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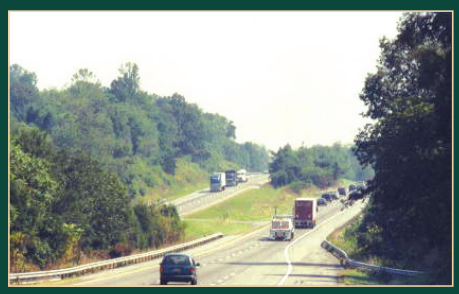
I-81 CORRIDOR IMPROVEMENT STUDY

Historic Properties Technical Report

Tier 1 Environmental Impact Statement



This technical report was prepared to support the Tier 1 Draft EIS and contains some verbiage regarding the NEPA process that was applicable at that time. This errata sheet only addresses the technical corrections to the report as a result of the public and agency review process. Please see the Tier 1 Final EIS for the proposed Tier 1 NEPA decisions and the rationale for those decisions.

Technical corrections to the *I-81 Corridor Improvement Study Historic Properties Technical Report* include:

1. p. 2-8, paragraph four, sentence should be revised to, "Based on these criteria, the results of this analysis are presented in Chapter 3, Section 3.1.5, *Archaeological Resources*."
2. p. 3-15, paragraph three, the following sentences should be added, "The SVBNHD and Commission Act of 1996 established a Federal commission appointed by the Secretary of the Interior." and "The plan is endorsed by the Commonwealth of Virginia and most of the municipal governments in the SVBNHD."
3. p. 3-26, top of page should be revised to, "3.2 Rail Study Area".
4. p. 4-4, Table 4-3 should be revised to include the Appalachian National Scenic Trail (S5-1). The Minimum and Maximum Width footprints would impact approximately 3.2 and 5.7 acres, respectively. With this addition, total impacts to potentially eligible buildings and structures for the Minimum and Maximum Width footprints would be approximately 7.5 and 12.5 acres, respectively.
5. p. 4-5, Table 4-4 should be revised to indicate that the following battlefields are Section 6(f) properties: Cedar Creek, Fisher's Hill, Kernstown 1 and 2, New Market, Opequon, and Tom's Brook.

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1 Introduction

The Federal Highway Administration (FHWA) and the Virginia Department of Transportation (VDOT) have prepared a Tier 1 Draft Environmental Impact Statement (DEIS) for the *I-81 Corridor Improvement Study*. The Tier 1 Draft EIS, prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), identifies needs, develops solutions, and evaluates potential impacts associated with conceptual-level improvements along the entire 325-mile I-81 corridor in Virginia, as well as improvements to Norfolk Southern's Shenandoah and Piedmont rail lines in Virginia. The potential impacts of specific improvements would be analyzed in greater detail during Tier 2 if a "Build" concept (or portion of a "Build" concept) is advanced.

This *Historic Properties Technical Report* provides detailed information on the inventory and analysis of historic properties conducted for the *I-81 Corridor Improvement Study*. Information in this report is summarized in the Tier 1 Draft EIS.

1.1 Study Area

I-81 in Virginia runs for 325 miles in a southwest to northeast direction from western Virginia at the Tennessee border north to the West Virginia border. The highway passes through 21 cities and towns, and 13 counties. Improvements to the entire 325-mile length of I-81 in Virginia were evaluated based on the Purpose and Need. To characterize the affected environment along I-81, resources were identified within a defined study area as described below.

For purposes of inventorying historic properties, the width of the study area varied. Like most other resources, archaeological sites and architectural properties were inventoried within 500 feet on either side of the I-81 edge of pavement. This width was used because, based on the Purpose and Need for the project, it is believed to represent the limits of where potential highway improvements are most likely to occur. In order to address potential visual impacts, the study area for architectural resources was extended beyond those limits. Because they were assumed to be visible from I-81, historic architectural properties were also

inventoried out to 1,000 feet on either side of the I-81 edge of pavement. In addition, historic architectural properties that may be within view even beyond the ±2,000-foot corridor were also identified.

Proposed improvements to Norfolk Southern's Shenandoah and Piedmont rail lines were also evaluated. The Shenandoah rail line and the I-81 study area are geographically close to each other. The Piedmont rail line, however, is geographically distant from these two facilities. Therefore, a separate rail study area also was created. Because rail improvements are only under consideration in certain sections, the rail study area consists of 13 discrete sections along existing Norfolk Southern's Piedmont and Shenandoah rail lines in Virginia. The length of the rail improvement sections range from less than ½ mile to 10 miles long, but most of the sections are between 1 and 2 miles long. For each rail section, historic properties were inventoried within 500 feet on either side of the rail centerline. As with I-81, the rail study area was extended outward to 1,000 feet on either side of the rail centerline for architectural properties.

Figure 1-1 shows the I-81 and rail study areas. All "Build" improvement concepts evaluated for this study were subsequently developed within the limits of the study areas as described.

1.2 Impact Footprints

The No-Build Concept and 211 combinations of Transportation System Management (TSM), highway improvements, rail improvements, and various toll scenarios were considered. Of these, 20 are "rail only" concepts meaning that 191 "Build" concepts include improvements along I-81.

Consistent with a tiered approach, potential impacts in the I-81 corridor are presented in terms of potential impacts from the narrowest highway footprint and the widest highway footprint. Referred to as Minimum Width and the Maximum Width, these footprints represent concepts that were based on transportation needs identified in the Tier 1 Draft EIS, *Purpose and Need*. The footprints both add a total of two lanes where needed (one lane in each direction), and add a total of four or more lanes where needed (two or more lanes in each direction). Where at least four lanes are needed, the Minimum Width footprint provides a total of four additional lanes (two lanes in each direction), and the Maximum Width footprint provides a total of eight additional lanes (four in each direction). Both impact footprints have a variable number of additional lanes for the length of I-81 (ranging from two additional lanes to eight additional lanes) depending on the transportation needs along the corridor.

When evaluating the number of lanes needed for sections of I-81, a "no toll" and "no rail" base condition was assumed for the Minimum Width and Maximum Width footprints. This base condition assumption represents the highest traffic volumes and therefore the greatest number of lanes that may be needed on I-81. Variations in tolling and other operations could

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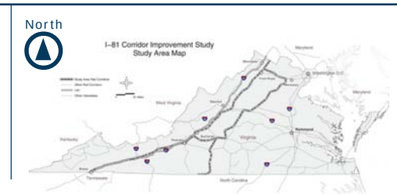

I-81 and Rail Study Areas

Figure 1-1

I-81 CORRIDOR IMPROVEMENT STUDY

increase or decrease the number of lanes required and this in turn could affect potential impacts. However, based on preliminary impact analyses that were run for a variety of "Build" concepts, the difference in impacts was generally found to be negligible along the 325-mile corridor. If a "Build" concept (or portion of a "Build" concept) is advanced, the footprint of any of the improvements is generally anticipated to fall between the limits of the Minimum Width and Maximum Width footprints.

The width of the variable Minimum Width footprint ranges from roughly 240 feet (where a total of two lanes are added) to 430 feet (where a total of four lanes are added) depending on the location. In comparison, the variable Maximum Width footprint ranges from 240 feet (where a total of two lanes are added) to 540 feet (where a total of eight lanes are added). These widths include existing pavement and new pavement. For the Minimum Width footprint, widening occurs in the median of I-81 to the extent possible. Conversely, the Maximum Width footprint widens to the outside right edge of I-81.

Potential impacts were also calculated for the Add 2-Lanes concept and Add 8-Lanes concept for illustrative purposes. Unlike the Minimum Width and Maximum Width footprints that both add either two or more lanes in each direction along the length of I-81, the Add 2-Lane concept consistently adds a total of two lanes the entire length of I-81 and the Add 8-Lanes concept consistently adds a total of eight additional lanes.

In addition, a footprint was developed to assess potential impacts associated with Rail Concept 3. Rail Concept 3 was chosen as the most appropriate rail concept to combine with roadway concepts because it provides the most diversion of freight from truck to rail per dollar of investment. The footprint, generally 100 feet wide, represents the limits of potential rail construction for the 13 rail improvement sections that comprise Rail Concept 3. The potential impacts associated with Rail Concept 3 can be added to I-81 "Build" concepts to consider the total potential impacts of highway plus rail improvements.

1.3 Regulatory Framework

Historic properties are afforded a level of protection at the federal level by the National Historic Preservation Act of 1966, as amended and Section 4(f) of the Department of Transportation Act of 1966. In Virginia, the Virginia Department of Historic Resources is the office of the State Historic Preservation Officer (SHPO) for the purposes of National Historic Preservation Act of 1966 and related regulations.

For this study, historic properties were defined as properties listed on or formally determined eligible for listing on the Virginia Landmarks Register or the National Register of Historic Places (NRHP) by the Virginia Department of Historic Resources (VDHR), or properties that may be potentially eligible for listing. The purpose of the Tier 1 historic properties analysis was to map known historic properties throughout the study areas and

estimate potential direct impacts based on conceptual-level improvements. More detailed investigations would be conducted during Tier 2 studies, if one or more "Build" concepts (or portions of a "Build" concept) are advanced. Full compliance with the applicable regulations described below would occur as necessary during the Tier 2 process.

An eligible property is any district, site, building, structure or object that meets the National Register's Criteria for Evaluation. Based on these criteria, properties are eligible if they possess integrity of location, design, setting, materials, workmanship, feeling and association, and a) **are associated with events** that have made a significant contribution to the broad patterns of our history; or b) **are associated with the lives of persons** significant in our past; or c) **embody 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) **have yielded, or may be likely to yield, information** important in prehistory or history. In addition, to be eligible, a property must be 50 years of older unless it is of exceptional importance.

Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (36 CFR 800), requires that federal agencies consider the effects of their actions on historic properties listed in or eligible for the NRHP. The regulations governing Section 110 of the National Historic Preservation Act (36 CFR Part 800.10[c]) require that the Secretary of the Interior be notified of any consultation involving a National Historic Landmark (NHL). The level of resource identification and impact analysis undertaken for this Tier 1 study does not fully satisfy the requirements of Section 106. Rather, if one or more "Build" concepts (or portions of a "Build" concept) are advanced, compliance with Section 106 would occur during Tier 2 including additional investigations and analyses to 1) identify historic properties, 2) determine the effects on those historic properties, and 3) develop appropriate mitigation measures for unavoidable impacts to historic properties.

All historic properties are also subject to the regulatory requirements set forth pursuant to Section 4(f) of the Department of Transportation Act of 1966. This law stipulates that land cannot be used from Section 4(f) properties unless 1) there is no prudent and feasible alternative to using that land, and 2) that all possible planning to minimize harm from use of these resources have been included during project development. Once again, this Tier 1 study does not fully satisfy the regulatory requirements of Section 4(f). However, if one or more "Build" concepts (or portions of a "Build" concept) are advanced, additional efforts to evaluate avoidance and minimization of impacts to 4(f) properties, including historic properties, would be completed during Tier 2 to address Section 4(f) requirements.

2 Methods

This chapter describes the methods used to inventory historic properties within the I-81 and rail study areas, then to estimate potential impacts to historic properties as a result of the No-Build and "Build" improvement concepts. The methods used are at a level of detail appropriate for the Tier 1 analysis. The potential effects of specific improvements would be analyzed in greater detail during subsequent Tier 2 NEPA document investigations, if a "Build" concept (or portion of a "Build" concept) is advanced.

2.1 Introduction

The inventory of historic properties consisted of a review of the previously recorded historic properties within the I-81 and rail study areas, and a preliminary field survey of the study areas to assess the potential for previously undocumented resources to be present. A review of the county-wide architectural surveys and Virginia Department of Historic Resources (VDHR) cost share studies was conducted to assess the completeness of the survey coverage. A review of the previously recorded archaeological sites was also conducted to assess the potential for the presence of human remains. Potential impacts were calculated by overlaying the GIS inventory of historic properties over the footprints for the improvement concepts as previously described.

As previously noted, the level of resource identification and analysis undertaken for this Tier 1 study does not fully satisfy the requirements of Section 106 of the National Historic Preservation Act of 1966, as amended. If a "Build" concept is advanced, compliance with Section 106 would occur during Tier 2, including additional investigations to:

- identify additional properties that may be potentially eligible, including archaeological sites;
- determine the eligibility of potentially eligible resources through additional field reconnaissance, research, and coordination with the VDHR; and
- determine the effects on historic properties.

For archaeological resources, these investigations would include subsurface investigations conducted in areas that potentially contain archaeological resources. If any of these resources appear potentially eligible for the NRHP, they would be evaluated to determine if they meet the criteria for eligibility for the NRHP.

2.2 File Review

Identification of known archaeological and architectural properties within the I-81 and rail study areas initially involved background research, including review of archival, cartographic, and other primary sources. In addition, information on architectural resources adjacent to the study area boundaries was obtained to insure that resources possibly visible from I-81 and the rail line were considered. Previously recorded historic resources that are listed or that VDHR has determined eligible for listing were identified from that agency's files. The resources were defined from VDHR's digital maps and verified on the master maps at VDHR. The information on the Data Sharing System (DSS) forms was obtained online and the complete files for those resources that were listed or eligible were physically examined at VDHR to define the boundaries of the resources. Boundary information was generally only available for those resources that had been listed on the NRHP.

2.3 Preliminary Field Survey

For I-81, a preliminary field survey was conducted to inventory architectural resources, including those that had been previously recorded and those that had not been recorded but appear to be potentially eligible for the NRHP. The preliminary field survey was designed to provide general information on the potential for unrecorded or unevaluated resources to be present in the study area. It was not conducted to the level needed to provide definitive information on the resource's potential for eligibility.

The preliminary field survey began by traveling south on I-81 from the West Virginia state line to the Tennessee state line. The survey was conducted in the following manner: the surveyor traveled southbound from exit to exit, then returned northbound to the previous exit, returning south to the initial exit by traveling U.S. Route 11. U.S. Route 11 is the original Valley Turnpike or Great Wagon Road, and it parallels I-81 for most its length. Using topographic maps marked with all the previously recorded resources, the following steps were taken:

- Listed and determined eligible resources along I-81 were viewed to assess their current condition;
- Potentially eligible resources were viewed to preliminarily assess their potential for eligibility;

- Resources that, from the DSS forms, were suspected to have some potential for eligibility were viewed; and
- Any unrecorded structures that appeared on the topographic map to warrant further inquiry (primarily collections of buildings on a rural drive or path) were located and viewed to determine if they had some potential for eligibility. These resources are listed in the appendices with the designation "CCR-#".

