

Chapter 16: Historic, Archaeological, and Paleontological Resources

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16.1 Introduction

This chapter describes the historic architectural resources, archaeological resources, and paleontological resources located within the area of potential effects for each alternative under consideration for the West Davis Corridor (WDC) Project.

To be considered historic, architectural properties and archaeological resources generally must be at least 50 years old. To account for the amount of time that will likely elapse between the identification of historic architectural resources and archaeological resources as part of this Environmental Impact Statement (EIS) and the implementation of any project decision, the Federal Highway Administration (FHWA) and the Utah Department of Transportation (UDOT) decreased the age criterion for historic architectural and archaeological resources to 45 years.

What are historic architectural resources, archaeological resources, and paleontological resources?

Historic architectural resources (also called architectural resources or historic buildings) are buildings that were constructed before 1972.

Archaeological resources are sites, features, and structures other than buildings that were deposited, built, or formed before 1972.

Paleontological resources are fossil resources.

For the WDC Project, *historic architectural resources* are buildings that were at least 45 years old at the time of the 2016 field surveys (that is, constructed before 1972). In this chapter, they are also referred to simply as *architectural resources* or *historic buildings*. *Archaeological resources* are sites, features, and structures that are at least 45 years old and are composed primarily of non-architectural elements, but could include architectural ruins of buildings that no longer house human activities. Such archaeological resources include everything from prehistoric campsites to remnants of historic railroad corridors and canals. *Paleontological resources*, often referred to as fossils, are the remains, traces, or imprints of ancient organisms preserved in or on the earth’s crust that provide information about the history of life on earth.

Architectural, Archaeological, and Paleontological Resources Impact Analysis Area (Area of Potential Effects). The architectural, archaeological, and paleontological resources impact analysis area is within Davis and Weber Counties and encompasses parts of nine municipalities. The cities in Davis County are Centerville, Clinton, Farmington, Kaysville, Layton, Syracuse, and West Point. The cities in Weber County are Hooper and West Haven.

The impact analysis area for the architectural, archaeological, and paleontological resources analysis consists of the area that was visually inspected for architectural, archaeological, and paleontological resources. The impact analysis area is the same as the area of potential effects (APE) defined by 36 Code of Federal Regulations (CFR) 800.16(d), which defines an APE as “the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist.”

In this definition, *historic properties* are architectural and archaeological resources that are listed on or are eligible for listing on the National Register of Historic Places. An *undertaking* is a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency or a project requiring a federal approval, license, or permit.

What is the area of potential effects for architectural, archaeological, and paleontological resources?

There are two areas of potential effects (APEs) for this analysis: one for archaeological and paleontological resources and one for historic architectural properties.

The APE for archaeological and paleontological resources is limited to the maximum right-of-way footprint for the project alternatives.

The APE for historic architectural properties consists of the maximum right-of-way footprint plus all properties directly adjacent to that footprint.

There are two APEs for this analysis: one for archaeological and paleontological resources and one for historic architectural resources.

- The APE for archaeological and paleontological resources is limited to the maximum right-of-way footprint for the project alternatives, since impacts on these resources would be due to direct disturbance.
- The APE for historic architectural resources consists of the maximum right-of-way footprint plus all properties directly adjacent to that footprint. By including the adjacent properties, this APE includes the area in which historic buildings could be directly affected as well as an area in which historic buildings could be indirectly affected by changes in their physical integrity of setting and feeling.

The impact analysis area is described in greater detail in Section 16.3.1.3, Field Inspections, and is shown in Figures 16-1 and 16-2, Historic Buildings and Survey Areas, and in Figures 16-3 and 16-4, Linear Archaeological Sites and Survey Areas, in Volume IV. This area was defined in consultation with the Utah State Historic Preservation Officer (SHPO). Other consulting parties, including Native American tribes and certified local governments for the affected communities, were given an opportunity to comment on the impact analysis area and the architectural and archaeological resources present in that area.

16.2 Regulatory Setting

Many federal and state laws mandate the consideration of impacts to historic architectural resources, archaeological resources, and paleontological resources. State and federal agencies are responsible for implementing these laws.

16.2.1 Laws and Regulations

Table 16-1 below lists the major laws and regulations that will or might apply to the WDC Project in regard to architectural, archaeological, and paleontological resources. Individual laws or regulations of particular importance to the project are discussed in detail after the table. These specific laws and regulations include requirements for particular types of findings and help provide parameters for how these resources—particularly historic architectural resources and archaeological resources—are identified, evaluated, and considered during a federal undertaking.

The remaining laws that are listed in Table 16-1 but are not discussed in detail after the table only require that architectural, archaeological, and paleontological resources be considered in project planning but do not require specific formal findings or describe procedures to be followed.

Table 16-1. Architectural, Archaeological, and Paleontological Resource Laws and Regulations That Will or Might Apply to the WDC Project

Title	Code
National Historic Preservation Act	54 United States Code (USC) 306108
Executive Order 13007: Indian Sacred Sites	None
National Environmental Policy Act (NEPA)	42 USC 4321 and subsequent sections; 40 CFR 1500
Executive Order 11593: Protection and Enhancement of the Cultural Environment	None
Archaeological and Historic Preservation Act (Moss-Bennett Act)	16 USC 469–469c
American Indian Religious Freedom Act	42 USC 1996
Utah Native American Graves Protection and Repatriation Act	Utah Code Annotated (UCA) 9-9-401 and subsequent sections; Rule 230-1
Ancient Human Remains on Nonfederal Lands That Are Not State Lands	UCA 9-8-309
Utah State Antiquities Act	UCA 9-8-301 to 9-8-308 and implementing rule
Protection of Paleontological Resources	UCA 79-3-508
UCA 9-8-404 (part of Title 9, Heritage, Arts, Libraries, and Cultural Development)	UCA 9-8-404
Department of Transportation Act of 1966, Section 4(f), as amended	49 USC 303

16.2.1.1 Section 106 of the National Historic Preservation Act

The National Historic Preservation Act (NHPA) was enacted in 1966 to acknowledge the nation’s heritage, the growing loss of historic and prehistoric resources to modern development, the public benefits of historic preservation, and the federal government’s role in preserving the physical remains of history.

