Chapter 3: Affected Environment, Environmental Consequences, and Mitigation Measures

This chapter describes the existing social, economic, and environmental conditions in the Heber Valley Corridor Project study area, which serve as a baseline for evaluating the impacts of the action alternatives. This chapter also addresses the expected beneficial and adverse social, economic, and environmental impacts of the action alternatives. If no mitigation measures are listed for a resource in this chapter, then none are proposed. Potential indirect impacts are described in the relevant resource sections of this chapter.

The Heber Valley Corridor Project includes two action alternatives:

- Alternative A (on U.S. Highway 40 [US-40] alignment)
- Alternative B (off US-40 alignment)

Resource-specific Evaluation Areas. For each resource discussed in this chapter, a resource-specific evaluation area has been defined that establishes the geographic area of impacts for that resource. The introduction to each resource section defines the specific evaluation area for that resource.

3.1 Resources Not Evaluated in Detail

Resources Not Analyzed in Detail in This EIS. Paleontological resources, soils and geology, and wild and scenic rivers are not analyzed in detail in this environmental impact statement (EIS).

- The Utah Geological Survey does not have any records of paleontological resources in or near the project area, and the potential for encountering fossil resources in the project area is low (Certus 2023a).
- The main issue concerning soils and geology is shallow groundwater, which is discussed in Section 3.13, *Water Quality and Water Resources*.
- There are no wild and scenic rivers in the project study area.
- The Utah Department of Transportation (UDOT) reviewed the Land and Water Conservation Fund website (Utah Division of State Parks 2022) and the National Park Service Fund website (NPS 2016) on October 10, 2022. There are no Land and Water Conservation Fund properties in the project study area.

3.2 Land Use

3.2.1 Introduction

Section 3.2 describes the existing land uses, adopted general plans and zoning ordinances, and current state of land use planning in the land use evaluation area as well as the expected impacts of the project alternatives.

What is the land use evaluation area?

The land use evaluation area is the area within a 0.5-mile buffer on either side of the centerlines of the action alternatives.

Land Use Evaluation Area. The land use evaluation area is the area within a 0.5-mile buffer on either side of the centerlines for the action alternatives. These areas were selected because traffic patterns and access from the action alternatives could influence land use patterns in these areas. Land use planning and zoning in the evaluation area are regulated by Heber City, the Town of Charleston, the Town of Daniel, and Wasatch County. Cities and counties in the land use evaluation area are shown in Figure 3.2-1, *Current Land Use in the Land Use Evaluation Area*, on page 3-5.

3.2.2 Regulatory Setting

The Federal Highway Administration's (FHWA) Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, states that environmental documents for National Environmental Policy Act (NEPA) projects should identify and review development trends, area growth, and land use plans and policies in the area that will be affected by the proposed project. The land use discussion should assess the consistency of alternatives with the area's plans and any secondary impacts associated with substantial, foreseeable, induced development for each alternative.

The Utah legislature has delegated responsibility for land use planning and regulation to the state's Counties and Cities. These local governments develop general or comprehensive plans for land development within their jurisdictional boundaries. These plans provide the parameters for future land use as well as infrastructure needs. The public has the opportunity to participate in the land-planning process by reviewing and commenting on draft land use and zoning plans before they are approved by local officials.

3.2.3 Affected Environment

This section describes the existing land use in each jurisdiction in the land use evaluation area as well as the applicable local and regional land use plans and policies. The land use patterns described below are the product of interdependent decisions by numerous parties including local elected officials, local planning staff, developers, citizens, regional planning authorities, and many other public and private entities.

Transportation decisions might be less important to developers as they make development decisions about individual projects because their timeframes and planning horizons are much shorter than the public sector's. Variables other than transportation, such as market demand, site suitability, capital availability, economic feasibility, and regulatory environment, play a substantial role in influencing a developer's process of determining the viability of a development (FHWA 2004).

Transportation has an important, although indirect, effect on land use decisions. It can have a strong influence but does not dictate the outcome. This observation also applies to the Heber Valley Corridor Project. In the project study area, the access provided by the existing transportation grid is one reason why land uses in the area are changing from agricultural uses to suburban development. New road projects must be considered in the larger context of regional and local planning and development decisions as additional factors that influence development.

3.2.3.1 Current Land Use

The land use evaluation area includes both urban and nonurban land uses. Outside the towns and city centers are agricultural and undeveloped lands. The parts of the evaluation area within the city boundaries are generally urbanized and more fully developed. Current land use is summarized in Table 3.2-1 and shown in Figure 3.2-1. In the evaluation area, the largest percentage of land is in agricultural use, followed by residential and then vacant.

UDOT obtained this information from aerial photographs from 2024, field surveys, and land use plans. The existing land use was input into electronic geographic information systems (GIS) files so that the impacts of each alternative could be evaluated. The data layers in the GIS files included the general land use types in the evaluation area: agriculture, commercial, education, parks and recreation, institutional, right-of-way, residential, utilities, and vacant or undeveloped areas.

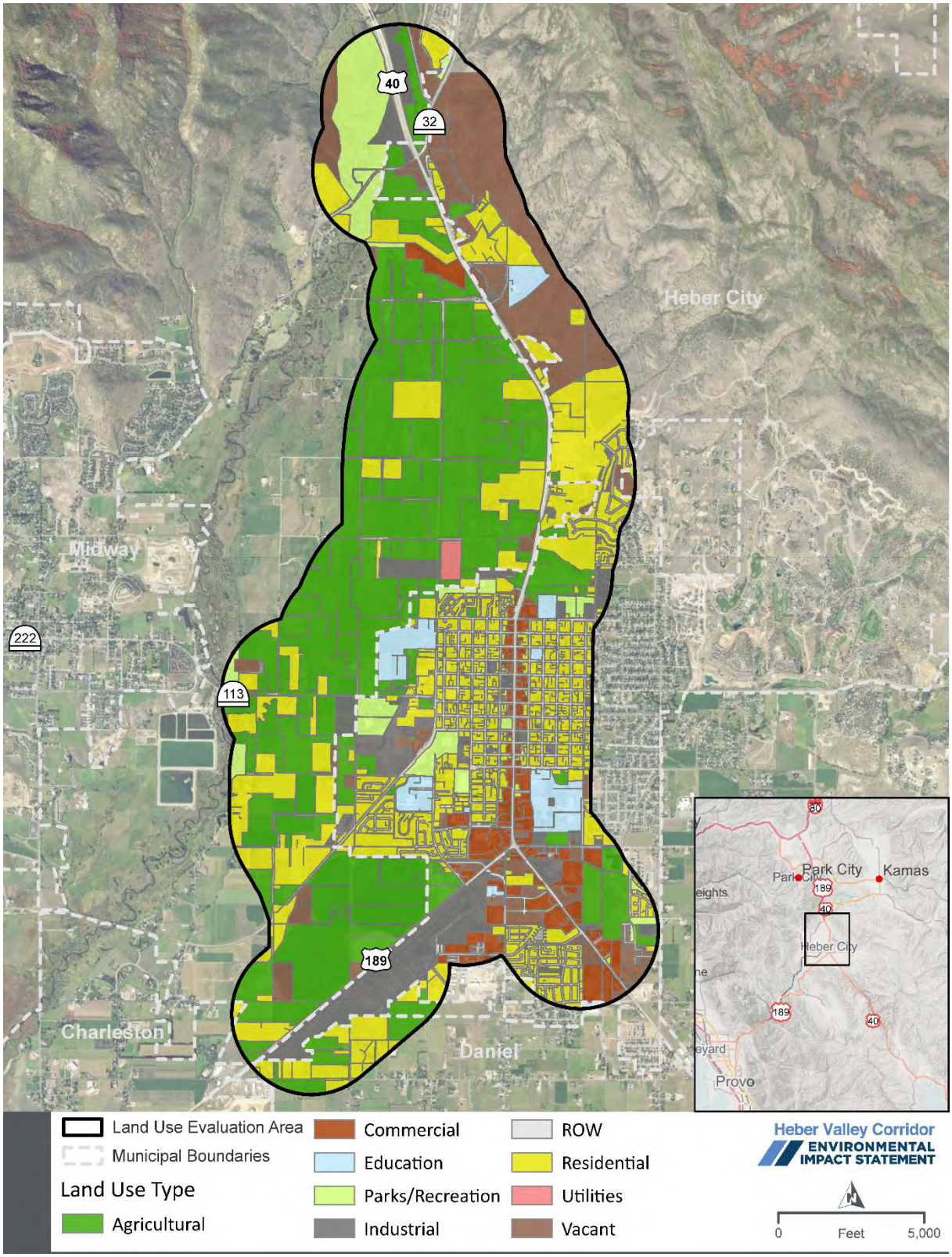
Note that the current land use as described in Section 3.2 does not necessarily match current zoning and land use plans because these plans and zoning programs are continually being updated (the information in this section is current as of spring 2025), and existing land use might not be the same as the future planned land use.

Table 3.2-1. Current Land Use in the Land Use Evaluation Area

Land Use Type	Acreage in Evaluation Area	Percent of Evaluation Area	Description
Agricultural[a]	3,668	33.4%	This land use consists of vacant lands with evidence of tilling, plowing, crops, and irrigation.
Commercial	646	5.9%	Commercial areas draw visitors form other communities. These centers include office buildings, "big-box" stores, auto-related businesses, retail shops, restaurants, and other providers.
Education	444	4.0%	Education facilities intersected by the evaluation area include Daniels Canyon School, Heber Valley Elementary School, J.R. Smith Elementary School, Rocky Mountain Middle School, Wasatch High School, Wasatch Learning Academy, Utah Valley University Wasatch, and the planned campuses for Iron Horse High School and Mountainland Technical College.
Parks/recreation	486	4.4%	Several parks and developed recreation areas are located in the evaluation area.
Institutional	978	8.9%	Numerous churches are located in the evaluation area. Other uses included in this land use type are public facilities owned by Heber City and Wasatch County.
Residential	3,228	29.4%	Residential areas consist primarily of low-density, single-family dwelling units. Some higher-density, multifamily units are located near the commercial centers.
Right-of-way	56	0.5%	This land use consists of US-40, U.S. Highway 189 (US-189), and the local collector and arterial roads.
Utilities	45	0.4%	This land use consists of areas owned, administered, and/or used by the various utility companies that have property and facilities in the evaluation area.
Vacant/undeveloped	1,429	13.0%	The majority of this land use is on the foothills surrounding Heber City. Planned land development will occur in the undeveloped areas.
Total	**10,980**	**100%**	

[a] For this analysis, the agricultural land use type includes the Heber Valley Special Service District's sewer fields.

Figure 3.2-1. Current Land Use in the Land Use Evaluation Area



3.2.3.2 Planned Land Use

The land use evaluation area intersects the incorporated city of Heber City, the towns of Charleston and Daniel, and parts of unincorporated Wasatch County. UDOT reviewed current and planned zoning and the general plans, neighborhood master plans, and annexation plans for Heber City, the Town of Charleston, the Town of Daniel, and Wasatch County. UDOT also met with Wasatch County and Heber City planners.

3.2.3.2.1 Planning

General plans typically include guidelines for regulating growth and future development. They are developed with public input and adopted by each area's respective planning commission. Figure 3.2-2 shows the planning areas in the land use evaluation area.

UDOT collected regional and local land use and transportation plans from regional planning organizations such as the Mountainland Association of Governments (MAG), Wasatch County, and local municipalities. UDOT reviewed the information in each plan regarding future land use and zoning, the future transportation network, and any potential future roadway alignments.

Heber City General Plan, Chapter 3, Transportation Plan (2017)

The *Heber City General Plan*, Chapter 3, "Transportation Plan" (Heber City 2017), provides an update to the 2003 general plan and describes the City's efforts to preserve a corridor for a western bypass with the intent to reduce congestion on Main Street. On June 21, 2007, the Heber City Council passed Resolution 2007-05 in support of a western bypass with an alignment generally along or just west of Southfield Road, as shown in Figure 3.2-3. This plan precedes the *Heber City Envision 2050 General Plan* (discussed below).

What is the local government preservation corridor?

Heber City and Wasatch County have been considering a bypass for more than 20 years, and in 2006 and 2007 they passed resolutions of support to preserve a corridor for a specific alignment. Figure 3.2-3 shows the local government preservation corridor.

Heber City Envision 2050 General Plan (2023)

In response to the rapid growth in Heber City, in 2020 Heber City adopted a new general plan, *Heber City Envision 2050 General Plan* (Heber City 2023). As stated in this plan, Heber City's vision includes preserving open land and rural atmosphere, creating neighborhoods and centers that focus growth in specific areas, enhancing and strengthening the downtown core, and growing recreation opportunities. This plan considers changes to the Heber Valley through 2050. In November 2023, the Heber City Planning Commission recommended approving an amendment to the general plan to include the Central Heber Vision. This amendment did not constitute an overhaul of the plan but simply updated the plan to align with the Central Heber Vision. The updates included a discussion of the visioning process, changes to the future land use map and chart, and some updates to text in certain sections.

Figure 3.2-2. Planning Areas in the Land Use Evaluation Area

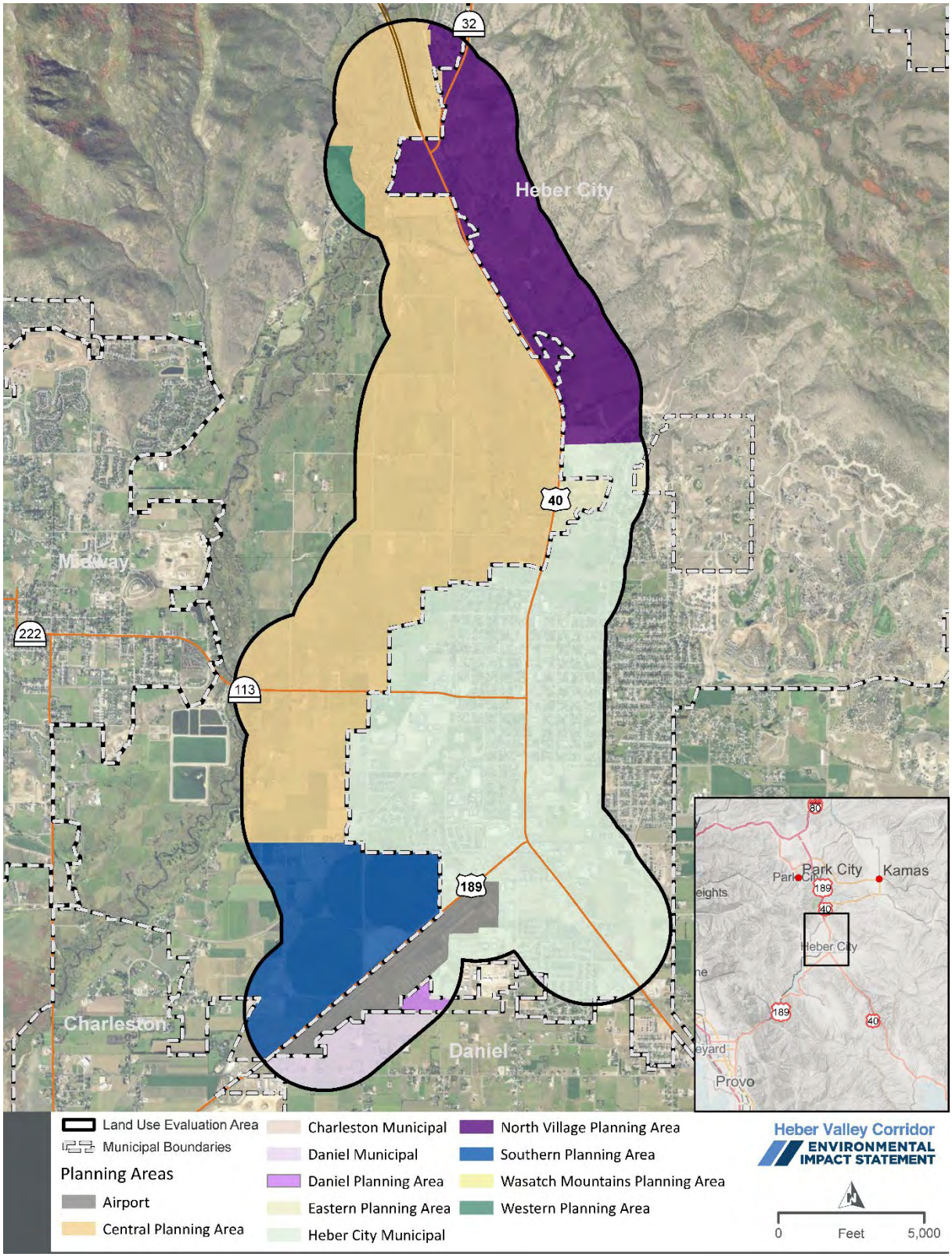
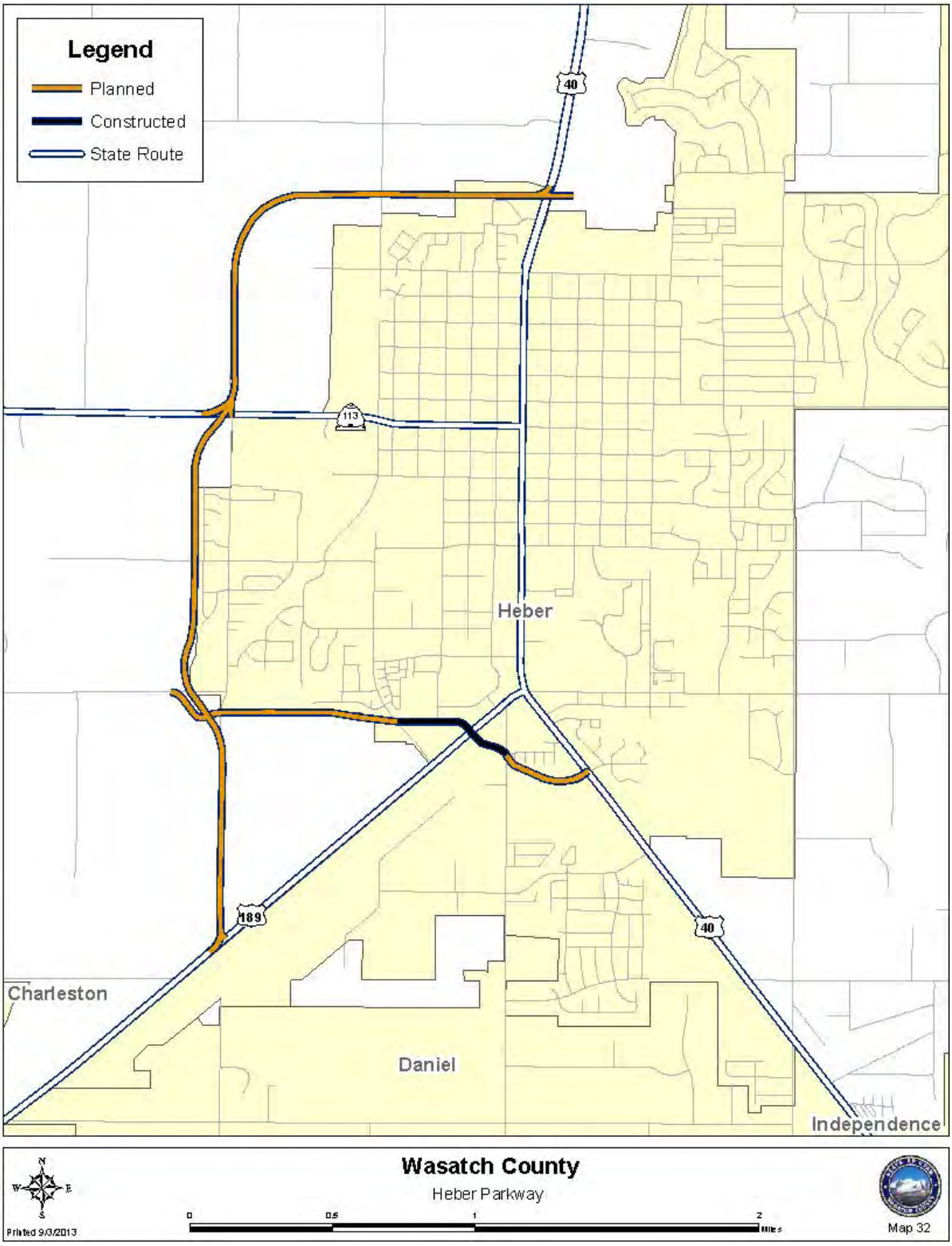


Figure 3.2-3. Local Government Preservation Corridor



Source: Wasatch County 2010

Wasatch County General Plan

The *Wasatch County General Plan 2001–2016* (Wasatch County 2010) emphasizes the importance of open space and rural character in their vision statement: "We are dedicated to honoring and protecting the heritage and rural character of our community, and are committed to creating a unique sense of place."

Bypass Assumptions

The *Wasatch County General Plan 2001–2016* includes a west bypass. The general plan anticipates that the bypass would be constructed in the Central Planning Area on the north and west sides of Heber City on an alignment generally along or just west of Southfield Road, as shown in Figure 3.2-3 above.

Heber City and Wasatch County agree that the future bypass would be the municipal boundary between 1200 North and U.S. Highway 189 (US-189) and that development would be constrained to inside the bypass. Wasatch County Resolution 06-04 in support of a transportation corridor connecting US-189 and US-40 passed on August 9, 2006.

Land Use Planning Areas

Seven planning areas from the *Wasatch County General Plan 2001–2016* are within the land use evaluation area. The paragraphs below summarize the three planning areas that would be affected by the action alternatives and describe their dominant land uses.

Central Planning Area. The Central Planning Area is located west of US-40 from the north end of the evaluation area to 1200 South. This planning area is characterized by meadows, riparian areas, a high groundwater table, and unsuitable soils for building and infrastructure development. In this planning area, the proposed land uses in the *Wasatch County General Plan 2001–2016* are a continuation of the historical land use patterns because development and new infrastructure could be costly as a result of the poor soils, high water table, and flood risk. Preserving the historical land uses would also provide separation between Midway and Heber City. Figure 3.2-2 above shows the area covered by the Central Planning Area.

North Village Planning Area. The North Village Planning Area is located north of Heber City and east of US-40. The area is east of the Central Planning Area. The North Village Planning Area serves as a gateway to the Heber Valley from the north. The existing land uses are vacant lands, education, residential, and agriculture.

Southern Planning Area. The Southern Planning Area is located on the north side of US-189 between US-189 and Charleston and east of the Central Planning Area. This planning area is characterized by agricultural land, the Heber Valley Railroad, and low-density, single-family home development. The area is also home to the Heber Valley Special Service District's wastewater treatment system and lagoons (also called the sewer farm).

Daniel General Plan

According to the 2023 *Daniel Town General Plan,* the Town of Daniel wants to guide land use control and development and provide a stable basis of policy upon which the town's elected and appointed officials can rely. The goals of the general plan are to preserve a rural atmosphere, foster agriculture and other rural industries, and protect urban and nonurban development, natural resources, and property values (Town of Daniel 2023).

Charleston Master Plan

In response to the rapid growth occurring in Charleston, the Town of Charleston developed an annexation master plan (LYRB 2021) to analyze Charleston's growth. According to this master plan, where the land use evaluation area bisects the town of Charleston, the Town is anticipating using the land for commercial areas, open space, school or church use, and single-family housing units. The planning horizon extends through 2031.

Heber City Downtown Study

According to the *Heber City Downtown Planning Study: A Community Vision for Main Street* (Downtown Redevelopment Services 2019), commercial development along the periphery of downtown is increasing, while the downtown core is not changing. Community input indicates a desire among Heber City residents for a walkable and resident-friendly downtown with retail opportunities and amenities (for example, bicycle racks, benches, and public spaces) along Main Street. Pedestrian safety is of the utmost importance. The community wants alternative transportation options as well as traffic-calming and congestion-mitigation strategies (for example, bicycle lanes, wider sidewalks, center medians, and pedestrian refuge islands). The downtown study includes recommendations to be implemented after a bypass is constructed, recommendations such as reducing lane widths and installing bicycle lanes on Main Street.

North Village Overlay Zone

Heber City's municipal code (Heber City 2021a) describes the North Village Overlay Zone, which is composed of four sub-districts. See Figure 3.2-4 for a map from the *North Village Master Plan 2022 to 2024* (Heber City 2022). North Village Overlay Zone planning horizon extends from 2022 to 2024.

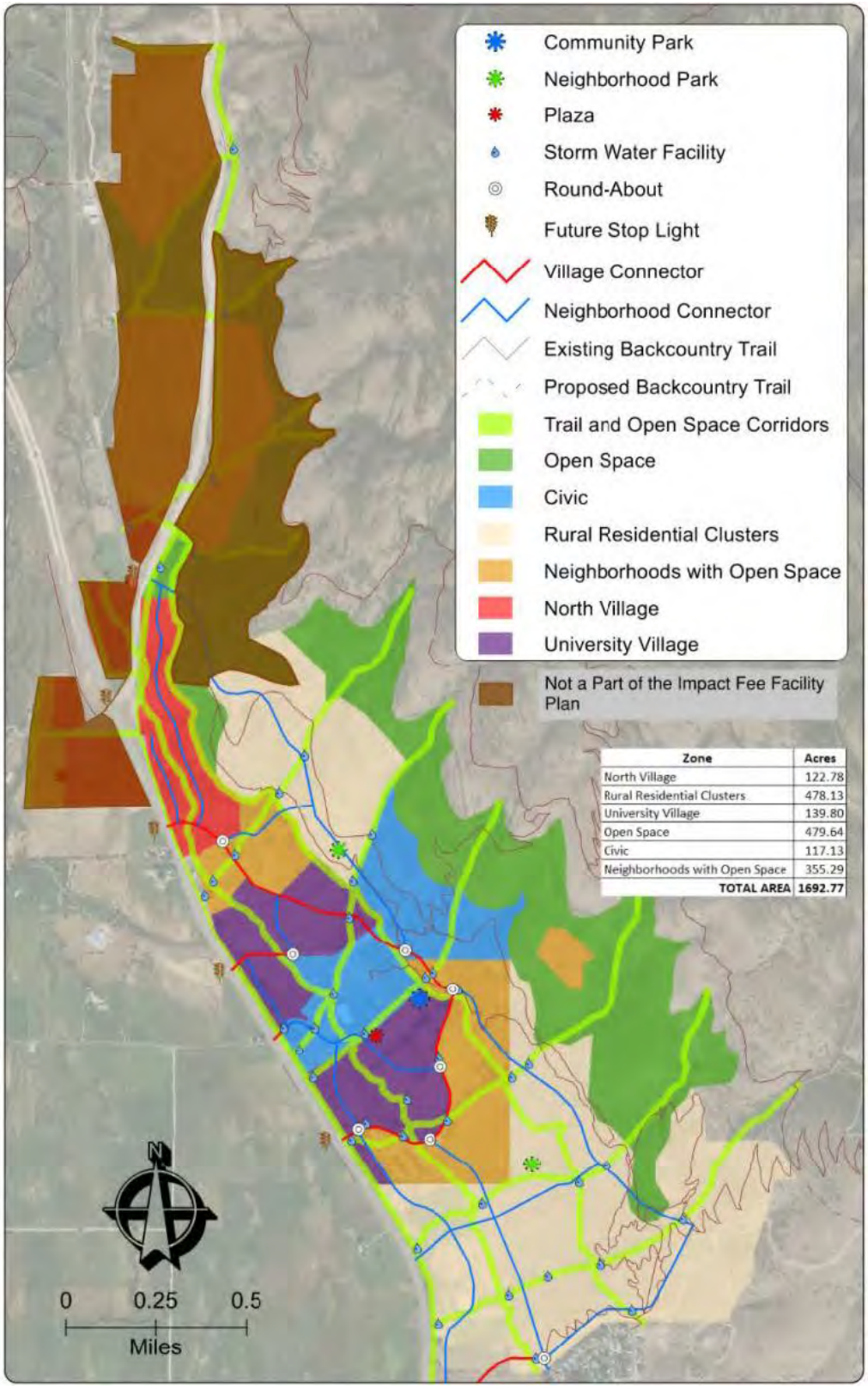
North Village. The North Village is a town center located at the crossroads of US-40 and River Road/ State Route (SR) 32. Growth in this area is anticipated to exceed that in many other areas of Heber City because of the numerous developments underway in both Summit and Wasatch Counties. This crossroads is logically one of the areas that will experience development pressure and will likely include major commercial uses, restaurants, entertainment businesses, workforce housing, and hospitality uses paired with compact residential neighborhoods.

Neighborhoods with Open Space. Neighborhoods with open space are walkable communities that blend a variety of housing options and shared open-space amenities.

University Village. The Utah Valley University Wasatch Campus is located near the south end of the North Village neighborhoods and includes the open areas farther south to the Wasatch Commons apartment complex.

Rural Residential Clusters. This sub-district clusters housing on 25% to 70% of the development parcel while permanently preserving the remainder as open space.

Figure 3.2-4. North Village Community Design Map



Heber Valley Airport Master Plan

Airports that accept Federal Aviation Administration (FAA) funding, such as the Heber Valley Airport, must develop comprehensive master plans to account for future needs and adjust to new safety upgrades, such as instrument-aided landings. The Heber Valley Airport is governed by the Heber City Council. Given the increasing jet traffic since the airport was constructed, FAA strongly encouraged Heber City to update the *Heber Valley Airport Master Plan* to inform decisions about future airport development.

Draft airport layout plans were published in fall 2022 and were revised based on public and agency comments. The *Heber Valley Airport Master Pla*n was published by Ardurra in April 2023 and submitted to the FAA Denver District Office and to the UDOT Division of Aeronautics (Ardurra 2023).

An independent NEPA process would be required for final approval before implementation of the *Heber Valley Airport Master Plan*. There has been ongoing coordination between UDOT and the airport team to ensure compatibility with the action alternatives and the airport layout. As part of this coordination, UDOT is working through FAA's airport obstruction evaluation process (to determine whether the action alternatives would pose a hazard to air navigation) and has submitted formal comments to the airport team. These comments are included in Appendix 3E, *UDOT Comments on the Heber Airport Master Plan*.

3.2.3.2.2 Zoning

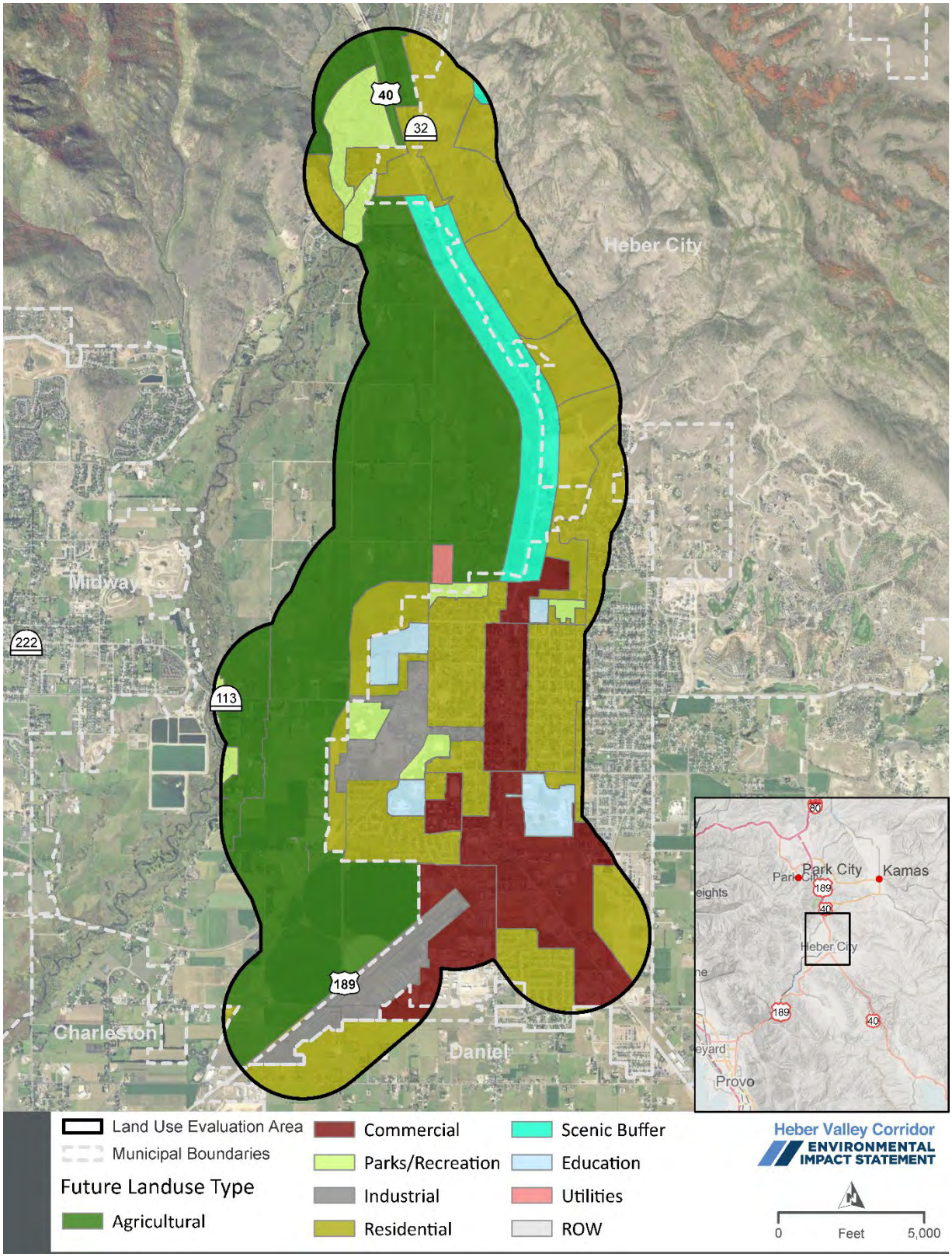
Zoning is the tool that municipalities use to implement the land use goals in the general plans described in Section 3.2.3.2.1, *Planning*. UDOT reviewed zoning ordinances from each jurisdiction with land in the land use evaluation area. The zoning plans were consistent with the planned land use. Table 3.2-2 and Figure 3.2-5 summarizes the planned land use in the evaluation area.

Table 3.2-2. Planned Land Use in the Land Use Evaluation Area

Land Use Type	Acreage in Evaluation Area	Percent of Evaluation Area	Description
Agricultural	3,011	38.2%	Agricultural uses include rangeland for raising livestock and irrigated crop fields.
Commercial	972	12.3%	Commercial areas draw visitors from other communities. These centers include office buildings, "big-box" stores, auto-related businesses, retail shops, restaurants, and other providers.
Education	186	2.4%	Education facilities intersected by the evaluation area include Daniels Canyon School, Heber Valley Elementary School, J.R. Smith Elementary School, Rocky Mountain Middle School, Wasatch High School, Wasatch Learning Academy, Utah Valley University Wasatch, and the future campuses for the planned Iron Horse High School and Mountainland Technical College.
Parks/recreation	297	3.8%	Several parks and developed recreation areas are located in the evaluation area.
Institutional	393	5.0%	Numerous churches are located in the evaluation area. Other uses included in this land use type are public facilities owned by Heber City and Wasatch County.
Residential	2,573	32.6%	Residential areas consist primarily of low-density, single-family dwelling units. Some higher-density, multifamily units are located near the commercial centers.
Right-of-way	1	0.0%	This land use consists of US-40, US-189, and the local collector and arterial roads.
Utilities	21	0.3%	This land use consists of areas owned, administered, and/or used by the various utility companies that have property and facilities in the evaluation area.
Vacant/undeveloped	432	5.5%	The majority of this land use is on the foothills surrounding Heber City. Planned land development will occur in the undeveloped areas.
Total	**7,886**	**100%**	

Note that, due to inconsistencies with parcel data, the acreage does not match the current land use.

Figure 3.2-5. Planned Land Use in the Land Use Evaluation Area



3.2.3.3 Conservation Easements

In 2018, Wasatch County residents passed a $10-million bond to protect open space by placing undeveloped land into conservation. The Wasatch Open Lands Board (WOLB) was established to make recommendations to the Wasatch County Council regarding applications to spend this bond money. The process is based on a willing landowner entering a conservation easement with a land trust (Utah Open Lands or Summit Land Conservancy) to protect the land from future development in exchange for compensation and/or tax incentives. The following steps are required for land to be put into conservation:

- The property owner submits a Notice of Intent (NOI) Application to WOLB.
- The property owner works with a land trust to apply for matching funds (land trust application).
- WOLB makes a recommendation to the Wasatch County Council; the Council approves funding.
- The conservation easement is executed by the land trust.

Table 3.2-3 lists the status of each property in the conservation easement process as of March 2025. Figure 3.2-6 shows the locations of these properties.

