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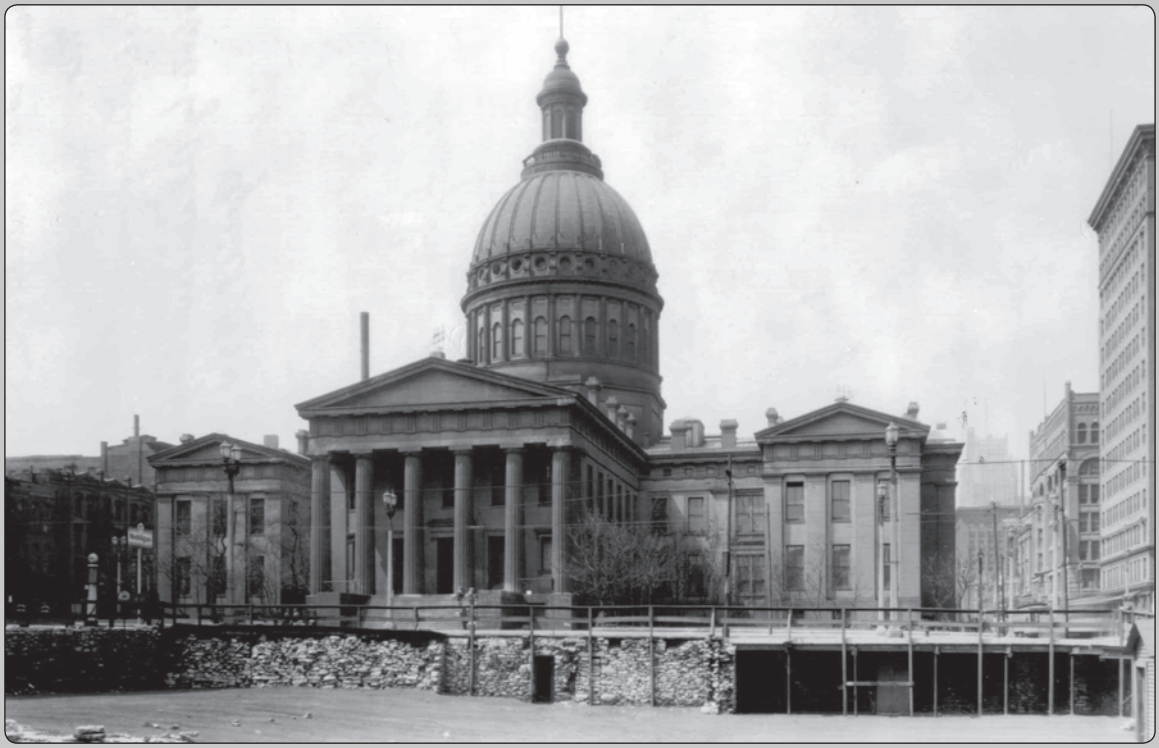
AN ARCHAEOLOGICAL OVERVIEW AND ASSESSMENT OF THE CAR2015 PROJECT AT JEFFERSON NATIONAL EXPANSION MEMORIAL

TIMOTHY SCHILLING, PH. D.



MIDWEST ARCHEOLOGICAL CENTER
ARCHEOLOGICAL REPORT NO. 1

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Midwest Archeological Center
Lincoln, Nebraska

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This report has been reviewed against the criteria contained in 43CFR Part 7, Subpart A, Section 7.18 (a) (1) and, upon recommendation of the Midwest Regional Office and the Midwest Archeological Center, has been classified as

AVAILABLE

Making the report available meets the criteria of 43CFR Part 7, Subpart A, Section 7.18 (a) (1).

TABLE OF CONTENTS

Introduction 1
Geographical and Culture-Historical Context 3
A Landscape History of JEFF (1935-present) 9
Previous Archaeological Investigations 11
Archaeological research questions 15
Project Locations 19
    Areas 3-7 19
    Luther Ely Smith Square 19
    Old Courthouse 19
Archaeological Potential 21
    Areas 3-7 21
    Luther Ely Smith Square 22
    Old Courthouse 23
Summary and Recommendations 25
References Cited 43

LIST OF FIGURES

Figure 1. Jefferson National Expansion Memorial and the St. Louis riverfront 27
Figure 2. Map of St. Louis as laid out in 1764 (after Shewey 1892). 28
Figure 3. Corner of Main and Spruce, ca. 1850. Courtesy of Missouri History Museum, St. Louis, MO. Thomas Easterly Collection. 28
Figure 4. Looking southeast from the Old Courthouse, ca. 1890 (Missouri History Museum Collections). 29
Figure 5. Backlot ca. 1940 (HABS/HAER survey, LOC) 30
Figure 6. Third and Washington, facing east at the entrance to the Eads Bridge in 1915. The northwest corner of JEFF is on the right. Note the trolley tracks and abundance of automobiles at this early date. 31
Figure 7. Aerial photo of the St. Louis riverfront, ca. 1930-1935. Vacant lots that once were built out can be seen at the foot of Chestnut Street (center right). 31

Figure 8. A building under demolition ca. 1940 (HABS/HAER survey, LOC)..... 32

Figure 9. The deserted downtown district (HABS/HAER, LOC). 32

Figure 10. Site demolition. The photo was taken from near the corner of Market and Third Street. The new West Entrance will be built on this site. The Old Courthouse is in the background..... 33

Figure 11. Site demolition, notice salvaged building materials stockpiled along the riverfront. View is to the West..... 34

Figure 12. JEFF during the early 1950s. Taken from the Eads Bridge facing south (Courtesy of the St. Louis Landmarks Association)..... 34

Figure 13. Relocation of the railroad. ca. 1960 (UMSL library)..... 35

Figure 14. Photographs taken during the construction of the Arch. The scale of the excavation for the monument foundations and the underground museum removed fill down to bedrock across the central portion of the park..... 36

Figure 15. CAR2015 project areas..... 37

Figure 16. I-70/44 trench, the Old Cathedral is visible to the right (ca. 1964)..... 37

Figure 17. Elevation change 1948-2012..... 38

Figure 18. Selected profiles comparing 1948 surface to modern surface. 39

Figure 19. The riverfront ca. 1940, taken from the Eads Bridge facing south (St. Louis Landmarks Association). 40

Figure 20. The south entrance of the Old Cathedral (left-1939 and right-2000)..... 40

Figure 21. LES square ca. 1907. 41

Figure 22. LES Square, 1940. Note the absence of demolition debris. 41

INTRODUCTION

The Gateway Arch (Figure 1) lies at the center of Jefferson National Expansion Memorial (JEFF). Towering over 600 feet above the city of St. Louis, it is a national icon, a symbol of St. Louis, and the most identifiable aspect of the park. In spite of its unique position on the landscape and its ultimate enshrinement in 1987 as a National Historic Landmark, well before the 50-year mark, the Arch is a commemorative feature built by NPS to mark the St. Louis riverfront as a pivotal place in America's westward expansion. The site was the created by President Franklin Roosevelt by executive order in 1935[1] and is first place to be recognized under the Historic Sites Act of 1935, which was designed "to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States." Under the act, NPS was empowered to "erect and maintain tablets to mark or commemorate historic or prehistoric places and events of national historical or archaeological significance." NPS, following the guidance of Thomas Tallmadge, determined that only three buildings along the waterfront were nationally significant (Bellavia 1996:18). The remaining buildings were demolished to make way for a planned memorial.

The Gateway Arch is an internationally important structure designed by a master architect, Eero Saarinen, and is a historical place in its own right, but the process of redeveloping and making the Arch the centerpiece of a constructed, modernist landscape exposes an underlying contradiction in the park. Historic buildings and potential archaeological deposits along the river were sacrificed to erect the Arch and build a park, and commemorating the St. Louis riverfront's place in Westward Expansion was deemed more important than preserving the historical remnants that may have existed. In the time that has since passed the underlying goals, philosophical emphasis, and methods of implementing the Historic Sites Act have changed immensely. It is probably not a stretch to say that if JEFF were designated a historic site under today's philosophies and methods, the outcome would be vastly different. Just the level of documentation before construction would be exponentially greater than was previously done.