This last effort required driving on a number of roads within the I-81 and rail study areas to view resources. Since most rail improvement sections are in rural areas, sometimes it was necessary to enter driveways to see the resources.

2.4 Identifying Sites with Human Remains and the Potential to Contain Human Remains

Existing data on archaeological sites were examined to determine whether resources located within 500 feet on each side of the I-81 edge of pavement contain human remains or have produced human remains in the past. The purpose of this exercise was to identify sites that might possess value in a community for reasons other than their historic significance. This work included a thorough review of archaeological site files housed at the VDHR archives. In addition to the site files, which sometimes contained limited information, past issues of the *ASV Quarterly Bulletin*, the journal of the Archaeological Society of Virginia, were reviewed for information on sites reported by avocational archaeologists. Research was also conducted to determine whether federally recognized Indian tribes attach religious and cultural significance to historic properties in Virginia. Based upon this research, none exist.

The following sections describe the methods used to inventory sites with the potential to contain human remains.

2.4.1 Prehistoric Native American Burial Sites

In order to provide information on the potential for an archaeological site to contain burials, a set of predictive criteria was developed to help evaluate which sites have the potential to contain human remains. The list of criteria utilized all archaeological evidence of prehistoric and historic Native American burial patterning. It also incorporated data on prehistoric mortuary patterning collected from across the state.

Existing archaeological site data were examined to determine which resources within the study area have produced human remains in the past. This included a thorough review of archaeological site files and project reports housed at the VDHR archives, as well as relevant archaeological studies. ArcGIS was utilized to determine which archaeological sites are within 500 feet of the I-81 edge of pavement. Additionally, since most sites were mapped as

points, the site maps in the DSS files of sites near the boundary of the study area were examined to determine if the site extended into the study area.

Overview of Late Prehistoric Interment Practices

Human skeletal materials do not preserve well in the acidic soils and humid climate found within the state of Virginia. Most information on prehistoric burial patterning dates to the Late Woodland period (Boyd and Boyd, 1992; Gold, 1999). With the exception of the Middle Woodland stone and earth mounds described by Fowke (1894), Stewart (1981), Gardner (1982), and McLearen (1992), most prehistoric skeletal collections from Virginia were also recovered from Late Woodland contexts (Boyd and Boyd, 1998).

For their synthesis of Late Woodland mortuary variability throughout Virginia, Donna and Cliff Boyd (1992) studied burial data from 100 archaeological sites. This sample represented a minimum of 1,000 burials. They focused on published archaeological data and divided the state into four study regions. The I-81 study area is contained within three of their regions (Southwest Virginia, Northwest Virginia, and the Central Piedmont of Virginia) but does not extend into the Virginia Coastal Plain.

Boyd and Boyd (1992) outline six patterns of Native American burial placement within the general area of the I-81 corridor. Discussed below, these are: 1) burial within a village context, 2) burial within caves, 3) burial within accretional mounds, 4) burial within bone beds, 5) burial within substructure mounds, and 6) burial within stone cairns.

Village Sites

The most common form of Native American interment encountered by archaeologists is burial either inside or along the edge of a village area. Within southwest Virginia, Boyd and Boyd (1992:250) note that almost all of the sites producing Native American skeletal materials were village sites, with "burials primarily located near palisades or near structures." Burials were also found throughout village contexts in northwest Virginia (Boyd and Boyd, 1992). Most archaeological burial data for the southern Piedmont was also derived from village contexts (Boyd and Boyd, 1992).

Larger village sites, such as the Crab Orchard site (44TZ0001: Minimum Number of Individual (MNI)=158; MacCord and Buchanan 1980) and the Shannon site (44MY0008: MNI=106; Mecklenburg, 1969), have produced a sizable number of Native American burials. At other sites, excavations within a village context may only produce a handful of burials, such as at the Bessemer site (44BO0026: MNI=1; Geier and Moldenhauer, 1977) or the Draper Valley Site (44PU0010: MNI=3; Reeves, 1958).

Cave Burials

Boyd and Boyd (1992) describe the use of caves for Native American burial as a common mortuary pattern, and note that up to 235 individuals have been recovered from 25 burial caves in southwest Virginia. Most of the interments appear to represent disarticulated secondary burials or post-depositionally disturbed burial contexts (Boyd and Boyd, 1992). Because of the protective microenvironments they sometimes provide, cave sites hold the strongest potential for producing human skeletal remains that predate the Woodland period.

Daugherty's Cave (44RU14), for example, provides a detailed record of repeated occupations from the Early Archaic period through the Late Woodland and Historic periods (Benthall, 1990). Large amounts of faunal materials (bone) were recovered from layers attributed to the Middle Archaic period and possibly earlier (Benthall, 1990), indicating a distinct potential for the preservation of human skeletal materials within a similar environment. Not all caves with Native American archaeological components contain burials, and no human remains were identified at Daugherty's Cave.

Accretional Mounds

According to Dunham (1994), there were at least 13 accretional earthen and earthen-stone burial mounds constructed and utilized within the interior of Virginia during the Late Woodland period. These mounds are associated with Howard MacCord's (1986) Lewis Creek Mound Culture. All were utilized for human interment, and the remains of thousands of individuals have been recovered from these late prehistoric burial facilities (Gold, 1999). The bulk of skeletal remains recovered from accretional mounds within the Virginia Piedmont represent secondary burials placed within large, collective contexts, stored and prepared elsewhere prior to final interment within the mound (Gold, 2000). Burial within accretional mounds west of the Piedmont region was more varied, with less of an emphasis on massive secondary interments (Bowden *et al.*, 2003; Boyd and Boyd, 1992; Gold, 2000).

Most accretional mound sites are located along the floodplains of major rivers or tributaries, in close proximity to Late Woodland village sites (Gold, 1999). These sites have been repeatedly explored by looters and archaeologists since at least the end of the eighteenth century (Dunham, 1994; Gold, 1999; Jefferson, 1954). All documented mound sites have been extensively impacted by agriculture, construction, erosion, avocational exploration and looting, and/or archaeological excavation (Gold, 1999).

Bone Beds

The fourth form of late prehistoric interment practice is burial within ossuary-like burial pits, described as "bone beds" by Fowke (1894). As found for accretional burial mounds in the Virginia Piedmont, the majority of individuals placed within bone bed contexts are either fully disarticulated or partially articulated (Boyd and Boyd, 1992). This provides evidence for an increasing emphasis on secondary burial and extended mortuary treatment within the study area during the Late Woodland period (Gold, 2000). It is possible that some stand-

alone bone bed pits may represent the remains of severely impacted accretional burial mounds (MacCord, in Boyd and Boyd, 1992). Similar pits may also mark the initial stages of accretional mound construction, from both an evolutionary and an architectural standpoint (Dunham, 1994). Within the Virginia piedmont, submound pits associated with accretional mounds have produced large quantities of disarticulated human skeletal materials (Gold, 1999).

Substructure Mounds

Substructure mounds appear to be extremely rare within Virginia and are concentrated within the far southwestern region of the state (Boyd and Boyd, 1992). The only Virginia example subjected to archaeological study was the Ely Mound in Lee County, excavated during the 1870s. As with the accretional mound sites, substructure mounds within Virginia have been extensively impacted by agriculture, construction, erosion, avocational exploration and looting, and/or archaeological excavation (Gold, 1999).

Stone Cairns

Stone cairns of the Western Virginia Stone Burial Mound Complex are generally made of stone and "situated either on an older river terrace or at the edge of an adjacent upland" (Stewart, 1992; Gardner, 1982). Some researchers have noted the existence of similar stone mound complexes in neighboring West Virginia and Maryland (Gardner, 1982; Stewart, 1992). These structures produce a minimum of artifacts and are generally associated with the Middle Woodland period (Boyd and Boyd, 1992; Gardner, 1982; Stewart, 1992).

There is little archaeological evidence to support the hypothesis that the primary function of these structures was to serve as burial faculties. The cairns examined within Virginia have produced only a minimum of skeletal material (Fowke, 1894). Of the 15 mound localities described by Stewart (1981) for the Great Valley of Maryland, only six contained evidence of human skeletal remains.

While the primary purpose of the cairns may not have been their use as burial facilities, they do retain the potential to be associated with Native American burials. As with all conspicuous forms of prehistoric architecture within the region, known sites throughout Virginia have been extensively impacted by agriculture, looters, archaeologists, and/or construction. For Maryland, Stewart (1981) states that "no intact or even partially intact burial mounds are presently known to exist in the Great Valley."

Evaluative Criteria

Eleven criteria were developed and used to evaluate the 50 Native American and multi-component archaeological sites located within 500 feet of either side of the I-81 edge of pavement. This was done in order to predict their potential to contain Native American remains. Final estimates of this potential were coded as "No Data," "No Potential," "Very

Low Potential," "Low Potential," "Moderate Potential," or "Strong Potential." Sites known to have produced burials in the past were simply coded as "Known Burial Site."

1. Site Period: Archaeological sites that date to the Woodland period will have higher potential to contain human remains than sites dating to the Archaic or Paleo-Indian periods.
2. Site Type: Larger hamlets and villages will have a higher potential to contain Native American burials than smaller sites such as hunting stations, temporary camps, and resource exploitation sites.
3. Site Type: While there are no known accretional mounds, substructure mounds, or stone cairns located within the 1,000-foot wide corridor, their unrecognized presence can not be excluded. Sites containing evidence of such structures have a higher potential to contain human remains than other non-village site types.
4. Site Environment: Cave sites have the potential to preserve human remains longer than terrestrial burial contexts.
5. Preservation of Skeletal Materials: Sites that produce bone artifacts also retain the potential for the preservation of human remains.
6. Artifact Types: Shell beads are often associated with Native American burials during late prehistory, especially the interments of subadults. Sites producing shell beads and artifacts made of shell have a higher potential to contain human remains.
7. Artifact Diversity: Woodland period sites that produce only lithic artifacts may not be indicative of extended occupation. Sites producing ceramics and/or a variety of artifact types (*i.e.*, lithic debris and shell beads) have a higher potential for containing human remains.
8. Site Integrity: Sites with evidence of possible intact stratigraphy and subsurface features retain a higher potential for containing intact human burials.
9. Site Integrity: Sites that have been recommended as eligible or potentially eligible to the NRHP will be ranked higher than sites that have been determined to be not eligible.
10. Absence of Data: Native American sites with little contextual data and/or without recommendations regarding NRHP eligibility status will be ranked higher due to their unexamined potential to contain human remains.
11. Known Burial Sites: Native American sites that have produced human remains in the past were ranked as having a strong potential to contain additional human remains and burial features if extant portions of the site survive. Potential impacts such as construction and looting may affect the integrity of burial features but they do not remove the potential for the presence of human remains.

Based on these criteria, the results of the analysis are presented in Section 3.1.5, *Archaeological Resources*.

2.4.2 Historic Sites

A set of predictive criteria was developed to help evaluate which historic archaeological sites have the potential to contain human remains. The list of criteria utilized all archaeological evidence of historic burial patterning. It also incorporated data on historic burial patterning collected from the survey of historic architecture within the I-81 study area.

There are six types of historic burial facilities that could be located within the I-81 study area. Four are outlined by Owsley (1995): unique sites of special historic interest, family cemeteries, burials on battlefields, and special use cemeteries (institutional burial sites such as at hospitals and prisons). Three additional types of burial facilities anticipated within the study area are community cemeteries, cemeteries associated with churches, and race-segregated burial areas such as slave cemeteries.

Evaluative Criteria

Four criteria were developed and used to evaluate the historic and multi-component archaeological sites within the I-81 study area. This was done in order to predict their potential to contain human remains dating to the historic era. Final estimates of this potential were coded as "No Data," "No Potential," "Very Low Potential," "Low Potential," "Moderate Potential," or "Strong Potential." Sites known to have produced burials in the past were simply coded as "Known Burial Site."

1. Family Burial Plots: All farmsteads and rural house sites dating to the eighteenth century and the first half of the nineteenth century have a greater potential to contain small family burial plots than domestic sites of later date.
2. Site Integrity: Sites with evidence of possible intact stratigraphy and subsurface features retain a higher potential for containing intact human burials.
3. Site Integrity: Sites that have been recommended as eligible or potentially eligible to the NRHP will be ranked higher than sites that have been determined to be not eligible.
4. Absence of Data: Sites dating to the eighteenth or nineteenth centuries with little contextual data and/or without recommendations regarding NRHP eligibility status will be ranked higher due to their unexamined potential to contain human remains.

Based on these criteria, the results of this analysis are presented in Chapter 3, Section 3.1.6, *Archaeological Sites*.

2.5 Impact Analysis

As previously noted, the No-Build Concept and 211 combinations of Transportation System Management (TSM), highway improvements, rail improvements, and various toll scenarios were considered. Of these, 20 are "rail only" concepts meaning that 191 "Build" concepts include improvements along I-81. Preliminary efforts to evaluate concepts during the concept

development process included an analysis of impacts to key resources, including battlefields. The results of this preliminary impact analysis indicated that the difference in potential environmental impacts between a variety of different "Build" concepts was generally negligible along the 325-mile I-81 corridor. One reason for this is that a large percent of potential impacts occur within the 91 interchange areas and the "Build" concept footprints used to calculate potential impacts do not vary substantially at the interchanges.

Given the results of the preliminary analysis, and because the number of improvement concepts for I-81 was so large, several footprints were created for the purpose of illustrating potential impacts along I-81 associated with the "Build" concepts. The highway and rail footprints used to calculate potential impacts are described below.

Potential impacts to historic properties within the I-81 and rail corridors were quantified by superimposing the footprints over the historic properties GIS database. A historic property was considered to be directly impacted if the historic property as represented in the GIS was wholly or partially inside the "Build" concept footprint. The acreage of potential impact was calculated where the footprint and resource layer overlapped based on the boundaries as defined on their NRHP nomination or on the records at VDHR.

For battlefields, the available GIS was slightly modified since the layer representing battlefield boundaries included the existing I-81 pavement. For each battlefield layer, prior to the impact analysis, the existing pavement was removed from the GIS base condition.

I-81 Minimum Width and Maximum Width

Consistent with a tiered approach, potential impacts in the I-81 corridor are presented in terms of potential impacts associated with the narrowest highway footprint that meets the transportation needs and the widest highway footprint that could meet the identified needs. Referred to as Minimum Width and the Maximum Width, both footprints have a variable number of lanes for the length of I-81 depending on the transportation needs along the corridor. On sections of I-81 that need one additional lane in each direction, both footprints add a total of two lanes (one lane in each direction). On sections of I-81 that need two lanes in each direction, the need can be met by different means: 1) a total of four additional lanes can be added, or 2) various operational scenarios can be implemented (*e.g.* barrier separated lanes and exclusive lanes) that would meet the needs but would require the construction of up to eight additional lanes in order to operate efficiently. Where at least four lanes are needed, the Minimum Width footprint provides a total of four additional lanes (two lanes in each direction), and the Maximum Width footprint provides a total of eight additional lanes (four in each direction).