Table 3.2-3. Status of Properties in the Conservation Easement Process

Property	Notice of Intent Submitted?	Land Trust Application Submitted?	WOLB Funds Approved?	Conservation Easement?
Kohler Legacy Farm	Yes	Yes	Yes	Yes
Mountain Spa	Yes	Yes	Yes	Yes
Muirfield Park expansion	Yes	Yes	Yes	Yes
Alan Giles property	Yes	Yes	Yes	In progress
Gertsch	Yes	Yes	Yes	NRCS funding reallocated to other conservation projects pending UDOT decision
Holmes	Yes	Yes	NA	In progress

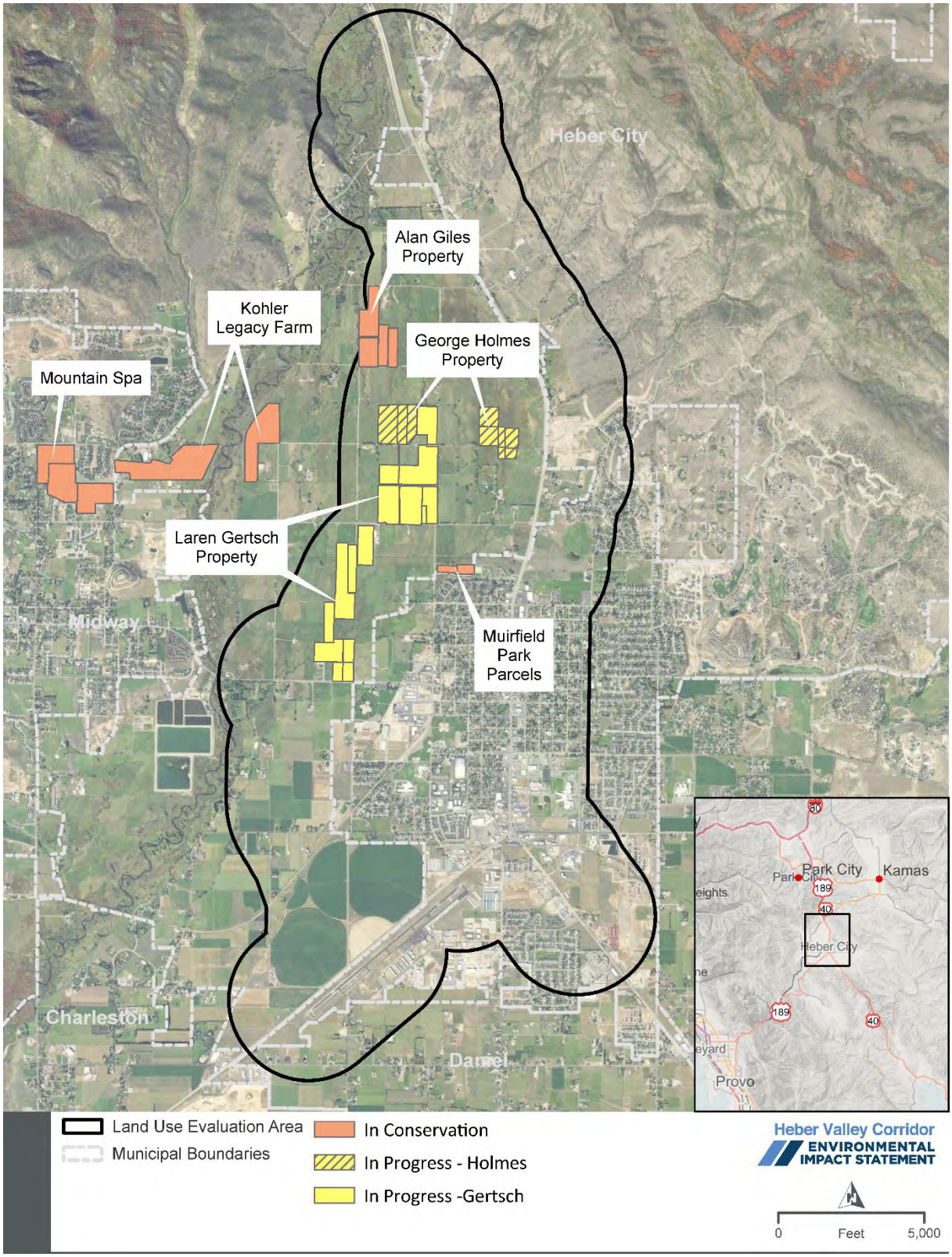
Definitions: NA = not applicable; NRCS = Natural Resources Conservation Service; WOLB = Wasatch County Open Lands Board

Utah Open Lands is a nonprofit, accredited land trust conservation association that assists with voluntary preservation of open land. The Natural Resources Conservation Service (NRCS) Agricultural Conservation Easement Program helps protect croplands and grasslands by limiting nonagricultural uses of the land through conservation easements, which are permanent or for the maximum term allowed by law. Under this program, NRCS provides financial assistance to eligible partners to purchase development rights on eligible land.

The Holmes property conservation easement is moving forward through Utah Open Lands' and NRCS's conservation processes; the parcels that conflicted with the action alternative alignments have been removed from the proposed conservation easement. The owner of the Gertsch property submitted an NOI and received approval for the conservation easement from WOLB, but the parcels identified would have conflicted with the action alternatives.

Ultimately, NRCS declined to appropriate funding on any conservation easements on properties that would overlap with action alternatives identified in this EIS until UDOT identifies a selected alternative in the Record of Decision for the Heber Valley Corridor Project.

Figure 3.2-6. Conservation Areas in the Land Use Evaluation Area



3.2.3.4 Planned Development

Development is rapidly occurring in the Heber Valley, as shown in Figure 3.2-7. A majority of the development is occurring along the area east of US-40 between SR-32 and 900 North. Several new business centers and residential communities are planned in this area. Other new developments include a new high school, residential communities, and business centers in the south part of the land use evaluation area. Additional developments have been approved since Figure 3.2-7 was created.

3.2.4 Environmental Consequences and Mitigation Measures

This section analyzes the expected effects on land use from the project alternatives and evaluates how consistent the project alternatives are with local and regional land use plans. The alternatives were evaluated equally in this section.

3.2.4.1 Methodology

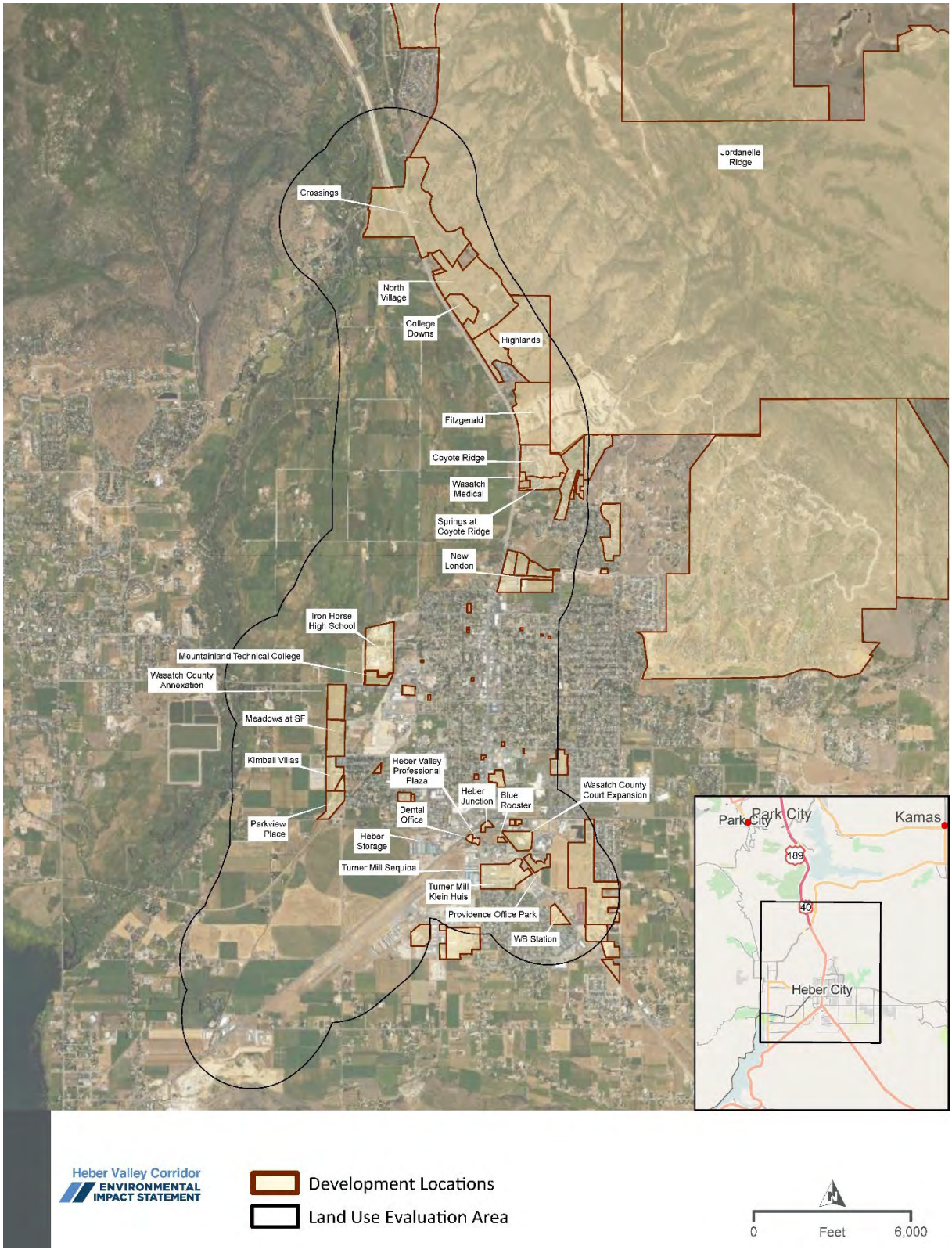
To assess the expected impacts to land use from the project alternatives, UDOT used aerial photographs and GIS software to identify the types of land uses in the land use evaluation area of the action alternatives and the total number of acres that would be converted to roadway use. Acreages are rounded to the nearest whole number.

3.2.4.2 No-action Alternative

With the No-action Alternative, the proposed Heber Valley Corridor would not be constructed, which would not be consistent with the *Wasatch County General Plan 2001–2016* or the *Heber City Envision 2050 General Plan*, both of which identify a bypass (such as the Heber Valley Corridor) as being needed to reduce congestion and improve safety. In addition, the No-action Alternative does not align with the *Heber City Downtown Study*'s vision for a historic downtown.

With the expected population growth rate, by 2050 US-40 would not be able to support the traffic needs downtown. Currently, development is occurring along north US-40, and more developments are being proposed. Heber City and Wasatch County agree that the municipal boundary would ultimately be defined by a future bypass, based on the corridor preservation alignment. It is unclear whether the City and County would need to update their land use plans if the Heber Valley Corridor is not constructed.

Figure 3.2-7. Proposed Development Locations in the Land Use Evaluation Area



3.2.4.3 Action Alternatives

3.2.4.3.1 Common Impacts for Both Action Alternatives

Both action alternatives would require changes in land use to construct the Heber Valley Corridor. Both action alternatives would convert land currently being used for agriculture, commercial, institutional, residential, right-of-way, utilities, and vacant property to roadway right-of-way.

Impacts to Current Land Use

Table 3.2-4 lists the expected impacts to current land use in the land use evaluation area. With both action alternatives, the land use that would predominantly be converted to roadway right-of-way would be agricultural the next-highest acreages are institutional and residential uses, with these acreages being nearly equal. As shown in Table 3.2-4, Alternative A would convert 251 acres (2.29% of the total), and Alternative B would convert 276 acres (2.51% of the total).

Table 3.2-4. Impacts to Current Land Use in the Land Use Evaluation Area

Current Land Use or Zoning Type	Existing	Acreage Converted to Right-of-way	
		Alternative A	Alternative B
Agriculture[a]	3,668	174	200
Commercial	646	3	2
Education	444	0	0
Parks/recreation	486	0	0
Institutional	978	26	27
Right-of-way	56	2	2
Residential	3,228	25	24
Utilities	45	4	4
Vacant	1,429	17	17
Total	**10,980**	**251**	**276**
Percent of existing	**100%**	**2.29%**	**2.51%**

Note that, due to inconsistencies with parcel data, the acreage does not match the current land use.

[a] For this analysis, the agricultural land use type includes Heber Valley Special Service District's sewer fields.

Impacts to Planned Land Use and Zoning

Impacts to planned land use and zoning are shown in Table 3.2-5. With both action alternatives, the land use that would predominantly be converted to roadway right-of-way would be agricultural. Table 3.2-5 shows the acreage that would be converted to roadway right-of-way for each action alternative for each category of planned land use. As shown in the table, the next greatest impacts would be to residential, vacant, and commercial for both action alternatives. Alternative B would convert more acreage than Alternative A.

Table 3.2-5. Impacts to Planned Land Use in the Land Use Evaluation Area

Planned Land Use or Zoning Type	Future	Acreage Converted to Right-of-way	
		Alternative A	Alternative B
Agriculture	3,011	149	204
Commercial	972	22	21
Education	186	0	0
Parks/recreation	297	1	0
Institutional	393	3	3
Residential	2,573	51	53
Right-of-way	1	0	0
Utilities	21	4	4
Vacant	432	103	72
Total	**7,886**	**333**[a]	**357**[a]
Percent of existing	**100%**	**4.22%**	**4.53%**

[a] These acreage numbers are larger than the acreage numbers reported for the action alternatives in Table 3.2-4 because the future land use dataset does not include road alignments, so the land use polygons all abut each other directly.

Impacts to Conservation Easements

Neither of the action alternatives would affect areas that have a conservation easement in place. In 2024, WOLB recommended, and Wasatch County approved, funding for a proposed Gertsch conservation easement. The proposed easement had obtained funding from NRCS but conflicted with all action alternatives under consideration at that time. UDOT notified NRCS of its concern that, if the easement was recorded as proposed, UDOT would face significant challenges in acquiring the portion of the easement needed from NRCS because UDOT lacks the authority to condemn property held in an NRCS Agricultural Conservation Easement Program easement. As a result, NRCS decided not to fund the proposed Gertsch conservation easement, or any easement that conflicts with the action alternatives, until UDOT identifies a selected alternative in the Record of Decision for the Heber Valley Corridor Project. UDOT met with Utah Open Lands on May 14, 2025. At that time, representatives with Utah Open Lands stated that they were not actively pursuing funding for the Gertsch easement.

3.2.4.3.2 Consistency with Adopted Plans

Neither Alternative A nor Alternative B are entirely consistent with the *Wasatch County General Plan 2001–2016* and with Heber City's assumptions for the bypass (Heber City 2017) on the west and south sides of Heber City (between 900 North and 1300 South). The alignment of the action alternatives varies slightly from the local government preservation corridor between 900 North and 1300 South as discussed in Section 2.3.2.1, *Local Government Preservation Corridor*. Additionally, Heber City and Wasatch County assumed an at-grade arterial facility with an 84-foot-wide right-of-way. Alternatives A and B are freeway facilities that require a 250-foot-wide right-of-way.

Alternative B. With Alternative B, the North Fields Extension segment of the proposed Heber Valley Corridor between Potter Lane/College Way and 900 North would not be consistent with Wasatch County or Heber City plans. This segment would be located on land in the north fields that is considered agricultural and zoned A-20 (agricultural with one residential unit per 20 acres). Heber City has confirmed to UDOT that it would not annex land in the north fields, and Heber City's annexation boundary with Alternative B would be the same as the annexation boundary with Alternative A (see Appendix 3A, *Induced Growth Meeting Notes*). With Alternative B, Wasatch County would maintain jurisdiction over the land on both sides of the North Fields Extension segment north of 900 North. In addition, Wasatch County has confirmed to UDOT that it would maintain the A-20 zoning for the land in the north fields and has no plans to change the zoning in this area (Wasatch County 2022). With either of the action alternatives, US-40 would generally serve as the boundary between city and county jurisdictions north of 900 North. This information was reconfirmed with the local governments prior to the publishing of this Draft EIS.

3.2.4.3.3 Indirect Impacts

Evaluating the indirect effects of a transportation project is a complex task. An indirect effects analysis involves evaluating how a given project could influence land use patterns over a 20-to-30-year period. Land use patterns are the product of interdependent decisions by numerous parties including local elected officials, local planning staff, developers, citizens, regional planning authorities, transportation agencies, and many other public and private entities. Moreover, land use patterns are strongly affected by economic and demographic forces that are beyond the control of government authorities and by an area's access to utilities such as power, water, and sewer.

UDOT based the analysis of indirect effects on land use on a review of existing and proposed future development, improvements to the existing transportation network, future city and county land use plans, and meetings with Heber City and Wasatch County planners to discuss how the action alternatives could indirectly affect land use. A small group of owners of land in the north fields are pursuing the process of incorporating the area as a new town, called River View. At the time this Draft EIS was issued, that process was not complete. If it is successful ahead of the release of the Final EIS, the study team will meet with the landowners as one of the municipal stakeholders in the study area.

According to FHWA's Environmental Review Toolkit, UDOT has a responsibility to address and consider direct and indirect impacts in the NEPA process (FHWA, no date). Indirect effects are defined as effects that are caused by the proposed action and are later in time or farther removed in distance but are still reasonably foreseeable. Indirect effects can include growth-inducing effects and other effects related to the induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems.

Federal agencies such as FHWA have stated that there is no prescribed specific technique or method that must be used to analyze the indirect effects of transportation projects (FHWA 1992). A national survey of completed EISs (USDOT 2005) found that a wide range of methods were used to evaluate indirect effects.

In this analysis, indirect effects would be primarily the effects of land development that could occur due to the improved accessibility and mobility in the area influenced by the project. Indirect effects on natural resources would typically be caused when undeveloped and partially developed land with such natural resources is converted to residential, industrial, commercial, or government land uses. Indirect effects on natural resources are discussed in the environmental consequences section of this chapter for each resource.

What are indirect effects?

For the Heber Valley Corridor Project, indirect effects are defined as effects that could result from the project's action alternatives beyond direct impacts to property and resources within the project right-of-way and the construction footprint.

In this section, the potential indirect effects on land use are evaluated for both of the action alternatives. The analysis of indirect effects on land use identifies whether there would be changes to land use, specifically whether the action alternatives would cause changes in the rate, intensity, location, and/or density of land development.

Because land use and transportation are connected, improvements in the transportation system can result in changes in land use near transportation improvements. The existing transportation system in Wasatch County already provides access to most areas. US-40 provides an arterial connection to Interstate 80 (I-80), Summit County, Salt Lake County, and the Uinta Basin. US-189 provides an arterial connection to Interstate 15 (I-15) and Utah County. However, for the following three main reasons, UDOT does not expect the action alternatives proposed in this EIS to induce development or have major indirect impacts to land use in Heber City or Wasatch County.

General Impacts

This section describes the general conditions or impacts that could reasonably be anticipated from this project:

What are limited-access facilities?

Limited-access facilities are roads that are designated for through traffic and allow vehicles to enter and exit the road only at specific locations. Owners or occupants of abutting land have no right to access or only a limited right to access.

- The No-action Alternative would operate under the terms of the current corridor agreement, which establishes future, at-grade traffic signals at University Avenue, Commons Boulevard, and Coyote Canyon Parkway. See Section 3.7.3.1, *Roadway System*. Intersections and direct driveway access on north US-40 would be permitted, and, as development continues, the operation and function of US-40 would continue to degrade [see Figure 2.2-2, *Potential Conflict Points with the No-action Alternative (SR-32 to US-189 at Southfield Road)*].
- Both of the action alternatives are intended to be limited-access facilities, both to limit any associated development pressures and to maintain the function of the transportation facility. Both action alternatives would allow access to the Heber Valley Corridor only at interchanges; intersections or driveways with direct access would not be permitted. No additional interchanges are being considered by UDOT for either alternative other than what is proposed. Limited-access does

not apply to frontage roads, see the discussion under *Potential for Inducing Development in the North Fields* below.

- Both Wasatch County and Heber City have zoning and general plans that identify the local government preservation corridor as the annexation boundary between Wasatch County and Heber City. According to Wasatch County, future land use west of the Heber Valley Corridor would remain under Wasatch County zoning, and future land use east of the Heber Valley Corridor would be annexed and would be under Heber City zoning (Wasatch County 2022). While the selection of an action alternative would change the municipal boundary of Heber City, neither Wasatch County nor Heber City intend to change the zoning designations in the evaluation area if an action alternative is selected.
- Both of the action alternatives could result in indirect impacts to land use by increasing the timing of development in areas in western Heber City near the accesses to the Heber Valley Corridor and its frontage roads. Any development that would occur in these areas would be subject to Heber City zoning rules and approval.

Potential for Inducing Development in the North Fields

This section describes the potential for induced development in the north fields that could result from both of the action alternatives. The north fields is the focus of this analysis due to the extent of undeveloped land and the number of comments UDOT received expressing concern.

- The No-action Alternative would operate under the terms of the current corridor agreement, which establishes future, at-grade traffic signals at University Avenue, Commons Boulevard, and Coyote Canyon Parkway. See Section 3.7.3.1, *Roadway System*, and Figure 2.2-2, *Potential Conflict Points with the No-action Alternative (SR-32 to US-189 at Southfield Road)*. Intersections and direct driveway access on north US-40 would be permitted, and, as development continues, the operation and function of US-40 would continue to degrade. Development in the north fields and along local roads would be approved at the local level. Representatives with Wasatch County have stated that they do not intend to change the zoning in the north fields from A-20. Therefore, the amount of development on the west side of US-40 in the north fields would likely be limited by zoning.
- Alternative A would stay on the existing US-40 alignment between SR-32/River Road and 900 North; it would include a discontinuous frontage road on the west side of US-40. This frontage road would likely be under local government jurisdiction, and decisions to allow access from and development along the frontage road would be made at the local level. Because the frontage road would not be under UDOT's control and therefore would not have an access management plan, there could be increased development pressure in this area. The interchanges that are proposed for Potter Lane/College Way and Coyote Canyon Parkway would not connect to local roads in the north fields on the west side of US-40. However, it would be fairly straightforward from an engineering standpoint to provide a connection from the interchanges to the local roads, and these connections could result in increased development pressure on the west side of US-40. Landowners along frontage roads and near interchanges would be able to develop with approval from the county. Representatives with Wasatch County have stated that they do not intend to change the zoning from A-20 in the north fields. Therefore, the amount of development on the west side of US-40 in the north fields would likely be limited by zoning.

- Alternative B would include a limited-access facility through the north fields under UDOT's jurisdiction; there would be no access allowed to the Heber Valley Corridor between US-40 south of Potter Lane/College Way and north SR-113, except at the 900 North connection. No frontage road is proposed between Potter Lane/College Way and SR-113, and no additional interchange in the north fields would be permitted by UDOT in response to the community's desires to limit development in the north fields. UDOT is committed to no additional interchanges between Potter Lane/College Way and SR-113 being built in the north fields. In other words, there would be no access to the Heber Valley Corridor between Potter Lane/College Way and SR-113, and this lack of access would substantially reduce the potential for induced development.
- Both action alternatives would likely require wetland mitigation at a minimum ratio of 2:1 (for every 1 acre of wetlands impacted, UDOT would have to provide 2 acres of wetland mitigation). This mitigation ratio could be as high as 15:1 depending on the specific mitigation needs determined with the U.S. Army Corps of Engineers (USACE) (for more information, see Section 3.14.4.5.3, *Mitigation Measures for Aquatic Resources Impacts*). Once designated, wetland mitigation sites have the potential to limit sprawl based on where they are located because they are protected in perpetuity and cannot be developed. Focusing the wetland mitigation efforts of the Heber Valley Corridor on the north fields, as proposed by UDOT in this Draft EIS, could limit development and provide a scenic buffer.

Based on the above factors, Alternative A has greater potential to increase pressure for development along the west side of north US-40 because of its frontage roads and thereby cause indirect impacts to land use. Ultimately, the decision to change zoning to allow for development is up to Wasatch County and Heber City.

3.2.4.4 Mitigation Measures

No mitigation for impacts to land use is required or proposed.

3.3 Farmland

3.1.2 Introduction

Section 3.3 discusses general farmland trends and crops in the farmland evaluation area as well as specially classified farmland (prime farmland, unique farmland, and farmland of statewide or local importance) and Agriculture Protection Areas (APAs). This section also provides information about farmland in Wasatch County to provide a context for the importance of farming to the Heber Valley and discusses the impacts to farmland from the action alternatives.

What is the farmland evaluation area?

The farmland evaluation area is the area within a 0.5-mile buffer on either side of the centerlines of the alternatives.

Farmland Evaluation Area. The farmland evaluation area is the area within a 0.5-mile buffer on either side of the centerlines of the alternatives. This area was selected because it could be directly and/or indirectly affected by the action alternatives.

3.3.1 Regulatory Setting

This section describes the applicable regulations pertaining to farmland for the Heber Valley Corridor Project.

3.3.1.1 Farmland Protection Policy Act

The National Agricultural Land Study of 1980–1981 found that millions of acres of farmland were being converted to nonagricultural uses in the United States each year. The 1981 congressional report *Compact Cities: Energy-saving Strategies for the Eighties* identified the need for Congress to implement programs and policies to protect farmland and to combat urban sprawl and the waste of energy and resources that accompanies sprawling development.

The *Compact Cities* report found that much of the sprawl was the result of programs funded by the federal government. The Farmland Protection Policy Act (FPPA) of 1981 was enacted to "minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses" (7 *United States Code* [USC] Section 4201(b)). The FPPA also stipulates that federal programs must be compatible with state, local, and private efforts to protect farmland.

The FPPA is intended to minimize the extent to which federal activities contribute to converting farmland to nonagricultural uses. The FPPA requires federal agencies to examine the impact of their programs before they approve any activity that would convert farmland to a nonagricultural use.

For the purpose of the FPPA, farmland includes prime farmland (which has prime soil characteristics), unique farmland (which is suited for high-value specialty crops), and farmland of statewide or local importance. Farmland subject to FPPA requirements does not need to be currently used for cropland. It can be forest land, pasture land, cropland, or other land, but not water or urban built-up land (that is, farmland within city limits).

If a federal project is located outside incorporated city limits on land that is currently farmed or on land that could be farmed, then the agency leading the project is required to determine whether prime farmland, unique farmland, or farmland of statewide or local importance is present. For the Heber Valley Corridor Project, this agency is UDOT. The following list defines the categories of farmland evaluated in Section 3.3.

- **Prime farmland** is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. The land must have the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed (including water management) according to acceptable farming methods (Utah Agricultural Experiment Station 1983).
- **Unique farmland** is land "other than prime farmland that is used for production of specific high-value food and fiber crops," as determined by the U.S. Secretary of Agriculture. Examples of such crops are citrus, tree nuts, olives, cranberries, and vegetables (Speth 1980).

- **Farmland of statewide or local importance** is farmland, other than prime or unique farmland, that's of statewide or local importance for the production of agricultural crops.
    - **Farmland of statewide importance** has the soil, water supply, and other characteristics that, with good management, productively yield crops (Utah Agricultural Experiment Station 1983).
    - **Farmland of local importance** is farmland other than prime farmland, unique farmland, or farmland of statewide importance that is used to produce food, feed, fiber, forage, biofuels, or oilseed crops that are not identified as having national or statewide importance. Where appropriate, these lands are to be identified by the local agency or agencies concerned. Farmlands of local importance can include tracts of land that have been designated for agriculture by local ordinance (NRCS 2003).

As used in the FPPA, the term *farmland* does not include land already in or committed to urban development (within city limits) or water storage (7 USC Section 4201(c)(1)).

For projects such as the Heber Valley Corridor Project, the FPPA requires that each alternative under study be evaluated to determine the impacts from the action alternatives and the resulting conversion of identified prime farmland, unique farmland, or farmland of statewide or local importance.

The federal agency responsible for overseeing compliance with the FPPA is the Natural Resources Conservation Service (NRCS), an agency within the U.S. Department of Agriculture (USDA). NRCS does not make determinations regarding possible prime and unique farmland and farmland of statewide or local importance that is already committed to development within city limits. NRCS's position is that, when funds have already been committed for utilities, water lines, and road replacement and widening, the land is committed to development and can be exempt from a determination.

Under the FPPA, federal agencies whose action could convert farmland are required to coordinate with NRCS by submitting a farmland impact conversion rating form (for transportation projects, this is Form NRCS-CPA-106, *Farmland Conversion Impact Rating for Corridor-type Projects*). NRCS uses this form to establish a farmland conversion impact rating score. This score is used to determine whether the expected adverse impacts would exceed the recommended allowable level of 160 points. If impacts would exceed the recommended allowable level, UDOT should consider other alternatives or mitigation measures.

Appendix 3B, *Farmland Conversion Impact Rating Forms*, includes completed Forms NRCS-CPA-106 and supporting data for both action alternatives.

3.3.1.2 Agriculture Protection Areas

Utah law allows the formation of APAs, which are geographic areas where agricultural activities are given special protections. Utah Code 17-41 describes the process for establishing APAs and requirements for state agencies and political subdivisions of the state when proposing a transportation corridor that could affect APAs. Utah Code 17-41-405 specifies that a political subdivision exercising eminent domain powers may not condemn any land within an APA without obtaining approval from the applicable legislative body and advisory board. A political subdivision is defined in Utah Code 17-41-101(22) as "meaning a county, city, town, school district, special district, or special service district." UDOT is a state agency, not a political subdivision; as such, the eminent domain restrictions for condemning land within an APA do not apply to UDOT.

State code requires that any property being placed under agricultural protection must be a minimum of 5 contiguous acres, and the landowner making the request must be using the property as farmland. APAs are not federally regulated, but they are protected from state and local laws that would restrict farm practices, unless the laws are required for public health or safety or are required by federal law. The municipal government of the county or city in which the APA is located cannot change the zoning designation of the land within the APA unless all landowners give written approval for the change.

Utah Code 17-41-406(3) specifies that a state agency that designates or proposes to designate a transportation corridor is required to:

- Consider whether the transportation corridor would:
  - Be located on land that is included within an APA, or
  - Interfere with agriculture production activities on land within an APA, and
- Consider reasonably comparable alternatives to the placement of the corridor on land within an APA, and
- Make reasonable efforts to minimize or eliminate any detrimental impact on agriculture that may result from the designation of a transportation corridor.

3.3.1.3 Century Farms

The Utah Century Farm and Ranch Program was created in 1995 to recognize farms and ranches that have been continuously operated by the same family for 100 years or longer (UDAF 2021). Century Farms are locally important agricultural areas and are intended to help preserve farms for future generations; however, this designation does not protect such farms from being converted to other land uses.

3.3.1.4 Agricultural Land Easements

NRCS provides financial assistance to partners for purchasing Agricultural Land Easements that protect the agricultural use and conservation values of land. The program helps farmers and ranchers keep working farms in agriculture. Eligible partners include American Indian tribes, state and local governments, and nongovernmental organizations that have farmland or grassland protection programs. Under the Agricultural Land Easements component, NRCS may contribute up to 50% of the fair market value of the Agricultural Land Easement (NRCS 2022).

In early 2024, WOLB recommended, and the Wasatch County Council approved, using bond funds for a 165-acre conservation easement in the north fields with matching funds from NRCS. The proposed easement conflicted with every action alternative under consideration at the time. In May 2024, UDOT sent a letter to NRCS expressing concerns that, if the easement were recorded as proposed, such recording could jeopardize construction of a western corridor around Heber City because UDOT does not have the authority to condemn property held in an NRCS easement. Subsequently, NRCS determined that it would not provide funding for any conservation easement that conflicted with any action alternatives under consideration until UDOT made a decision on the selected alternative. NRCS reallocated funding for the 165-acre conservation easement to other projects.

3.3.2 Affected Environment

3.3.2.1 Overview of Wasatch County Farmland Conditions

Wasatch County was historically a major agricultural community. At one time, more sheep were shipped out of the valley than from anywhere else in the nation. In the 1970s many dairies participated in the USDA dairy buyout. There are now eight active dairies left in the county. Alfalfa is the primary crop export, followed by hay. Most of the county is under sprinkler irrigation (NRCS 2021).

Urban development and population growth put substantial pressure on agricultural land in Wasatch County. Wasatch County is one of the fastest-growing counties in the United States; as a result, much agricultural acreage has been lost to housing. While the number of farms has increased since 2017 the average size of the farms has gone down. The 2022 Census of Agriculture found that there were 103,438 acres in farms or ranches in the county, a 13% increase since 2017 but a 31% decrease since 2012. In 2022, the average farm in Wasatch County was 193 acres, a 6% reduction from 2017 and a 42% reduction from 2012. In contrast, the number of farms in Wasatch County has increased, from 475 in 2017 to 537 in 2022 (NASS 2022).

The sales of agricultural products produced in Wasatch County totaled about $14.1 million in 2022, an increase of 60% from 2017. Of the $14.1 million, 24% came from crop sales and 76% from livestock sales. In 2022, Wasatch County was ranked 25th in the state (out of 29 counties) for the market value of the agricultural products it produced, and accounts for 1% of agriculture sales in the state. (NASS 2022).

Of the farmland in the county, 12% is cropland, 55% is pasture land, 28% is woodland, and 1% is other uses. Top crop items include forage land used for alfalfa, and hay (NASS 2022).

3.3.2.2 Cropland

Farmland in the farmland evaluation area is mainly pasture land, cultivated (cropland), dry land, riparian, and fallow. Fallow farmland is typically plowed but is left unseeded during the growing season. For the most part, active agricultural production in the evaluation area focuses on pasture land and irrigated crops (such as alfalfa and grass hay). In terms of acreage, the largest type of land use in the evaluation area is urban, but these acres were not included in this analysis.

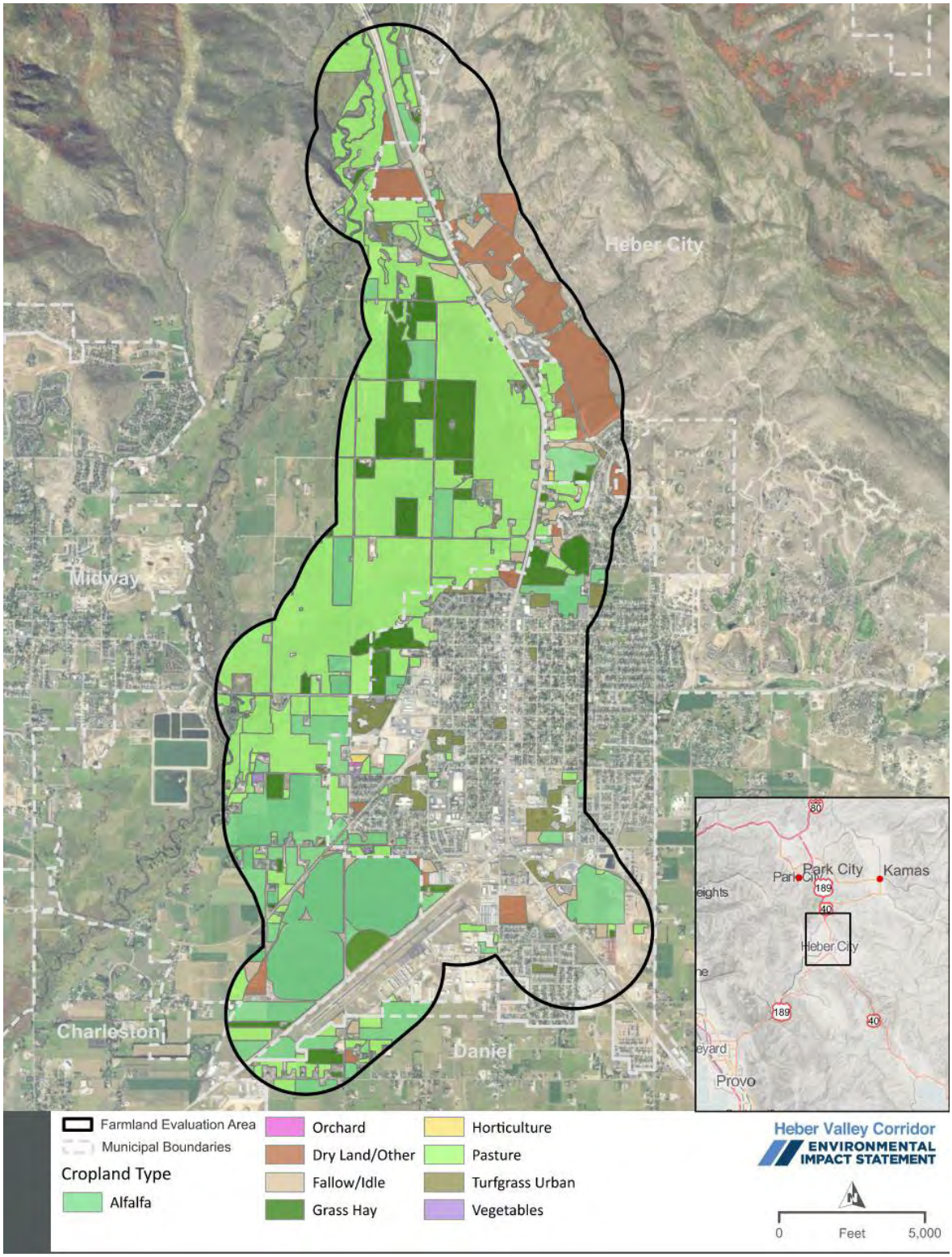
Table 3.3-1. Acres of Cropland in the Farmland Evaluation Area

Crop or Farmland Type	Acres
Alfalfa	1,142
Cherries	<1
Dry land/other	401
Fallow/idle	146
Grass hay	473
Horticulture	5
Orchard	2
Pasture	2,148
Vegetables	4
Total	**4,322**

Source: Utah Division of Water Resources 2025

As shown in Table 3.3-1 at right, pasture (2,148 acres) accounts for the largest acreage of cropland in the farmland evaluation area (which totals 7,883 acres), while alfalfa is the largest crop type (1,142 acres). Figure 3.3-1 below shows the distribution of cropland in the evaluation area. The difference in area between cropland and the evaluation area is not considered farmable land (that is, the nonfarmable land is Urban, Riparian, or Water).

