

Historic and Archaeological Resources

This section provides an update on cultural and paleontological resources located in the area of potential effect (APE), an analysis of potential impacts on newly identified historic properties, and a discussion of how the revised draft Memorandum of Agreement (MOA) (see Appendix A) will address these potential impacts.

4.16.1 Approach and Methodology

4.16.1.1 Supplemental EIS

To update the affected environment and environmental consequences information associated with historic structures and archaeological sites in the study area, Sections 3.16 and 4.16 of the Final EIS were reviewed to determine the changes that had taken place since publication of the Final EIS. The study area for cultural and paleontological resources is represented by the APE, which, in general, encompasses the Legacy Nature Preserve and a 1,000-m (3,280-ft) area on either side of the proposed build alternative alignments. The APE for the Supplemental EIS is similar to the survey area described in the Final EIS, and is smaller than the study area defined in Section 4.0.1, *Study Area*. Slight modifications to this general definition of the APE are represented in the following documents.

- Class III Cultural Resource Inventory of 255 acres for the Legacy Nature Preserve (Wright et. al. 2001).
- Legacy Parkway Pipeline Relocation Project Final Class III Cultural Resources Inventory Letter Report (SWCA Environmental Consultants 2002).
- Site 42Dv94: A Human Remains Discovery in the Jordan River Wetlands, Davis County, Utah (SWCA Environmental Consultants 2003a).
- Site 42Dv98: IMACS Site Form (SWCA Environmental Consultants 2003b).
- Draft: Industrial Debris and Bottle Louse: Data Recovery at the Lagoon Drive Discovery Site (42Dv93) on the Legacy Parkway project, Farmington, Davis County, Utah (SWCA Environmental Consultants 2004a).
- Final Documentation of the Woodman Townsite, the Antelope Island Improvement Company Boat Landing, the Lake Shore Bathing Resort, and Associated Features for the Legacy Parkway Pipeline Project in Davis County, Utah (SWCA Environmental Consultants 2004b).

The following supplemental investigations and activities were completed to update information relative to historic structures and prehistoric and historic archaeological sites in the APE.

- During the Section 404 process after publication of the Final EIS, additional literature reviews and field investigations were conducted for the parcels associated with the proposed Legacy Nature Preserve. These additional archaeological sites were identified, evaluated, and otherwise documented in the six reports listed above.
- Data recovery excavations were conducted in 2000 at one of the prehistoric sites in the APE (42Dv2). Documentation of the field investigation and the results are pending. Additional field investigations were conducted at 42Dv2 during construction monitoring to determine whether site boundaries extended beyond previously known areas.
- The historic structure inventory in the Final EIS was updated to account for structures in the APE whose eligibility for listing on the National Register of Historic Places (NRHP) had changed since publication of the Final EIS (Overstreet et al. 2004).
- Structures in the Clark Lane Historic District (CLHD) were evaluated as components of that district, as listed on the NRHP, rather than as an assemblage of individually eligible (or not eligible) structures, which was how they were evaluated in the Final EIS.
- In consultation with the Utah State Historic Preservation Office (SHPO), it was determined that the UPRR and D&RG corridors are eligible for listing on the NRHP.
- The Utah Geological Survey was contacted to confirm the presence of previously documented paleontological resources and to determine whether new paleontological resources had been discovered since publication of the Final EIS (Wright et al. 2001).

National Register of Historic Places – Criteria for Eligibility for Listing

Criteria for evaluating the significance of resources for listing on the NRHP are outlined in 36 CFR 800.10, “National Register Criteria,” and in handbooks that describe the NRHP evaluation process. Four criteria are used to evaluate the significance of properties—Criterion A through Criterion D. Under all the criteria, the quality of significance is considered present in sites that possess integrity of location, design, setting, materials, workmanship, feeling, and association. However, quality of significance also serves to differentiate the criteria, as shown below.

- **Criterion A:** The quality of significance is present in sites that are associated with events that have made a significant contribution to the broad patterns of our history.
- **Criterion B:** The quality of significance is present in sites that are associated with the lives of persons significant in our past.
- **Criterion C:** The quality of significance is present in sites that embody the distinctive characteristics of a type, period, or method of construction, or 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.
- **Criterion D:** The quality of significance is present in sites that have yielded, or may be likely to yield, information important in prehistory or history.

All historic and archaeological resources identified in this document were evaluated using these criteria for eligibility for listing on the NRHP.

4.16.1.2 Memorandum of Agreement

On June 21, 2000, as part of the Final EIS process, an MOA was signed by the Advisory Council on Historic Preservation (ACHP), SHPO, FHWA, UDOT, and the Utah Division of Indian Affairs, with tribal concurrence from the Northwest Band of Shoshone of the Shoshone Nation, Idaho and Utah. Other tribes were invited to concur but declined to sign as concurring parties. These tribes included the Shoshone Bannock Tribes of Idaho, the Ute Indian Tribe of the Uintah-Ouray, Utah, the Confederated Tribes of the Goshute (Ibapah), and the Skull Valley Band of Gosiute, Utah. The MOA governs the treatment and disposition of resources in the APE that are under the jurisdiction of Section 106 of the National Historic Preservation Act (NHPA).

A revised draft MOA was drafted in November 2004 to address comments received from the public regarding potential construction-related vibration impacts on structures within the CLHD; to address discovery, data recovery, minimization of impacts, and preservation of historic and archaeological resources eligible for listing on the NRHP that were discovered after publication of the Final EIS; and to provide additional requirements for coordinating with interested tribes. Although still under review by the SHPO, a copy of the revised draft MOA, as well as a copy of the June 2000 MOA, are included in Appendix A.

4.16.2 Affected Environment

The following subsections provide a summary of updated information on the affected environment, relative to prehistoric and historic archaeological sites, historic structures, historic railroad corridors, and paleontological resources.

4.16.2.1 Prehistoric and Historic Archaeological Sites

The Final EIS identified the then-known prehistoric and historic sites, including 27 sites that were recorded for the first time during field surveys conducted for the Final EIS in 1998 (Baseline Data Inc. 1998). The following sites were discovered or their status changed as a result of the additional investigations and activities described above in 4.16.1.1. Table 4.16-1 below, which updates Table 3-34b in the Final EIS, lists the prehistoric and historic and archaeological sites identified in the APE during field visits.

Site 42Dv2 (Prehistoric Camp)

42Dv2 is a large, prehistoric site that was identified in the Final EIS. In 2000, in accordance with the stipulations of the June 2000 MOA (see Section 4.16.1.2, *Memorandum of Agreement*), data recovery excavations were conducted at 42Dv2, during which both cultural materials and human remains were recovered. Excavations at 42Dv2 were halted when it was determined that construction of the proposed action (i.e., groundbreaking activities associated with construction of Alternative D [Final EIS Preferred Alternative]) would not affect the site. The documentation of the investigation is pending.

Supplemental field investigations at 42Dv2 were conducted during initial construction and monitoring activities associated with construction of Alternative D (Final EIS Preferred Alternative), in accordance

with the June 2000 MOA, to determine whether the previously determined boundaries of the site extended west into the right-of-way of Alternative D. Cultural materials and features were identified west of the previously determined boundaries of the site, indicating that the boundaries of 42Dv2 extend into the right-of-way of Alternative D. The site boundaries were expanded to the west to include those elements identified during construction monitoring before construction activities were halted (See Revised Draft MOA, Appendix A).

Site 42Dv3 (Prehistoric Site)

The expansion of the proposed Legacy Nature Preserve since publication of the Final EIS prompted a new literature search and field investigation (Wright et al. 2001). One additional prehistoric site was identified in the APE as a result of the literature search, 42Dv3. This site had been previously recorded, but locating it again in the field was not possible because of insufficient location data in the original site form (Wright et al. 2001). As a result, 42Dv3 is not further considered in this supplemental evaluation.

Sites 42Dv68 and 42Dv69 (Historic Storage Facilities)

These historic archaeological sites, located at 350 North Redwood Road, were removed for construction of the Foxboro development, a residential construction project unrelated to the Legacy Parkway project. As a result, they are no longer considered in this supplemental evaluation.

Site 42Dv88 (Prehistoric Lithic and Ceramic Scatter)

This prehistoric lithic and ceramic scatter was identified in the proposed Legacy Nature Preserve during supplemental studies (Wright et al. 2001).

Site 42Dv89 (Historic Berms)

This archaeological site comprising two historic earthen and rock slag berms was first investigated in 2001 (Wright et al. 2001). The site was recorded again with expanded boundaries in 2004 (SWCA Inc., Environmental Consultants 2004b).

Site 42Dv90 (Historic Archaeological Debris)

This archaeological site comprising a subsurface deposit of historic debris and surface architectural debris was identified in the Legacy Nature Preserve during investigations completed in that area in 2002 for pipeline relocations associated with construction of Alternative D (Final EIS Preferred Alternative) (SWCA Inc., Environmental Consultants 2002).

Site 42Dv91 and 42Dv92 (Historic Ditches)

Archaeological sites 42Dv91 and 42Dv92, two earthen water diversion ditches, were identified in the Legacy Nature Preserve during investigations completed in that area in 2002 for pipeline relocations associated with construction of Alternative D (SWCA Inc., Environmental Consultants 2002).

Site 42Dv93 (Historic Trash Scatter)

This site comprising historic trash scatter was discovered during construction monitoring activities associated with the proposed action. The site, consisting of a historic trash debris deposit containing glass,

ceramics, and metal, is the probable remains of an early twentieth-century dairy operation. Because it was discovered during construction, data recovery and excavation data recovery mitigation was conducted in 2002 (SWCA Inc., Environmental Consultants 2004a).

Site 42Dv94 (Prehistoric Site)

This site was discovered in 2002 during monitoring activities associated with the proposed action. The site contained human remains, which were discovered eroding from the margins of the City Drain Canal in North Salt Lake City, Utah. The human remains have been fully excavated; however, additional remains may be present in the area (SWCA Inc., Environmental Consultants 2003a).

Site 42Dv97 (Historic Privy)

A historic privy (42Dv97) was identified after publication of the Final EIS, subsequent to the acquisition of a residential property at 1395 W. Parrish Lane in Centerville. In consultation with SHPO, FHWA and UDOT determined that it would be necessary to evaluate site eligibility if construction activities resumed at the site.

Site 42Dv98 (Prehistoric/Historic Lithic and Ceramic Scatter)

This is a multi-component site consisting of a prehistoric lithic and ceramic scatter and a historic trash scatter. The site was identified after publication of the Final EIS during investigations of the proposed Legacy Nature Preserve (SWCA Inc., Environmental Consultants 2003b).

Site 42Dv102 (Historic Surface Scatter and Historic Artifacts)

Historic archaeological site 42Dv102 was identified after publication of the Final EIS during field investigations in the Legacy Nature Preserve associated with proposed installation of a water pipeline associated with construction of Alternative D (SWCA Inc., Environmental Consultants 2002). The site consists of a historic artifact scatter, containing primarily glass and ceramics.

Site 42Dv103 (Historic Surface Scatter and Historic Artifacts)

Site 42Dv103 was identified after publication of the Final EIS during field investigations in the Legacy Nature Preserve associated with proposed installation of a water pipeline associated with construction of Alternative D (SWCA Inc., Environmental Consultants 2002). It consists of a surface scatter of historic artifacts.

Site 42Dv112 (Historic Townsite)

42Dv112, referred to as the Woodman Townsite, was identified during additional archaeological investigation in the Legacy Nature Preserve after a visual review of large-scale aerial photographs indicated a street-grid pattern associated with the nineteenth-century townsite (SWCA Inc., Environmental Consultants 2004b).

Site 42Dv113 (Historic Berm)

This site is a historic boat landing consisting of an earthen and slag berm. It was identified after publication of the Final EIS during an archaeological investigation in the Legacy Nature Preserve, which also resulted in the discovery of 42Dv112 (SWCA Inc., Environmental Consultants 2004b).

Table 4.16-1 Update of Historic and Prehistoric Archaeological Sites Identified in the APE during Field Surveys*

Site Number	Site Type	Description	NRHP Eligible	Criterion
Davis County				
42Dv2	Prehistoric	Camp—Human remains	Yes	D
42Dv22	Prehistoric	Burial	No	NA
42Dv67	Historic	Homestead	Yes	C, D
42Dv68	Historic	Storage facility	No	NA
42Dv69	Historic	Storage facility	No	NA
42Dv70	Prehistoric	Lithic and ceramic scatter	Yes	D
42Dv71	Historic	Well	No	NA
42Dv72	Prehistoric	Lithic and ceramic scatter	Yes	D
42Dv73	Historic	Trash scatter	No	NA
42Dv74	Prehistoric/historic	Artifact scatter/foundation	Yes	
42Dv75	Historic	Water conveyance	No	NA
42Dv76	Prehistoric	Lithic and ceramic scatter	Yes	D
42Dv77	Prehistoric	Lithic scatter	Yes	D
42Dv80	Prehistoric	Artifact scatter	Yes	D
42Dv88	Prehistoric	Lithic and ceramic scatter	Yes	D
42Dv89	Historic	Railroad berms, wooden posts	No	NA
42Dv90	Historic	Archaeological deposit and architectural debris	Yes	D
42Dv91	Historic	Canal remnant	No	NA
42Dv92	Historic	Canal remnant	No	NA
42Dv93	Historic	Debris from light-industrial dairy	No	D
42Dv94	Prehistoric	Human remains	Yes	D
42Dv97	Historic	Privy	Undetermined	Likely D
42Dv98	Prehistoric/historic	Lithic and ceramic scatter	Yes	D
42Dv102	Historic	Surface scatter of historic artifacts	No	NA
42Dv103	Historic	Surface scatter of historic artifacts	No	NA
42Dv112	Historic	Townsite	No	NA
42DV113	Historic	Earthen/slag berm, railroad spur	No	NA
Salt Lake County				
42SI 154/182	Prehistoric/Historic	Lithic scatter/glass scatter	Yes	D
42SI155	Prehistoric	Lithic scatter	No	NA

Site Number	Site Type	Description	NRHP Eligible	Criterion
42SI197	Prehistoric	Artifact scatter	No	NA
42SL 241	Historic	Trash scatter	No	NA
42SL 242	Prehistoric/historic	Artifact/trash scatter	Yes	D
42SL 243	Historic	Trash scatter	No	NA
42SL 244	Prehistoric	Lithic scatter	No	NA
42SL 245	Prehistoric/historic	Artifact/trash scatter	No	NA
42SL 246	Prehistoric	Artifact scatter	Yes	D
42SL 247	Historic	Trash scatter	No	NA
42SL 248	Prehistoric	Lithic scatter	Yes	D
42SL 249	Prehistoric	Lithic/groundstone scatter	No	NA
42SL 250	Historic	Trash scatter	No	NA
42SL 251	Historic	Concrete foundation	No	NA
42SL 252	Prehistoric	Artifact scatter	No	NA
42SL 253	Historic	Trash scatter	No	NA
42SL 254	Historic	Trash scatter	No	NA
42SL 255	Historic	Trash, depressions	Yes	D

Note:

* Shaded cells indicate sites found or updated during additional surveys since 1998.

Source: Wright et al. 2001; Christensen 2004

4.16.2.2 Historic Structures

The historic structure inventory completed in 1998 for the Final EIS identified 26 in-period structures (i.e., at least 45 years old) within the APE (Federal Highway Administration et al. 2000). Of the 26 structures, 18 were considered eligible for listing on the NRHP. A new historic structure inventory of the APE was conducted in 2003–2004 to update the previous inventory (Overstreet et al. 2004). This inventory identified 36 in-period structures, not all of which are eligible for listing on the NRHP, and one NRHP historic district, the CLHD. (The historic district is discussed Section 4.16.2.3.) Table 4.16-2 provides an updated list of these structures and consolidates information from the Final EIS and the field surveys completed by Wright et al. (2001) and Overstreet et al. (2004).