Section 106 of the NHPA requires federal agencies that fund, permit, or are otherwise involved in an undertaking (for example, as a landowner) to consider the impacts that the undertaking would have on historic architectural and archaeological resources. To assist agencies in complying with Section 106, implementing regulations were established at 36 CFR 800. Subpart B of these regulations describes a process for federal agencies to follow when complying with the requirements of Section 106 of the NHPA. This process is commonly referred to as the *Section 106 process*.

The Section 106 process as implemented by 36 CFR 800, Subpart B, requires federal agencies perform a few overarching actions:

- Make an effort to identify historic properties that could be affected by an undertaking, which include historic and archaeological sites that either are listed on the National Register of Historic Places (NRHP) or have been determined through a consensus process to be eligible for listing on the NRHP.
- Assess the nature and extent of the expected impacts on the qualities of the resource that resulted in its listing on the NRHP or the determination that it was eligible for listing on the NRHP.
- Consider measures to avoid, minimize, or mitigate those impacts.

The implementing regulations at 36 CFR 800, Subpart B, describe steps for carrying out these three primary activities. The steps are summarized in Table 16-2 below. While conducting these actions, the federal agency consults with state and/or tribal historic preservation officers, the Advisory Council on Historic Preservation, Native American tribes, and other interested parties. State-level antiquities laws (see Table 16-1 above) give similar considerations to historic and archaeological resources in Utah.

Table 16-2 below illustrates the Section 106 process and the status of the process with regard to the WDC Project.

What is a historic property?

Under Section 106, a historic property is defined as any prehistoric or historic district, site, building, structure, or object listed on or eligible for listing on the NRHP.



Table 16-2. Outline of the Section 106 Process and Status for the WDC Project

Step	Status for the WDC Project
<p>Initiate Section 106 process (36 CFR 800.3).</p> <ul style="list-style-type: none"> • Establish undertaking. • Identify appropriate SHPO/Tribal Historic Preservation Officer (THPO). • Initiate tribal consultation. • Plan to involve the public. • Identify other consulting parties. 	<p>Completed.</p> <ul style="list-style-type: none"> • Undertaking established. • Consultation initiated with the SHPO and a THPO. • Public involved through public meetings. • Consulting parties invited to participate.
<p>Identify historic properties (36 CFR 800.4).</p> <ul style="list-style-type: none"> • Determine scope of identification efforts and area of potential effects. • Identify historic properties. • Evaluate historic significance. 	<p>Completed.</p> <ul style="list-style-type: none"> • Scope and area of potential effects determined. • Identification surveys undertaken.^a • Evaluations of identified resources conducted.
<p>Assess adverse effects (36 CFR 800.5).</p> <ul style="list-style-type: none"> • Apply criteria of adverse effect. 	<p>Complete.</p> <ul style="list-style-type: none"> • Assessment of Effect on Known Historic Properties conducted in consultation with SHPO and consulting parties.
<p>Resolve adverse effects (36 CFR 800.6).</p> <ul style="list-style-type: none"> • Continue consultation. • Identify avoidance and minimization measures. • Notify Advisory Council on Historic Preservation. • Execute Programmatic Agreement or Memorandum of Agreement to establish mitigation measures. 	<p>Complete.</p> <ul style="list-style-type: none"> • Avoidance and minimization measures implemented in conceptual design of alternatives.^b • Programmatic Agreement was developed during the Final EIS process after consultation with consulting parties to mitigate for unavoidable adverse effects. The Programmatic Agreement includes mitigation measures for the unavoidable adverse effects of the preferred alternative.
<p>Implement mitigation.</p> <ul style="list-style-type: none"> • Implement mitigation measures stipulated in Programmatic Agreement. 	<p>Pending.</p> <ul style="list-style-type: none"> • Mitigation will be implemented after a Record of Decision is issued.

^a Additional intensive-level archaeological surveys of the preferred alternative were completed between the release of the Draft EIS and the Final EIS. For the Draft EIS, a reconnaissance-level survey was completed; this survey was designed so that at least 30% of the APE for each alternative was visually inspected for archaeological and paleontological resources. Surveys for historic buildings covered 100% of the APE for all alternatives.

^b Avoidance and minimization measures for Section 106 resources were considered and implemented in the design of the WDC alternatives. The remaining Section 106 effects described in this chapter were resources that were determined to not have a prudent or feasible avoidance alternative. More information about specific avoidance and minimization for individual historic resources is included in Section 27.5, Avoidance Alternatives, in Chapter 27, Section 4(f)/6(f) Evaluation. Section 27.5 also describes why avoidance was determined to not be prudent or feasible for historic resources with an adverse effect from the WDC alternatives.

16.2.1.2 Section 4(f) of the Department of Transportation Act

Section 4(f) of the Department of Transportation Act of 1966 (as amended by SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users) gives special consideration to architectural and archaeological resources that are either listed on or eligible for listing on the NRHP and affected by transportation projects.

The Determinations of Eligibility and Findings of Effect established through the Section 106 process are used to address historic properties in the Section 4(f) evaluation, but Section 106 and Section 4(f) are separate acts with separate requirements. Section 4(f) is discussed in detail in Chapter 27, Section 4(f)/6(f) Evaluation.

16.2.1.3 Tribal Consultation

The NHPA, as implemented in 36 CFR 800, Subpart A, requires federal agencies involved in an undertaking that could affect resources of religious or cultural significance to federally recognized Native American tribes to consult with those tribes when the location of the federal undertaking is within an area of traditional use for the tribe, when the location is on tribal land, or where such properties might be affected regardless of the undertaking's location.

Section 101(d)(6)(B) of the NHPA and the regulations implementing Section 106 require lead federal agencies to consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking. This requirement applies regardless of the location of the historic property. Consultation under 36 CFR 800 is to occur at a government-to-government level in recognition of the sovereign status of the tribes. In the case of the WDC Project, this means that FHWA must take the lead in consulting with the tribes.

The goal of the consultation is to identify resources of importance to the tribes, to assess the nature and extent of the impact to resources important to one or more tribes, and to work through a collaborative process to identify acceptable measures for avoiding, minimizing, or mitigating significant impacts to the resources. Other laws, such as the Utah Native American Graves Protection and Repatriation Act, require state agencies to consult with tribes regarding human remains or funerary, sacred, or cultural objects found on state land.