Figure 3.3-1. Cropland in the Farmland Evaluation Area



Source: Utah Division of Water Resources 2025

3.3.2.3 FPPA-regulated Farmland

Table 3.3-2 shows that the farmland evaluation area (which totals 7,883 acres) has about 2,465 acres of farmland of statewide importance, 200 acres of prime farmland if irrigated, and 497 acres of prime farmland if irrigated and drained. Figure 3.3-2 shows the distribution of prime farmland in the evaluation area as designated by NRCS. There is no unique farmland in the evaluation area.

The FPPA considers land that is within a municipal boundary to be "committed to other uses," and such land needs no further evaluation under the FPPA. Some of the farmland in the evaluation area is located in Heber City, the town of Charleston, and the town of Daniel. Although some farmland within a municipal boundary could qualify as prime or unique, any such farmland was not considered in the FPPA analysis since the FPPA applies only to land outside municipal boundaries. Farmland within municipal boundaries that is not regulated by the FPPA is discussed in Section 3.3.2.2, *Cropland*.

Table 3.3-2. Acres of FPPA-regulated Farmland in the Farmland Evaluation Area

Farmland Designation	Acres
Farmland of statewide importance	2,465
Not prime farmland	667
Prime farmland if irrigated	200
Prime farmland if irrigated and drained	497
Total	**3,829**

Source: NRCS 2025
Note: The designation of FPPA-regulated farmland applies only outside municipal boundaries.

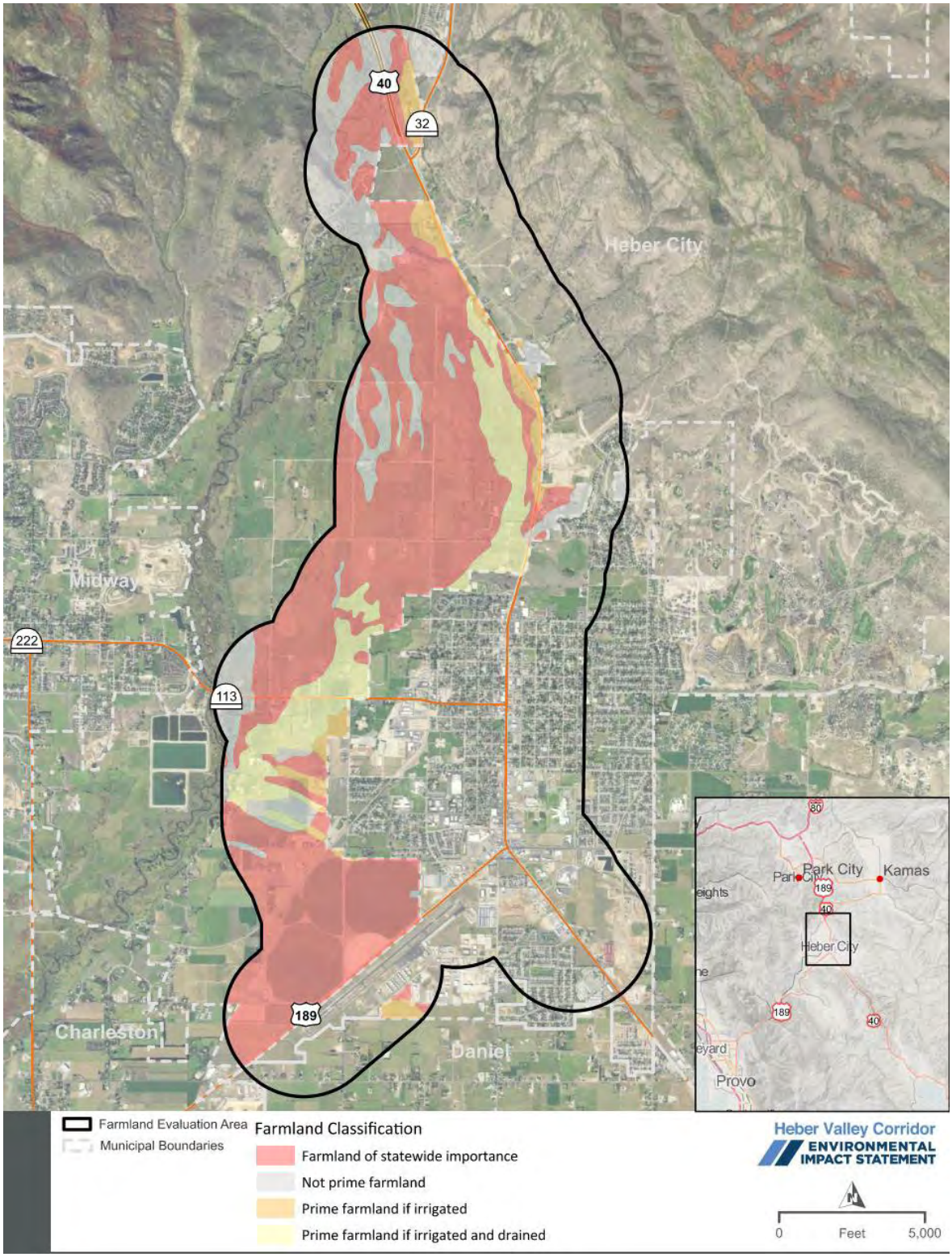
3.3.2.4 Agriculture Protection Areas

In December 2022, Wasatch County passed an ordinance that allows landowners to apply to put their land in an APA as long as certain criteria are met. The first APA was created in the north fields in March 2023, and several more were created in the following months. As of May 2, 2023, 24 individual parcels totaling about 341 acres were approved and recorded within APAs in the farmland evaluation area.

3.3.2.5 Century Farms

According to the Utah Farm Bureau Federation (Furner 2023), there are no Century Farms in the farmland evaluation area. Therefore, Century Farms are not discussed further in Section 3.3.

Figure 3.3-2. FPPA-regulated Farmland in the Farmland Evaluation Area



Source: NRCS 2025

3.3.3 Environmental Consequences and Mitigation Measures

This section examines the direct and indirect effects of the project alternatives on farmland in the farmland evaluation area.

3.3.3.1 Methodology

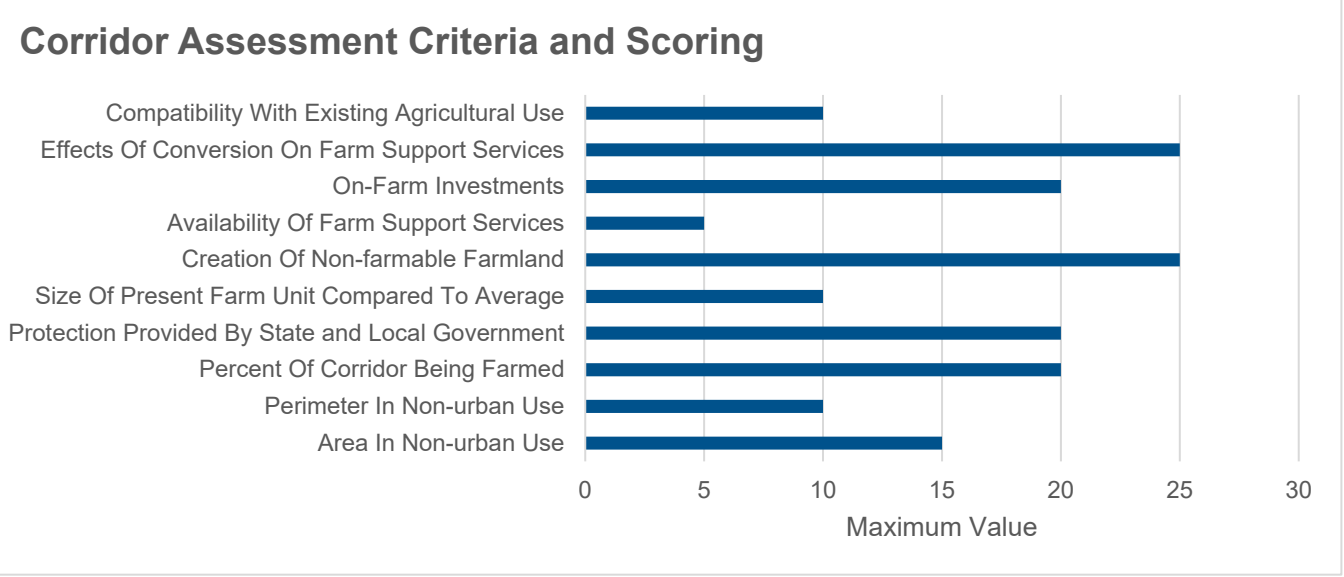
All of the action alternatives would directly affect some farmland. There is farmland within the proposed right-of-way of both the action alternatives, and this farmland would be directly taken out of production (converted from agricultural use to transportation use). To assess the expected direct impacts to farmland from the action alternatives, UDOT used aerial photographs and GIS analysis to identify the impacts to farmland, including cropland; FPPA-eligible farmland (that is, farmland designated as prime or of statewide or local importance, since there is no unique farmland in the farmland evaluation area); and APAs. Farmland impacts were evaluated based on information from several sources including the Utah Division of Water Resources' water inventory maps (Utah Division of Water Resources 2025), the NRCS soil surveys of Wasatch County (NRCS 2025), field surveys along the right-of-way for the action alternatives, reviews of aerial photos, parcel information (zoning classifications and acreage) from the Wasatch County assessor's office, and coordination with local governments.

Indirect effects on farmland are possible on land outside the proposed right-of-way if an alternative would change the size of the farm or access to the farmland. For example, if a parcel is divided by an alternative and the remaining land is too small to farm economically, or if farming equipment could no longer access the remaining land, the alternative would result in an indirect effect. UDOT calculated the indirect effects of the action alternatives based on aerial images, and GIS analysis.

3.3.3.1.1 Farmland Conversion Impact Rating

NRCS's *Farmland Conversion Impact Rating for Corridor-type Projects* form (Form NRCS-CPA-106) was used to determine an impact rating for each action alternative. The form assigns a numeric rating to each alternative up to 260 points. A maximum of 100 points were assigned by NRCS through a land evaluation that considered the total acres of farmland that would be directly and indirectly converted by each alternative and the percentage of farmland in the county or local government unit that would be affected. The remaining 160 points were determined by UDOT through the corridor assessment criteria, as illustrated in Figure 3.3-3. Figure 3.3-3 shows the maximum points available for each assessment criterion.

Figure 3.3-3. Corridor Assessment Criteria and Scoring for Form NRCS-CPA-106



Based on recommendations from USDA, alternatives with a total rating less than 160 points do not require further consideration for protection (specifically, mitigation or consideration of alternative alignments). Conversely, alternatives with a total rating of 160 points or more receive greater consideration for protection. For alternatives with a rating above the 160-point threshold, NRCS, as an administrator of the FPPA, recommends that UDOT consider the following mitigation concepts as described in 7 *Code of Federal Regulations* (CFR) Section 658.4(c):

- Use of land that is not farmland
- Alternative sites, locations, and designs that would serve the proposed purpose but convert either fewer acres of farmland or other farmland that has a lower value
- Special siting requirements of the proposed project and the extent to which an alternative site fails to satisfy the special siting requirements as well as the originally selected site

3.3.3.2 No-action Alternative

With the No-action Alternative, the Heber Valley Corridor would not be built, so there would be no impacts to farmland from converting the land to transportation use. Farming in the farmland evaluation area would continue to operate similarly to the existing conditions, and farms would continue to face development pressure to convert agricultural land to residential uses. UDOT assumes that the development impacts to farmland would be consistent with current zoning and subdivision plans.

3.3.3.3 Action Alternatives

Table 3.3-3 and Table 3.3-4 list the acres of impact for each action alternative.

Alternative A. Using the US-40 alignment north of downtown Heber City reduces the impact to farmland from Alternative A compared to the impact from Alternative B. Although some farmland would still be acquired on the west side of US-40 in order to create the frontage road, there would be fewer acres of farmland impacts than with Alternative B.

Alternative B. The northern extension through the north fields and connection to US-40 at Potter Lane result in more farmland impacts from Alternative B than from Alternative A. Alternative B would convert the most pasture land because of Alternative B's northern extension.

3.3.3.3.1 Cropland Impacts

As shown in Table 3.3-3, the cropland types that would have the most direct impacts from both action alternatives are alfalfa and pasture land. Both alternatives would impact the same amount of alfalfa crop land because the alternatives have the same footprint south of SR-113. Other cropland types that would be converted to nonagricultural use by the alternatives include grass hay, dry land, and fallow/idle land.

Figure 3.3-4 and Figure 3.3-5 show the direct impacts to cropland from each action alternative.

Indirect Effects. As discussed in Section 3.3.3.1, *Methodology*, indirect effects on farmland can occur if a parcel is divided by an alternative and the remaining land is too small to farm economically, or if farming equipment could no longer access the remaining land. Table 3.3-3 shows the indirect effects of the action alternatives on cropland. Both action alternatives would indirectly affect 4.7 acres of farmland. These 4.7 acres are located on Heber Valley Special Service District sewer farm and would be indirectly affected because land remaining would be too small to use for disposing wastewater or because access would be cut off.

Indirect effects on farmland could also occur if the farmland is developed because of a project. As discussed in Section 3.2, *Land Use*, neither of the action alternatives is expected to induce development. The Heber Valley Corridor is intended to be a limited-access facility, and neither Wasatch County nor Heber City intend to change any zoning designations if an action alternative is selected. Either of the action alternatives could change the timing of development in areas near the Heber Valley Corridor, and any development would be subject to Heber City zoning rules and approval.

Table 3.3-3. Impacts to Crops and Farmland in the Farmland Evaluation Area from the Action Alternatives

Crop or Farmland Type	Existing	Acres Converted			
		Alternative A		Alternative B	
		Direct	Indirect	Direct	Indirect
Alfalfa	1,142	87	3	87	3
Cherries	<1	0	0	0	0
Dry land/other	401	10	<1	8	<1
Fallow/idle	146	7	1	8	1
Grass hay	473	9	0	22	0
Horticulture	5	<1	0	0	0
Orchard	2	0	0	0	0
Pasture	2,148	88	<1	116	<1
Vegetables	4	<1	0	<1	0
Total	**4,322**	**201**	**5**	**241**	**5**
Percentage of existing	**100%**	**5%**		**6%**	

Figure 3.3-4. Cropland Impacts from Alternative A

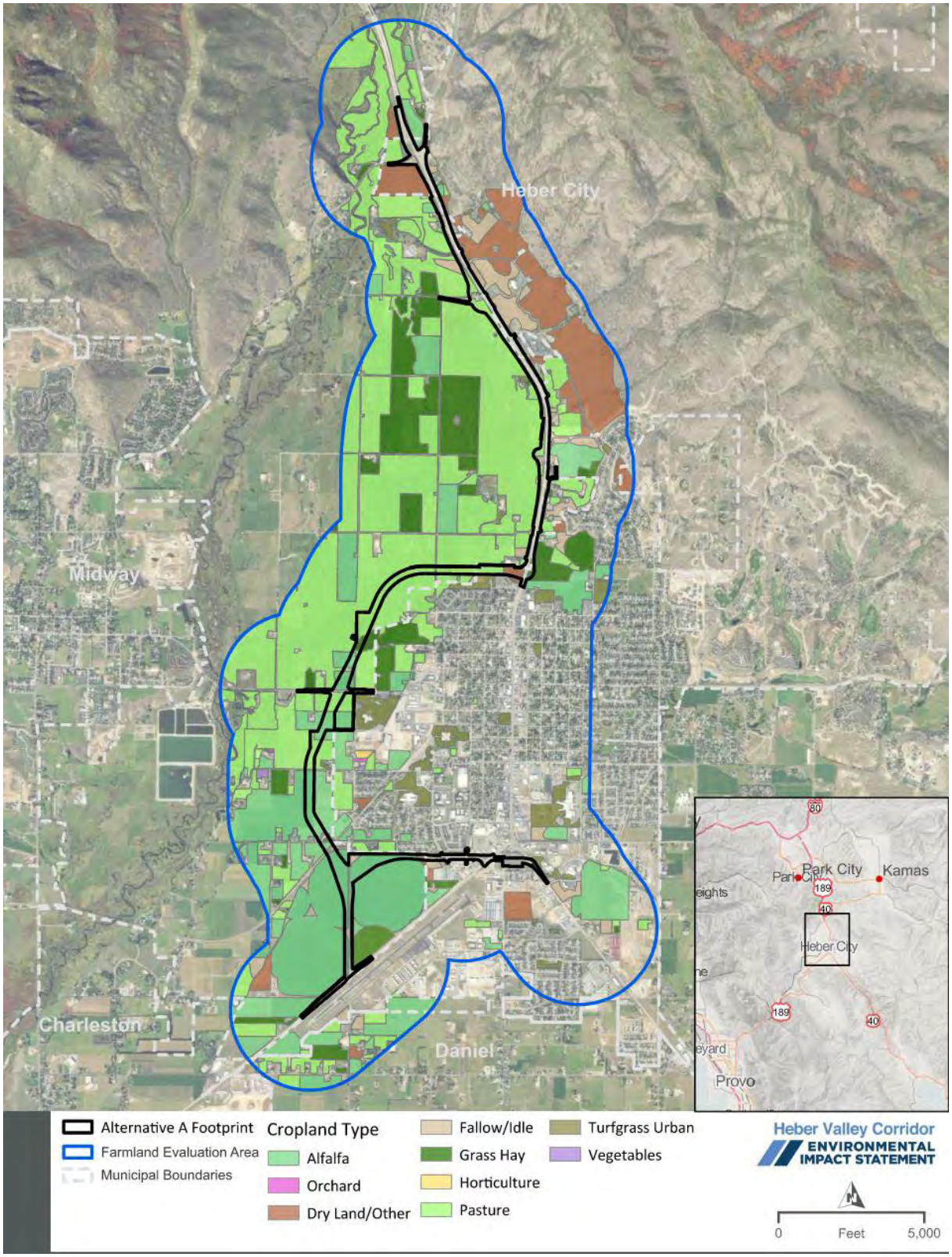
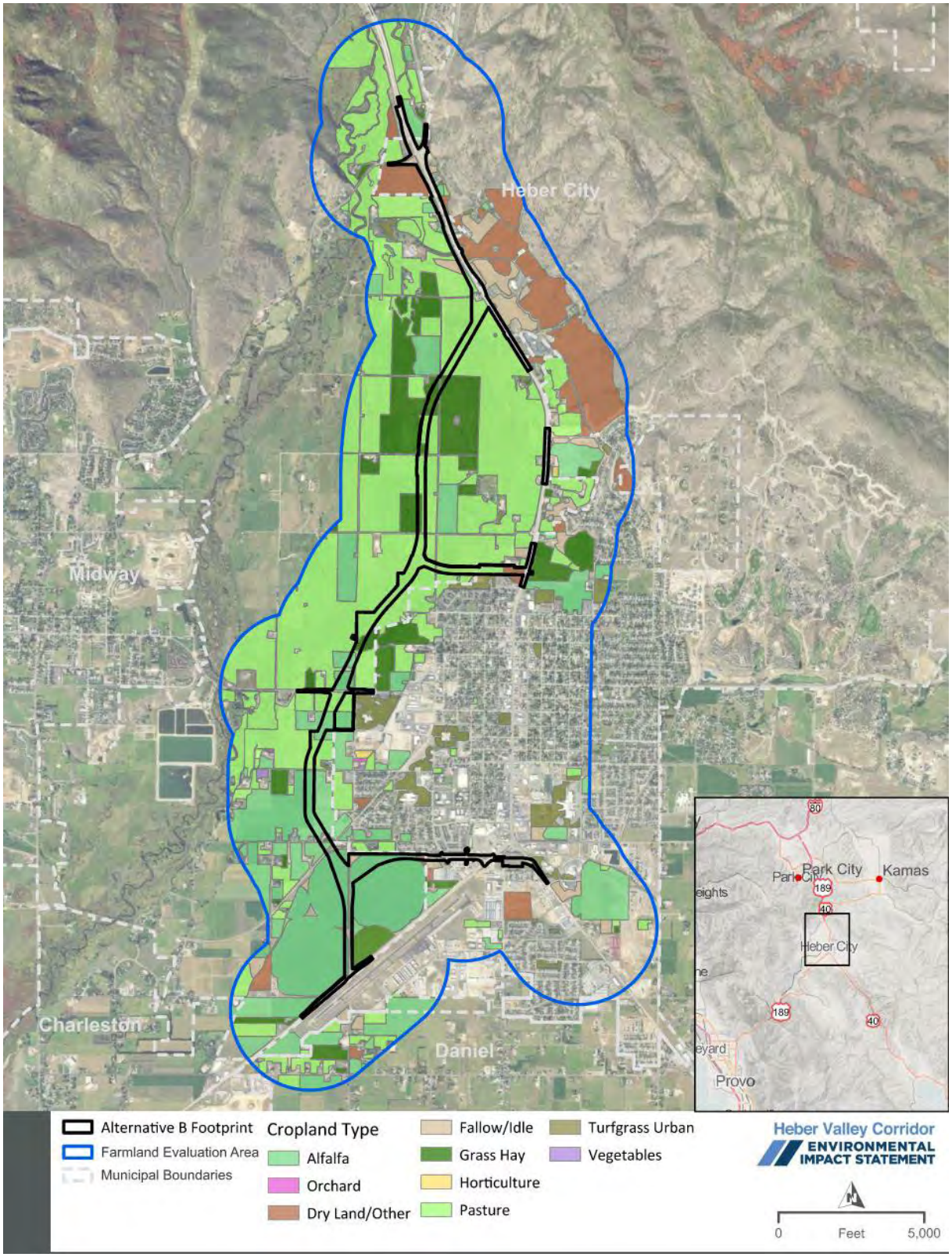


Figure 3.3-5. Cropland Impacts from Alternative B



3.3.3.3.2 FPPA-regulated Farmland Impacts

As shown in Table 3.3-4, overall, Alternative B would directly convert 147 acres of farmland of statewide importance compared to the 99 acres directly converted by Alternative A. The additional impacts with Alternative B are due to impacts from the North Fields Extension segment.

Table 3.3-4 also summarizes the scores from the NRCS-CPA-106 rating forms. The total FPPA site assessment criteria scores for the action alternatives range from 144 points to 156 points, neither of which is over the 160-point threshold. For projects scoring 160 points or higher, UDOT must consider alternatives that convert less farmland or that convert farmland of lower value. Because neither action alternative scores above 160 points, no additional mitigation is being considered.

Although both of the action alternatives score under the 160-point threshold for FPPA-regulated farmland according to the NRCS-CPA-106 rating criteria, Alternative A has the lower score at 144 points.

Figure 3.3-6 and Figure 3.3-7 show the direct impacts to FPPA-regulated farmland from each action alternative.

Indirect Effects. As discussed in Section 3.3.3.1, *Methodology*, indirect effects on farmland can occur if a parcel is divided by an alternative and the remaining land is too small to farm economically, or if farming equipment could no longer access the remaining land. Table 3.3-4 shows the indirect effects of the action alternatives on FPPA-regulated farmland.

Table 3.3-4. Impacts to FPPA-regulated Farmland in the Farmland Evaluation Area from the Action Alternatives

Farmland Class	Existing Acreage	Acres Converted			
		Alternative A		Alternative B	
		Direct	Indirect	Direct	Indirect
Farmland of statewide importance	2,465	99	3	147	3
Not prime farmland	667	7	0	13	0
Prime farmland if irrigated	200	23	<1	13	<1
Prime farmland if irrigated and drained	497	50	0	50	0
Total acreage	**3,829**	**179**	**4**	**223**	**4**
Percentage of existing	**100%**	**5%**		**6%**	
Conversion impact rating	**—**	**144**		**156**	

Source: NRCS 2025
Note: The designation of FPPA-regulated farmland applies only outside municipal boundaries.

Figure 3.3-6. FPPA-regulated Farmland Impacts from Alternative A

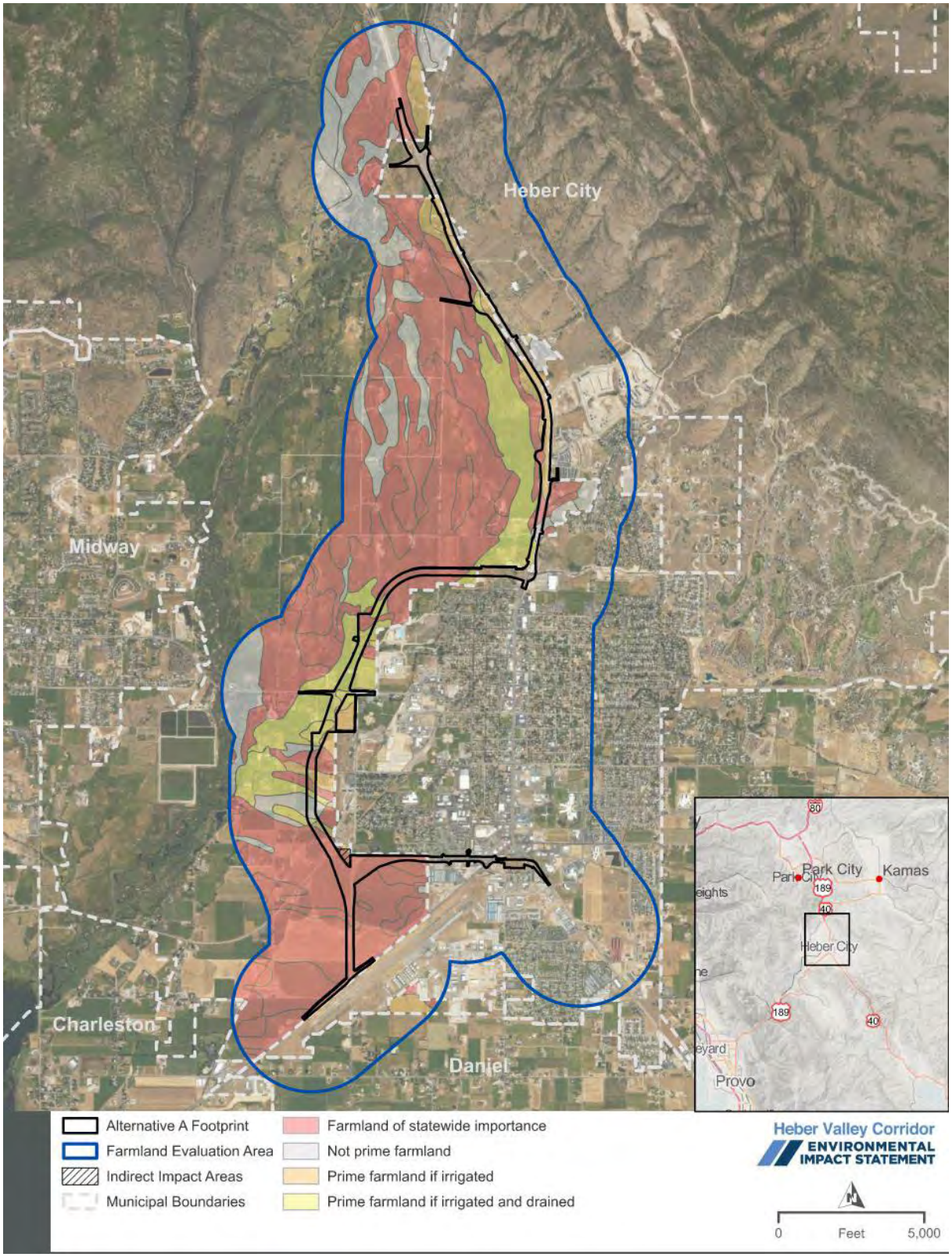
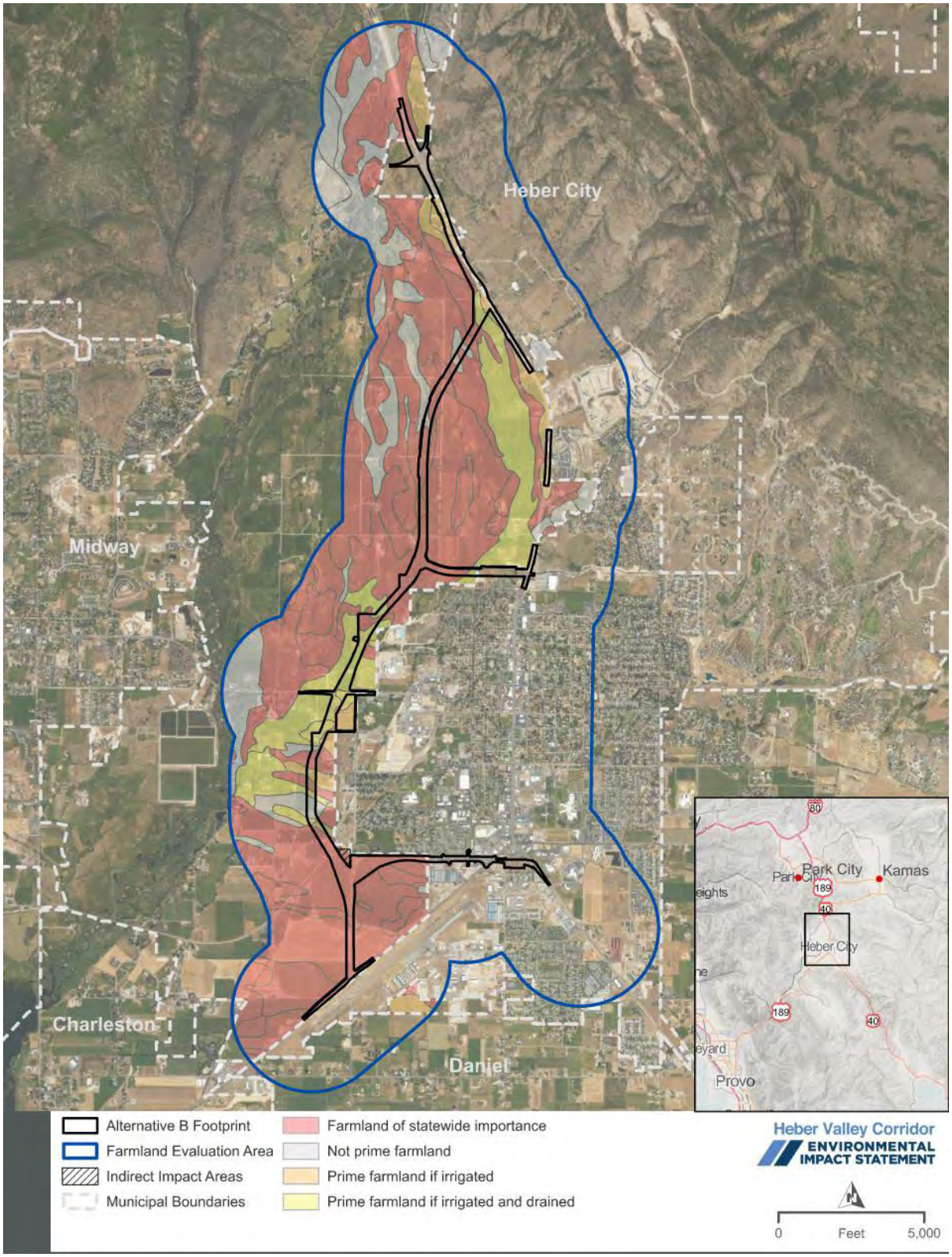


Figure 3.3-7. FPPA-regulated Farmland Impacts from Alternative B



3.3.3.3.3 Agriculture Protection Area Impacts

Table 3.3-5 shows the direct impacts of each action alternative to affected APA units (referenced by their entry numbers). APA units that would not be impacted by either action alternative are not included in the table. These impacts are current as of April 3, 2025. Overall, Alternative B would have greater impacts to APAs than Alternative A in terms the acreage of impacts.

Table 3.3-5. Impacts to Agriculture Protection Areas in the Farmland Evaluation Area from the Action Alternatives

APA Entry Number	Existing GIS Acres[a]	Acres Impacted	
		Alternative A	Alternative B
531669	208.56	11.03 (5%)	33.92 (16%)
531670	147.78	0.72 (0.5%)	0.75 (0.5%)
534766	30.45	<0.01 (0.03%)	0.00 (0%)
537965	28.16	0.00 (0%)	3.68 (11%)
532587	89.69	0.00 (0%)	<0.01 (0.001%)
Total	**504.64**	**11.76 (2%)**	**38.35 (8%)**

Source: Wasatch County 2025a
Definitions: APA = Agriculture Protection Area; GIS = geographic information systems
[a] Total GIS acreage of for affected APAs

Given the number of APAs and the developed nature of the farmland evaluation area, the only way to avoid APAs completely would be to move the alternatives' alignments east of Southfield Road where they cross SR-113. Shifting the alignments east to avoid APAs entirely would result in impacts to:

- Southfield Park (protected under Section 4(f) of the U.S. Department of Transportation Act of 1966)
- Future Iron Horse High School, and there would not be adequate intersection spacing between the Heber Valley Corridor and the high school entrance resulting in safety and mobility concerns
- Planned Wasatch County Administration Building (southwest corner of SR-113 and Southfield Road)
- Heber Light & Power substation (potentially)
- Muirfield Park [potentially protected under Section 4(f) and a conservation easement]

Therefore, for this project, there is no reasonably comparable alternative to placing the Heber Valley Corridor on land within an APA.

Figure 3.3-8 and Figure 3.3-9 show the direct impacts to APAs from each action alternative.