During the 2003–2004 field surveys, 23 structures were identified as individually eligible for listing on the NRHP. Their location is illustrated on Figures 4.16-1a and 4.16-1b. Potential impacts on these 23 structures and on the CLHD are discussed below in Section 4.16.3. For clarification, it should be noted that the in-period historic structures that were listed individually in the Final EIS but are now considered part of the CLHD are listed separately in Table 4.16-3. Tables 4.16-2 and 4.16-3 together represent an update of Table 3-35 in the Final EIS.

Table 4.16-2 In-Period Historic Structures in the APE, outside the Clark Lane Historic District¹

Property Address	NRHP Eligibility		Building Type	Date Constructed	Date(s) Recorded	Comments ²
	1998	2004				
White House, 10 North 650 West, Farmington	Eligible	NA	Temple Form	1910	1998	Structure documented according to June 2000 MOA and then demolished.
641 W. Glover Lane, Farmington	Eligible	NA	Bungalow	1940	1998	Final EIS noted structure was eligible for listing on the NRHP, but Colman and Colman (1998) noted not eligible. Overstreet et al. (2004) could not locate.
326 Burke Lane, Farmington	NA	Not Eligible	Hall Parlor House	1920	2004	
About 1300 W. Glover Lane, Farmington	NA	Eligible	Animal Facility	1950	2004	
453 W. Glover Lane, Farmington	NA	Not Eligible	WWII-era Cottage	1955	2004	
About 415 South 650 West, Farmington	NA	Eligible	Animal Facility	1950	2004	
About 637 South 650 West, Farmington	Eligible	Eligible	Cross Wing	1910	1998, 2004	Overstreet et al. (2004) recorded again as an animal facility.
788 South 650 West, Farmington	Eligible	NA	Bungalow	1945	1998	Overstreet et al. (2004) could not locate.
About 2120 South 650 West, Farmington	NA	Eligible	Animal Facility	1930	2004	
1515 North 1100 West, West Bountiful	NA	Eligible	Foursquare House	1920	2004	
About 2125 North 1100 West, West Bountiful	NA	Eligible	Animal Facility	1940	2004	

Property Address	NRHP Eligibility		Building Type	Date Constructed	Date(s) Recorded	Comments ²
	1998	2004				
662 W. Clark Lane, Farmington	NA	Eligible	Animal Facility	1950	1998, 2004	
541 West 250 South, Farmington	Not Eligible	NA	Residential	1945	1998	Overstreet et al. (2004) could not locate.
1020 North 2000 West, Kaysville	Eligible	NA	Residential	1910	1998	Final EIS noted structure was eligible for listing on the NRHP, but Colman and Colman (1998) noted not eligible.
1395 W. Parrish Lane, Centerville	Not Eligible	NA	Bungalow	1930	1998	Overstreet et al. (2004) could not locate.
680 S. Redwood Rd., Woods Cross	Eligible	NA	Bungalow	1930	1998	Final EIS noted structure was eligible for listing on the NRHP, but Colman and Colman (1998) noted not eligible. Overstreet et al. (2004) could not locate.
772 S. Redwood Rd., Woods Cross	NA	Not Eligible	Bungalow	1930	2004	
808 S. Redwood Rd., Woods Cross	NA	Not Eligible	Bungalow	1930	2004	
About 836 S. Redwood Rd., Woods Cross	NA	Eligible	WWII-era Cottage	1950	2004	
864 South 1800 West, Woods Cross	Eligible	Not Eligible	Bungalow	1930	1998, 2004	Overstreet et al. (2004) recorded again as 864 S. Redwood Rd. and as not eligible for listing on the NRHP.
918 S. Redwood Rd., Woods Cross	NA	Eligible	Cross Wing	1920	2004	

Property Address	NRHP Eligibility		Building Type	Date Constructed	Date(s) Recorded	Comments ²
	1998	2004				
900 South 1800 West, Woods Cross	Not Eligible	Eligible	Cross Wing	1910	1998, 2004	Overstreet et al. (2004) recorded as about 946 S. Redwood Rd., a WWII-era cottage, date 1950.
946 South 1800 West, Woods Cross	Eligible	Eligible	Residential	1920	1998, 2004	Overstreet et al. (2004) recorded again as about 974 S. Redwood Rd
1430 South 1800 West, Woods Cross	Not Eligible	Not Eligible	Cross Wing	1915	1998, 2004	Overstreet et al. (2004) recorded again as 1430 S. Redwood Rd.
About 1452 S. Redwood Rd., Woods Cross	NA	Eligible	WWII-era Cottage	1950	2004	
1650 South 1800 West, Woods Cross	Eligible	Eligible	Cross Wing	1915	1998, 2004	Overstreet et al. (2004) recorded again as 1650 S. Redwood Rd.
1890 S. Redwood Rd., Woods Cross	Not Eligible	NA	Residential	1950	1998	Overstreet et al. (2004) could not locate.
2016 South 1800 West, Woods Cross	Not Eligible	Eligible	Cross Wing	1920	1998, 2004	Overstreet et al. (2004) recorded again as 2018/2020 S. Redwood Rd.
About 2408 S. Redwood Rd., Woods Cross	Eligible	Eligible	WWII-era Cottage	1950	2004	
1095 N. Redwood Rd., North Salt Lake	Eligible	Eligible	WWII-era Cottage	1950	2004	
About 900 N. Redwood Rd., North Salt Lake	Not Eligible	Eligible	Foursquare House	1905	2004	
350 (1) N. Redwood Rd., North Salt Lake	NA	Eligible	Military Storage	1940	2004	Structure part of complex recorded as archaeological site 42Dv68 in 1997; recently subject of mitigation; removed for housing development.

Property Address	NRHP Eligibility		Building Type	Date Constructed	Date(s) Recorded	Comments ²
	1998	2004				
350 (2) N. Redwood Rd., North Salt Lake	NA	Eligible	Military Storage	1940	2004	Structure part of complex recorded as archaeological site 42Dv68 in 1997; recently subject of mitigation; removed for housing development.
350 (3) N. Redwood Rd., North Salt Lake	NA	Eligible	Military Storage	1940	2004	Structure part of complex recorded as archaeological site 42Dv68 in 1997; recently subject of mitigation; removed for housing development.
2770 North 2200 West, North Salt Lake	NA	Eligible	Foursquare House	1920	2004	
2704 North 2200 West, North Salt Lake	NA	Not Eligible	WWII-era Cottage	1950	2004	
2662 North 2200 West, North Salt Lake	NA	Eligible	Bungalow	1930	2004	
2650 North 2200 West, North Salt Lake	NA	Eligible	WWII-era Cottage	1950	2004	
2664 North Rose Park Lane, North Salt Lake	NA	Eligible	Foursquare House	1910	2004	
2790 North 2200 West, Salt Lake City	Eligible	Not Eligible	Temple Form	1935	1998, 2004	Overstreet et al. (2004) recorded as a WWII-era cottage, date 1950.
3067 North 2200 West, Salt Lake City	Eligible	NA	Residential	1930	1998	Overstreet et al. (2004) could not locate.
3071 North 2200 West, Salt Lake City	Eligible	NA	Residential	1930	1998	Overstreet et al. (2004) could not locate.
3200 North 2200 West, North Salt Lake	NA	Eligible	Ranch House	1955	2004	

Property Address	NRHP Eligibility		Building Type	Date Constructed	Date(s) Recorded	Comments ²
	1998	2004				
About 3290 North 2200 West, North Salt Lake	NA	Eligible	Ranch House	1950	2004	
Structure in Section 36, west of Farmington	NA	Not Eligible (2001 survey)	Hall Parlor house	Early 20th Century	2001	Wright et al. (2001) identified structure as a hall parlor house converted to agricultural use as a barn. Noted as not eligible for listing on the NRHP in 2001.
Clark Lane Historic District	NA	Listed on NRHP	Historic District	1856–1940	2004	See Section 4.16.2.3, <i>Clark Lane Historic District</i> , and Table 4.16-3.

Note:

¹ Shaded cells represent in-period structures individually eligible for listing on the NRHP based on the 2003–2004 survey.

² Overstreet et. al (2004) could not locate several of the structures identified during the 2004 survey. This disparity could be attributable to demolition of these structures since publication of the Final EIS and/or a change in the house number identifying the structure. The current inventory (Overstreet et al. 2004) is the most accurate representation of standing structures in the APE.

1800 W. in Woods Cross = Redwood Road in Woods Cross

Source: Overstreet et al. 2004 and Wright et al. 2001.

4.16.2.3 Clark Lane Historic District

Historical Significance of District and Structures

The CLHD was nominated for listing on the NRHP as a district in 1994. The district encompasses both sides of State Street in the City of Farmington and extends from the State Street overpass over I-15 (400 West) east to 200 West. The northern and southern boundaries of the CLHD are defined by the lot margins of the structures on the northern and southern sides of State Street, in accordance with National Park Service guidelines (National Park Service 1997).

When the CLHD was nominated, it consisted of 26 structures, 13 of which contributed to its historical significance (Balle 1994). The CLHD was associated with agriculture throughout the early part of its period of significance (1856–1940), but most of its agricultural outbuildings have been removed. The existing homes represent a wide variety of architectural styles from the period of significance. Particularly important to the integrity of the CLHD is the row of trees along each side of State Street (Balle 1994).

The Final EIS evaluated individual structures within the boundaries of the CLHD but did not evaluate the district as a single entity. Some of the individual structures evaluated in the Final EIS contribute to the integrity of the CLHD, others do not. Table 4.16-3 lists the structures in the CLHD that were discussed in the Final EIS. Their 2003 status as contributing or non-contributing members to the historical significance

of the CLHD is also provided in the table. Two of the structures within the CLHD—399 W. State Street and 393 W. State Street, Farmington—are within the APE for the proposed action, as indicated in the table. Table 4.16-3 does not represent a complete list of structures within the CLHD; rather, the table lists only those that were originally evaluated in the Final EIS.

Table 4.16-3 Clark Lane Historic District In-Period Historic Structures Identified in Final EIS*

Property Address	Section 106 Status (NRHP)		Building Type	Date Constructed	Date(s) Recorded	Comments
	1998	2003				
340 W. State St., Farmington	Individually Eligible	Contributes to CLHD	Victorian Gothic	1890	1998	
368 W. State St., Farmington	Individually Eligible	Contributes to CLHD	Bungalow	1910	1998	
382 W. State St., Farmington	Individually Eligible	Contributes to CLHD	Bungalow	1920	1998	
393 W. State St., Farmington	Not Eligible	Does not contribute to CLHD	Cross-Wing House	1910	2003	
399 W. State St., Farmington	Individually Eligible	Contributes to CLHD	Period Cottage	1920	1998, 2003	Contributes to CLHD, but also individually eligible for listing on NRHP
367 W. State St., Farmington	Individually Eligible	Contributes to CLHD	Bungalow	1920	1998	
361 W. State St., Farmington	Not Eligible	Does not contribute to CLHD	Bungalow	1940	1998	
335 W. State St., Farmington	Individually Eligible	Contributes to CLHD	Cross Wing	1905	1998	
307 W. State St., Farmington	Not Eligible	Contributes to CLHD	Cross Wing	1900	1998	Shown as 301 W. State St. in Baseline Data Inc. (1998) but corrected for Final EIS to 307 W. State St.

Note:

* Shaded cells represent structures in the CLHD that are within the APE of the proposed action.

Source: Overstreet et al. 2004.

Clark Lane Historic District and Vibration

In 2001, the public was notified that State Street was being considered as a haul route for construction traffic associated with the proposed action. Following this notification, several members of the public expressed concern that historic structures in the CLHD could be damaged by earthborne vibration caused by construction activities. Potential vibration impacts on structures are discussed below in Section 4.16.3.3 and addressed in detail in Section 4.20, *Construction Impacts*.

4.16.2.4 Historic Railroad Corridors

Two historic railroad corridors, the D&RG and UPRR corridors, were not included in the Final EIS. Although SHPO concurred with the inventory at the time the Final EIS was published, because these corridors are within the APE, they are considered potential historical resources in this document. SHPO, FHWA, and other consulting parties determined that the D&RG and the UPRR are eligible for listing in the NRHP under Criterion A

4.16.2.5 Paleontological Resources

As described in the Final EIS, paleontological resources found in the APE consist of invertebrate fossils of low significance. No additional paleontological or prehistoric resources have been found in the APE since publication of the Final EIS.

4.16.3 Environmental Consequences and Mitigation Measures

As described in the Final EIS, implementation of any build alternative could affect historic and archaeological resources in the APE. The nature and extent of these impacts, however, have changed since publication of the Final EIS because of the updated historic structure inventory, updated evaluation of the CLHD, and additional field investigations conducted in the APE, including in the proposed Legacy Nature Preserve. Updated impact information relative to historic and archaeological resources in the APE is provided below.

4.16.3.1 Prehistoric and Historic Archaeological Sites

No-Build Alternative

Existing Conditions

There would be no project-related impacts on historic or prehistoric sites under the No-Build Alternative.

Future Conditions (2020)

If none of the build alternatives is implemented, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. It is possible that these future projects would affect prehistoric and historic archaeological sites in the APE, although the nature and timing of these projects are not known at this time.

Build Alternatives

As described in the Final EIS, eight historic and prehistoric sites eligible for listing on the NRHP were identified in the APE. Since publication of the Final EIS, four additional sites eligible for listing on the NRHP have been identified in the APE, within one additional site still undetermined. Of the total 12 sites located in the APE that are eligible for listing on the NRHP, five could be adversely affected by one or

more proposed build alternative. One additional site, if determined to be eligible for listing on the NRHP, would be adversely affected by one or more proposed build alternative. Adverse impacts associated with ground disturbance and construction activities, such as cutting, grading, and filling, would affect the physical integrity of these six sites, which are described below. Updated and supplemental information on the nature of the impacts on all 13 sites is summarized in Table 4.16-4 below. Table 4.16-4 updates Table 4-35 in the Final EIS.

Site 42Dv2 (Prehistoric Camp)

The Final EIS stated that construction of any proposed build alternative would adversely affect 42Dv2. In accordance with the measures prescribed to mitigate this impact in the Final EIS and in the June 2000 MOA, portions of 42Dv2 were excavated. Excavation at the site was halted in 2002 after it was determined that construction of Alternative D (Final EIS Preferred Alternative) would not affect the site (i.e., the site was not located within the physical footprint of the proposed build alternative). The site boundaries were expanded during construction monitoring efforts, per discovery monitoring stipulations in the MOA, before construction was halted.

As indicated in Table 4.16-4, implementation of Alternatives A, C, D/E would result in an adverse impact on 42Dv2 because, under those alternatives, the site would be incorporated into the proposed right-of-way. Mitigation measures to minimize impacts on 42Dv2 are described below.

Site 42Dv70 (Prehistoric Lithic Scatter)

Although the Final EIS disclosed that 42Dv70 would be adversely affected by all the proposed build alternatives, it was determined during the design-build process that construction of Alternative D would not affect the site (Lizotte pers. comm. 2001a). Similarly, as indicated in Table 4.16-4, of all the build alternatives proposed in the Supplemental EIS, only construction of Alternative B would adversely affect 42Dv70. Mitigation measures to minimize impacts on 42Dv70 are described below.