The Gateway Arch and Arch grounds are historically significant and preserved places, but there is a real possibility that earlier, fragmentary, unrecognized deposits related to America's westward expansion are buried beneath the modern surface. NPS

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[1] The second clause of Executive Order 7252 states:
WHEREAS the Secretary of the Interior through the National Park Service has determined that certain lands situated on the west bank of the Mississippi River at and near the site of Old St. Louis, Missouri, possess exceptional value as commemorating or illustrating the history of the United States and are a historic site within the meaning of the said act, since thereon were situated: the Spanish Colonial office where, during the administration of Thomas Jefferson, third President of the United States, all the first territory comprised in the Upper Louisiana Purchase was transferred to the United States; the Government House at which, on March 9, 1804, Charles Dehault Delassus, the Spanish commandant in St. Louis, transferred possession of Upper Louisiana to Captain Amos Stoddard of the United States Army, who had been delegated by France as its representative, and at which, on the morning of March 10, 1804, Captain Stoddard, as the agent of the United States, took formal possession of the Louisiana Purchase and raised the American flag, by reason of which transactions the Spanish, French, and American flags waved successively over the site within a period of twenty-four hours; the old French Cathedral of St. Louis, earliest home of religion on the western bank of the Mississippi; the place where Laclede and Chouteau established the first civil government west of the Mississippi; the place where Lafayette was received by a grateful people; the places where the Santa Fe, the Oregon, and other trails originated; the place where Lewis and Clark prepared for their trip of discovery and exploration; and the Court House in which the Dred Scott case was tried

activities have dramatically shaped the modern landscape. Past NPS projects deeply cut the historic land surface or buried it with thick fills. Over the course of NPS tenure, hundreds of thousands of cubic meters of sediment have been moved, and the park's topography now bears little resemblance to the historic landscape. Similarly, the city landscape that NPS removed in the early 20th century dramatically impacted deposits from St. Louis' earliest history. Nevertheless, the density of important historical locations in the pre-park waterfront district, and potentially associated archaeological remains, was exceptional. The goal of this document is to provide an overview of the extant archaeological database and an assessment of the archaeological potential of the park. This overview and assessment, in particular, is designed to aid in assessing the impacts and developing a strategy for fulfilling NPS responsibilities vis–à–vis the City Arch River 2015 (CAR2015) project. The search for archaeological resources at JEFF is an important and necessary undertaking that has been recognized by Park staff and is both prescribed in Federal law and required in the CAR2015 Programmatic Agreement. The proposed work associated would impact the upper 100+ cm (ca. 3 ft) of soil across much of the park, and in some locations, ground disturbance may exceed 10 m. For the purposes of this discussion, the park (Figure 1) can be divided into three areas: Areas 3-7, Luther Ely Smith Square (LES Square), and the Old Courthouse (OCH).

The overview and assessment combines both historical documentation and archaeological observations. Neither data set is complete. Tremendous gaps in knowledge exist about conditions of buried resources. In spite of the sparse data set, general statements about the probable integrity of buried archaeological resources can be made.

GEOGRAPHICAL AND CULTURE-HISTORICAL CONTEXT

Jefferson National Expansion Memorial was built on a 38-block parcel in the downtown region of St. Louis, Missouri. Culturally and physiographically, St. Louis is connected to the Mississippi River Valley. St. Louis is on the west bank of the Mississippi River, immediately south of the confluence of the Mississippi, Missouri, and Illinois rivers. Downtown St. Louis lies on a bluff composed of St. Genevieve and St. Louis Limestone deposited during the Mississippian Era (359-323 mya)[2]. The limestone basement is shallow and in the past cropped out along the riverfront. The bedrock slopes from the highest elevations in the west near the western boundary of the park to the lowest in the east along the riverfront. Eolian, glacio-fluvial, and glacio-lacustrine deposits overlie the limestone bedrock. These were first deposited during the end of the Pleistocene Epoch (ca. 20 kya). Soils formed in these sediments would have been the surface sediments upon which people would have lived during the Holocene Epoch (ca. 12 kya – present).

Humans first occupied the confluence region near the end of the last Ice Age. Early occupations were sporadic and ephemeral; however, by the late prehistoric period, St. Louis and the American Bottom, the adjacent bottomland to the east, were the most densely populated areas in North America. Typically, the ancient cultures of St. Louis and American Bottom are seen as closely interrelated if not the same. Consequently, the archaeological record of the American Bottom provides a framework for understanding the archaeological history of JEFF. The pre-Columbian occupation can be divided into four distinct but interrelated periods (Paleoindian, Archaic, Woodland, and Mississippian periods). These periods are distinguished by distinctive material culture, settlement patterns, and subsistence patterns. The later Euroamerican history can be divided into three general periods (the Colonial period, the Early Historic and Westward Expansion period, and the Late Historic Industrial period) based on the region's political history.

Paleoindian (ca. >11,000 to 8000 bp)[3] people lived in small, mobile bands and were well adapted to hunting big game like the Pleistocene elephants and bison that roamed the post-glacial Midwest (Haynes 2005; Meltzer 1993). The Paleoindian period was a time when climate patterns transitioned from the Ice Age to near-modern conditions. Massive ice sheets and major melt water flows drove the early Paleoindian climate and environmental patterns. After about 10,500 bp, climate slowly changed to more modern-like conditions (Bettis, et al. 2008). Paleoindian material culture assemblages typically consist of lithic tools and chipping debris. The most recognizable tools from this time have flutes along their bodies (e.g., Clovis and Folsom points), but later Paleoindian points have stems rather than flutes (e.g., Scottsbluff, Hell Gap, Alberta, Eden, and Angostura)(Justice 1987). Fluted points are found widely across eastern North America. They are generally similar throughout their range.

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[2] mya- million years ago, kya- thousand years ago

[3] Dates are presented in calendar years before radiocarbon present (bp) unless otherwise noted.

In the St. Louis region, Paleoindian sites are rare. At the Kimmswick Bed (ca. 40 km south of JEFF), Paleoindian projectile points were found in association with megafauna bones. These finds represent the first unambiguous association of Clovis people with mastodons (Grahm, et al. 1981)., The McKinnis Clovis Cache was found north of JEFF, along the Missouri River. The cache, consisting of about a dozen Clovis points and a dozen Clovis preforms, was uncovered during land-leveling operations done as part of a housing development. The raw stone material may have come from over 160 km away. Other Paleoindian sites show similar patterns of exotic lithic material suggesting that Paleoindian people often travelled long-distances or had large territories (Morrow 1996; Tankersly and Morrow 1993).

The Archaic period (10,000 bp to 2700 bp) represents a time when people settled into more permanent locations, perhaps even villages, and began exploiting a wider array of smaller game and local plant resources. Around 10,000 bp, the megafauna died out or evolved into their modern counterparts. Consequently, ancient people had to shift their focus towards different species. In particular, white-tailed deer became a favored target of early hunters. The Early and Middle Archaic periods span a time of dramatic climate change called the Hypsithermal or Holocene Climatic Optimum (HCO) (Brown and Vierra 1983). During the HCO, temperatures may have averaged as much as 5° higher than present, and in the Midcontinent region, drier conditions may have prevailed. After the HCO, river bottoms and backwater regions stabilized. The natural levees of oxbow lakes became favored places for settlement, and riverine resources assumed a prominent place in the subsistence systems of ancient Midwestern peoples (Brown 1985). The first domesticated plants appeared during the Archaic period (Simon 2009).

Concurrent with settlement and subsistence shifts was an increase in the number and localized distribution of projectile point styles. Point types appear to be geographically differentiated, perhaps suggesting social differentiation or increased territoriality (McElrath, et al. 2009). As people became more sedentary, they also became more specialized. Archaic people used a wide variety of lithic tools, including both chipped stone and ground stone. Raw materials and manufacturing techniques suggest that Archaic people in the St. Louis region had ties to the Southeast, Midwest, and Great Plains.

During the Archaic period, ancient Americans began building large-scale, monumental architecture, indicating they developed more complex social formations necessary to undertake and successfully complete projects that required exceptional labor inputs. At the same time, social relations may have expanded and long-distance trade networks flourished across Eastern North America, especially during the Middle Archaic period (ca. 5000 bp). The Archaic period may have come to the end with the onset of large-scale flooding in the Mississippi River Basin, which would have disrupted these large-scale social networks (Kidder 2006).

In the Mississippi Valley and adjacent uplands, Archaic sites are sparse. When they are found, they tend to be either isolated finds or small-scale deposits in caves or rockshelters. Sites do occur in the floodplain. These sites occasionally have pits and may have been relatively substantial occupations, or they may represent the continued

occupation of favored sites over a long time (McElrath, et al. 2009). Still, the scarcity of Archaic period archaeological remains suggests the area was underpopulated.

The Woodland period (c. 2700 to 900 bp) follows the Archaic period. As opposed to earlier times, lithic technology becomes sparser in the archaeological record, and pottery assumes a dominant place (Brown 1986). Near the end of the Woodland period, bows and arrows replace atlatl technology. Backwaters and the natural levees of secondary streams are favored settlement locations, but archaeological sites are also found at the base of alluvial fans and occasionally along upland streams. The Woodland period is usually divided into early, middle, and late subdivisions that represent different material culture, settlement, and organizational traits. In most cases these differences appear as a consequence of outside people moving into the region rather than the evolution of existing societies (Kelly 2002).

Deer and riverine resources were staples of the Woodland diet. Plant foods consisted of a mix of wild and domesticates. Most people practiced some form of small-scale horticulture using the indigenous "Eastern Agriculture Complex" (Smith 1992). People may also have practiced seasonal mobility, or they may have been more settled, living in some locations year round. Archaeological sites tend to be small or ephemeral; not until the end of the Woodland period do occupations become intense. This is likely a function of population size that probably rose. The population increase co-occurs with the adaptation of maize-based agriculture.

Mound building appears during this time. Middle Woodland people built burial and other kinds of earthen mounds along bluffs that lined river valleys. Across the Midwest, burial mounds, in particular, are associated with Hopewell culture, a widespread set of symbols and rituals. As social groups grew in size, it is likely that specific types of leadership developed. Some Hopewell burials have elaborate grave goods associated with central individuals. These individuals may have been shamans or other ritual leaders who held important places in Middle Woodland societies. Overall, archaeological data suggest that Woodland groups were widely dispersed across the confluence areas. Though decentralized, they may have been connected through multiple interwoven marriage and ritual relationships and were brought together occasionally through feasting and other ceremonial occasions (Kelly 2002).