When evaluating the number of lanes needed to address the needs along I-81, a "no toll" and "no rail" base condition was assumed for the purpose of developing the footprints. This base condition represents the highest traffic volumes and therefore the greatest number of lanes that may be needed on I-81. Tolling and rail improvements could decrease the number of

lanes needed on I-81. If a "Build" concept (or portion of a "Build" concept) is advanced, the footprint of any of the improvements is anticipated to fall between the limits of the Minimum Width and Maximum Width footprints.

Approximately 37 percent of the total lane miles along I-81 need only two additional lanes (one in each direction) as discussed in the *I-81 Corridor Improvement Study Transportation Technical Report*. Specifically, the following sections need only two additional lanes:

- Exit 3 to Exit 5 northbound;
- Exit 19 to Exit 81 northbound;
- Exit 162 to Exit 168 northbound;
- Exit 243 to Exit 245 northbound;
- Exit 247 to Exit 251 northbound;
- Exit 257 to Exit 269 northbound;
- Exit 273 to Exit 279 northbound;
- Exit 310 to Exit 313 northbound;
- Exit 7 to Exit 10 southbound;
- Exit 17 to Exit 84 southbound;
- Exit 86 to Exit 89 southbound;
- Exit 96 to Exit 101 southbound;
- Exit 105 to Exit 109 southbound;
- Exit 114 to Exit 118 southbound;
- Exit 156 to Exit 167 southbound;
- Exit 168 to Exit 191 southbound;
- Exit 243 to Exit 251 southbound;
- Exit 264 to Exit 277 southbound; and
- Exit 310 to Exit 313 southbound;

Both the Minimum Width and Maximum Width footprint have a total of two additional lanes (one lane in each direction) in those locations where two additional lanes are needed. The typical 2-lane widening cross section used for impact analysis adds two new lanes in the median of I-81 to the extent possible.

Approximately 61 percent of the total lane miles along I-81 need at least four additional lanes (two in each direction) as discussed in the *I-81 Corridor Improvement Study Transportation Technical Report*).[1] In these sections, two different cross sections were developed for the impact analysis to reflect various types of highway improvement concepts under consideration with different operating conditions (*i.e.*, separation of cars from commercial vehicles, non-separated lanes, etc.): 1) four additional lanes (4-lane widening cross section), and 2) eight additional lanes (8-lane widening cross section).

The 4-lane cross section adds two additional lanes in each direction, widening in the median of I-81 as much as possible. This cross section, which does not provide a physical separation between vehicle types, is used for the Minimum Width footprint in those locations where more than two lanes are needed (one lane in each direction). It reflects the smallest potential construction footprint. The 8-lane cross section adds four additional lanes in each direction. It is used for the Maximum Width footprint in those locations where more than two lanes are

[1] The remaining two percent of total lane miles (37 percent + 61 percent = 98 percent) does not need any additional lanes. This occurs between Milepost 0 and 7.

needed. It provides barrier separated lanes with all of the widening occurring to the outside of the I-81 travel lane to reflect the largest potential construction footprint.

The impacts are represented by 4-lane and 8-lane cross section templates approximate the narrowest highway concept and the widest concept under consideration. When coupled with the 2-lane section (adding one additional lane in each direction where needed), the Minimum Width and the Maximum Width footprint are derived for the mainline of I-81. The width of the variable Minimum Width footprint ranges from roughly 240 feet (where a total of two lanes are added) to 430 feet (where a total of four lanes are added). In comparison, the Maximum Width footprint ranges from 240 feet (where a total of two lanes are added) to 540 feet (where a total of eight lanes are added).

Finally, based on future travel patterns and traffic volumes at each interchange, either a diamond or full cloverleaf interchange was considered in the analysis of potential impacts. Depending on the number of lanes on the mainline of I-81, different footprints were developed for each interchange design, although the difference between these footprints are not substantial.

Table 2-1 below summarizes the elements that comprise the Minimum Width and Maximum Width impact footprints.

Table 2-1 Elements of Impact Footprints

Footprint	Areas Where 2 New Lanes Needed	Areas Where 4 New Lanes Needed	Interchanges
Minimum Width	2-lane Cross Section	4-lane Cross Section	Minimum Cloverleaf / Minimum Diamond
Maximum Width	2-lane Cross Section	8-lane Cross Section	Maximum Cloverleaf / Maximum Diamond

I-81 Consistent "Add 2-Lane" and "Add 8-Lane"

Potential impacts were also calculated for concepts that add a consistent number of lanes the entire length of I-81 in Virginia. Unlike the Minimum Width and Maximum Width footprints that both add a total of two lane where needed, and add a total of four or more lanes where needed, the Add 2-Lane concept consistently adds two lanes (one lane in each direction) the entire length of I-81. The Add 8-Lanes concept consistently adds a total of eight additional lanes (four in each direction).

Rail Concept 3

Many of the improvement concepts included in this study involve rail improvements. Therefore, an impact footprint was developed for the 13 rail improvement sections that

comprise Rail Concept 3. Rail Concept 3 was chosen as the most appropriate rail concept to combine with roadway concepts because it provides the most diversion of freight from truck to rail per dollar of investment (see Chapter 3, *Improvement Concepts*). The rail footprint, generally 100 feet wide, represents the limits of potential rail construction.

3 Inventory Results

This chapter describes the existing historic properties in the I-81 and rail study areas based upon the previously described methods.

3.1 I-81 Study Area

This section describes those properties within the I-81 study area that are considered historic (listed on or formally determined eligible for the Virginia Landmarks Register or the NRHP by VDHR), or that may be potentially eligible for listing, warranting further study during Tier 2 studies, if a "Build" concept (or portion of a "Build" concept) is advanced. (See Figure 4-1 in Chapter 4).

3.1.1 Architectural Resources

The first large influx of settlers arrived in the study area between 1749 and 1750 at a time when the government of Virginia was providing encouragement and tax incentives to promote settlement along the frontier. Most early settlers in the region arrived by way of the Great Wagon Road, following the route of the old Warrior's Path from Pennsylvania to Georgia. The Great Wagon Road consisted of old Native American trails, animal trails, and trading routes. The Great Wagon Road followed the Valley of Virginia on the route generally followed by current U.S. Route 11. I-81 closely follows U.S. Route 11, passing near and through towns and villages. North of Roanoke, there are numerous early- to mid nineteenth century buildings, many surviving in rural settings. South of Roanoke, there are less surviving old buildings.

Approximately 930 individual architectural resources are recorded at VDHR within the I-81 study area. A large number of these (approximately 635) have not been evaluated for eligibility. The remaining number includes properties that have been determined not eligible, been determined eligible, or been listed on the VLR or NRHP. A complete list of these buildings, structures, and districts is provided in Appendix A of this technical report. In addition, Appendix A provides a preliminary recommendation on eligibility based on the preliminary field survey completed for the *I-81 Corridor Improvement Study*.

The following sections describe architectural resources that are either NHRP listed or determined eligible, as well as architectural resources that are potentially eligible.

NHRP Listed and Eligible Architectural Resources

Architectural resources described in this section include buildings and structures, as well as historic districts, that are either listed or determined eligible for listing on the NRHP.

Buildings and Structures

As summarized in Table 3-1, 52 buildings and structures, either listed or determined eligible, have been previously recorded at VDHR within the 2,000-foot corridor (1,000 feet on either side of the I-81 edge of pavement). An additional 16 were located beyond the 2,000-foot corridor but possibly within its view. Resources listed in Table 3-1 include homes, farms, schools, bridges, cemeteries, and commercial areas.

Table 3-1 Listed and Determined Eligible Buildings and Structures: I-81 Study Area

VDHR Number	Name	USGS Quadrangle	Town, City or County	Listing or VDHR Evaluation	Within 2,000-ft Corridor
095-0021	The Grove	Wyndale	Washington	NRHP/VLR	No
095-0102	Old Stagecoach Inn	Glade Spring	Washington	Eligible	Yes
086-0010	Seven Mile Ford RR Depot	Chilhowie	Smyth	Eligible	No
086-0013	Aspenvale Cemetery	Chilhowie	Smyth	NRHP/VLR	No
189-0003	Bonham, H. L. House	Chilhowie	Town of Chilhowie	NRHP/VLR	Yes
086-0003	Preston, John House	Marion	Smyth	NRHP/VLR	Yes
086-5024	Marion Diner	Marion	Smyth	Eligible	Yes
119-0004	Southwestern State Hospital (Henderson Building)	Marion	Town of Marion	NRHP/VLR	No
086-0002	Old Stone Tavern	Atkins	Smyth	NRHP/VLR	Yes
086-0088	Hancock House, U.S. Route 11	Atkins	Smyth	Eligible	Yes
086-0001	Gammon House	Rural Retreat	Smyth	Eligible	Yes
098-0137	House, Route 693	Crockett	Wythe	Eligible	Yes
098-0018	Saint John's Lutheran Church	Wytheville	Wythe	NRHP/VLR	Yes
098-0005	Fort Chiswell Mansion	Max Meadows	Wythe	NRHP/VLR	Yes
098-0022	McGavock Family Cemetery	Max Meadows	Wythe	NRHP/VLR	Yes

Table 3-1 Listed and Determined Eligible Buildings and Structures: I-81 Study Area (Continued)

VDHR Number	Name	USGS Quadrangle	Town, City or County	Listing or VDHR Evaluation	Within 2,000-ft Corridor
098-0026	Fort Chiswell Site	Max Meadows	Wythe	NRHP/VLR	Yes
077-5068	NC Branch, N&W Railway	Dublin	Pulaski	Eligible	Yes
060-0137	Charleton, James House	Riner	Montgomery	NRHP/VLR	Yes
080-0025	Pleasant Grove	Glenvar	Roanoke	NRHP/VLR	Yes
080-0479	Red Barn Antiques	Glenvar	Roanoke	Eligible	Yes
080-0005	Brubaker House	Salem	Roanoke	Eligible	Yes
080-5096	Carvin's Cove Water Filtration Plant	Roanoke	Roanoke	Eligible	Yes
011-5034	Thomas Kinzie House	Daleville	Botetourt	NRHP/VLR	Yes
011-5096	Blue Ridge Hall	Villamont	Botetourt	Eligible	Yes
011-0010	Greyledge	Buchanan	Botetourt	NRHP/VLR	Yes
081-0207	Forest Tavern	Natural Bridge	Rockbridge	NRHP/VLR	Yes
081-0399	Rockbridge Inn	Natural Bridge	Rockbridge	NRHP/VLR	Yes
081-0015	Fancy Hill	Glasgow	Rockbridge	NRHP/VLR	Yes
081-0180	Springdale; E. M. Dixon House	Glasgow	Rockbridge	Eligible	Yes
081-0041	Maple Hall	Cornwall	Rockbridge	NRHP/VLR	Yes
081-0065	Church Hill	Cornwall	Rockbridge	NRHP/VLR	Yes
081-0066	Timber Ridge Presbyterian Church	Cornwall	Rockbridge	NRHP/VLR	No
081-0073	McCormick, Cyrus, Farm and Workshop	Vesuvius	Rockbridge	NRHP/VLR/NHL	No
007-0604	Alexander, James House	Vesuvius	Augusta	NRHP/VLR	Yes
007-0001	Annandale	Stuarts Draft	Augusta	Eligible	Yes
007-0041	Valley Railroad Stone Bridge	Stuarts Draft	Augusta	NRHP/VLR	Yes
132-0045	Bridge 1026	Staunton	Staunton	Eligible	Yes
007-1207	DeJarnette Center	Staunton	Augusta	Eligible	No
007-0241	Augusta Military Academy	Fort Defiance	Augusta	NRHP/VLR	No
007-0333	Fort Defiance Railroad Station/Depot	Fort Defiance	Augusta	Eligible	Yes
007-0028	Rainey, Garlan House	Mount Sidney	Augusta	NRHP/VLR	No
082-0062	Contentment	Mount Sidney	Rockingham	NRHP/VLR	Yes
115-0103	James Madison University	Harrisonburg	City of Harrisonburg	Eligible	No
115-5032	David Liskey House	Harrisonburg	City of Harrisonburg	Eligible	Yes
082-0003	Bethlehem Church	Tenth Legion	Rockingham	NRHP/VLR	Yes

Table 3-1 Listed and Determined Eligible Buildings and Structures (Continued)

VDHR Number	Name	USGS Quadrangle	City or County	Listing or VDHR Evaluation	Within 2,000-ft Corridor
085-0027	New Market Battlefield Park	New Market	Shenandoah	NRHP/VLR	Yes
085-0103	Meems Bottom Covered Bridge	New Market	Shenandoah	NRHP/VLR	No
269-5002	Shirley House	New Market	New Market	Eligible	Yes
085-0029	Snapp House	Toms Brook	Shenandoah	NRHP/VLR	Yes
085-0470	Pifer House at Vesper Hall	Middletown	Shenandoah	Eligible	Yes
085-0004	Fort Bowman	Middletown	Shenandoah	NRHP/VLR	Yes
085-0013	Stickley, Daniel Farm	Middletown	Shenandoah	Eligible	Yes
085-0014	Stickley Mill	Middletown	Shenandoah	Eligible	Yes
034-0014	Monte Vista Farm	Frederick	Middletown	NRHP/VLR	Yes
034-0080	Indian Spring	Stephens City	Frederick	Eligible	Yes
034-0126	Hillandale	Stephens City	Frederick	Eligible	Yes
034-0127	Springdale	Stephens City	Frederick	NRHP/VLR	Yes
034-0128	Springdale Flour Mill	Stephens City	Frederick	NRHP/VLR	Yes
034-0160	Kline's Mill	Stephens City	Frederick	Eligible	No
034-0300	Family Drive-In	Stephens City	Frederick	Eligible	Yes
034-0314	Zig-Zag Trenches	Stephens City	Frederick	Eligible	Yes
034-0134	Hackwood	Winchester	Frederick	Eligible	Yes
034-0135	Godfries-Semples House	Winchester	Frederick	Eligible	Yes
034-0424	Bowles-Garber Farm	Winchester	Frederick	Eligible	Yes
034-1448	Clevenger-McKown House	Winchester	Frederick	Eligible	No
034-0113	Kenilworth	Stephenson	Frederick	Eligible	Yes
034-0114	Zinn House	Stephenson	Frederick	Eligible	No
034-0006	Hopewell Friends Meeting house	Inwood	Frederick	NRHP/VLR	No
034-0137	Branson House	Inwood	Frederick	Eligible	No

NHL – National Historic Landmark
NRHP – National Register of Historic Places
USGS – United States Geological Survey
VLR – Virginia Landmarks Register

Historic Districts

Nine historic districts either listed or determined eligible for listing on the NRHP have been previously recorded within the I-81 study area and are listed in Table 3-2. In addition, Sellers Mill Historic District in Rockingham County (VDHR Number 082-5077) is located outside of the 2,000-foot corridor but possibly within view of I-81.

