AN INTENSIVE ARCHAEOLOGICAL RESOURCES INVENTORY ALONG US HIGHWAY 50 IN NORTHWEST PUEBLO, PUEBLO COUNTY, COLORADO

by

Greg Wolff

Transportation Project NH C020-027,
US 50 West, Purcell to Wills

Prepared by:

Archaeological Unit
Colorado Department of Transportation
Daniel A. Jepson, Principal Investigator

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ABSTRACT

The Colorado Department of Transportation (CDOT) proposes safety improvements along a 3.4-mile segment of US Highway 50 in northwest Pueblo between Purcell Boulevard and Wills Boulevard. Work will include adding a third eastbound lane, replacing the eastbound bridge at Wild Horse Creek, and construction of storm water detention ponds. A bicycle/pedestrian lane will be constructed using existing facilities south of the eastbound lane within CDOT right-of-way. An additional northbound lane on Pueblo Boulevard between the north and south intersections, including geometric improvements, may also be constructed.

A search of Office of Archaeology and Historic Preservation files revealed that several previous cultural resource inventories have been conducted within portions of the current project corridor. No historic properties were previously identified within the current study area.

A pedestrian survey of the Area of Potential Effects completed in July 2013 resulted in the documentation of one segment of the former Colorado-Kansas Railroad (5PE320.3); the segment does not support the eligibility of the larger railroad resource for the National Register of Historic Places.

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Colorado Historical Society - Office of Archaeology and Historic Preservation
COLORADO CULTURAL RESOURCE SURVEY
Cultural Resource Survey Management Information Form

I. PROJECT SIZE

Total federal acres in project		Total federal acres surveyed	
Total state acres in project	ca. 137	Total state acres surveyed	ca.137
Total private acres in project		Total private acres surveyed	
Total other acres in project		Total other acres surveyed	

II. PROJECT LOCATION

County: **Pueblo**

USGS Quad Map: **Northwest Pueblo (1961, rev. 1994)**

Principal Meridian: **Sixth**

Township	**20S**	Range	**65W**	Section	**14**	**SW**	**NW**					
Township		Range		Section	**15**	**N**	**NW;**	**NW**	**NE;**	**E**	**NE**	
Township		Range		Section	**16**	**N**	**NE**					
Township		Range		Section	**10**	**SW**	**SW**					
Township		Range		Section	**9**	**S**	**SW;**	**S**	**SE**			
Township		Range		Section	**8**	**N**	**SW;**	**NW**	**SE;**	**S**	**SE**	
Township		Range		Section	**7**	**NE**	**SE;**	**SE**	**NE**			

III. SITES

Smithsonian Number	Resource Type				Eligibility				Management Recommendations						
	Prehistoric	Historic	Paleontological	Unknown	Eligible	Not Eligible	Need Data	Non-supporting Linear Resource	No Further Work	Preserve / Avoid	Monitor	Test	Excavate	Archival Research	Other
5PE320.3		X						X	X						

IV. ISOLATED FINDS (By definition IFs are not eligible to the National Register and require no further work.)

Smithsonian Number	Resource Type			
	Prehistoric	Historic	Paleontological	Unknown

Smithsonian Number	Resource Type			
	Prehistoric	Historic	Paleontological	Unknown

INTRODUCTION

The Colorado Department of Transportation (CDOT) proposes safety improvements along a 3.4-mile segment of US Highway 50 in northwest Pueblo between Purcell Boulevard and Wills Boulevard (mileposts 309.77-313.14) (Figure 1). Work will include adding a third eastbound lane, replacing the eastbound bridge at Wild Horse Creek, and construction of storm water detention ponds. A bicycle/pedestrian lane will be constructed using existing facilities south of the eastbound lane within CDOT right-of-way (ROW). An additional northbound lane on Pueblo Boulevard between the north and south intersections, including geometric improvements, may also be constructed.

A search of Office of Archaeology and Historic Preservation (OAHP) files revealed that several previous cultural resource inventories have been conducted within portions of the current project corridor. No historic properties were previously identified within the study area.

The Area of Potential Effects (APE) established for the undertaking consists of the existing highway right-of-way (ROW), encompassing approximately 137 ac (55 ha) (Figure 2).

An intensive archaeological resources inventory of the APE was conducted on July 26, 2013 by CDOT Staff Archaeologist Greg Wolff. Funding for the project was provided jointly by the Federal Highway Administration (FHWA) and CDOT. The survey was conducted under the terms and conditions of State of Colorado Non-Collection Archaeological Permit 2013-11. This work was legislated by the National Historic Preservation Act of 1966 (as amended), Executive Order 11593, the Archaeological Preservation Act of 1974, the Colorado Historical, Prehistorical, and Archaeological Resources Act of 1973 (as amended), and the Colorado Register of Historic Places Act of 1975.

One segment of the former Colorado-Kansas Railroad (5PE320.3) was documented during the survey; the segment does not support the potential eligibility of the larger railroad resource for the National Register of Historic Places (NRHP).

ENVIRONMENTAL SETTING

The project is located in southeastern Colorado within the primary drainage system of the Arkansas River. Williams Creek, Wildhorse Creek, and Dry Creek are the main watercourses in the vicinity of the study corridor. The Arkansas River Basin covers two physiographic regions, including the east side of the Southern Rocky Mountain province and the western fringe of the Great Plains (Fenneman 1931; Thornbury 1965). The western portion of the drainage is characterized by high mountains, inter-mountain valleys and steep canyons, and includes the east slopes of the Sawatch Range, the Wet Mountains, and portions of the Sangre de Cristo, Mosquito and Rampart Ranges. East of the foothill-mountain transition, the Great Plains Province is divided into three sections. The Piedmont abuts the foothills and continues northward, and is distinguished from the High Plains section to the east by its lower elevation. It is physically lower due to the removal of Tertiary alluvial cover by the South Platte and Arkansas stream systems, resulting in extensively cut river valleys (Thornbury 1965). The High Plains retains this cover and as such is a high, flat plain occurring on the eastern edge of Colorado and beyond (Thornbury 1965). The Raton section enters the state from the south, abutting the Piedmont, with approximately two-thirds of the section occurring in New Mexico and a small portion in Oklahoma. This highest section of the Great Plains is a series of plateaus and mesas in advanced stages of dissection. Although lacking the Tertiary mantle, the Raton section attributes its elevation to Pleistocene volcanic activity. The Raton