The Mississippian period (900 to 550 bp) was the zenith of pre-Columbian occupation in the St. Louis area. The Mississippian period is coeval with Mississippian culture in the Midwest. Mississippian culture was a widespread set of practices whose remains included widely-distributed, highly decorated pottery, maize-based agriculture, and monumental architecture (i.e., earthen mounds). The once widely dispersed social groups moved into larger settlements, with some having populations that may have approached several thousand inhabitants (Lopinot and Pauketat 1997; Milner 1998). Mississippian subsistence was an extension of the previous Woodland horticultural practices. Deer and riverine resources were still the most prominent animal foods (Kelly 1997), and maize horticulture became more widespread. Through time, maize became one of the most important plant foods (Fritz and Lopinot 2002). Settlements were generally located similarly to Woodland settlements; however, the landscape became increasingly crowded, forcing some to live in less than optimal places. The general

population trend appears to be a result of both internal growth and immigration into the region (Alt 2006; Milner 1996). Archaeological data suggest some places were occupied for several centuries while others may have been more short-term occupations, perhaps only occupied for a few years (Collins 1997; Pauketat 1989). Overall, people were probably sedentary during this time but short-term mobility was likely.

Although Mississippian people built a wide variety of earthen mounds (Fowler 1997), they are most known for building quadrilateral, flat-topped pyramids that supported buildings or other types of more ephemeral architecture. The buildings served a multitude of functions. In some cases, they were the residences of important leaders and in others they were public buildings or funerary structures (Lindauer and Blitz 1997). Several mound towns are found in the St. Louis area. Cahokia, the largest pre-Columbian archaeological site in North America, has Monks Mound, the largest earthen mound in North America. Cahokia is located about 15 km east of JEFF. The East St. Louis Mounds and the St. Louis Mounds were nearer. The East St. Louis Mounds area was located on the east side of the Mississippi River beneath the modern town of East St. Louis. The St. Louis Mound group was built about 2 km north of JEFF. No above-ground architecture remains of these two pre-Columbian sites. The East St. Louis Mounds are currently undergoing excavation, which demonstrates that there is still a rich, intact archaeological record of this occupation (Galloy 2010). The St. Louis Mounds may not have fared so well. Archaeological investigations suggests that much of the historic and modern city removed any archaeological remains (Marshall 1992).

After the abandonment of Cahokia, the St. Louis region appears sparsely populated until new populations moved into the area. These people likely came from the north and are the immediate ancestors of the historically documented Algonquin-speaking people who lived in the region. They were part of what archaeologists call Oneota culture. Oneota people were horticulturalists who lived in relatively small villages along the rivers of the Upper Midwest. The Osage and other Dhegian-Siouxspeaking people also moved into the St. Louis region during this time. The Dhegian-Sioux people may have come from the Ohio River Valley and may potentially have Mississippian ancestors. By the 17th and 18th century, a number of sometimes allied and inter-related Indian nations were living in the area.

On February 14, 1764, St. Louis was founded when René Auguste Chouteau and his fellow traders from New Orleans began laying out their trading-post village. Three months earlier, Pierre Laclede chose this spot, located on the bluff above the west bank of the Mississippi River, because of its location near the juncture of the major rivers leading to the interior (Primm 1981). The rivers provided both a connection to native trappers and a route for their products to the trading port of New Orleans. Initially, Chouteau laid out a grid of streets along the river (Figure 2). The present configuration of downtown St. Louis is based on this early grid, and much of the early town is encompassed by JEFF.

Even before St. Louis was founded, France ceded Louisiana, including St. Louis, to the Spanish as a condition of the Treaty of Fontainebleau[4] and Britain's victory in the

[4] The Treaty of Fontainebleau was a secret treaty between France and Spain that ceded all of Louisiana to Spain. In the subsequent Treaty of Paris (1763) that ended the Seven Year's War, France gave Britain the land east of the Mississippi River. Spain did not contest this arrangement.

Seven Years' War. Although nominally ruled by Spain, early St. Louis was built in the French Creole style (Figure 3). Houses and buildings were usually built as *poteaux sur sole* (posts on sill) or *poteaux en terre* (posts in ground). Houses were built on lots that measured 256 ft x 320 ft (LeeDecker et al. 2012). Lots were large enough to allow for gardens or orchards, but agricultural fields were located outside of the village. By 1770 about 700 people lived in St. Louis, including almost 200 enslaved African Americans and an unknown number of Indian slaves (Primm 1981). Although originally founded as a fur-trade outpost, St. Louis' economy grew through agricultural exports.

Early St. Louis was located at the boundary of colonial empires. On May 26, 1780, the only Revolutionary War battle west of the Mississippi River was fought when British and Indian forces attacked St. Louis. The defenders, consisting of French colonists, Spanish officials and soldiers, and African-American and Indian slaves, manned the defensive works that were originally built in the 1770s as a result of the threat of attack from the Osage and other Native Americans. The British were defeated. The defensive works were relatively substantial with stone towers or forts and a stone-and-wood barricade wall. Based on historic maps, the fortifications were built just outside the western boundaries of the park.

St. Louis became an American city with the Louisiana Purchase in 1803. By then it was a thriving center that hugged the riverfront. Americans preferred timber-framed buildings over the stone-and-*bousillage*[5] buildings of the French, but from 1804 to 1821, 33 stone buildings were built in St. Louis (LeeDecker et al. 2012:26). The city steadily grew in the early 19th century. The first steamboat arrived in 1817, and the city expanded west beyond Third Street in 1818. Throughout much of this time, the buildings on the future JEFF grounds were a mix of wood, brick, and stone. A devastating fire in 1849 swept through the central riverfront district accelerating the transition to multi-story brick buildings that came to dominate the city. Since this area was a mixed industrial/residential area, the fire displaced people from both their houses and livelihoods. The pattern of mixed use would continue until NPS created JEFF and razed the downtown district. After the fire, many streets were widened and straightened. Some streets were paved at this time, but it was not until the late 19th century that the streets were paved with granite pavers—still visible in the Laclede's Landing area immediately north of the Eads Bridge (Wells and Williams 1985). The levee was paved in the 1850s and portions of the riverfront—especially south of JEFF—were extended to the east.

By the middle 1800s, St. Louis was the major trans-shipment location of the mid-continent. Furs from the ever-expanding westward frontier would cross paths with manufactured goods from the East. The arrival of railroads in 1854 hastened this traffic. North-south commerce was interrupted by the Civil War, but by 1874 when the Eads Bridge was built, St. Louis was the fourth largest city in the U. S. (http://www.census.gov/population/www/documentation/twps0027/tab10.txt). The late 19th-century city was a near total transformation from the earlier city. Little open space remained along the riverfront. Most blocks were built out with substantial, multi-story, brick buildings that included deep basements, sometimes two stories deep (Figure 4). Occasionally,

[5] Mud and other filler placed between framing timbers.

lots would be crossed by alleys that led to backlots or other empty spaces between buildings (Figure 5).

The riverfront district began to deteriorate in the early 20th century. Much of the future park grounds contained light manufacturing and domiciles for workers (Primm 1981:465). At the same time, the advent of street cars and then automobiles allowed greater mobility and the growth of the western suburbs (Figure 6). By the end of the first quarter of the 20th century, there were many derelict buildings in the riverfront district, some of which were demolished leaving vacant and abandoned lots (LeeDecker et al. 2012) (Figure 7). In 1933, a group of prominent local individuals, led by Luther Ely Smith, formed an association to redevelop the downtown district as a public park.

A LANDSCAPE HISTORY OF JEFF (1935-PRESENT)

Authorized in December 1935, clearance and demolition of the park grounds began October 10, 1939. By 1942, only three buildings remained (AECOM 2010). Demolition included dismantling, and apparently salvaging some of the mechanical systems and other valuable materials from the buildings, and then collapsing the buildings into their foundations. (Figures 8-11). The debris was then excavated from the remaining basement and hauled away. Basement floors were supposed to be broken so water would not pond, but sub-ground foundation walls were allowed to remain (Moore 1994). After demolition was completed, the grounds were graded and leveled.

