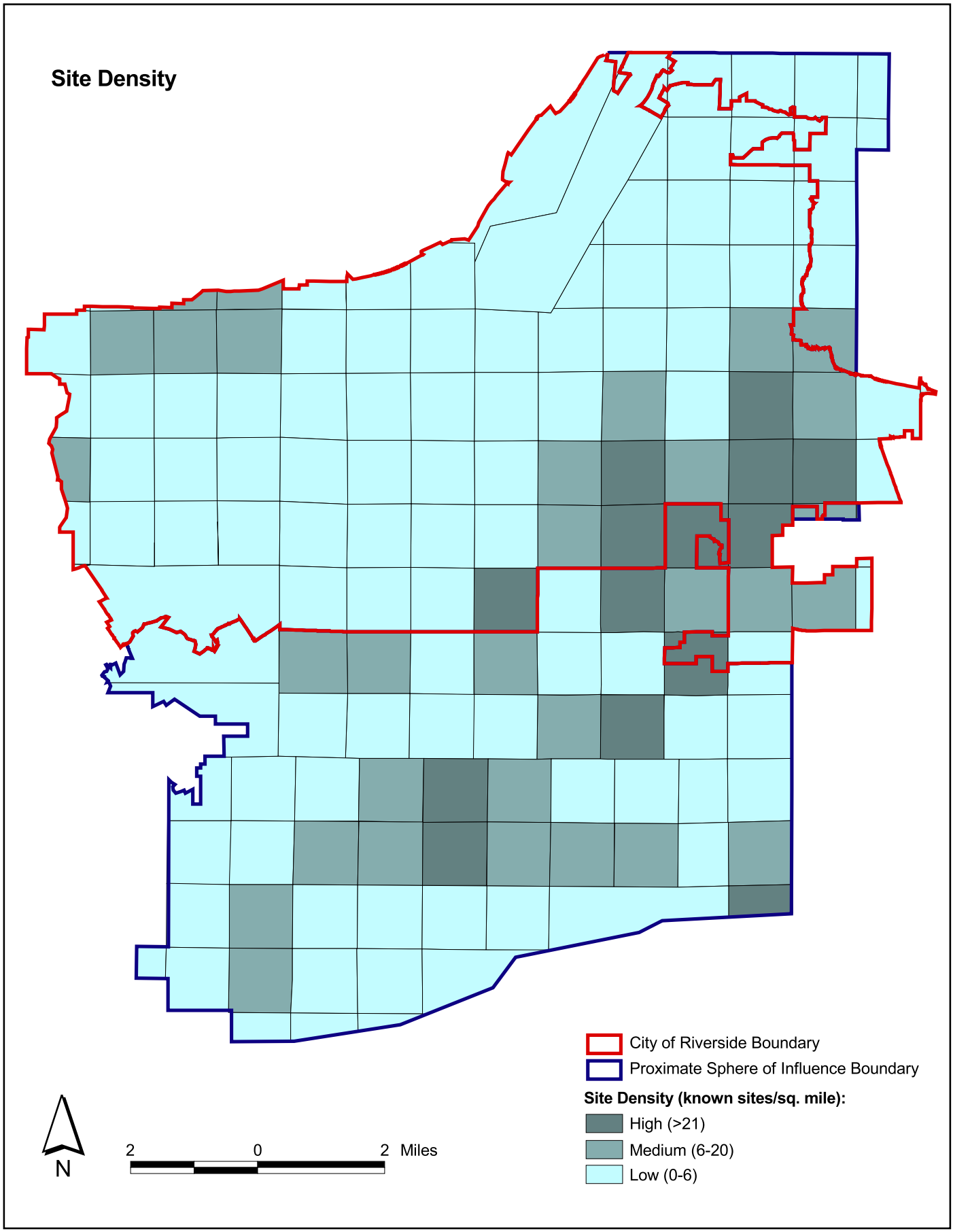

Figure 4 **Known site density for the City of Riverside and Proximate Sphere of Influence.**

the well-watered water courses found within the Cajalco Creek canyon, a portion of which is now Lake Mathews, and Olsen Canyon southwest of Lake Mathews (see Figure 2). As shown in Figures 3 and 4, those areas having the highest survey coverage also contain the highest known archaeological site densities.