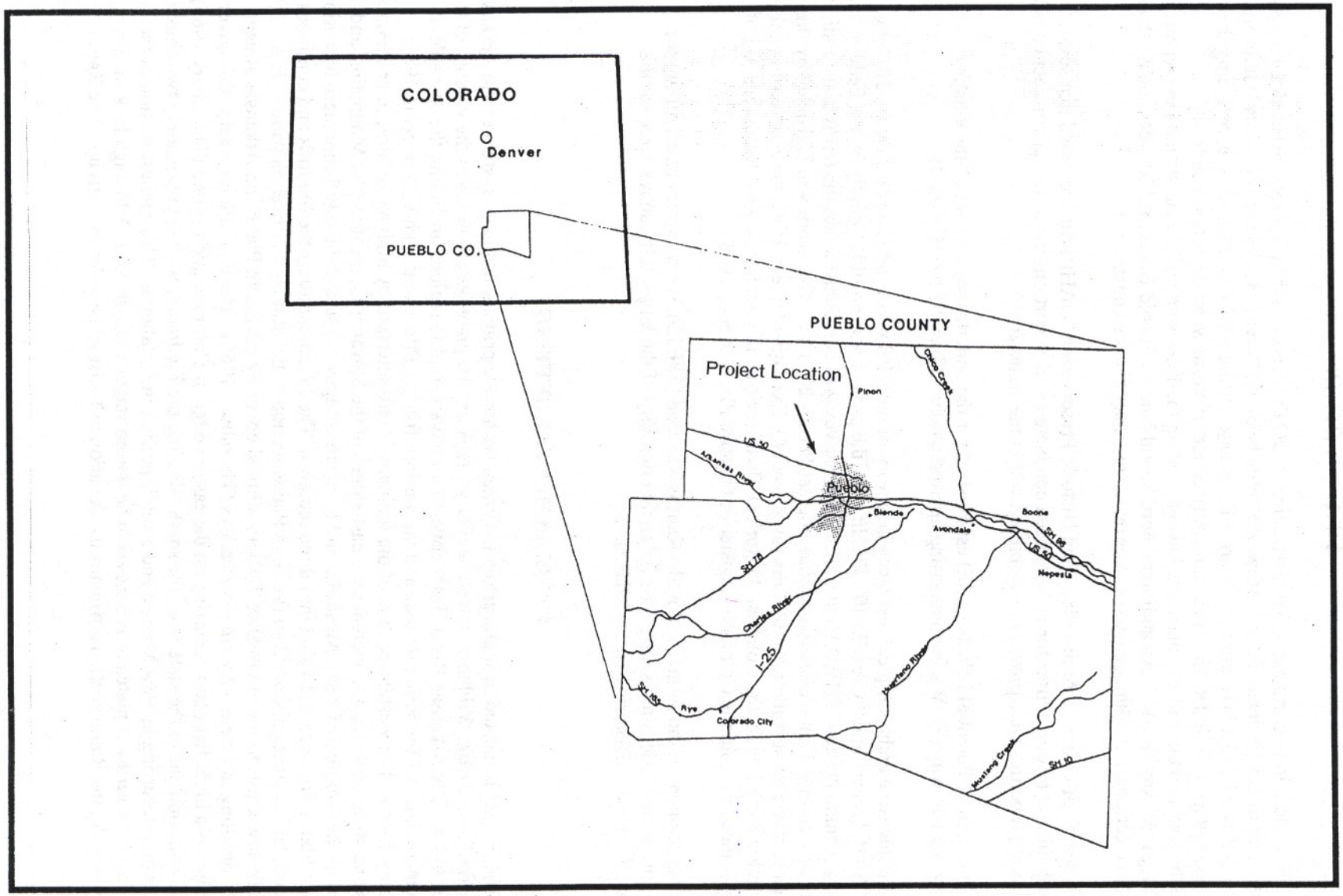

Figure 1. Pueblo County map showing project location

CDOT Project NH C020-027, US 50 West, Purcell Boulevard to Wills Boulevard
Northwest Pueblo (1961, revised 1994) 7.5'USGS quad map
Sixth P.M., T20S, R65W, Sections 7, 8, 9, 14, 15, and 16
Pueblo County, Colorado

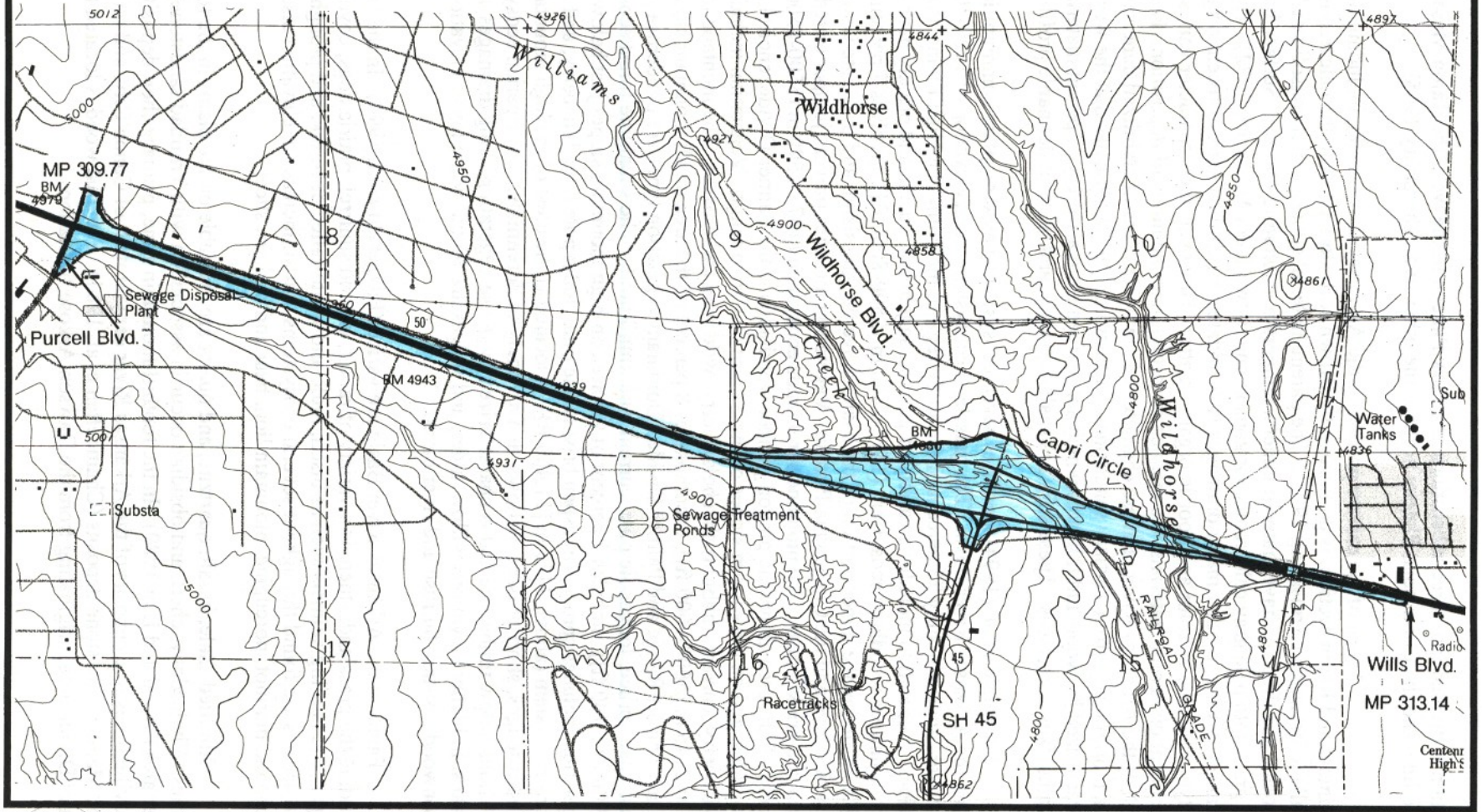

Figure 2. Portion of Northwest Pueblo 7.5' USGS topographic map showing project area