Subsequently, portions of the site underwent a variety of different uses. Much of the park remained grassy, undeveloped lots within a grid of vacant streets. Railroad tracks bounded the park's eastern edge and the north side of the park was converted into a parking lot (Figure 12). Throughout the 1950s, the site remained undeveloped while planning and design was undertaken. Nearly 300,000 m3 of fill dirt were deposited across the site over the course of the decade, as a way of demonstrating the continued commitment to building a park and providing a reminder that the site would not remain a parking lot (Brown 1984). Construction on the monument began in June 1959 with the relocation of the railroad tracks. The rail line was moved about 30 m west of the original right-of-way. The new right-of-way crossed an area where buildings, including the historic Manuel Lisa Warehouse (the Old Rock House), previously stood. In addition to being moved west, the railroad was buried in a series of cuts and tunnels that hid it from view yet allowed rail traffic to continue utilizing their existing bridges and infrastructure (Figure 13). Construction of the Arch and the underground Museum of Westward Expansion quickly followed (Figure 14). The Arch was completed in the fall of 1965, and the shell of the museum was finished shortly thereafter. It took nearly the next decade to complete the museum and its exhibits. By 1976 construction was largely completed, the site was landscaped, and it took on its modern appearance with the reflecting ponds and grand staircase being major focal points. The western edge of the park was greatly impacted by the excavation of a trench for I-44, which cut through the remnants of building foundations, during the mid-1960s (Figure 15). At the same time, Memorial Drive was built within the park boundaries, parallel to I-44. Along the south edge, the Poplar Street Bridge (completed in 1967) had a less intrusive impact, just skimming the park boundary with its bridge supports. Since 1980, two major constructions, the 70-mm Odyssey Theater (adjacent to the museum underneath the Arch) and the parking garage, have been added to the site.

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

JEFF has seen sparse archaeological work. Early on, starting in 1937, the Architectural Research Unit identified 80 sites that were of historical interest. After the completion of historical study, three sites, the Old Courthouse, the Old Cathedral, and the Manuel Lisa Warehouse, were deemed important enough to be preserved. Two of these, the Old Courthouse and the Old Cathedral, still stand today while NPS dismantled the Manuel Lisa Warehouse in the 1940s with the intent of reconstructing it on the park grounds at a later date. Remnants of that building are stored in the basement of the Old Courthouse. Before it was dismantled, rudimentary archaeological investigations did take place. These were reported by Henry Rice, the Chief Landscape Draftsman of the park, in a 1940 manuscript (Rice 1940). This early work, although not done to professional standards even of the day, gives valuable information about the park's landscape at a pre-NPS time. Rice's manuscript suggests that, especially close to the river, little to no intact sediments that date earlier than the early 1800s remain. Inside the building, beneath the basement, only a small accumulation of sediment was found. Outside the building, bare, eroded limestone surfaces were exposed beneath a very thin accumulation. Apparently, much of the bluff edge, especially close to the water, had been quarried for building materials.

In the late 1950s and early 1960s, Park Service Archaeologist Zorro Bradley led NPS efforts to identify and salvage historic resources before construction of the memorial and museum. Bradley was initially confident about encountering intact archaeological resources in multiple places, but after two years of intensive fieldwork—both as salvage excavations done during construction and pre-construction testing—he determined that there was little probability for encountering intact archaeological resources (Bradley 1976). In spite of the lack of archaeological provenience and a great degree of mixing, Bradley recognized that encountering remains in disturbed contexts posed a problem for NPS. In his 1960 letter report, he states

> Regardless of the "churned-up" nature of the historical remains of Old St. Louis, earthmoving activities in the construction zones do uncover and expose bits and pieces of important historic sites – particularly artifacts which, although out of their proper context in many instances, are worthy of preservation for they add to our knowledge of the past. As the major phases of construction continue there will be additional material brought to light that will probably require the attention of an archaeologist and just as important, by keeping vigilant the service can never be accused of letting important historical information go down the drain. (Bradley 1960:2)

Ultimately, Bradley's work provides important insight into the potential archaeological resources in the park. Bradley arrived during the relocation of the railroad tracks and investigated remains within the right-of-way. Within the railroad construction zone, he encountered remains that may be related to the Joseph Robidoux III property. He found foundations and other building fragments that he suggested were portions of a bakehouse or other outbuilding. Bradley also suggested that, "some excavation was possible around the footing of the 1841 Glasgow-Howard building"

(Bradley 1960:2), which was the oldest building demolished by NPS in the railroad cut area[6]. Bradley's 1960 memo indicates that reports were in preparation. These reports are not available in NPS archives, but a later memo notes that archaeological features were limited and artifact recovery was sparse (Bradley 1976).

In 1984, the construction of the parking garage on the northwest corner of the park was monitored by archaeologists from Southern Illinois University – Edwardsville (SIU-E). Excavation was extensive and covered much of blocks 12, 13, 28, and 29 and parts of Block 65. Initially, researchers believed this area had a high potential for *in situ* archaeological remains, but artifact recovery within the excavation was limited. Of the materials collected, only two ceramic sherds may possibly date as early as the mid-19th century, the rest were late 19th- or early 20th-century items. Architectural features were encountered in Block 28. These consisted of brick and limestone foundation elements. Archaeologists speculated that these could be related to the Pierre "Cadet" Chouteau house, which once stood in that location (Wells and Williams 1985:3). Final analysis suggested that they were the remains of the W. H. Bull medicine factory, which was built in 1867 and removed by NPS in the late 1930s (Wells and Williams 1985). In spite of the extensive excavation, no significant, intact archaeological remains were encountered.

Since the parking garage project, archaeology has been sporadic at JEFF. Occasional spot finds have been made during small construction projects. These materials, though collected, have come from disturbed contexts and are not considered significant. Noble (1999, 2007) monitored two construction projects. One, done in 1998, was a geotechnical coring project undertaken before the construction of the maintenance facility near the southern boundary of the park. In this project, Noble (1999) concluded that the area was covered by deep fill deposits (>3 m), and construction of the maintenance facility would not impact NRHP eligible resources. The later project involved monitoring a utility installation that crosscut the northwest lawn of the Old Courthouse. Trenching encountered an undocumented late 19th-century brick sewer that is not NRHP eligible. Noble (2007) described the feature and the project was completed.

The most recent archaeological work has been done in association with the CAR2015 project. Archaeologists from Louis Berger undertook a geoarchaeological coring project that explored LES Square and the area of the proposed west entrance (LeeDecker et al. 2012). They excavated soil cores from blocks 59-61 and Block 85. Their results indicate that deep fills cover these areas. Fills are likely a combination of imported materials and the remains of buildings that were collapsed into their basements. No NRHP eligible sites were found in their excavations, nor were any potentially archaeological-bearing sediments or horizons encountered (see below for a more in-depth discussion).

Within the broader downtown St. Louis district, archaeological sites are more numerous. Various surveys and excavations have investigated a number of archaeological

[6] Bradley's 1976 memo suggests they found artifacts (6-8 gunflints) from Dimik's gun shop. H. (Horace) E. Dimick and company are listed in the 1850s St. Louis directories at 38th N. Main Street. H.E. Dimick apparently was an outfitter who manufactured guns and imported fishing tackle among other things. This building was located approximately at the corner of Chestnut and First (or Main) Street, which is now occupied by the Museum of Westward Expansion.

sites. To the north of JEFF, the St. Louis Mound Group (23SL4) and the Big Mound (23SL3) were given site numbers, however testing by MoDOT as part of the new bridge project indicates the sites have been almost completely destroyed by historic urban development (http://www.modot.org/ehp/sites/BigMound.htm). While investigating the St. Louis Mound Group, MoDOT identified the remains of the Gestering Wagon Factor (23SL2310), the John C. Kupferte Brass Foundry (23SL2295) and another multi-use industrial area. They also encountered the remains of a brick clamp used by the Conrad Beck brick yard and a thick historic trash midden. MoDOT archaeologists work on I-64 ramps 7 and 8 also investigated middle 19th-century deposits at the Walsh's Row House Sites (23SL2234). The sites contained foundations, a latrine pit, a refuse pit, and a sewer line that may date as early as 1840 (LeeDecker et al. 2012).

Historic features, including foundations, a well, cisterns, and latrine pits dating from 1836 to at least 1950 were found at site 23SL976 in blocks 195 and 205 by archaeologists from the Archaeological Research Center of St. Louis (ARC) doing salvage work before the construction of the then-new Federal Courthouse (Naglich and Harl 1995). ARC archaeologists also investigated the Cochran Gardens Development northwest of JEFF. Subsequent salvage work at Cochran Gardens found both fill deposits and the remains of the building foundations (Harl 2006). ARC also removed human remains from seven coffin burials that were associated with the old Rutgers Graveyard at the corner of South Seventh and Park streets (Kohn 2011).

Finally, although not explicitly archaeological, numerous historical architecture surveys and viewshed analyses, associated with proposed development, have been done in the area.

ARCHAEOLOGICAL RESEARCH QUESTIONS

Determining whether or not a place is eligible for listing on the National Register of Historic Places requires that potentially eligible locations have the following attributes: "The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, 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

B. That are associated with the lives of significant persons in or past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded or may be likely to yield, information important in history or prehistory."

(http://www.nps.gov/nr/publications/bulletins/nrb15/nrb15_2.htm)

Most archaeological sites are nominated or considered eligible under Criterion D. Information in Criterion D is considered important when, "... it is shown to have a significant bearing on a research design that addresses such areas as: 1) current data gaps or alternative theories that challenge existing ones or 2) priority areas identified under a State or Federal agency management plan" (NPS Bulletin 15:21). One way to demonstrate the connection between important information and a location is by evaluating whether specific research questions can be answered by information contained in the property (NPS Bulletin 15:22).