16.2.1.4 Paleontological Resource Considerations

Paleontological resources are given consideration and protection under a variety of laws and regulations. For example, the Paleontological Resources Preservation Law (Public Law 111-11, Title VI, Subtitle D) requires consideration of impacts to paleontological resources.

In addition to federal legislation, the State of Utah has enacted legislation (UCA 79-3-508) that requires avoidance or minimization of impacts to paleontological resources on projects with state involvement. As part of this state-level legislation, UDOT entered into a Memorandum of Understanding with the Utah Geological Survey (UGS) for the purpose of consultation to identify known or potential paleontological localities of importance that could be affected by UDOT's projects and to consider measures to avoid or minimize those impacts.

16.2.2 Agencies, Tribes, and Their Roles

FHWA is the lead federal agency in the environmental review process for the WDC Project. As a federal agency, FHWA must comply with Section 106 of the NHPA, which requires all federal agencies to take into account the effects of their undertakings on historic properties. FHWA is the agency official as defined in 36 CFR 800.2(a) of the implementing regulations for Section 106 of the NHPA and is the lead federal agency for Section 106 purposes for the WDC Project. In addition, as an agency within the U.S. Department of Transportation, FHWA is required to comply with Section 4(f) of the Department of Transportation Act, as amended, which protects historic properties as well as parklands, recreation areas, and refuges.

The Advisory Council on Historic Preservation is the federal agency responsible for overseeing compliance with Section 106. Its role in the Section 106 process is described in 36 CFR 800.2(b). However, the Council must be notified of federal agencies' determinations at key milestones, and the Council has the right to enter the consultation process based on criteria listed in the Section 106 regulations. If the Council elects to participate in consultation, the Council's approval is required for any Memoranda of Agreement or Programmatic Agreements for the project. The Council also may participate in resolving disputes between federal and state agencies or project proponents that might arise regarding the management of historic properties in the APE of a project.

As the applicant seeking federal approvals, UDOT helps FHWA develop the documentation needed for the Section 106 process and participates extensively in that process as a consulting party as defined in 36 CFR 800.2(c)(4). As a state agency, UDOT also must comply with the antiquities and preservation laws and policies of the State of Utah.

In 2013, FHWA, UDOT, the Advisory Council on Historic Preservation, the Utah SHPO, and the U.S. Army Corps of Engineers executed a Programmatic Agreement describing specific roles, procedures, and delegation of certain authority from FHWA to UDOT regarding Section 106 implementation for federal-aid transportation projects in Utah (UDOT 2013). Under this agreement, UDOT is authorized to carry out many steps, including consultation with the SHPO and non-tribal consulting parties, that would typically be carried out by FHWA. Under the Programmatic Agreement, UDOT can take on parts of the role assigned to FHWA in 36 CFR 800.2(a) if FHWA assigns that responsibility to UDOT on a given project.

The Utah Division of State History is the state agency responsible for the oversight of historic architectural and archaeological resource management in Utah. The Division of State History includes the SHPO and related staff including archaeologists, architectural historians, preservation planners, managers of archaeological and historic site records, and preservation specialists. Under the Section 106 regulations at 36 CFR 800.2(c)(1), the Utah SHPO is a consulting party on all projects that require compliance with federal preservation laws. This officer also serves as a consulting party for projects that must comply solely with state preservation laws.

Federally recognized Native American tribes that might attach religious and cultural importance to historic properties within a federal project's APE are entitled to be Section 106

consulting parties for that project [36 CFR 800.2(c)(2)]. Consulting parties are afforded a reasonable opportunity to identify their concerns about historic properties, advise on the identification and evaluation of historic properties, articulate their views about the project's effects on such properties, and participate in the resolution of adverse effects.

16.3 Affected Environment

16.3.1 Resource Identification Methods

Using a multi-pronged approach, the WDC team identified historic architectural resources, archaeological resources, and paleontological resources that could be affected by any of the alternatives under consideration. This approach consisted of:

- Literature reviews
- Field inspections
- Consultation with agency representatives, city and county personnel, Native American tribes, and members of the general public with specific information about historic architectural and archaeological resources in the impact analysis area for those resources

What is the WDC team?

The WDC team consists of the lead agencies for the WDC Project (FHWA and UDOT). On this team, FHWA has the ultimate authority and makes all final decisions in the Section 106 process.

This approach is described in greater detail in the technical reports produced in support of this EIS (Meess and Ellis 2012; Westwater and others 2012; Page and Edwards 2014; Garnett and Keen 2017).

Resources that were identified through any part of the multi-pronged approach described above were evaluated for their eligibility for listing on the NRHP. The evaluations consisted of assessing each known resource relative to the criteria of the NRHP. These criteria are as follows (36 CFR 60.4):

- A. Is associated with events that have made a significant contribution to the broad patterns of our history; *or*
- B. Is associated with the lives of persons significant in our past; *or*
- C. Embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; *or*
- D. Yields, or may be likely to yield, information important in prehistory or history.

Architectural and archaeological resources that meet one or more of the above criteria are considered eligible for listing on the NRHP. Such resources must also possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association in relation to the NRHP criterion under which it would be listed.

16.3.1.1 Literature Review

Literature reviews included examining existing project, site, and historic architectural records at the Utah Division of State History's offices in Salt Lake City. The WDC team obtained copies of records for historic and archaeological sites known to be present within or directly adjacent to all proposed alternatives. The NRHP and lists of state and local landmarks were consulted for information regarding resources that might be present within the boundaries of each alternative. Additionally, the team reviewed published literature regarding the prehistoric and historic uses and the known geological composition of the area to determine whether paleontological resources would be affected by the proposed alternatives.

16.3.1.2 Consultation

As part of the effort to identify historic architectural resources, archaeological resources, and paleontological resources in the impact analysis area, consultation was carried out among UDOT, FHWA, and several agencies and individuals. The sections below provide more information about specific consultation efforts. Copies of consultation records are provided in Appendix 16B, Correspondence Pertaining to Historic, Archaeological, and Paleontological Resources.

Federal Agencies

Because impacts to wetlands and/or waters of the U.S. could occur with any of the proposed action alternatives, a Section 404 permit under the Clean Water Act would be required from the U.S. Army Corps of Engineers (USACE). To issue such a permit, USACE, as a federal agency, must comply with Section 106 and all other applicable federal laws.