section is divided into three subsections, the Park Plateau to the west, the Raton Mesa south along the state line, and the Chaquaqua Plateau north of the other two (Thornbury 1965).

Much of the eastern portion of the Arkansas River Basin, including the High Plains, Piedmont and Raton section, is dominated by Brown soils derived from the calcareous marls of the Ogallala formation (Armstrong 1972). The parent material consists of unconsolidated, wind-borne deposits, and the soils have matured under a temperate, subhumid climate. Surface horizons are brown and grade into pale gray calcareous horizons at one to two feet (Armstrong 1972). The area along the Arkansas River and other major drainages is dominated by alluvial soils of recent origin. Alluvial soils are typically pale in color and poor in organic matter. However, their character varies locally and is dependent on parent materials, the manner of sorting, and the mode of deposition. Regosols are located north of the Arkansas River, and are characterized by wide areas of stabilized dune sand; the deposits are eolian, originating from Tertiary sandstones. Armstrong (1972) indicates that the western, upland area is characterized by woodland lithosols which are derived from a variety of parent material, either *in situ* or on talus, fans or terraces. These soils are shallow, stony, and without definable profile development.

Fitzgerald *et al.* (1994) identifies seven ecosystems based on plant communities that are present within the Arkansas River Basin. The grassland ecosystem, at an elevation of 1220-3050 m (4000-10,000 ft), covers approximately 75 percent of the study region, including the High Plains, Piedmont, and Raton sections. Vegetation includes a variety of grasses, sagebrush, yucca, and prickly pear cactus. The pinyon-juniper woodland ecosystem (1675-2440 m [5500-8000 ft]), involves 7 percent of the study area and is located in the upper portion of the basin above the grassland, and in isolated communities along Mesa de Maya and the Chaquaqua Plateau. Vegetation includes pinyon, juniper or red cedar, grasses, yucca and prickly pear. The montane shrublands ecosystem (1675-2590 m [5500-8500 ft]), includes 4 percent of the area above the pinyon-juniper woodlands at the Palmer Divide, encircling the Wet Mountains, and on the eastern slopes of the Sangre de Cristo range. Vegetation includes gambel oak, serviceberry, current, rabbitbrush, chokecherry, wild rose and grasses. The montane forest ecosystem (1710-2745 m [5600-9000 ft]), encompasses 8 percent of the area on all mountain slopes and is extensive on the Rampart Range and Palmer Divide. Dominant vegetation types are ponderosa pine, Douglas fir, aspen, blue spruce, lodgepole pine, current, and kinnikinnik. The subalpine forest ecosystem (2740-3475 m [9000-11,400 ft]), includes 3 percent of the area on high mountain slopes just below the alpine tundra. Vegetation includes spruce, fir, aspen bristlecone pine, lodgepole pine, blueberry, and arnica. The alpine tundra ecosystem (above 3475 m [11,400 ft]), is located at the crest of the high mountain ranges and includes sedges, short-grasses, willows, and a variety of perennials. The riparian ecosystem occurs at all elevations below timberline and is characterized by dense vegetation along drainages and isolated ponds or lakes. In higher elevations willow, alder, and sedges are found, while lower elevations feature cottonwood, cat-tail, bulrush and river birch.

Fauna in the Arkansas River Basin are varied (Fitzgerald *et al.* 1994). In the lower elevations, including the grasslands, there is a variety of rabbit, ground squirrel, prairie dogs, coyote, fox, bobcat, badger, and herding animals such as bison, mule and white-tailed deer, elk, and pronghorn. Many of these species are found throughout several ecosystems, but an increase in elevation also includes pika, chipmunk, marmot, porcupine, mountain lion, bear and bighorn sheep.

Silicified shale, basalt, quartzite, and quartz are available on the plains in the form of redeposited cobbles. Chalcedony, chert, and obsidian occur in association with Trinidad sandstone in the Purgatoire River area (Wood and Bair 1980). In the foothill-mountain zone, primary chert deposits are located in the Leadville limestone deposits of the Arkansas River canyon west of Canon City, and on Trout Creek Pass in the Manitou limestone deposits (Chambellan et al. 1984). Petrified wood is located to the north in the Palmer Divide area, originating from the Dawson Arkose formation.

EXISTING DATA AND LITERATURE REVIEW

File Search Data

On July 22, 2013, Mr. Wolff conducted a search of the site files housed at the Colorado Office of Archaeology and Historic Preservation (OAHP) via the online database COMPASS, as well as a review of internal CDOT project records. Four previous inventories were completed within portions of the current project corridor. The previous investigations documented a highly disturbed highway ROW which has limited potential for significant archaeological resources.

The Colorado Department of Highways surveyed much of the western portion of the project corridor for construction of the two current eastbound lanes between Canon City and Pueblo West (Ireland 1974). No historic properties were identified within or near the present study corridor.

The vicinity of the intersection of State Highway 45 (Pueblo Boulevard) and US Highway 50 was surveyed by CDOT with negative results (CDOT 1994). Shortly thereafter, the eastern portion of the project corridor was inventoried with negative results for highway improvements (Hand 1995).

Recently, the western portion of the project corridor was reexamined with negative results in advance of improvements to the Purcell Boulevard intersection (Hand 2007).

Culture History

The culture history of the Arkansas River Basin is lengthy but incompletely documented. The cultural sequence includes four stages: Paleoindian, Archaic, Late Prehistoric and Historic. Detailed information concerning the developmental sequence for the Arkansas River Basin is found in Eighmy (1984) and Zier and Kalasz (1999). For information about the historic period, see Church *et al.* (2007), Mehls (1984), and Mehls and Carter (1984).

Paleoindian Stage (>11,500-7800 B.P.)