Table 3-2 Listed and Determined Eligible Historic Districts: I-81 Study Area

VDHR Number	Name	USGS Quadrangle	City or County	Listing or VDHR Evaluation	Within 2,000-ft Corridor
095-0098	Emory and Henry College Historic District	Glade Spring	Washington	NRHP/VLR	Yes
189-0001	Downtown Chilhowie Historic District	Chilhowie	Chilhowie	NRHP/VLR	Yes
077-0022	New Bern Historic District	Dublin	Pulaski	NRHP/VLR	Yes
180-0028	Buchanan Historic District	Buchanan	Buchanan	NRHP/VLR	Yes
082-5077	Sellers Mill Historic District	Tenth Legion	Rockingham	Eligible	No
265-0004	Mt. Jackson Historic District	New Market	Mt. Jackson	NRHP/VLR	Yes
269-0005	New Market Historic District	New Market	New Market	NRHP/VLR	Yes
260-5001	Middletown Historic District	Middletown	Middletown	NRHP/VLR	Yes
034-5036	Camp Russell Historic District	Stephens City	Frederick	Eligible	Yes
304-0001	Newton/Stephensburg Historic District	Stephens City	Stephens City	NRHP/VLR	Yes

NHL – National Historic Landmark
NRHP – National Register of Historic Places
USGS – United States Geological Survey
VLR – Virginia Landmarks Register

Potentially Eligible Architectural Resources

Approximately 190 additional architectural resources were identified as potentially eligible for listing on the NRHP (including buildings, structures, and historic districts) based on the preliminary field survey and review of previous surveys which are discussed below. Table 3-3 summarizes the assessment of previous surveys. Potentially eligible architectural resources are listed in Table 3-4. This includes mostly buildings and structures, as well as one historic district.

Assessment of Previous Surveys

The study team's architectural historian reviewed the VDHR's cost-share survey reports and reviewed these reports with VDHR staff to identify any architectural resources that are not formally listed on the VLR or the NRHP, and which may not necessarily be recorded in the VDHR's Data Sharing System (DSS), but which are likely to be eligible for the VLR and NRHP. These surveys are compared in Table 3-3 to assess the level of survey coverage, and the potential for additional districts. Typically, historic districts were not identified during cost share surveys.

Preliminary Field Survey

Much of the study area has not been previously surveyed for historic properties, and the vast majority of resources have not been evaluated for eligibility. Furthermore, none of the previously recorded architectural properties were previously identified as potentially eligible. To preliminarily identify potentially eligible architectural resources in the study area, each DSS form was first reviewed to assess the potential of the resource for eligibility. If the information on file at VDHR suggested that a resource may be potentially eligible, it was then viewed during the preliminary field survey completed for this study. Unrecorded resources were also viewed and assessed for potential eligibility during the preliminary field survey. These were marked on USGS maps and given temporary numbers (CCR-xx) for tracking. Each resource, listed in Table 3-4, was incorporated into the I-81 GIS database for historic properties.

Table 3-3 Summary of Previous Surveys

Name of Report	Date	County/City	Type of Record	Author	% of County Covered	Recommendations Y or N	Comments
Phase II Historical and Architectural Investigation Bridge 1026, U.S. Route 250 Over CSX Railroad	Feb-93	City of Staunton	Section 106/Phase II/Historical and Archaeological	Louis Berger & Associates	One resource	Ineligible	Bridge 1026; constructed in 1931
Survey of the Village of Mt. Sidney	May-99	Mt. Sidney/Augusta County	Reconnaissance Survey, National Register Nomination	Ann McCleary, History Dept. State U. of W. Georgia	50 architectural properties and 14 archaeological sites (40 acres)	Listed in 1998	Listed under Criteria A and C; ca. 1826-1949
A Cultural resources Reconnaissance of an Area of Proposed Warehouse and Maintenance Facilities for Western State Hospital	Dec-80	Augusta County	Section 106/Phase I/Archaeological	Virginia Research Center for Archaeology, Williamsburg	7.5 acres	No further work	No historic context; 5 page report with no significant cultural resources recovered
Evaluation of Architectural, Historic, and Archaeological Resources	1985	Augusta County	The Valley Regional Preservation Plan	Virginia Department of Historic Landmarks	Looks at the entire county	Yes, addresses thematic nominations	Very comprehensive analysis of what has already been done, but outdated.
Architectural Survey Proposed I-81 and Exit 150 Interchange Study Roanoke and Botetourt Counties, Virginia	Dec-03	Roanoke and Botetourt Counties	Section 106/Phase 1	Michael Baker, Jr., Inc., Coastal Carolina Research, Inc.	Map with APE at interchange	Yes recommends eligibility	Very comprehensive, but a limited area.
Evaluation of Architectural, Historic, and Archaeological Resources	1985	Botetourt County	The Valley Regional Preservation Plan	Virginia Department of Historic Landmarks	Looks at the entire county	Yes, villages need survey, and western and northern regions of the county	Very comprehensive analysis of what has already been done, but outdated.
Botetourt County Reconnaissance Level Survey	May-98	Botetourt County	Reconnaissance Survey (Architectural)	Gibson Worsham, Architect	Approximately 30%, the center of the county from north to south	Yes	Very comprehensive, but only part of the county (265 sites).
Archaeological Inventory of Three Lease Tracts Radford Army Ammunition Plant	Mar-97	Montgomery and Pulaski Counties	Section 106	U.S. Army Corps of Engineers	2 small areas on the Radford Army Ammunition Plant site	No significant sites	No historic context; Study done in order to determine whether significant sites exist on these parcels which are leased out for agricultural purposes.
Montgomery County Reconnaissance Level Survey Volume I	Jul-86	Montgomery County	Reconnaissance Survey (Architectural)	Worsham & Pezzoni, *et al.*	8 study units throughout county	Yes, for individual sites as well as potential rural historic districts	Mainly historic context
Montgomery County Reconnaissance Level Survey Volume II	Jul-86	Montgomery County	Reconnaissance Survey (Architectural)	Worsham & Pezzoni, *et al.*	8 study units throughout county	Yes, for individual sites as well as potential rural historic districts	Very interesting evaluation of resources according to type and form; fairly thorough report with good historic context
An Archaeological Overview and Management Plan for the Radford Army Ammunition Plant	Dec-84	Montgomery and Pulaski Counties	Unclear	Woodward-Clyde Consultants	6,000-acre installation	Recommends a preservation plan is needed	No historic context
A Phase I Investigation of Archaeological Resources at the Pulaski County Industrial Park Site in Pulaski County	Jul-83	Pulaski County	Section 106	Calvert McIlhany, Bartlett & Associates Geological Consultants	250 acres in the Pulaski Industrial Park	No further work	No historic context
A Phase I Investigation of Archaeological Sites and Historic Structures Within the Proposed Klopman Mills Acquisition, Dublin Industrial Park	Feb-93	Pulaski County (Dublin, VA)	Phase I/Section 106; FHA	Calvert McIlhany	54.3 acres	Yes, recommends not eligible and evaluation needed by VDHR	Survey work completed; uncertain of final determinations
Survey of Architectural and Archaeological Resources in Pulaski County, Virginia	Feb-99	Pulaski County	Reconnaissance Survey (Architectural) with limited archaeology	Gray & Pape and Landmark Preservation Associates	Concentrates on industrial sites (30 architectural, 2 archaeological sites)	Yes	Survey with emphasis on county's industrial heritage; also to draft a historic preservation ordinance
Pulaski County Reconnaissance Level Survey	Sep-85	Pulaski County	Reconnaissance Survey (Architectural) and archaeological	Worsham & Pezzoni, *et al.*	Looked at the whole county - all county roads were traversed	Yes	230 architectural sites; 6 archaeological sites; good historic context; somewhat selective in what was surveyed
Historical Architecture Reconnaissance Survey Report	Apr-92	Roanoke County	VDHR grant	Frazier Associates	All county roads were traversed	Yes	379 architectural sites at a recon. level and 31 at an intensive level; 82% were dwellings and all other resources surveyed were all less than 5%
Evaluation of Architectural Historic Resources in the City of Harrisonburg, Virginia	Jun-05	City of Harrisonburg	The Valley Regional Preservation Plan	Virginia Division of Historic Landmarks	Looks at the entire city	Yes, recommends further National Register work	Very comprehensive analysis of what has already been done, but outdated.
The Architectural /Historic Resources of Rockingham County: A Study of Reconnaissance Survey	Oct-86	Rockingham County	Result of Field School of Architectural Survey Held at JMU During Summer of 1986	Ashley Neville	Looked at the whole county and what had not previously been surveyed	Yes recommends eligibility	Good architectural and historic context

Table 3-3 Summary of Previous Surveys (Continued)

Name of Report	Date	County/City	Type of Record	Author	% of County Covered	Recommendations Y or N	Comments
A Phase I Cultural Resource Survey of Port Republic Road (Route 659) Between Interstate 81 and Route 11 in Harrisonburg, VA	Mar-89	City of Harrisonburg	Phase I/Section 106; VDOT	JMU Archeological Research Center	Part of Port Republic Road to be widened	Yes, no further work	Fairly thorough investigation that yielded 7 structures and 2 archaeological sites
A Phase I Cultural Resource Survey of the Proposed Route 679 Project	Feb-94	Rockingham County	Phase I/Section 106; VDOT	William and Mary Center for Archaeological Research	11 acres	Yes, one potential district was identified; other sites and structures recommended as not eligible	Thorough report within a small area
A Phase I Cultural Resource Survey of the Realignment and Relocation of Route 257, Mount Crawford, Rockingham County, VA	Aug-88	Mt. Crawford/Rockingham County	Phase I/Section 106; VDOT	JMU Archeological Research Center	Part of Route 257 to be realigned	Yes, 2 historic sites require a phase II	Fairly thorough investigation that yielded 2 structures and 2 archaeological sites
Reconnaissance Level Architectural Survey Along Interstate 81	May-01	Harrisonburg and Rockingham County	Phase I/Section 106; VDOT	Gray & Pape, Inc.	Approximately 13 miles along I-81	Yes, recommendations for eligibility given	Very thorough with good recommendations
Evaluation of Architectural, Historic, and Archaeological Resources	1985	Rockingham County	The Valley Regional Preservation Plan	Virginia Department of Historic Landmarks	Looks at the entire county	Yes, addresses thematic nominations	Very comprehensive analysis of what has already been done, but outdated.
Historic Architectural Survey of Rockingham County, Virginia	Dec-00	Rockingham County	VDHR grant	E.H.T. Traceries	Only looked at the southern half of the county	Yes, eligibility recommendations were made	Good context; only part of the county; emphasis on Antebellum an Reconstruction and Growth Periods; noted not surveyed on maps
Evaluation of Architectural, Historic, and Archaeological Resources	1985	Rockbridge County	The Valley Regional Preservation Plan	Virginia Department of Historic Landmarks	Looks at the entire county	Yes, addresses thematic nominations	Very comprehensive analysis of what has already been done, but outdated.
Shenandoah County Historic Resources Survey Report	May-95	Shenandoah County	VDHR Grant	Massey/Maxwell, Dan Pezzoni, Maral Kalbian	240 to 250 thousand acres	Yes	Architecture only; two phases for a total of 688 reconnaissance level, and 70 intensive architectural; fairly comprehensive context
Evaluation of Architectural, Historic, and Archaeological Resources	1985	Shenandoah County	The Valley Regional Preservation Plan	Virginia Department of Historic Landmarks	Looks at the entire county	Yes, addresses thematic nominations	Very comprehensive analysis of what has already been done, but outdated.
Phase II Historical Resource Assessment Bridge 6088, State Route 689 over Middle Fork of the Holston River	Jan-95	Smyth County	Phase II/Section 106; VDOT	Louis Berger & Associates	One resource	Yes, not eligible	A house was also documented that was determined ineligible
Letter from VDOT to VDHR in reference to widening Route 617	Dec-92	Smyth County	Phase I/Section 106; VDOT	VDOT	4 structures identified	Yes, not eligible	Letter report summarizing the resources identified that would be impacted
A Survey of Historic Architecture in the Proposed Chilhowie Historic District	1999	Town of Chilhowie, Smyth County	VDHR Grant	Gibson Worsham, Architect	8 resources	Yes, eligibility recommendations were made as part of a district	Emphasis on VDHR themes
Historic Architectural Survey of Smyth County, Virginia	1996	Smyth County	VDHR Grant	Hill Studio, P.C.	435 square miles	Yes, 47 recommended for further study	175 architectural at a reconnaissance level and 25 at an intensive level; good context
A Phase I Cultural Resources Survey for the Proposed VDOT project 0011-095-106, C501	Oct-91	Washington County	Phase I/Section 106; VDOT	VDOT	1, 185 feet at the intersection of Route 11 and Route 58	Yes, not eligible	21 structures were recorded (none are recorded at VDHR)
Architectural Survey of Washington County, Virginia Including the Town of Abingdon	1974	Washington County, Town of Abingdon	Catalog	Bernard Herman, Dell Upton	Not clear	No	The report consists of a catalog list and brief resource descriptions and photos taken from the fieldwork conducted by Bernard Herman in November and December 1973.
A Phase I Cultural Resource Survey Route I-81	Dec-93	Wythe County	Phase I/Section 106; VDOT	Louis Berger & Associates	Rest area along I-81	Yes, not eligible	Two resources were identified and determined not potentially eligible.
Phase I Cultural Resource Survey of the Proposed State Route 647 Improvement Project Near the Town of Abingdon	Mar-96	Washington County	Phase I/Section 106; VDOT	Louis Berger & Associates	21.4 acres	Yes, two archaeological site and one architectural site need further work	5 archaeological resources and 19 architectural resources were identified.
Phase II Architectural Evaluation of the Potential Crockett/Reed Creek Rural Historic District Associated with the Proposed Ground Wave Emergency Network Tower	Jul-92	Wythe County	Phase II/Section 106	William and Mary Center for Archaeological Research	6,000 acres of western Wythe County	Architectural Significance and Proposed Boundaries are addressed	Determined potentially eligible as part of a phase I study.