Since FHWA is the lead federal agency for the WDC Project, and since FHWA must also comply with Section 106, USACE agreed (on December 10, 2010) to designate FHWA as the lead agency for Section 106 compliance and would adopt the process as completed by FHWA for the purpose of issuing a Section 404 permit. By agreeing to adopt the Section 106 process as carried out by FHWA, USACE also agreed to adopt FHWA's Section 106 findings for the project. Because USACE is not an agency of the U.S. Department of Transportation, it is not subject to Section 4(f).

State Agencies

During the preparation of the Draft EIS and as part of efforts to identify and evaluate historic architectural, archaeological, and paleontological resources that could be affected by any of the alternatives, the WDC team consulted with the Utah SHPO (an officer with the Utah Division of State History) and UGS.

Consultation with the Utah SHPO began in February 2010 with the initiation of Section 106 consultation among FHWA, UDOT, and the SHPO. To date, consultation with the SHPO has addressed the definition of the APE, architectural and archaeological resource identification efforts, Determinations of Eligibility, and Findings of Effect.

In March 2010, consultation with the SHPO specifically addressed the methods to be used to identify architectural and archaeological resources. This consultation included discussion of phasing archaeological resource survey efforts based on the expansive size of the WDC study area. This consultation also described the APE for historic architectural and archaeological resources. These methods are described in *Technical Report 10: Historic Properties Assessment Methodology* (HDR 2010). At a meeting on March 23, 2010, the SHPO concurred with the phased methods, which are described in Section 16.3.1.3, Field Inspections.

What is the WDC study area?

The WDC study area is the area described in Section 1.2, Description of the Needs Assessment Study Area.

UDOT, on behalf of FHWA, submitted its Determinations of Eligibility and Findings of Effect for architectural and archaeological resources to the Utah SHPO on April 27, 2017, and gave the SHPO an opportunity to comment on those determinations and findings. The SHPO provided concurrence with all determinations and findings via written correspondence on May 10, 2017. A Programmatic Agreement was developed during the Final EIS process after consultation with the SHPO and consulting parties to mitigate for unavoidable adverse effects. The Programmatic Agreement includes mitigation measures for the unavoidable adverse effects of the preferred alternative. Copies of the correspondence between UDOT and the SHPO are provided in Appendix 16B, Correspondence Pertaining to Historic, Archaeological, and Paleontological Resources.

Consultation with UGS focused identifying previously documented paleontological localities in areas that could be directly or indirectly affected by the project alternatives and the likelihood of other paleontological resources not yet documented to be present in these areas. Consultation occurred under the procedures described in a Memorandum of Understanding executed between UDOT and UGS in March 2010. This consultation consisted of written correspondence from the WDC team to UGS requesting information regarding previously documented paleontological localities and the potential for undocumented localities to exist in the areas of the alternatives. UGS responded in writing on May 2, 2011, stating that no known paleontological localities are present in the areas that would be affected by the alternatives, and the likelihood of such paleontological resources being encountered in those areas is low. Copies of the correspondence between UDOT and UGS is provided in Appendix 16B, Correspondence Pertaining to Historic, Archaeological, and Paleontological Resources.

Local Governments and Historical Societies

In addition to federal and state agencies, the WDC team consulted with several other entities with direct interest in historic architectural resources or archaeological resources that could be affected by the proposed alternatives. Agencies with direct jurisdiction over land within or adjacent to the proposed alternatives were also consulted. These entities included certified local governments (CLGs), historical societies and organizations, and mayors or town councils where no CLG or historical society exists. CLGs are entities that meet historic preservation standards established by the National Park Service and the SHPO, that act under the guidance of the SHPO, and that can be federally funded through the SHPO.

The following groups were contacted by letter, invited to become consulting parties for the project, and invited to provide information about architectural and archaeological resources of importance to their communities or organizations:

- Centerville CLG, Mr. Ron Russell, Mayor, and Ms. Melissa Hogan
- Farmington CLG, Ms. Alys Revell and Mr. Dave Millheim
- Layton Community Development Department, Mr. Ben Hart
- Layton CLG, Mr. Harris Adams
- Syracuse CLG, Ms. Cindy Gooch
- Utah Heritage Foundation, Mr. Kirk Huffaker
- Utah Professional Archaeological Council, Dr. Kelly Beck and Mr. Jody Patterson

The team's consultation with the agencies, municipalities, and CLGs focused on soliciting information about the known or potential presence of historic architectural resources and archaeological resources in the areas that could be directly or indirectly affected by the proposed alternatives. These parties were also given an opportunity to comment on the APEs and findings of effect for the project. Consultation between UDOT and FHWA and the Utah SHPO focused on defining the appropriate APEs, methods for identifying resources that could be affected by any of the project alternatives, assessing the historical significance of those resources, and determining the extent to which any of the alternatives would affect those resources.

Of the agency, municipality, and CLG parties invited to become consulting parties in the WDC Project Section 106 process, only the Utah Professional Archaeological Council and the Farmington CLG formally accepted the invitation. However, though Layton City did not acknowledge acceptance of the invitation, it did, through the CLG and the City, provide information about architectural resources of concern to the community. The WDC team took this information into account when developing the alternatives evaluated in this EIS and visited each resource identified by Layton City/Layton CLG.

Native American Tribes

In addition to the agencies, communities, and organizations mentioned above, the following 10 Native American tribes with traditional ties to the general project area were also consulted (Woolford 2010):

- Cedar Band of Paiutes
- Confederated Tribes of Goshute Reservation
- Eastern Shoshone Tribe of the Wind River
- Hopi Tribe
- Northwestern Band of Shoshone Nation
- Paiute Indian Tribe of Utah
- Shivwits Band of Paiutes
- Shoshone-Bannock Tribes of Fort Hall
- Skull Valley Band of Goshute Indians
- Ute Indian Tribe of the Uintah and Ouray Ute Indian Reservation

The WDC team has provided multiple written updates to the tribes listed above over the course of the WDC Project, informing them of the status and results of archaeological field inventories and the alternatives-screening process. In addition, UDOT attended tribal leaders' meetings in November 2010 and March 2011 and presented an overview of the project and an update on the alternatives being considered. The tribes in attendance were the Shoshone, Paiutes, Navajo, Ute, Goshute, and White Mesa. All of the tribes listed above were also invited to attend all of the WDC Stakeholder Working Group meetings and public meetings (see Chapter 30, Public and Agency Consultation and Coordination). The WDC team also provided the Draft EIS to the tribes for comment. No comments were received from any of the tribes.