The third step in the sensitivity ranking process involved characterizing the archaeological sensitivity based on previous survey coverage and archaeological site density. As shown in Figure 5, the resultant rankings are Unknown, Low, Medium, and High. Areas classified as "Unknown" are primarily those areas that were urbanized prior to the mid 1970s, as well as extant citrus groves surrounding the urbanized, built environment (see Figure 2). Remaining classifications are self-explanatory. It should be noted that areas classified as "Unknown" likely contain buried archaeological deposits dating to the City's prehistoric and historical periods.

The final step in the sensitivity ranking process involved examining the U.S.G.S. topographic maps to determine where prehistoric archaeological cultural resources would be likely to be found based on environmental conditions such as the presence of reliable water sources, topography, and important vegetation communities. As shown in Figure 6, the resultant rankings for the geographical sensitivity are Unknown, Low, Medium, and High. Again, areas classified as "Unknown" are those areas confined to the City's downtown area that were urbanized during the early and mid-1900s where the current environmental conditions may not reflect the original environmental conditions. Remaining classifications are self-explanatory. As stated above, historical archaeological resources, such as buried hollow features containing historical refuse deposits, are often associated with standing historical structures or the former location of historical structures. It should also be noted that areas classified as "Unknown" likely contain buried archaeological deposits dating to the City's prehistoric and historical periods.

In summary, the literature and records searches indicate that much of the City's planning area has a fairly high sensitivity for containing prehistoric archaeological resources, historical archaeological resources, and historical resources.