Site 42Dv77 (Prehistoric Lithic Scatter)

The Final EIS disclosed that construction of Alternative B would result in an adverse impact on 42Dv77. Those impacts would still occur as stated in the Final EIS if Alternative B were selected.

Site 42Dv90 (Historic Archaeological Deposit and Debris)

As described in 4.16.2.1, 42Dv90 was identified in 2002 during pipeline relocation associated with construction of Alternative D (Final EIS Preferred Alternative). As indicated in Table 4.16-4, construction of Alternative B only would result in an adverse impact on this site.

Site 42Dv94 (Prehistoric Site – Human Remains)

As described in 4.16.2.1, 42Dv94 contained human remains, which were discovered eroding from the margins of the City Drain Canal in North Salt Lake City. Although the identified human remains were completely excavated, there is potential for additional remains to be present in the area.

As indicated in Table 4.16-4, implementation of Alternatives A, C, and D/E would result in an adverse impact on 42Dv94 because, under those alternatives, the site would be incorporated into the proposed right-of-way. Mitigation measures to minimize impacts on 42Dv94 are described below.

Site 42Dv97 (Historic Privy)

As described in 4.16.2.1, 42Dv97 consists of a historic privy located in Centerville that was discovered during property acquisition associated with construction of Alternative D. The eligibility of this site for listing on the NRHP has not been determined, but if the site exhibits integrity and sufficient archaeological data potential, it would likely be eligible under Criterion D. If it is determined that 42Dv97 is eligible for listing on the NRHP, Alternatives A and D/E would adversely affect the site. This impact is listed as “unknown” in Table 4.16-4.

Table 4.16-4 Impacts on NRHP-Eligible Historic and Prehistoric Archaeological Sites¹

Site Number	Site Type	Impact (by Alternative)					
		No-Build	A	B	C	D	E
42Dv2	<i>Prehistoric camp</i>	<i>None</i>	<i>Adverse</i>	<i>None</i>	<i>Adverse</i>	<i>Adverse</i>	<i>Adverse</i>
42Dv67	Historic homestead	None	None	None	None	None	None
42Dv70	<i>Prehistoric lithic scatter</i>	<i>None</i>	<i>None</i>	<i>Adverse</i>	<i>None</i>	<i>None</i>	<i>None</i>
42Dv72 ²	Prehistoric camp	None	None	None	None	None	None
42Dv74	Prehistoric camp/ historic foundation	None	None	None	None	None	None
42Dv76	Prehistoric lithic scatter	None	None	None	None	None	None
42Dv77	Prehistoric lithic scatter	None	None	Adverse	None	None	None
42Dv80 ²	Prehistoric artifact scatter	None	None	None	None	None	None
42Dv88 ²	Prehistoric lithic and ceramic scatter	None	None	None	None	None	None
42Dv90	Historic	None	None	Adverse	None	None	None
42Dv94	Prehistoric	None	Adverse	None	Adverse	Adverse	Adverse
42Dv97 ³	Historic	None	Unknown	None	None	Unknown	Unknown
42Dv98 ²	Prehistoric/historic	None	None	None	None	None	None

Note:

¹ Shaded cells indicate historic and prehistoric sites identified since publication of the Final EIS. Italicized cells indicate historic and prehistoric sites whose impact conclusion has changed since publication of the Final EIS.

² These sites are located in the area of the proposed Legacy Nature Preserve.

³ Eligibility status of 42Dv97 is currently unknown. If this site is eligible for listing on the NRHP, it would be adversely affected by construction of Alternatives A and D/E.

Source: Federal Highway Administration et al. 2000, HDR Engineering, Inc. 2004g.

In summary, Alternatives A and D/E would adversely affect two NRHP-eligible sites, and one potentially eligible archaeological site. Alternative B would adversely affect three NRHP-eligible sites, and Alternative C would adversely affect two NRHP-eligible sites.

Mitigation Measures

Mitigation would be required for any NRHP-eligible archaeological site physically affected by construction of a proposed build alternative. Typical mitigation measures for NRHP-eligible archaeological sites include archival investigations, development of a data recovery plan, and consultation between FHWA, UDOT, SHPO, the tribes, and other consulting parties.

To date, consultation with SHPO has resulted in the following specific mitigation measures.

- As described above, implementation of Alternatives A, C, D, or E would result in an adverse impact on 42Dv2 and 42Dv94. If any of those build alternatives are selected for implementation, in accordance with the revised draft MOA, the site limits will be delineated and protected from construction activities through the use of construction fencing.
- To minimize impacts to 42Dv70, a professional archaeologist will monitor excavation and earthmoving activities associated with highway construction in the vicinity of the site. Although 42Dv70 would only be adversely affected under Alternative B, this mitigation measure will be implemented regardless of which build alternative is chosen, in accordance with the June 2000 MOA and supplemental consultations with SHPO (Lizotte pers. comm. 2001a).

The existing Legacy Nature Preserve management plan, as described in the Final EIS, provides for short-term protection of historic and archaeological resources within the proposed preserve. No impacts on historic and archaeological resources within the preserve are anticipated from implementation of the proposed build alternatives. The Legacy Nature Preserve mitigation plan will include a management plan to ensure the future health of these resources. In addition, should any build alternative be implemented, a long-term management plan for archaeological sites within the proposed preserve would be developed by FHWA, UDOT, and SHPO in conjunction with the organization that would manage the preserve. Mitigation of adverse effects on archaeological resources would be conducted according to the revised draft MOA (see Appendix A).

4.16.3.2 Historic Structures

As described above in Section 4.16.2.2, 23 in-period structures individually eligible for listing on the NRHP (excluding structures located in the CLHD) are located within the APE. The following provides an update of impacts on those historic structures. Figures 4.16-1a and 4.16-1b illustrate the location of these structures.

No-Build Alternative

Existing Conditions

There would be no project-related impacts on historic structures under the No-Build Alternative.

Future Conditions (2020)

If none of the build alternatives is implemented, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. It is possible that these future projects would affect historic structures in the APE, although the nature and timing of these projects are not known at this time.

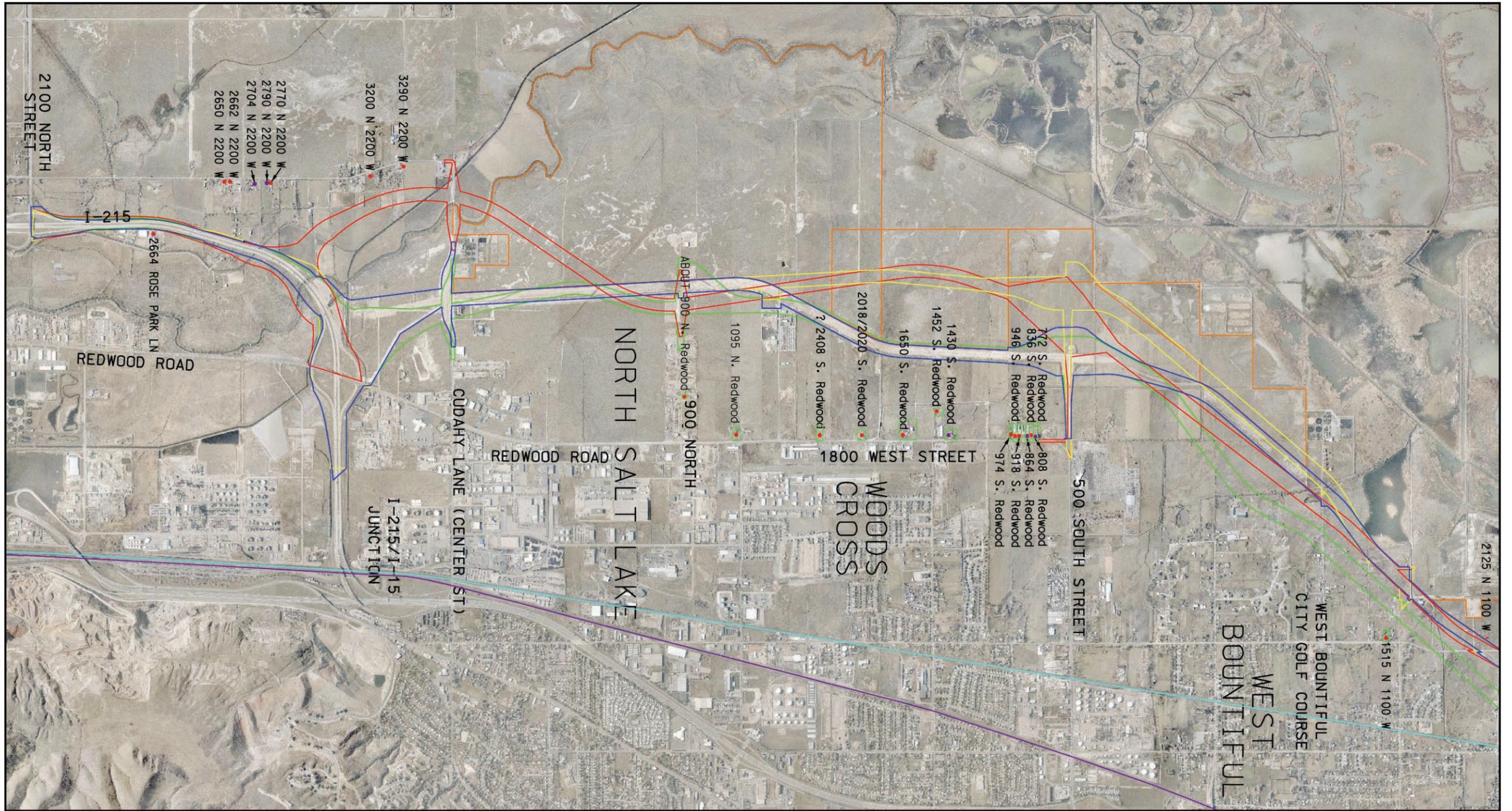
Build Alternatives

The Final EIS stated that one NRHP-eligible historic structure—the White House at 10 North 650 West in Farmington—could be affected by the build alternatives. Since publication of the Final EIS and in accordance with the June 2000 MOA, that building was documented to Utah State intensive-level survey (ILS) standards and removed (i.e., demolished).

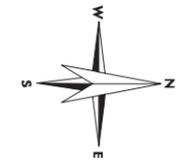
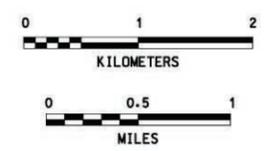
Two additional historic structures, 1300 W. Glover Lane and 662 W. Clark Lane, located in the APE and eligible for listing on the NRHP, would be adversely affected by implementation of one or more of the proposed build alternatives. As a result, three NRHP-eligible structures would be affected by one or more proposed build alternative. Table 4.16-5 summarizes impact information by alternative for each historic structure in the APE.

Table 4.16-5 Impacts on NRHP-Eligible Historic Structures

Property Address	Impact (by Alternative)					
	No-Build	A	B	C	D	E
10 North 650 West, Farmington ¹	None	Adverse	Adverse	Adverse	Adverse	Adverse
About 1300 W. Glover Lane, Farmington	None	None	Adverse	None	None	None
About 415 South 650 West, Farmington	None	None	None	None	None	None
About 637 South 650 West, Farmington	None	None	None	None	None	None
About 2120 South 650 West, Farmington ²	None	None	None	None	None	None
1515 North 1100 West, West Bountiful	None	None	None	None	None	None
About 2125 North 1100 West, West Bountiful ²	None	None	None	None	None	None
662 W. Clark Lane, Farmington	None	Adverse	None	Adverse	Adverse	Adverse
About 836 S. Redwood Rd., Woods Cross	None	None	None	None	None	None
918 S. Redwood Road, Woods Cross	None	None	None	None	None	None
946 South 1800 West, Woods Cross	None	None	None	None	None	None
974 S. Redwood Road, Woods Cross	None	None	None	None	None	None
About 1452 S. Redwood Rd., Woods Cross	None	None	None	None	None	None
1650 South 1800 West, Woods Cross	None	None	None	None	None	None
2018/2020 S. Redwood Road, Woods Cross	None	None	None	None	None	None
About 2408 S. Redwood Rd., Woods Cross	None	None	None	None	None	None
1095 N. Redwood Rd., North Salt Lake	None	None	None	None	None	None
About 900 N. Redwood Road, North Salt Lake	None	None	None	None	None	None



LEGEND	
	Alternative A
	Alternative B
	Alternative C
	Alternative D and E
	Denver & Rio Grande Railroad
	Union Pacific Railroad
	Legacy Nature Preserve
	Clark Lane Historic District
	Eligible Historic Structure
	Non Eligible Historic Structure
	Parcel Boundaries



SEIS (4-11) 60920030

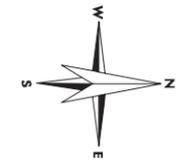
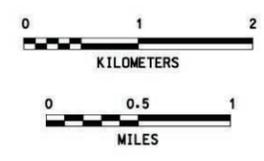
Legacy Parkway Supplemental EIS

Figure 4.16-1a
Historic Structures in the APE



LEGEND

Alternative A	Legacy Nature Preserve
Alternative B	Clark Lane Historic District
Alternative C	Eligible Historic Structure
Alternative D and E	Non Eligible Historic Structure
Denver & Rio Grande Railroad	Parcel Boundaries
Union Pacific Railroad	



SIS (40-11) E097030

Legacy Parkway Supplemental EIS

**Figure 4.16-1b
Historic Structures in the APE**

Property Address	Impact (by Alternative)					
	No-Build	A	B	C	D	E
2770 North 2200 West, North Salt Lake	None	None	None	None	None	None
2662 North 2200 West, North Salt Lake	None	None	None	None	None	None
2650 North 2200 West, North Salt Lake	None	None	None	None	None	None
2664 N. Rose Park Lane, North Salt Lake	None	None	None	None	None	None
3200 N 2200 W, North Salt Lake	None	None	None	None	None	None
About 3290 North 2200 West, North Salt Lake	None	None	None	None	None	None
Clark Lane Historic District	None	None	None	None	None	None

Note:

¹ Property at 10 North 650 West, Farmington (White House), is no longer extant; however, since this property was affected in conjunction with construction of Alternative D (Final EIS Preferred Alternative), it is disclosed as an adverse impact in the Supplemental EIS. This property would also have been affected with implementation of any other proposed build alternative.

² These structures are located in the proposed Legacy Nature Preserve. There would be no impacts on these sites.

Source: Federal Highway Administration et al. 2000, HDR Engineering, Inc. 2004g.

In summary, all the proposed build alternatives would adversely affect two of the three NRHP-eligible historic structures located in the APE.

Mitigation Measures

The White House at 10 North 650 West in Farmington, which the Final EIS identified as subject to adverse impacts associated with construction of Alternative D, has been demolished since publication of the Final EIS. Mitigation for this adverse impact was completed as described in the Final EIS (i.e., the building was documented to Utah State ILS standards before it was removed). Mitigation for adverse affects on the historic structures at 1300 W. Glover Lane and 662 W. Clark Lane, both in Farmington, would be conducted according to the revised draft MOA (Appendix A). These measures would include preparation of an ILS form, photographic documentation of the structures, preparation of illustrated floor plans, archival research, and a submittal to the Utah Division of History, Preservation Section.

4.16.3.3 Clark Lane Historic District

As described above in Section 4.16.2.3, part of the CLHD is in the APE; three individual structures that contribute to the CLHD—393 W. State Street, 398 W. State Street, and 399 W. State Street—are located in the APE. Of these structures, only 399 W. State Street is eligible for individual listing on the NRHP. Potential impacts on these structures are presented in context of the CLHD as a whole, because any impact on a contributing element of the CLHD could affect the CLHD as a whole.