To date, none of the tribes have identified any specific sites, resources, or traditional cultural places of concern in the APEs. The Hopi Tribe was the only tribe to formally respond to consultation requests by the WDC team. The Hopi said they consider northern Utah to be part of their traditional territory, and they would consider any prehistoric sites associated with that traditional use as traditional cultural properties. They asked the WDC team to keep them informed of the project and its potential effects on such resources, provide copies of survey reports, and provide copies of proposed treatment plans for prehistoric resources that would be adversely affected by the preferred alternative. UDOT will continue consultation efforts and outreach as needed (for example, for late discoveries).

Tribes who requested copies of the technical reports produced for this EIS were provided with such documents for their review and comment.

16.3.1.3 Field Inspections

Two types of field inspections were conducted to identify historic architectural resources and archaeological resources that could be affected by the proposed alternatives. The first type of inspection focused on identifying historic architectural resources (buildings). The other type focused on identifying archaeological resources that were visible on the ground surface; field staff did not attempt to identify any subsurface (buried) resources. The methods for each type of field inspection were determined in consultation with the Utah SHPO.

Field Inspections for Historic Architectural Resources

The inspection for historic architectural resources was conducted as a selective reconnaissance-level architectural survey in accordance with the guidelines of the Utah Division of State History. The survey area consisted of a series of wide corridors and block areas encompassing the APE for each alternative under consideration.

As alternatives were refined and adjusted during the alternatives-development process, additional areas were inventoried for architectural resources to ensure that all locations within the final alignments of each alternative

What is a selective reconnaissance-level architectural survey?

A selective reconnaissance-level architectural survey is designed to identify only historic architectural properties, as opposed to a standard reconnaissance-level survey, which identifies and documents all architectural properties (both historic and modern) in a given area.

carried forward for analysis were inspected and to aid in shaping alignments to avoid as many historic architectural resources as possible.

As part of the selective reconnaissance-level survey conducted for this EIS, all properties with primary buildings or a significant collection of outbuildings that were estimated to have been built during or before 1972, and through which any portion of a proposed alternative passed, were documented. Each primary building or significant collection of buildings was assessed for the degree to which it retained its original historic design and condition in accordance with the Division of State History's guidelines regarding the assessment of historic architectural resources.

- **ES – Eligible/Significant:** built within the historic period and retains integrity; excellent example of a style or type; unaltered or only minor alterations or additions; individually eligible for the NRHP under Criterion C; also includes buildings of known historical significance.
- **EC – Eligible/Contributing:** built within the historic period and retains integrity; good example of a style or type, but not as well-preserved or well-executed as “ES” buildings; more substantial alterations or additions than “ES” buildings, though overall integrity is retained; eligible for the NRHP as part of a potential historic district or primarily for historical, rather than architectural, reasons (which might not be known at the time of the reconnaissance-level survey inventory).
- **NC – Ineligible/Non-contributing:** built during the historic period but has had major alterations or additions; no longer retains integrity.
- **OP – Out-of-period:** built after the historic period.

Figures 16-1 and 16-2, Historic Buildings and Survey Areas, in Volume IV show the areas inspected for historic buildings. The technical reports produced for the selective reconnaissance-level surveys of the alternatives contain greater detail about the procedures used to identify, document, and evaluate historic architectural resources (Meess and Ellis 2012; Garnett and Keen 2017).

Field Inspections for Archaeological and Paleontological Resources

The field inspections for archaeological resources were also conducted at a reconnaissance level. Through consultation with the Utah SHPO, the WDC team determined that performing a pedestrian (walk-through) survey of 100% of the APE of each proposed alternative was neither cost-effective nor necessary for the purpose of comparing alternatives at the planning level in this EIS.

Instead, a survey strategy using evenly spaced transects (narrow strips) was designed so that at least 30% of the APE for each alternative was visually inspected for archaeological and paleontological resources. That is, transects were spaced such that a total of 30% of the width of each survey corridor, as measured in a series of 50-foot-wide parallel strips running the length of the survey corridor, was inspected for archaeological resources. *Technical*

Report 10: Historic Properties Assessment Methodology (Westwater and others 2012) describes these survey methods.

A formal paleontological resource survey was not conducted for this project. UGS stated that no paleontological localities are known to be present in the APE and that the potential for encountering such resources is low. Based on this information, an informal survey for paleontological resources was conducted by archaeologists during the archaeological surveys and in the same areas as those assessed for archaeological resources.

Figures 16-3 and 16-4, Linear Archaeological Sites and Survey Areas, in Volume IV show the areas inspected for historic, archaeological, and paleontological resources for each of the alternatives. Note that areas within each alternative that either were covered with asphalt, concrete, or other paving or were located within developed and landscaped front and rear residential yards were not inspected for archaeological and paleontological resources. For more information about the methods used for the field inspections for archaeological and paleontological resources, see *A Reconnaissance-Level Archaeological Resources Survey of West Davis Corridor Alternatives in Davis and Weber Counties, Utah* (Westwater and others 2012).

Intensive-Level Cultural Resources Inventory

In November 2013, after the release of the Draft EIS, an intensive-level (Class III) cultural resources inventory was conducted for the locally preferred alternative, WDC Alternative B1 (Page and Edwards 2014). The inventory also included the Shepard Lane Option and an eastern option in Layton. The cultural resources information in this chapter has been updated to include the results from this inventory. The intent of the more-detailed survey is to move forward the locally preferred alternative for potential construction if it is selected in the WDC Project's Record of Decision.

16.3.1.4 Next Steps

If an action alternative is selected in the Record of Decision for the WDC Project, FHWA and UDOT would proceed with project implementation according to the terms of the Section 106 Programmatic Agreement.

16.3.2 Resources in the Areas of Potential Effects

The literature reviews, consultations, and field inspections identified historic architectural resources and archaeological resources within the APEs. These resources range from prehistoric and historic archaeological sites to historic canals and railroad corridors to architectural properties. No paleontological resources were identified in the APEs.