In general, much information about the prehistoric archaeology of the St. Louis and confluence region, especially of the Mississippian period, exists but there is very little known about the prehistoric peoples of St. Louis, in particular. Therefore, research questions relating to the age and chronology of prehistoric people on the west bank of the Mississippi River is a major gap in our knowledge of JEFF.

Key research questions for prehistoric remains and/or sites include:

1. How old are the materials?
2. How long was the site occupied?
3. What kinds of activities occurred at the site?
4. What was the settlement/subsistence system?
5. What kinds of ceremonial or religious activities occurred?
6. What were the geographic and temporal extents of past trade networks and social relations?

These are basic questions that can be studied by examining past material culture and other archaeological remains. Since prehistoric materials from JEFF are currently non-existent, the discovered presence of any prehistoric materials should be considered significant and useful for addressing these questions.

The historic period at JEFF can broadly be divided into three periods: the Colonial period, the Early Historic and Westward Expansion period, and the Late Historic Industrial period. This framework is only a heuristic for efficiently discussing the archaeological potential of JEFF; many others are available and may be better suited to different purposes. The Colonial period begins with the founding of St. Louis city in 1764; it ends with signing of the Louisiana Purchase Treaty in 1803 and the establishment of an American presence in St. Louis. The Early Historic and Westward Expansion period lies between 1803 and 1890. This period is of great interest to the park since it is the timeframe commemorated in the Museum of Westward Expansion and the primary reason that JEFF was established. The final period, the Late Historic Industrial period, beginning in 1890 and ending with the founding of JEFF in 1935, encompasses the end of the riverfront as a manufacturing and residential district.

The Colonial period is only poorly known through historical documents. In spite of the sparse documentation, researchers believe St. Louis was populated by a diversity of people with important differences in both ethnicity and social status. Ultimately, a distinct creole identity arose in St. Louis. The process of creolization is of intense interest to archaeologists (e.g., Dawdy 2000), and the period has been investigated by historians (e.g., Cleary 2011). Research questions arising from the study of this period may include:

1. How did various people in St. Louis use material culture to maintain or produce new identities?
2. What kinds of goods did people have access to, and how did they use material culture, both from a functional perspective and a symbolic/ideological perspective?
3. What power dynamics operated in early St. Louis, and how did trade relationships vary from or resemble those in other colonial locations?

Research from the colonial period benefits from a historical record that is not available for the prehistoric period. Thus, the questions are finer grained yet the research design will require that historical contexts have better integrity than prehistoric ones. Important colonial period features may include house remains, privies, wells, or other sealed contexts.

The Early Historic and Westward Expansion period is identified in the park's enabling legislation as having primary importance. The documentary record for this period, while not complete, is more extensive and thorough than the Colonial period. Maps, city directories, land transactions and other legal papers, and newspapers exist that can be accessed for research purposes. The historical record, however, tends to privilege the lives and experiences of wealthy or well-known individuals. While historians (Hodes 2009; Primm 1981) have investigated important people and processes from this time, archaeology may provide additional information about the quotidian

aspects of common people living in early St. Louis. Archaeological deposits, since they are typically formed by the everyday accumulation of day-to-day materials, can be useful for understanding the lives of underdocumented people who only tangentially appear in the historical record. These people may have included workers in the fur trade, store clerks who worked for outfitters, craftspeople who labored in the thriving riverfront, or laborers who transferred goods to and from steamboats that docked along the levee. Questions relating to class, identity, and race would be appropriately investigated through archaeological research. To answer these questions, archaeological resources should be as specific as possible. For example to discuss questions of identity, deposits should be traceable to either specific individuals or narrow time windows.

The documentary record is most plentiful for the Late Historic Industrial period, and it has been the subject of continuous publication in numerous popular and local histories. The documentary record is abundant and readily accessible. Research questions for this time are similar to those of the Early Historic period. Since there is a high potential for architectural remains from this period, archaeological investigations may be useful for aiding in historical architecture studies. However, many extant building in St. Louis were built by the same architects using the same methods as those that may remain on the grounds of JEFF. Therefore, archaeological research done for historical architecture purposes should be narrowly addressed to specific research questions that cannot be answered by studies of more intact remains in the region.

PROJECT LOCATIONS

Areas 3-7

Areas 3-7 encompass much of the park grounds. These designations are part of the CAR2015 design nomenclature and effectively represent most of the park east of I-70 (Figure 15). Areas 3-7 are bounded by Memorial Drive on the west, Washington Avenue on the north, Poplar Street on the south, and Lenore K. Sullivan Boulevard on the east. Generalized landscaping is proposed in this area. These activities include removing the grass/sod and upper layers of soil, scarifying the newly exposed surface, removing debris from this surface, and adding new sediments. As part of the landscape program, removing and replacing existing plantings is proposed. Around the perimeter, security bollards may be removed or replaced. Removal and replacement of stationary bollards entail shallow (<1 m) ground disturbance while the removal and replacement of moveable bollards may require deeper (>2 m) disturbance. Deeper ground disturbing activities (>3 m) may come about as part of the construction of the West Entrance (Area 3) and the removal of the parking garage (Area 4).

Luther Ely Smith Square

Luther Ely Smith Square lies between the Arch and the Old Courthouse; it is bounded by Chestnut and Market streets on the north and south, respectively. Much of the activity in LES Square will involve filling or raising the landscape. Such activities would have no potential adverse effects, but a component of the project, the installation of storm-water drainage infrastructure, may require ground-disturbing activities. As with Areas 3-7, most of the drainage infrastructure excavation would be shallow; however, the infrastructure improvements also include the addition of a large underground storage tank that would require deeper ground disturbance. LES Square will be connected to the park via a large bridge or lid that will extend to the west and cap I-44. As part of the Bridge over the Highway Project, parts of Third Street and Memorial Drive will be abandoned and returned to park use. Building the bridge and abandoning the roadway may entail substantial surface disturbance and potentially impact archaeological resources (Daniels, et al. 2012). These activities will affect portions of Lot 85 and lots 59-63.

Old Courthouse

The Old Courthouse is located on the western boundary of the park, immediately west of LES Square. Proposed ground-disturbing activities at the Old Courthouse include installing a new natural gas line on the south side of the building, installing ADA compliant ramps, and the excavation of elevator pits in the North or South cross hallways inside the building.

ARCHAEOLOGICAL POTENTIAL

Areas 3-7

Although complete archaeological survey of JEFF has not been undertaken, enough information exists to make judgments about potential disturbances to archaeological sites that may qualify for listing on the National Register of Historic Places. Overall, there is a very low probability for encountering buried archaeological sites in Areas 3-7, but the likelihood of encountering NRHP eligible sites may increase with deeper disturbances. Archaeological and historical research demonstrates the pre-construction surface of the park has either been removed or deeply buried by past park construction activities. Multiple lines of evidence converge to make this a robust conclusion.

A comparison of topographic changes on the park grounds shows substantial changes have occurred since the park's creation (Figure 16). Comparing topographic maps made in 1948 after much of the urban infrastructure was removed from the park grounds with a modern topographic map demonstrates that in many places tens of meters of fill have been added, while in other places deep excavations have removed large quantities of sediment. Profiles from west to east across the length of the park show that the depth of fills becomes greater from the west to the east (Figure 17). Similarly, depth to the historic elevation is greater in the south than in the north. The eastern edge of the park grounds was dramatically impacted by the removal of the elevated railroad tracks and their eventual relocation and burial in a pair of tunnels to the west. Construction in this area extended the bluff edge 50 to 100 m to the east. Importantly, these data suggest that shallow excavation or earth moving will have negligible effects on the topography that existed in 1948, as well as any potential earlier historic deposits.

Historical photographs show the impact of both the removal of existing buildings during the 1930s and 1940s as well as construction during the 1960s and 1970s. It is important to note that the overwhelming majority of 19th-and 20th-century St. Louis waterfront was completely built out. Buildings covered entire blocks leaving no places for archaeological deposits to accumulate (Sanborn 1907). These buildings also had basements that often were excavated 2-3 m below grade. Some buildings, like those spanning the block between First and Second Street had double basements where, to reach the lowest level of a building on Second Street, one would need to descend two floors since the lowest level was governed by the elevation of First Street (Figure 18). All told, the photographic and map data demonstrate that surficial deposits that may have survived the demolition process would have been removed or buried by the construction in the 1960s.

Further examination of the historical photographs demonstrates the impact of park construction activities on the historic landscape. Figure 19 shows a progression of photographs of the south entrance of the Old Cathedral. The Old Cathedral was constructed in 1834, and it can be assumed that the historic elevation of the building represents the elevation of the historic ground surface. The first photograph shows the west entrance in 1934. At least eight stairs were visible leading from the sidewalk to the

main entrance of the Cathedral at that time. By 1964, the topography of the Cathedral grounds and the surrounding landscape had been filled, leaving only two stairs exposed, as can be seen in the modern image on the right. In this instance, at least one meter of fill was brought in and deposited around the Cathedral and across the park grounds in this area.