The Paleoindian stage includes four developmental periods: Pre-Clovis (pre-11,500 B.P.), Clovis (11,500 B.P.-10,950 B.P.), Folsom (10,950 B.P.-10,250 B.P.), and Plano (10,250 B.P.-7,800 B.P.) (Zier and Kalasz 1999). This early stage occurred during the end of the Pleistocene epoch, the last period of global glaciation. Climatic conditions throughout Colorado ranged from moderately cool during the earlier periods to more contemporary conditions later. The Paleoindian economy was long attributed to the hunting of Pleistocene megafauna (mammoth, bison, camel), a model attributed to early research at open kill sites. Different forms of megafauna were indeed part of the economy, and that the predatory use of mammoth followed by bison was linked to the extinction of certain species and the adaptation of smaller forms to warmer climatic conditions (Kalasz *et al.* 1993). However, more recent investigations have noted that smaller game such as deer, bear and rabbit, as well as vegetable products, also served an important role (Dixon 1999; Frison 1992; Zier and Kalasz 1999). There are indications that megafauna may have played a more limited role in the foothill-mountain regions where quantities of large herding animals were not readily available (Frison 1992). Physical evidence of Paleoindians is varied, but diagnostic artifacts include a variety of lanceolate projectile points associated with the specific periods and complexes.

There is relatively little evidence of Paleoindian occupations in the Arkansas River Basin. While occasional projectile points have been discovered as isolated finds or heirloom artifacts, only the Olsen-Chubbuck and Runberg sites have produced significant intact deposits (Black 1986; Slessman et al. 2003; Wheat 1972). Most of the well documented sites are located along the South Platte River drainage in northeastern Colorado, and west in the Rio Grande River basin (Cassells 1997; Gilmore *et al.* 1999;

Martorano *et al.* 1999). The paucity of sites in the southeast may be a result of the physical processes of site formation and transformation, a lack of research, a lower prehistoric population density, or a combination of these factors (Eighmy 1984).

Evidence for the Pre-Clovis period is limited and controversial. Although lithic material is represented, a bone working technology appears to have had a greater emphasis. The Pre-Clovis currently is not associated the stylized diagnostic material indicative of later Paleoindian development (Anderson 1989; Zier and Kalasz 1999). The Lamb Spring, Dutton, and Selby sites, all located in the South Platte River drainage, are the only Colorado sites attributed to the Pre-Clovis (Gilmore *et al.* 1999). However, the Cooperton Site in western Oklahoma suggest that Pre-Clovis occupations may be found in southeastern Colorado (Anderson 1989).

The Clovis, Folsom, and Plano periods are generally represented through surface finds in southeastern Colorado (Anderson 1989b; Bair 1977; Campbell 1969, 1976). The Clovis period is a widespread manifestation commonly associated with mammoth procurement, but there is frequent exploitation of smaller game and gathered vegetation (Zier and Kalasz 1999). Sites represent small populations and limited scale occupations and game procurement. The Clovis projectile point, a large bifacially fluted lanceolate form, is diagnostic of the period. Although limited, Clovis sites in Colorado (Dent, Dutton, Claypool, and Drake sites) are found on or near the Kersey terrace of the South Platte River in the vicinity of Greeley (Cassells 1997).

The Folsom period is largely a Great Plains manifestation. The period is commonly associated with the procurement of *Bison antiquus*, and the efficient use of trapping techniques involving arroyo head-cuts was a well-developed trait (Frison 1991). The economic base was broadened again through the use of smaller game and more significant reliance on vegetation. Sites appear to have been occupied by small band-level populations, but with a greater density than during the Clovis period. The Folsom projectile point, although smaller than the Clovis, demonstrates a continuation of bifacial fluting techniques. Folsom sites are located to the north in the South Platte River drainage (Lindenmeier, Fowler-Parrish, Powars, and Johnson sites), and to the west in the Rio Grande River drainage (Black Mountain, Stewart's Cattle Guard, Zapata, Reddin, and Linger sites) (Cassells 1997). Although no Folsom period sites have been identified in the Arkansas River drainage, the Folsom type-site is located just south of the Colorado state line, in Colfax County, New Mexico.

The Plano period is better represented in the region than both the Clovis and Folsom. Interpretations suggest populations increased during this period, but there is also speculation that warming climatic conditions resulted in a decrease in fauna, which ultimately had an effect on the human population (Cassells 1997; Zier and Kalasz 1999). The increase in site frequency is indicative of the longevity of this period. The economy saw a continuation of bison procurement, but generally on a larger scale than the preceding era. Larger kills indicate that various bands joined for seasonal hunts, and evidence indicates a specialization in trapping methods (Frison 1991). Although bison kills dominate the Plano archaeological record, occupation sites document small game use and the presence of increased numbers of milling stones indicate a greater reliance on vegetation as a dietary source. Black (1991) identifies the foothill-mountain Plano occupation as part of the Mountain tradition, a localized population with economies based on local fauna procurement, and not large scale kills.

The Plano period is diverse, represented by a variety of temporally and spatially overlapping traditions which are identified by large, non-fluted lanceolate projectile points. The traditions commonly represented during this period include Agate Basin, Alberta, Cody, and Hell Gap, and foothill-mountain complexes such as James Allen, Lusk, Fredrick, Lovell Constricted, and Pryor Stemmed (Frison 1991). Many of the well-studied Plano period sites are located along the South Platte River well to the north

(Gilmore *et al.* 1999). However, two Plano period sites are located in the Arkansas River Basin: the Olsen-Chubbuck site (5CH1) is a large communal bison kill and butchering locality (ca. 10,000 B. P.) located in the northern part of the basin in Cheyenne County (Wheat 1972). The second, the Runberg site (5CF358), is a multicomponent camp on Cottonwood Pass in Chaffee County, with the earliest component yielding projectile points suggesting occupation between 10,000 and 9,500 B.P. (Black 1986).

Archaic Stage (7800 B.P.-1850 B.P.)

The Archaic stage is defined by three contiguous periods: the Early Archaic (7800 B.P.-5000 B.P.), Middle Archaic (5000 B.P.-3000 B.P.), and Late Archaic (3000 B.P.-1850 B.P.) (Zier and Kalasz 1999). This time period is characterized by a continuation of the hunting-gathering economy developed earlier, wherein small bands subsisted on a diverse assortment of post-Pleistocene fauna and a wide variety of gathered flora. The increased presence of milling stones through the Archaic indicates a greater reliance on vegetation. Archaic sites are generally multi-component localities, although few components are well defined due to the complexity of inter-site assemblages.

The Early Archaic period coincides with the Althithermal climatic episode subsequent to the end of the Pleistocene. This period is noted for an apparent occupation hiatus on the plains, with one hypothesis suggesting that populations retreated to the foothill-mountain region to take advantage of more favorable environmental conditions (Benedict and Olson 1978). However, a second theory suggests that the foothill-mountain region was occupied with a well-established tradition at the onset of the Althithermal, and it is probable that the plains populations reduced rather than participated in a significant migration (Black 1991; Zier and Kalasz 1999). Though limited, sites attributed to the Early Archaic occur in both open and sheltered terrain and are often located in upland environments. Semi-subterranean pit-structures found in the mountain region first appear during the Early Archaic (Metcalf and Black 1988; Zier and Kalasz 1999). In the Eagle Peaks region of the Platte River Basin Benedict and Olsen (1978) have identified sites in high valleys close to water, and often on passes along the Continental Divide. Sites are commonly associated with short term occupations, and evidence indicates the development and use of high-altitude game drive systems.