16.3.2.1 Historic Architectural Resources

A total of 410 historic architectural resources were identified during surveys for the Draft EIS (Meess and Ellis 2012). These architectural resources, most of which are residential, include structures from the late 1800s to the middle 20th century. Of the 410 historic architectural resources identified, 189 are eligible for the NRHP and 221 are not eligible. Note that all of the 189 eligible architectural resources were rated Eligible/Contributing (EC) under the Utah Division of State History's rating system, and none were rated Eligible/Significant (ES).

In 2016, between the release of the Draft EIS and the Final EIS, a historic buildings assessment update was performed to evaluate properties built during or prior to 1972. The survey conducted for the Draft EIS evaluated properties built during or prior to 1967. Because more than 4 years elapsed between the release of the Draft EIS and Final EIS, the WDC team updated the surveys to identify buildings and structures 45 years or older relative to 2017 instead of 2012.

The 2016 update identified a total of 10 historic architectural resources. Of the 10 historic architectural resources identified, two are eligible for the NRHP and eight are not eligible (Garnett and Keen 2017). Both of the two eligible historic architectural resources were rated Eligible/Contributing (EC) under the Utah Division of State History's rating system, and none were rated Eligible/Significant (ES).

One additional resource, the Joseph Hill Family Cabin at 2133 West 1000 South in Layton, was nominated, found eligible, and listed on the National Register of Historic Places after the Draft EIS was released. The Joseph Hill Family Cabin is considered Eligible/Significant (ES) under the Utah Division of State History's rating system.

The locations of the eligible properties are shown in Figures 16-1 and 16-2, Historic Buildings and Survey Areas, in Volume IV.

The WDC team's determinations of NRHP eligibility were made in consultation with the Utah SHPO (for a copy of the Determination of Eligibility and Finding of Effect signed by the Utah SHPO, see Appendix 16B, Correspondence Pertaining to Historic, Archaeological, and Paleontological Resources) and in consideration of information provided by other consulting parties regarding the relative importance of individual historic resources to those parties. In accordance with the Section 106 regulations, only those resources, including historic architectural resources, that are eligible for the NRHP need to be considered in terms of assessing impacts from the proposed alternatives.

16.3.2.2 Archaeological Sites

A total of 12 archaeological sites were identified during surveys for the EIS (see Table 16-3 below). These sites consist of a variety of resources, from a prehistoric artifact scatter to historic artifact scatters to historic railroad corridors, canals, and transmission lines.

Figures 16-3 and 16-4, Linear Archaeological Sites and Survey Areas, in Volume IV show the locations of historic canals, railroad corridors, and transmission lines. In order to protect these resources and to comply with state and federal laws regarding the disclosure of site locations [see UCA 63G-2-3056(26) of the Utah Government Records Access and Management Act], archaeological sites consisting of artifacts, such as prehistoric and historic items, are not shown in the figures.

Several segments of some of the canals, railroads, and transmission lines listed in Table 16-3 were documented in the areas of the various alternatives surveyed for archaeological resources. Site numbers for archaeological sites are assigned relative to the county in which they are located. For canals, railroads, and transmission lines that cross county lines, this means that the site might have multiple site numbers, one for each county in which it is present.

Of the 12 archaeological sites identified, six are eligible for the NRHP and six are not eligible. The WDC team's Determinations of Eligibility were made in consultation with the Utah SHPO (for a copy of the signed Determination of Eligibility and Finding of Effect, see Appendix 16B, Correspondence Pertaining to Historic, Archaeological, and Paleontological Resources). As with historic architectural resources, only those archaeological sites that are eligible for the NRHP need to be considered in terms of assessing the impacts from the proposed alternatives to historic properties.

As shown in Table 16-3, few prehistoric resources were identified during the field surveys of the alternative alignments. This is due in large part to the significant amount of land that has been developed and the amount of ground surface that has been disturbed in the project area through residential, commercial, and agricultural land uses over the past 165 years. In less-developed and less-used areas along the eastern margin of the Great Salt Lake, extensive and scientifically important prehistoric archaeological sites have been discovered. Prehistoric human burials have also been encountered.

Because some prehistoric resources were found in the APE for archaeological and paleontological resources despite the extensive ground disturbance that has happened, it is likely that additional such resources are present in the area but are primarily buried and not visible on the ground surface. In general, the project alternatives located closest to the shore of the Great Salt Lake have a higher potential for disturbing such resources during construction; however, prehistoric resources have been documented in a variety of areas between Interstate 15 (I-15) and the modern-day shoreline.

Table 16-3. Archaeological Sites Associated with the WDC Alternatives

Site Number(s)	Site Name (if Applicable)	Site Type	National Register Eligibility
42Dv70	Not applicable	Prehistoric artifact scatter	Eligible
42Dv86	Denver & Rio Grande Western Railroad	Historic railroad corridor	Eligible
42Dv87	Union Pacific Railroad	Historic railroad corridor	Eligible
42Dv89	Lake Shore Resort	Historic artifact scatter with features	Eligible
42Dv110	Grace-Terminal Transmission Line Corridor	Historic transmission lines	Eligible
42Dv111	Not applicable	Historic artifact scatter	Not eligible
42Dv112	Woodman Townsite	Historic townsite	Not eligible
42Dv113	Not applicable	Historic berm	Not eligible
42Dv158/42Wb425	Hooper Canal	Historic canal	Eligible
42Dv179	Not applicable	Historic ditch	Not eligible
42Dv182	Layton Canal	Historic canal	Not eligible
42Dv183	Union Pacific Railroad, Syracuse Branch	Historic railroad corridor	Not eligible

16.3.2.3 Paleontological Resources

No paleontological resources were identified in the APE for archaeological and paleontological resources, and the geologic deposits in the area have a very low potential for yielding significant fossils (Hayden 2011). Because no known paleontological resources were identified in the APE for the proposed alternatives and because the potential for encountering such resources during construction is very low, no detailed analysis of specific paleontological resources was conducted. According to UGS, the potential for impacts to significant paleontological resources from any of the WDC action alternatives is very low (Hayden 2011) and is equal for all action alternatives considered in this EIS. For this reason, paleontological resources are not discussed further in this chapter.

16.4 Environmental Consequences

16.4.1 Methodology

This section describes the methods used to assess impacts to historic architectural and archaeological resources from the No-Action and action alternatives.