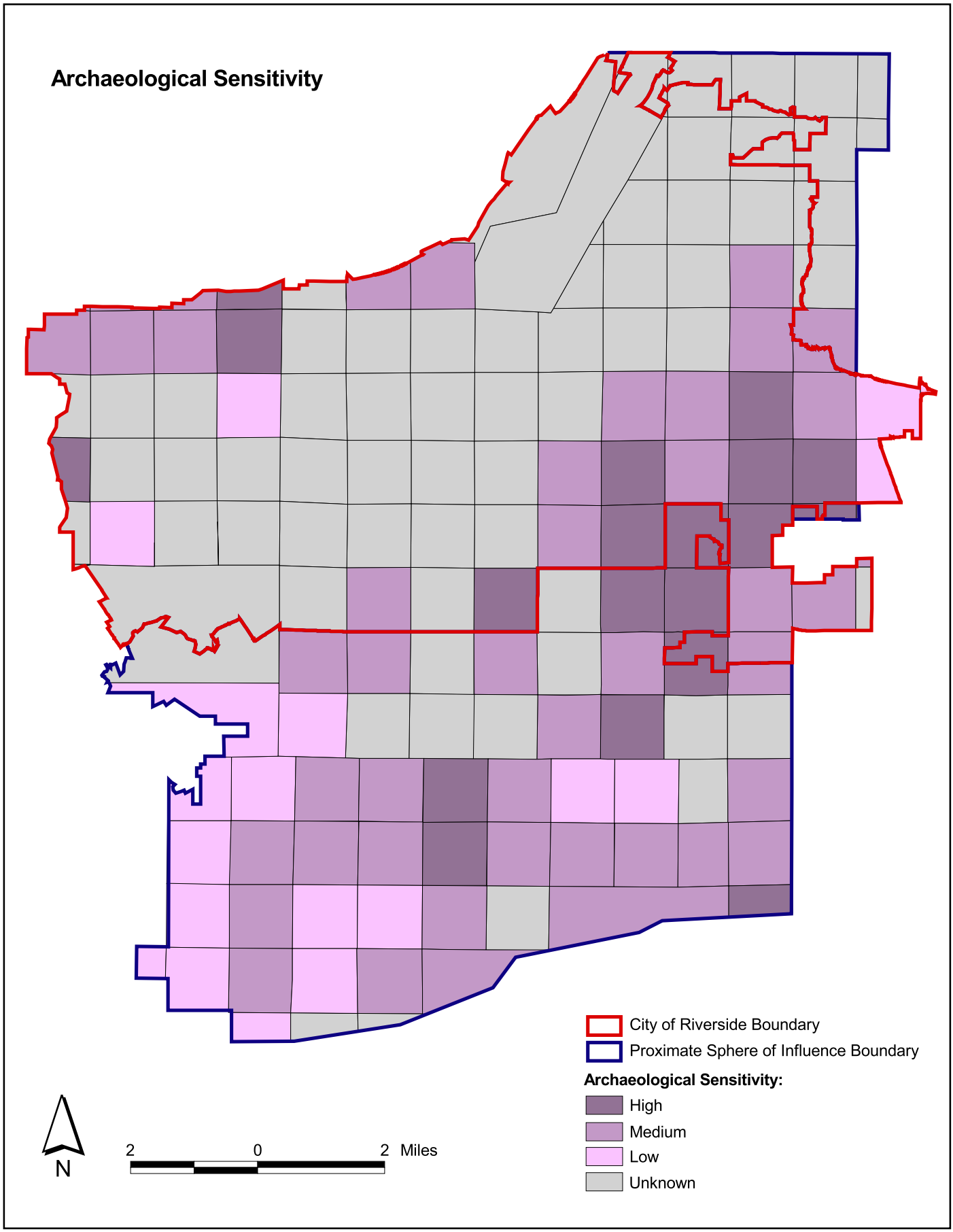

Figure 5 **Archaeological sensitivity, based on survey coverage and known site density, for the City of Riverside and Proximate Sphere of Influence.**

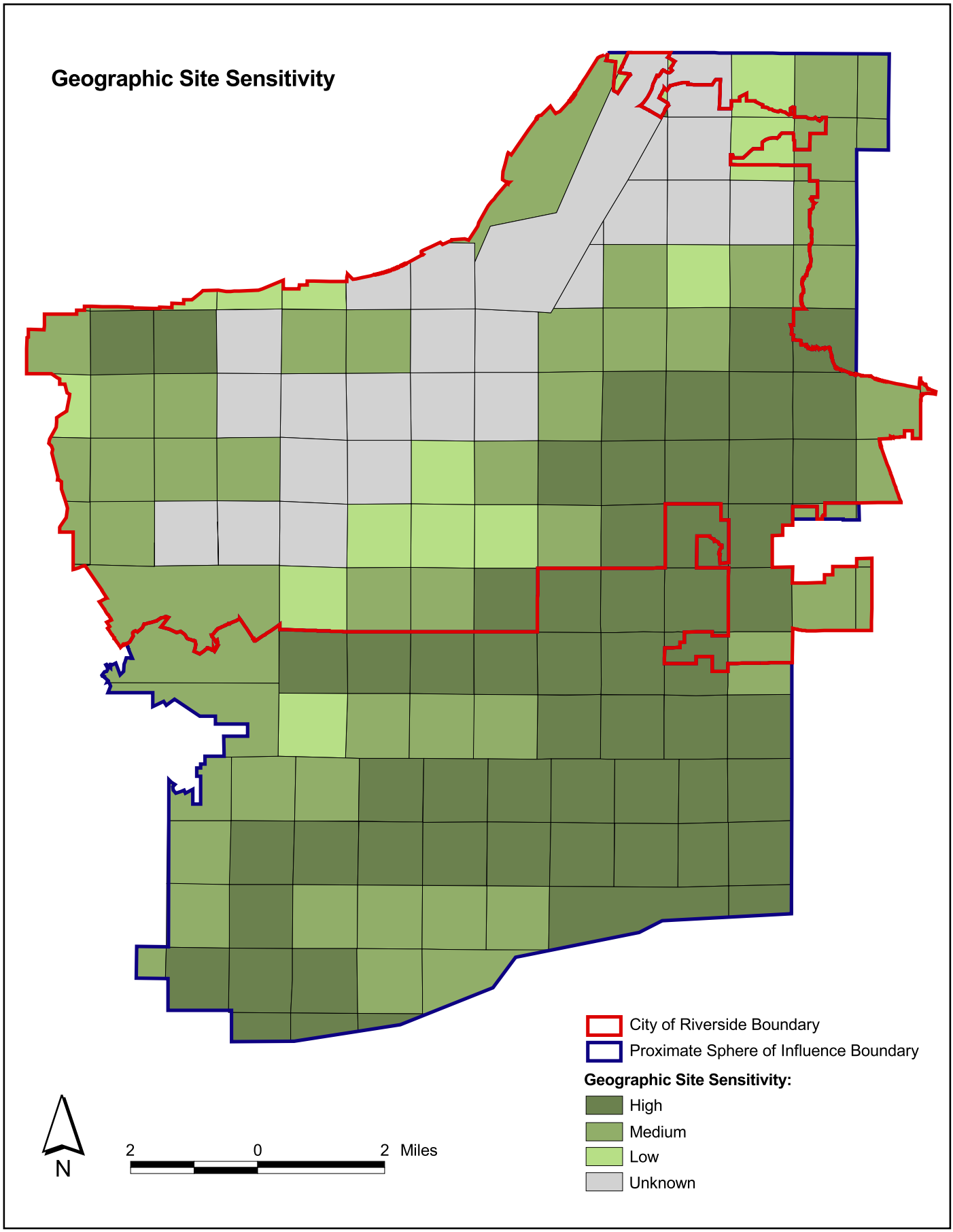

Figure 6 **Geographic site sensitivity for the City of Riverside and Proximate Sphere of Influence.**