Table 3-4 Potentially Eligible Architectural Resources: I-81 Study Area

VDHR Number or Temporary Number	Name	USGS Quadrangle	County
CCR-52	*No name*	Wyndale	Washington
095-0019	The Meadows Site	Abingdon	Washington
095-0311	Campbell McIntire House	Abingdon	Washington
095-0235	Old Glade Springs Site	Glade Spring	Washington
095-0236	Snead-Mason House	Glade Spring	Washington
095-0237	Robinson House	Glade Spring	Washington
095-0239	Robinson, Mahlon/Bess House	Glade Spring	Washington
095-0481	Buchanan-Blakemore House	Glade Spring	Washington
095-0026	Meek Stone House and Cemetery	Chilhowie	Washington
095-0137	Meek, Joseph Sr., Brick House	Chilhowie	Washington
095-0468	Smith, Lewis Inn Site	Chilhowie	Washington
086-0075	Store, Rt. 11/Seven Mile Ford	Chilhowie	Smyth
CCR-51	*No name*	Chilhowie	Smyth
086-0076	Seven Mile Ford Presbyterian Church	Marion	Smyth
086-0077	Y Shaped House	Atkins	Smyth
086-0137	Y House, Rt. 11	Atkins	Smyth
086-0139	Mt. Carmel Mill and House	Atkins	Smyth
086-0152	Bear, David House	Atkins	Smyth
086-5026	Bridge #1002, Rt. 11, N&W RR	Nebo	Smyth
086-0160	Hawkins, Rev. Elijah House	Rural Retreat	Smyth
CCR-50	*No name*	Rural Retreat	Wythe
S5-1	Appalachian National Scenic Trail	Rural Retreat/Daleville	Multiple
01-14-0017	*No name*	Wytheville	Wythe
01-14-0043	*No name*	Wytheville	Wythe
01-14-0054	*No name*	Wytheville	Wythe
CCR-48	*No name*	Wytheville	Wythe
CCR-49	*No name*	Wytheville	Wythe
01-14-0016	*No name*	Max Meadows	Wythe
CCR-46	*No name*	Max Meadows	Wythe
CCR-47	*No name*	Max Meadows	Wythe
CCR-44	*No name*	Fosters Falls	Wythe
CCR-45	*No name*	Fosters Falls	Wythe
077-0010	Hillcrest	Fosters Falls	Pulaski
077-0177	Kelley's Service Station	Fosters Falls	Pulaski
077-0011	Honaker, Henry, House	Dublin	Pulaski
077-0043	Staff Village Historic District	Dublin	Pulaski
060-0069	Farm, Rt. 658 (Meadow Creek)	Riner	Montgomery
060-0070	House, Rt. 658	Riner	Montgomery

Table 3-4 Potentially Eligible Architectural Resources: I-81 Study Area (Continued)

VDHR Number or Temporary Number	Name	USGS Quadrangle	County
060-0138	Crockett-Kinzer House	Riner	Montgomery
060-0143	House, Rt. 666	Riner	Montgomery
060-0414	House, Jct. Rt. 81/603	Elliston	Montgomery
060-0415	Martin House	Elliston	Montgomery
080-0011	Garst Fort	Salem	Roanoke
080-0437	House, 1577 Dalmation Drive	Salem	Roanoke
080-5140	Freeman Cemetery	Salem	Roanoke
011-0001	Arch Mill Farm	Villamont	Botetourt
011-0048	Lauderdale	Villamont	Botetourt
011-0058	Rader, George W. House	Villamont	Botetourt
011-0088	Brugh Tavern/Farm	Villamont	Botetourt
011-0089	Bunn House	Villamont	Botetourt
011-0136	Meadowview Farm	Villamont	Botetourt
011-0165	Rader, Adam Springhouse	Villamont	Botetourt
011-0179	Graybill, Johnas House	Villamont	Botetourt
CCR-43	*No name*	Villamont	Botetourt
011-0126	Waskey's Mill House	Buchanan	Botetourt
CCR-38	*No name*	Buchanan	Botetourt
CCR-39	*No name*	Buchanan	Botetourt
CCR-40	*No name*	Buchanan	Botetourt
CCR-41	*No name*	Buchanan	Botetourt
CCR-42	*No name*	Buchanan	Botetourt
081-0002	Barclay's Tavern	Natural Bridge	Rockbridge
081-0017	Herring Hall	Natural Bridge	Rockbridge
081-0062	Stone Castle	Natural Bridge	Rockbridge
081-0160	Shafer House	Natural Bridge	Rockbridge
081-0161	House at Fancy Hill	Natural Bridge	Rockbridge
081-0163	Red Mill	Natural Bridge	Rockbridge
081-5709	Liberty Hill Cemetery	Natural Bridge	Rockbridge
081-6153	Rainbow Gas Station	Natural Bridge	Rockbridge
081-6154	Brick-tex Cottage, Lee Highway	Natural Bridge	Rockbridge
081-6187	Eagle House, 166 Tinkerville Road	Natural Bridge	Rockbridge
081-6188	F. Yerks House, 178 Tinkerville Road	Natural Bridge	Rockbridge
081-6189	Frame House, 216 Tinkerville Road	Natural Bridge	Rockbridge
081-6190	Running Bear Farm	Natural Bridge	Rockbridge
CCR-54	*No name*	Natural Bridge	Rockbridge

Table 3-4 Potentially Eligible Architectural Resources: I-81 Study Area (Continued)

VDHR Number or Temporary Number	Name	USGS Quadrangle	County
CCR-55	*No name*	Natural Bridge	Rockbridge
081-0014	Fruit Hill	Glasgow	Rockbridge
081-0057	Rose Hill	Glasgow	Rockbridge
081-0380	Fruit Hill Log House	Glasgow	Rockbridge
081-0381	Fruit Hill Corn Crib	Glasgow	Rockbridge
081-0541	Davidson-Smith House	Glasgow	Rockbridge
081-0543	Dod, W. T. House	Glasgow	Rockbridge
081-5400	House, Lee Highway	Glasgow	Rockbridge
081-0726	Rader-Bare Farm	Lexington	Rockbridge
081-6198	Packing House, Rt. 705 and Gray Fox Lane	Lexington	Rockbridge
081-0040	Maple Hall	Cornwall	Rockbridge
081-0215	Edge Hill House and Mill	Cornwall	Rockbridge
CCR-53	*No name*	Cornwall	Rockbridge
CCR-37	*No name*	Brownsburg	Rockbridge
081-0205	Adair House	Brownsburg	Rockbridge
081-0055	Raphine Hall	Vesuvius	Rockbridge
CCR-36	*No name*	Vesuvius	Rockbridge
007-0592	Spottswood Mercantile	Vesuvius	Augusta
007-0593	Spencer & McClure's Store	Vesuvius	Augusta
007-0612	Spottswood School	Vesuvius	Augusta
007-0618	Doak, Col. Robert, House	Vesuvius	Augusta
007-0619	Doak's Fort Site	Vesuvius	Augusta
007-1257	McCormick Farm	Vesuvius	Augusta
CCR-33	*No name*	Vesuvius	Augusta
CCR-34	*No name*	Vesuvius	Augusta
CCR-35	*No name*	Vesuvius	Augusta
CCR-32	*No name*	Greenville	Augusta
007-0128	Mint Spring	Stuarts Draft	Augusta
007-0130	Solitude	Stuarts Draft	Augusta
007-0558	Thistle Hill	Stuarts Draft	Augusta
007-0910	Provident Springs	Stuarts Draft	Augusta
007-0919	Danner, M. R. House	Stuarts Draft	Augusta
CCR-29	*No name*	Stuarts Draft	Augusta
CCR-30	*No name*	Stuarts Draft	Augusta
CCR-31	*No name*	Stuarts Draft	Augusta
007-0006	Prospect Hill	Staunton	Augusta
007-0027	Old Virginia	Staunton	Augusta
007-1210	Building, Western State Hospital	Staunton	Augusta

Table 3-4 Potentially Eligible Architectural Resources: I-81 Study Area (Continued)

VDHR Number or Temporary Number	Name	USGS Quadrangle	County
CCR-27	*No name*	Staunton	Augusta
CCR-28	*No name*	Staunton	Augusta
007-0156	Andes House	Fort Defiance	Augusta
007-0177	Stormy Hill	Fort Defiance	Augusta
007-0348	McAllister, H. L., House	Fort Defiance	Augusta
007-0350	Mount Airy	Fort Defiance	Augusta
007-0374	Crawford, William, House	Fort Defiance	Augusta
CCR-24	*No name*	Fort Defiance	Augusta
CCR-25	*No name*	Fort Defiance	Augusta
CCR-26	*No name*	Fort Defiance	Augusta
007-0029	Middon Manor	Mount Sidney	Augusta
CCR-19	*No name*	Mount Sidney	Augusta
CCR-20	*No name*	Mount Sidney	Augusta
CCR-21	*No name*	Mount Sidney	Augusta
CCR-22	*No name*	Mount Sidney	Augusta
CCR-23	*No name*	Mount Sidney	Augusta
082-0107	Sorghamville School House	Mount Sidney	Rockingham
082-0444	Switzer House	Mount Sidney	Rockingham
082-5109	Hidden River Dairy	Mount Sidney	Rockingham
082-5111	House, 1093 Frieden's Church Road	Mount Sidney	Rockingham
CCR-15	*No name*	Mount Sidney	Rockingham
CCR-16	*No name*	Mount Sidney	Rockingham
CCR-17	*No name*	Mount Sidney	Rockingham
CCR-18	*No name*	Mount Sidney	Rockingham
082-0622	Farmstead, Rt. 765	Harrisonburg	Rockingham
082-0052	Sellers, Silam, House	Broadway	Rockingham
082-0066	Armentroute House	Broadway	Rockingham
082-0100	Harrison, Nathaniel, Log House	Broadway	Rockingham
CCR-14	*No name*	Broadway	Rockingham
082-0048	Mauzy House	Tenth Legion	Rockingham
082-0049	Bowman-Sellers House	Tenth Legion	Rockingham
082-0057	Martz-Harrison House	Tenth Legion	Rockingham
CCR-11	*No name*	Tenth Legion	Rockingham
CCR-12	*No name*	Tenth Legion	Rockingham
CCR-13	*No name*	Tenth Legion	Rockingham
085-0040	Bushong House	New Market	Shenandoah
085-0104	Strathmore-Meems House	New Market	Shenandoah
085-0139	Good House	New Market	Shenandoah

Table 3-4 Potentially Eligible Architectural Resources: I-81 Study Area (Continued)

VDHR Number or Temporary Number	Name	USGS Quadrangle	County
085-0146	Locust Vale	New Market	Shenandoah
085-0149	House, Rt. 720	New Market	Shenandoah
085-0150	Store, Rt. 720	New Market	Shenandoah
085-0784	Pleasant View Farm	New Market	Shenandoah
CCR-09	*No name*	New Market	New Market
CCR-10	*No name*	New Market	Shenandoah
CCR-08	*No name*	New Market	Shenandoah
085-0203	Belgravia	Edinburg	Shenandoah
085-0214	Fultz, Raphael Farm	Edinburg	Shenandoah
CCR-06	*No name*	Edinburg	Shenandoah
CCR-07	*No name*	Edinburg	Shenandoah
CCR-04	*No name*	Woodstock	Shenandoah
CCR-05	*No name*	Woodstock	Shenandoah
085-0315	Hashman Farm	Toms Brook	Shenandoah
CCR-02	*No name*	Toms Brook	Shenandoah
CCR-03	*No name*	Toms Brook	Shenandoah
085-0024	Cedar Creek Bridge	Middletown	Shenandoah
085-0073	Elijah Pifer House, Vesper Hall	Middletown	Shenandoah
085-0374	Capon Bridge Freight Depot/Vance's Marrket	Middletown	Shenandoah
034-0074	Cooley House	Middletown	Frederick
034-0069	LaGrange	Stephens City	Frederick
034-0075	Stickley House, Rt. 11 S.	Stephens City	Frederick
034-0245	Rose Hill	Stephens City	Frederick
034-0284	House at Kline's Mill	Stephens City	Frederick
034-0285	House at Kline's Mill (W. S. Kline)	Stephens City	Frederick
CCR-01	*No name*	Stephens City	Frederick
034-0986	Stover, J. I., House	Stephens City	Frederick
034-0993	Schryock-Aylor House	Stephens City	Frederick
034-0994	Martin-Hollis House	Stephens City	Frederick
034-0995	Hinkle-Hollis House	Stephens City	Frederick
034-0996	Lewis House	Stephens City	Frederick
034-0997	Hovermale, Elsie, House	Stephens City	Frederick
034-1002	Combs, Donald, House	Stephens City	Frederick
034-1003	Sycamore Hill	Stephens City	Frederick
034-1004	Grand View	Stephens City	Frederick
034-0008	Swartz Mill Site/Woolen Mills	Winchester	Frederick
034-0136	Waverly	Inwood	Frederick
034-0926	Branson, Nathaniel, House	Inwood	Frederick

Table 3-4 Potentially Eligible Architectural Resources: I-81 Study Area (Continued)

VDHR Number or Temporary Number	Name	USGS Quadrangle	County
034-0928	Lupton-Hodson House	Inwood	Frederick
034-0929	Lupton, Hugh, House	Inwood	Frederick

USGS – United States Geological Survey

3.1.2 Battlefields

The Civil War Sites Advisory Commission (CWSAC) was established in 1990 to identify the nation's significant Civil War sites, determine their relative importance and condition, assess threats to their integrity, and recommend alternatives to preserve and interpret them. The CWSAC defined core and study areas for each battle which were used to define boundaries. According to the CWSAC, these areas are assumed to be eligible for the NRHP unless they are documented to have lost integrity.

The Shenandoah Valley battlefields were studied by the National Park Service (NPS), and the principal Shenandoah Valley sites are included in the CWSAC's inventory. The maps defining the boundaries of Civil War battles within the Shenandoah Valley Battlefield National Historic District (SVBNHD) were provided by the Shenandoah Valley Battlefield Foundation. The district was established by Congress to provide a mechanism to promote tourism, education, research, and preservation. The SVBNHD is classified by the National Park Service as a "national heritage area" and, as a whole, has not been listed or determined eligible for the National Register. National heritage areas typically differ from historic districts listed on the NRHP in that the boundaries of heritage areas may be based on political units and may encompass intrusions that diminish their integrity of time and place. In contrast, National Register properties meet uniform standards of integrity and significance (Barrett, 2002).