Figure 3.3-8. APA Impacts from Alternative A

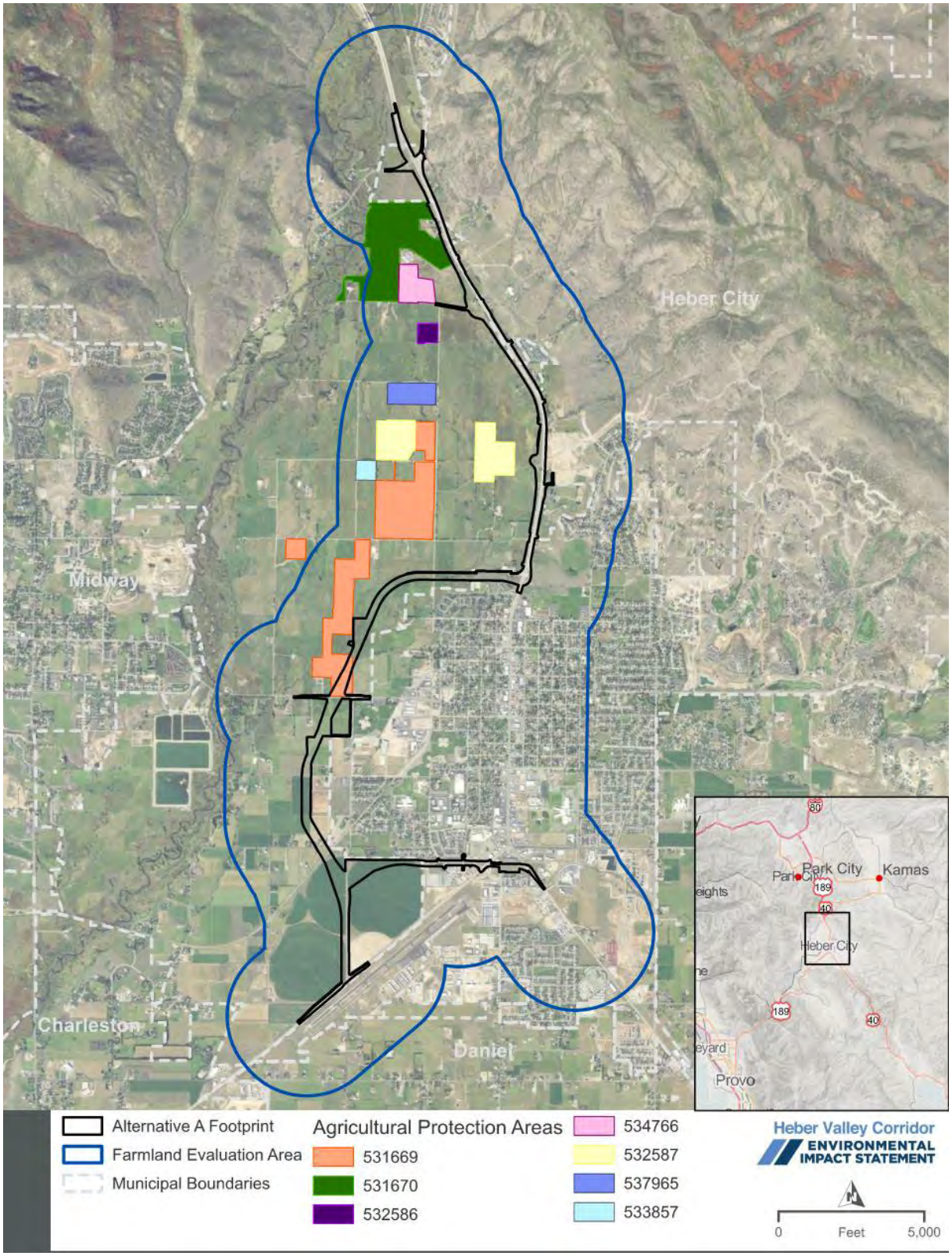
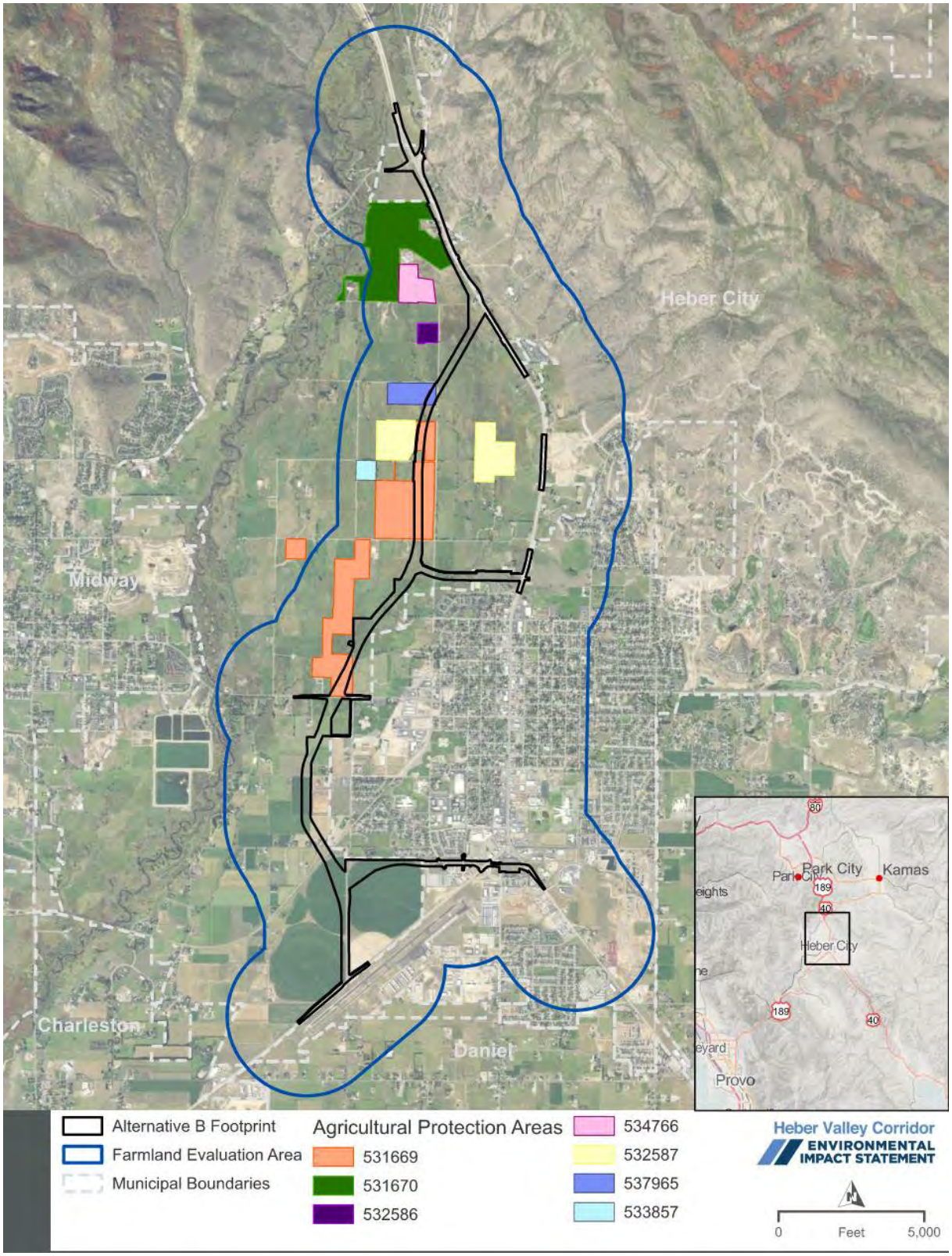


Figure 3.3-9. APA Impacts from Alternative B



3.3.3.4 Mitigation Measures

UDOT will work with each farm owner on a case-by-case basis to determine the farm's eligibility for benefits under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and other federal and state guidelines. Generally, UDOT will provide compensation for the expense of re-establishing farm enterprises and for the fair market value of the buildings and land.

3.3.3.4.1 Mitigation for Impacts to FPPA-regulated Farmland

Because the farmland impact conversion ratings for both action alternatives are below the 160-point threshold at which further consideration for protection is required, no additional mitigation is being considered for FPPA-regulated farmland.

3.4 Social Environment

3.4.1 Introduction

Section 3.4 describes the social characteristics of the communities in the social environment evaluation area and the effects the project alternatives would have on the social environment and community resources. The social characteristics of the evaluation area are presented in Section 3.4 by the following topics:

- Neighborhood and community cohesion
- Quality of life
- Recreation resources
- Community facilities
- Public safety
- Utilities

What is the social environment evaluation area?

The social environment evaluation area includes parts of Heber City, Daniel, and Charleston, and Wasatch County adjacent to US-40 north and south of Heber City within a 0.5-mile buffer on either side of the centerlines of the project alternatives.

Related information is provided in the following sections:

- Section 3.6, *Right-of-way and Relocations*: property impacts (acquisition and relocations)
- Section 3.7, *Transportation*: travel patterns and accessibility
- Section 3.8, *Pedestrian and Bicyclist Issues*: facilities used for transportation (not recreation)
- Section 3.17, *Visual and Aesthetic Resources*: visual impacts

Social Environment Evaluation Area. The social environment evaluation area includes parts of Heber City, Daniel, and Charleston, and Wasatch County adjacent to US-40 north and south of Heber City within a 0.5-mile buffer on either side of the centerlines of the action alternatives (Figure 3.4-1). This is the area where direct impacts from the proposed improvements and indirect traffic-related impacts could occur.

Figure 3.4-1. Social Environment Evaluation Area

3.4.2 Regulatory Setting

Title 23 USC Section 109(h) requires FHWA to identify the effects of a proposed project on the social environment, specifically the destruction or disruption of community cohesion, the availability of public facilities and services, and desirable community and regional growth. FHWA's guidelines for preparing environmental documents for evaluating the social environment and community impacts consider several types of impacts including impacts to neighborhoods or community cohesion; changes in travel patterns and accessibility; impacts to school districts, recreation areas, churches, and businesses; effects on public facilities and services; benefits or harm to different social groups; and displacements of people, businesses, and farms (FHWA 1987). Some of these topics are covered in other sections of this chapter as noted in Section 3.4.1, *Introduction*.

3.4.3 Affected Environment

Neighborhood and community cohesion, quality of life, recreation resources, community facilities (that is, places where residents typically interact), and safety and security are important factors in determining how residents develop a sense of belonging to their neighborhoods. UDOT obtained information about the existing social environment in the project area by reviewing aerial images; reviewing general plans and other publications from Heber City, Wasatch County, the Town of Daniel, and Town of Charleston; communicating with local officials; attending public meetings and reviewing public comments; and conducting field surveys.

3.4.3.1 Neighborhood and Community Cohesion

Neighborhood and community cohesion is the pattern of social networking in a defined area and the degree to which residents have a sense of belonging to their neighborhood or community, including commitment to the community or a strong attachment to neighbors, institutions, or particular groups (NCHRP 2001). Specific indicators of community cohesion include interaction among neighbors, use of community facilities and services, participation in local organizations, length of residency and a desire to stay in the community, satisfaction with the community, and the presence of families (FDOT 2003). Transportation projects can reduce community cohesion, primarily by bisecting a community. Freeways and highways can cut off access to communities or divide the neighborhoods.

What is neighborhood and community cohesion?

Neighborhood and community cohesion is the patterns of social networking in a defined area and the degree to which residents have a sense of belonging to their neighborhood or community.

What is Heber City's historic core?

Heber City's historic core comprises the grid system streets that parallel the east and west sides of Main Street through downtown Heber City between about 500 North and 600 South.

The social environment evaluation area includes both urban and rural land uses. Heber City's historic core (roughly defined by the city's historic grid) is urban, and recent development extends to the south, east, and northeast. To the west, northwest, and southwest of Heber City's historic core are rural areas characterized by open grazing lands, agriculture, sewer fields, and large-lot residential areas. The social environment evaluation area spans parts of four communities: Heber City, Daniel, Charleston, and Wasatch County (see Figure 3.4-1 above and Section 3.2, *Land Use*).

Commercial areas in the social environment evaluation area are generally located along US-40 south of 900 North and in the area surrounding the hub intersection (where US-40 and US-189 meet). These

commercial areas also draw visitors from other communities in the Heber Valley, likely via SR-113, US-40 and US-189. The commercial areas, which make up roughly 5.9% of the social environment evaluation area in terms of land area, consist of municipal and office buildings, "big-box" stores, auto-related businesses, small retail shops, restaurants, and providers of professional and hospitality services. Some higher-density, multifamily units are located near these commercial areas, and the commercial areas are within walking distance or a short drive of many of the neighborhoods within the communities.

What is the hub intersection?

The hub intersection is the ⅄-shaped intersection of US-40 and US-189 on the south side of Heber City.

3.4.3.1.1 Communities

Heber City

As of 2023, Heber City had an estimated 17,438 people, and the median age was 28.4. The community was on average 76% white, 18% Hispanic, 2% Asian, and 3% two races or more, and the median household income was $107,784. According to the 2023 Census, 5.3% of Heber City residents live below the federal poverty line (Census Reporter 2023).

Daniel

As of 2023, Daniel had an estimated 956 people, and the median age was 41. The community was on average 80% white, 18% Hispanic, 1% two races or more, 1% other, and the median household income was $113,438. According to the 2023 Census 3.2% of Daniel residents live below the federal poverty line (Census Reporter 2023).

Charleston

As of 2023, Charleston had an estimated 484 people, and the median age was 51.7. The community was on average 91% white, 4% two or more races, and 1% Hispanic, and the median household income was $93,875. According to the 2023 Census, 7.8% of Charleston residents live below the federal poverty line (Census Reporter 2023).

Wasatch County

As of 2023, Wasatch County overall had an estimated 35,808 people, and the median age was 36.1. The county was on average 82% white, 14% Hispanic, 1% Asian, and 2% two or more races, and the median household income was $115,146. According to the 2023 Census, 5.2% of residents in Wasatch County live below the federal poverty line (Census Reporter 2023).

3.4.3.1.2 Neighborhoods

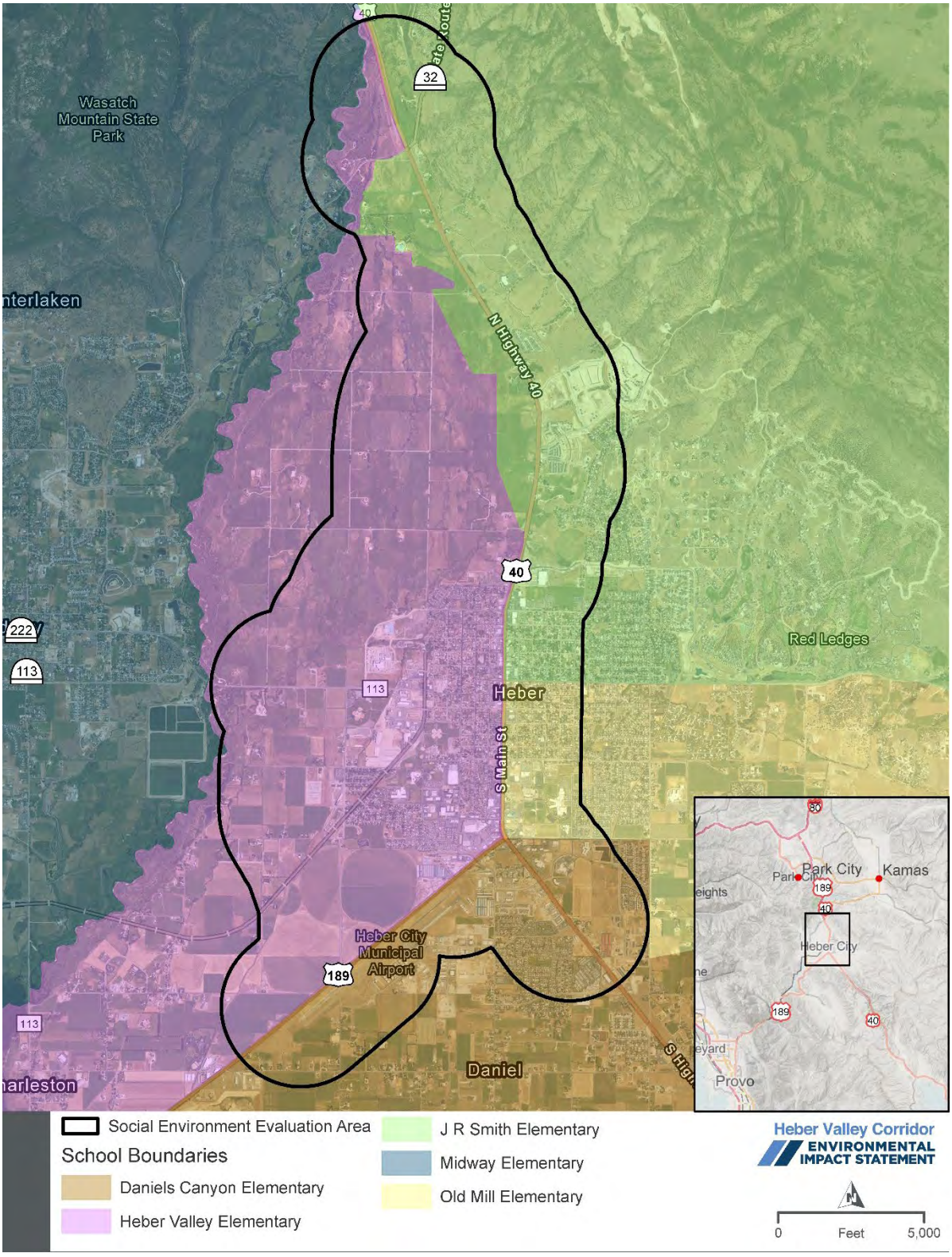
The population of Wasatch County is actively growing, and the valley consistently ranks as one of the fastest-growing areas in Utah (Kem C. Gardner Policy Institute 2022). Because of this fast growth, the communities are a mix of established neighborhoods and new neighborhoods. In Heber City, established neighborhoods in the social environment evaluation area include neighborhoods in the historic core, newer neighborhoods between Southfield Road and the historic core, a few smaller-lot subdivisions south of the hub intersection between Daniels Road and US-40, the business and industrial district surrounding the hub intersection, and the recreation-focused area including Southfield Park, the County Fairgrounds, and the Heber Valley Railroad.

Land between SR-32 and Heber City's historic core, and east of US-40, is in the process of being annexed into Heber City and developed as part of the North Village Overlay Zone. Other areas that were recently developed or are currently in the process of being developed include land adjacent to and west of Southfield Road, land south of 1300 South around Industrial Parkway and US-189, and pockets of new development south of the hub intersection.

There are many cohesive sub-neighborhoods in each community (Wasatch County School District 2023). Figure 3.4-2 shows neighborhood and elementary school boundaries in the evaluation area (Heber City 2021b).

During the scoping process for this EIS, residents provided comments stating concerns regarding potential impacts to neighborhoods, especially established neighborhoods along 1300 South, along Muirfield Road, and the Royal Coachman Mobile Home Park. Their concerns included increased traffic, noise, and pollution; detrimental visual impacts; decreased safety; and decreased property values.

Figure 3.4-2. Neighborhood and Elementary School Boundaries in the Social Environment Evaluation Area



3.4.3.2 Quality of Life

What is quality of life?

Quality of life can be characterized as a person's well-being and happiness.

Quality of life can be characterized as a person's well-being and happiness. The factors that affect quality of life vary by person but often include the general living environment, safety, accessibility to public services and shopping, and recreation opportunities. Public comments submitted during the EIS process provide insight to what people consider important for quality of life. Common themes include undeveloped land, especially the north and south fields where people can walk, bike, and view wildlife; quiet, residential neighborhoods where it is safe to walk to schools and parks; and bike paths and trails connecting to recreation opportunities. Residents of the Heber Valley view the north fields as an important area to keep undeveloped.

Heber City's visioning process identified what residents desire to preserve and enhance their quality of life. The *Heber City Envision 2050 General Plan* provides a list of big ideas that residents value, including preserving open space or rural character; trails connecting neighborhoods to surrounding mountains and lakes; centers where people can live, work, learn, and play in one place; preserving and redeveloping downtown; neighborhoods with open space; and a small-town character even as the city grows (Heber City 2023).

Wasatch County's general plan also identifies characteristics that are important to quality of life. The plan includes an objective to provide sufficient transportation corridors to allow and encourage connectivity between neighboring communities while minimizing conflicts and limiting access so that major roads can maintain their intended purpose of moving traffic. Wasatch County's trail plan, part of the County's general plan, is intended to effectively maintain quality of life standards by reducing traffic congestion and pollution, protecting access to state and federal land, promoting the health and well-being of county residents, and providing opportunities for visitors and residents to explore and easily transport themselves around the area. Wasatch County is characterized by valuable open space and sensitive lands resources that contribute to the region's character and overall quality of life. Residents have long enjoyed views of and recreational access to the mountains, lived with abundant wildlife, and farmed the valley floors. Although residents expect that real estate development will occur as population increases, they would like to see the rural heritage conserved for the enjoyment of future generations (Wasatch County 2010).

The Town of Daniel's general plan does not specifically mention quality of life. However, it aims to preserve a rural atmosphere, foster agriculture and other rural industries, protect and increase the tax base, secure economy in governmental expenditures, protect both urban and nonurban development, protect the town's natural resources, and protect property values (Town of Daniel 2023).

The Town of Charleston's general plan does not specifically mention quality of life. However, its goals include facilitating orderly growth and development in the area; promoting safety and sanitation; discouraging scattering the population and unnecessarily spending funds for excessive streets; protecting residents from objectionable noise, odor, dust, fumes, and other deleterious substances or conditions; and ultimately promoting a more attractive and wholesome environment (Town of Charleston 2019).

3.4.3.3 Recreation Resources

Recreation activities refresh, enliven, and enhance people's quality of life and promote healthier lifestyles. Recreation facilities provide opportunities for social interactions and are often the focus of a neighborhood or community. Recreation resources make up about 4.4% of the social environment evaluation area by land area. As shown in Table 3.4-1 and Figure 3.4-3, numerous existing and planned parks and trails are located entirely or partially within the evaluation area (UGRC 2025). Note that the primary purpose of several trails listed in Table 3.4-1 is for transportation, although they could also be used for recreation (specifically the Midway Lane Connector Trail, Bypass Road Multi-use Trail, and US-40 Regional Trail).

Table 3.4-1. Recreation Resources in the Social Environment Evaluation Area

Recreation Resource	Acreage or Feet in Evaluation Area	Description and/or Location	Address or Location
Parks			
The Cove Park	1.9 acres	An approximately 2-acre neighborhood park located in the Cove at Valley Hills neighborhood on Valley Hills Boulevard. Park features include grills, a pavilion, and a playground.	1871 N. Valley Hills Blvd., Heber City
Coyote Springs Park (in construction)	4.5 acres	A planned hillside park that provides a natural spring for fishing, a playground, pavilion, and a hillside trail.	Planned park adjacent to Coyote Ridge development
Duke Park (planned)	15.1 acres	A centrally located, approximately 15-acre planned park with a playground, pickleball courts, and a splash pad.	Planned park west of Heber City Cemetery
Muirfield Park	29.1 acres	An approximately 29-acre park with natural areas and a playground. This is the only dog-friendly park in Heber City. Park features include children's play area, lawn area, and a walking path.	650 North 200 West, Heber City
Southfield Park	37.1 acres	An approximately 37-acre park on the west side of Heber City. This park has numerous recreation facilities including baseball/softball fields, concession stands, grills, pavilions, a playground, a skate park, a soccer field, and tennis and volleyball courts.	1200 W. Midway Lane, Heber City
Veterans Memorial Park	32.6 acres	An approximately 32-acre park located east of the Heber Valley Railroad station. Park features include multipurpose fields, a playground, and walking paths.	415 South 600 West, Heber City
Wheeler Park	0.3 acre	An approximately 0.3-acre neighborhood park. Park features include a children's climbing wall, play structure, and slides.	400 East, south of East Airport Road

(*Continued on next page*)

Table 3.4-1. Recreation Resources in the Social Environment Evaluation Area

Recreation Resource	Acreage or Feet in Evaluation Area	Description and/or Location	Address or Location
Trails			
Midway Lane Connector Trail	7,370 feet	Multi-use trail that is a combination of wide sidewalks and separated trails.	Runs along SR-113 between 600 West in Heber City and Midway
Coyote Canyon Trailhead and Coyote Canyon Backcountry Trails	24,680 feet	Backcountry trail system often used for hiking, trail running, and mountain biking in the foothills east of SR-32.	Trailhead located at intersection of Coyote Lane and Valley Hills Blvd.
Bypass Road Multi-use Trail (existing and planned)	18,400 feet	Existing trail with planned expansion. Planned trail parallel to the proposed Heber Vally Corridor extending west of downtown Heber City from the US-40 and 900 North intersection to the US-40 and 1500 South intersection.	Existing segment of trail on north side of 1300 South from Industrial Parkway to US-189. Improved multi-use trails in several locations: parallel to the proposed Heber Valley Corridor for the entire length between US-40 and US-189
US-40 Regional Trail (planned)	16,790 feet	Planned trail along US-40 from north of SR-32 to at least 900 North and along south US-40 from the planned Bypass Road Multi-use Trail connection (about 1500 South) to 3600 South in Daniel.	Planned trail along US-40 from north of SR-32 to at least 500 North and along south US-40 from the planned Bypass Road Multi-use Trail connection (about 1500 South) to 3600 South in Daniel
Wasatch County Railroad Trail (planned)	10,640 feet	Planned 10-foot-wide multi-use regional paved trail.	Planned along the Heber Valley Historic Railroad alignment from the train depot to Soldier Hollow
Other Recreation Resources			
County Fairground	20.0 acres	Located south of Southfield Park. Site facilities include rodeo grounds and large grassy areas that hold the Wasatch County Fair.	415 Southfield Road, Heber City
Wasatch County Recreation Center	4.9 acres	Houses a recreation center, events center, and the Veterans Memorial Park baseball fields.	345 West 600 South, Heber City
Wasatch Aquatic Center	1.1 acres	Community indoor pool that offers classes and swim lessons.	744 South 200 East, Heber City
River Road North Fisherman's Access and River Road South Fisherman's Access	0.5 acre	Improved access for angling and compatible uses along the Provo River corridor (walking, wildlife viewing, and photography). Site facilities include vault restrooms, fenced parking, trash receptacles, and educational displays. Brief foot trails lead from the parking areas to the river, where foot traffic disperses.	River Road North Access is on the north side of River Road about 0.28 mile west of US-40; River Road South Access is on the south side of River Road about 0.36 mile west of US-40

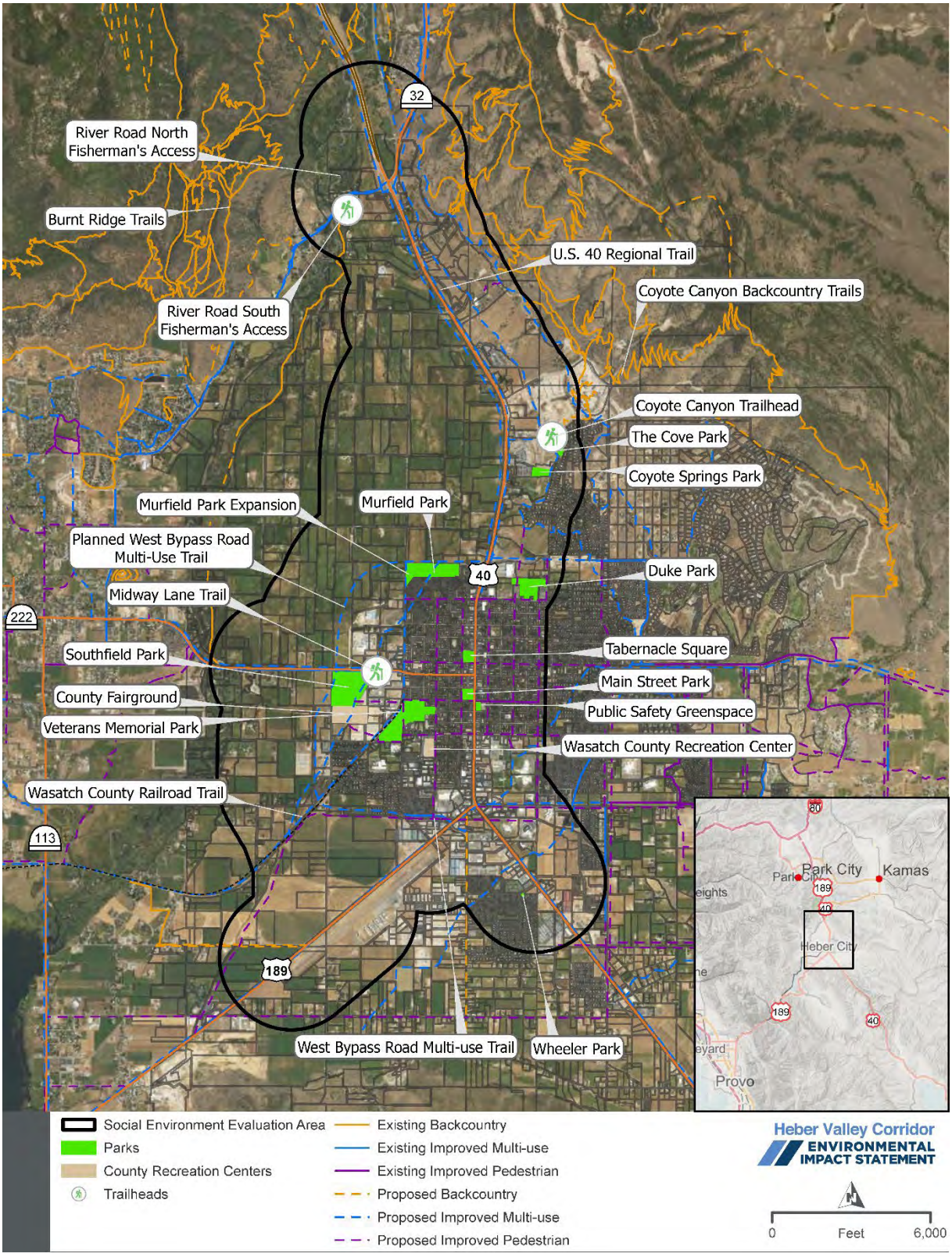
(*Continued on next page*)

Table 3.4-1. Recreation Resources in the Social Environment Evaluation Area

Recreation Resource	Acreage or Feet in Evaluation Area	Description and/or Location	Address or Location
Urban Gathering Places			
Tabernacle Square	4.0 acres	City block where Heber City Hall and Wasatch County Administration buildings are located. Heber City's vision is to transform the area into a unified civic campus that can host community events.	75 N. Main Street, Heber City
Public Safety Property	1.3 acres	Heber City acquired the property next to the Public Safety Building with the intent to construct a future civic building and/or green space. Additional discussions are needed to determine specifically how the site will be used.	301 S. Main Street, Heber City
Main Street Park	3.9 acres	Currently a large open park with a playground, pavilion, and stage which provides a venue for city events such as the Heber Valley Farmers' Market and Concerts in the Park. Heber City is planning improvements to better accommodate concerts and performances.	250 S. Main Street, Heber City

Sources: Heber City 2021a; UGRC 2025; Wasatch County 2016
Note: Acreage in the evaluation area was calculated from GIS-based inventory.

Figure 3.4-3. Recreation Resources in the Social Environment Evaluation Area



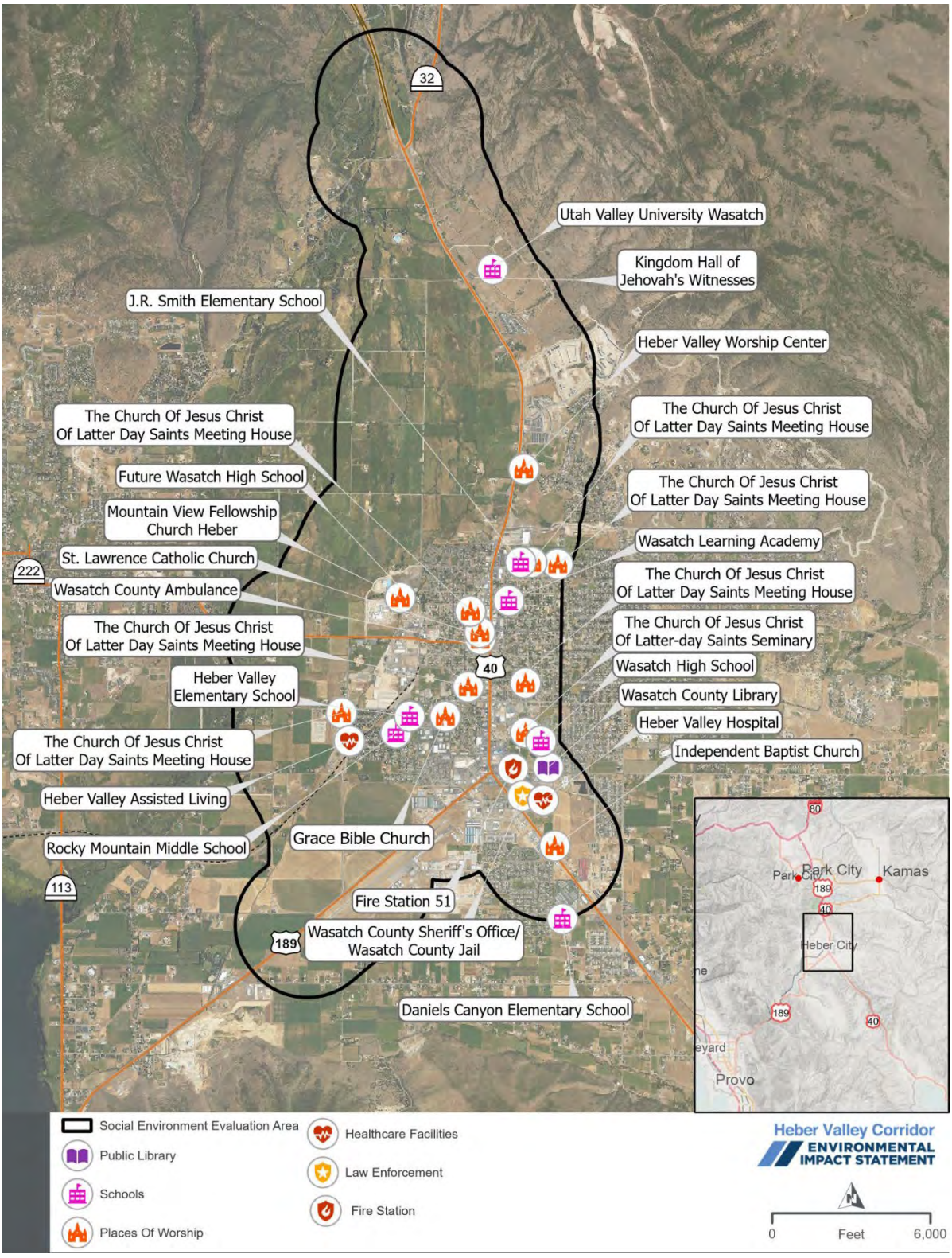
3.4.3.4 Community Facilities

Community facilities provide opportunities for the public to interact; help to define a city, community, or neighborhood; and contribute to community cohesion, personal beliefs, social well-being, safety, education, wellness, and quality of life. Community facilities generally include (but are not limited to) schools, parks, places of worship, and libraries. Schools, places of worship, and libraries in the social environment evaluation area are listed in Table 3.4-2 and shown in Figure 3.4-4 (UGRC 2025). During the scoping period, concerns were raised regarding congestion on Main Street resulting in reduced safety for students walking and driving to Wasatch High School.

Table 3.4-2. Community Facilities in the Social Environment Evaluation Area

Name	Address
Schools	
Daniels Canyon Elementary School	688 E. Wheeler Road, Heber City
Heber Valley Elementary School	730 South 600 West, Heber City
J.R. Smith Elementary School	235 East 500 North, Heber City
Rocky Mountain Middle School	800 W. School House Way, Heber City
Wasatch High School	930 South 500 East, Heber City
Wasatch Learning Academy	101 East 200 North, Heber City
Utah Valley University Wasatch	3111 College Way, Heber City
Mountainland Technical College Wasatch West Campus	200 East 800 South, Heber City
Iron Horse High School (anticipated opening 2026–2027 school year)	North of SR-113 and east of 1000 West
Places of Worship	
Kingdom Hall of Jehovah's Witnesses	2930 N. US-40, Heber City
Heber Valley Worship Center	1400 N. US-40, Heber City
Mountain View Fellowship Church Heber	271 North 600 West, Heber City
Independent Baptist Church	1811 S. US-40, Heber City
Grace Bible Church	345 West 600 South, Suite 130, Heber City
St. Lawrence Catholic Church	5 South 100 West, Heber City
The Church of Jesus Christ of Latter-day Saints seminary	249 East 800 South, Heber City
The Church of Jesus Christ of Latter-day Saints meeting house	1205 West 650 South, Heber City
The Church of Jesus Christ of Latter-day Saints meeting house	150 North 200 West, Heber City
The Church of Jesus Christ of Latter-day Saints meeting house	176 West 500 South, Heber City
The Church of Jesus Christ of Latter-day Saints meeting house	240 East 400 South, Heber City
The Church of Jesus Christ of Latter-day Saints meeting house	521 East 500 North, Heber City
The Church of Jesus Christ of Latter-day Saints meeting house	325 East 500 North, Heber City
Libraries	
Wasatch County Library	465 East 1200 South, Heber City
Administration Buildings	
Wasatch County Administration Building (planned)	Southwest quadrant of Southfield Road and SR-113
Wasatch County Courthouse (planned)	West side of south US-40

Figure 3.4-4. Community Facilities and Public Safety Facilities in the Social Environment Evaluation Area



3.4.3.5 Public Safety

Public safety focuses on how various emergency services including fire protection, ambulance services, and law enforcement satisfy the public safety needs of the community. Public safety plays an important role in fostering community cohesion and social interaction by ensuring the safety of the community. An effective public safety presence, safe streets, and safe homes contribute to quality of life.

As listed in Table 3.4-3 below and shown in Figure 3.4-4 above, there are one law enforcement station, one correctional facility, two healthcare facilities, one fire station, and one planned fire station in the social environment evaluation area.

Table 3.4-3. Public Safety Facilities in the Social Environment Evaluation Area

Name	Address
Law Enforcement Stations	
Wasatch County Sheriff's Office	1361 S. US-40, Heber City
Correctional Facilities	
Wasatch County Jail and Adult Probation and Parole Office	1361 S. US-40, Heber City
Healthcare Facilities	
Heber Valley Assisted Living	905 Southfield Road, Heber City
Heber Valley Hospital	454 E. Medical Way, Heber City
Rocky Mountain Care Rehabilitation Center	544 East 1200 South, Heber City
Wasatch County Ambulance	95 South 100 West, Heber City
Fire Stations	
Fire Station 51	251 East 1200 South, Heber City
Fire Station (planned)	Intersection of Fitzgerald Road and US-40

3.4.3.6 Utilities

UDOT contacted local municipalities and public and private utility providers that operate utility infrastructure in and adjacent to the social environment evaluation area. Table 3.4-4 lists these utility providers and the locations of their utility infrastructure.