6.0
POTENTIAL IMPACTS TO CULTURAL RESOURCES AND RECOMMENDED MITGATION MEASURES

6.1 INTRODUCTION

In this final chapter, the potential impacts to cultural resources within the City's 91,200-acre planning area are reviewed. Because the General Plan Update does not directly address specific projects proposed by the City, these impacts are described generically. Following this discussion are standard mitigation measures that would reduce the level of most impacts to cultural resources to a level of insignificance.

6.2 POTENTIAL IMPACTS TO CULTURAL RESOURCES

Three basic impacts to cultural resources may occur through the implementation of projects proposed by the City: (1) Destruction of known prehistoric and historical archaeological resources; (2) the potential to disturb Native American human remains; and (3) adverse changes in the elements of historical structures, features, and landscapes that make them significant resources. Each of these impacts is described more fully below.

6.2.1 Destruction of Known Archaeological Resources

Based on what is known of the histories of local Native American groups and previously recorded archaeological sites, significant archeological resources are known to exist within the City's planning area. If the City proposes to construct projects within undeveloped portions of the City's planning area, there would likely be a substantial increase in population, residential and non-residential structures, and associated infrastructure. Thus, implementation of the City's proposed projects would require disturbance on vacant lands (e.g., grading and trenching activities) that may cause the destruction of known significant archaeological resources, as defined in the CEQA Guidelines, Section 15064.5 (California 1999).

As stated in Chapter 2.2.3, a project with an effect that may cause a substantial adverse change in the significance of an archaeological resource is a project that may have a significant effect on the environment (California 1999:14). Effects on an archaeological resource deemed to be significant could be considered adverse if they involve physical demolition, destruction, or alteration of the resource or its immediate surroundings such that the significance of a resource would be materially impaired. Thus, significant prehistoric and historical archaeological resources must be considered in the City's project planning and development process, and any proposed City project that may affect significant archaeological cultural resources must be submitted to the State Historic Preservation Officer (SHPO) for review and comment prior to project approval by the City and prior to construction.

6.2.2 The Potential to Disturb Native American Human Remains

As shown in Chapters 4 and 5, numerous archaeological studies within the City's planning area have revealed the presence of Native American human remains. Although most have been associated with former residential village locations, isolated burials and cremations have also been found in many locations. If the City proposes to construct projects in currently undeveloped areas of the City's planning area, disturbance on vacant lands could have the potential to disturb or destroy buried Native American human remains, including those interred outside of formal cemeteries. Consistent with state laws protecting these remains (i.e., Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98), sites containing Native American human remains must be identified and treated in a sensitive manner.

6.2.3 Adverse Changes in the Significance of Historical Resources

As shown in Chapter 5, the City was visited and permanently settled by Euro-Americans since the eighteenth century, and, as a result, significant historical structures and other historical features exist with the City's planning area. Future City development will undoubtedly occur in areas that may contain significant historical structures and features. Although the City has policies to protect and minimize adverse impacts to historical structures and features, the potential exists for significant impacts to these resources to occur as a result of development projects proposed by the City, as defined in the CEQA Guidelines, Section 15064.5 (California 1999).

Again, a project with an effect that may cause a substantial adverse change in the significance of a historical structure or feature is a project that may have a significant effect on the environment (California 1999:14). Effects on a historical structure or feature deemed to be significant could be considered adverse if they involve physical demolition, destruction, relocation, or alteration of the historical resource or its immediate surroundings such that the significance of the resource would be materially impaired. Thus, significant historical resources must be considered in the City's project planning and development process.

6.3 RECOMMENDED MITIGATION MEASURES

In the following paragraphs, standard mitigation measures are recommended that would reduce impacts to most cultural resources affected by proposed City development. As shown below, Mitigation Measures 1, 2, 3, and 4 pertain to archaeological resources and sites containing Native American human remains; Mitigation Measure 5 pertains to historical structures and features.