No-Build Alternative

Existing Conditions

There would be no project-related impacts on the CLHD under the No-Build Alternative.

Future Conditions (2020)

If none of the build alternatives are implemented, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. It is possible that these future projects would impact the CLHD, although the nature and timing of these projects are not known at this time.

Build Alternatives

Construction of any proposed build alternative could affect the CLHD. Although none of the structures in the CLHD would be removed under any proposed build alternative, construction of any proposed build alternative would slightly alter the footprint of the parcels at 393 W. State Street, 398 W. State Street, and 399 W. State Street. Vibration from construction activities could also affect the structures (see Section 4.20, *Construction Impacts*).

Specifically, a total of 121 square meters (sq m) (1,302 square feet [sq ft]) of the existing parcels at 399 W. State Street and 398 W. State Street would be modified through re-grading and fill placement to provide new, permanent driveway access to both parcels. The footprints of the parcels at 399 W. State Street and 393 W. State Street would be increased by a total of 99 sq m (1,066 sq ft) due to realignment of the existing curbs and gutters, as well as a tapering of the road cross section from east to west. These modifications are shown in Figure 5-10, and described in more detail in Chapter 5 of this document.

The modifications described above are addressed in the revised draft MOA (Appendix A). The revised draft MOA includes mitigation measures to ensure that project-related impacts are minimized and that the CLHD and its contributory elements are returned to their original pre-construction condition. The revised draft MOA also includes measures to minimize potential harm from construction-related vibration, as described in Section 4.20, *Construction Impacts*. With implementation of the mitigation measures in the MOA, none of the proposed build alternatives would adversely affect the three parcels within the APE or the CLHD as a whole.

Mitigation Measures

As stated above, the revised draft MOA includes mitigation measures to ensure that project-related impacts are minimized and that the CLHD and its contributory elements are returned to their original pre-construction condition. The revised draft MOA also includes measures to minimize potential harm from construction-related vibration.

4.16.3.4 Historic Railroad Corridors

No Build Alternative

Existing Conditions

There would be no project-related impacts on historic railroad corridors under the No-Build Alternative.

Future Conditions (2020)

If none of the build alternatives is implemented, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. It is possible that these future projects would impact the historic railroad corridors in the APE, although the nature and timing of these projects are not known at this time.

Build Alternatives

The historic D&RG Railroad corridor, which is eligible for listing on the NRHP under Criterion A, would be affected by implementation of all the proposed build alternatives. Alternative B would cross the D&RG (at grade) three times near Parrish Lane, Shepard Lane, and Glovers Lane. Alternatives A and D/E would cross the D&RG (at-grade) twice, once just south of Parrish Lane in Centerville and once just north of Chase Lane in Centerville. Alternative C would cross the D&RG (at-grade) twice, at approximately Parrish Lane and Lund Lane. These crossings are illustrated in Figures 5-10 and 5-11. FHWA and UDOT have determined, in consultation with SHPO, that these impacts do not represent an adverse effect on the D&RG railroad corridor.

The UPRR railroad corridor, which is also eligible for listing on the NRHP, would not be affected by any proposed build alternative. The build alternatives would bridge the UPRR right-of-way at all intersections within the corridor.

Mitigation Measures

None of the proposed build alternatives adversely affects the NRHP-eligible railroad corridors identified in the APE. No mitigation measures are proposed.

4.16.3.5 Paleontological Resources

No-Build Alternative

Existing Conditions

There would be no project-related impacts on paleontological resources under the No-Build Alternative.

Future Conditions (2020)

If none of the build alternatives is implemented, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. It is possible that these future projects would affect paleontological resources in the APE, although the nature and timing of these projects are not known at this time.

Build Alternatives

As described in Section 4.16.2.5, paleontological resources found in the APE consist of invertebrate fossils of low significance. The proposed build alternatives would not result in an impact on any of these resources.

Mitigation Measures

None of the proposed build alternatives adversely affects paleontological resources identified in the APE. No mitigation measures are proposed.

Section 4.17

Hazardous Waste Sites

This section discusses potential hazardous waste sites within the study area and the potential for the sites to be affected by the proposed build alternatives. It provides updated information on potential hazardous waste sites disclosed in the Final EIS, as well as information on hazardous waste sites identified since publication of the Final EIS. In addition, this section presents information on impacts associated with aerially deposited lead.

4.17.1 Approach and Methodology

To update the affected environment and environmental consequences information associated with potential hazardous waste sites in the study area, Sections 3.17 and 4.17 of the Final EIS were reviewed to determine what changes had taken place since publication of the Final EIS. The study area for potential hazardous waste sites is described in Section 4.0.1, *Study Area*, of this document.

Environmental databases were searched for properties or sites within the study area that have known contamination and sites that are regulated according to the requirements of state or federal laws (Environmental Data Resources 2003). The following is a list of environmental databases that were searched, many of which were also consulted during preparation of the Final EIS.

- Superfund Sites, Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).
- National Priorities List (NPL), priority CERCLIS sites.
- Emergency Response Notification System (ERNS).
- Facility Index System (FINDS), a comprehensive database containing a description of other databases with more information.
- FIFRA/TSCA Tracking System (FTTS), a database created to register companies that handle toxic chemicals under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and Toxic Substance Control Act (TSCA).
- Solid Waste Landfills database (SWLF).
- Resource Conservation and Recovery Information System (RCRIS), Large-Quantity Generators (RCRIS-LQG), Small-Quantity Generators (RCRIS-SQG), and Treatment, Storage, or Disposal Facilities (RCRIS-TSDF).

- Open or closed mines (MINES).
- Aboveground storage tanks (AST).
- Underground storage tanks (UST).
- Leaking underground storage tanks (LUST), both open (under investigation) and closed (no additional actions are required or ever took place).
- Toxic Chemicals Release Inventory System (TCRIS or more commonly TRI).

To obtain additional information on sites identified through these database searches, the ArcIMS 3.0 interactive map viewer (UDEQ Division of Environmental Response and Remediation 2003) was reviewed. ArcIMS 3.0 is a web-based tool, maintained by the UDEQ Division of Environmental Response and Remediation (DERR), which provides consolidated location and status information on many of the sites listed in the databases above.

In addition, since publication of the Final EIS, soil samples were taken at two properties identified as sites of concern in the Final EIS: refinery effluent ditch from fuel tank farm (unique identification [ID] AP-3) and construction contractor yard (Hogan and Associates) (unique ID AP-10). These limited field investigations were conducted to further evaluate the potential to encounter soil or groundwater contamination at these sites (HDR Engineering, Inc. 2000). Additional soil samples were also collected from undisturbed areas within existing UDOT right-of-way at the proposed northern and southern interchange locations. These samples were collected to assess the risk associated with encountering high concentrations of aerially deposited lead at proposed Legacy tie in locations. These areas were chosen because they were located adjacent to existing highway systems where tire wear and the past use of leaded gasoline made the possibility of encountering aerially deposited lead more likely.

Furthermore, David West, Right-of-Way Manager for UDOT, was contacted to determine whether any potential hazardous waste sites within the proposed Alternative D right-of-way had been acquired since publication of the Final EIS.

Impacts on potential hazardous waste sites were also reassessed to determine whether the narrower typical cross section proposed in the Supplemental EIS for each of the build alternatives (i.e., 95 m [312 ft] versus 100 m [328 ft], as described in Chapter 3, *Alternatives*, of this document) would change the impacts on hazardous waste sites disclosed in the Final EIS.

4.17.2 Affected Environment

This section presents a summary of updated information on the affected environment relative to potential hazardous waste sites. Additional hazardous waste sites identified during the database searches described above are listed below. Several potential hazardous waste sites identified in the Final EIS have been acquired since publication of the Final EIS. The location and status of these properties are also described in this section.

4.17.2.1 Potential Hazardous Waste Sites

As described in Section 3.17.1 of the Final EIS, 63 potentially hazardous waste sites are located in or near the study area. These sites are listed in Table 3-37 and shown in Figures 3-25a through 3-25f in the Final

EIS. Three additional potential hazardous waste sites were identified during the database search described above. These were the only additional sites identified for evaluation in the Draft Supplemental EIS. The additional sites are described below and shown in Figure 4.17-1.

BFI/Stericycle (S104968070)

This site was identified in the SWLF, RCRIS (RCRIS-LQG), and TRI databases. Its LQG unique ID number is S104968070. The address of this site is 90 North 1100 West, North Salt Lake, which is the same address as BFI Waste Systems, a private waste-hauling company. This site contains a medical waste incinerator and may also support a small waste storage area, although no waste storage or treatment is permitted onsite. This site may also be listed because of the waste collection vehicles that are typically stored at such facilities. No notices of violation were identified in the EPA Facility Registry System (FRS).

Quality Plating (1001225950)

This site was identified in the RCRIS database as an RCRIS-SQG, unique identification number 1001225950. It is located at 2425 South, 2087 West, North Salt Lake, east of the alternative alignments. No notices of violation were identified in the EPA FRS.

Davis County Jail (U000557897)

This site was identified in the LUST database, unique identification number U000557897. It is located south of State Street near the proposed northern terminus. Two UST's, one containing diesel fuel and the other gasoline, were removed from the site in September 1996. During removal of the tanks, diesel fuel was discovered, requiring remediation of the site and identification in the LUST database. The site was remediated and the incidents filed in the LUST database were closed (i.e., require no further action) in 1997. No other notices of violation were identified in the EPA FRS.

Table 4.17-1 lists the name, unique ID number, and site type for these three potential hazardous waste sites, as well as the environmental databases that they were identified in.

Table 4.17-1 Potential Hazardous Waste Sites Identified since Publication of the Final EIS

Site Name	Unique ID Number	Site Type	Source of Information
BFI/Stericycle	S104968070	RCRIS-LQG	SWLF, RCRIS, TRI
Quality Plating	1001225950	RCRIS-SQG	RCRIS
Davis County Jail	U000557897	LUST	State LUST/UST List

Note:

Additional potential hazardous waste sites that occur in the study area are listed in Table 3-37 in the Final EIS.

Table 4-36d in the Final EIS lists all potential hazardous waste sites within the right-of-way of Alternative D (Final EIS Preferred Alternative), as well as those that occur within 200 m (656 ft) (i.e., a reasonable distance) of the Alternative D right-of-way. The information in this table has not changed since publication of the Final EIS, except that the three new potential hazardous waste sites listed above are all located within 200 m (656 ft) of the Alternative D right-of-way. In addition, several of the sites located within the Alternative D right-of-way have been acquired since publication of the Final EIS (West pers. comm. [c]). Table 4.17-2 below lists the current status of all the sites that occur within the right-of-

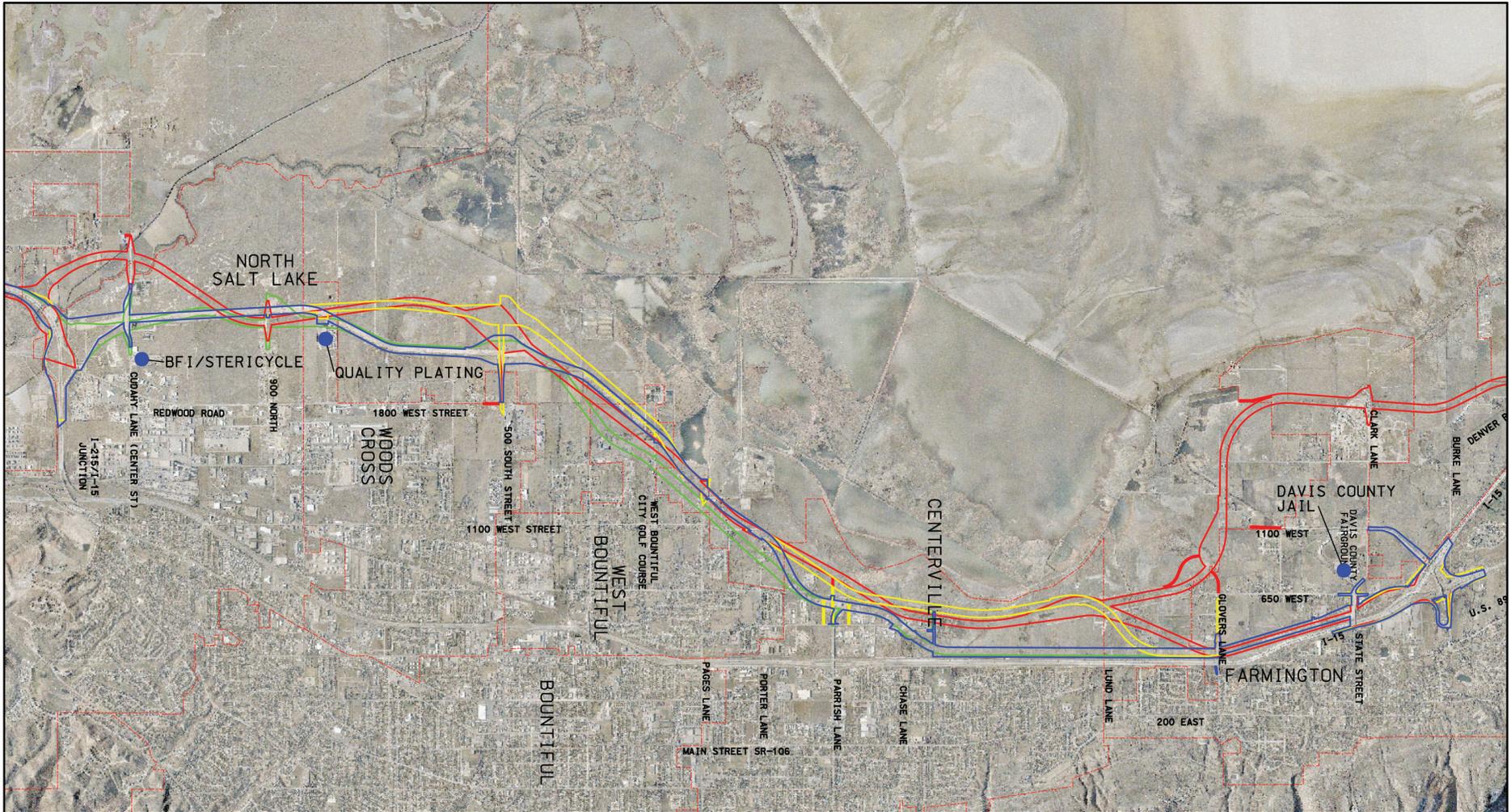
way of Alternatives D and E, and states whether they have been acquired by UDOT. For comparative purposes, Table 4.17-3 lists the potential hazardous waste sites described in Table 4.17-2 and indicates whether they would occur within the right-of way of any other build alternative.

Table 4.17-2 Status of Hazardous Waste Sites in Alternatives D and E Right-of-Way

Site Name	Unique ID Number	Status
Bay Area Refuse Disposal Site (Bountiful City Landfill)	39982	Property has been acquired, but no construction activities have occurred at this location. Potential impacts associated with this site have not changed since publication of the Final EIS
UST (UST 4001371)*	2189010	No change in status since publication of the Final EIS.
Firing Range	AP-1	No change in status since publication of the Final EIS.
Effluent Ditch from Fuel Tank Farm	AP-3	Soil samples collected at site. See 4.17.2.2 for additional information.
Auto Repair Shop	AP-8	Property has been acquired. Onsite structures demolished and site cleared since publication of the Final EIS.
Construction Contractor Yard (Hogan & Associates)	AP-10	Soil samples collected at site. See 4.17.2.2 for additional information.
Paving Contractor Yard	AP-11	Property has been acquired. Site remediation completed in 1998, as described in Section 4.17.3 of the Final EIS.
North West Oil Drain	AP-12	No change in status since publication of the Final EIS.
Petroleum Pipelines (Amoco, Chevron, and Pioneer)	NA	No change in status since publication of the Final EIS.