Table 3.4-4. Utilities in the Social Environment Evaluation Area

Utility Provider	Utility Type	Utility Location*
Heber Valley Special Service District	Wastewater treatment	Sewer farm located northwest of Heber Valley Airport on the east and west sides of Southfield Road
Heber City Water Department	Water and sewer	Southfield Road, 1200 South, 650 South, 100 South, and US-40
Heber Light and Power Company	Electric	Southfield Road, 1140 West, and 650 South
Dominion Energy	Gas	North and south sides, and east and west sides, of US-40
Rocky Mountain Power	Electric	North and east sides of US-40
Strata	Fiber	South and west sides of US-40
All West Communications	Fiber	South and west sides of US-40

Note: The utility locations in the table are for each provider's major facility in the evaluation area.

Heber Valley Special Service District (HVSSD). The Heber Valley Special Service District is the regional wastewater treatment provider that receives and processes wastewater from Heber City, Midway, and parts of Wasatch County. HVSSD owns and manages the "sewer farm," which is land located northwest of the Heber Valley Airport where HVSSD disposes of treated wastewater by farming alfalfa during the irrigation season.

What is the sewer farm?

The sewer farm, located northwest of the Heber Valley Airport, is the land owned and managed by HVSSD where treated wastewater is disposed of by farming alfalfa during the irrigation season.

HVSSD does not have a permit to discharge wastewater to the Provo River and must instead dispose of the wastewater on land. Aerated lagoons and mechanical processes stabilize contaminants in the wastewater, then the wastewater is applied by a sprinkler system onto the sewer farm located northwest of the airport. Alfalfa that is grown on the farm absorbs leftover nutrients and is then harvested and auctioned to area farmers to offset costs (HVSSD 2023).

Not all of the land on the sewer farm is usable for disposing of wastewater; the pivot sprinkler system cannot reach the corners of square areas, and wastewater may not be applied within a safety buffer from roads, fences, or houses (to account for wastewater spray drifting from the sprinklers). The buffer requirements are specified in Utah Administrative Code (UAC) Rule (R) 317-3-11.5(D)(2): "Spray irrigation must be at least 100 feet from areas intended for public access." The HVSSD sewer fields were constructed before this regulation was enacted and currently have a 30-foot buffer from roads and fences and a 100-foot buffer from houses. UAC R317-3-11.5(A)(1) states that the use of treated wastewater effluent (Type II) is allowed where human exposure is unlikely, including in rights-of-way for limited-access highways. However, if a multi-use trail is located within the highway right-of-way, the 100-foot buffer requirement would apply to the trail because the general public would have access to it.

The sewer farm is bisected by Southfield Road. HVSSD uses a swather to cut the alfalfa and a tractor-trailer to haul off the cut alfalfa. HVSSD does not currently have concerns with its equipment crossing Southfield Road because the road is only two lanes wide and the amount of traffic on the road is low.

In 2021, HVSSD had 455 acres available for irrigation, but expanded with approximately 190 additional acres of land to accommodate the area's growth (HVSSD 2021).

3.4.4 Environmental Consequences and Mitigation Measures

This section discusses the direct and indirect effects of the project alternatives on the social environment in the social environment evaluation area.

The action alternatives were evaluated equally in this section. However, to reduce repetitive discussions, if impacts from one alternative would be the same as impacts from a previously discussed alternative, the text is not repeated but instead references the previous analysis.

3.4.4.1 No-action Alternative

This section describes the impacts to the social environment from the No-action Alternative.

With the No-action Alternative, the Heber Valley Corridor Project would not be implemented. Therefore, there would be no change to recreation resources, community services, public safety, or utilities from the project. The No-action Alternative would not affect neighborhood and community cohesion. The availability of recreation resources, community facilities, public safety resources, and utilities would not change, although the demand for these resources would increase with regional growth. The US-40 Regional Trail between SR-32 and 900 North would be constructed in a piecemeal fashion as development occurs, and it could take longer for a continuous trail to be constructed. No multi-use trail would be constructed on the west side of Heber City (along the planned Heber Valley Corridor route).

According to the *Heber City Envision 2050 General Plan*, Heber City plans to redesign three public spaces to attract people to increase activity downtown: Tabernacle Square, Main Street Park, and the front lawn of the Heber City Police Department (Heber City 2023). The action alternatives would reduce traffic on the downtown segments of US-40 (Main Street) by about 7,000 to 9,000 vehicles per day (about 16% to 21%) compared to the No-action Alternative in 2050. With the No-action Alternative, congestion on Main Street would not be reduced, thereby negatively affecting these gathering places. Increased congestion on Main Street could negatively affect the experience for residents who dine, shop, work, or travel on Main Street. These negative effects could be due to perceived traffic noise, lower level of comfort for pedestrians crossing Main Street, and longer drive times. As traffic and congestion increase, access from adjacent residential neighborhoods would become more difficult with the increase in congestion.

With the No-action Alternative, emergency response times to Heber Valley Hospital would increase by 2050 because of increased congestion along Main Street. The existing travel time from SR-32 to the hub intersection is 8:20 (minutes:seconds) during the PM (afternoon) peak hour; in 2050, the travel time is projected to increase to 20:30 (an increase of 146%) if no changes are made to the roadway network (see Appendix 2C, *Action Alternatives Traffic Memo*). To avoid the congestion, emergency responders might decide to take a longer route, which might result in slower response times. Slower emergency response times could lead to residents feeling that they are less safe and have a lower quality of life.

The rural feel of the Heber Valley area is an important characteristic to many residents. However, planners with Heber City and Wasatch County expect that the social environment evaluation area will develop in a similar manner and density with or without the Heber Valley Corridor Project (for more information, see Section 3.2, *Land Use*).

3.4.4.2 Action Alternatives

3.4.4.2.1 Common Impacts

Alternatives A and B share the same footprint along the Western Corridor segment of the proposed Heber Valley Corridor. This segment is west of the urban area of Heber City. Common impacts from the two alternatives are discussed first, followed by the impacts of each alternative individually if applicable.

Communities

Overall, neither alternative would have a substantial direct or indirect effect on neighborhood and community cohesion. South of 900 North, both alternatives share a new alignment west of Heber City's urban area, so would not divide any densely developed neighborhoods. The zoning in this area is rural, zoned mostly A-20 (agricultural with one residential unit per 20 acres) and to a lesser degree zoned RA-1 and RA-5 (residential mixed with agricultural). Because this area is already rural, residents drive or walk along side roads to connect with neighbors.

At the south end of the corridor where both alternatives tie into US-189 and south US-40, the combination of free-flow ramps and one-way local access roads would change traffic patterns from existing conditions. There would be free-flow ramps connecting the Western Corridor segment to US-40 via 1300 South south of downtown, and one-way local access roads on either side of the free-flow ramps. Industrial Parkway would no longer connect across 1300 South but would feature right-in/right-out movements onto the local access roads. Both action alternatives eliminate the Southfield Road connection to US-189, with connection to US-189 now provided by the Western Corridor segment. Access to the Western Corridor segment would not be as direct, and travelers would need to connect to the Western Corridor segment by using local roads and the one-way access roads or via the interchange at SR-113, potentially creating some out-of-direction travel for certain trips.

Even given these changes in travel patterns from existing conditions, it is unlikely that the construction of either action alternative would change community interactions and attendance at local shopping areas, schools, parks, or places of worship, or change the overall cohesiveness of the community. It is also unlikely that the alternative would affect other aspects of neighborhood and community cohesion such as the length of residency, the presence of families, or community leadership and activism.

Quality of Life

Residents in the Heber Valley feel that they have a high quality of life because of the surrounding aesthetics, mix of urban and rural land uses, established neighborhoods, and access to recreation opportunities. Because both action alternatives are grade-separated free-flow solutions, they would change the feel in the community from rural and agrarian to more urban along the entire corridor, both on new alignments and on existing roads. To some residents, this would change the rural aesthetic they enjoy to a more urban setting, thus reducing the aesthetic quality and their ability to enjoy wildlife viewing while walking or biking on

existing county roads in the north and south fields. The visual impact of both alternatives would also be felt on the southern end of the corridor, where the through lanes of 1300 South would be elevated which would impact the views and feel of the nearby residential neighborhoods.

For both action alternatives there would be a decrease in traffic volumes on local roads, which could improve the quality of life for residents along those streets and in the local neighborhoods. Both action alternatives would specifically improve quality of life related to preserving and redeveloping Heber City's downtown by reducing traffic volumes along Main Street. Truck traffic volumes on Main Street would likely be reduced by offering PM peak hour travel time savings compared to staying on Main Street for truck drivers traveling between US-189 and US-40 north of the Heber Valley and for trips between north US-40 and south US-40.

Both action alternatives perform similarly for traffic volume reduction, which would help Main Street feel quieter and safer for patrons of restaurants and cafes and help Heber City implement their vision for a historic town center. It would also help people access businesses along Main Street by making it easier to turn into and out of business driveways.

Recreation Resources

Both action alternatives would provide direct access to recreation facilities including Muirfield Park, Southfield Park, and the planned Wasatch County Railroad Trail from the Bypass Road Multi-use Trail. Both action alternatives would impact the Midway Lane Connector Trail, which currently runs along the south side of SR-113/Midway Lane. The current design for the single-point urban interchange (SPUI) at SR-113 has the trail traveling south along the west side of the southbound entrance ramp and crossing over the Western Corridor segment on a pedestrian overpass where it then travels east to Southfield Road (providing direct access to Southfield Park) and travels north along Southfield Road connecting back to the Midway Lane Connector Trail. This would provide non-motorized users a safer route than traversing through the SPUI but would increase out-of-direction travel for active transportation users traveling along the path compared to existing conditions. There would not be any impacts to Murfield Park or Southfield Park from either action alternative.

Community Services

Both action alternatives would require a partial acquisition (that is, a narrow strip of right-of-way) from the Kingdom Hall of Jehovah's Witnesses for the construction of the trail. Alternative A would require about 0.31 acre of right-of-way from the Heber Valley Worship Center, and Alternative B would require about 0.03 acre from this same property. The land needed from these facilities is immediately adjacent to US-40. No driveways, parking areas, or buildings associated with these places of worship would be affected. No other community facilities would be directly impacted. Both action alternatives would facilitate access to the future Iron Horse High School because the school would be close to the proposed interchange at SR-113. The signalized intersection on SR-113 with the high school is expected to function at level of service (LOS) C or better with the Heber Valley Corridor. Reduced congestion on Main Street would also improve safety for students walking and driving to and from Wasatch High School to the east.

Public Safety

Both action alternatives would improve emergency response times compared to the No-action Alternative on Main Street. The travel time from SR-32 to the hub intersection would be reduced from 20:30 (minutes:seconds) to 11:50 with Alternative A or to 10:15 with Alternative B, a decrease of 42% to 50% (see Appendix 2C, *Action Alternatives Traffic Memo*). Both action alternatives would also improve overall safety along the corridor by converting at-grade intersections to grade-separated interchanges, reducing high speed conflict points and the likelihood of associated crashes. Both Alternative A and Alternative B would require a partial acquisition of about 1.01 acre of right-of-way from the Wasatch County Sheriff's Office and the Wasatch County Jail. The land needed is immediately adjacent to US-40. No driveways, parking areas, or buildings would be affected.

Utilities

Both action alternatives would require acquisition of about 59.5 acres of land from the sewer farm for right-of-way and the potential acquisition of an additional 4.7 acres because the land remaining would be too small to use for disposing wastewater or because access would be cut off. This would result in a total of about 64.2 acres impacted, as shown in Table 3.23-1 and Figure 3.4-5.

Table 3.4-5. Sewer Farm Impacts

In acres

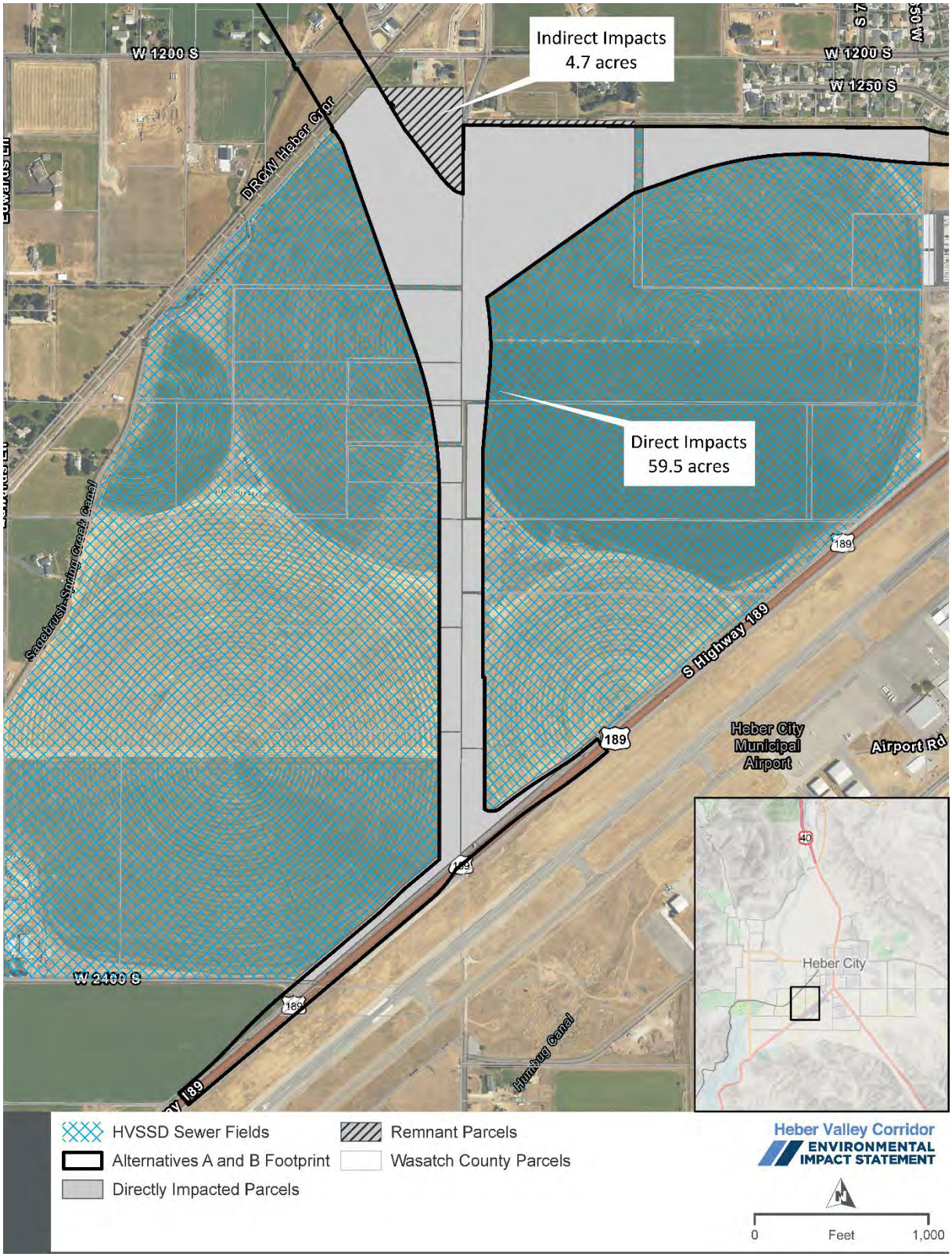
Type of Impact	No-action Alternative	Alternatives A and B
Right-of-way	0	59.5
Remnant land	0	4.7
Total impact	**0**	**64.2**

UDOT would need to provide suitable land with the same number of irrigable acres as replacement. The freeway would be located on Southfield Road, which would divide the sewer farm with a high-speed, limited-access facility. Access across the freeway would be provided for HVSSD by an underpass under the freeway.

In addition, both action alternatives could temporarily disrupt other utility services during construction. The construction contractor would contact local businesses and residences if any loss of service is required during construction.

In general, utilities are considered to be permanently affected by an alternative if the utility would need to be relocated (that is, lowered farther into the ground or moved to the edge of a new roadway). Both action alternatives would cross some utilities (including communication, gas, water, sewer, electrical, and storm drainage). The effects on these utilities would be determined by UDOT by working with local jurisdictions and utility providers during the final design of the selected alternative. Impacts to these utilities can often be avoided during final design. UDOT would continue to communicate with local jurisdictions and utility providers throughout the project to minimize service disruptions.

Figure 3.4-5. Sewer Field Impacts from Alternative A



3.4.4.2.2 Alternative A Specific Impacts

The impacts to recreation resources, community services, and utilities are the same for both action alternatives and are not discussed below.

Communities

Alternative A would replace all signalized and unsignalized intersections along US-40 north of 900 North with grade-separated interchanges at SR-32, Potter Lane/College Way, and Coyote Canyon Parkway. This would require local access along this portion of the corridor to use frontage roads to access US-40, which could result in some out-of-direction travel for some trips, but should not appreciably alter community interactions. For more information on local access to north US-40, see Section 3.7, *Transportation*.

Quality of Life

Grade-separating the intersections on north US-40 for Alternative A would change the quality of life for residents of the existing and new residential developments on the east side of US-40 because the elevated roadway and interchange footprints would alter their views of the north fields.

Public Safety

Alternative A would improve safety on US-40 between SR-32 and 900 North because of the addition of a cast-in-place concrete barrier separating northbound and southbound traffic as well as the elimination of at-grade intersections discussed above. However, these interchanges and associated frontage roads along north US-40 would require out-of-direction travel for some local trips, which could increase emergency response times by requiring a longer trip than under existing conditions.

3.4.4.2.3 Alternative B Specific Impacts

The impacts to recreation resources, community services, and utilities are the same for both action alternatives and are not discussed below.

Communities

Between SR-32 and Potter Lane/College Way, local access would be changed because discontinuous, two-way frontage roads would be added to consolidate driveway and local road access (for more information, see Section 3.7, *Transportation*). Where Alternative B would extend from Potter Lane/College Way to 900 North on a new alignment through the north fields, the area is agricultural and is zoned A-20 (agricultural with one residential unit per 20 acres). Because this area is already rural, residents already drive or walk along side roads to connect with neighbors. This alternative would not change the connectivity of the road network because connectivity would be maintained by constructing underpasses under the North Fields Extension segment of the proposed Heber Valley Corridor. Overall, Alternative B would have no substantial direct or indirect effects on neighborhood and community cohesion.

Quality of Life

Alternative B would have greater impacts to the north fields compared to Alternative A because it would be constructed on new alignment between Potter Lane/College Way and 900 North. Extending Alternative B through the north fields would change the setting in the north fields from rural, undeveloped agricultural land to more urban. Based on public comments, many residents believe that Alternative B would be more damaging to the aesthetic quality of the north fields and residents' ability to enjoy wildlife viewing while walking or biking on existing county roads.

Both action alternatives would likely require wetland mitigation at a minimum ratio of 2:1 (for every 1 acre of wetlands impacted, UDOT would need to provide 2 acres of wetland mitigation). A wetland mitigation site would provide the benefits of protected open space with ecological benefits, such as improved water quality, groundwater recharge, flood control, and wildlife habitat, in perpetuity. For more information about wetland mitigation, see Section 3.14.4.5.3, *Mitigation Measures for Aquatic Resources Impacts*. This mitigation ratio could be as high as 15:1 depending on the specific mitigation needs determined in consultation with USACE. Once sites are designated as wetland mitigation sites, the sites have the potential to limit sprawl based on where they are located because they are protected in perpetuity and cannot be developed. UDOT is committed to prioritize wetland mitigation in the north fields, and locating wetland mitigation sites in the north fields could limit development and provide a scenic buffer. Because Alternative B would have greater direct impacts to wetlands, it would also require more wetland mitigation, ultimately resulting in more protected land.

With Alternative B, there would be less traffic on local roads compared to the No-action Alternative except on 1300 South, where traffic would increase by 1,000 vehicles per day (vpd) over the No-action Alternative on the elevated road and frontage roads immediately west of US-189 (an increase of 12%). This traffic would be distributed between the elevated through lanes and the one-way frontage roads, and, with Alternative B, the traffic volume on the elevated through lanes would be 2,400 vpd. This is less traffic than existing conditions on 1300 South (4,800 vpd) and less than the 2050 no-action conditions (8,500 vpd). The traffic volume on the through lanes is likely more impactful to the quality of life of the local residents in the neighborhood to the north of 1300 South than is the traffic volumes on the frontage roads.

Alternative B would provide an alternate route to US-40 between Potter Lane/College Way and 900 North, thereby reducing traffic by 7,600 vpd compared to the No-action Alternative on US-40 (a reduction of 16%). Residents and businesses along north US-40 would likely see this as an improvement to their quality of life because accessing homes and businesses in this area would be easier. There would also be less out-of-direction travel on this section of US-40 for Alternative B compared to Alternative A because there would not be frontage roads, so this alternative would preserve more-direct access to homes and businesses.

Additionally, Alternative B might be more attractive for commercial truck drivers than Alternative A because it would have the faster regional travel time, which would improve quality of life on Main Street through downtown by reducing truck volumes.

Public Safety

The impacts to public safety from Alternative B would be similar to those from Alternative A, although there would not be grade-separated interchanges and frontage roads between Potter Lane/College Way, so emergency responders would have more-direct access to homes and business along this section of north US-40. More conflict points between vehicles would remain along this section because it would remain at grade, but it would have lower traffic volumes compared to the No-action Alternative, so it would still represent a safety improvement. A center median would be installed on US-40 between SR-32 and the North Fields Extension segment of the proposed Heber Valley Corridor but not on the remainder of the north US-40 corridor.

3.4.4.3 Mitigation Measures

3.4.4.3.1 Mitigation for Impacts to Recreation Resources

Access to recreation resources will be maintained during construction to the maximum extent practicable. The Midway Lane Connector Trail would be closed during the construction of the new alignment around the SR-113 SPUI, but a temporary detour would be provided. UDOT will implement a public involvement program to inform recreation users of closures of roads and recreation sites.

3.4.4.3.2 Mitigation for Impacts to Utilities

UDOT will provide suitable replacement land to offset impacts to the sewer farm, providing an equivalent number of irrigable acres for disposing of wastewater. Suitable replacement land is subject to the Utah Division of Water Quality's approval and land in the Heber Valley is a limited commodity, but HVSSD has identified potential replacement parcels. If replacement land is not located adjacent to HVSSD's sewer pipe, which transports wastewater from the treatment facility to the sewer farm, UDOT will compensate HVSSD to construct a new pipe to carry wastewater to the replacement property. During right-of-way negotiations, UDOT will evaluate necessary costs to mitigate for impacts to HVSSD, and these negotiations will likely require additional analysis and design for the selected alternative. UDOT will provide access for HVSSD equipment (swather and bailer) across the Heber Valley Corridor through an underpass. Conversations between UDOT and HVSSD are ongoing and will continue through final design and construction of the selected alternative.

All alternatives could temporarily disrupt other utility services during construction. The impact to these utilities (including communication, gas, water, sewer, electrical, and storm drainage) would be determined by UDOT by working with local jurisdictions and utility providers during the final design of the selected alternative. Impacts to these utilities can often be avoided during final design. UDOT will continue to communicate with local jurisdictions and utility providers throughout the project to minimize service disruptions.

3.5 Economic Conditions

3.5.1 Introduction

Section 3.5 examines the economic characteristics in the economic conditions evaluation area and evaluates how these characteristics would be affected by the project alternatives. The economic analysis considers the economic conditions in Wasatch County and Heber City.

Economic Conditions Evaluation Area. The economic conditions evaluation area includes the businesses adjacent to the project alternatives and businesses on US-40 in Heber City that could be affected by changes in traffic patterns caused by the project alternatives. These areas include the US-40 corridor north of and through Heber City and the areas on the north, west, and south sides of Heber City where the project alternatives are located.

Generally, commercial areas are located near the project alternatives on the south side of Heber City between Industrial Parkway and US-40. There is also the New London development near 900 North and a few smaller commercial areas on US-40 north of downtown Heber City and on SR-113 on the west side of the city. The action alternatives on the west side of Heber City are located on lands that are institutional, agricultural, or residential.

The economic conditions in Heber City and Wasatch County are also provided as context for regional economic activity.

3.5.2 Regulatory Setting

FHWA's Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987), recommends that an economic analysis, if applicable, should discuss the following impacts:

- Economic impacts to the regional and/or local economy such as development, taxes and public expenditures, employment opportunities, accessibility, and retail sales
- Impacts to the economic vitality of existing highway-related businesses (for example, gas stations and motels) and the overall local economy
- Impacts of the proposed alternatives on established business districts, and any opportunities to minimize or reduce such impacts by the public and/or private sectors

For the economic evaluation of each action alternative, UDOT considered how the alternative's construction and operation would change both local and regional economic activity. The economic indicators that were evaluated were direct impacts and property impacts to businesses, potential economic impacts from construction-related congestion and delay, potential economic impacts due to changes in traffic patterns from the operation of the alternative, and potential impacts to agricultural economics.

3.5.3 Affected Environment

3.5.3.1 Wasatch County Economic Conditions

Wasatch County has had steady economic growth since 2010 with the exception of a dip in 2020 during the COVID-19 pandemic (UDWS 2024a). Since the beginning of the COVID-19 pandemic in early 2020,

employment increased in Wasatch County until fall 2024; over the 1-year period from September 2023 to September 2024, the number of nonfarm jobs in the county decreased by 0.2% (UDWS 2024a). In November 2024, the unemployment rate for Wasatch County was about 3.4%, which was lower than the national unemployment rate of 4.2% for that month and slightly lower than the overall Utah unemployment rate of 3.5% for that month.

Wasatch County has a diverse economy. In September 2024, government was the largest employment section with 2,278 employees, followed by construction (2,067 employees), trade/transportation/utilities (1,868 employees), leisure and hospitality (1,825 employees), education/health/social services (1,513 employees), and professional/business services (1,344 employees). In 2023, the median household income in Wasatch County was $115,146 (U.S. Census Bureau 2024), which was higher than the median household income of $91,750 for Utah overall (U.S. Census Bureau 2023).

In September 2024, total nonfarm employment in Wasatch County was estimated to be about 12,455 jobs (UDWS 2024a). In 2023, the largest employer in the county was the Wasatch County School District with 1,000 to 1,999 employees (UDWS 2024b). Other major employers were Wasatch County, Summit Line Construction, Intermountain Health Care, Walmart, the State of Utah, VR Club, Redmond Minerals, Zermatt Resort, and Smith's Food and Drug (UDWS 2024b).

3.5.3.2 Freight Links

US-40 and US-189 are the only two principal arterials in the Heber Valley, and they are the most important transportation links in Wasatch County for moving goods and services and connecting residents to the Wasatch Front, Park City, and the Uinta Basin. To the southeast, US-40 provides a connection to the Uinta Basin (which includes Duchesne and Uintah Counties) and continues as a major east-west highway to the East Coast. To the southwest, US-189 provides a connection to Utah County and I-15 through Provo Canyon.

What is a principal arterial?

A principal arterial is a higher-capacity, higher-speed regional roadway with some limitations on access. Principal arterials are typically at grade and have lower speeds and more access than a freeway or expressway.

The *Utah Freight Plan* (UDOT 2017a) identifies US-40 and US-189 as secondary but important freight routes in Utah. Both US-40 and US-189 are included in the National Network of highways for large trucks.

US-40 is a major regional freight corridor and is the primary route for tanker trucks carrying crude oil from the Uinta Basin to refineries along the Wasatch Front. About 600 to 700 large combination vehicles known as supertankers pass through Heber City on Main Street each day (Appendix 1A, *Existing and 2050 No-build Traffic Report*). Oil field support equipment and supplies also travel on this highway. The number or employees and the economic value of oil and gas production vary year to year based on underlying commodity prices, but the oil and gas sector is usually one of the top two or three industries for Duchesne and Uintah Counties. US-40 also provides a connection to northwest Colorado, which contributes some regional truck traffic.

US-189 is a secondary freight route that connects US-40 with I-15 via Provo Canyon. US-189 has restrictions and prohibits vehicles and loads over 10 feet wide. However, UDOT is planning improvements to US-189 that could remove these restrictions and anticipates that construction on these improvements will begin in 2025. Some trucks use the Provo Canyon route as an alternative to the steep grades on I-80 and US-40 when going to and from Salt Lake City.

3.5.3.3 Local Economic Conditions

To determine the current economic conditions in the economic conditions evaluation area, UDOT discussed current, pending, and future developments with local economic development officials. In its general plan and zoning map, Heber City has designated the US-40 and US-189 corridors as having commercial or industrial uses. Additionally, commercial, industrial, or mixed-use commercial areas are designated on SR-113 on the west side of Heber City. Most of the other areas of Heber City are residential, agricultural, or open space/recreation land uses (Heber City 2023).

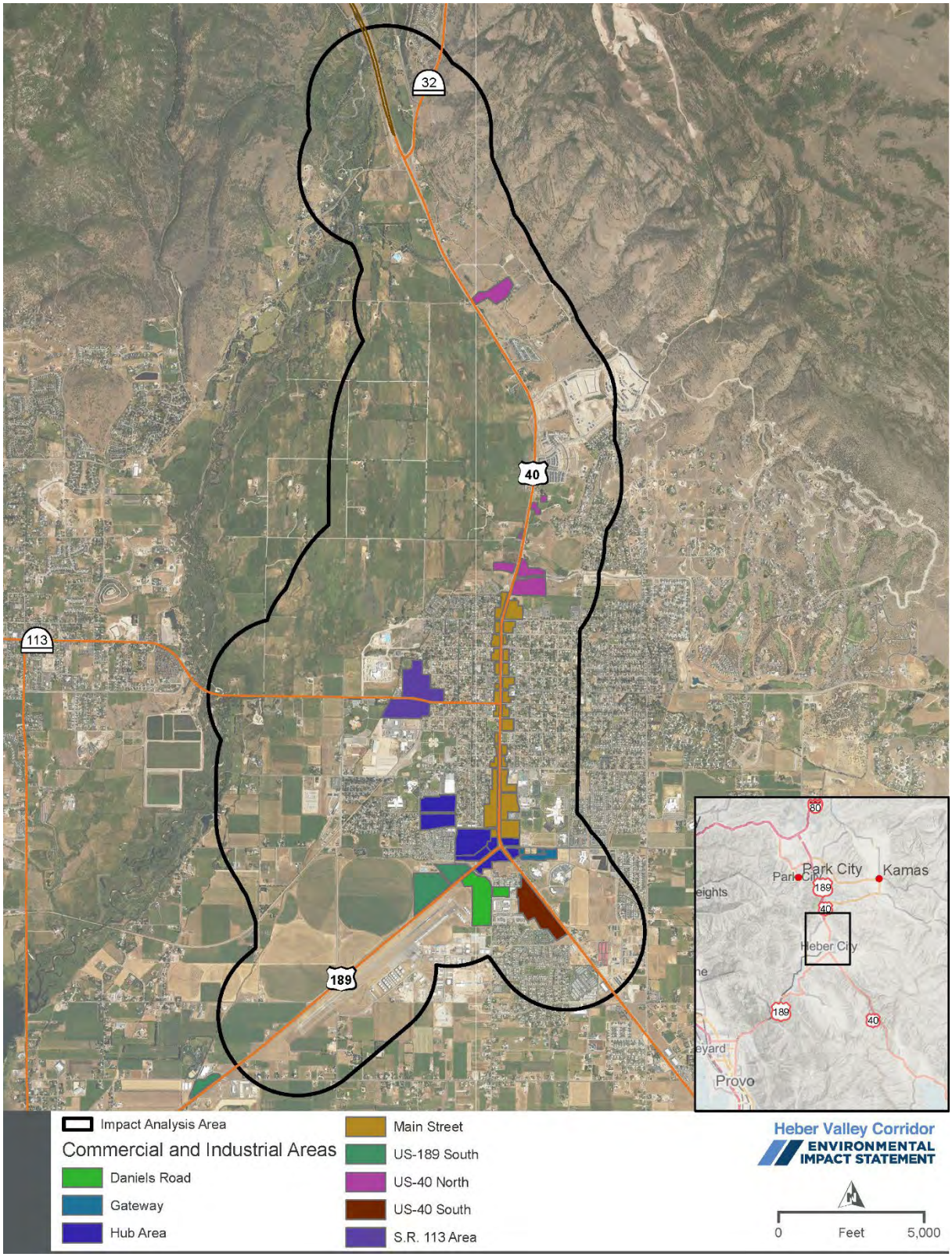
The Wasatch County zoning map designates areas west of Heber City as agricultural, residential agricultural, and public facility.

Consistent with Heber City and Wasatch County zoning, most businesses in the evaluation area are located along US-40 between 900 North and 2300 South in the industrial district on the southwest side of Heber City between US-189 and Daniels Road and near SR-113 between 900 West and US-40 (Figure 3.5-1). These locations are also encompassed by the Community Redevelopment Agency (CRA). The CRA allows Heber City to reinvest a portion of taxes collected within the downtown area to revitalizing downtown. Establishing a CRA for downtown Heber City helps the City meet the public's vision, including landscaping, aesthetic improvements, parking solutions, better infrastructure, a more walkable downtown, and enhanced shopping, dining, and entertainment opportunities.

The two main types of businesses in the economic conditions evaluation area are destination businesses and convenience businesses. This EIS makes this distinction because customers use these types of businesses differently and because most available studies regarding the economic effects of changes in access distinguish between these business types.

- **Destination businesses** are businesses that customers plan to visit in advance of their trip. Examples include trucking companies, vehicle repair shops, specialty stores, doctor's or dentist's offices (and most offices), major retailers, insurance agencies, and sit-down restaurants. Most of these businesses are located on US-40 between 900 North and 2300 South, in the industrial district on the southeast side of Heber City between US-189 and Daniels Road, or on SR-113 near 800 West.
- **Convenience business** are those that customers visit more on impulse or when passing by, businesses such as convenience stores, gas stations, and fast food restaurants. Convenience businesses are also referred to as "drive-by" businesses. Heber City has six gas stations and convenience stores located on US-40 between 900 North and 1600 South. Heber City also has several fast-food restaurants located on US-40 between 900 North and 1200 South.
- The businesses on US-40 between 900 North and 1300 South and on SR-113 between 900 West and US-40 include destination businesses (for example, grocery stores, retail shops, professional services, sit-down restaurants, and so on) and convenience businesses (for example, convenience stores, gas stations, or fast food restaurants). In the industrial district on the southwest side of Heber City between US-189 and Daniels Road, most of the businesses are destination businesses, and these are more industrial and commercial (such as construction supplies, home improvement stores, distribution centers, and self-storage units).

Figure 3.5-1. Commercial and Industrial Areas in the Economic Conditions Evaluation Area



3.5.3.4 Agricultural Economic Conditions

According to officially tracked employment numbers, there are an estimated 82 jobs related to agriculture in Wasatch County, which is less than 1% of the total employment in the county (UDWS 2024a). UDOT received comments during the EIS process stating that several property owners raise livestock and grow alfalfa and/or hay in the north fields east of the Provo River, west of US-40, and north and west of Heber City. These property owners use the county roads (1750 West, 1130 West, Northfield Road [600 West], 3000 North, 2400 North, 1800 North, and 1200 North) in the north fields to move livestock from pasture to pasture and to move hay and farming equipment.

3.5.4 Environmental Consequences and Mitigation Measures

3.5.4.1 No-action Alternative

With the No-action Alternative, the Heber Valley Corridor Project would not be implemented, and the traffic congestion and safety conflicts on US-40 would become worse. Travel demand modeling indicates that many segments of US-40 and many signalized intersections on US-40 would have failing operations (level of service F) in 2050 with the No-action Alternative.

This type of congestion would most likely affect convenience businesses, since customers visit more on impulse or when passing by. It could result in fewer people being willing to stop and access the businesses on US-40 in Heber City due to the difficulty of entering or exiting a business. The increased congestion could also deter future businesses from locating in Heber City, since higher levels of congestion and increased travel time result in increased cost to businesses.

Overall, at a regional scale, economic growth in Wasatch County would continue and would not substantially change with the No-action Alternative. However, some local economic impacts (both positive and negative) from the increased congestion could occur to businesses on US-40 in Heber City.

The businesses most likely to be affected by increased traffic congestion would be the gas stations, convenience stores, and fast food restaurants on US-40 in Heber City. The increased congestion would provide more travelers going past these convenience businesses who potentially could stop at these businesses and increase revenue, which would be considered a positive economic impact. Conversely, the increased congestion could also make these businesses more difficult to access and reduce business if travelers decide to avoid the businesses and go to other convenience businesses in less congested areas. This reduction in the number of business patrons could decrease revenue for the businesses in Heber City on US-40, which would be considered a negative economic impact.

Destination businesses—such as grocery stores, sit-down restaurants, and major retailers (such as Walmart or Sportsman's Warehouse, gyms, and other service or retail businesses)—would not likely be as affected by the increased congestion on US-40 because patrons plan to visit these businesses for specific needs and would be less deterred by heavy congestion. However, the increased congestion with the No-action Alternative could translate into increased labor and fuel costs associated with longer travel times, thereby making these businesses less competitive. Similarly, increased congestion on Main Street with the No-action Alternative could make Main Street's retail businesses and restaurants less attractive destinations for customers.