Finally, field investigation and documentary data suggest that, should any shallow archaeological deposits have survived the demolition and construction process, the final landscaping of the park would have removed any deposits with historical integrity. LeeDecker and colleagues' (2012) West Entrance coring demonstrates that thick deposits consisting primarily of pulverized brick rubble and clay cover these locations. Similar results were found in the area of the north pond during geological coring monitored by Schilling (2013). Noble (1999) encountered like deposits near the southern end of the park. All told, these results suggest that similar rubble-laden fills are a widespread phenomenon. In the area where the present maintenance facility sits, deep (> 2m.), unweathered, brick-filled deposits were found

Descriptions of the landscaping process help explain why such fill is so widespread, especially in areas where cutting took place rather than filling. The JEFF Cultural Landscape Report (Bellavia 1996) indicates that in addition to filling, contractors were required to provide a clean surface for planting and sod application. In doing so, the report suggests that sediments were excavated from across the ground surface, graded (presumably to remove large debris), and then redeposited. The grading and subsequent landscaping sculpted the grounds, sometimes cutting very deeply as in the instances of the north and south reflecting ponds, which are nearly 6 m below the 1948 land surface.

Luther Ely Smith Square

Recent geoarchaeological coring and historical research demonstrates a very low potential for intact archaeological resources in LES Square. Prior to the park's tenure, Block 85, the location of LES Square, was entirely built out. In 1907, an alley ran north to south at mid-block and a service drive ran from east to west across the northwest quarter of the block (Figure 20). Historical photographs (Figure 21) taken in the around 1940 show the extent of excavation done by NPS in Block 85. Apparently, sediments from the entire block were removed during demolition.

Geoarchaeological testing by LeeDecker et al. (2012) confirms that much of the surface sediments in Block 85 are of recent origin and consist of redeposited construction rubble fill. The construction process would have obviated any intact archaeological materials. In one location, however, an undisturbed soil profile may exist. Core 5, located in the footprint of the service drive, revealed a shallow, potential argillic horizon within the sediment column. Argillic horizons form deeply (ca. >1 m) below the surface in this region and are a product of long-term *in situ* weathering. Because of the shallow depth to the argillic horizon, they suggest the surface horizons—which would have included archaeological materials—have been removed, perhaps as part of the demolition process. In this area, deeper archaeological deposits are not expected based on the degree of soil weathering. Overall, based on soil coring, shallow (< 1m.)

archaeological deposits are unlikely to exist in LES Square, as are more deeply buried deposits. Within the Bridge over the Highway, Third Street, and Memorial Drive APEs, there is a similar low potential for *in situ*, shallow archaeological resources. Historical maps show that these areas were nearly completely built out by 1900 with large brick buildings built over deep basements occupying the blocks.

Old Courthouse

The Old Courthouse and adjacent grounds are the most historically intact portions of the park. Since the final completion of the building in 1860, the grounds have remained largely free of deep ground disturbance. A progression of historical images shows the relative stability of both the area and surface level of the Old Courthouse block (Block 59). Monitoring by Noble (2007) suggests that there are numerous, undocumented, historic utility trenches running across the Courthouse grounds. The excavations of these may have negatively impacted archaeological resources in the area, but the locations and archaeological contexts of the trenches are unknown.

Important for this discussion is that there are locations beneath the courthouse building that may have been preserved since at least 1860 when the building was completed. It is not known if the foundation of the courthouse was completely excavated and then filled, but the courthouse does not have a basement that is isomorphic with the First Floor. Some elements of the First Floor appear to have preserved the land surface as it would have existed in the middle 19th century.

Finally, although the Old Courthouse was designed as a single large building, it incorporated elements of the earlier courthouse. Construction took place over 14 years, during which time numerous other temporary buildings were erected and demolished on the site (HSR, in press). Intact elements of the original courthouse may lie entombed within elements of the Old Courthouse. Even though investigations of the building's structure are not strictly archaeological, any construction within the Old Courthouse needs to be carefully evaluated for its potential impact on possible earlier remnants of the original building. A ground-penetrating radar study by De Vore (2013) suggests that portions of the early north and south facades are preserved beneath the north and south transepts. Any work in these locations should be carefully planned to avoid these intact portions of the building, or the impacts of construction work that cannot be relocated should be mitigated.

SUMMARY AND RECOMMENDATIONS

The history of landscape change at JEFF is complex and often misunderstood. Because of the magnitude of past development and earth-moving activities, complete survey using traditional archaeological methods is not possible. This study has developed a model of landscape change using historical, archaeological, and geoarchaeological sources that is useful for making recommendations about the archaeological potential of JEFF, generally, and about the potential impacts of the CAR2015 project, specifically.

Overall, there is little potential for shallow archaeological deposits, and preconstruction testing using shallow techniques like geophysical prospection or hand excavation is unwarranted—except in special circumstances. Projects that would require deep excavation should be evaluated on an individual basis as to their impacts, and the recommended archaeological treatment is to monitor the excavations.

Individual aspects of the CAR2015 project will have differential effects on the park grounds. Major landscaping to improve the lawns would require the removal or reworking of the upper meter of soil across much of the park. This aspect of the project should be considered as having very little to no potential to impact archaeological resources. Similarly, archaeological materials are not expected in Areas 3-7, but deep excavations (> 1m) in these locations (including excavations for the West Entrance and the removal of the parking garage) should be monitored. Missouri Department of Transportation (MoDOT) and the Federal Highway Administration have a right-of-way within the park where roads encroach on park lands. Their right-of-way falls within Areas 3-7. MoDOT is the lead for cultural resources investigations with these projects. MoDOT recommends monitoring if Memorial Drive is removed and utilities are moved or removed. MWAC concurs and advises monitoring in this location also. Washington Avenue may also be removed, and this work should be monitored since the road is likely in its historic position.

Work within LES Square is unlikely to encounter any *in situ* archaeological sites or materials, but the Old Courthouse grounds are more sensitive. When feasible, areas in and around the Old Courthouse should be tested before construction, otherwise ground-disturbing activities should be monitored for archaeological resources.

FIGURES

Figure 1. Jefferson National Expansion Memorial and the St. Louis riverfront.

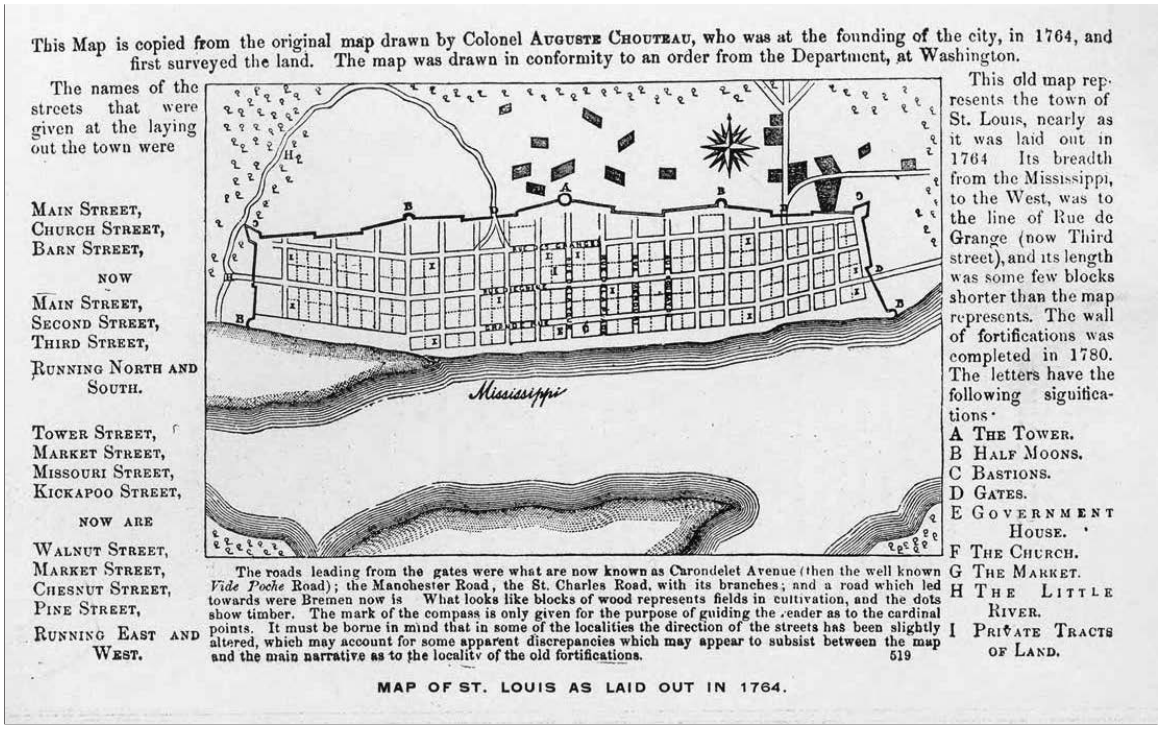

Figure 2. Map of St. Louis as laid out in 1764 (after Shewey 1892).

Figure 3. Corner of Main and Spruce, ca. 1850. Courtesy of Missouri History Museum, St. Louis, MO. Thomas Easterly Collection.