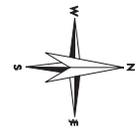
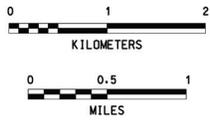
Note:

* Unable to locate UST site using the Final EIS Unique ID number. Review of DERR interactive map showed UST 4001371 in the same location as UST 2189010 shown in Figure 4-19a in the Final EIS.



LEGEND

- Alternative A
- Alternative B
- Alternative C
- Alternatives D and E
- - - Municipality Boundary
- Potentially Hazardous Waste Site



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Figure 4.17-1
Additional Hazardous Waste Sites
Evaluated Since the Publication of the Final EIS

Table 4.17-3 Hazardous Waste Sites in Alternatives D and E Right-of-Way That Would also Be Affected by Other Build Alternatives

Site Name	Unique ID Number	Build Alternatives ¹			
		A	B	C	D and E
Bay Area Refuse Disposal Site (Bountiful City Landfill)	39982		X	X	X
UST (UST 4001371) ²	2189010	X	X	X	X
Firing Range	AP-1	X		X	X
Effluent Ditch from Fuel Tank Farm	AP-3	X	X	X	X
Auto Repair Shop	AP-8	X			X
Construction Contractor Yard (Hogan & Associates)	AP-10	X			X
Paving Contractor Yard	AP-11	X	X	X	X
North West Oil Drain	AP-12	X	X	X	X
Petroleum Pipelines (Amoco, Chevron, and Pioneer)	NA	X	X	X	X

Notes:

¹ An "X" in a column indicates that the site would be in the right-of-way of the indicated build alternative.

² Only hazardous waste sites that occur within the Alternatives D and E right-of-way (see Table 4.17-2) are listed in this table. This information is presented for comparative purposes to illustrate whether other build alternatives would also affect these sites. There are hazardous waste sites that are not listed in this table that would be affected by Alternatives A, B, and C. The status of such sites has not changed since publication of the Final EIS; see Section 4.17.4 of the Final EIS for a detailed discussion of those sites.

4.17.2.2 Results of Field Investigations

Since publication of the Final EIS, limited field investigations have been conducted to further evaluate the potential to encounter soil or groundwater contamination at two hazardous waste sites in the study area: effluent ditch from fuel tank farm (AP-3) and construction contractor yard (Hogan and Associates) (AP-10) (HDR Engineering, Inc. 2000). Because these two sites were located in the Alternative D right-of-way, they were targeted to assess the risk of encountering contamination. If required, clean up at these locations could cause construction delays. The results of those field investigations are summarized below.

Effluent Ditch from Fuel Tank Farm (AP-3)

Four soils samples were collected at AP-3. Diesel-range petroleum hydrocarbons were detected in all four samples, and gasoline-range petroleum hydrocarbons were detected in three of the four samples, although none of the detected contaminants was above allowable standards. Oil and grease contamination was also detected in one of the samples (HDR Engineering, Inc. 2000).

Construction Contractor Yard (Hogan and Associates) (AP-10)

Two areas with stained soil were located during field reconnaissance at AP-10. The first covered a 19-sq m (200-sq ft) area near a drum storage area on the site, and the second covered a 9-sq m (100-sq ft)

area near an AST on the site (HDR Engineering, Inc. 2000). Soil samples collected showed petroleum contamination to a depth of approximately 0.6 m (2 ft) at both locations. Contamination levels were not above allowable standards.

4.17.2.3 Aerially Deposited Lead

The historic use of leaded gasoline and tire wear can lead to a potential increase in concentrations of aerially deposited lead in unpaved areas adjacent to roads and highway. Aerially deposited lead (usually found within the top 0.6 m [2 ft] of soil) and lead in general can cause a range of health effects, including behavioral problems, learning disabilities, seizures, and even death. Children 6 years old and under are at particular risk from lead exposure because their bodies are growing quickly (Environmental Protection Agency 2003a).

There is a potential for construction workers to encounter aerially deposited lead in unpaved areas in the study area that are adjacent to existing roads, in particular in areas near proposed interchange locations. To estimate the potential impacts on construction workers from aerially deposited lead in these areas, UDOT collected and analyzed soil samples from undisturbed areas near the proposed southern and northern termini of the project (Sadik-McDonald pers. comm.). These areas were chosen because they were located adjacent to existing highway systems where tire wear and the past use of leaded gasoline made the possibility of encountering aerially deposited lead more likely. The results of analysis of these samples showed between 28 and 77 milligrams of lead per kilogram of soil (mg/kg). These levels are below both the average background lead concentrations in the Salt Lake Valley (123 mg/kg) and EPA's typical level of concern for lead (400 mg/kg). This potential impact is disclosed below in Section 4.17.3.4.

4.17.3 Environmental Consequences and Mitigation Measures

As described in the Final EIS, all the proposed build alternatives could affect potentially hazardous waste sites in the study area. The screening process used to determine which of the hazardous waste sites were of the greatest concern relative to construction of each of the build alternatives has been updated since publication of the Final EIS, as described below. The updated screening process and the potential impacts associated with the identified hazardous waste sites are described below. In addition, impacts on construction workers from aerially deposited lead in the study area are discussed below.

The reduction of the right-of-way width from 100 m (328 ft) to 95 m (312 ft) did not change the impact conclusions associated with potential hazardous waste sites.

4.17.3.1 Site Screening

As described in the Final EIS, potential hazardous waste sites were screened to identify the sites in or near the proposed alignment that were more likely to contain contaminated soil or groundwater. Specifically, the screening process entailed the following two steps.

- Identifying the type of site or event and its current status (described in Section 4.17.2 above).
- Comparing the site's location to the proposed alignments (by proximity and location, with respect to the hydraulic gradient of the water table).

The potential hazardous waste sites were divided into three categories depending on their probability of environmental degradation: high, medium, and low. Only sites that were within 1.6 km (1 mi) of a proposed alternative right-of-way, a distance used for purposes of database search and initial site screening, were considered during this initial evaluation.

The process used in the Supplemental EIS for dividing the potential hazardous waste sites into the three categories was similar to that used in the Final EIS (described in Section 3.17.3 of the Final EIS). However, several additional site types not identified in the Final EIS were added for evaluation in the Supplemental EIS. Updated information relative to these categories is provided below.

Each of the site types (described below and listed in Table 4.17-1 above and Table 3-37 in the Final EIS) was compared to these three categories to yield a preliminary indication of the probability of environmental degradation. These sites were then evaluated to determine whether they were within or adjacent to (i.e., within 200 m [656 ft] of) the right-of-way of a build alternative. Based on their proximity to a right-of-way, the inferred groundwater flow direction, and their probability of environmental degradation, the sites were categorized as sites of “greater” or “secondary” concern. A complete description of this site screening process is provided in Sections 3.17.3 and 4.17.2 of the Final EIS.

High Probability of Environmental Degradation

The Final EIS identified CERCLA and NPL sites as sites that typically have a high probability of existing soil or groundwater contamination. For purposes of this supplemental analysis, open LUST sites (i.e., those that are currently under investigation) were also considered sites with a high probability of environmental degradation. Open LUST sites are included in this category because of the unknown nature of the site.

Medium Probability of Environmental Degradation

The Final EIS identified active USTs and active or closed SWLFs as sites that typically have a medium probability of environmental degradation. For purposes of this supplemental analysis, closed LUST sites (i.e., LUST sites where a compliance matter has been closed/resolved), RCRIS-TSDF sites, and MINES sites are also considered sites that have a medium probability of environmental degradation.

Closed LUST sites are included in this category because, depending on the circumstances of the LUST closure, they can have residual contamination that could pose a threat to human health or the environment if disturbed. RCRIS-TSDF sites, which treat, store, or dispose of hazardous wastes, are sites for which no releases have been reported; therefore, they were considered medium risk. Sites with historic mining operations are considered medium risk because they have a moderate chance of contamination.

Low Probability of Environmental Degradation

The Final EIS identified RCRIS-SQG, RCRIS-LQG, ERNS and HMIRS hazardous material spill sites, removed and closed UST's, and Clean Air Act (CAA) Title 3 sites (regulated air emissions) as sites that typically have a low probability of environmental degradation. For purposes of this supplemental analysis, registered AST and FTTS sites are also considered sites that have a low probability of environmental degradation.

Registered AST sites are considered to have a low probability of environmental degradation because visual evidence of a leak at an AST is easier to detect than a leak at an UST. As a result, contamination can be more quickly contained and managed to prevent potential migration into the groundwater table or

to an offsite location. A large quantity release at an FTTS site would result in the site showing up in either the RCRIS or CERCLIS database.

4.17.3.2 Impacts from Potential Hazardous Waste Sites

As described in the Final EIS, each build alternative could affect potential hazardous waste sites within or adjacent to the proposed build alternative rights-of-way. Contaminated soil and/or groundwater associated with potential hazardous waste sites could affect worker health and safety during construction and could result in construction delays. Work in and around contaminated areas could also result in spreading of the contamination. As described in the Final EIS, the greatest potential to encounter contaminated groundwater exists where excavations are required (i.e., bridges or culvert crossing) or where piles are needed (i.e., bridges).

As described in Section 4.17.2.1 above, three new hazardous waste sites have been identified since publication of the Final EIS. The potential for these sites to be affected by the build alternatives is discussed below. There is no change to the impact conclusions relative to potential hazardous waste sites disclosed in the Final EIS, with the exception that several hazardous waste sites identified in the Final EIS have been acquired and remediated since publication of the Final EIS (as described in Section 4.17.2.1 above).

No-Build Alternative

Existing Conditions (2004)

Under the existing conditions No-Build Alternative, neither the hazardous waste sites described in the Final EIS nor the newly identified sites described in this chapter would be affected because no construction would occur.

Future Conditions (2020)

If none of the build alternatives is implemented, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. It is possible that these future projects would impact potential hazardous waste sites in the study area, although the nature and timing of these projects are not known at this time.

Build Alternatives

Section 4.17.4 and Tables 4-36a through 4-36d of the Final EIS discuss the potential hazardous waste sites that would be affected by construction of the build alternatives. The proposed narrower right-of-way associated with the build alternatives in this Supplemental EIS would not affect any of the impact conclusions disclosed in the Final EIS. Field investigations at the effluent ditch for the fuel tank farm (AP-3) and the construction contractor Yard (Hogan & Associates) (AP-10) confirmed the presence of contaminants (see Section 4.17.2.1 above) and the Final EIS conclusion that remediation activities would likely be required at these sites prior to construction of any proposed build alternative.

Section 4.17.2 above describes three additional hazardous waste sites identified in the study area since publication of the Final EIS. If hazardous materials are present at the BFI/Stericycle (S104968070), shallow groundwater could be contaminated. Although the BFI/Stericycle (S104968070) site is located 50 m (164 ft) to 100 m (328 ft) east and north of the right-of-way for the proposed Center Street overpass (i.e., outside the proposed right-of-way of all build alternatives), the hydraulic gradient at the site could cause contamination, if present, to migrate into the right-of-way associated with Alternatives A, C, D,

and E. The mitigation measures described in the Final EIS and summarized below would minimize adverse impacts associated with potential contamination.

The Quality Plating (1001225950) and the Davis County Jail (U000557897) sites do not have the proximity or the necessary location with respect to the hydraulic gradient of the water table to pose a significant contamination threat to construction of any build alternative. Quality Plating is located approximately 200 m (656 ft) east of the rights-of-way associated with Alternatives A, D, and E, and over 200 m (656 ft) east of the rights-of-way of Alternatives B and C. In addition, this site is an RCRIS-SQG site and poses a low probability of environmental degradation (see Section 4.17.3.1 above). The Davis County Jail is located more than 200 m (656 ft) west of the rights-of-way associated with Alternatives A, C, D, and E. Because the groundwater at the jail site is assumed to move west, this site would not be affected by construction of any proposed build alternative. It is also unlikely that the Davis County Jail site would be affected by construction of Alternative B because the proposed Alternative B alignment is located approximately 2 km (1.2 mi) west of the jail site, a relatively large distance.

4.17.3.3 Mitigation Measures for Impacts from Potential Hazardous Waste Sites

The mitigation measures described in Section 4.17.5 of the Final EIS are still applicable. Sites with known chemical hazards that occur within or adjacent to the right-of-way of a proposed build alternative would be remediated by UDOT based on guidance received from EPA and/or UDEQ. Similarly, if contamination by unknown chemicals is encountered, construction work would be halted until the nature of the hazard and appropriate response measures could be determined.

4.17.3.4 Impacts from Aerially Deposited Lead

As described in Section 4.17.2.3 above, there is a potential for construction workers to encounter aerially deposited lead in unpaved areas in the study area that are adjacent to a road right-of-way, and, in particular, near the proposed interchange locations with I-15. The following provides a discussion of this construction-related impact.

No-Build Alternative

Existing Conditions (2004)

No construction would occur under the existing conditions No-Build Alternative, so there would be no potential for construction workers to be exposed to aerially deposited lead.

Future Conditions (2020)

If none of the build alternatives is implemented, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. It is possible that these future projects would impact areas with higher concentrations of aerially deposited lead, although the nature, timing, and location of these projects are not known at this time.

Build Alternatives

Each build alternative includes construction of several interchanges where the proposed action encounters existing roads and highways. As described above in Section 4.17.2.3, soil samples collected near the proposed southern and northern termini of the project showed levels of aeriaily deposited lead below both the average background lead concentration for the Salt Lake Valley and EPA's typical level of concern for lead. Therefore, based on the limited sample results, there is a low possibility of encountering aeriaily deposited lead at concentrations that would result in adverse health effects. However, construction workers will be instructed to take precautions to limit the amount of dust inhaled. In addition, dust control measures will be employed to minimize the release of lead dust into the atmosphere.

Section 4.18

Visual Resources

This section discusses visual resources within the study area. Although the visual conditions in the study area have not changed since publication of the Final EIS, planned development in the area has continued, which could affect views of the proposed highway from offsite. In addition, the proposed embankment height associated with the build alternatives has changed, which may reduce visual impacts associated with the proposed action.

4.18.1 Approach and Methodology

To update the affected environment and environmental consequences information associated with visual resources in the study area, Sections 3.18 and 4.18 of the Final EIS were reviewed to determine whether any changes had taken place since publication of the Final EIS. The northern and southern study area limits for this section are the same as those described in Section 4.0.1, *Study Area*; however, the western and eastern study area boundaries have been extended to accommodate the larger viewshed in the proximity of the proposed action. As a result, the study area for this section is bound on the east by the Wasatch Mountains and on the west by Antelope Island and Great Salt Lake.

HDR Engineering conducted a reconnaissance-level field survey of the study area on September 26, 2003. Project orthophotographs from the Final EIS were also compared to recent orthophotographs of the study area to determine whether there had been any changes in visual conditions.

To analyze visual resources, the Final EIS relied on the Bureau of Land Management (BLM) Visual Resources Contrast Rating System. The rating system was used to inventory and evaluate the visual resources in the study area based on the following two viewer groups.