Battlefields within the SVBNHD extend over eight counties in northwestern Virginia. I-81 traverses five of the eight counties, namely, Augusta, Frederick, Rockingham, Shenandoah, and Warren. I-81 traverses all four battlefields in Shenandoah County, which account for more than 40 percent of the district's battlefield acreage. Additionally, the district's largest battlefield, Cedar Creek, is traversed by I-81 in Shenandoah, Warren, and Frederick Counties. In October 2000, the Shenandoah Valley Battlefields National Historic District Commission adopted a management plan to preserve the district's integrity, to protect and interpret the district's resources, and to foster public awareness of the Valley's legacy.

The battles in the southern Valley are noted on CWSAC/NPS maps available at VDHR. These maps have been reviewed, and the boundaries defined, where possible. Battlefields in the study area are listed in Table 3-5.

Table 3-5 Civil War Battlefields: I-81 Study Area

County	VDHR Number	Battlefield Name	Part of CWSAC Survey	Year of Engagement	Listing or VDHR Evaluation
Frederick	138-5005	Winchester 1	Yes	1862	
Frederick	None	Kernstown 1	Yes	1862	n/a
Frederick	None	Kernstown 2	Yes	1862	n/a
Smyth	None	Marion	Yes	1864	n/a
Shenandoah	269-5001	New Market	Yes	1864	
Shenandoah	085-5045	Tom's Brook	Yes	1864	
Shenandoah	085-0001	Fisher's Hill	Yes	1864	
Frederick, Shenandoah, and Warren	034-0303/ 034-0002	Cedar Creek	Yes	1864	NHRP/VLR/NHL
Frederick	034-0456	Opequon (Winchester 3)	Yes	1864	Eligible
Roanoke	080-5023	Hanging Rock	No	1864	Eligible

NHL – National Historic Landmark
NRHP – National Register of Historic Places
VLR – Virginia Landmarks Register

3.1.3 National Historic Landmarks

A National Historic Landmark (NHL) is a NRHP-eligible property that also meets a more stringent set of criteria. An NHL will have national significance and "possess exceptional value or quality in illustrating or interpreting the heritage of the United States in history, architecture, archaeology, engineering, and culture (*Code of Federal Regulations, Title 36, and Part 65*). Today, fewer than 2,500 historic places bear this national distinction. Three properties within the I-81 study area have been designated as National Historic Landmarks (Table 3-6).

Table 3-6 National Historic Landmarks: I-81 Study Area

VDHR Number	Name	USGS Quadrangle	City or County	Listing or VDHR Evaluation
081-0073	McCormick, Cyrus, Farm and Workshop	Vesuvius	Rockbridge	NRHP/VLR/NHL
034-0002	Belle Grove and Cedar Creek Battlefield	Strasburg and Middletown	Frederick and Warren	NRHP/VLR/NHL
034-0303	Cedar Creek Battlefield	Middletown	Frederick	NRHP/VLR/NHL

NHL – National Historic Landmark
NRHP – National Register of Historic Places
USGS – United States Geological Survey
VLR – Virginia Landmarks Register

3.1.4 Historic Easements

Historic preservation easements are granted to the Virginia Board of Historic Resources and are administered by VDHR. A historic preservation easement is a voluntary legal agreement allowing the donor to retain ownership and possession of a historic landmark, while granting someone else the authority to protect the historic, architectural, and archaeological features. An easement contains perpetual covenants that obligate the owner to refrain from actions that are incompatible with the preservation of the landmark. The covenants pass with the title to the land and bind all subsequent owners. One historic preservation easement has been granted within the I-81 study area as noted in Table 3-7.

Table 3-7 Historic Easements: I-81 Study Area

VDHR Number	Name	USGS Quadrangle	County	Listing or VDHR Evaluation
034-0303	Cedar Creek Battlefield	Middletown	Frederick	NRHP/VLR/NHL/Easement

NHL – National Historic Landmark
NRHP – National Register of Historic Places
USGS – United States Geological Survey
VLR – Virginia Landmarks Register

3.1.5 Archaeological Resources

A total of 114 archaeological sites have been previously recorded in the I-81 study area. They were identified by reviewing the DSS files, site reports, location maps at VDHR, and the restricted maps at VDHR. Appendix B is a complete list of these sites.

A summary of archaeological sites within the I-81 study area that are NHRP listed, determined eligible for listing, or potentially eligible for listing is provided below.

NHRP Listed and Determined Eligible Archaeological Sites

Only one previously recorded archaeological site in the I-81 study area has been determined eligible or listed on the NRHP (see Table 3-8). This site is not depicted on any figures because the location of the site is being kept confidential to protect the site from looting.

Table 3-8 Listed and Determined Eligible Archaeological Sites: I-81 Study Area

VDHR Number	Name	USGS Quadrangle	County	Listing or VDHR Evaluation
44WY0019	Fort Chiswell Site	Max Meadows	Wythe	NRHP/VLR

NRHP – National Register of Historic Places
USGS – United States Geological Survey
VLR – Virginia Landmarks Register

Potentially Eligible Archaeological Resources

For purposes of this Tier 1 level of study, the inventory of potentially eligible archaeological resources was limited to burial sites with known human remains or the potential for human remains. The study focuses on these sites because they can pose a greater regulatory constraint than archaeological sites without human remains. An inventory of all potentially archaeological sites would be completed during Tier 2, if one or more "Build" concepts (or portions of a "Build" concept) are advanced.

This inventory was based on a review of VDHR's cost-share survey reports, review of *ASV Quarterly Bulletin*, coordination with VDHR, and an evaluation of previously recorded sites using criteria described in Chapter 2, *Methods*. The results are described below.

Sites With Known Human Remains

There are nine archaeological sites known to either contain human remains or to have produced human remains in the past located within 500 feet of each side of the I-81 edge of pavement. Five are Native American sites (44BO0003, 44PU0010, 44SH0001, 44SM0033, and 44WG0027). One contains both prehistoric and historic components (44WG0021), and three are historic cemetery sites (44BO0295, 44MY0470, and 44RB0305) (see Table 3-9).

Table 3-9 Archaeological Sites with Known Human Remains: I-81 Study Area

Site	Site Affiliation	Site Type	NRHP Recommendation	Listing or VDHR Evaluation
44BO0003	Native American	Woodland Village	None	None
44BO0295	Historic	19th-Century Cemetery	None	None
44MY0470	Historic	Late 19th- and 20th-Century Family Cemetery	Eligible	Not Eligible
44PU0010	Native American	Woodland Village	None	None
44RB0305	Historic (African-American)	19th-Century Cemetery	None	None
44SH0001	Native American	Archaic, Woodland Village	None	None
44SM0033	Native American	Woodland Village	None	None
44WG0021	Native American and Historic	Archaic through Middle Woodland Campsite; Early 19th- through 20th Century Farmstead	Not Eligible	None
44WG0027	Native American	Early Archaic through Early Late Woodland	None	None

Sites with the Potential for Human Remains

Table 3-10 lists the 64 potential burial sites (prehistoric and historic) within the study area and a ranking for their potential to contain burials. This includes 33 prehistoric Native American sites, 26 historic sites, and five sites that are a combination of both (multicomponent sites). Those for which no information could be defined, or which had no potential for burials, are not included in Table 3-10. A complete table of the 89 archaeological sites reviewed for their burial potential and the information on their potential for burials is found in Appendix C.

The following sections describe the potential for human remains for prehistoric Native American and historic sites in the I-81 study area.

Prehistoric Sites

None of the Native American sites recorded within 500 feet of either side of the I-81 edge of pavement have produced human remains from either Archaic or Paleo-Indian period components. It is unlikely that human remains dating prior to the Woodland period are contained within the study area.

All six Native American sites that have produced human remains within 500 feet of either side of I-81 are either villages or larger hamlets dating to the Middle and/or Late Woodland periods. Since late prehistoric habitation areas appear to represent the most common burial facility within the I-81 study area, identifying the location of Middle and Late Woodland villages and hamlets is critical to determining which Native American sites retain the potential to contain burials with extant human remains.

There are no recorded prehistoric Native American cave burial sites, accretional mound sites, bone bed sites, substructure mounds, or stone cairn sites, located within the I-81 study area.

Native American sites that have produced human remains in the past were ranked as having a strong potential to contain additional human remains and burial features if extant portions of the site survive. Impacts such as construction and looting may affect the integrity of burial features but they do not remove the potential for the presence of human remains. Most of the known prehistoric Native American burial sites that have produced human remains within the I-81 study area fall into this category, but the extent of these impacts within the actual site remains unverified.

Historic Sites

Three cemetery sites (44BO0295, 44MY0470, and 44RB0305) within the I-81 study area are known to contain human remains dating to the historic period. The majority of the historic archaeological sites were simply identified as farmsteads, domestic dwellings, or trash scatters, ranging in date from the latter half of the eighteenth century through the twentieth

century. No other historic archaeological sites within this area were recorded as containing a potential cemetery, a potential burial plot, or as displaying possible burial indicators such as multiple surface depressions and/or periwinkle beds.

A number of archaeological sites associated with the Civil War were also identified within the I-81 study area. Most of the Civil War sites represent earthworks and trenches, gun emplacements, or campsites, and none were described as graveyards, cemeteries, or as containing human burials. No archaeological sites were identified as churches or as possible churches, with the potential to have an associated burial plot.

Sites with Strong to Moderate Burial Potential

Sites ranked as having strong potential or moderate potential for containing human remains should be viewed as having the potential to contain human remains. Of the 64 potential burial sites located within 500 feet of either side of the I-81 edge of pavement, 28 fall into this category (see Table 3-10). Fifteen prehistoric sites were ranked as having strong potential for containing human remains and two were ranked as having moderate potential. Aside from the three cemetery sites, none of the historic sites were ranked as having strong potential for containing human remains. Eight historic sites were ranked as having moderate potential for containing human remains. One of these was a multicomponent site (44WG0021), ranked as having strong potential for containing additional prehistoric Native American remains and moderate potential for containing human remains from the historic period.

Due to the incomplete nature of the records, it is not known if these sites actually contain burials. Many of these sites were either excavated decades ago or were simply assigned state site numbers with no verification. Some of the early efforts were salvage projects, focused only on the immediate impacts of the initial construction of I-81. Most of the larger prehistoric Native American village sites were looted repeatedly prior to being impacted by assorted construction projects and commercial development. Efforts to identify cultural resources by avocational researchers have resulted in the registration of many archaeological sites but knowledge of their condition and potential contents is limited. One of the site forms (44FK0061) was missing from VDHR. Cultural resource management projects in the 1970s and 1980s did not always provide straightforward recommendations regarding eligibility for the NRHP.

Table 3-10 Archaeological Sites with Potential for Burials: I-81 Study Area

VDHR Site Number	USGS Quad	County	Native American and/or Historic	Known Burials	Potential Burials
44AU0078	Fort Defiance	Augusta	Native American	No Data	Very Low
44AU0081	Staunton	Augusta	Native American	No Data	Low
44BO0003	Villamont	Botetourt	Native American	Yes; Numerous Subsurface Pits and Five Burials	Burials Present; Quarterly Bulletin Report Mentions Five Human Burials at the Site, May Not Have Excavated The Entire Site
44BO0122	Buchanan	Botetourt	Native American	No Data, Surface Collected Only	Very Low
44BO0295	Buchanan	Botetourt	Historic	Yes; Cemetery Burials	Burials Present; Beale Cemetery; Six or Seven Headstones; Four to Five Times as Many Grave Depressions (Approximately 24 To 35 Burials Total)
44BO0381	Buchanan	Botetourt	Native American and Historic (Domestic Scatter, Spongeware)	No Data, Surface Collected Only	Strong
44FK0026	Stephens City	Frederick	Native American and Historic (Indeterminate)	Site Impacted by Agricultural Activities; None Mentioned	Low for Site 44FK0026B; Very Low for Site 44FK0026A; No for 44FK0026C (Very Low for 44FK0026C Historic)
44FK0076	Stephens City	Frederick	Historic (Civil War Military Base/Facility)	No Data	Very Low
44FK0077	Stephens City	Frederick	Historic (Eighteenth and Twentieth Century Farmstead)	No Data	Moderate
44FK0094	Stephens City	Frederick	Native American	None Identified	Very Low
44FK0095	Stephens City	Frederick	Native American	None Identified	Very Low
44FK0106	Stephens City	Frederick	Historic (Civil War Earthworks, Possible XIX Corps)	No Data	Very Low
44FK0132	Winchester	Frederick	Native American	No Data	Very Low
44FK0133	Winchester	Frederick	Historic (Twentieth Century Farmstead)	Visual Reconnaissance Only	Very Low

Table 3-10 Archaeological Sites with Potential for Burials: I-81 Study Area (Cont'd)

VDHR Site Number	USGS Quad	County	Native American and/or Historic	Known Burials	Potential Burials
44FK0158	Stephens City	Frederick	Historic (Civil War Fortification/Encampment)	Probable	Very Low
44FK0213	Stephens City	Frederick	Historic (Civil War Fort)	No Data	Very Low
44FK0451	Stephens City	Frederick	Historic (Nineteenth Century Farmstead)	Structural Features	Low
44FK0576	Winchester	Frederick	Historic (Late Eighteenth, Nineteenth, and Twentieth Century Trash Scatter)	No Data	Moderate
44FK0577	Winchester	Frederick	Historic (Late Nineteenth and Twentieth Century Trash Scatter)	No Data	Very Low
44FK0578	Winchester	Frederick	Historic (Late Nineteenth and Early Twentieth Century Military Camp)	Subsurface Integrity	Very Low
44FK0581	Winchester	Frederick	Historic (Second Half Nineteenth and First Quarter Twentieth Century Trash Scatter)	No Data	Very Low
44FK0583	Winchester	Frederick	Historic (Domestic Architectural Scatter, Eighteenth Century and Fourth Quarter Nineteenth Century)	No Surface Deposits but with Subsurface Integrity	Very Low
44FK0584	Winchester	Frederick	Historic (Nineteenth Century and First Quarter Twentieth Century Trash Scatter)	No Surface Deposits but with Subsurface Integrity	Very Low
44MY0001	Radford South	Montgomery	Native American	No Data, Surface Testing Only but Impacted by Erosion along Northern Edge	Moderate
44MY0027	Elliston	Montgomery	Native American	No Data, Surface Collected Only	Very Low
44MY0035	Elliston	Montgomery	Native American	No Data	Moderate
44MY0081	Radford South	Montgomery	Native American	Yes; Site Under One Foot of Flood Soil, and Phase I Found Evidence of Prehistoric Features and Artifact Deposits	Strong