3.5.4.2 Action Alternatives

3.5.4.2.1 Common Impacts for Both Action Alternatives

Regional Economic Impacts

Less congestion into and out of Heber City on US-40 could translate into reduced labor and fuel costs associated with shorter travel times, thereby making businesses more competitive with companies outside this area. In general, the improved mobility and access resulting from either of the action alternatives' capacity and safety improvements would benefit the regional economy, although the benefits would be minor. The improved mobility would be a benefit to regional freight trips and businesses.

As shown in Table 3.5-1, both action alternatives would save truck drivers time during the PM peak hour if they were to take a Heber Valley Corridor route between SR-32 and US-189 compared to staying on Main Street.

Table 3.5-1. PM Peak-hour Regional Travel Times Comparison by Route

Endpoints	Direction	Route	Travel Time (minutes:seconds)			
			2019	2050		
			Existing	No-action	Alternative A	Alternative B
SR-32 to US-189	SB	Heber Valley Corridor	—	—	7:25	6:15
		Main Street	10:55	23:40	15:05	13:25
	NB	Heber Valley Corridor	—	—	7:25	6:15
		Main Street	10:50	22:00	12:20	12:55
SR-32 to US-40	SB	Heber Valley Corridor	—	—	8:10	6:55
		Main Street	9:15	21:50	13:35	11:55
	NB	Heber Valley Corridor	—	—	8:10	6:55
		Main Street	8:40	18:40	10:15	10:55

Source: Appendix 2C, *Action Alternatives Traffic Memo*
Definitions: NB = northbound; SB = southbound

Heavy trucks can exit the south end of Heber City's Main Street using one of two routes: US-40 southeast toward the Uinta Basin or US-189 southwest toward Utah Valley. Oil and gas trucks almost exclusively use southeast US-40 because that is the route to access resource-extraction areas in the Uinta Basin.

Because the travel time for users on either of the action alternatives would be faster on the Heber Valley Corridor than on Main Street during the PM peak hour, UDOT anticipates that most commercial truck trips would use the new Heber Valley Corridor and would avoid using Main Street during the PM peak.

Many other factors can influence a truck driver's route selection. Some are related to physical infrastructure. Others are related to perception. For example, both action alternatives offer a route with fewer interruptions from traffic signals than a Main Street route. Fewer starts and stops at signals can be an incentive for a regional truck driver. Some drivers might prefer to stay on a straight path because navigating turns with a long vehicle is more challenging. Although the Heber Valley Corridor path requires more turning movements than staying on Main Street, the turn movements are free-flow movements served by directional ramps

instead of signalized or stop-controlled turns. The perception of which route is faster or shorter in length is not always accurate. Finally, some truck drivers might be required by their company to take prescribed routes, or their route might be influenced by electronic navigation systems.

Lastly, an important note to this analysis is that the travel time comparisons are for PM peak hours only. Trucks travel on the region's highways at all hours of the day. Congestion diminishes outside peak hours, so there might be less incentive to take a longer-distance Heber Valley Corridor route during most other hours of the day.

The anticipated change in travel pattern with the action alternatives is consistent with Heber City's preference to incentivize commercial truck drivers to use the Heber Valley Corridor. Both action alternatives would also reduce the number of access points compared to the existing conditions and the 2050 no-action conditions. This reduction in the number of access points would improve safety and regional mobility.

Effects of Construction

The congestion associated with construction of the Heber Valley Corridor could cause increased travel delays and lost worker productivity where the construction would impact existing roads. Constructing roads on new alignments would not cause delay or congestion on existing roads except in areas where the new alignments would connect to the existing roads. The areas of potential construction delay or congestion impacts are the reconstruction of the North US-40 segment (Alternative A would reconstruct the North US-40 segment from SR-32 to 900 North; Alternative B would reconstruct the North US-40 segment from SR-32 to Potter Lane and add turn lanes at Commons Boulevard, Coyote Parkway, and 900 North), reconstruction of 1300 South between Industrial Parkway and US-189, and connections of the action alternatives to SR-113, Industrial Parkway, 300 West, US-189 and US-40 south of downtown Heber City. These impacts would affect both commuters and businesses that rely on these roads.

Temporary adverse impacts could also occur if business accessibility is reduced during construction in these locations. Construction impacts would be temporary but could substantially affect individual businesses depending on the length of construction. For businesses that experience short-term access and visibility problems during construction, a traffic access management plan will be developed and implemented by the construction contractor that maintains the public's access to the business during normal business hours.

Effects of Operation

For both of the action alternatives, adverse impacts from operation of the Heber Valley Corridor would be experienced primarily by convenience businesses, such as the gas stations, convenience stores, and fast food restaurants on US-40 between 900 North and 1200 South. As shown in Table 3.23-1, with Alternative A, the traffic on this segment of US-40 in 2050 would be 34,200 to 35,200 vehicles per day, which is 16% to 17% less than with the No-action Alternative. However, UDOT anticipates that the traffic in 2050 with Alternative A would be 21% to 23% higher than the existing (2019) traffic of 27,700 to 29,000 vehicles per day.

Similarly, as shown in Table 3.23-1, with Alternative B, the traffic on this segment of US-40 in 2050 would be 32,700 to 33,100 vehicles per day, which is 21% less than with the No-action Alternative for both segments. However, UDOT anticipates that the traffic in 2050 with Alternative B would be 14% to 18% higher than the existing (2019) traffic of 27,700 to 29,000 vehicles per day.

Table 3.5-2. Projected Traffic on US-40 in 2050

Vehicles per day

Segment	2019 Conditions	2050 No-action Alternative	2050 Alternative A	2050 Alternative B
900 North to Center St.	27,700	41,200	34,200	32,700
Center St. to 1200 South	29,000	42,000	35,200	33,100

Source: Appendix 2C, *Action Alternatives Traffic Memo*

Table 3.23-1 above shows that both Alternative A and Alternative B would *increase* traffic on US-40 in 2050 compared to the existing (2019) conditions, and that both Alternative A and Alternative B would *decrease* traffic on US-40 compared to the No-action Alternative in 2050. Compared to Alternative B, Alternative A would have 1,500 more vehicles per day on the segment of US-40 between 900 North and Center Street and 2,100 more vehicles per day on the segment of US-40 between Center Street and 1200 South. Overall, of the project alternatives, Alternative B would have the fewest vehicles per day on US-40 in 2050.

This reduction of traffic in 2050 compared to the No-action Alternative could decrease business from customers who visit these businesses because they happen to be driving by. Drivers might avoid these convenience businesses because the businesses would be off the main travel route. However, since the traffic volumes with the action alternatives in 2050 are projected to be higher than the traffic volumes in 2019, there would be an increase in drive-by traffic compared to the existing conditions. In the period after construction of an action alternative before 2050, traffic volumes on US-40 between 900 North and 1200 South might be less than existing (2019) traffic volumes, and there could be a decrease in business to convenience businesses on US-40.

Additionally, with either of the action alternatives, business owners might have an incentive to build new convenience businesses near the access points on the new roads or where the selected action alternative would connect to US-40 or US-189. If new convenience businesses were built near an action alternative, this could reduce business for the existing convenience businesses on US-40 between 900 North and 1200 South. Heber City has stated that, with either of the action alternatives, business owners could be interested in building new gas stations and convenience stores near the new SR-113 interchange or intersection.

With either of the action alternatives, congestion levels on US-40 between 900 North and 1200 South would improve compared to the No-action Alternative. The other businesses along US-40 between 900 North and 1200 South are destination businesses. Decreased congestion on US-40 could increase the number of patrons who use the downtown destination businesses. With a better roadway network and less roadway congestion, the other destination businesses in Heber City could have increased business.

Overall, both of the action alternatives could reduce business for existing convenience businesses on US-40 between 900 North and 1200 South, increase business for new convenience businesses built near new connections to the action alternatives, and likely provide economic benefits to the destination businesses in Heber City as a result of reduced congestion and improved access.

Direct Impacts to Businesses

Both of the action alternatives would impact two commercial buildings. UDOT would acquire these properties and relocate the businesses in these buildings:

- Betty's Café – 1320 S. Daniels Road
- Homeland Storage – 1350 S. Industrial Parkway

Both of the action alternatives would have direct impacts to two auxiliary buildings located on commercial properties. UDOT does not anticipate that these businesses would need to be relocated because they are all located on larger parcels of land. UDOT would acquire these auxiliary buildings and work with the property owners to provide fair compensation for the impacts to the businesses pursuant to the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Utah Relocation Assistance Act, Utah Code, Section 57-12.

- L & L Repair auxiliary building – 1310 S. Daniels Road
- Signature Auto Group auxiliary building – 201 W. US-189 #97

These four businesses are within the CRA boundary; therefore, impacts to these businesses reduce Heber City's revitalization efforts to realize their vision for downtown Heber City.

Commercial properties that would have a partial acquisition are included in the right-of-way analysis in Section 3.6, *Right-of-way and Relocations*. For commercial properties that would have a partial acquisition, UDOT does not anticipate that these minor property impacts would affect the viability of any of the businesses on these properties.

Impacts to Business Access

Both of the action alternatives would modify access to or from the new 1300 South from or to Industrial Parkway with a one-way frontage road on each side of 1300 South. Industrial Parkway would not connect across 1300 South. Travelers going north on Industrial Parkway would need to go east on the frontage road and then turn north or make a U-turn to go west at the 300 West intersection. Travelers going south on Industrial Parkway would be able to travel only west on 1300 South. With both action alternatives, access would still be provided to businesses located on these roads (including the Valley Station development with Walmart), but the access would require some travelers to travel an additional distance or use a different route (such as 300 West). All other businesses would continue to have access similar to the existing conditions. UDOT does not anticipate that these changes to access would affect the viability of any businesses in this area, since these are considered destination businesses.

3.5.4.2.2 Alternative A

Direct Impacts to Businesses

In addition to the impacts listed above in Section 3.5.4.2.1, *Common Impacts for Both Action Alternatives*, Alternative A would have direct impacts to six commercial buildings that are newly constructed or are planned to be constructed. These buildings are located in the New London commercial developments in the southeast and northeast quadrants of the US-40 and 900 North intersection. The New London commercial developments are within the CRA boundary; therefore, impacts to these businesses reduce Heber City's

revitalization efforts to realize their vision for downtown Heber City. The list below summarizes the information regarding anticipated businesses that was provided to UDOT in May 2025:

- New London northeast quadrant of US-40 and 900 North (4 buildings and 8 businesses)
  - North building: 1 business (Swig)
  - Building second from north: 3 businesses (Lehi Bakery, FedEx, and Stride Lab)
  - Building third from north: 1 business (restaurant name unknown; in negotiation with developer as of May 2025)
  - South building: 3 businesses (Mo' Bettahs, Great Clips, and Red River Health)
- New London southeast quadrant of US-40 and 900 North (2 buildings and 5 businesses)
  - North building: 1 business (business name unknown; in negotiation with developer as of May 2025)
  - South building: 4 businesses (Jersey Mike's, Booker's Ice Cream, London Nail Bar, and Toss'd)

UDOT would acquire these six properties and relocate the 13 businesses in these buildings.

Additionally, Alternative A would require acquiring a parcel of land at 1550 N. US-40 that is used by John W. Lloyd Equipment for Sale for equipment storage and sales.

Commercial properties that would have a partial acquisition are included in the right-of-way analysis in Section 3.6, *Right-of-way and Relocations*. For commercial properties that would have a partial acquisition, UDOT does not anticipate that these minor property impacts would affect the viability of any of the businesses on these properties.

Impacts to Agricultural Economics

Alternative A would maintain all access to the county roads that are used for agricultural purposes. With Alternative A, UDOT would acquire 201 acres of undeveloped properties currently being used for agricultural purposes on the north and west sides of Heber City, and these properties would become part of the Heber Valley Corridor transportation facilities. For agricultural parcels impacted by Alternative A, if access cannot be maintained for farm and ranch operations, UDOT would purchase the inaccessible land. For more information about farmland impacts, see Section 3.3, *Farmland*.

3.5.4.2.3 Alternative B

Direct Impacts to Businesses

Alternative B would not have any additional potential impacts or minor property strip impacts beyond the impacts listed in Section 3.5.4.2.1, *Common Impacts for Both Action Alternatives*.

Commercial properties that would have a partial acquisition are included in the right-of-way analysis in Section 3.6, *Right-of-way and Relocations*. For commercial properties that would have a partial acquisition, UDOT does not anticipate that these minor property impacts would affect the viability of any of the businesses on these properties.

Impacts to Agricultural Economics

Alternative B would maintain all access to the county roads that are used for agricultural purposes. With Alternative B, UDOT would acquire 241 acres of undeveloped properties currently being used for agricultural purposes on the north and west sides of Heber City, and these properties would become part of the Heber Valley Corridor transportation facilities. Alternative B would also have impacts to undeveloped properties currently being used for agricultural purposes between 3000 North and 900 North west of US-40. For agricultural parcels impacted by Alternative B, if access cannot be maintained for farm and ranch operations, UDOT would purchase the inaccessible land. For more information about farmland impacts, see Section 3.3, *Farmland*.

3.5.4.3 Mitigation Measures

This impacts analysis assumes that any businesses that experience property impacts (displacements or minor property strip impacts) as a result of this project would receive compensation and/or relocation assistance in accordance with UDOT's right-of-way acquisition practices. Property will be acquired according to the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Utah Relocation Assistance Act, Utah Code, Section 57-12. These provisions would also apply to any agricultural properties that UDOT would need to acquire.

For business that experiences short-term access and visibility problems during construction, a traffic access management plan will be developed and implemented by the construction contractor. This plan will maintain the public's access to the business during normal business hours.

3.6 Right-of-way and Relocations

3.6.1 Introduction

Section 3.6 discusses the expected displacements, relocations, and right-of-way acquisitions associated with the project alternatives.

Right-of-way and Relocations Evaluation Area. The right-of-way and relocations evaluation area is the right-of-way required for the action alternatives taking into consideration residential and commercial buildings within 15 feet of this right-of-way.

What is the right-of-way and relocations evaluation area?

The right-of-way and relocations evaluation area is the right-of-way required for the action alternatives taking into consideration residential and commercial buildings within 15 feet of this right-of-way.

3.6.2 Regulatory Setting

The acquisition of property for the selected alternative would be subject to the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC Section 4601 and subsequent sections, amended 1989); Title VI of the Civil Rights Act of 1964, as amended; and the State of Utah Relocation Program (part of the Utah Relocation Assistance Act, Utah Code Title 57, Chapter 12). These laws provide for the uniform and fair treatment of all persons displaced from their homes, businesses, and farms without discrimination on any basis.

The guidelines used by UDOT for carrying out the provisions of these acts are contained in its 2023 *Relocation Assistance Brochure*. Relocation resources are available to all residents (including renters) and

businesses whose properties need to be acquired, and the process for acquiring replacement housing and other sites must be fair and open. The 2023 *Relocation Assistance Brochure* can be viewed on UDOT's website (UDOT 2023a).

3.6.3 Affected Environment

The right-of-way and relocations evaluation area consists mostly of agricultural and urban land uses. For more information, see Section 3.2, *Land Use*.

3.6.4 Environmental Consequences and Mitigation Measures

3.6.4.1 Methodology

The actual property impacts from the selected alternative could change and would be determined during the final design phase of the project and during the property acquisition process. Property impacts are defined as follows:

- **Full Acquisition.** A full acquisition is when UDOT would need to purchase an entire parcel to construct an alternative. For this analysis, a full acquisition is assumed when an existing residential or commercial building is located within the right-of-way for a proposed alternative. For properties without buildings, a full acquisition is assumed when the remaining land outside the proposed right-of-way would be unusable for its intended purpose because it would be too small to function for its intended purpose or because access would be cut off.
- **Potential Full Acquisition.** For this analysis, a potential full acquisition is assumed when an existing residential or commercial building is located outside of but within 15 feet of the proposed right-of-way. This type of impact is referred to as a potential full acquisition because it is not clear whether the entire property would be acquired. UDOT would make a final determination during the right-of-way acquisition phase of the project, which would occur shortly before construction.
- **Partial Acquisition.** A partial acquisition is when UDOT would need to purchase only a portion of a parcel, and the property owner would retain ownership outside the proposed right-of-way. For this analysis, a partial acquisition is assumed when an existing building is at least 15 feet away from the proposed right-of-way. For properties without buildings, a partial acquisition is assumed when the remaining land would be large enough to function for its intended purpose and would still have access.
- **Relocation.** A relocation is when an existing building is within the proposed right-of-way and the current residents or business would need to be relocated to a new property.
- **Potential Relocation.** For this analysis, a potential relocation is assumed when an existing building is outside of but within 15 feet of the proposed right-of-way. This type of impact is referred to as a potential relocation because it is not clear whether the entire property would be acquired. UDOT would make a final determination about the property during the right-of-way acquisition phase of the project, which would occur shortly before construction.
- **Temporary Construction Easement.** A temporary construction easement (TCE) would allow UDOT to temporarily use property during construction. Land ownership would not change.

- **Perpetual Easement.** A perpetual easement would allow UDOT to have ongoing access to a property for maintenance activities during and after construction. Land ownership would not change. Examples of work done with a perpetual easement could include maintaining noise barriers, retaining walls, drainage systems, bridges, and/or utilities on the edge of the property.

For this analysis, the numbers of full acquisitions, partial acquisitions, relocations, and potential relocations were calculated using Wasatch County's parcel data as of April 2025 (Wasatch County 2025b) and the anticipated right-of-way footprint for each action alternative. There are known issues with the Wasatch County parcel data: gaps or overlaps between parcels, parcel boundaries extending into UDOT's right-of-way, and parcel boundaries set back from UDOT's right-of-way leaving no record of ownership for land adjacent to existing roads. UDOT did not attempt to the fix parcel data for this impact analysis; impacts are likely to change when property boundaries are surveyed if UDOT selects an action alternative and moves forward into the final design and right-of-way phases of the project.

For this analysis, UDOT made the following assumptions:

- Where existing parcel boundaries extend into UDOT's existing right-of-way (due to parcel data errors) but no project improvements are planned, there would be no right-of-way impact (UDOT would not go through the effort to fix the parcel data).
- Where widening is proposed but parcel boundaries are set back from UDOT's existing right-of-way and do not overlap the proposed right-of-way, there would be an impact of unknown size, and the acreage of impacts was not quantified. One example is on the east side of US-40 just south of River Road/SR-32.

3.6.4.2 No-action Alternative

With the No-action Alternative, the Heber Valley Corridor Project would not be implemented, so no property would be acquired for the project.

3.6.4.3 Action Alternatives

This section describes the property impacts from each action alternative. The impacts described below are estimates; final impacts would be determined after final design and through the right-of-way negotiation process.

Alternative A. Table 3.6-1 lists the right-of-way impacts from Alternative A. The required right-of-way is mostly in the form of partial property acquisitions. Alternative A's design would require the full acquisition of 32 parcels (117.67 acres). Alternative A would also require 12 residential relocations and 15 business relocations (Homeland Storage, Betty's Café, five businesses from New London South, and eight businesses from New London North).

Alternative B. Table 3.6-1 lists the right-of-way impacts from Alternative B. The required right-of-way is mostly in the form of partial property acquisitions. Alternative B's design would require the full acquisition of 32 parcels (121.02 acres). Alternative B would also require 6 residential relocations and 2 business relocations (Homeland Storage and Betty's Café).

Table 3.6-1 summarizes the property impacts required for both action alternatives. See Appendix 3C, *Property Impacts*, for impacts to specific parcels. See Appendix 3D, *Property Maps*, for figures showing property impacts.

Table 3.6-1. Summary of Acquisitions and Relocations for the Action Alternatives

Type of Acquisition or Relocation	Alternative A	Alternative B
Full acquisitions by current land use		
Agricultural	16	16
Urban	16	16
Total number of full acquisitions	**32**	**32**
Total acres of full acquisitions	**117.67**	**121.02**
Partial acquisitions by current land use		
Agricultural	68	74
Urban	66	48
Total number of partial acquisitions	**136**	**124**
Total acres of partial acquisitions	**177.25**	**206.59**
Relocations		
Residential	12	6
Business	15	2
Total number of relocations	**27**	**8**
Total acres of relocations	**7.38**	**0.43**
TCE by current land use		
Agricultural	20	21
Urban	2	2
Total number of TCEs	**22**	**23**
Total acres of TCEs	**3.33**	**3.03**
Perpetual easement by current land use		
Urban	2	2
Total number of perpetual easement	**2**	**2**
Total acres of perpetual easement	**0.22**	**0.22**

3.6.4.4 Mitigation Measures

No mitigation is required other than that required under federal and state relocation assistance acts and programs.

After construction funding is identified for the Heber Valley Corridor Project, the project would enter the final design process. During this process, UDOT would look at measures that could avoid needing to acquire properties. Where necessary, UDOT will acquire all property according to the federal Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (42 USC Section 61 and the implementing

regulation 49 CFR Part 24) and the Utah Relocation Assistance Act. These regulations require fair compensation for property owners and qualified renters to offset or eliminate any financial hardship that private individuals or entities could experience as a result of property being acquired for public purposes. No individual or family would be required to relocate until adequate, decent, safe, and sanitary housing is available.

Relocation resources will be available to all residents and businesses that are relocated, and the process for acquiring replacement housing and other sites will be fair and open.

3.7 Transportation

3.7.1 Introduction

Section 3.7 discusses the existing travel patterns on and adjacent to US-40 and considers the expected effects of the project alternatives on these travel patterns. Travel patterns in this section were analyzed for vehicles only and apply to passenger vehicles, transit vehicles, and freight trucks. The Heber Valley Airport and its current master plan update are discussed in this section; however, access to the airport would not change as a result of the action alternatives, so those travel patterns were not analyzed. Information about pedestrian and bicyclist facilities and accessibility is provided in Section 3.8, *Pedestrian and Bicyclist Issues*.

What is the transportation evaluation area?

The transportation evaluation area includes the roads that could be beneficially or adversely affected by the action alternatives. The evaluation area includes the roads that directly connect to US-40, 1300 South, and US-189 in the locations of the action alternatives.

Transportation Evaluation Area. The transportation evaluation area includes the roads that could be beneficially or adversely affected by the action alternatives. The evaluation area includes the roads that directly connect to US-40, 1300 South, and US-189 in the locations of the action alternatives.

3.7.2 Regulatory Setting

Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, from FHWA (1987) recommends an analysis of travel patterns and accessibility in an EIS.

3.7.3 Affected Environment

3.7.3.1 Roadway System

US-40 and US-189 are the primary routes through the Heber Valley that link local and regional trips within and through the valley. US-40 and US-189 are classified as principal arterials. From the south, they run independently until they converge at 1200 South at the hub intersection. These southern segments are primarily rural with sparse industrial and commercial development. The Heber Valley Airport borders US-189 near the hub intersection in the southern part of the transportation evaluation area.

In Heber City, the Main Street segment of US-40 begins north of 1200 South. It has commercial development and historic buildings on both sides of the road and closely spaced signalized intersections. The northern segment begins north of 900 North and runs to River Road/SR-32 and is a mix of sparse residences and new urban development. This northern segment of US-40 is anticipated to develop

substantially over the next few years; this development is referred to as the North Village. In preparation for this development, Heber City has developed a master plan (Heber City 2022) for the local road network for the North Village along north US-40. See Section 3.2, *Land Use*, for more information about proposed and permitted developments along north US-40.

UDOT, Heber City, and Wasatch County have entered into a cooperative corridor access agreement regarding access to north US-40 (UDOT, Wasatch County, and Heber City 2018, 2023a, 2023b). The agreement specifies locations where access to US-40 would be allowed, and it assumes access category 5, which allows unsignalized intersections and driveways as long as they meet the minimum spacing requirements. The current corridor agreement establishes future, at-grade traffic signals at University Avenue, Commons Boulevard, and Coyote Canyon Parkway. These signal locations were identified in the *North Village Master Plan*, and Heber City has been working with developers to establish a local road network connecting to US-40 at these locations.

3.7.3.2 Airport

The Heber Valley Airport, also known as Russ McDonald Field, parallels US-189 south of the hub intersection in Heber City. This airport is a public-use airport owned by Heber City and is classified as a general aviation regional airport. The airport serves Heber City, Park City, Wasatch and Summit Counties, and the Uinta Basin. The Heber Valley Airport has recently updated its airport master plan (Ardurra 2023) and will soon start a NEPA study to evaluate proposed improvements in the master plan. The Heber Valley Airport completed scoping for the NEPA study in late 2024. As of April 2025, the class of action (type of NEPA document) had not been determined. Any relevant updates to the Heber Valley Airport's plan will be included in the Final EIS.

3.7.3.3 Transit

High Valley Transit, which was launched in November 2022, offers free microtransit and bus service between Summit and Wasatch Counties. High Valley Transit's microtransit service area covers most of the Heber Valley including Heber City, Midway, Daniel, and Charleston. The north fields are excluded from the microtransit service area. Bus transit in the Heber Valley uses existing US-40 along its length within the transportation evaluation area (High Valley Transit 2025). The routes used by the microtransit and bus service are the same as the roadway system discussed in Section 3.7.3.1, *Roadway System*.

What is microtransit?

Microtransit is an on-demand transportation mode that uses vans to transport people directly between their chosen destinations within its service area.

3.7.4 Environmental Consequences and Mitigation Measures

This section analyzes how the action alternatives would affect the travel patterns on freeways and arterials that are included in the Summit Wasatch travel demand model in the transportation evaluation area. Any effects would be experienced similarly by both motorists and bus transit users since they use the same roadway system. Most impacts would occur in areas where an alternative connects to arterials and adjacent intersections.

In future MAG regional transportation plans, MAG would evaluate appropriate steps to address congestion that remains on the transportation network independent of the Heber Valley Corridor Project.

This section does not specifically address construction-related transportation impacts (see Section 3.19, *Construction Impacts*).

3.7.4.1 Methodology

The transportation analysis uses data obtained from the Summit-Wasatch travel demand model (version 2.1 2024-03-28) and Synchro and VISSIM model outputs. To evaluate the action alternatives, UDOT used the Summit-Wasatch travel demand model and Synchro and VISSIM models to generate data about level of service in the transportation evaluation area for the existing (2019) conditions and the future (2050) no-action and action conditions.

- VISSIM was used to analyze Main Street operations because of its complexity (close spacing of traffic signals and more vehicle turning movements).
- Synchro was used to analyze operations outside the urban area of Heber City and Main Street because this area is less complex (less access to US-40 and greater distance between traffic signals).

What is level of service (LOS)?

Level of service is a measurement of the vehicle-carrying capacity and performance of a street, freeway, or intersection. Level of service is represented by a letter "grade" ranging from A for excellent conditions (free-flowing traffic and little delay) to F for failure conditions (extremely congested, stop-and-go traffic, and excessive delay). LOS B through LOS E describe progressively worse traffic conditions.

Level of service is measurement of the vehicle-carrying capacity and performance of a street, freeway, or intersection. When the capacity of a road is exceeded, the result is congestion, delay, and a poor level of service.

The data for the existing and future conditions were then compared to determine how the action alternatives would alter operating conditions on the local road network.

3.7.4.2 No-action Alternative

With the No-action Alternative, the changes associated with the Heber Valley Corridor Project would not be made. As development continues, the operation and function of US-40 would continue to degrade. Congestion levels on US-40 (Main Street) are projected to continue to increase from the conditions in 2019 and are projected to reach heavy to severe congestion by 2050. Other existing unsignalized intersections would need to accommodate additional traffic, and there would be increased pressure to signalize them, especially if safety issues arise. UDOT assumes that the speed limit on US-40 would be reduced from 55 mph to 45 mph on north US-40 when these signalized intersections are constructed at about every half mile.

With the No-action Alternative, traffic would increase on US-40 in downtown Heber City and erode the character of Main Street as a result of higher traffic congestion. Traffic operations are projected to fail in the downtown area of Heber City, and vehicle queue lengths would extend for 3 miles north of the 500 North intersection (see Section 1.2.2, *Need for the Project*). Although UDOT cannot make guarantees or commitments in this EIS for the future of Main Street, there would likely be less potential for Heber City to make desired changes to Main Street with the No-action Alternative compared to the action alternatives because there would not be an alternate route to relieve congestion and attract commercial truck traffic.

The project purposes to improve local mobility, improve Main Street to meet Heber City's vision, and improve regional mobility would not be met.

3.7.4.3 Action Alternatives

Both action alternatives would improve local and regional traffic mobility over the No-action Alternative. Both action alternatives would support Heber City's vision for the historic town center by improving traffic operations on Main Street and limiting impacts to historic buildings and valued places in the historic town center. Intersection level of service would improve on US-40 for intersections compared to the No-action Alternative, thereby meeting the local traffic needs of the project.

This section reviews the expected changes in traffic operations, access, and truck travel patterns for the action alternatives and includes a cut-through analysis for River Road/SR-32, Mill Road, and 3000 South.

What is a cut-through analysis?

Cut-through traffic refers to motorists using neighborhood streets to avoid more-congested roads. For this EIS, a cut-through analysis is a review of traffic patterns in the travel demand model to determine whether the action alternatives would affect the amount of regional cut-through traffic on specific routes.

3.7.4.3.1 Intersection Level of Service

The No-action Alternative does not meet the project purpose element to improve local mobility on Main Street through 2050. Most intersections that would operate at LOS F with the No-action Alternative would be improved to LOS D or better with either action alternative (Table 3.7-1). With Alternative A, one intersection would continue to operate at LOS F (500 North) and two intersections would operate at LOS E (Center Street and the US-40/US-189 hub intersection). With Alternative B, one intersection would operate at LOS E (the US-40/US-189 hub intersection).

The intersections on Main Street would operate worse with Alternative A than with Alternative B except at the 600 South and US-189 intersections, where operations would be similar with both alternatives. The difference at 500 North, Center Street, and 100 South is related to macro-level traffic assignment in the forecasts generated by the regional travel demand model. In these forecasts, there is a greater shift in traffic from Main Street to the Western Corridor with Alternative B than with Alternative A. With Alternative B, the North Fields Extension segment offers a more direct travel path at a higher speed limit compared to the North US-40 segment with Alternative A. For this reason, the travel demand forecast shows a greater shift in traffic away from Main Street to the Western Corridor segment with Alternative B. Consequently, this results in less traffic on Main Street with Alternative B. With Alternative A, the higher flow of traffic from both the east and west sides of Heber City onto Main Street adds traffic to the east and west legs of Main Street intersections, which results in more complex traffic operations and greater delay.

Table 3.7-1. Weekday PM Peak-hour Intersection Level of Service and Average Delay per Vehicle for the Project Alternatives

Intersection	2019	2050		
	Existing	No-action	Alternative A	Alternative B
US-40 and River Road/SR-32	LOS B 18 sec	LOS F >100 sec	LOS C 30 sec (NB ramps) LOS C 22 sec (SB ramps)	LOS C 30 sec (NB ramps) LOS C 20 sec (SB ramps)
US-40 and University Avenue	NA	LOS E 63 sec	NA	NA
US-40 and Potter Lane/College Way	LOS D 32 sec[a]	NA	LOS A 8 sec (NB ramps) LOS B 12 sec (SB ramps)	LOS B 15 sec
US-40 and Commons Blvd.	LOS B 14 sec[a]	LOS D 50 sec	NA	LOS B 14 sec
US-40 and Coyote Canyon Parkway	LOS B 14 sec[a]	LOS E 57 sec	LOS B 10 sec (NB ramps) LOS B 18 sec (SB ramps)	LOS B 18 sec
US-40 and 900 North segment	NA	LOS D 51 sec	LOS C 34 sec	LOS C 31 sec
US-40 and 500 North	LOS B 17 sec	LOS F >100 sec	LOS F 94 sec	LOS C 30 sec
US-40 and Center St.	LOS C 24 sec	LOS D 39 sec	LOS E 64 sec	LOS D 52 sec
US-40 and 100 South	LOS C 30 sec	LOS F >100 sec	LOS D 38 sec	LOS C 34 sec
US-40 and 600 South	LOS B 18 sec	LOS F >100 sec	LOS D 36 sec	LOS D 38 sec
US-40 and US-189	LOS C 29 sec	LOS F >100 sec	LOS E 56 sec	LOS E 57 sec
Western Corridor segment and 900 North segment	NA	NA	NA	LOS B 12 sec[a]
Western Corridor segment and SR-113	NA	NA	LOS C 30 sec	LOS C 31 sec
Western Corridor segment and US-189	NA	NA	LOS C 22 sec	LOS B 14 sec
300 West and one-way frontage road (on the north side of 1300 South)	NA	NA	LOS A 9 sec	LOS B 12 sec
300 West and one-way frontage road (on the south side of 1300 South)	NA	NA	LOS B 10 sec	LOS B 13 sec
US-189 and 1300 South local access road	LOS C 20 sec	LOS C 21 sec	LOS B 13 sec	LOS B 14 sec

Source: Appendix 2C, *Action Alternatives Traffic Memo*

Definitions: LOS = level of service; NA = not applicable (intersection does not exist in the scenario); NB = northbound; SB = southbound; sec = seconds

Shading: Green = good LOS, yellow = moderate LOS, orange = near-failing LOS, and red = failing LOS

[a] Unsignalized intersection reports delay and level of service for the worst stop or yield-controlled approach.

3.7.4.3.2 Local Travel Times

With either action alternative, local travel times would improve on US-40 (Main Street) compared to the No-action Alternative (Table 3.7-2), thereby meeting the project purpose elements to improve local and regional mobility through 2050. Local mobility travel times greater than 12 minutes between River Road/SR-32 and US-189 generally correlate with problematic conditions for other local mobility measures for Main Street, such as failing intersection level of service and unacceptable vehicle queue lengths. Both action alternatives would reduce travel times between River Road/SR-32 and US-189 by about 42% to 50% to less than 12 minutes.

Table 3.7-2. PM Peak-hour Local Travel Time for the Project Alternatives

Parameter	2019	2050		
	Existing	No-action	Alternative A	Alternative B
Travel time (m:ss)	8:20	20:30	11:50	10:15
Difference from No-action Alternative			**–8:40**	**–10:15**

Source: Appendix 2C, *Action Alternatives Traffic Memo*
Shading: Green = good travel times, red = poor travel times

3.7.4.3.3 Vehicle Queue Lengths on Main Street

With either action alternative, southbound vehicle queue lengths on US-40 (Main Street) would be shorter compared to the No-action Alternative (Table 3.7-3), thereby meeting the project purpose element to improve local mobility on Main Street through 2050. Long southbound vehicle queues extending north of 500 North by greater than a half mile are an indicator of downtown congestion. The southbound vehicle queue lengths would be longer with Alternative A than with Alternative B due to the higher intersection delay on Main Street, as discussed in Section 3.7.4.3.1, *Intersection Level of Service*.

Table 3.7-3. Vehicle Queue Lengths for the Project Alternatives

In feet

Intersection	2019	2050[a]		
	Existing	No-action	Alternative A	Alternative B
Southbound US-40 at 500 North	375	17,100	3,500	700
	Difference from No-action Alternative		**–13,600**	**–16,400**
Southbound US-40 at Center St.	750	>2,400	2,025	1,900
	Difference from No-action Alternative		**> –375**	**> –500**
Southbound US-40 at 100 South	375	>400	>400	>400
	Difference from No-action Alternative		**0**	**0**
Eastbound 100 South at US-40	125	>2,500	275	200
	Difference from No-action Alternative		**> –2,225**	**>2,300**

Source: Appendix 2C, *Action Alternatives Traffic Memo*

Shading: Green = acceptable vehicle queue lengths, red = poor vehicle queue lengths

[a] ">" correlates to the distance between signalized intersections and indicates that the vehicle queue extends back beyond the previous intersection.

3.7.4.3.4 Arterial Level of Service

With either action alternative, arterial level of service would improve on US-40 (Main Street) compared to the No-action Alternative (Table 3.7-4), thereby meeting the project purpose element to improve local mobility on Main Street through 2050. Note that LOS F on short segments of Main Street and areas with closely spaced signals is not necessarily a cause for concern. Even without congestion, vehicles on short segments of road have little opportunity to accelerate to higher speeds and qualify for a higher arterial level of service. Arterial level of service is not reported for north US-40 because the traffic signals are farther apart and because travel time is considered to be a better measure of performance for this segment.

What is arterial level of service?

Arterial level of service is similar to intersection level of service. It is based on an A-through-F scale with thresholds according to the average speed of vehicles on the arterial compared to the segment's free-flow speed or the posted speed limit. Arterial level of service was analyzed for six segments of US-40 and one segment of US-189.

Alternative A. With Alternative A, arterial level of service would improve compared to the No-action Alternative in all segments of the proposed Heber Valley Corridor, but there would be one failing (LOS F) segment (US-40: From 100 North to Center St.).