- Offsite viewers who would be looking at the proposed Legacy Parkway.
- Onsite viewers (i.e., users of the proposed Legacy Parkway) who would be looking from the parkway at the surrounding area.

The Final EIS also divided viewers within the visual study area into the following three principal subgroups.

- Travelers along existing arterial streets, highways, and freeways, such as Redwood Road and I-15, that traverse the project area.
- Residents of neighborhoods, including those in the Davis County foothills area and new Foxboro development.

- People engaging in recreation at existing sites, including the Bountiful City Pond and the FBWMA.

In addition, 14 key observation points (KOPs) were analyzed in the Final EIS to assess the visual impacts of the proposed action; 10 KOPs were views of Legacy Parkway from offsite and four KOPs were views of offsite from the proposed highway. Section 3.18.2 of the Final EIS describes these KOPs in detail; Figure 4.18-1 herein, which updates Figure 3-26 in the Final EIS, shows the location of these KOPs.

4.18.2 Affected Environment

This affected environment section presents a summary of updated information on the affected environment relative to visual resources. No new data was found to indicate that the existing visual conditions or identified viewer groups in the study area had changed since publication of the Final EIS. Continued residential, commercial, and industrial development in the study area has occurred, which could affect views of the proposed highway from offsite. However, this continued development has not substantively changed the status of the affected environment associated with visual resources.

4.18.2.1 Development in Study Area since Publication of Final EIS

Residential, industrial, and commercial development has continued since publication of the Final EIS, including partial construction of the following two new housing developments in the study area.

- Foxboro housing development in North Salt Lake.
- Farmington Ranches housing development in Farmington.

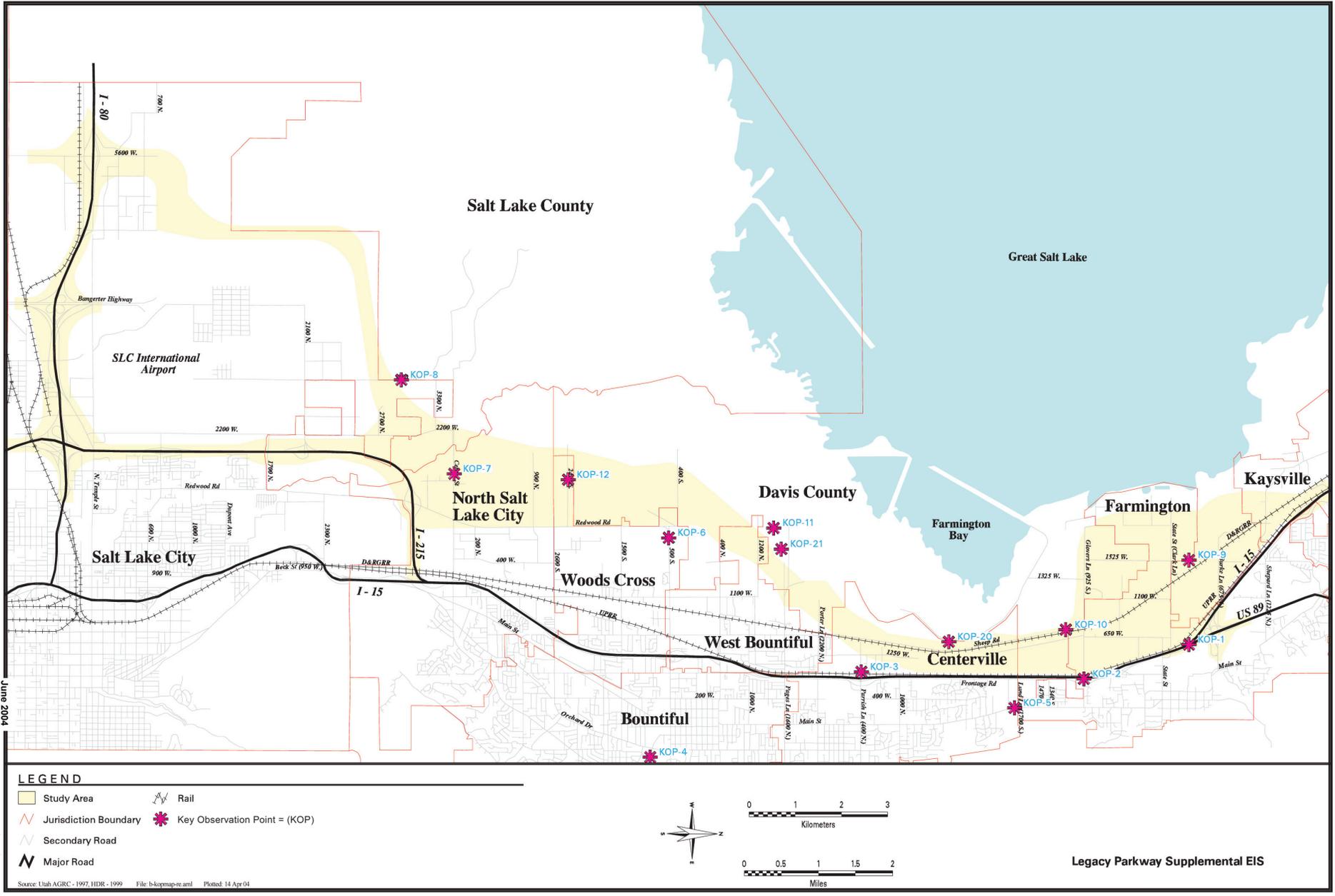
The Foxboro housing development is being constructed in North Salt Lake west of Redwood Road between Center Street and 900 North on a 110-ha (272-ac) site. The development was platted in 2003, is currently under development, and will include a mixed-use development with homes, parks, a planned elementary school, a church, and commercial zoning along Redwood Road. It will include a total of 1,250 homes, 240 of which are low- to moderate-income housing units, including 12 Housing and Urban Development (HUD)-supported transitional housing units. Multiple homes and up to five multi-family buildings of three stories in height are already built or near completion.

Farmington Ranches is a development of single-family residential housing currently under construction west of the Davis County fairgrounds at 1525 West Clark Lane. It is a 288-ha (711-ac) housing development with a total of 540 single-family lots and an elementary school. The development is scheduled to be complete by 2005.

The discussion of these two housing developments updates the information presented in the Final EIS on views of the proposed highway from the study area, as well as views of the surrounding area from the proposed highway.

4.18.2.2 Visual Resources in Study Area Viewed from Offsite

As described in the Final EIS, four main offsite locations comprising 10 KOPs were used to assess views of Legacy Parkway: the Redwood Road area (KOPs 6, 7, and 8), the Davis County foothills area (KOPs 4 and 5), the I-15 area (KOPs 1, 2, and 3), and areas near the FBWMA (KOPs 20 and 21) (Figure 4.18-1). Section 3.18.2 of the Final EIS provides a complete description of the foreground, middle ground, and



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Figure 4.18-I
Key Observation Point Locations

background views typical for these KOPs. Most viewer groups that would view the proposed highway would be located in the residential developments to the east of the proposed alignments.

Construction of the Foxboro housing development and the Farmington Ranches housing development would increase the potential number of offsite viewers that would have views of the proposed highway. Specifically, the residents of the Foxboro housing development would view the proposed highway from the Redwood Road area (KOP 6). The view that the residents of the Farmington Ranches housing development would have of the proposed highway would be most similar to that described for the area on and near the FBWMA (KOP 20).

Typical activities of the viewers in the Redwood Road areas when viewing the proposed highway would include driving or spending time inside their homes or outside in their yards. Typical activities of the viewers in the area near FBWMA would include bird watching, hiking, fishing, and hunting.

4.18.2.3 Offsite Visual Resources Viewed from Study Area

As described in the Final EIS, four KOPs were used to represent visual resources looking from the study area to offsite locations: West Farmington (KOP 9), Farmington Bay (KOP 10), West Bountiful (KOP 11), and Redwood Road (KOP 12). These views generally represent an urban viewshed, consisting of a highly varied mix of industrial, commercial, and residential elements, including large warehouses, older small units, and other types of buildings and complexes. Construction of the Foxboro housing development and the Farmington Ranches housing development would further emphasize the mix of urban visual elements in the study area.

4.18.3 Environmental Consequences and Mitigation Measures

The Final EIS described two types of impacts associated with visual resources in the study area: those tied to temporary construction activities and those associated with the operation of the proposed build alternatives. Since publication of the Final EIS, the nature and intensity of these impacts have not changed significantly; however, slight changes to the proposed highway design and continued development in the study area would reduce the operation-related visual impacts of the proposed highway when viewed from certain offsite locations. The environmental consequences associated with impacts on visual resources in the study area and the proposed mitigation measures to minimize these effects are summarized below.

4.18.3.1 Construction-Related Visual Impacts

Construction-related visual impacts are described in Section 4.20, *Construction Impacts*, of this document.

4.18.3.2 Operation-Related Visual Impacts

As described in the Final EIS, operation-related visual impacts were assessed from two perspectives: that of a viewer looking at the study area from an offsite location and that of a viewer looking at an offsite location from the study area (i.e., views from the proposed highway). The Visual Resources Contrast Rating System mentioned in Section 4.18.1 above was used in the Final EIS to determine the impacts a proposed build alternative would have on the existing viewshed, i.e., the extent to which a build

alternative would contrast with the existing viewshed. This system uses a numerical scale of 1 to 4, with 4 representing the greatest contrast (impact). Section 4.18 of the Final EIS provides a detailed explanation of how this rating system was applied to evaluate project-related impacts on visual resources.

The nature and intensity of the operation-related visual impacts have not changed significantly since publication of the Final EIS, except that the residents of the new housing developments (i.e., Foxboro housing development) constructed since publication of the Final EIS would now have views of the proposed highway from their communities. However, a reduction in the proposed embankment height associated with all the proposed build alternatives and the continued construction of these new housing developments would reduce the operation-related visual impacts of the proposed highway from certain offsite locations. The following describes the impacts associated with the alternatives from the two different viewer perspectives.

Visual Resources in Study Area Viewed from Offsite

No-Build Alternative

Existing Conditions (2004)

There would be no operation-related visual impacts under the existing conditions No-Build Alternative because none of the proposed build alternatives would be constructed.

Future Conditions (2020)

If none of the build alternatives is implemented, future residential, commercial, and industrial infrastructure will continue to be constructed in the study area. In addition, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. These projects would affect the visual quality of the study area when viewed from an offsite location. Because the nature and timing of these projects are not known at this time, however, these impacts are difficult to assess.

Build Alternatives

Visual resource impacts from the perspective of a viewer looking at the study area from an offsite location were described in the Final EIS based on the four offsite areas (10 KOPs) described above in Section 4.18.2.2. Since publication of the Final EIS, the Foxboro housing development has been constructed; all residents of this development would have a direct view of the proposed highway, which would be considered an adverse operation-related visual impact.

In addition, since publication of the Final EIS, the embankment height associated with all the proposed build alternatives has been reduced from 2.7 m (9 ft) to 1.8 m (6 ft), except in floodplain areas, to reduce the amount of required fill material. This reduced embankment height would create a lower profile roadway that would be less visible from offsite. This reduction in the height of the embankment would reduce the visual impact of all the proposed build alternatives on the surrounding area; however, the permanent visual presence of pavement, fill slopes, grade separations, lighting, roadway hardware, and drainage structures would still result in an adverse operation-related visual impact, as described in the Final EIS.

The Foxboro and Farmington Ranches housing developments would also reduce the visual impact of the proposed highway when viewed from the Davis County foothills area (KOPs 4 and 5) (Figure 4.18-1). As described in the Final EIS, both I-15 and several large industrial areas would block views of the proposed highway from the Davis County foothills area; the construction of these new developments would further

block views of the highway for viewers in the higher elevation offsite residential areas in the foothills. Therefore, the impact conclusions disclosed in the Final EIS have not changed.

Visual Impact Ratings

Table 4-39a in the Final EIS presents the results of the contrast rating for each of the proposed build alternatives at the 10 offsite KOP locations. These visual impact ratings have not changed since publication of the Final EIS. Although reducing the embankment height generally creates a lower-profile roadway, it would not substantially alter the visual impact ratings presented in those tables because the embankments are not entirely eliminated. The continued development of land in the study area for residential, commercial, and industrial uses, along with viewer activity, was already accounted for in the visual impact ratings presented in the Final EIS.

Offsite Visual Resource Viewed from Study Area

No-Build Alternative

Existing Conditions (2004)

There would be no operation-related visual impacts under the existing conditions No-Build Alternative because none of the proposed build alternatives would be constructed.

Future Conditions (2020)

If none of the build alternatives is implemented, future residential, commercial, and industrial infrastructure will continue to be constructed in the study area. In addition, future transportation improvement projects may be undertaken by local jurisdictions in the study area to address capacity needs not being met by the proposed action. These projects would affect the views from the study area to offsite locations. Because the nature and timing of these projects are not known at this time, however, these impacts are difficult to assess.

Build Alternatives

Visual resource impacts, from the perspective of a viewer in the study area (i.e., using the proposed highway or adjacent trail) looking at an offsite location, were described in the Final EIS based on the four KOPs, as described above in Section 4.18.2.3. As stated in the Final EIS, the greatest visual impact on viewers in the study area looking offsite would be the highway itself. The permanent visual background presence of pavement, fill slopes, grade separations, lighting, roadway hardware, and drainage structures would have the greatest long-term operation-related visual impact associated with the project, particularly for the motorists driving on the proposed highway and for those in its immediate proximity. The inclusion of the proposed Legacy Nature Preserve into the build alternatives would provide improved views west of the highway due to restoration activities, including the removal of debris and revegetation of certain areas.

Visual Impact Ratings

Table 4-39b in the Final EIS presents the results of the contrast rating for each proposed build alternative at the four KOP onsite locations. These visual impact ratings have not changed since publication of the Final EIS.

4.18.3.3 Mitigation Measures

As described in the Final EIS, landscaping, a berm/buffer area, and a trail system have been integrated into the design of all the proposed build alternatives to minimize operation-related visual impacts. Section 4.18.3 of the Final EIS describes different approaches that would be applied to different areas to minimize visual impacts.

Section 4.19

Energy

This section discusses current and projected future energy consumption associated with traffic in the study area. Daily energy consumption figures (2001) have been updated based on output from the 2004 WFRC travel demand model (version 3.2). The updated travel demand model was also used to estimate daily energy consumption in 2020 in order to evaluate the potential energy-related environmental impacts of traffic associated with the proposed action.

4.19.1 Approach and Methodology

To update the affected environment and environmental consequences information associated with energy in the study area, Sections 3.19 and 4.19 of the Final EIS were reviewed to determine what changes had taken place since publication of the Final EIS. The study area for energy is the North Corridor, which includes all of Salt Lake and Davis Counties. In addition, this section presents energy information for a four-county area, which includes Weber, Davis, Salt Lake, and Utah Counties. The energy impacts were evaluated assuming that the 2020 build scenario would include Legacy Parkway, I-15 reconstruction to 10 lanes, and Maximum Future Transit; to that extent, the transportation system varies from the projected 2020 transportation system in the WFRC long range plan. These differences have been explained more fully in Chapters 1 and 2 of this SEIS

The analysis presented in the Final EIS was based on the 1997 version of the WFRC travel demand model. This model was updated in 2004, and the updated model (version 3.2) has been used to reevaluate the assessment of energy impacts presented in this document.

4.19.2 Affected Environment

As described in the Final EIS, traffic is projected to continue increasing along existing highways and roadways in the study area. Current (2001) vehicle-miles traveled (VMT) in the study area were determined using the 2004 travel demand model (version 3.2), as were VMT for the four-county area described above. The existing traffic demand information and related energy consumption are reported in Table 4.19-1, which updates Table 3-38 in the Final EIS.