Table 3-10 Archaeological Sites with Potential for Burials: I-81 Study Area (Cont'd)

VDHR Site Number	USGS Quad	County	Native American and/or Historic	Known Burials	Potential Burials
44MY0330	Ironto	Montgomery	Historic (House Site, Indeterminate Age)	No Data	Low
44MY0418	Ironto	Montgomery	Historic (Farmstead, Fourth Quarter Nineteenth, First Quarter Twentieth Century)	No Data	Very Low
44MY0470	Blacksburg	Montgomery	Historic (Cemetery)	Yes, Historic Only	Burials Present, Cemetery Site with Six Known Burials and a Family Marker
44PU0010	Pulaski	Pulaski	Native American	Yes, Including Human Burials	Burials; Strong if There are Extant Portions of the Site
44PU0031	Radford South	Pulaski	Native American	No Data	Strong
44PU0033	Radford South	Pulaski	Native American	No Data	Low
44PU0112	Dublin	Pulaski	Historic (Two-Story Log Structure)	No Data	Moderate
44RB0305	Natural Bridge	Rockbridge	Historic (African-American Cemetery, Nineteenth Century)	Yes; Human Burials	Burials Present; Site Has between 10 to 20 Depressions in a Periwinkle Patch
44RM0449	Harrisonburg	Rockingham	Historic (Nineteenth Century Farmstead)	None Identified	Very Low
44RM0450	Harrisonburg	Rockingham	Historic (Nineteenth and Twentieth Century Farmstead)	Yes	Moderate
44RM0451	Harrisonburg	Rockingham	Historic (Late Nineteenth and Twentieth Century Farmstead)	None Identified	Very Low
44RN0232	Glenvar	Roanoke	Native American	No Data, Surface Collected Only	Very Low
44RN0233	Glenvar	Roanoke	Historic (Cabin or Kiln, Nineteenth Century)	No Data, Surface Collected Only	Moderate
44RN0333	Roanoke	Roanoke	Historic (Domestic Refuse Site (Middle to Late Nineteenth Century), with Stone Foundations Dating to the Late Nineteenth or Early Twentieth Century)	Yes	Very Low

Table 3-10 Archaeological Sites with Potential for Burials: I-81 Study Area (Cont'd)

VDHR Site Number	USGS Quad	County	Native American and/or Historic	Known Burials	Potential Burials
44SH0001	Middletown	Shenandoah	Native American	Yes; Human Burials	Burials Present; Six Human Burials Recovered from the Site
44SH0109	Middletown	Shenandoah	Historic (Second and Third Quarter Nineteenth Century House Site)	No Data	Moderate
44SM0005	Chilhowie	Smyth	Native American	No Data	Burials Present; 11 Human Teeth Reported on the VDHR Site Form Addendum from 1988 ASV Volunteer Survey; Skeleton Reported by Holland (1970:34)
44SM0007	Chilhowie	Smyth	Native American	Yes	Burials Present; 26 Burial Pits with Human Remains Examined by Boyd (1992)
44SM0008	Chilhowie	Smyth	Native American	Yes	Burials Present; Over 100 and Possibly as Many as 300 Burials (Holland 1963)
44SM0015	Atkins	Smyth	Native American	No Data, Surface Collect Only	Very Low
44SM0019	Chilhowie	Smyth	Native American	No Data	Strong
44SM0033	Marion	Smyth	Native American	Yes; Burials Under Stones Reported to Holland (1970)	Burials Present; Burials Reported to Holland (1970:40) by Informants
44SM0050	Marion	Smyth	Native American	No Data, Surface Collected Only	Strong
44SM0052	Marion	Smyth	Native American	No Data, Surface Collected Only	Strong
44SM0055	Chilhowie	Smyth	Native American	Yes	Burials Present; Unknown Number of Burials Uncovered During Construction and Subsequent Looting
44SM0059	Chilhowie	Smyth	Native American	Yes, Features Identified During Construction	Strong
44SM0083	Atkins	Smyth	Native American and Historic	No Data, Surface Collect Only	Low (Very Low for Historic)
44SM0209	Chilhowie	Smyth	Native American	No Data	Strong

Table 3-10 Archaeological Sites with Potential for Burials: I-81 Study Area (Cont'd)

VDHR Site Number	USGS Quad	County	Native American and/or Historic	Known Burials	Potential Burials
44WG0021	Abingdon	Washington	Native American and Historic (Early Nineteenth through Twentieth Century Farmstead)	Yes	Burials/Human Remains Present (Loose Teeth); Lots of Features, Not all of Site Excavated (Moderate for Historic)
44WG0027	Abingdon	Washington	Native American	Yes; Numerous Prehistoric Subsurface Features. Lots of Cord-Marked Radford Series Ceramics Present (89 Percent, N=911)	Yes; Single Burial
44WG0119	Abingdon	Washington	Native American	No Data	Low
44WG0166	Abingdon	Washington	Native American	Yes	Low
44WG0210	Wyndale	Washington	Native American	No Data	Low
44WG0251	Chilhowie	Washington	Native American	No Data	Low
44WY0019 & 098-026	Max Meadows	Wythe	Native American and Historic	Historic Only	No (Low for Historic)
44WY0053 & 139-5031	Wytheville	Wythe	Historic (Nineteenth through First Half Twentieth Century Farmstead)	Probably	Moderate
44WY0239	Max Meadows	Wythe	Native American	Potential for Features; Deep Site	Strong

3.1 Rail Study Area

This section describes those properties within the rail study area that are considered historic (listed on or formally determined eligible for the Virginia Landmarks Register or the NRHP by VDHR, or that may be potentially eligible for listing), warranting further study during Tier 2 studies, if a "Build" concept (or portion of a "Build" concept) advanced (see Figure 4-2 in Chapter 4.)

3.2.1 Architectural Resources

Along the Shenandoah rail line, the four rail improvement sections in Washington, Smyth, Wythe, and Pulaski Counties (sections 1, 2, 3, and 4) are in the southern part of the Shenandoah Valley. The terrain is more rugged than in the northern Valley, and fewer historic resources survive. Located in the northern portion of the Shenandoah Valley, the rail sections in Clarke and Warren Counties are characterized by open spaces with large rural historic districts with resources from the eighteenth and nineteenth centuries. The architectural setting for the rail sections in Fauquier County is similar to those of the rail sections in Clarke and Warren. The rail section in Prince William County is located in the rocky terrain of the gap in the Bull Run Mountains. This setting is well-suited to water-powered industries. The section in Pittsylvania County is the typical, rolling Piedmont terrain. The area is characterized by small towns and open agricultural areas, with historic resources dating primarily from the nineteenth century.

Approximately 96 individual architectural resources are recorded at VDHR within the rail study area. The majority of them (almost 70) have not been evaluated for eligibility. The remaining number includes properties that have been determined not eligible, been determined eligible, or been listed on the VLR or NRHP. A complete list of these buildings, structures, and districts is provided in Appendix D.

The following sections describe architectural resources that are either NHRP listed or determined eligible, as well as architectural resources that are potentially eligible.

NHRP Listed and Determined Eligible Architectural Resources

Architectural resources described in this section include buildings and structures as well as historic districts that are either listed or determined eligible for listing on the NRHP.

Buildings and Structures

A total of six listed or determined eligible buildings and structures have been previously recorded at VDHR in the rail study area as listed in Table 3-11.

Table 3-11 Listed and Determined Eligible Buildings and Structures: Rail Study Area

County	Rail Section	VDHR Number	Resource Name	USGS Quadrangle	Listing or VDHR Evaluation
Clarke	5	021-0073	Soldiers Rest	Berryville	NRHP/VLR/Easement
Warren	6	093-0063	Front Royal Country Club	Front Royal	NRHP/VLR
Warren	7	093-0057	Lackawanna	Front Royal	Eligible
Warren	8	093-0114	Linden House #2	Linden	Eligible
Prince William	11	076-0002	Beverley Mill	Thoroughfare Gap	NRHP/VLR
Pittsylvania	13	071-0025	Mountain View	Chatham	NRHP/VLR

NHL – National Historic Landmark
NRHP – National Register of Historic Places
USGS – United States Geological Survey
VLR – Virginia Landmarks Register

Historic Districts

Eight historic districts either listed or determined eligible for listing on the NRHP have been previously recorded within the rail study area as listed in Table 3-12.

Table 3-12 Listed and Determined Eligible Historic Districts: Rail Study Area

County	Rail Section	District Name	VDHR Number	USGS Quadrangle	Listing or VDHR Evaluation
Clarke	5	Berryville Historic District	168-0012	Berryville	NRHP/VLR
Clarke	5	Long Marsh Run Rural Historic District	021-0967	Berryville	NRHP/VLR
Clarke	6	Greenway Rural Historic District	021-0963	Berryville	NRHP/VLR
Warren	7	Front Royal Historic District	112-0055	Front Royal	NRHP/VLR
Warren	7	Riverton Historic District	112-5328	Front Royal	NRHP/VLR
Fauquier	9	Crooked Run Valley Rural Historic District	030-5369	Upperville	NRHP/VLR
Fauquier	10	The Plains Historic District	311-5001	Marshall	Eligible

Potentially Eligible Architectural Resources

Potentially eligible architectural resources in the rail study area, including buildings, structures and historic districts, were inventoried based exclusively on a preliminary field survey since no previously completed survey reports had been completed in the rail study

area. To preliminarily identify potentially eligible architectural resources in the study area, each DSS form was first reviewed to assess the potential of the resource for eligibility. If the information on file at VDHR suggested that a resource may be potentially eligible, it was then viewed during the preliminary field survey completed for this study. Unrecorded resources were also viewed and assessed for eligibility during the field survey. These were marked on USGS maps and given temporary numbers for tracking. Each resource was incorporated into the I-81 GIS database for historic properties.

Table 3-13 lists the architectural resources which appear to have some potential for eligibility based on the preliminary field survey. They include buildings, structures and one potential historic district.

Table 3-13 Potentially Eligible Architectural Resources: Rail Study Area

VDHR Number or Temporary Number	Rail Section	USGS Quadrangle	Town or County
095-0443	1	Glade Spring	Washington
RS2-2	2	Atkins	Wythe
RS3-2	3	Rural Retreat	Wythe
RS5-1	5	Linden	Multiple
093-0278	6	Front Royal	Warren
RS7-1	7	Front Royal	Town of Front Royal
RS7-2	7	Front Royal	Town of Front Royal
093-0115	8	Linden	Fauquier
Entire rail section in a potential rural historic district	9	Upperville	Fauquier
RS11-1	11	Thoroughfare Gap	Fauquier / Prince William

USGS – United States Geological Survey

3.2.2 Battlefields

The battles in the southern Valley and along the Piedmont Line are noted on CWSAC/NPS maps available at VDHR. These maps were reviewed, and the boundaries defined where possible. A list of the battlefields in the rail study area is in Table 3-14.

Table 3-14 Civil War Battlefields: Rail Study Area

County	Rail Section	Battlefield Name	Associated VDHR Number	Year of Engagement
Smyth	2	Marion	None	1864
Clarke	5	Berryville	None	1864
Warren	7	Front Royal	093-0160	1862
Warren	7	Guard Hill	093-0530	1864
Warren	8	Wapping Heights Battle Site	093-0531	1863
Fauquier/Prince William	11	Thoroughfare Gap	030-1016	1862

3.2.3 National Historic Landmarks

There are no National Historic Landmarks within the rail study area.

3.2.4 Historic Easements

One historic easement is located in the rail study area as listed in Table 3-15.

Table 3-15 Easements in Rail Study Area

County	Rail Section	VDHR Number	Name	Quad	Listing or VDHR Evaluation
Clarke	5	021-0073	Soldiers Rest	Berryville	NRHP/VLR/Easement

3.2.5 Archaeological Resources

A total of 17 archaeological sites have been previously recorded within the rail study area. They are listed in Appendix E of this technical report. A summary of archaeological sites within the rail study area that are NHRP listed, determined eligible, or potentially eligible for listing is provided below.

NHRP Listed and Determined Eligible Archaeological Sites

Only one previously recorded archaeological site in the rail study area has been determined to be eligible for or listed on the NRHP (see Table 3-16). This site has not been depicted on any figures because the location of the site is being kept confidential to protect the site from looting.

Table 3-16 Listed and Determined Eligible Archaeological Sites: Rail Study Area

VDHR Number	USGS Quadrangle	County	Listing or VDHR Evaluation
44PW0587	Max Meadows	Gainesville	Eligible

USGS – United States Geological Survey

Potentially Eligible Archaeological Resources

For purposes of this Tier 1 level of study, the inventory of potentially eligible archaeological resources was limited to burial sites with known human remains or the potential for human remains because these types of sites can pose a greater regulatory constraint than archaeological sites without human remains.

This inventory was based on a review of VDHR's cost-share survey reports, review of *ASV Quarterly Bulletin*, coordination with VDHR and an evaluation of previously recorded sites using criteria described in Chapter 2, *Methods*. The results are described below.

Sites With Known Human Remains

There is one archaeological site within 500 feet of either side of the rail centerline that is known to contain human remains. The site, 44PW1040, is a historic cemetery dating to the nineteenth century (see Table 3-17).

Table 3-17 Archaeological Sites with Human Remains: Rail Study Area

Site	Site Affiliation	Site Type	NRHP Recommendation	Listing or VDHR Evaluation
44PW1040	Historic	Cemetery with at least 10 graves, one of which is African-American	Not eligible	None Listed

Sites with the Potential for Human Remains

Table 3-18 lists the 17 potential burial sites (prehistoric and historic) within the rail study area and a ranking for their potential to contain burials. This includes 7 prehistoric Native American sites, 8 historic sites, and two sites that are a combination of both (multicomponent sites). Those for which no information could be defined, or which had no potential for burials, are not included in the table. The sites were also ranked for the potential to contain burials.