The WDC action alternatives are evaluated equally in this chapter, which means that all action alternatives were evaluated independently using the same standards. However, to reduce repetitive discussions, if impacts from one alternative would be the same as impacts from a previously discussed alternative, the text is not repeated but instead references the previous analysis.

The architectural and archaeological resources described in Section 16.3.2, Resources in the Areas of Potential Effects, that are eligible for the NRHP were assessed to determine whether any of the action alternatives would impact any portion of the resource (see Appendix 16A, NRHP-Eligible Resources Affected by the Project).

- For **NRHP-eligible historic architectural resources**, a property was considered to be impacted if (1) any portion of the primary historic building, contributing historic outbuilding(s), or historically associated land would be used or physically altered in the construction, operation, and maintenance of the proposed highway and its associated facilities or (2) the highway or its associated facilities would noticeably alter the setting or feeling of a historic property adjacent to the highway but not disturbed by the construction, operation, or maintenance of the highway.
- For **NRHP-eligible archaeological sites**, a site was considered to be impacted if construction, operation, or maintenance of the proposed highway or its associated facilities would directly or indirectly cause physical alteration of any portion of the site.

After the analysis showed whether each NRHP-eligible resource would be affected, the WDC team assessed the nature and extent of that effect on the characteristics of the historic properties that make it eligible for the NRHP under a particular criterion. If an alternative would alter the important characteristics so that some portion of the historic property's eligibility would be affected, an adverse impact was considered likely. If the alternative would not significantly alter those important characteristics, the alternative was considered to have no adverse effect on the site or property. The conclusions reached by the WDC team through this analysis represent its Findings of Effect under the Section 106 process.

The following sections summarize the effects on known historic architectural resources and archaeological resources from each proposed alternative. Only the effects from the construction phase of the project are discussed, since these effects would be long-term and permanent effects on historic architectural resources and archaeological resources and would encompass any effects likely to result from operating and maintaining the highway.

The discussion of impacts is arranged by individual alternative. Details regarding the specific impacts to individual properties and sites is provided in Appendix 16A, NRHP-Eligible Resources Affected by the Project. Appendix 16B, Correspondence Pertaining to Historic, Archaeological, and Paleontological Resources, includes the Determination of Eligibility and Finding of Effect for the WDC Project as signed by the Utah SHPO to indicate his concurrence.

16.4.2 No-Action Alternative

With the No-Action Alternative, the WDC would not be constructed, so no impacts to historic architectural resources, archaeological resources, or paleontological resources would occur as a result of the WDC. Ongoing development in the WDC study area that would occur with the No-Action Alternative could affect cultural resources.

16.4.3 Alternatives A1–A2

As described in Chapter 2, Alternatives, Alternative A is the more westerly alternative and consists of two separate alternatives: Alternatives A1 and A2. These alternatives are defined in Table 16-4.

Table 16-4. Components of Alternatives A1–A2

Alternative	I-15 Connection	Four-Lane Highway	Two-Lane Highway	West Point/ Hooper Cities Segment	North Terminus
A1	Glovers Lane	I-15 to 2000 West	2000 West to 1800 North	4100 West	1800 West (West Point)
A2	Glovers Lane	I-15 to 2000 West	2000 West to 5500 South	5400 West	5500 South (Hooper)

Table 16-5 summarizes the architectural and archaeological resource impacts from Alternatives A1 and A2. Appendix 16A, NRHP-Eligible Resources Affected by the Project, provides detailed information about each architectural and archaeological property that would be affected by the WDC action alternatives.

Table 16-5. Architectural and Archaeological Resource Impacts from Alternatives A1–A2

Alternative	Historic Architectural Resources		Archaeological Resources	
	No Adverse Effect	Adverse Effect	No Adverse Effect	Adverse Effect
A1	6	2	4	1
A2	10 ^a	2	5	1

^a Table 3 in the Determination of Eligibility and Finding of Effect has a typographical error for the number of no adverse effects on historic architectural resources for Alternative A2. The numbers in this Final EIS are correct.

In summary, Alternatives A1 and A2 would have the same adverse effects on NRHP-eligible historic buildings and archaeological resources. Alternative A2 would have no adverse effect on three more historic properties containing NRHP-eligible historic buildings and one more archaeological resource compared to Alternative A1. Alternatives A1 and A2 would both adversely affect two eligible buildings: 1016 North 2000 West in Kaysville and 992 South 2200 West in Layton.

Alternatives A1 and A2 would each adversely affect a mostly buried prehistoric archaeological site, 42DV70.

16.4.3.1 Alternative A1 – Glovers Lane and 4100 West/1800 North

As shown above in Table 16-5, Alternative A1 would affect eight historic architectural resources containing NRHP-eligible historic buildings and five NRHP-eligible archaeological sites. Two of the eight historic buildings and one of the five archaeological sites would be adversely affected. The two adversely affected historic buildings are located at about 1016 North 2000 West in Kaysville and 992 South 2200 West in Layton. The adversely affected archaeological site is a prehistoric site that possibly retains intact buried deposits.

16.4.3.2 Alternative A2 – Glovers Lane and 5400 West/5500 South

As shown above in Table 16-5, Alternative A2 would affect 12 historic architectural resources containing NRHP-eligible historic buildings and six NRHP-eligible archaeological sites. Two of the 12 historic buildings and one of the six archaeological sites would be adversely affected. The two adversely affected historic buildings and one adversely affected archaeological site are the same as those that would be affected by Alternative A1.

16.4.4 Alternatives B1–B2

As described in Chapter 2, Alternatives, Alternative B is the more easterly alternative and consists of two separate alternatives: Alternatives B1 and B2. These alternatives are defined in Table 16-6.

Table 16-6. Components of Alternatives B1–B2

Alternative	I-15 Connection	Four-Lane Highway	Two-Lane Highway	West Point City Segment	North Terminus
B1	Glovers Lane	I-15 to Antelope Drive ^a	Antelope Drive to 1800 North	4100 West	1800 North (West Point)
B2	Glovers Lane	I-15 to Antelope Drive ^a	Antelope Drive to 1800 North	4800 West	1800 North (West Point)

^a The transition from a four-lane highway to a two-lane highway would occur between Antelope Drive and 700 South.