However, Early Archaic sites are uncommon in both the lower and upper Arkansas River Basin. Most of the material associated with this period consists of surface finds, isolated or in a site context with little excavation evidence. Diagnostic material marks a distinct transition from Plano to Early Archaic, where the early lanceolate forms were replaced with large, wide side-notched and corner-notched projectile points (Black 1986; Zier and Kalasz 1999). Sites producing Early Archaic materials in the Arkansas River Basin have been identified west of Interstate 25 between Trinidad and Walsenburg (Lutz and Hunt 1979), at Lorencito Canyon west of Trinidad (McKibbin et al. 1997), at Trout Creek Quarry in Chaffee County (Chambellan et al. 1984), and at the Pinon Canyon Maneuver Site (Andersen 1989b).

The Middle Archaic period saw a widespread distribution of populations within the Arkansas River Basin, a reflection of general trends identified in the Great Plains and Southern Rocky Mountains. The broad distribution of sites during this period may represent growth in the existing population or an outward spread of people form core population areas (Zier and Kalasz 1999). Sites occur in open and sheltered settings, generally associated with water. Sheltered sites are common in the foothills region and in the canyon lands of the plains; cultural deposits often represent repeated use of shelters by Middle Archaic and later populations. Open sites vary in complexity–from sparse lithic scatters to complex camps–and are often containing thermal feature remnants. Features such as stone circles, basin shaped pit structures, and upland game drive systems are less frequent in the Arkansas drainage than in the South Platte basin (Frison 1991; Rood 1990; Zier and Kalasz 1999). Individual sites or components represent small group exploitation of a region, with an economy based on hunting and gathering. Vegetal materials

played an important role in the diet, and a wide variety of fauna was exploited, with the bison's role seemingly reduced (Zier and Kalasz 1999).

The McKean complex defined the lithic technology of the Middle Archaic, and utilization of locally available materials was characteristic. The assemblage consists of a mixture of both formal and expedient tools, and projectile points range from lanceolate to stemmed-indented based forms such as McKean lanceolate, Duncan, Hanna, and Mallory (Frison 1991; Kalasz et al. 1993). Middle Archaic period sites are extensive in the Arkansas River Basin, and include sites on the Fort Carson Military Reservation in El Paso County (Zier et al. 1997), Lorencito Canyon west of Trinidad in Las Animas County (McKibbin et at. 1997), and on the US Army's Pinon Canyon Maneuver Site (Andrefsky *et al.* 1990). Sites attributed to the Middle Archaic include Draper Cave, Recon John Shelter, Gooseberry Shelter, Dead of Winter, Trout Creek Quarry, and Wolf Spider Shelter (Hagar 1976; Zier et al. 1989; Kalasz et al. 1993; Chambellan et al. 1984; Hand and Jepson 1996).

The Late Archaic period provides little evidence of distinct cultural shifts from the Middle Archaic, and many sites suggest continued occupation during this period. The increased number of Late Archaic sites indicate population growth, which was probably internally generated (Zier and Kalasz 1999). Sites are located in open and sheltered terrain but exhibit a wider distribution than earlier manifestations. The larger, more complex base camps are closely aligned to water sources, while the smaller, short-term occupation sites exhibit fewer correlations and are often located in upland areas away from water (Zier and Kalasz 1999). Hearths are a common feature, but large burned rock middens associated with vegetal processing are also present (Nowak and Jones 1985; Nowak and Kantner 1991). There is continued evidence of pit-structures, as documented by Shields (1980) at the McEndree Ranch site (5BA30) on Two Butte Creek. Hunting and gathering continues as the economic base, and as with the Middle Archaic period there is a wide distribution of both flora and fauna exploitation. Maize appears at several sites in the lower Arkansas River Basin, providing a minor dietary supplement (Zier and Kalasz 1999). Evidence for bison procurement, is stronger during the Late Archaic, and although there are communal kill/processing sites known in the northern plains (Frison 1991), they are lacking in southeastern Colorado. Game drives associated with the Late Archaic have been identified near Monarch Pass and to the north in the Indian Peaks area, probably associated with mountain sheep or bison (Hutchinson 1990; Benedict and Olson 1979).

Diagnostic material includes a variety of stemmed and corner-notched projectile points, all associated with atl-atl use (Anderson 1989b). Specimens from the upper Arkansas and foothill-mountain region often exhibit serrated blades, a trait of the Mountain tradition extending back to the Early Archaic (Black 1986). Late Archaic period sites have been identified on the Chaquaqua Plateau (Campbell 1969, 1976), at the Pinon Canyon Maneuver Site (Andrefsky et at. 1990), and on the Fort Carson Military Reservation (Zier et al. 1997). Individual sites exhibiting Late Archaic components include the Trout Creek Quarry (Chambellan et al. 1984), the Runberg site on Cottonwood Pass (Black 1986), Recon John and Gooseberry Shelters at Fort Carson (Kalasz *et al.* 1993; Zier *et al.* 1989) and Trinchera Cave and Wolf Spider Shelter on Trinchera Creek in Las Animas County (Wood-Simpson 1976; Hand and Jepson 1996).

Late Prehistoric Stage (1850 B.P.-255 B.P.)

The Late Prehistoric stage includes three periods: the Developmental (1850 B.P.-900 B.P.), Diversification (900 B.P.-500 B.P.), and Protohistoric (500 B.P.-255 B.P.). In addition, the Diversification period is further divided into two distinct phases, the Apishapa (900 B.P.-500 B.P.) and Sopris (900 B.P.-750 B.P.) (Zier and Kalasz 1999). The Late Prehistoric, previously known as the Ceramic stage (Eighmy 1984), is a continuation of the hunter and gather economy that was well

established through the Archaic. The beginning of the Late Prehistoric is characterized by the introduction of new technologies such as the bow and arrow, and ceramics. However, as the stage continued to develop in the Arkansas River Basin there were significant changes in settlement, subsistence, technology, trade and demographics (Zier and Kalasz 1999).