Alternative B. With Alternative B, arterial level of service would improve compared to the No-action Alternative in all segments of the proposed Heber Valley Corridor, but there would be one failing (LOS F) segment (US-40: From 100 North to Center St.).

The overall performance of both action alternatives is similar.

Table 3.7-4. Weekday PM Peak-hour Street Arterial Level of Service and Average Segment Speed on Main Street for the Project Alternatives

Arterial Segment and Direction		2019	2050			Posted Speed (mph)[a]
		Existing	No-action	Alternative A	Alternative B	
Southbound	US-40: From 500 North to 100 North	LOS B 26 mph	LOS F 10 mph	LOS D 17 mph	LOS C 21 mph	35
	US-40: From 100 North to Center St.	LOS F 11 mph	LOS F 9 mph	LOS F 9 mph	LOS F 10 mph	35
	US-40: From Center St. to 100 South	LOS F 11 mph	LOS E 14 mph	LOS E 13 mph	LOS E 14 mph	35
	US-40: From 100 South to 600 South	LOS B 24 mph	LOS D 15 mph	LOS C 20 mph	LOS C 20 mph	35
	US-40: From 600 South to US-189	LOS B 25 mph	LOS C 22 mph	LOS C 22 mph	LOS C 24 mph	35/40
	US-40: South of US-189	LOS A 36 mph	LOS A 36 mph	LOS A 36 mph	LOS A 36 mph	40/50
	US-189: Southwest of US-40	LOS B 32 mph	LOS C 26 mph	LOS C 30 mph	LOS C 28 mph	35/45
Northbound	US-189: Northeast to US-40	LOS C 22 mph	LOS E 14 mph	LOS D 16 mph	LOS D 16 mph	35/45
	US-40: North to US-189	LOS C 23 mph	LOS E 14 mph	LOS D 18 mph	LOS C 20 mph	40/50
	US-40: From US-189 to 600 South	LOS A 30 mph	LOS B 24 mph	LOS B 25 mph	LOS B 26 mph	35/40
	US-40: From 600 South to 100 South	LOS C 22 mph	LOS E 13 mph	LOS C 18 mph	LOS C 18 mph	35
	US-40: From 100 South to Center St.	LOS F 10 mph	LOS E 12 mph	LOS D 15 mph	LOS D 15 mph	35
	US-40: From Center St. to 100 North	LOS B 27 mph	LOS B 25 mph	LOS B 26 mph	LOS B 26 mph	35
	US-40: From 100 North to 500 North	LOS B 23 mph	LOS B 26 mph	LOS B 26 mph	LOS B 27 mph	35

Source: Appendix 2C, *Action Alternatives Traffic Memo*

Definitions: LOS = level of service; mph = miles per hour

Shading: Green = good LOS, yellow = moderate LOS, orange = near-failing LOS, and red = failing LOS

[a] Some segments have different posted speed limits at different locations.

3.7.4.3.5 Regional Travel Times

Both action alternatives would improve regional travel times during the PM peak hour (5 to 6 PM) in the southbound direction from River Road/SR-32 to US-189 near 3000 South compared to the No-action Alternative (Table 3.7-5), thereby meeting the project purpose elements to improve regional mobility through 2050. Table 3.7-5 compares travel times for trips on Main Street versus the Heber Valley Corridor for each project alternative and in each direction.

What is the PM peak hour?

The PM peak hour is the 1-hour period of the afternoon (PM) during which there is the greatest number of vehicles on the road system. For the Heber Valley Corridor Project, the PM peak hour is from 5 to 6 PM.

The action alternatives have faster travel times than the No-action Alternative whether the travel time is measured via the Heber Valley Corridor or via Main Street. With the action alternatives, travel times via Main Street would be reduced by up to 10 minutes compared to the No-action Alternative. Travel times via the Heber Valley Corridor would be reduced by up to 17 minutes. The lack of traffic signals on the alternatives, due to the free-flow configuration and the higher operating speeds, allows for faster travel.

Compared to Alternative A, Alternative B would have faster travel times via the Heber Valley Corridor by about 1 minute. The more direct path on the North Fields Extension segment allows faster regional travel than with Alternative A. And, travel times via Main Street would be faster with Alternative B than with Alternative A by about 1 minute due to the slightly less intersection delay on Main Street, as discussed in Section 3.7.4.3.1, *Intersection Level of Service*.

Table 3.7-5. PM Peak-hour Regional Travel Times Comparison by Route

Segment	Direction	Route	Existing (2019)	2050 (minutes:seconds)		
				No-action	Alternative A	Alternative B
River Road/ SR-32 to US-189	SB	New corridor	NA	NA	7:25	6:15
		Main St.	10:55	23:40	15:05	13:25
	NB	New corridor	NA	NA	7:25	6:15
		Main St.	10:50	22:00	12:20	12:55
River Road/ SR-32 to US-40	SB	New corridor	NA	NA	8:10	6:55
		Main St.	9:15	21:50	13:35	11:55
	NB	New corridor	NA	NA	8:10	6:55
		Main St.	8:40	18:40	10:15	10:55

Source: Appendix 2C, *Action Alternatives Traffic Memo*
Definitions: NA = not applicable; NB = northbound; SB = southbound
Green shading indicates an improvement over travel on Main Street.

3.7.4.3.6 Access Impacts

Either action alternative would change access and local street connectivity. These access impacts are described by location and by action alternative below. For detailed alternatives figures that show the lane configurations at the locations described below, see Appendix 2D, *Action Alternatives Figures*.

Alternative A

Alternative A would have the following access impacts in the five segments of the proposed Heber Valley Corridor (North US-40, North Fields Extension, 900 North, Western Corridor, and 1300 South).

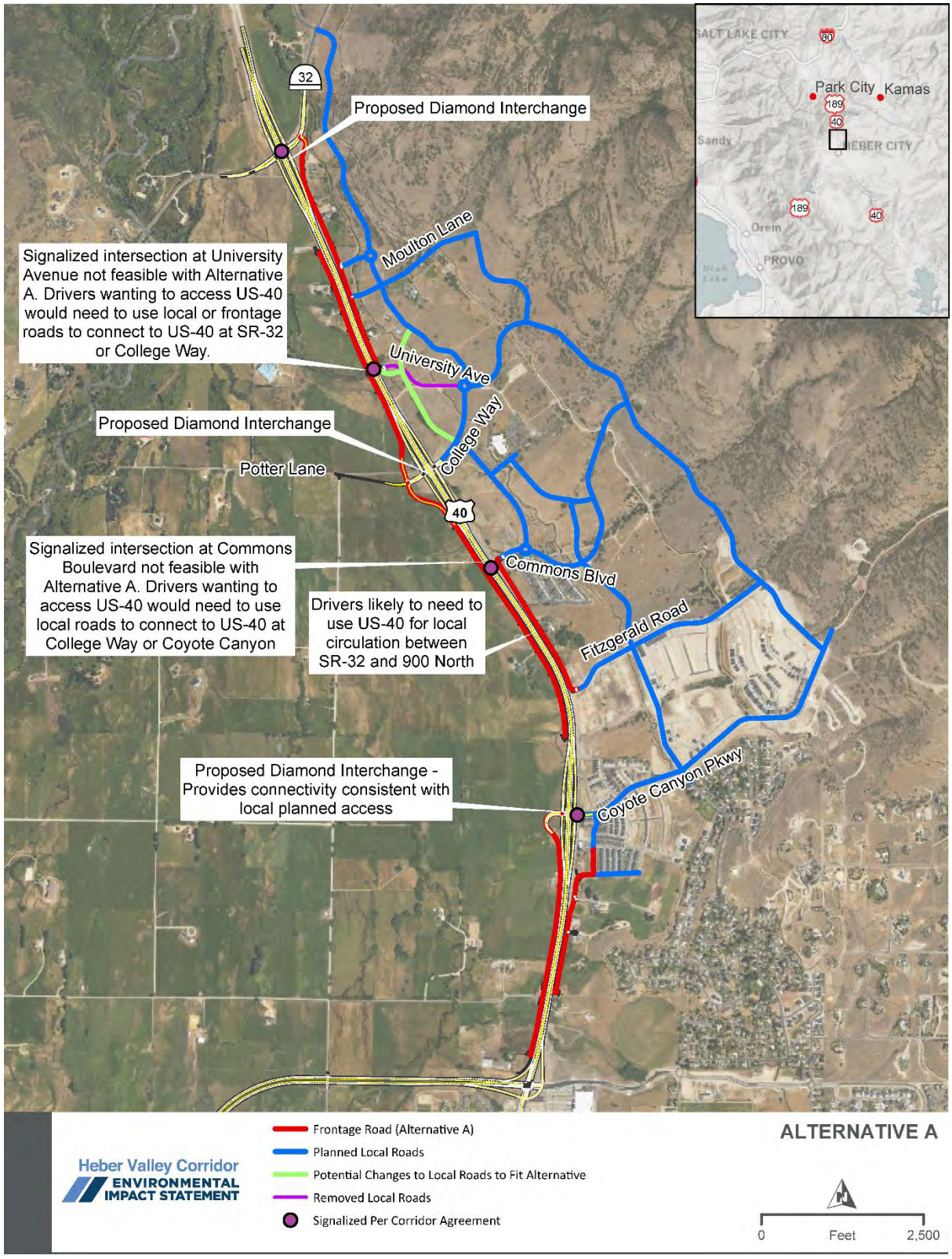
North US-40. Alternative A is not consistent with Heber City's master-planned road network for the North Village; the master plan assumes future signalized intersections at University Avenue, Commons Boulevard, and Coyote Canyon Parkway that are less than a mile apart (Figure 3.7-1). Alternative A includes grade-separated interchanges instead of signalized intersections; grade-separated interchanges require about 1 mile of spacing to provide enough distance for vehicles to safely weave and merge. The existing signalized intersections at University Avenue and Commons Boulevard would be replaced with an interchange at Potter Lane/College Way. Replacing these signalized intersections with a grade-separated interchange would require Heber City and developers to revise the master-planned local road network to reroute planned roads and revise development plans. Alternative A would also include an interchange at Coyote Canyon Parkway, which would accommodate the same movements as a signalized intersection and would not affect the local road network at this location. The cooperative corridor access agreement would need to be amended to reflect these changes.

Alternative A would include discontinuous, two-way frontage roads parallel to the North US-40 segment to consolidate driveways and local road accesses along US-40 between River Road/SR-32 and 900 North. Access to US-40 would be limited to interchanges at River Road/SR-32, Potter Lane/College Way, and Coyote Canyon Parkway. These frontage roads would maintain property access but would introduce some out-of-direction travel for some trips compared to existing conditions. Consolidating access to frontage roads—that is, no longer allowing driveways or local roads to access US-40 except at an interchange—would reduce conflict points in the transportation evaluation area and would improve safety and regional mobility on the North US-40 segment. UDOT is coordinating with Heber City regarding these potential changes, and Heber City is coordinating with developers. Updates to the master plan and access agreement will be made after UDOT identifies the selected alternative.

North Fields Extension. Alternative A does not extend through the north fields.

900 North. In the 900 North segment, Alternative A would provide a grade-separated crossing at 600 West to preserve north-south connectivity to and from the north fields. At US-40 and 900 North, traffic traveling to and from downtown Heber City (Main Street) would encounter an at-grade traffic signal. Traffic using the Heber Valley Corridor would have free-flow ramp connections to travel west along the 900 North segment or north to the North US-40 segment.

Figure 3.7-1. North Village Local Planned Road Network and Alternative A



Western Corridor. Between 900 North and SR-113, the Heber Valley Corridor would sever the existing access to agricultural properties. New access roads might be provided parallel to the right-of-way to maintain access. UDOT will continue to coordinate with owners of property in the north fields and will acquire property if no suitable access can be identified.

A new interchange would be constructed at SR-113 that provides access to the Heber Valley Corridor. Between SR-113 and 1200 South, Alternative A would provide grade-separated crossings at 1200 South and 650 South, and these crossings would help preserve connectivity between downtown Heber City and areas west of the Western Corridor segment.

South of 1200 South, Alternative A would eliminate the existing Southfield Road connection that is used to access US-189. Though Alternative A itself would replace the Southfield Road connection to US-189, there would be no direct access to the Heber Valley Corridor between SR-113 and US-189. Travelers wanting to use the Heber Valley Corridor would need to divert to the SR-113 interchange or access US-189 via local roads. Some of these diverted paths could include using an assumed extension of 1200 South from 1000 West to 1200 West to be completed by Heber City as described in the *Heber City Envision 2050 General Plan*. See Appendix 2D, *Action Alternatives Figures*, for detailed alternatives figures showing these grade-separated crossings.

1300 South. In the 1300 South segment, Alternative A would reconfigure the access to local streets along the existing 1300 South because 1300 South would be converted to a limited-access facility between the Western Corridor segment and its terminus at south US-40 near 1500 South. With Alternative A, there would be one-way frontage roads on both the north and south sides of 1300 South between Industrial Parkway and US-189. Industrial Parkway would be reconfigured to have right-in/right-out access at the frontage roads. 300 West would cross under the 1300 South segment and would provide connections to the frontage road system to access the Heber Valley Corridor or US-189. Two frontage road connections to US-189 near the hub intersection would be provided (one for eastbound and one for westbound). This change in access would affect the residential neighborhood and large commercial district for Heber City immediately adjacent to 1300 South and US-189 by changing the traffic patterns and introducing some out-of-direction travel for those accessing the Heber Valley Corridor or US-189.

Between the US-189 intersection with 1300 South and south US-40, Alternative A would cross over Daniels Road and connect to south US-40 via a flyover ramp for the westbound traffic and via a yield sign for eastbound traffic.

Alternative B

Alternative B would have the following access impacts in the five segments of the proposed Heber Valley Corridor (North US-40, North Fields Extension, 900 North, Western Corridor, and 1300 South).

North US-40. Alternative B is not consistent with Heber City's master-planned road network for the North Village; the master plan assumes future signalized intersections at University Avenue, Commons Boulevard, and Coyote Canyon Parkway (Figure 3.7-2). Alternative B includes signalized intersections at Commons Boulevard and Coyote Canyon Parkway; however, the planned traffic signal at University Avenue would be replaced by a traffic signal at Potter Lane/College Way. The cooperate corridor access agreement would need to be amended to reflect these changes. Alternative B would include signalized intersections at Commons Boulevard and Coyote Canyon Parkway, which is consistent with the master plan. Alternative B

would be less impactful to the master-planned local road network compared to Alternative A because it would require rerouting local roads at one location instead of two.

Alternative B would add discontinuous, two-way frontage roads to consolidate driveway and local road accesses between River Road/SR-32 and Potter Lane/College Way. With Alternative B, access to the Heber Valley Corridor would be limited to the interchange at River Road/SR-32. There would be no access to the free-flow ramps from Potter Lane or College Way. Access to US-40 would be limited to the interchange at River Road/SR-32 and the traffic signal at Potter Lane/College Way. UDOT expects that consolidating access to frontage roads would improve safety and regional mobility between River Road/SR-32 and Potter Lane/College Way.

Alternative B would not make access changes to north US-40 south of Potter Lane/College Way. Access to the North US-40 segment would continue as it is today based on the cooperative corridor access agreement among UDOT, Heber City, and Wasatch County (UDOT, Wasatch County, and Heber City 2018, 2023a, 2023b). It is reasonably foreseeable that there would be more accesses permitted on this section of US-40 (between Potter Lane/College Way and 900 North) as development occurs and that the speed limit would be lowered to 45 mph as more signalized intersections are installed.

North Fields Extension. Alternative B extends through the north fields from Potter Lane/College Way to the area near Muirfield Park. East-west connectivity in the north fields would be maintained with grade-separated crossings of the major roads (1200 North, 1800 North, and Northfield Road), thereby preserving (though altering) existing access. With Alternative B, UDOT proposes no direct access to the North Fields Extension segment except at the intersections with River Road/SR-32 and 900 North based on the community's desires to limit development in the north fields. The North Fields Extension segment connects to the North US-40 segment at Potter Lane/College Way with directional ramps.

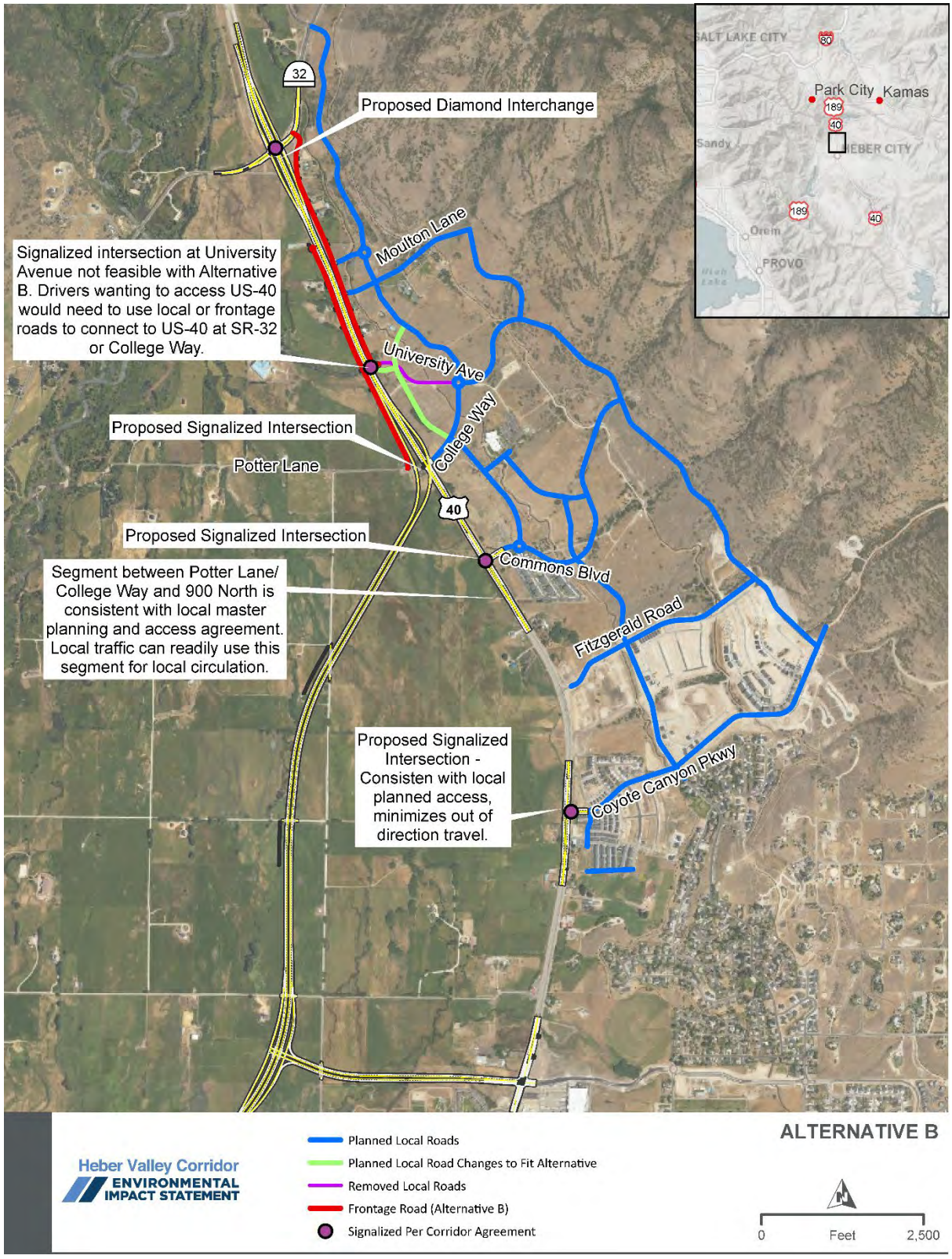
In the North Fields Extension segment, the Heber Valley Corridor would sever some existing access to agricultural properties. New access roads might be provided parallel to the right-of-way to maintain access. UDOT will continue to coordinate with owners of property in the north fields and will acquire property if no suitable access can be identified.

900 North. In the 900 North segment, Alternative B would provide a grade-separated crossing at 600 West to preserve north-south connectivity to and from the north fields.

Western Corridor. Alternative B would have the same access characteristics as Alternative A in this segment.

1300 South. Alternative B would have the same access characteristics as Alternative A in this segment.

Figure 3.7-2. North Village Local Planned Road Network and Alternative B



3.7.4.3.7 Functional Class

Typically, travelers will use a combination of arterial, collector, and local roads for their trips. Each type of road has a specific purpose or function. Arterials provide a high level of mobility for through traffic and limited access to adjacent properties, while local roads provide a high level of access to properties but a low level of mobility. Local roads are typically used for access to residential neighborhoods and have low speed limits. Collector roads provide a balance between mobility and property access. For a transportation system to operate efficiently, all three types of roads are needed.

UDOT currently classifies north US-40 as a principal arterial. Heber City's *North Village Master Plan* (Heber City 2022) currently shows University Avenue and Commons Boulevard as minor arterials and Coyote Canyon Parkway as a major collector, with local roads feeding into these three roads. The functional class of the Heber Valley Corridor would be Other Freeways and Expressways, which is the same as US-40 north of the River Road/SR-32 intersection.

Alternative A

With Alternative A, north US-40 would become a freeway/expressway designed to maximize mobility with access limited to interchanges at River Road/SR-32, Potter Lane/College Way, and Coyote Canyon Parkway (Figure 3.7-3). Between interchanges, two-way frontage roads would serve as collectors to provide access from driveways and cross streets to the interchanges. These frontage roads would be constructed only where needed and would not be continuous. Moulton Lane, University Avenue, Commons Boulevard, and Fitzgerald Road would connect to a frontage road instead of directly to US-40. Because the frontage roads would not be continuous, out-of-direction travel would be required for some trips connecting to these cross streets, resulting in a less efficient transportation system.

Alternative B

With Alternative B, the North Fields Extension segment would become a freeway/expressway designed to maximize mobility south of Potter Lane/College Way (Figure 3.7-4). Between River Road/SR-32 and Potter Lane/College Way, Alternative B would be the same as Alternative A; discontinuous frontage roads would serve as collectors to provide access from driveways and cross streets. Moulton Lane and University Avenue would connect to a frontage road instead of directly to north US-40. Between Potter Lane/College Way and 900 North, north US-40 would remain a principal arterial with direct connections to the master-planned roadway network at Potter Lane/College Way, Commons Boulevard, and Coyote Canyon Parkway. Alternative B would provide a more efficient combination of roadway functional classifications than would Alternative A, resulting in less out-of-direction travel and a more efficient transportation system.

Figure 3.7-3. Alternative A Road Functional Classification and the North Village

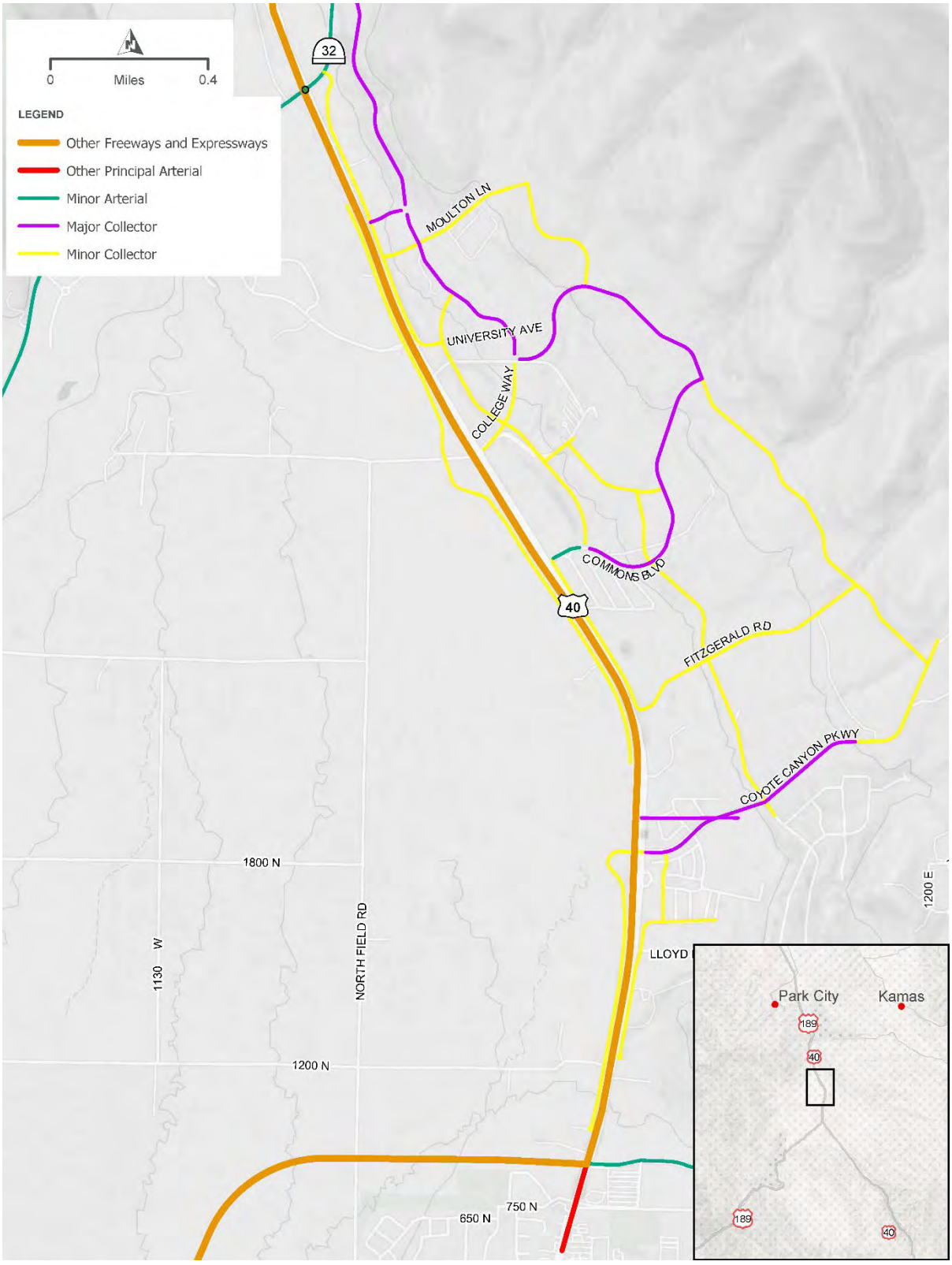
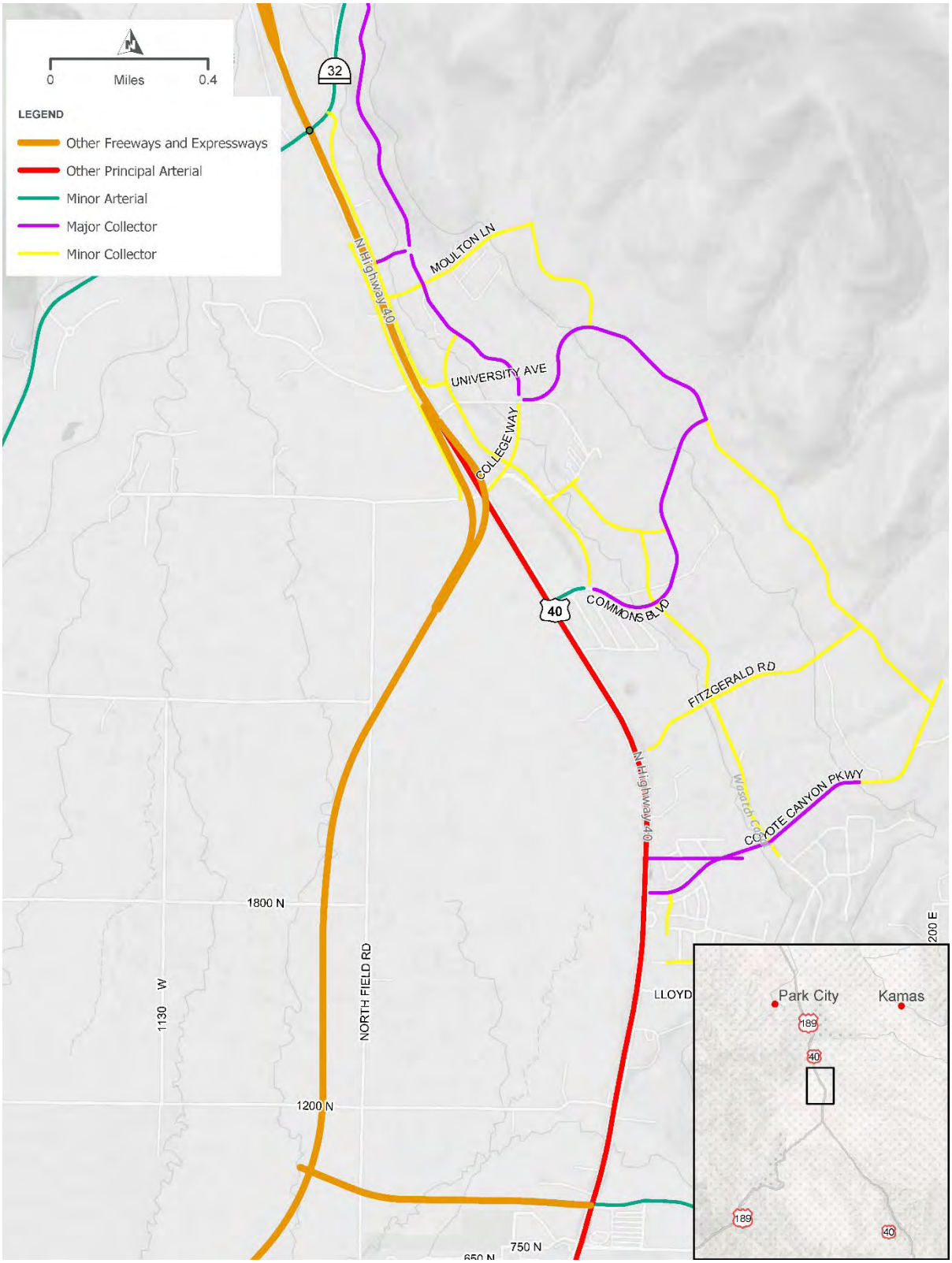


Figure 3.7-4. Alternative B Road Functional Classification and the North Village



3.7.4.3.8 Truck Traffic Travel Patterns

Throughout the study, UDOT received numerous comments expressing a desire to get commercial truck traffic off Main Street. Either action alternative would improve PM peak-hour travel time savings for truck drivers traveling between US-189 or south US-40 and River Road/SR-32 north of the Heber Valley compared to staying on Main Street (Table 3.7-6). In every scenario, the Heber Valley Corridor would substantially improve regional travel times over the No-action Alternative, and travel by the Heber Valley Corridor would be an improvement to staying on Main Street even with the action alternatives. Alternative B, which provides a more direct connection to north US-40, is faster for regional travel times than Alternative A, but both would be an improvement.

What is the PM peak hour?

The PM peak hour is the 1-hour period of the afternoon (PM) during which there is the greatest number of vehicles on the road system. For the Heber Valley Corridor Project, the PM peak hour is from 5 to 6 PM.

Many factors influence a truck driver's route selection. Several of these factors are outside UDOT's control: a driver's perception of which route is shorter, faster, or easier; trucking companies setting routes for their drivers to follow; and the influence of electronic navigation systems. In addition, drivers' route preferences could change throughout the day depending on traffic congestion.

Table 3.7-6. Comparison of PM Peak-hour Regional Travel Times by Route

Route	Direction	Route	Existing Travel Time in 2019 (m:ss)	Projected Travel Time in 2050 (m:ss)		
				No Action	Alt A	Alt B
River Road/ SR-32 to US-189	SB	Via corridor	NA	NA	7:25	6:15
		Via Main St.	10:55	23:40	15:05	13:25
		Difference from No-action via corridor			**–16:15**	**–17:25**
		Difference between Main St. and corridor			**–7:40**	**–7:10**
	NB	Via corridor	NA	NA	7:25	6:15
		Via Main St.	10:50	22:00	12:20	12:55
		Difference from No-action via corridor			**–14:35**	**–15:45**
		Difference between Main St. and corridor			**–4:55**	**–6:40**
River Road/ SR-32 to US-40	SB	Via corridor	NA	NA	8:10	6:55
		Via Main St.	9:15	21:50	13:35	11:55
		Difference from No-action via corridor			**–13:40**	**–14:55**
		Difference between Main St. and corridor			**–5:25**	**–5:00**
	NB	Via corridor	NA	NA	8:10	6:55
		Via Main St.	8:40	18:40	10:15	10:55
		Difference from No-action via corridor			**–10:30**	**–14:55**
		Difference between Main St. and corridor			**–2:05**	**–4:00**

Source: Appendix 2C, *Action Alternatives Traffic Memo*

Definitions: corridor = Heber Valley Corridor; m:ss = minutes:seconds; NA = not applicable; NB = northbound; SB = southbound

3.7.4.3.9 Cut-through Traffic Analysis

UDOT heard concerns from the public and local governments regarding the potential for traffic to cut through their communities. In response, UDOT conducted an analysis to determine whether either of the action alternatives would increase cut-through traffic on River Road/SR-32 in Midway, on Mill Road in Heber City, or on 3000 South in Daniel. Cut-through traffic on these routes is a concern for residents and stakeholders.

What is cut-through traffic?

Cut-through traffic refers to motorists using neighborhood streets to avoid congested roads.

Though regional travel through the Heber Valley occurs primarily on US-189 and US-40, drivers could select alternate routes. UDOT examined the following three potential alternative routes to determine whether the action alternatives could affect the amount of regional cut-through traffic:

1. SR-113 and River Road/SR-32 through Midway as an alternate path between US-189 and US-40 in the southwest and north parts of the valley
2. Mill Road (1200 East) and the future Heber City east bypass as an alternate path to Main Street between US-40 in the southeast and north parts of the valley
3. 3000 South and 3600 South through Daniel as an alternate path between US-189 and US-40 in the southwest and southeast parts of the valley

UDOT expects that traffic on the first alternate route (SR-113 and River Road/SR-32) would decrease with the action alternatives compared to the No-action Alternative because either action alternative would provide a faster and more direct path than would the alternate route.

UDOT expects that traffic on the second alternate route (Mill Road and the future Heber City east bypass) would also decrease with the action alternatives compared to the No-action Alternative. Although the alternatives would not offer a more direct option than Mill Road to travel between the north and south ends of US-40, the alternatives would reduce congestion on Main Street such that traffic is expected to shift away from Mill Road to Main Street.

The third alternate route (3000 South and 3600 South) is a more direct east-west route than the current route on US-189 and US-40. However, this route is not favorable to cut-through traffic. The narrow roads and narrow intersections in Daniel are not conducive to larger freight vehicles, recreational vehicles, and vehicles towing trailers. Ultimately, the analysis showed that the action alternatives would not measurably increase the number of cut-through traffic trips in Daniel. Each action alternative would reduce congestion at the US-189/US-40 intersection compared to the No-action Alternative, thereby further incentivizing regional traffic to remain on state highways.

3.7.4.3.10 Airport Impacts

The action alternatives would avoid the Heber Valley Airport's existing and proposed runway protection zone (RPZ) on the north end of the airport. The updated airport master plan (Ardurra 2023) proposed a new, larger RPZ. In October 2022, UDOT submitted formal comments about a potential conflict with the proposed RPZ to the Heber Valley Airport during the public comment period for the draft updated airport master plan. UDOT has requested that, if roads are not an allowed use in the proposed RPZ, the Airport consider shifting the RPZ south. UDOT's comments are included as Appendix 3E, *UDOT Comments on the Heber Airport Master Plan*.

What is a runway protection zone?

A runway protection zone is a trapezoidal area at ground level under the control of the airport for the purpose of protecting the safety of aircraft approaches and keeping the area clear of people.

The proposed RPZ overlaps the existing intersection of US-189 with 1300 South; however, the action alternatives are located just north of this intersection and the proposed RPZ.

The action alternatives do intersect the transitional surface for the airport parallel to the runway at Southfield Road. The transitional surface is an imaginary, sloping surface that extends outward and upward from the sides of the primary and approach surfaces at a 7:1 slope, and this slope is designed to protect aircraft during their approaches and departures. UDOT and FAA are coordinating regarding the transitional surface exemption process via FAA's Form 7460, *Notice of Proposed Construction or Alteration*. UDOT submitted Form 7460 for Alternatives A and B (which are the same near the airport) to begin a preliminary review process. As of May 2025, this review was still underway. Final approval would not be possible until the final design of the selected alternative is available.

3.7.4.3.11 Transit Impacts

Both action alternatives would modify the access to 1300 South at 300 West; this access is used by the High Valley Transit microtransit and bus service between Wasatch and Summit Counties. High Valley Transit would be able to maintain its service on US-40 and between the Walmart and Heber Valley Hospital. Both action alternatives would improve traffic conditions compared to the No-action Alternative and would, therefore, benefit transit, which also uses the road network.