Table 3-18 Archaeological Sites with Potential for Burials: Rail Study Area

VDHR Site Number	USGS Quad	County	Native American and/or Historic	Known Burials	Potential for Burials
44PW0573	Gainesville	Prince William	19th Century Domestic Scatter	No	Low
44PW0574	Gainesville	Prince William	Historic House Foundation, Unknown Age	No	Low
44PW0575	Gainesville	Prince William	19th to 20th Century House Foundation	No	Very low
44PW0587	Gainesville	Prince William	19th to 20th Century Domestic Scatter	No	Very low
44PW1040	Gainesville	Prince William	19th Century Cemetery, African American	Yes	Burial Present; Potential for Additional Burials is Strong
44SM0015	Atkins	Smyth	Native American Woodland Period	No	Moderate
44SM0179	Atkins	Smyth	Native American lithic site, Unknown Age	No	Low
44WG0183	Glade Spring	Washington	Native American, Unknown, Possible Archaic	No	Low
44WG0184	Glade Spring	Washington	Native American, Unknown, Possible Archaic	No	Low
44WG0198	Glade Spring	Washington	Native American, Archaic and Woodland	No	Moderate
44WR0228	Front Royal	Warren	Native American Camp, Unknown Age; Historic domestic site, Unknown Age	No	Low
44WR0292	Linden	Warren/ Fauquier	Native American Lithic Scatter, Unknown Age	No	Low
44WR0333	Linden	Warren/ Fauquier	19th to 20th Century Domestic Scatter	No	Very low
44WR0334	Linden	Warren/ Fauquier	19th to 20th Century Domestic Scatter	No	Very low
44WR0335	Linden	Warren/ Fauquier	19th Century House Site	No	Low
44WY0165	Crockett	Wythe	Native American Lithic Site, Unknown Age; 20th Century Domestic Scatter	No	Low
44WY0166	Crockett	Wythe	Native American Lithic Scatter, Unknown Age	No	Low

Sites ranked as having strong potential or moderate potential for containing human remains should be viewed as having the potential to contain human remains. Of the 17 archaeological sites with potential for human remains in the rail study area, three fall into this category. One is a historic cemetery with at least ten burials and the potential for additional unmarked burials. The other two, 44SM0015 and 44WG0198, are prehistoric Native American Woodland period sites with moderate potential for burials. Little is known about these possible village sites. The remaining sites, which include nineteenth- to twentieth-century domestic sites and prehistoric Native American lithic scatters of uncertain age, have potentials ranging from low to very low.

4

Potential Impacts to Historic Properties

This chapter discusses how potential impacts were defined for historic properties, and the potential impacts to historic properties for the improvement concepts considered in the impact analysis. The potential effects of specific improvements along I-81 would be analyzed in greater detail during subsequent Tier 2 NEPA studies, if a "Build" concept (or portion of a "Build" concept) is advanced.

4.1 Introduction

This section describes the potential impacts to historic properties that may occur as a result of the improvement concepts. For this study, historic properties are defined as those properties that are either listed on or that have been formally determined eligible for listing on the Virginia Landmarks Register or the National Register of Historic Places (NRHP) by VHDR, or that may be potentially eligible for listing, warranting further study during Tier 2 studies, if a "Build" concept (or portion of a "Build" concept) is advanced.

Potential impacts to historic properties were examined by overlaying the "Build" concept footprints over the GIS data. For the purposes of the Tier 1 study, only the potential direct impacts on historic properties were considered. A resource was considered to be directly impacted if the resource as represented in the GIS was wholly or partially inside the concept footprint. The GIS was also used to calculate the acreage of potential impact to historic properties based on the boundaries as defined on their NRHP nomination or on the records at VDHR. This analysis does not address the significance of these potential direct impacts.

In addition to direct impacts from construction, other types of effects to historic properties can occur as a result of an undertaking. This can include removing the property from its historic location, changing the character of the property's use or setting when they contribute to its significance, and introduction of visual, atmospheric, or audible elements that diminish the integrity of the significant features. While all or some of these effects may occur as result of the improvement concepts, this Tier 1 analysis does not address these effects. This analysis does not include an assessment of the type of potential effect on historic properties (no effect,

no adverse effect, or adverse effect). Consultation with the VDHR and other consulting parties and the public concerning the full range of effects to historic properties would be undertaken during Tier 2 if a "Build" concept (or portion of a "Build" concept) is advanced.

4.1.1 No-Build Concept

The No-Build Concept would generally maintain the existing conditions on I-81 with the exception of 16 fully-funded minor roadway improvements described in the Tier 1 DEIS. Historic properties may be in the vicinity of these roadway improvements, and improvements may result in direct and/or indirect impacts to these resources. However, since they involve federal funding, potential impacts to historic properties associated with these improvements have either been addressed or will be addressed in NEPA documents prepared independently of the *I-81 Corridor Improvement Study.*

4.1.2 "Build" Concepts

The "Build" concepts would potentially impact historic properties in the I-81 and rail corridors (see Figures 4-1 and 4-2 at the end of this chapter). The direct impacts are summarized below. In addition, the "Build" concepts could potentially have visual impacts on historic properties described in Chapter 3, *Inventory Results*. Such effects would be addressed during Tier 2 based on more detailed design information, if a "Build" concept (or portion of a "Build" concept) is advanced.

NHRP Listed and Determined Eligible Architectural Resources

Potential impacts to structures and buildings as well as historic districts that are either listed or determined eligible are described in the following sections.

Buildings and Structures

Table 4-1 below summarizes the range of potential impacts to specific historic buildings or structures. The Minimum Width and Maximum Width footprints potentially impact 19 and 20 structures and buildings, respectively. The Maximum Width footprint would impact approximately 20 more acres than the Minimum Width.

If implemented with highway improvements, Rail Concept 3 would potentially add less than one acre of impact at two properties, Linden House #2 along rail section 8 in Warren County and Beverley Mill along rail section 11 in Prince William County.

Table 4-1 Potential Direct Impacts to NHRP Listed and Eligible Buildings and Structures

Name	VDHR#	Minimum Width (Acres)	Maximum Width (Acres)	Add 2-Lanes (Acres)	Add 8-Lanes (Acres)	Rail Concept 3 (Acres)
James Alexander House	007-0604	1.7	6.2	1.7	6.2	0
Valley Railroad Stone Bridge	007-0041	0.2	0.7	0.2	0.7	0
Beverley Mill	076-0002	0	0	0	0	0.5
Bridge 1026	132-0045	0.7	0.7	0.7	0.7	0
H.L. Bonham House	189-0003	4.7	4.7	4.7	4.7	0
Brubaker House	080-0005	4.3	4.3	4.3	4.3	0
Carvin's Cove Water Filtration Plant	080-5096	1.0	1.4	1.0	1.4	0
Church Hill	081-0065	3.2	7.6	3.2	7.6	0
Contentment	082-0062	1.6	2.1	1.5	2.1	0
Fancy Hill	081-0015	4.8	4.8	4.8	4.9	0
Fort Bowman	085-0004	28.4	33.9	28.0	33.9	0
Pifer House	085-0470	0.6	0.7	0.6	0.7	0
Fort Chiswell Manor	098-0005	9.5	9.5	9.5	13.3	0
Fort Chiswell Site	098-0026	6.2	6.2	6.2	9.3	0
James Madison University	115-0103	9.3	9.4	9.3	11.3	0
Linden House #2	093-0114	0	0	0	0	0.1
Maple Hall	081-0041	2.0	3.8	2.0	3.8	0
McGavock Family Cemetery	098-0022	0.3	0.3	0.3	0.3	0
NC Branch, N&W Rail	077-5068	2.4	3.2	2.4	3.2	0
Snapp House	085-0029	0.0	0.02	0	0.02	0
Springdale	081-0180	1.3	2.6	1.3	2.6	0
Zig-Zag Trenches	034-0314	3.2	4.8	2.9	4.8	0
Hillandale	034-0126	1.3	1.3	1.3	1.4	0
TOTAL		86.7	108.2	85.9	117	0.6

Historic Districts

Two historic districts would potentially be impacted by the "Build" concepts as summarized in Table 4-2. Rail Concept 3 would potentially impact approximately 12 additional acres of historic districts, associated with two historic districts along rail section 5 in Clarke County: Berryville Historic District and Long Marsh Run Rural Historic District.

Table 4-2 Potential Direct Impacts to NHRP Listed and Eligible Historic Districts

Name	VDHR#	Minimum Width (Acres)	Maximum Width (Acres)	Add 2-Lanes (Acres)	Add 8-Lanes (Acres)	Rail Concept 3 (Acres)
Berryville Historic District	168-0012	0	0	0	0	1.8
Camp Russell Historic District	034-5036	27.5	28.4	27.5	30.7	0
Downtown Chilhowie Historic District	189-0001	0	0	0	0.1	0
Long Marsh Run Rural Historic District	021-0967	0	0	0	0	10.3
New Market Historic District	269-0005	0	0	0	0.2	0
Newtown/Stephens City Historic District	304-0001	24.5	29.5	24.5	29.5	0
TOTAL		52.0	57.9	52.0	60.5	12.1

Potentially Eligible Architectural Resources

Table 4-3 summarizes potential impacts to potentially eligible architectural resources. Based on available data, Rail Concept 3 does not impact potentially eligible architectural resources.

Table 4-3 Potential Direct Impacts to Potentially Eligible Buildings and Structures

Name	VDHR#	Minimum Width (Acres)	Maximum Width (Acres)	Add 2-Lanes	Add 8-Lanes
Campbell McIntire House	095-0311	0.72	0.72	0.72	0.72
Meek, Joseph Sr., Brick House	095-0137	0.04	0.04	0.04	0.36
Hillcrest	077-0010	0.08	0.22	0.08	0.22
Kelley's Service Station	077-0177	0.44	0.61	0.44	0.61
Honaker, Henry, House	077-0011	0.0	0.18	0.0	0.18
House, Jct. Rt. 81/603	060-0414	0.0	0.08	0.0	0.08
Meadowview Farm	011-0136	0.71	0.71	0.71	0.71
Waskey's Mill House	011-0026	0.03	0.03	0.03	0.03
Barclay's Tavern	081-0002	0.0	0.32	0.0	0.32
Shafer House	081-0160	0.72	0.72	0.72	0.72
House at Fancy Hill	081-0161	0.72	0.72	0.72	0.72
Dod, W.T. House	081-0543	0.1	1.1	0.1	1.1
Fruit Hill Corn Crib	081-0381	0.01	0.54	0.01	0.54
Danner, M. R. House	007-0919	0.0	0.01	0.0	0.01
Bushong House	085-0040	0.0	0.0	0.0	0.01
Elijah Pifer House	085-0073	0.0	0.07	0.0	0.07
"Y" Shaped House	086-0077	0.0	0.0	0.0	0.53
Building, Western State Hospital	007-1210	0.72	0.72	0.72	0.72
Swartz Mill Site	034-0008	0.0	0.0	0.0	0.02
Sycamore Hill	034-1003	0.0	0.04	0.0	0.04
TOTAL		4.29	6.83	4.29	7.71

Battlefields

The "Build" concepts have the potential to directly impact 10 Civil War Battlefields listed in Table 4-4.

Table 4-4 Potential Direct Impacts to Specific Civil War Battlefields

Name	VDHR#	Minimum Width (Acres)	Maximum Width (Acres)	Add 2-Lanes	Add 8-Lanes	Rail Concept 3
Cedar Creek	034-0303	325	436	313	436	0
Fisher's Hill	085-0001	127	173	118	173	0
Hanging Rock	080-5023	3.3	3.3	3.3	3.3	0
Kernstown 1	034-0007	10.7	11.1	10.7	27.2	0
Kernstown 2	None	61.1	65.5	64.1	110.5	0
Marion	None	51.5	51.5	25.7	42.3	0
New Market	269-5001	139	149	140	224	0
Opequon	034-0456	410	484	401	501	0
Thoroughfare Gap	030-1016	0	0	0	0	12.9
Tom's Brook	085-0045	119	153	118	153	0
Winchester 1	138-5005	191	230	193	243	0

Since some of the battlefield boundaries in the I-81 corridor overlap, some of the acreage included in Table 4-4 for one battlefield is also included in the acreage for another battlefield. Therefore, Table 4-5 below was created to summarize the range of potential impacts to battlefield areas as a whole (rather than per individual battlefields) in order to avoid double counting acreage in areas of overlap.

Table 4-5 Summary of Potential Impacts to Total Battlefield Areas

"Build" Concept	Number of Battlefields	Total Impacts for Dissolved Boundaries[1] (Acres)
Minimum Width	10	1,238
Maximum Width	10	1,481
Add 2-Lanes	10	1,212
Add 8- Lanes	10	1,622
Rail Concept 3	1	13

1 Where battlefield boundaries overlap, impacts were counted only once

If implemented along with highway improvements, Rail Concept 3 would potentially impact an additional 13 acres of Thoroughfare Gap Battlefield along rail section 11 in Fauquier County.

National Historic Landmarks

The range of potential impacts to one National Historic Landmarks property, Cedar Creek Battlefield, are shown in Table 4-6.

Table 4-6 Potential Impacts on NHL Property Cedar Creek Battlefield

"Build" Concept	Number of Historic Landmarks Impacted	Total Impacts (Acres)
Minimum Width	1	325.4
Maximum Width	1	436.3
Add 2-Lanes	1	313.4
Add 8- Lanes	1	436.3
Rail Concept 3	0	0

Historic Easements

One historic preservation easement, found at Cedar Creek Battlefield, is potentially impacted as shown in Table 4-6 above.

NHRP Listed and Eligible Archaeological Sites

The Fort Chiswell Site is the only previously recorded archaeological resource in the I-81 study area that has been either listed or determined eligible for the VLR or NRHP. This site has previously been adversely affected by construction of an on-ramp from I-77. Widening to the outside lanes or the median would have a potential direct impact on this site. Based on the GIS impact analysis, the "Build" concepts potentially impact approximately 6 acres of this site. Rail improvements do not impact eligible archaeological sites. Generally, archaeological sites are valued chiefly for the information they contain and most would not require preservation in place.

Summary of Potential Impacts to Historic Properties

Table 4-7 summarizes the potential impacts to historic properties. The Minimum and Maximum Width footprints would potentially impact 34 and 35 historic properties, respectively, with the majority of impacts (in terms of total acreage) occurring at battlefields.

Rail Concept 3 would potentially impact an additional 25.6 acres of historic properties if implemented with the "Build" concepts.

Table 4-7 Summary of Potential Impacts to Historic Properties

"Build" Concept	Historic Structures (Number)	NHL/Historic Easement [1] (Number)	Historic Districts (Number)	Civil War Battlefields (Number)	Archaeological Sites (Number)	Total (Number)	Total[2] (Acres)
Minimum Width	19	1	2	10	1	33	1,369
Maximum Width	20	1	2	10	1	34	1,648
Add 2-Lanes	19	1	2	10	1	34	1,349
Add 8- Lanes	20	1	4	10	1	36	1,798
Rail Concept 3	2	0	2	1	0	5	25.6

1 Cedar Creek Battlefield
2 The total number and acreage only counts impacts to Cedar Creek Battlefield once