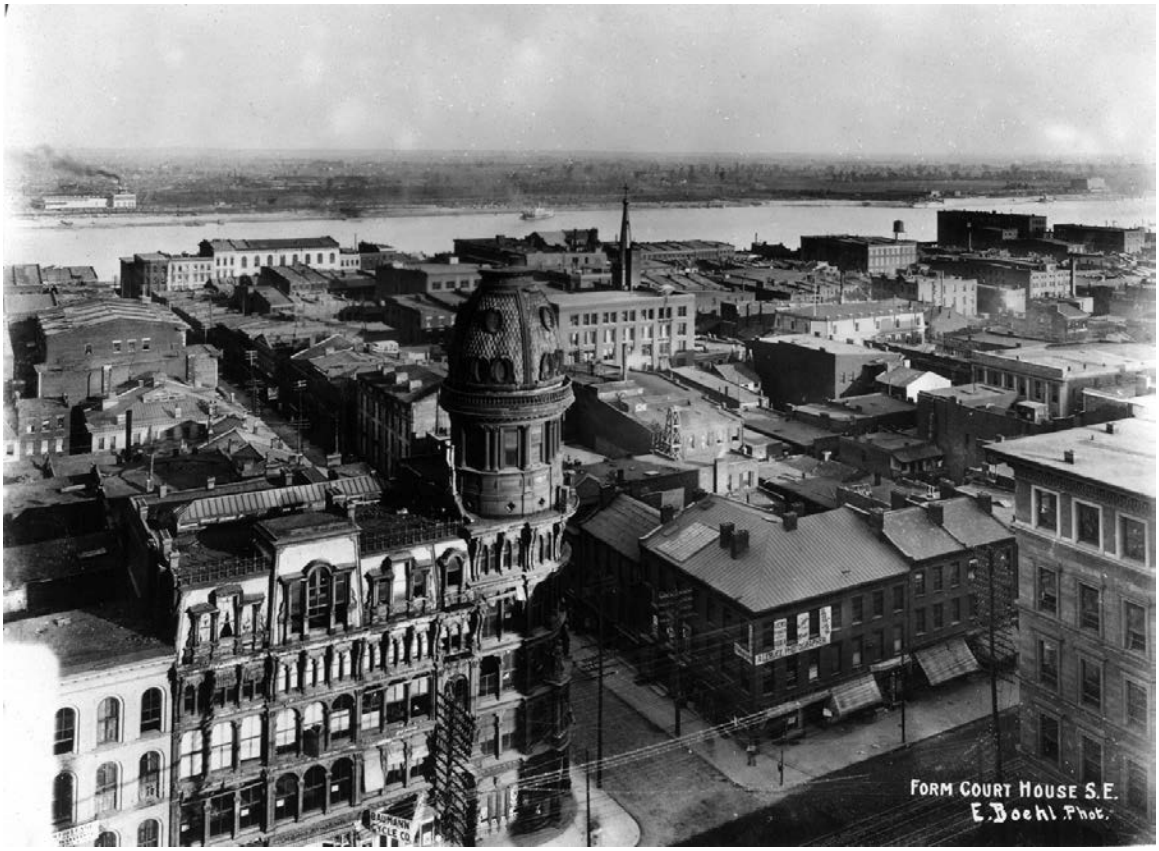

Figure 4. Looking southeast from the Old Courthouse, ca. 1890 (Missouri History Museum Collections).

Figure 5. Backlot ca. 1940 (HABS/HAER survey, LOC)

Figure 6. Third and Washington, facing east at the entrance to the Eads Bridge in 1915. The northwest corner of JEFF is on the right. Note the trolley tracks and abundance of automobiles at this early date.

Figure 7. Aerial photo of the St. Louis riverfront, ca. 1930-1935. Vacant lots that once were built out can be seen at the foot of Chestnut Street (center right).

Figure 8. A building under demolition ca. 1940 (HABS/HAER survey, LOC).

Figure 9. The deserted downtown district (HABS/HAER, LOC).

Figure 10. Site demolition. The photo was taken from near the corner of Market and Third Street. The new West Entrance will be built on this site. The Old Courthouse is in the background.

Figure 11. Site demolition, notice salvaged building materials stockpiled along the riverfront. View is to the West.

Figure 12. JEFF during the early 1950s. Taken from the Eads Bridge facing south (Courtesy of the St. Louis Landmarks Association).

Figure 13. Relocation of the railroad. ca. 1960 (UMSL library).

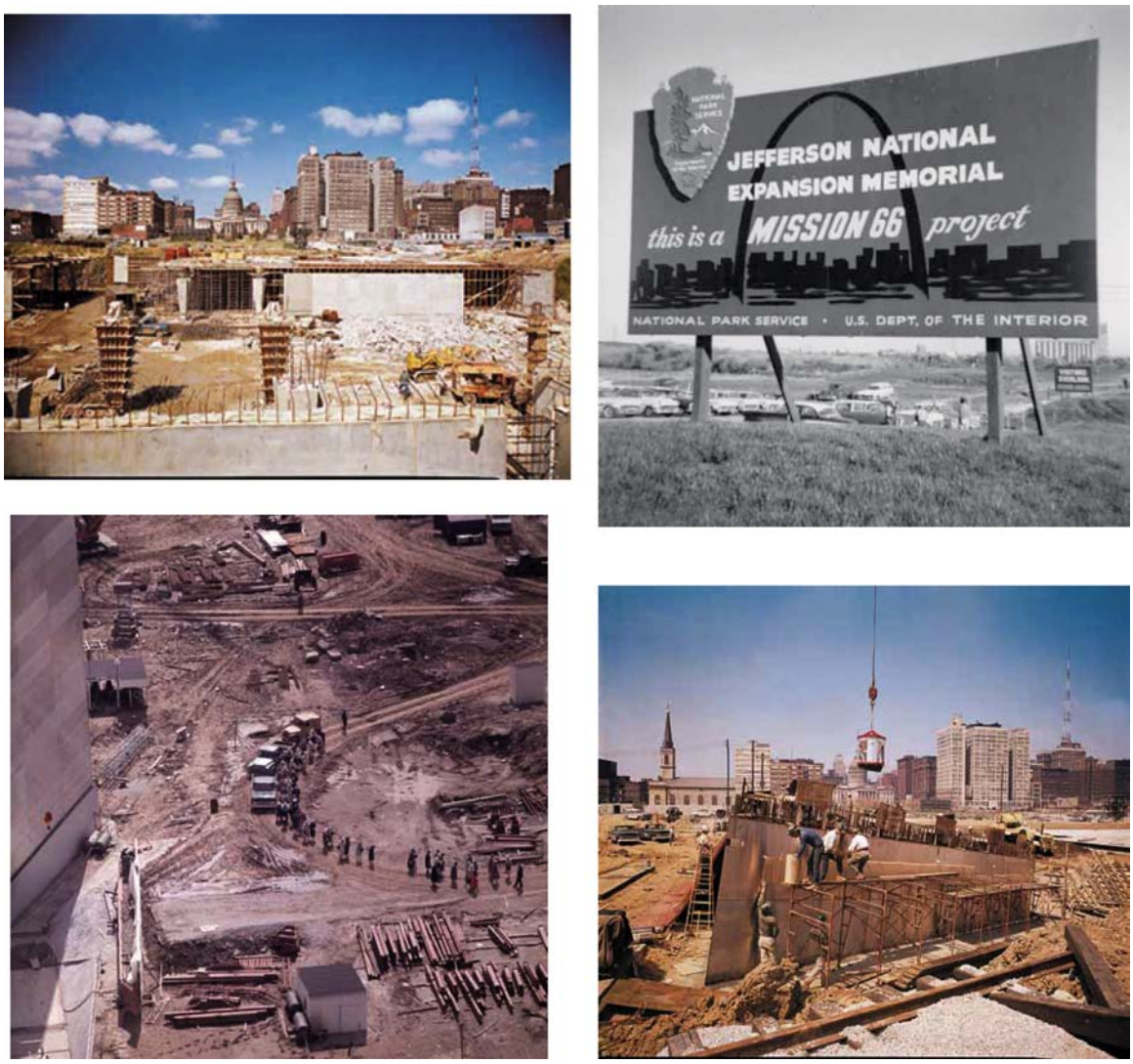

Figure 14. Photographs taken during the construction of the Arch. The scale of the excavation for the monument foundations and the underground museum removed fill down to bedrock across the central portion of the park.

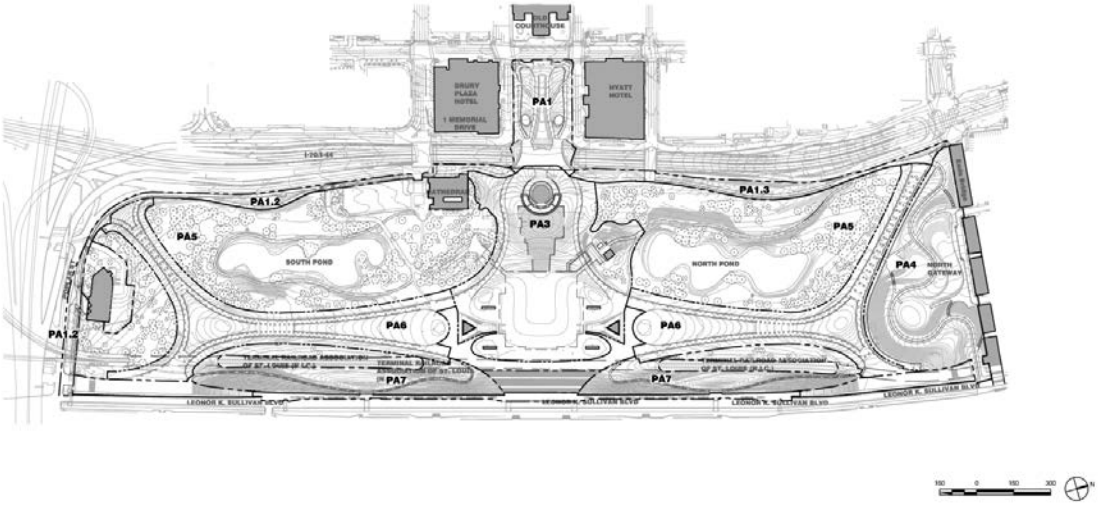

Figure 15. CAR2015 project areas.