Table 4.19-1 Existing (2001) and Future (2020) Daily Traffic-Related Energy Consumption

Area	Existing Conditions (2001)			No-Build Alternative (Future Conditions [2020])			Build Alternatives (2020)		
	VMT	Energy Consumption (million Btu)	Fuel Consumption (gallons)	VMT	Energy Consumption (million Btu) ¹	Fuel Consumption (gallons)	VMT	Energy Consumption (million Btu) ¹	Fuel Consumption (gallons)
North Corridor	2,550,920	15,943	127,546	3,750,708	17,692	141,536	3,761,419	17,742	141,940
Four- County ²	39,692,416	248,078	1,984,621	62,449,902	294,575	2,356,600	62,355,035	294,127	2,353,020

Notes:

¹ The slight decrease in energy consumption between the 2020 future no-build conditions and 2020 build alternatives in the four-county area compared to the increase in energy consumption in the North Corridor between these two conditions is attributable to the increased effect robust transit (e.g., transit itself and policy/pricing changes) would have at the four-county level, versus within the North Corridor.

² VMT totals for the four-county area include centroid connectors. Centroid connectors represent groups of local streets. The model represents such minor facilities in an aggregate, abstract manner, and mileage accumulated on centroids is an approximation of minor street mileage. VMT totals that include centroid mileage account for all travel, not only on the major highway and arterial networks, but also on the local and collector streets. This mileage, therefore, includes travel between the arterial network and the sites at which the traffic is generated, such as groups of homes or commercial establishments. VMT totals that exclude centroid travel exclude mileage accumulated on the first and last mile, approximately, of each trip.

VMT = vehicle miles traveled; Btu = British thermal unit; 1 gallon gasoline = 125,000 Btu (Oregon State Department of Energy 2003).

Passenger vehicles are assumed to achieve gasoline fuel efficiency of 20 miles per gallon (mpg) in 2001 (U.S. Department of Transportation 2002), and 26.5 mpg in 2020 (U.S. Department of Energy 2003a).

Source: Wasatch Front Regional Council travel demand model (version 3.2), as modified by Interplan.

4.19.3 Environmental Consequences and Mitigation Measures

As described in the Final EIS, vehicles using any proposed build alternative would consume energy. If Legacy Parkway is not constructed, however, vehicles using existing facilities will also consume energy. To determine how much future energy consumption could be attributed to vehicles using Legacy Parkway, the 2004 WFRC travel demand model (version 3.2) was used to generate two sets of future (2020) daily energy consumption figures for the study area (i.e., North Corridor) and for the four-county area: one without Legacy Parkway (future no-build conditions), and one with Legacy Parkway.

Construction activities associated with Legacy Parkway would also result in energy consumption; construction impacts are discussed in Section 4.20, *Construction Impacts*. The following provides a summary of potential energy impacts.

4.19.3.1 Direct Impacts

Direct energy impacts are associated with energy that would be consumed by vehicles using the transportation facilities in the study area, including Legacy Parkway if it is constructed. As described in the Final EIS, fuel consumption varies with traffic characteristics. The primary traffic characteristics are traffic flow (average vehicle speed), driver behavior, the geometric configuration of the highway, the vehicle mix, and climate and weather. Of all the traffic-related factors, average vehicle speed accounts for most of the variability in fuel consumption and is a good predictor of fuel economy for most urban travel. Fuel efficiency under steady-flow “cruising” driving conditions peaks at 72 kilometers per hour (kph) (45 miles per hour [mph]) to 97 kph (60 mph), and then rapidly declines as speeds increase. At lower speeds, fuel efficiency is reduced by engine friction, tires, use of powered accessories (e.g., air conditioning), and repeated braking and acceleration (Davis and Diegel 2003).

The VMT in the study area and in the four-county area under the existing (2001) conditions, future no-build conditions (2020), and build alternatives in 2020 were determined using the 2004 WFRC travel demand model (version 3.2) and are presented in Table 4.19-1 above. The build alternatives were not evaluated individually because energy consumption would not vary significantly among them. The energy impacts are summarized below.

No-Build Alternative

Existing Conditions (2001)

No project-related energy impacts would occur under the existing conditions (2001) No-Build Alternative.

Future Conditions (2020)

Under the future conditions (2020) No-Build Alternative, VMT in the study area (i.e., North Corridor) in 2020 is projected to increase approximately 47 percent over 2001 levels, and related energy consumption is projected to increase by approximately 11 percent over the next 20 years (Table 4.19-1). The VMT in the four-county area in 2020 is projected to increase 57 percent over 2001 levels, and related energy consumption by about 19 percent. The fuel efficiency of vehicles is expected to improve by about 33 percent during the same period (e.g., new light-duty vehicle efficiency is projected to reach 26.5 mpg

by 2020) (U.S. Department of Energy 2003b). This projected increase in fuel efficiency is included in the energy calculations shown in Table 4.19-1.

As illustrated in Table 4.19-1 under the No-Build Alternative future conditions, vehicles traveling through the study area in 2020 would use slightly less energy and fuel than under the build alternatives. However, vehicles traveling through the four-county area would use slightly more energy and fuel under the future conditions No-Build Alternative than under the build alternatives. This is attributable, in part, to the increased role that robust transit would play in the four-county area versus in the study area.¹

Build Alternatives

The build alternatives would result in increased energy consumption in the study area due to traffic use of the Legacy Parkway facilities. Under the build alternatives, VMT in the study area in 2020 is projected to increase approximately 47 percent over 2001 levels, and related energy consumption is projected to increase by approximately 11 percent over the next 20 years (Table 4.19-1). Under the build alternatives, the VMT in the four-county area in 2020 is projected to increase 57 percent over 2001 levels, and related energy consumption by about 19 percent.

As described above for the future conditions (2020) No-Build Alternative, however, the increases in VMT and energy consumption in both the study area and the four-county area are very similar to those that would be experienced in 2020 if none of the build alternatives were constructed. The difference in daily energy consumption between the proposed build alternatives and future no-build scenario is 50.5 million Btu (0.003 percent), and the difference in daily fuel consumption is 404 gallons (0.003 percent) (Table 4.19-1). This slightly higher energy usage under the build alternatives would result from the added traffic capacity provided by the build alternatives. However, the difference in energy usage is relatively small because the added traffic capacity of the build alternatives would decrease the energy consumption of individual vehicles by increasing average vehicle speeds and smoothing traffic flows. Although the future no-build scenario results in lower VMT, congestion and stop-and-go traffic would increase the energy usage per VMT in the study area.

Energy consumption in the four-county area would decrease under the build alternatives compared to the future conditions No-Build Alternative, as described above and illustrated in Table 4.19-1.

¹ See Section 2.3.2.1, *Development of Integrated Transit Enhancement Packages*, for a definition of robust transit.

Section 4.20

Construction Impacts

4.20.1 Approach and Methodology

This section supplements the construction impacts analysis presented in the Final EIS. This analysis of construction impacts was based on the following review and consultation.

- Review of Section 4.20 of the Final EIS.
- Review of the resource-specific technical analyses developed for this Supplemental EIS.
- Consultation with UDOT regarding construction activities that have taken place to date and project design changes.
- Review of actual impacts that have occurred during the initial construction activities.

UDOT began construction on Legacy Parkway in summer 2001. The project under construction was the Preferred Alternative from the Final EIS (Alternative D). UDOT implemented a design-build delivery system to construct the project until construction was halted in November 2001 because of an injunction from the U.S. Court of Appeals for the Tenth Circuit. The design-build contract has since been terminated.

Detailed analysis of highway construction impacts is sometimes difficult to provide under the design-build delivery system because the exact locations of material borrow and disposal sites, haul roads, detour routes, and other details of the construction process are often not known when the EIS is prepared. That was the case when the Final EIS was prepared. However, because construction was started on a portion of the Legacy Parkway project (before being halted by the court), the details of some of these impacts can be estimated by drawing from the actual experiences of project construction.

The existing conditions, including construction activities to date and changes that have been made to the design of the project as well as impacts of previous construction and reasonably foreseeable future construction impacts, are discussed below.

4.20.2 Affected Environment

This section presents a summary of the construction activities to date and changes made to the design of the project.

4.20.2.1 Construction Activities to Date

The following construction activities have been completed to date.

- **Southern Interchange.** The contractor cleared and grubbed (removed vegetation from) about 4.9 ha (12 ac) at the I-215 interchange location at the southern terminus of the proposed action. The contractor also placed fill at varying heights (up to 6 m [20 ft]) in this area (Campagna pers. comm.).
- **Mainline.** The contractor cleared, grubbed, and performed grading and filling (about 0.6 m to 0.9 m [2 ft to 3 ft] in height) on a segment about 6 km (3.7 mi) long at the southern terminus of the project near I-215 (Campagna pers. comm.). The contractor also cleared and grubbed a segment about 1 km (0.7 mi) long just north of 500 South.
- **Northern Interchange.** The entire interchange at I-15 at the northern terminus of the project has been cleared and grubbed. Construction continues on the extension of Park Lane (formerly Burke Lane) and all ramps from Park Lane to I-15 and US-89 as part of the *Farmington City Master Transportation Plan* (City of Farmington 1998) and the Sheppard Lane project. Construction of drainage facilities in this area also continues as part of implementing the master plan and the Sheppard Lane project. The Park Lane (formerly Burke Lane) and drainage facility construction is planned for completion in the spring of 2005. Some bridge construction (piers and abutments) was initiated for the Legacy Parkway mainline over I-15, but it was not completed.

4.20.2.2 Design Changes

The construction delivery system (design-build) and the type of construction impacts described in Section 4.20 of the Final EIS have not changed since publication of the Final EIS. However, three design changes have been made since publication of the Final EIS that would slightly reduce the magnitude of construction impacts.

- **Narrower Right-of-Way.** Since publication of the Final EIS, UDOT revised its minimum design standard for median width from 20 m (66 ft) to 15 m (50 ft). As a result, the width of the Legacy Parkway right-of-way has been reduced from 100 m (328 ft) to 95 m (312 ft). This will reduce the footprint of the construction area and the area of disturbed earth.
- **Reduced Embankment Height.** During the design-build process, UDOT and the contractor reduced the embankment height for the mainline in all areas except floodplain areas from 3 m (9 ft), as presented in the Final EIS, to 2 m (6 ft). This is a reduction in fill height of about 1 m (3 ft) over a large portion of the highway (only between 5 and 11 percent of the overall alignment lies with the Corps floodplain for any build alternative [see Section 4.14, *Floodplains*]). The reduced embankment height will reduce the amount of earthwork and fill required for construction.
- **Lengthened Bridges.** To provide support towards the goal of integration of mass transit with the design and construction of Legacy Parkway, the bridge structures were lengthened to accommodate the physical integration of the commuter rail project at Park Lane (formerly Burke Lane), State Street, Glovers Lane, I-15 southbound to Legacy Parkway southbound ramp, Legacy Parkway northbound to I-15 northbound ramp, US-89 southbound to Legacy Parkway southbound ramp, and Legacy Parkway northbound to US-89 northbound ramp.

4.20.3 Environmental Consequences and Mitigation Measures

Section 4.20.1 of the Final EIS described construction-related impacts under the No-Build and build alternatives. This section provides updated and/or new construction-related impacts relative to implementation of the build alternatives. Construction-related impacts and their associated mitigation measures that were disclosed in the Final EIS but have not changed since publication of that document are not described herein.

4.20.3.1 No-Build Alternative

Existing Conditions (2004) and Future Conditions (2020)

No changes have taken place since publication of the Final EIS that warrant updating this section. The information regarding the No-Build Alternative in the Final EIS is still accurate.

4.20.3.2 Build Alternatives

As described in Section 4.20 of the Final EIS, construction of any proposed build alternative would result in temporary construction-related impacts from ground disturbance and operation of equipment. Possible impacts would include air quality, noise, water quality, wetlands, wildlife, cultural resources, visual resources, business operations, utility service, railroad operations, and traffic flow. These impacts, as disclosed in Section 4.20 and the resource-specific sections of the Final EIS, would still occur. However, as noted above, they would be reduced because of the reduced right-of-way width, reduced embankment height, and reduced amount of earthwork needed to construct the project. The narrower right-of-way would slightly decrease predicted impacts on air quality from fugitive dust, on water quality from erosion and suspended sediments, on wetlands from construction activities, and on archaeological, paleontological, and historical resources that might be present underground. The reduced embankment height would decrease the amount of earthwork and fill required for the project, thus reducing the amount of sand and gravel that would be hauled from sand and gravel pits to the project.

Because the impacts identified in the Final EIS would still occur but to a lesser degree, they are not detailed here. However, because previous construction activities provided information on sand- and gravel-related impacts that was not available at the time the Final EIS was prepared, those impacts are disclosed below.

Impacts from Sand and Gravel Sources and Truck Hauling

Sand and gravel sources for highway construction projects can include existing commercial sand and gravel pits (also referred to as material borrow sources) or new sources developed for a specific project. It is unlikely that a new sand and gravel pit would be developed for constructing Legacy Parkway because commercial pits already exist near the project alignment. The design-builder that was under contract for the initial construction of the project in 2001 used material from two nearby pits; eight sand and gravel pits near the study area could potentially provide the fill material necessary to construct any proposed build alternative.

The Final EIS did not include a discussion of impacts related to the procurement of sand and gravel for the proposed action because UDOT does not specify materials sources for private construction contractors bidding on UDOT projects, and as a result, the location of the source(s) was not known at that time. A discussion of typical impacts to be expected from the procurement of sand and gravel and information gained from actual construction activities to date is presented below.

UDOT does not specify particular sand and gravel sources for its contractors because that would eliminate competition from non-specified sources and would be inconsistent with the State of Utah’s procurement guidelines designed to control costs of publicly funded projects. Therefore, private contractors bidding on UDOT projects determine the source of the sand and gravel and how the material will be transported. Typically contractors use dump trucks to haul the material from a commercial sand and gravel pit to various staging areas along the project route.

The environmental effects produced by the sand and gravel sources are addressed during the permitting process for a particular site. Local governments regulate localized impacts from operation of a mine, such as noise, dust, congestion, traffic, zoning, and erosion runoff. The Utah Department of Environmental Quality also regulates dust and water quality impacts from mines.

Typical impacts from sand and gravel pit operations include air quality and water quality impacts caused by fugitive dust, erosion, and suspended sediments; noise; and increased truck traffic on local routes. For existing active commercial sand and gravel pits, these impacts are already present and mitigation measures are in place. Providing material for construction of the Legacy Parkway project could increase the quantity of material mined at a particular sand and gravel pit for a limited period. Increasing the quantity of material mined at a particular pit would not necessarily magnify impacts on air quality or water quality because air and water quality impacts depend on the surface area of earth that is disturbed, and mining activities would most likely extend vertically instead of laterally. Noise and truck traffic associated with the sand and gravel pit could increase temporarily.

The design-builder that was under contract for the initial construction of the project in 2001 used material from the Staker Parson pit on Beck Street in North Salt Lake and the Craythorne pit near Hill Air Force Base in Syracuse. Table 4.20-1 shows existing commercial sand and gravel pits near the project area.