Table 16-7 summarizes the architectural and archaeological resource impacts from Alternatives B1 and B2. Appendix 16A, NRHP-Eligible Resources Affected by the Project, provides detailed information about each architectural and archaeological property that would be affected by the WDC action alternatives.

Table 16-7. Architectural and Archaeological Resource Impacts from Alternatives B1–B2

Alternative	Historic Architectural Resources		Archaeological Resources	
	No Adverse Effect	Adverse Effect	No Adverse Effect	Adverse Effect
B1	6	4 ^a	4	1
B2	7	4 ^a	5	1

^a One of the counted impacts is a property with two individually eligible residences that share contributing outbuildings.

In summary, Alternatives B1 and B2 would have the same adverse effects on NRHP-eligible historic buildings and archaeological resources. Alternative B2 would have one more no adverse effect on historic buildings and one more no adverse effect on archaeological sites than would Alternative B1.

16.4.4.1 Alternative B1 – Glovers Lane and 4100 West/1800 North

As shown above in Table 16-7, Alternative B1 would affect 11 historic architectural resources containing NRHP-eligible historic buildings and six NRHP-eligible archaeological sites. Four of the 11 historic buildings and one of the six archaeological sites would be adversely affected. The adversely affected historic buildings are located at about 1016 North 2000 West in Kaysville, 992 South 2200 West in Layton, 1653 S. Bluff Road in Syracuse, and 1002–1054 South 3000 West in Syracuse. The adversely affected archaeological site is a prehistoric site that possibly retains intact buried deposits.

16.4.4.2 Alternative B2 – Glovers Lane and 4800 West/1800 North

As shown above in Table 16-7, Alternative B2 would have the same adverse effects as Alternative B1 on NRHP-eligible historic buildings and NRHP-eligible archaeological sites. It would affect the same buildings and the same archaeological sites in the same manner.

Alternative B2 would have one more no adverse effect on historic buildings and one more no adverse effect on archaeological sites than would Alternative B1.

16.4.5 Wetland Avoidance Options

Two wetland avoidance options are being evaluated in this Final EIS, as shown in Table 16-8. The purpose of these options is to avoid wetland impacts per guidance from the U.S. Army Corps of Engineers on wetland avoidance. Either wetland avoidance option could be implemented with any of the A or B Alternatives.

In this section, the impact information for the wetland avoidance options provides only the differences in impacts for the A and B Alternatives as a result of using the wetland avoidance options. The differences in impacts would apply to any of the A and B Alternatives if they were to use the wetland avoidance options.

Table 16-8. Components of the Wetland Avoidance Options

Option	Location	City	Description
Farmington	Prairie View Drive and West Ranches Road	Farmington	Shift the A and B Alternatives in Farmington about 150 feet east to the southwest side of the intersection of Prairie View Drive and West Ranches Road.
Layton	2200 West and 1000 South	Layton	Shift the A and B Alternatives in Layton about 500 feet east to the northeast side of the intersection of 2200 West and 1000 South.

16.4.5.1 Archeological Resources

The wetland avoidance options would not change the effects on archeological resources. The effects would be the same as those for Alternatives A1, A2, B1, and B2.

16.4.5.2 Architectural Resources

The wetland avoidance options would adversely affect two more NRHP-eligible historic buildings at 984 South 2200 West in Layton and 2133 West 1000 South in Layton. The adversely affected historic building at 2133 West 1000 South in Layton is listed on the NRHP and is considered Eligible/Significant (ES) under the Utah Division of State History's guidelines.

16.4.6 Mitigation Measures

Mitigation measures for architectural and archaeological resources are described in the Programmatic Agreement. The Programmatic Agreement was developed during the Final EIS process after consultation with the Utah SHPO and consulting parties to mitigate for unavoidable adverse effects. The Advisory Council on Historic Preservation was invited but declined to participate in the consultation. The Programmatic Agreement includes mitigation measures for the unavoidable adverse effects of the preferred alternative. A copy of the Programmatic Agreement is provided in Appendix 16B, Correspondence Pertaining to Historic, Archaeological, and Paleontological Resources.

16.4.7 Cumulative Impacts

There are no anticipated cumulative impacts to cultural resources. Cumulative impacts were analyzed for local and regionally important issues (ecosystem resources, air quality, water quality, floodplains, farmland, economics, and community impacts). The list of resources analyzed for cumulative impacts was developed with input from resource agencies and the public during scoping. For a more detailed discussion of cumulative impacts, see Chapter 24, Cumulative Impacts.

What are cumulative impacts?

Cumulative impacts are the resulting impacts from the proposed action combined with impacts from other past, present, and reasonably foreseeable future actions.

16.4.8 Summary of Impacts

Table 16-9 summarizes the architectural and archaeological resource impacts from each alternative.

Table 16-9. Summary of Architectural and Archaeological Resource Impacts

Alternative	Historic Architectural Resources		Archaeological Resources	
	No Adverse Effect	Adverse Effect	No Adverse Effect	Adverse Effect
A1	6	2	4	1
A2	10 ^b	2	5	1
B1	6	4 ^a	4	1
B2	7	4 ^a	5	1
<i>With Wetland Avoidance Options</i>				
A1	5	4	4	1
A2	9 ^b	4	5	1
B1	5	6 ^a	4	1
B2	6	6 ^a	5	1

^a One of the counted impacts is a property with two individually eligible residences that share contributing outbuildings.

^b Table 3 in the Determination of Eligibility and Finding of Effect has a typographical error for the number of no adverse effects on historic architectural resources for Alternative A2. The numbers in this Final EIS are correct.

Alternatives A1 and A2 would adversely affect two NRHP-eligible historic buildings and one archaeological site, which is the fewest of any of the action alternatives. Alternatives B1 and B2 would adversely affect four NRHP-eligible historic buildings and one archeological site.

The wetland avoidance options would have two more adverse effects on NRHP-eligible historic buildings for any of the alternatives.

Each alternative would have an adverse effect on one prehistoric resource that possibly retains intact buried deposits. However, the A Alternatives have a greater potential than the B Alternatives for encountering additional buried prehistoric resources during construction due to their general location closer to the Great Salt Lake wetlands. The archaeological record indicates that the wetland areas have a higher density of prehistoric sites than areas farther to the east.



16.5 References

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