Figure 16. I-70/44 trench, the Old Cathedral is visible to the right (ca. 1964).

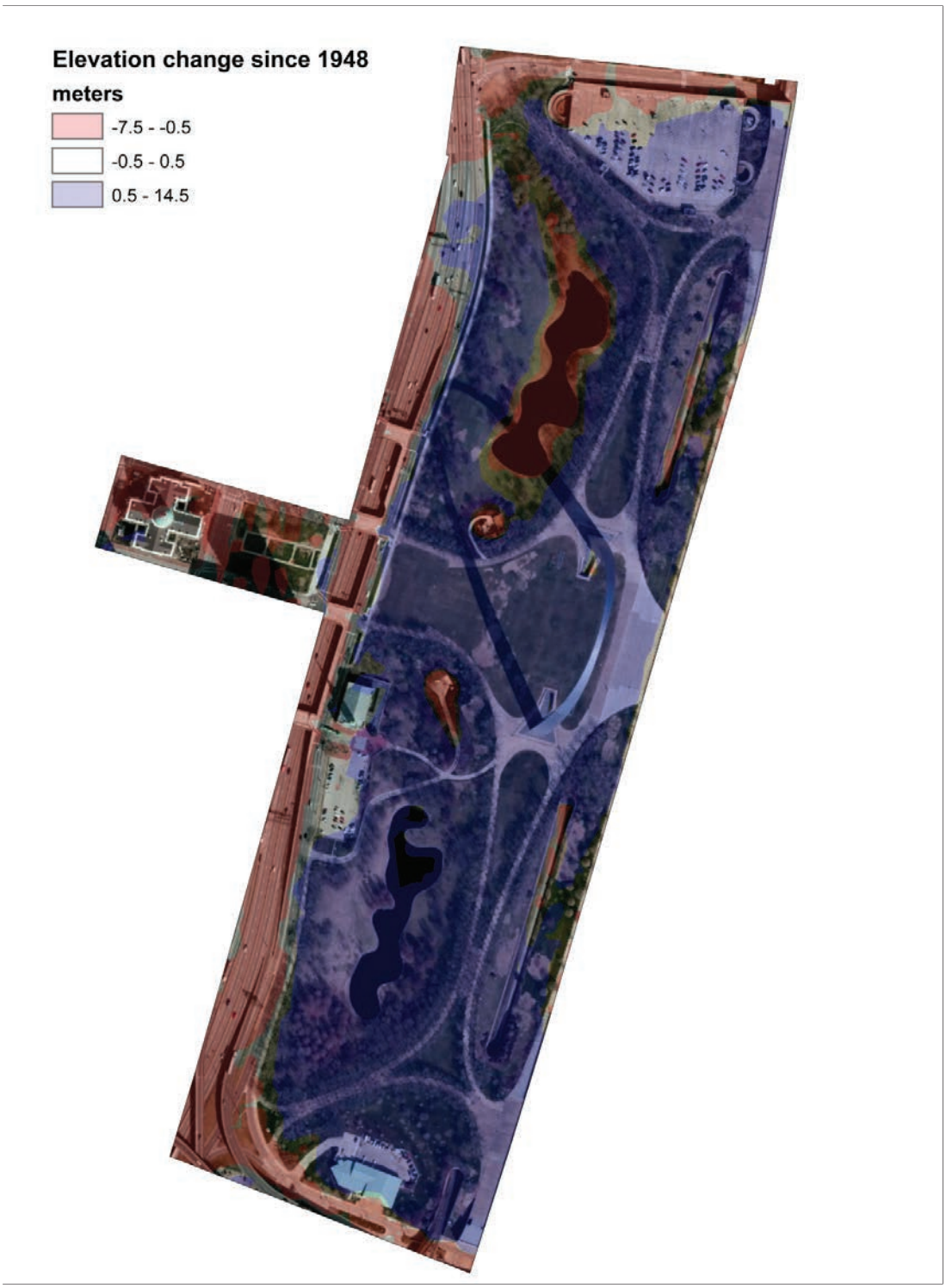

Figure 17. Elevation change 1948-2012.

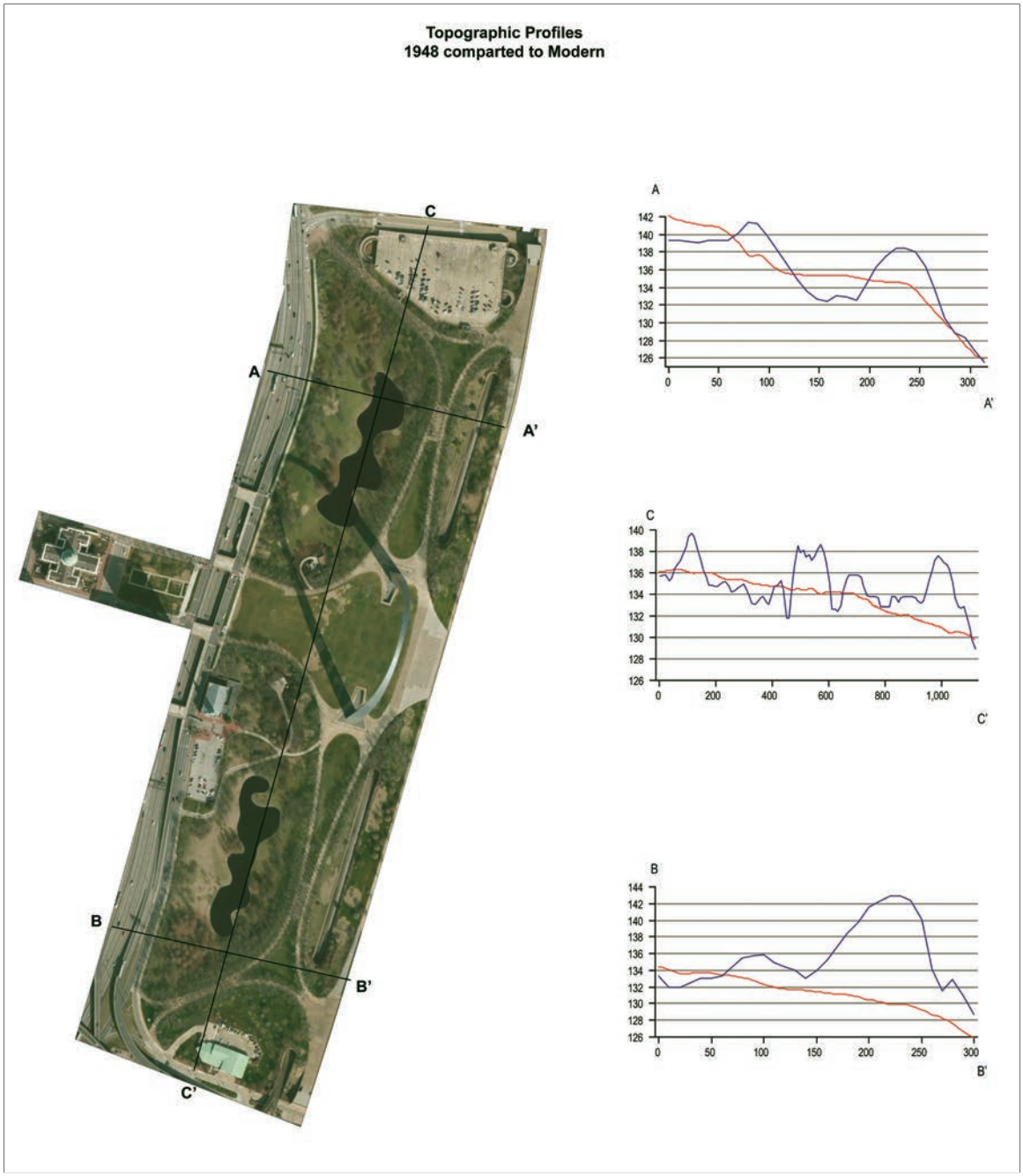

Figure 18. Selected profiles comparing 1948 surface to modern surface.

Figure 19. The riverfront ca. 1940, taken from the Eads Bridge facing south (St. Louis Landmarks Association).

Figure 20. The south entrance of the Old Cathedral (left-1939 and right-2000).

Figure 21. LES square ca. 1907.

Figure 22. LES Square, 1940. Note the absence of demolition debris.

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