The Developmental period was a continuation of the Late Archaic lifeway, and although a population increase has been noted there is little evidence of an outside infusion (Zier and Kalasz 1999). The period was initiated through technological advancements, first marked by the introduction of the bow and arrow, which gradually replaced the atlatl. A key indication of this shift was the introduction of the small, triangular corner-notched arrow points that replaced the larger dart points of the Late Archaic. Ceramics are also characteristic of the period, but their introduction occurred 200-300 years later. Varieties include a cord-marking influenced from the Central Plains, and a local plain ware that extended into the following Diversification period (Zier and Kalasz 1999). Site locations are in open and sheltered settings, though with greater likelihood of architectural features in either setting. Architecture includes stone partition walls within shelters, circular stone enclosures, and basin pit structures with slab elements. These structural remains are often associated with prepared floors, interior hearths, and storage features (Lowendorf et al. 1996). Open non-architectural sites are generally identified as special activity loci within a larger settlement area. At most sites it is rare to have a single Developmental period component, and though the presence of architecture is suggestive of sedentism, the lack of extensive midden deposits suggests seasonal use (Zier and Kalasz 1999).

The hunting and gathering economy included a wide variety of wild flora, although corn–which was first introduced during the Late Archaic–is significant to the diet of this period (Zier and Kalasz 1999). Faunal remains are also varied, but focus on smaller animals such as rabbit and prairie dog rather than the larger deer, elk, and bison. Developmental period sites have been documented at the Pinon Canyon Maneuver Site (Andrefsky et al. 1990; Lowendorf et al. 1996), at Fort Carson (Kalasz *et al.* 1993; Zier *et al.* 1997), and the Chaquaqua Plateau (Campbell 1969, 1976). Individual sites include Recon John Shelter, Gooseberry Shelter, Metate Cave, Wolf Spider Shelter, Belwood site, and the Forgotten site (Campbell 1969, 1976; Hand and Jepson 1996; Kalasz *et al.* 1993; Lowendorf et al. 1996; Zier *et al.* 1989).

The Diversification period is characterized by increased population and sedentism, as identified by site density, the construction of multi-room architectural settlements, and the diversity of architectural features. The period is defined by two geographically and culturally distinct phases, the Apishapa and Sopris. Though probably originating from a common Developmental period ancestry, the Apishapa maintained Plains Village influences while the Sopris was influenced by northern Rio Grande Pueblo groups (Zier and Kalasz 1999).

The Apishapa phase is widely distributed in the Arkansas River Basin and south into New Mexico east of the foothills-mountain region, extending from Colorado Springs south to the Dry Cimarron River in northeastern New Mexico (Zier and Kalasz 1999). It is hypothesized that the Apishapa is a western variant of the Plains Village tradition, maintaining more of the hunter/gather economy established during the Archaic and less of the horticultural sedentary lifestyle characteristic of the parent tradition. Sheltered and open architectural sites are best represented. The architecture includes isolated structures or large aggregated room structures, interpreted as settlements. Structural elements are semi-subterranean constructed of vertical or horizontal slab masonry with curvilinear walls, supporting a post and brush superstructure. Defensive sites have been identified on canyon rims associated with barrier walls.

The economy was founded on a wide variety of wild plant material, and smaller game seems to

have been preferred, although there is evidence for bison procurement at several sites (Zier and Kalasz 1999). The presence of corn at several sites provides evidence of horticulture. The technology of the period included small, triangular side-notched and unnotched arrow-points (Anderson 1989b), and locally manufactured cord-marked ceramics (Hummer 1989). Other ceramic styles denote an interaction with Ancestral Puebloan, Plains Village, and Sopris peoples (Zier and Kalasz 1999). Apishapa assemblages include one-handed manos and slab or basin metates, an assortment of bone tools, and ornamentation. Apishapa phase sites have been located on the Pinon Canyon Maneuver Site (Lowendorf et al. 1996), the Fort Carson Military Reservation (Zier et al. 1988; Zier et al. 1997), and the Chaquaqua Plateau (Campbell 1969, 1976).

The Sopris phase is located in a relatively restricted area along the Purgatoire River and its tributaries in the vicinity of Trinidad and south into New Mexico on the Park Plateau. The phase most likely developed from the Developmental period, though influenced strongly by the Taos district in the eleventh century (Zier and Kalasz 1999). Sites are located in sheltered and open terrain, with architectural habitations predominately in open areas close to alluvial bottom lands. Upland sites were specialized, associated with resource procurement and processing activities. Habitation sites are identified as homesteads that consist of single structures and associated features, and hamlets, which contain multiple contemporaneous habitation structures. Architecture of the Sopris phase is represented by semi-subterranean house pits, with origins probably predating the phase, and rectangular to sub-rectangular, multi-room surface structures constructed of heavily mortared stone slabs or blocks. Vertical stone slab, jacal, and adobe construction techniques were also utilized. The economy was based on a close coordination of hunting and gathering, and horticulture. Diet relied on a wide variety of game, both small and large, and an assortment of wild plant material. Horticultural activity was focused on corn, but there is also evidence of beans and squash. Surplus of both wild and domestic plant forms is evident, as storage pits are a common architectural feature.

Technology of the Sopris phase included a wide variety of ceramic types such as locally manufactured plain wares, but also forms from the Taos district to the south and cord-marked ceramics probably associated with the Apishapa (Mitchell 1997; Zier and Kalasz 1999). Projectile point styles include a small corner-notched and stemmed variety, and a small triangular unnotched variety. Larger corner-notched dart points are also present, but probably utilized as knives (Zier and Kalasz 1999). Other traits of the Sopris phase include a diverse assemblage of milling stones, bone/antler tools, and ornamentation (Zier and Kalasz 1999). As indicated earlier, most of the Sopris phase sites in Colorado are along the Purgatoire River drainage, with extensive investigations conducted in association with the Trinidad Lake Flood Control Project (Hand et al. 1977; Wood and Bair 1980; Zier and Kalasz 1999).

The Protohistoric period is defined by Athapaskan occupations, beginning with the termination of the Apishapa phase and the arrival of Athapaskan groups, and terminating with the reduction of Apachean occupations. The terminus is marked by an influx of Comanche into the southern plains and an increase in Spanish incursions (Zier and Kalasz 1999). The Dismal River aspect is the most prominent archaeological manifestation (Gunnerson 1987, 1989). Centered primarily in Kansas and Nebraska, a regional extension of the Dismal River has been identified in the Arkansas River Basin. The economy of this period was hunting and gathering, with emphasis on bison procurement, but site data and ethnographic documentation indicate that some level of horticulture was also adopted. Sites of this period are located in open and sheltered terrain and feature sparse artifact and feature assemblages suggestive of short-term nomadic occupations (Andrefsky et al. 1990; Campbell 1969, 1976). Architecture is commonly identified as spaced stone circles, but earth lodge structures are associated with the Dismal River aspect to the northeast, and adobe multi-room structures in New Mexico (Zier and Kalasz 1999). Technology was characterized by the continued use of the bow and arrow, and small triangular unnotched and side-notched projectile points. Ceramics are the most diagnostic artifactual element of the period:

generally globular shaped jars featuring a heavily micaceous paste manufactured through coiling and/or hand forming. Northern Rio Grande Puebloean trade ware is also found during this period. There are relatively few documented sites of the Protohistoric period in the Arkansas River Basin, but they are known at the Pinon Canyon Maneuver Site, Trinidad Reservoir, and the West Carrizo Creek region (Andrefsky et al. 1990; Hand et al. 1977; Kingsbury and Nowak 1980).