Table 4.20-1 Commercial Sand and Gravel Pits near Proposed Legacy Parkway Alignments

Sand and Gravel Pit	Location
Allroc	2500 N. Beck Street, North Salt Lake
Construction Products Company	1075 N. Warm Springs Road, North Salt Lake
Craythorne	601 West 1700 South, Syracuse
Geneva Rock	5400 South 6000 West, West Valley City
Geneva Rock	2635 E. South Weber Drive, South Weber
Lakeview Rock Products	2300 N. Beck Street, North Salt Lake
Staker Parson	1810 N. Beck Street, North Salt Lake
Staker Parson	7425 South 2700 East, South Weber

Most of the earthwork required for Legacy Parkway would be for fill. Table 4.20-2 shows earthwork quantities estimated in the Final EIS and in the Supplemental EIS. The earthwork quantities in the

Supplemental EIS are lower than those in the Final EIS because the right-of-way and embankments of the modified project have been reduced. The cost estimates and earthwork quantities that were provided in Appendix N of the Final EIS have been updated.

Some fill has already been placed on the Alternative D (Final EIS Preferred Alternative) alignment, which overlaps in part with the Alternative A, B, and C alignments in the area where the fill was placed. The quantities shown in Table 4.20-2 have not been reduced to account for the fill that has already been placed.

Truck trips were calculated from the total earthwork amount (rounded to the nearest 1,000 cubic meters) including cut and fill.

The contractor hired for the design-build work conducted in 2001 estimated that about 8 million cubic meters (10.5 million cubic yards) of fill would be required for construction of Alternative D (Final EIS Preferred Alternative), which is less than the 10 million cubic meters (13 million cubic yards) estimated in the Final EIS. Because no final design has been completed for any other Supplemental EIS alternative, refined estimates for these alternatives are not available. The earthwork estimates from the Supplemental EIS and Final EIS are shown in Table 4.20-2 for comparison purposes.

4.20-2 Required Earthwork and Construction-Related Energy Consumption by Alternative

Alternative	Estimated Amount of Earthwork, cubic m (cubic yd) ¹	Approximate Number of Truck Trips ²	Vehicles Miles Traveled	Fuel Consumption (Gallons)	Energy Consumption (million Btu)
No-Build Alternative	None	0	0.0	0.0	0.0
Alternative A	10,000,000 (13,000,000)	720,000	10,080,000	1,344,000	168,000
Alternative B	13,000,000 (17,000,000)	940,000	13,160,000	1,754,667	219,333
Alternative C	10,000,000 (13,000,000)	720,000	10,080,000	1,344,000	168,000
Alternative D (Final EIS Preferred Alternative)	8,000,000 (10,500,000)	580,000	8,120,000	1,082,667	135,333
Alternative E	8,000,000 (10,500,000)	580,000	8,120,000	1,082,667	135,333

Notes:

Btu = British thermal unit

One gallon gasoline = 125,000 Btu (Oregon State Department of Energy 2003).

¹ The estimated amount of earthwork necessary for constructing Alternatives A, B, and C was derived from Appendix N of the Final EIS. These figures are exaggerated because they do not account for a reduction in the proposed embankment height (see 4.20.2.2, *Design Changes*). The amount of earthwork necessary for constructing Alternatives D and E was derived from final design calculation and the Legacy Parkway partial termination contract.

² The approximate number of truck trips is based on a truck capacity of 13.7 cubic meters (18 cubic yards).

Source: U.S. Energy Information Administration 2004.

Constructing the Legacy Parkway project would temporarily increase construction truck traffic on haul routes. Trucks would travel from sand and gravel pits to the project site and from cut areas on the project site to other fill or disposal locations. To reduce the impact on local roads, after the Final EIS was published UDOT specified that the contractor only use state roads as haul routes. UDOT is still

committed to this mitigation measure. Haul routes would vary depending on where construction were taking place along the project alignment.

Energy Impacts

Constructing any build alternative would involve operating heavy machinery with a resulting impact on energy usage. To evaluate construction-related energy impacts, the approximate number of truck trips associated with each build alternative was estimated and is illustrated in Table 4.20-2. The figures associated with vehicle-miles traveled in Table 4.20-2 were based on an average truck trip length of 22.5 km (14 mi) which, in turn, was based on assumptions regarding which sand and gravel pit(s) in the study area would be used and the location along the alignment to and from which the trucks travel. The average fuel efficiency of the type of trucks typically used for earthwork was estimated at 7.5 mpg.

Impacts on Clark Lane Historic District

As described in Section 4.16, *Historic and Archaeological Resources*, the Clark Lane Historic District (CLHD) is located on State Street between 200 West and 400 West in Farmington.¹ Residents of the CLHD raised concerns about construction impacts after a public notification (July 2001) identified a construction haul route along State Street through the CLHD. Representatives from the CLHD summarized their concerns to UDOT in a letter dated April 17, 2003 (Appendix A). The letter conveyed concerns about impacts from vibrations from pile driving, impacts on the historic streetscape, and impacts from truck vibrations. Below is a discussion of how each concern was addressed.

Vibrations from Pile Driving

The letter from the CLHD residents stated that groundborne vibrations from pile driving during the reconstruction of the State Street overpass could damage historic structures. In 2001, UDOT conducted vibration monitoring and determined that vibration levels associated with reconstruction of the overpass would not be high enough to affect any structures within the CLHD (Lizotte pers. comm. 2001b). The Utah State Historic Preservation Office (SHPO) challenged that determination on the grounds that the proposed vibration limits were potentially inappropriate because of the elderly nature of the CLHD structures and the intensity of the proposed pile driving activities (Murphy pers. comm. a).

To address these concerns, UDOT reevaluated vibration levels in the CLHD in 2003. Three structures within the CLHD (i.e., 399 W. State Street, 398 W. State Street, and 393 W. State Street) are within 61 m (200 ft) of the proposed pile driving location for the State Street overpass, which, depending on the degree of force used to drive the piles (typical or high impact) and the soil conditions, could exceed the threshold and cause damage to those homes (e.g., 3.1 mm/sec [0.12 in/sec]). On April 14, 2004, FHWA and UDOT held a meeting with residents of the CLHD to discuss and take recommendations on minimizing these potential impacts on the district. Based in part on input received during that meeting, SHPO, FHWA, and UDOT revised their Memorandum of Agreement (MOA) to reflect measures to minimize vibration impacts on the CLHD resulting from pile driving activities (Appendix A).² These mitigation measures are summarized in Section 4.20.3.3, *Mitigation Measures*, below.

¹ Figure 5-3 illustrates the boundaries of the Clark Lane Historic District.

² The MOA governs the treatment and disposition of resources in the study area that are under the jurisdiction of Section 106 of the National Historic Preservation Act (NHPA).

Historic Streetscape

The letter from the CLHD residents stated that adverse effects on historic streetscape and properties, including removal of street trees and changes in grade, street width, and elevation, could occur during reconstruction of the State Street overpass. Since publication of the Final EIS, the design of the overpass has been revised to eliminate the need to acquire property from any contributing element of the CLHD (see 4.16, *Historic and Archeological Resources*, for a description of the structures that contribute to the integrity of the CLHD). However, temporary easements would be needed to realign existing curbs and gutters and taper the road cross-sections from east to west in front of the properties at 399 W. State Street, 398 W. State Street, and 393 W. State Street.

A total of 121 sq m (1307 sq ft) of land would be modified by regrading and fill activities at 399 W. State Street and 398 W. State Street to provide new, permanent driveway access to those parcels (Figure 5-10). The footprints of the parcels at 399 W. State Street and 393 W. State Street would be increased by a total of 99 sq m (1,068 sq ft) to accommodate the realignment of curbs and gutter and the proposed road tapering, and the footprint of the parcel at 398 W. State Street would be reduced by 47 sq m (508 sq ft). Mitigation measures to offset these impacts and to ensure that the CLHD and its contributory elements are returned to their original preconstruction condition are stipulated in the revised MOA (Appendix A) and summarized in Section 4.20.3.3 below.

The MOA also states that the mature trees in front of 399 W. State Street and 393 W. State Street will not be affected by the proposed build alternatives.

Vibrations from Trucks

The potential vibration effects of truck traffic on the CLHD are no longer a consideration because State Street is no longer being considered as a proposed haul route for construction traffic (Appendix A).

Construction-Related Visual Impacts

As described in the Final EIS, construction-related visual impacts would be essentially the same under all proposed build alternatives. During construction, the work zone would be cleared of vegetation and the exposed bare ground would likely contrast visually with the surrounding agricultural, recreational, and residential areas that viewers of the area are accustomed to seeing. Visual quality from sensitive viewer locations (e.g., residents of new homes in the Foxboro development that have been completed prior to construction activities) would be temporarily reduced during construction operations. Until construction is completed and the right-of-way is revegetated, the construction area would visually stand out.

The construction-related visual impacts, while likely greater in intensity than the operation-related visual impacts, would be temporary. As a result, visual impacts related to the operation of the proposed build alternatives, as described in Section 4.18.3.2, would have a greater long-term visual impact on viewers in the study area than would visual impacts related to the actual construction of those alternatives.

It should be noted that construction was initiated on the southern end of the Alternative D alignment prior to the court injunction. The construction-related visual impacts that occurred onsite were no greater than or different from those described in the Final EIS. However, because all construction-related work was stopped by the court injunction, the mitigation measures described in Section 4.18.3 of the Final EIS, which have not changed since its publication, were not carried out in those areas. In addition, in the vicinity of the northern terminus, UDOT has continued construction on projects outlined in the Farmington master plan (i.e., projects whose configuration is not dependant on the selection of any given

build alternative) (City of Farmington 1998). As stated above, the construction-related visual impacts onsite are no greater than or different from those described in the Final EIS.

Construction-Related Noise Impacts

For all the proposed build alternatives, construction operations would consist of similar activities resulting in comparable construction-related noise impacts. Table 4.20-3 illustrates the noise levels produced by various types of construction equipment. Properly maintained equipment produces noise levels near the middle of the indicated ranges. The type of construction equipment used for this project typically generates noise levels of 80 to 90 dBA at a distance of 15 m (50 ft) while the equipment is operating (U.S. Environmental Protection Agency 1971; Toth 1979; Gharabegian et al. 1985).

Table 4.20-3 Typical Construction Equipment Noise Levels

Type of Equipment	Noise Level (dBA) at Specified Distance				
	15 m (50 ft)	20 m (500 ft)	26 m (1,000 ft)	30 m (1,500 ft)	610 m (2,000 ft)
Bulldozer	80	60	54	50	48
Front loader	72–84	52–64	46–58	42–54	40–52
Jack hammer or rock drill	81–98	61–78	55–72	51–68	49–66
Crane with headache ball	75–87	55–67	49–61	45–57	43–55
Backhoe	72–93	52–73	46–67	42–63	40–61
Scraper and grader	80–93	60–73	54–67	50–63	48–61
Electrical generator	71–82	51–62	45–56	41–52	39–50
Concrete pump	81–83	61–63	55–57	51–53	49 - 51
Concrete vibrator	76	56	50	46	44
Concrete and dump trucks	83–90	63–70	57–64	53–60	51–58
Air compressor	74–87	54–67	48–61	44–57	42–53
Pile drivers (peaks)	95–106	75–86	69–80	65–76	63–74
Pneumatic tools	81–98	61–78	55–72	51–68	49–66
Roller (compactor)	73–75	53–55	47–49	43–45	41–43
Saws	73–82	53–62	47–56	43–52	41 - 50

Source: U.S. Environmental Protection Agency 1971.

Construction equipment operations can vary from intermittent to fairly continuous with multiple pieces of equipment operating concurrently. Assuming that a bulldozer (87 dBA), backhoe (90 dBA), grader (90 dBA), and front-end loader (82 dBA) are operating concurrently in the same area, peak construction-period noise would generally be about 94 dBA at 15 m (50 ft) from the construction site.

Locations within about 580 m (1,900 ft) of a construction site would experience occasional episodes of noise levels greater than 60 dBA. Areas within about 229 m (750 ft) of a construction site would experience episodes of noise levels greater than 70 dBA. Such episodes of high noise levels would not be continuous throughout the day and would generally be restricted to daytime hours.

Most construction activities associated with the proposed action would occur during daylight hours, which would minimize noise impacts. Incidents of noise conflicts could occur when construction directly adjacent to residential, park, or recreation areas is necessary.

4.20.3.3 Mitigation Measures

Section 4.20 of the Final EIS included certain mitigation measures for construction activities, and there has been no change to these mitigation measures. Some additional construction-related mitigation measures were included in resource-specific sections of the Final EIS and of this Supplemental EIS as appropriate, and are not repeated in this section.

The following new construction-related mitigation measures have been proposed as part of this Supplemental EIS.

- **Mitigation for Noise Impacts.** Mitigation measures to minimize impacts from construction-related noise are detailed in the noise technical report (Appendix C) (HDR Engineering, Inc. 2004e). To reduce temporary noise from construction, contractors will comply with all state and local regulations relating to construction noise. In addition, the following measures will be incorporated into contract specifications to help reduce the effects of construction noise.
 - Restrict construction to daytime hours within 305 m (1,000 ft) of residences. No construction will be performed within 305 m (1,000 ft) of an occupied dwelling unit on Sundays or legal holidays or between 10:00 p.m. and 6:00 a.m. on other days. Any variance from this condition will require approval by the UDOT construction manager.
 - All equipment will have sound-control devices at least as effective as the original factory-installed devices. No equipment will have unmuffled exhaust.
 - The noise from any rock-crushing or screening operations performed within 914 m (3,000 ft) of any occupied dwelling unit will be mitigated either by placing material stockpiles between the operation and the affected dwelling or by other means approved by the UDOT construction manager.
 - As directed by the UDOT construction manager, the contractor will implement appropriate additional noise mitigation measures, possibly including changing the location of stationary construction equipment, shutting off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources.
- **Mitigation for Truck Traffic on Haul Routes.** UDOT will specify that the contractor use only state roads as haul routes. Haul routes will vary depending on where construction is taking place along the roadway.

- **Mitigation for Construction-Related Air Quality Impacts.** Construction-related air quality impacts were discussed in Section 4.20 of the Final EIS, but no mitigation measures were prescribed. Fugitive dust, which is dust generated by construction equipment such as haul trucks and earth-moving vehicles, will be mitigated according to a dust control plan to be developed by the contractor according to Utah Division of Air Quality standards. This plan will include measures for minimizing fugitive dust, such as applying dust suppressants and water sprays, minimizing the extent of disturbed surface areas, and restricting activities during periods of high wind.

- **Mitigation for Potential Vibration Impacts on the Clark Lane Historic District from Pile Driving Activities.** As described in Section 4.20.2 above, mitigation measures for potential impacts on the CLHD associated with pile driving activities at the State Street overpass were incorporated into a revised draft MOA (Appendix A). In summary, the MOA stipulates maximum energy ratings for pile driving hammers, prescribes vibration monitoring requirements for the home at 399 W. State Street, provides specific guidance on measures to take if vibration levels exceed 0.12 in/sec, and includes a requirement for pre- and post-construction surveys of structures in the CLHD and notification of homeowners in the district prior to pile driving activities. The complete text of the MOA is included for reference in Appendix A.

- **Mitigation for Potential Historic Streetscape Impacts in the Clark Lane Historic District.** As described in Section 4.20.3.2, none of the build alternatives would affect mature trees in front of 393 W. State Street and 398 W. State Street in the CLHD. To ensure that the CLHD and its contributory elements are returned to their original preconstruction condition, the MOA stipulates that the design of the State Street overpass include provisions for minimizing grade changes, redesigning and incorporating sidewalks within the CLHD into the sidewalks for the new bridge structure, and maintaining existing landscape and streetscape features. The complete text of the revised MOA is included for reference in Appendix A.