6.3.1 Cultural Resources Mitigation Measure 1

The City should actively pursue a comprehensive survey program to identify and document prehistoric and historical archaeological sites and sites containing Native American human remains. Although a comprehensive survey program may not be economically feasible by the City, the City should require that areas slated for development or other ground disturbing activities be surveyed for archaeological resources by qualified individuals who meet the

Secretary of the Interior's Standards and Guidelines regarding archaeological activities and methods prior to the City's approval of project plans (48 CFR 44716–44742). If potentially significant prehistoric archaeological resources are encountered during the archaeological survey, the City should require that the project proponent consult with Native American Heritage Commission in Sacramento to acquire a list of local Native Americans who may have an interest in these resources; consultation within these Native Americans should also be undertaken.

6.3.2 Cultural Resources Mitigation Measure 2

Avoidance is the preferred treatment for known prehistoric and historical archaeological sites and sites containing Native American human remains. Where feasible, project plans should be developed to avoid known archaeological resources and sites containing human remains. Where avoidance of construction impacts is possible, capping of theses resources with sterile sediments and avoidance planting (e.g., planting of prickly pear cactus) should be employed to ensure that indirect impacts from increased public availability to these sites are avoided. Where avoidance is selected, archaeological resource sites and sites containing Native American human remains should be placed within permanent conservation easements or dedicated open space areas.

6.3.3 Cultural Resources Mitigation Measure 3

If avoidance and/or preservation in place of known prehistoric and historical archaeological resources and sites containing Native American human remains are not feasible management options, the following mitigation measures should be initiated:

a. Prior to the issuance of a grading permit for a project, the City's consultant should develop a Phase II (i.e., test-level) Research Design detailing how the archaeological resources investigation will be executed and providing specific research questions that will be addressed through the Phase II Testing Program. In general terms, the Phase II Testing Program should be designed to define site boundaries further and to assess the structure, content, nature, and depth of subsurface cultural deposits and features. Emphasis should also be placed on assessing site integrity and the site's potential to address regional archaeological research questions. These data should be used to address the California Register of Historical Resources (CRHC) and National Register of Historic Places (NRHP) eligibility for the cultural resource and make recommendations as to the suitability of the resource for listing on either Register. The Research Design should be submitted to the City's Cultural Heritage Board for review and comment. For sites determined ineligible for listing on either the CRHR or NRHP, execution of the Phase II Testing Program would suffice as mitigation of project impacts to this resource.

b. A participant-observer from the appropriate Native American Band or Tribe should be used during archaeological excavations involving sites of Native American concern.

c. After approval of the Research Design and prior to the issuance of a grading permit, the City's consultant should complete the Phase II Testing Program as specified in the Research Design. The results of this Program should be presented in a technical

report that follows the County of Riverside's Outline for Archaeological Testing. The Phase II Report should be submitted to the City's Cultural Heritage Board for review and comment.

d. If the cultural resource is identified as being potentially eligible for either the CRHR or NRHP, and project designs cannot be altered to avoid impacting the site, a Phase III Data Recovery Program to mitigate project effects should be initiated. The Data Recovery Treatment Plan detailing the objectives of the Phase III Program should be developed and contain specific testable hypotheses pertinent to the Research Design and relative to the sites under study. The Phase III Data Recovery Treatment Plan should be submitted to the City's Cultural Heritage Board for review and comment.

e. After Approval of the Treatment Plan, the Phase III Data Recovery Program for affected, eligible sites should be completed. Typically, a Phase III Data Recovery Program involves the excavation of a statistically representative sample of the site to preserve those resource values that qualify the site as being eligible for listing on the CRHR or NRHP. Again, a participant-observer from the appropriate Native American Band or Tribe should be used during archaeological data-recovery excavations involving sites of Native American concern. At the conclusion of the Phase III Program, a Phase III Data Recovery Report should be prepared, following the County of Riverside's Outline for Archaeological Mitigation or Data Recovery. The Phase III Data Recovery Report should be submitted to the City's Cultural Heritage Board for review and comment.

f. All archaeological materials recovered during implementation of the Phase II Testing or Phase III Data Recovery programs would be subject to processing, including cleaning, detailed description, and analysis, as appropriate. Following completion of laboratory and analytical procedures, all project-related collections should be suitably packaged and transferred to a curation facility that meets the standards of 36 CFR 79 for long-term storage. Materials to be curated include archaeological specimens and samples, field notes, feature and burial records, maps, plans, profile drawings, photo logs, photographic negatives, consultants' reports of special studies, and copies of the final technical reports. It should be noted that provisions of the Native American Graves Protection Repatriation Act (NAGPRA) pertaining to Native American burials, sacred objects, and objects of cultural patrimony would come into effect when ownership of the collections transfer to a curation repository that receives federal funding.

g. The project proponent should bear the expense of identification, evaluation, and treatment of all cultural resources directly or indirectly affected by project-related construction activity. Such expenses may include, pre-field planning, field work, post-field analysis, research, interim and summary report preparation, and final report production (including draft and final versions), and costs associated with the curation of project documentation and the associated artifact collections. On behalf of the City and the project proponent, the final technical reports detailing the results of the Phase II Testing or Phase III Data Recovery programs should be submitted to the EIC of the CHRIS for their information and where it would be available to other researchers.