Historic Native American Stage (225 B.P.- 83 B.P.)

Later Native American populations occupied the Arkansas River Basin during the period of increased contact with Euro-Americans (Zier and Kalasz 1999). Historic Native Americans are identified as nomadic groups with economies based on hunting and gathering and, frequently incorporating equestrian hunting techniques. Site assemblages are sparse, but include trade items such as glass beads and metal projectile points. Sites affiliated with the Historic stage are rare, and information about the period is known largely through ethnohistoric documentation. There were successive incursions by several tribal groups. The earliest occupants, particularly on the plains, included a continuation of the Apacheans of the Protohistoric period. The Utes, who traditionally occupied the mountainous regions, ventured onto the plains beginning about A.D. 1600. The Comanche entered the Arkansas River Basin in the early 1700s, and formed a short-lived alliance with the Utes to force the Apache southward. The Kiowa and Kiowa-Apache entered the area in the late 1700s, occupying the area along with the Comanche only a short time before the Cheyenne and Arapaho arrived in the late 1700s and early 1800s. By the 1870s the tribes were confined to reservations in Oklahoma, clearing the way for settlement by Euro-Americans and ending aboriginal occupation of the area (Eighmy 1984).

Historic/Non-Native Stage (300 B.P.-50 B.P.)

Exploration of the Arkansas River basin began in the mid-1600s primarily by the Spanish, with limited incursions by the French (Mehls and Carter 1984). United States explorers, both private and military, entered the region after the Louisiana Purchase of 1803 and continued to 1865. The fur trapping industry also began in the early 1800s. With a focus on beaver, the trapping era resulted in the establishment of several trading posts. That industry collapsed in 1840, but was revived between 1865 and 1880 with a demand for buffalo robes (Mehls and Carter 1984).

Historically, the Great Plains portion of the Arkansas River Basin functioned as graze land for native fauna. This land use pattern began to change in the 1840s when ranching and farming were initiated in the Arkansas Valley. However, the most significant change occurred with irrigation farming, which has been used extensively since the late 19th century (Mehls and Carter 1984). In contrast, the western/mountain region witnessed development associated with mining from the mid to late 1800s. The logging industry and agriculture were established during the same period, often continuing long after mining ceased (Mehls 1984).

For further information regarding detailed artifact inventories, subsistence strategies, and complete chronologies, the reader is referred to Eighmy (1984) and Zier and Kalasz (1999). For information concerning the historic period, see the regional overviews prepared by Mehls and Carter (1984) and CDOT (2009).

RESEARCH DESIGN

This project is located within the Arkansas River drainage system of Colorado's southeastern plains. The archaeological record in this area is lengthy, and evidence indicates, fairly continuous. Data

are available for the later Archaic and Formative occupations, while early occupations are more sparsely represented (Zier and Kalasz 1999).

Based on data from the Platte River Basin of northeastern Colorado, Paleoindian sites are commonly in open terrain and can be deeply buried. The earlier Clovis and Folsom period occupations have been identified on the plains, and the later Plano period site expand into the foothill-mountain region. Paleoindian sites are more commonly associated with Pleistocene faunal procurement, however, the more rare occupation sites have been noted to provide data about a broader and complex economy, based on hunting and gathering.

Available regional data indicate that Archaic stage sites are found in open and sheltered terrain. Sites may represent complex base camp localities, in some instances with architectural features, or very short-term use, special activity localities. Early Archaic period sites are rare in the Arkansas River Basin, with Middle and Late Archaic occupations more common and frequently representing site reuse. The economy reflected a continuation of hunting and gathering, with possibly more emphasis on wild plant use. Corn as a domestic crop was introduced during the Late Archaic period.

Late Prehistoric stage sites are again located in open and sheltered terrain commonly associated with larger drainages, and limited activity sites are often located in upland areas away from the drainages (Campbell 1969, 1976; Kihm and Chenault 1982; Lutz and Hunt 1979). Apishapa phase sites are usually located on the southern tributaries of the Arkansas River: the Apishapa, Cucharas, and Purgatoire Rivers (Ireland 1968). Technological change marks the beginning of the stage, with the introduction of the bow and arrow, and ceramics. Further cultural development is noted, as the economy is based on hunting and gathering, with a growing reliance on horticulture from the Developmental to Diversification periods. Domestic architectural features continue to develop from the Archaic, but become more complex during the later Diversification period, with evidence of outside regional influences. There is very little information concerning the Athabaskan occupations of the Protohistoric period.

Little data is present concerning the Historic Native American occupations in either the Arkansas or Platte River Basins. Sites of this period are often identified through ethnohistoric documentation, frequently in association with a ceremonial event, a conflict, or documented through Euroamerican interaction. The sites are commonly short-term occupations, with a very limited artifact assemblage.

The principal objective of the inventory was to locate and record all cultural resources that may be affected by the proposed project, and to formulate appropriate management recommendations. These data are intended for integration into the broader data base for the Arkansas River Basin region. It is only through a process of data integration that results from small-scale inventories such as the present effort can contribute to specific research topics formulated in response to existing cultural overviews.

Previous investigations along US 50 have resulted in the identification of a limited number of prehistoric sites and isolated artifacts within and adjacent to the ROW. However, the project corridor is narrow and has been disturbed by transportation construction and maintenance activities. As a result, the discovery of cultural remains was not anticipated during the current survey. Prehistoric open camps and lithic scatters documented in the area are associated with Archaic and Late Prehistoric stage occupations. Historic sites are commonly associated with agriculture, transportation and settlement.

FIELD METHODS

A prehistoric site is defined as any locality exhibiting structures or features (e.g., stone circle or

hearth) or having five or more artifacts in apparent association with one another and occurring within a restricted area. Prehistoric isolated finds are nonstructural remains and consist of four or fewer artifacts.

A historic site is defined minimally as any structural remnant (e.g., house outbuilding, root cellar), any trash concentration or scatter suggesting residential or industrial use of the area, or any refuse dump. Historic isolated finds are individual historic artifacts or small clusters of artifacts that do not represent established refuse dumps. The minimum age criterion for historic sites and isolates is 50 years.

The inventory involved one individual walking sinuous transects at 15 m intervals north and south of the highway within the fenced ROW, and between the eastbound and westbound lanes in the vicinity of the State Highway 45 intersection where the highway is widely divided. Previously inventoried portions of the project corridor at the eastern and western project limits were resurveyed. When artifacts were encountered, a broad area surrounding the locality was surveyed. None of the artifacts encountered during the inventory were collected. The attached Management Data Form and Linear Component Form (Appendix II) provide a comprehensive description of the single archaeological site recorded during the survey.

The corridor is located on the northern flank of the Arkansas River valley on open shortgrass prairie dissected by intermittent drainages. Not surprisingly, the highway ROW in this area exhibits substantial ground disturbance as a result of previous road construction and maintenance. That portion of the ROW where the highway is undivided exhibits approximately 95 percent disturbance; the portion with divided eastbound and westbound lanes near State Highway 45 contains more undisturbed land. Much of the property adjacent to the ROW has been developed for residential and commercial uses. Vegetation is dominated by short grasses, weeds, rabbit brush, saltbush, cacti, and yucca, with tamarisk, skunkbush, sunflower, and other riparian species growing adjacent to Dry Creek and Williams Creek. Ground surface visibility was generally good, with vegetation allowing surface visibility estimated at 70 percent at the time of survey.

All project records are housed in perpetuity at the offices of the CDOT Archaeological Unit in Denver.

RESULTS AND RECOMMENDATIONS

The survey resulted in the identification of one historic archaeological site (5PE320.3). These results were anticipated based on the results of prior inventories in this portion of the highway corridor. The lack of additional cultural remains is undoubtedly related to the limited width of the study area and impacts associated with earlier highway construction.

Site **5PE320.3** is a short segment of abandoned rail grade that operated between Pueblo and the stone quarries and clay mines at Stone City in northwest Pueblo County between 1909 and 1958. The railroad initially operated briefly as the Kansas-Colorado Railroad, and after bankruptcy as the Colorado-Kansas Railroad. After dissolution of the Colorado-Kansas Railroad in 1934, the line was operated by the Colorado Railroad until it was abandoned after several bridges were destroyed by flash floods in 1957. The grade has been truncated on the south by subsequent construction of US Highway 50 and by a local frontage road (Capri Circle) on the north. The grade has slumped due to years of gradual erosion after the rails and ties were removed in August 1958. A light scatter of artifacts is present, but there are no associated features and no potential for intact subsurface cultural deposits which could provide significant data regarding early- to mid-20th century railroads. Because this segment of the railroad exhibits extensive disturbance and has been isolated from other extant portions of the grade by urban and residential development, it lacks sufficient integrity to convey the historical significance of the railroad.

Consequently, this segment of the grade does not support the potential eligibility of the entire railroad for the National Register of Historic Places. The project proposes improvements to the eastbound lanes of US Highway 50; no construction is proposed on the westbound lanes of the highway, where the site is located.

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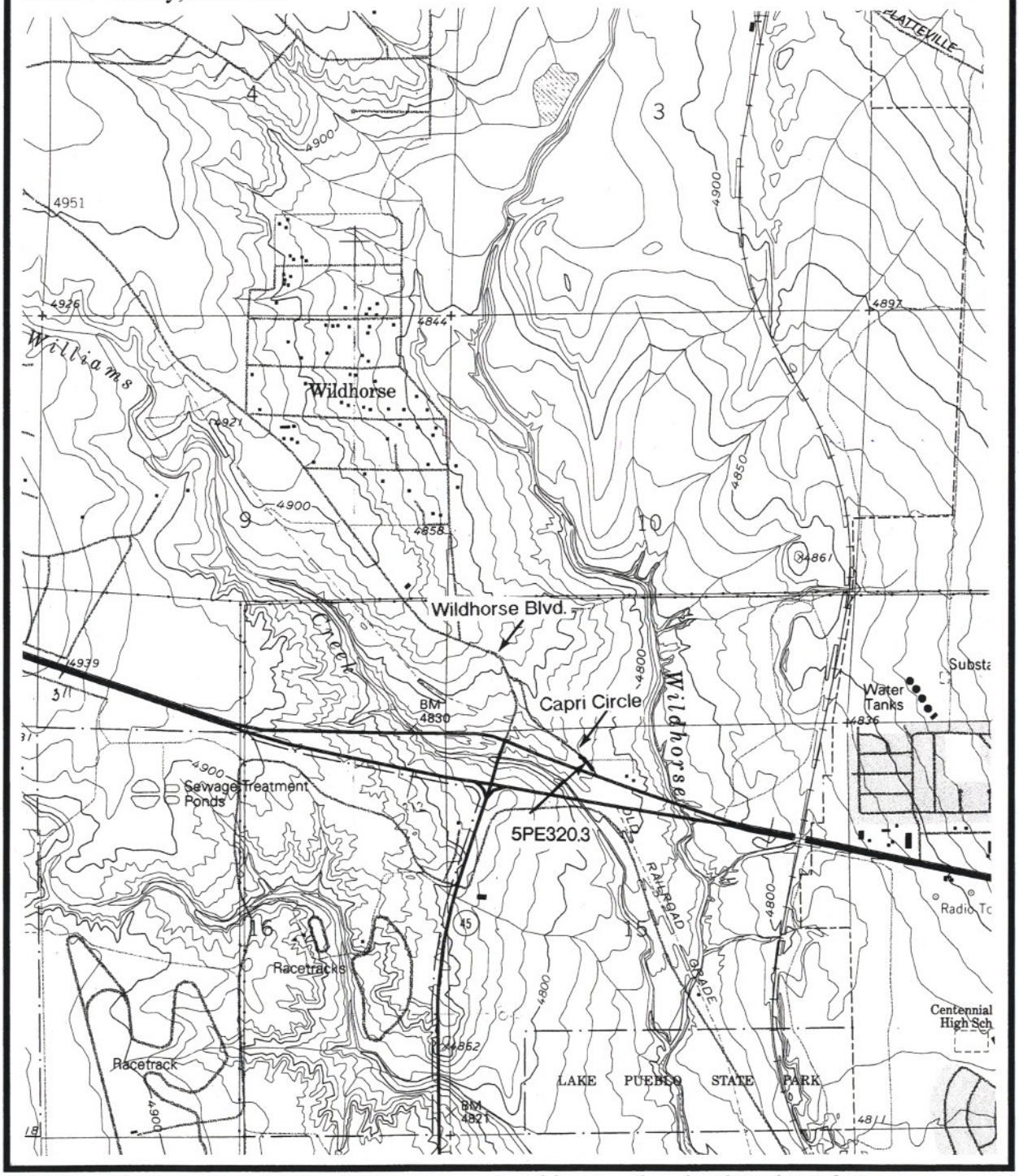
APPENDIX I
SITE LOCATION MAP

Northwest Pueblo (1961, revised 1994) 7.5'USGS topo map
Sixth P.M., T20S, R65W, Section 15
Pueblo County, Colorado



Portion of Northwest Pueblo 7.5' USGS topographic map showing location of 5PE302.3