6.3.4 Cultural Resources Mitigation Measure 4

The following mitigation measures should be implemented to reduce project-related adverse impacts to archaeological resources and sites containing Native American human remains that may be inadvertently discovered during construction of projects proposed in the City's General Plan Update:

a. In areas of archaeological sensitivity, including those that may contain buried Native American human remains, a registered professional archaeologist and a culturally affiliated Native American, with knowledge in cultural resources, should monitor all project-related ground disturbing activities that extend into natural sediments in areas determined to have high archaeological sensitivity.

b. As the lead agency, the City should include in their mitigation plan provisions for the identification and evaluation of archaeological resources inadvertently discovered during construction, per California Environmental Quality Act (CEQA) 15064.5 (f). If buried archaeological resources are uncovered during construction, the City's mitigation plan should state that all work must be halted in the vicinity of the discovery until a registered professional archaeologist can visit the site of discovery and assess the significance of the archaeological resource. If the archaeological resource is determined to be a potentially significant cultural resource, the City should also include in their mitigation plan provisions for the preparation and implementation of a Phase IIII Data Recovery Program, as well as disposition of recovered artifacts, in accordance with Mitigation Measure 3(d–g), above.

c. In the event of an accidental discovery of any human remains in a location other than a dedicated cemetery, the steps and procedures specified in Health and Safety Code 7050.5, *State CEQA Guidelines* 15064.5(e), and Public Resources Code 5097.98 <u>must</u> be implemented. Specifically, in accordance with Public Resources Code (PRC) Section 5097.98, the Riverside County Coroner must be notified within 24 hours of the discovery of potentially human remains. The Coroner will then determine within two working days of being notified if the remains are subject to his or her authority. If the Coroner recognizes the remains to be Native American, he or she shall contact the Native American Heritage Commission (NAHC) by phone within 24 hours, in accordance with PRC Section 5097.98. The NAHC will then designate a Most Likely Descendant (MLD) with respect to the human remains within 48 hours of notification. The MLD then has the opportunity to recommend to the property owner or the person responsible for the excavation work means for treating or disposing, with appropriate dignity, the human remains and associated grave goods within 24 hours of notification. Whenever the NAHC is unable to identify a MLD, or the MLD fails to make a recommendation, or the landowner or his or her authorized representative rejects the recommendation of the MLD and the mediation provided for in subdivision (k) of PRC Section 5097.94 fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall reinter the human remains and items associated with Native American burials with appropriate dignity on the property in a location not subject to further subsurface disturbance.

It should be noted in the event that Native American human remains are inadvertently discovered during the City's project-related construction activities, there would be unavoidable significant adverse impacts to these resources. Implementation of the Cultural Resources Mitigation Measures 1, 2, 3, and 4 would, however, reduce impacts to other types of archaeological resources to a level of insignificance.

6.3.5 Cultural Resources Mitigation Measure 5

In regards to the City's historical structures and features, the Historic Preservation Goals set forth in the recently adopted *Historic Preservation Element of the City of Riverside General Plan* (APPS 2003:21-23) include the following:

a. Goal 1: To use historic preservation principals as an equal component in the planning and development process;

b. Goal 2: To continue an active program to identify, interpret, and designate the City's cultural resources;

c. Goal 3: To promote the City's cultural resources as a means to enhance the City's identity as an important center of Southern California history;

d. Goal 4: To fully integrate the consideration of cultural resources as a major aspect of the City's planning, permitting, and development activities;

e. Goal 5: To ensure compatibility between new development and existing cultural resources;

f. Goal 6: To actively pursue funding for a first-class historic preservation program, including money needed for educational materials, studies, surveys, staffing, and incentives for preservation by private property owners; and

g. Goal 7: To encourage both public and private stewardship of the City's cultural resources.

The historic preservation policies listed in the Historic Preservation Element (APPS 2003: 21-23) fully address these goals.

7.0
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