3.7.4.4 Mitigation Measures

No mitigation for transportation impacts is proposed. Both action alternatives would improve transportation in the transportation evaluation area compared to the No-action Alternative.

UDOT will request a transitional surface exemption from FAA through the transitional surface exemption process via FAA's Form 7460, *Notice of Proposed Construction or Alteration*, for the selected alternative once the Heber Valley Corridor EIS process concludes.

3.8 Pedestrian and Bicyclist Issues

3.8.1 Introduction

Section 3.8 describes the existing and planned pedestrian and bicyclist facilities in the pedestrian and bicyclist issues evaluation area and the effects of the project alternatives on pedestrian and bicyclist facilities and movement in the evaluation area.

Pedestrian and Bicyclist Issues Evaluation Area. The pedestrian and bicyclist issues evaluation area includes the existing and planned facilities that cross over, cross under, or are parallel to the action alternatives (see Figure 3.8-1, *Existing Pedestrian and Bicyclist Facilities*, on page 3-104).

What is the pedestrian and bicyclist issues evaluation area?

The pedestrian and bicyclist issues evaluation area includes the existing and planned facilities that cross over, cross under, or are parallel to the action alternatives.

3.8.2 Regulatory Setting

When UDOT develops a project, it considers the economic, social, and environmental effects of the project, including disruption or destruction of human-made facilities and services. Under 23 USC Section 109(m), if a proposed project would sever an existing major route for nonmotorized traffic, the project must provide a reasonable alternate route for the nonmotorized traffic, or UDOT must show that a reasonable route exists (FHWA 2015a). In addition, UDOT encourages pedestrian and bicycle use on and connecting with its facilities that are suitable for pedestrians and bicyclists. Pedestrian and bicycle facilities or improvements for pedestrian and bicycle transportation are included in UDOT's project development and highway programming processes.

For a detailed discussion of trails that are regulated under Section 4(f) of the Department of Transportation Act, see Chapter 4, *Section 4(f) Evaluation*. For information about other recreation resources, see Section 3.4, *Social Environment*.

3.8.3 Affected Environment

This section describes the existing pedestrian and bicyclist facilities in the Heber Valley.

3.8.3.1 Existing Facilities

The mountains surrounding the Heber Valley provide many recreational hiking and mountain biking opportunities. However, the existing active transportation (for example, pedestrian and bicycle) infrastructure in the valley is inconsistent and lacks connectivity. In Utah, bicycles are considered vehicles and are allowed on roads and road shoulders except where prohibited by state or local ordinances, such as on I-15 and I-80 in urban Salt Lake County outside this study area. There are no ordinances for the Heber Valley that restrict bicycles from riding on existing roads or road shoulders.

What are bicycle lanes, bicycle routes, and multipurpose trails?

A bicycle lane is a portion of the roadway designated exclusively for cyclists.

A bicycle route is a designated route along a roadway for cyclists.

A multi-use trail is a one-way or two-way off-street trail for pedestrian and bicyclist use.

Table 3.8-1 and Figure 3.8-1 show existing pedestrian and bicyclist facilities in the pedestrian and bicyclist issues evaluation area. The existing facilities listed in Table 3.8-1 and shown in Figure 3.8-1 include only dedicated pedestrian and bicyclist facilities such as trails and bicycle lanes; the table and figure do not show every location in the evaluation area where pedestrians and bicyclists are legally allowed to travel.

Within the evaluation area are one east-west multi-use trail and one segment of a north-south multi-use trail. The Midway Lane Multi-use Trail is a combination of wide sidewalks and separated trails that runs east-west along SR-113 between 600 West in Heber City and 750 East in Midway. And, along US-40 near Coyote Canyon Parkway, one segment of the future US-40 Regional Trail, a north-south multi-use trail planned to eventually extend from north of SR-32 to downtown Heber City, has been constructed. Heber City is requiring developers on the east side of US-40 to construct a multi-use trail that parallels US-40 on their properties.

Heber City's Main Street has contiguous sidewalks on both sides of the street from 750 North to US-189. Traffic signals at 500 North, Center Street, 100 South, 600 South, and US-189 allow pedestrians to cross Main Street at a signalized location. Additionally, a pedestrian-activated overhead flashing beacon is located at 100 North, and a high-intensity activated crosswalk beacon is located at 250 South. Beyond the vicinity of Center Street, east-west mobility for pedestrians is limited, and pedestrians need to make multi-block detours to get to designated crossing areas.

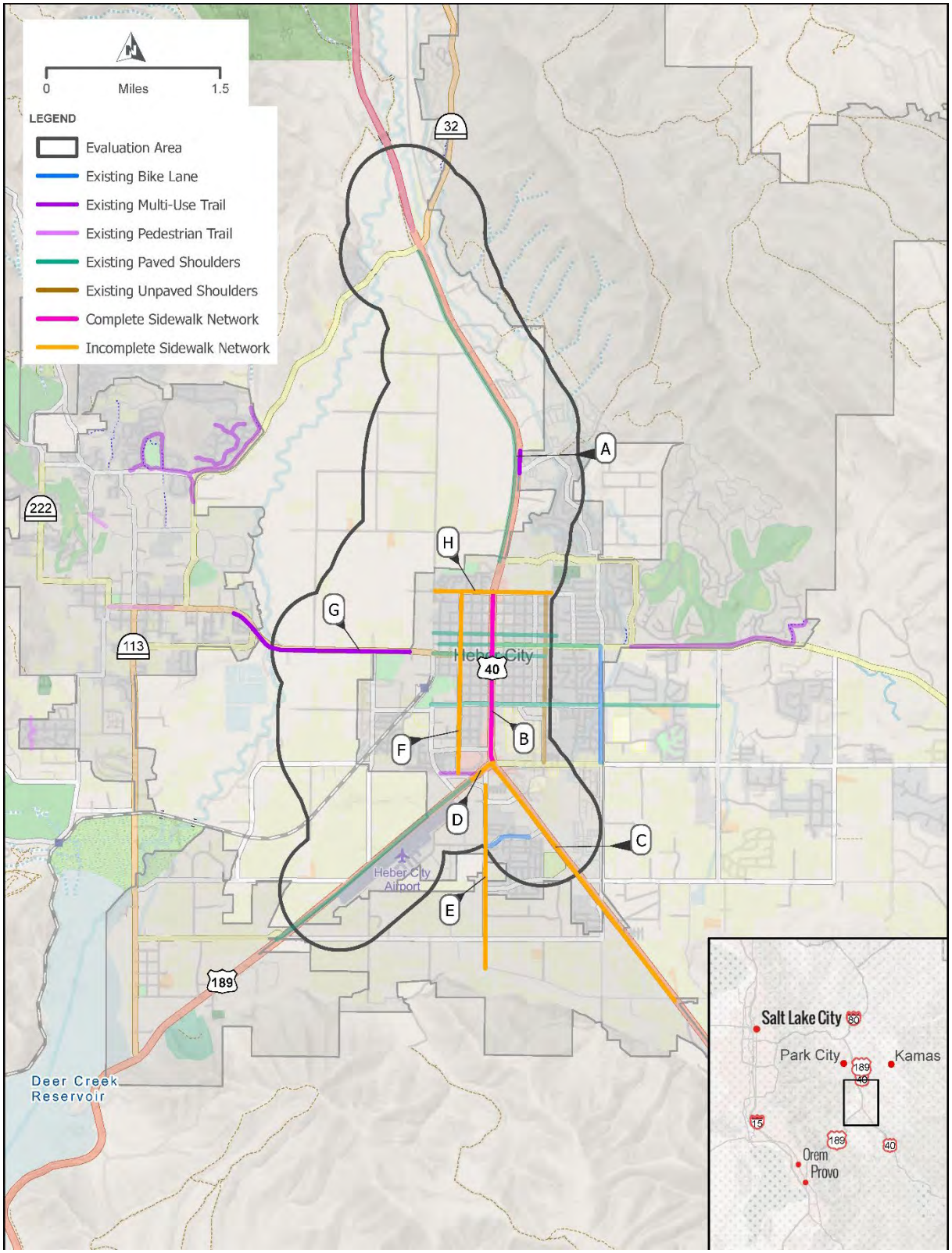
Main Street has no designated bicycle infrastructure, and this lack of accommodations creates a low-comfort experience for all but the most confident riders due to the large amount of traffic and vehicles parallel-parked on the shoulders. Crash data from 2016 to 2018 show three crashes involving bicyclists riding on the sidewalk along Main Street, which might indicate that some bicyclists are afraid to ride on Main Street itself (Parametrix 2025).

Table 3.8-1. Existing On-street Pedestrian and Bicyclist Facilities

Map Label[a]	Route	Type of Pedestrian Facility	Type of Bicyclist Facility	Description
A	US-40 near Coyote Canyon Parkway	Short segment of multi-use trail constructed with Coyote Ridge development	Short segment of multi-use trail constructed with Coyote Ridge development	Multi-use trail parallel to US-40 in the Coyote Ridge development.
B	US-40 from 750 North to the intersection with US-189	Sidewalks on both sides of the road	Not applicable	Through the downtown area of Heber City, US-40 has sidewalks on both sides of the street as well as wide, paved shoulders that are also used for parking. Because the shoulders are also used for parking and because of heavy traffic on the road, bicyclists typically take alternate routes through downtown using parallel roads. Traffic signals at 500 North, Center Street, 100 South, 600 South, and US-189 allow pedestrians to cross Main Street at a signalized location.
C	US-40 from US-189 intersection to the Heber City boundary	Incomplete sidewalk network on north and south sides of the road	Not applicable	South of the intersection with US-189, US-40 narrows, and the accommodations are incomplete.
D	US-189 from 1300 South to US-40	Sidewalk on north side of the road, and incomplete sidewalk on south side of road.	Not applicable	From 1300 South to the intersection with US-40, one sidewalk on the north side of the road connects to the sidewalks along US-40 in the downtown area. Between Daniels Canyon Road and US-40 is a small segment of sidewalk on the south side of the road.
E	Daniels Canyon Road	Incomplete sidewalk network	Not applicable	Daniels Canyon Road connects rural Daniel with downtown Heber City. New sections of sidewalk have been recently installed north of Turner Mill Road.
F	300 West	Incomplete sidewalk network	Paved shoulders	300 West parallels US-40 on the west side of Heber City, providing a more comfortable north-south bypass of US-40. Between 600 South and 1300 South there are sidewalks on both sides of 300 West.
G	100 South/SR-113/ Midway Lane west of 600 West	Midway Lane multi-use trail	Midway Lane multi-use trail	100 South connects Heber City with Midway. The road is narrow; however, on the south side of the road is a paved multipurpose trail.
H	500 North	Incomplete sidewalk network	Not applicable	500 North crosses US-40. At the intersection of US-40 and 500 North are crosswalks and a traffic signal.

[a] These facilities are shown in Figure 3.8-1 below.

Figure 3.8-1. Existing Pedestrian and Bicyclist Facilities



3.8.3.2 Future Facilities

The currently adopted plans include several proposed pedestrian and bicyclist facility projects that would improve active transportation connectivity across the valley. In some locations in the valley, there are discrepancies with regard to the type of proposed pedestrian and bicyclist facility shown in the adopted plans.

What is a sharrow?

A sharrow is a shared lane for both bicyclists and vehicles. Sharrows are indicated by pavement markings consisting of two chevrons (arrows) and a bicycle.

The *Heber City Parks, Trails, and Open Space Master Plan* (Heber City 2021c) and the *Wasatch County Heber Valley Nonmotorized Trail Plan* (Wasatch County 2024) show many planned multi-use trails in the Heber Valley, including along US-40, along US-189 from 1300 South to SR-113, along the Heber Valley Historic Railroad, and along a west corridor. The master plans also show bicycle lanes on US-40 north of 500 North (Heber City 2019, 2023). These proposed improvements in the adopted plans are listed in Table 3.8-2 and shown in Figure 3.8-2.

Additionally, Heber City created Envision Heber 2050, an initiative to address their community's need for a collaborative vision. This initiative resulted in an update to their general plan in 2019 and again in 2023. This plan, *Heber City Envision 2050 General Plan*, states the long-term goals and imagines the desired future for the city. Some of the plan's principles are related to Main Street, including statements for improved pedestrian and bicyclist connectivity:

> Downtown, Heber [City]'s historic center, will develop into an even stronger center and remain the heart of the community. Main Street, together with surrounding blocks, is a local and regional destination.
>
> 1. Heber [City] preserves, enhances, and improves access to its valued places and buildings on Main Street.
> 2. Heber [City] improves pedestrian and bike accessibility, parking, and traffic conditions along Main Street.

Table 3.8-2. Proposed Pedestrian and Bicyclist Improvement Projects

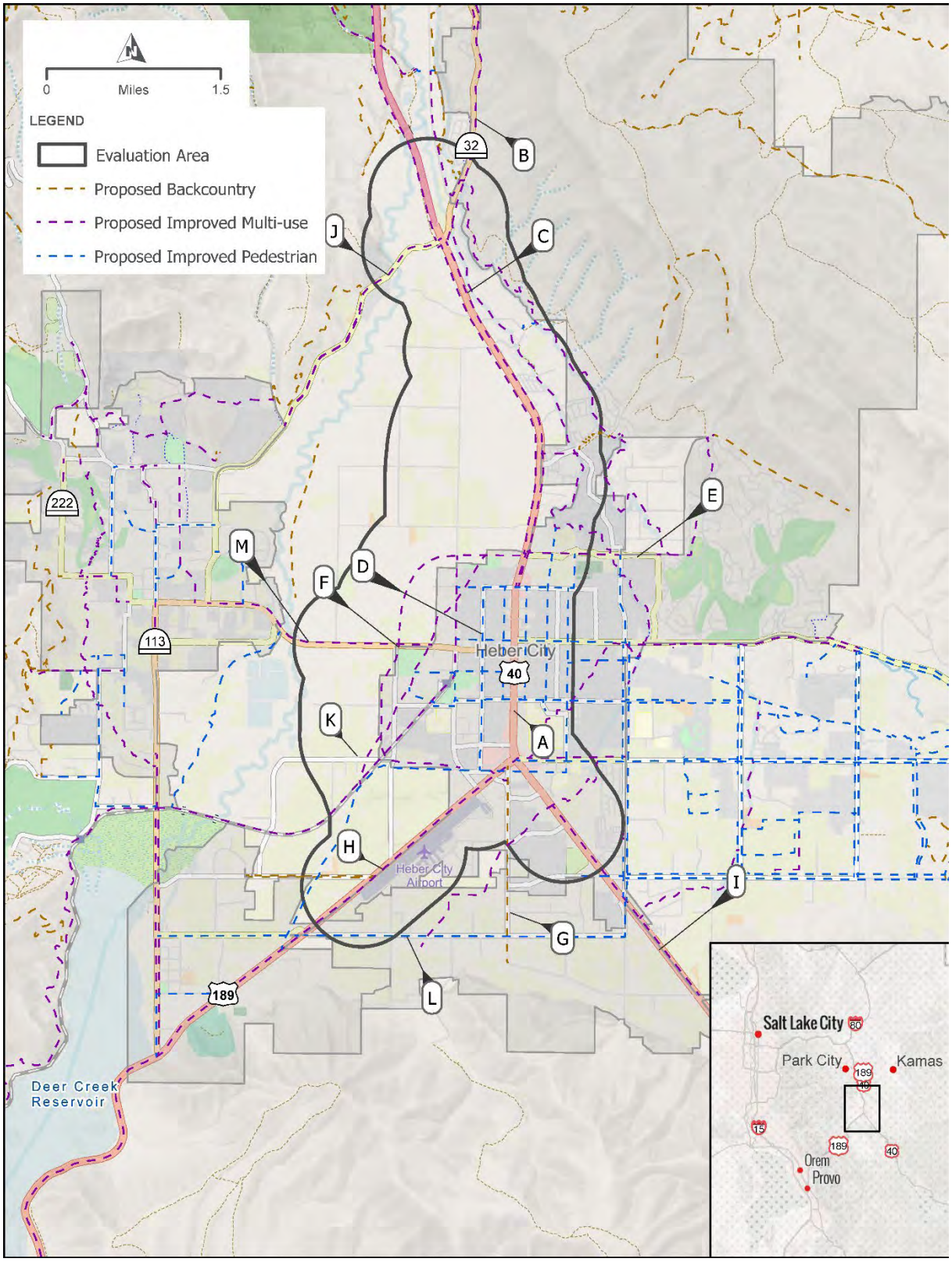
Map Label	Route	Project	Description
A	US-40 / Main Street [b,c]	Trail or Sharrow	Incorporate paved trail[b] or sharrow[c] on Main Street in downtown Heber City from 500 North to 1200 South.
B	SR- 32[a,b,c]	Multi-use trail	Add a multi-use trail parallel to SR-32 from US-40 to Cliff Road.
C	US-40 Regional Trail[a,b,c]	Multi-use trail	Planned trail along US-40 from north of SR-32 to 1200 South[b] or 500 North[a,c] and along south US-40 from planned Heber Valley Corridor Multi-use Trail connection (about 1500 South) to 3600 South in the town of Daniel.
D	100 South[a,b]	Multi-use trail	Add pedestrian trail[a,b] on 100 South from 100 West to the existing Midway Lane Multi-use Trail.
E	East Bypass Connector Trail[a,b,c]	Multi-use trail	Include multi-use trail[a,b,c] in design of corridor road from US-40 near 900 North to Center Street.
F	Bypass Road Connector Trail[a,b,c]	Multi-use trail	Planned trail[a,b,c] parallel to the planned west bypass extending west of downtown Heber City from the US-40 and 900 North intersection to the US-40 and 1500 South intersection.
G	Daniels Canyon Road[a,b,c]	Multi-use trail[b,c] or backcountry trail[a]	Add multi-use trail Daniels Canyon Road from Heber Parkway to Little Sweden Road.
H	US-189[a,b,c]	Multi-use trail	Add multi-use trail parallel to US-189 from 1300 South to Charleston Road
I	South US-40[a,b,c]	Multi-use trail	Add a multi-use trail parallel to US-40 from 1200 South to Little Sweden Road.
J	River Road[a,c]	Bike lane[c] or multi-use trail[a,b]	Add bike lanes or multi-use trail on River Road from SR-32 to Dutch Canyon Road.
K	1200 South and Casperville Road[c]	Bike lane	Add bike lanes to 1200 South and Casperville Road to connect Heber City and Charleston.
L	3000 South[a]	Pedestrian improvement	Unspecified pedestrian improvement from 3600 West to Mill Road.
M	Midway Lane [a]	Multi-use trail on north side of Midway Lane	Add multi-use trail to the north side of Midway Lane. A multi-use trail exists on the southside of Midway Lane.

[a] Included in the *Wasatch County Heber Valley Nonmotorized Trail Plan* (Wasatch County 2024)
[b] Included in the *Heber City Envision 2050 General Plan* (Heber City 2023)
[c] Included in the *Heber City Parks, Trails, and Open Space Master Plan* (Heber City 2021c)

3.8.3.2.1 North Village Development Plans

The area on the east side of US-40 between SR-32 and 900 North is known as the North Village of Heber City. The North Village will consist of several individual developments. Heber City has been working with the developers to incorporate a connected multi-use path along US-40 (map label C in Figure 3.8-2) in their plans. UDOT reviewed the current development plans for proposed pathway alignments parallel to US-40 and will continue to coordinate with Heber City with regard to new development proposals in this rapidly developing area.

Figure 3.8-2. Proposed Pedestrian and Bicyclist Facilities



3.8.4 Environmental Consequences and Mitigation Measures

3.8.4.1 Methodology

To assess the expected impacts to pedestrian and bicyclist facilities from the action alternatives, UDOT used data in GIS format to identify the pedestrian and bicyclist facilities that would be intersected by the action alternatives' cut-and-fill boundaries.

3.8.4.2 No-action Alternative

The No-action Alternative would not meet the purpose of the project because it would not provide connected opportunities for nonmotorized transportation along a west corridor and US-40 as proposed by Heber City and Wasatch County. With the No-action Alternative, UDOT would not construct a west corridor or a multi-use path, and the existing pedestrian and bicyclist facilities would continue to operate similarly to the existing conditions. There would be no continuous pedestrian or bicyclist facility extending from SR-32 to the commercial center near the hub intersection.

Along north US-40, developers would continue to build segments of the multi-use path within their property boundaries as development occurs. This multi-use path along north US-40 would be discontinuous until the entire area redevelops, and the discontinuity would force pedestrians and bicyclists to use the shoulders of north US-40 or other side streets to continue their travel between developments. The downtown pedestrian and bicyclist environment would not change or improve to align with Heber City's vision for Main Street. Traffic congestion issues would remain. Main Street would continue to have no designated bicycle infrastructure, resulting in a low-comfort experience for all but the most confident riders due to the large amount of traffic and vehicles parallel-parked on the shoulders.

3.8.4.3 Action Alternatives

3.8.4.3.1 Alternative A

Alternative A would meet the purpose of the project by providing opportunities for nonmotorized transportation. Alternative A would include construction of a complete, connected multi-use trail extending from SR-32 to the intersection of 1300 South and Industrial Parkway and connecting to an existing trail on the north side of 1300 South, which currently extends to US-189 at the hub intersection. The existing trail along 1300 South would be rebuilt in a similar alignment with Alternative A. A multi-use trail would also be constructed between the intersection of US-189 and 1300 South and south US-40 north of 1500 South. This segment of trail, south of the hub, would be on the south side of Alternative A. The result would be a continuous multi-use trail extending from SR-32 to south US-40 at 1500 South following the alignment of Alternative A.

Throughout the alternative, the trail would be 12 feet wide, paved, and separated from adjacent roads. The primary purpose of the trail would be active transportation, so it would provide an opportunity for pedestrians and bicyclists to travel without interference from motor vehicles. The multi-use trail would be part of the interconnected trail system planned by Heber City and Wasatch County. The trail design and alignment would be the same for both alternatives except through the north fields as described in the section below and shown in Figure 2.4-2, *Multi-use Trail Locations for the Action Alternatives*.

Between SR-32 and 900 North, the multi-use trail would run parallel to and east of north US-40. Numerous developments are planned on the east side of US-40 in this area, which are part of the North Village Overlay Zone (NVOZ). Heber City is requiring NVOZ developers to construct a multi-use trail in a buffer within their development adjacent to US-40. These sections of trail would be constructed by developers, would be open to the public, and would be maintained by homeowners' associations. However, there are several gaps between planned developments.

With Alternative A, UDOT would construct the multi-use trail between planned developments, resulting in a continuous trail from SR-32 to 900 North on the east side of north US-40. In the sections constructed by UDOT, the trail would generally be east of the existing right-of-way, which would require partial acquisition from properties on the east side of US-40. Heber City would maintain the sections of trail constructed by UDOT.

Between 900 North and 1300 South, the multi-use trail would run parallel to and south or east of the planned western corridor. At 900 North, the trail would cross from the east side of US-40 to the west side at grade, where there is a traffic signal. A connection to Muirfield Park would be provided on the north side of the park (the specific location would be determined along with the design of the park expansion). The trail would cross 600 West at grade (the corridor would go over 600 West), providing a connection to the local road network.

A connection to the Midway Lane Multi-use Trail would be provided east of where the corridor crosses SR-113 (closer to the proposed high school). The existing Midway Lane Multi-use Trail would need to be shifted to the south where the alternatives intersect SR-113. Both alternatives would include an interchange at SR-113. The Midway Lane Multi-use Trail would be rerouted to the south to provide a grade separated pathway that avoids the interchange.

The trail would cross 650 South at grade (the corridor would go over 650 South), providing another connection to the local road network. The trail would cross 1200 South and the Historic Heber Railroad at grade, providing another connection to the local road network as well as to the future Heber Valley Railroad Trail. At 1300 South, the trail would head east, running parallel to and north of 1300 South to Industrial Parkway, where it would connect to an existing trail. The existing trail along 1300 South would be rebuilt in a similar alignment with either action alternative. The existing trail continues east to US-189, south of the commercial area that includes Walmart.

A new segment of trail would be constructed from the intersection of 1300 South and US-189 to south US-40 near the Royal Coachman. The trail would cross Daniel Road at-grade, and the corridor would go over Daniel Road. This segment of trail would tie into the trail proposed for the separate project to widen south US-40.

Although no new pedestrian or bicyclist facilities would be constructed on Main Street as part of an action alternative, UDOT expects the experience for pedestrians and bicyclists to improve in the historic town center compared to the No-action Alternative. The action alternatives are expected to reduce congestion on Main Street from about 42,000 vehicles per day to 35,200 vehicles per day for Alternative A and 33,100 vehicles per day for Alternative B. The action alternatives would also provide an alternative route for commercial truck traffic. Finally, with either action alternative, Heber City would have a greater opportunity to make pedestrian and bicyclist improvements (for example, wider sidewalks and bike lanes) to their historic town center in line with their vision because the action alternatives would provide an attractive option for truck drivers to bypass downtown and would therefore remove traffic from the currently congested roads. See Section 1.1.3, *Local Planning* in Chapter 1 *Purpose and Need*, for more information about how Heber

City would have a greater opportunity to make pedestrian and bicyclist improvements to their historic town center.

3.8.4.3.2 Alternative B

Alternative B would include a 12-foot-wide multi-use trail, the same as Alternative A, in every location except the North Fields Extension between Potter Lane/College Way and 900 North. Alternative B would include a multi-use trail that follows the east side of the North Fields Extension beginning at the traffic signal for Potter Lane/College Way to 900 North, whereas Alternative A would include a multi-use trail on the east side of north US-40 in this area. UDOT would construct the trail along north US-40 between SR-32 and Potter Lane/College Way to connect to the trail through the north fields. Between Potter Lane/College Way and 900 North along north US-40, Heber City and private developers would be responsible for constructing and maintaining the US-40 Regional Trail.

3.8.4.4 Mitigation Measures

The Midway Lane Multi-use Trail is the only existing trail that would be affected by construction. It will be temporarily rerouted during construction and will be reconnected in a new alignment south of the interchange at SR-113 once construction is finished. UDOT will coordinate with Heber City, Wasatch County, and MAG during the final design of the selected alternative to mitigate disruptions to pedestrians, bicyclists, and trail users.

3.9 Joint Development

3.9.1 Introduction

Joint development refers to opportunities to develop other public works projects jointly with the Heber Valley Corridor Project. Section 3.9 discusses proposed pedestrian and bicyclist facilities that might be developed jointly with the Heber Valley Corridor Project.

Joint Development Evaluation Area. The joint development evaluation area includes the footprint of the action alternatives and adjacent areas.

What is the joint development evaluation area?

The joint development evaluation area includes the footprint of the action alternatives and adjacent areas.

3.9.2 Regulatory Setting

Under FHWA guidelines [Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*], an agency developing a project that uses federal money should identify and discuss those joint-development measures that will preserve or enhance an affected community's social, economic, environmental, and visual values. As required by that guideline, Section 3.9 discusses facilities that might be developed jointly with the Heber Valley Corridor Project.

3.9.3 Affected Environment

The joint development evaluation area intersects pedestrian and bicyclist facilities that cross or are parallel to the alignments of the action alternatives. Representatives with Wasatch County, Heber City, and MAG have advised UDOT on the pedestrian and bicyclist facility options for each action alternative.

As the east side of north US-40 is redeveloped, developers will be required to provide a multi-use trail within a landscaped buffer adjacent to the highway that would be open to the public as part of a regional trail. Construction of the first segment of trail began in 2022 with the Coyote Ridge development. Several developments are planned in this area, and the developers will be required to construct an associated trail, but some areas are not planned for development. Between the areas of currently planned development are four gaps, so the trail would not be continuous. Additionally, Heber City and Wasatch County show a multi-use trail, referred to as the Bypass Road Multi-use Trail, along the planned western corridor in their trail master plans (Heber City 2021c; Wasatch County 2024). The US-40 Regional Trail and the planned Bypass Road Multi-use Trail, if constructed as part of this project, would connect at 900 North.

What names are used for the Heber Valley Corridor trail in planning documents?

In the *Heber City Parks, Trails and Open Space Master Plan* and the *Heber City Envision 2050 General Plan*, this trail is referred to as the Bypass Road Multi-use Trail.

In the *Wasatch County Heber Valley Nonmotorized Trail Plan*, this trail is referred to as "Unnamed proposed multi-use trail."

In this EIS, the trail that would be constructed as part of the action alternatives is referred to as the Heber Valley Corridor Multi-use Trail.

3.9.4 Environmental Consequences and Mitigation Measures

3.9.4.1 No-action Alternative

With the No-action Alternative, it would be more difficult for Heber City and Wasatch County to construct the US-40 Regional Trail between SR-32 and 900 North. It would be more difficult for the City and County to construct the planned Bypass Road Multi-use Trail without UDOT's help.

3.9.4.2 Action Alternatives

The Bypass Road Multi-use Trail, if constructed as part of the Heber Valley Corridor Project, is referred to as the Heber Valley Corridor Multi-use Trail in the discussion below.

3.9.4.2.1 Alternative A

Alternative A would include a multi-use trail on the east side of north US-40 from SR-32 to 900 North that would be jointly constructed by UDOT and private developers. With Alternative A, UDOT would construct the trail in the four gap areas as shown in Figure 2.4-2, *Multi-use Trail Locations for the Action Alternatives*, so that, with both the trail segments constructed by UDOT and the trail segments that are part of planned development, the trail would be continuous from SR-32 to 900 North. Heber City would maintain the trail sections constructed by UDOT, and homeowners' associations would maintain the trail sections constructed by developers.

Alternative A would also include a 12-foot-wide multi-use trail parallel to the Heber Valley Corridor from 900 North to south US-40 as shown in Figure 2.4-4, *Cross Section in the North Fields Extension Segment (Alternative B) and the Western Corridor Segment (Alternatives A and B)*, and Figure 2.4-5, *Cross Section for Alternatives A and B in the 1300 South Segment at 300 West*. The Heber Valley Corridor Multi-use Trail (also known as the Bypass Road Multi-use Trail) would include connections to Muirfield Park, the Midway Lane Connector Trail, Southfield Park, the Wasatch County Railroad Trail, and the local road network at 600 West, 650 South, 1200 South, Industrial Parkway, 300 West, 1300 South, Daniels Road, and south US-40. The Heber Valley Corridor Multi-Use Trail would be maintained by Heber City or Wasatch County.

3.9.4.2.2 Alternative B

Alternative B would include a 12-foot-wide multi-use trail similar to Alternative A's trail in every location except north of downtown Heber City. The trail would follow the east side of the North Fields Extension segment through the north fields beginning at the traffic signal for Potter Lane/College Way, cross at grade at 600 West, and continue east on the south side of the Heber Valley Corridor to the signal at 900 North. UDOT would construct the trail along north US-40 between SR-32 and Potter Lane/College Way to connect to the trail through the north fields. On north US-40 between Potter Lane/College Way and 900 North, Heber City and private developers would be responsible for constructing and maintaining a trail parallel to US-40. UDOT would not fill in two gaps on north US-40, and the gaps might remain until the areas redevelop. These two gaps on north US-40 would be filled as part of Alternative A. Heber City would maintain the trail sections constructed by UDOT, and homeowners' associations would maintain the sections constructed by developers.

3.9.4.3 Mitigation Measures

No mitigation measures for joint development impacts are proposed.

3.10 Air Quality

3.10.1 Introduction

Section 3.10 describes the existing air quality in the air quality evaluation area and the effects of the project alternatives on air quality. Air quality in a given area depends on several factors such as the area itself (size and topography), the prevailing weather patterns (meteorology and climate), and the pollutants released into the air. Air quality is described in terms of the concentrations of various pollutants in a given area of atmosphere (for example, parts per million or micrograms per cubic meter).

What is the air quality evaluation area?

The air quality evaluation area focuses on the Heber Valley on segments of US-40 and US-189 and includes portions of large agricultural areas referred to as the north fields and south fields.

Air Quality Evaluation Area. The air quality evaluation area focuses on the Heber Valley in the following areas:

- US-40 between milepost (MP) 12.91 (just north of River Road/SR-32) and MP 16.33 (around 750 North) and between MPs 18.12 and 18.39 southeast of the location where US-189 joins US-40
- US-189 between MPs 28.40 and 28.71 and between MPs 27.00 and 27.68, southwest of the location where US-189 joins US-40
- Portions of large agricultural areas referred to as the north fields and south fields to the west of US-40

3.10.2 Regulatory Setting

3.10.2.1 National Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA), under the authority of the Clean Air Act (42 USC Section 7401 and subsequent sections), established National Ambient Air Quality Standards (NAAQS) for ubiquitous pollutants considered harmful to public health and the environment (40 CFR Part 50). These standards include both primary and secondary standards. Primary standards protect public health; secondary standards protect public welfare (such as protecting property and vegetation from the effects of air pollution). These standards have been adopted by the Utah Division of Air Quality as the official ambient air quality standards for Utah.

EPA has set NAAQS for six principal pollutants known as *criteria pollutants*. The current NAAQS are listed in Table 3.10-1. According to EPA, transportation sources currently contribute to four of the six criteria pollutants: carbon monoxide (CO), particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), and nitrogen dioxide (NO_2).

If an area meets the NAAQS for a given air pollutant, the area is called an *attainment area* for that pollutant (because the NAAQS have been attained). If an area does not meet the NAAQS for a given air pollutant, the area is called a *nonattainment area*. A *maintenance area* is an area previously designated as a nonattainment area that has been redesignated as an attainment area and is required by Section 175A of the Clean Air Act, as amended, to have a maintenance plan for the 20 years following its redesignation to attainment or maintenance status.

The air quality evaluation area is located in Wasatch County, which is an attainment area for all criteria pollutants.

Table 3.10-1. National and Utah Ambient Air Quality Standards for Criteria Pollutants and Attainment Status for Wasatch County

Pollutant	Primary/Secondary Standard	Averaging Time	Level	Form	Attainment Status for Wasatch County
Carbon monoxide (CO)	Primary	8 hours	9 ppm	Not be exceeded more than once per year	Attainment area
		1 hour	35 ppm	Not be exceeded more than once per year	
Ozone (O_3)	Primary and secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years	Attainment area
Particulate matter ($PM_{2.5}$)	Primary	1 year	9 µg/m³	Annual mean, averaged over 3 years	Attainment area
	Secondary	1 year	15.0 µg/m³	Annual mean, averaged over 3 years	
	Primary and secondary	24 hours	35 µg/m³	98th percentile, averaged over 3 years	
Particulate matter (PM_{10})	Primary and secondary	24 hours	150 µg/m³	Not to be exceeded more than once per year on average over 3 years	Attainment area
Nitrogen dioxide (NO_2)	Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years	Attainment area
	Primary and secondary	1 year	53 ppb	Annual mean	Attainment area
Sulfur dioxide (SO_2)	Primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years	Attainment area
	Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year	Attainment area
Lead (Pb)	Primary and secondary	Rolling 3-month average	0.15 µg/m³	Not to be exceeded	Attainment area

Sources: 49 CFR Part 50 (NAAQS) and EPA 2025a (attainment status)

Definitions: µg/m³ = micrograms per cubic meter; ppm = parts per million; ppb = parts per billion; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; PM_{10} = particulate matter 10 microns in diameter or less

3.10.2.2 Transportation Conformity Requirements

Transportation conformity is a process required by Clean Air Act Section 176(c), which establishes the framework for improving air quality to protect public health and the environment. All state governments are required to develop a state implementation plan (SIP) for each pollutant for which an area is in nonattainment or maintenance status. The SIP explains how the State will comply with the requirements of the Clean Air Act. Transportation conformity ensures that federal highway projects are consistent with the goals established in the SIP. Transportation conformity requirements apply to any transportation-related criteria pollutants for which the project area is designated a nonattainment or maintenance area.

What is transportation conformity?

Transportation conformity is a process required by Clean Air Act Section 176(c), which establishes the framework for improving air quality to protect public health and the environment.

The air quality evaluation area is an attainment area, so transportation conformity requirements do not apply to the Heber Valley Corridor Project.

3.10.2.3 Hazardous Air Pollutants

The Clean Air Act Amendments of 1990 listed 188 hazardous air pollutants (also referred to as air toxics or HAPs) that are known to cause or are suspected of causing cancer or other serious health effects or adverse environmental effects. Most air toxics originate from human-made sources including road mobile sources, nonroad mobile sources (such as locomotives, construction equipment, and airplanes), and stationary sources (such as factories or refineries). Section 112 of the Clean Air Act Amendments of 1990 requires EPA to establish emission standards that require the maximum degree of reduction in emissions of hazardous air pollutants. Unlike the criteria pollutants, HAPs do not have NAAQS, making evaluation of their impacts more subjective.

In 2001, EPA issued its first Mobile-source Air Toxics Rule, which identified 21 mobile-source air toxic compounds (MSATs) as being HAPs that required regulation. EPA issued a second MSAT Rule in 2007 that generally supported the findings in the first rule and specified several emissions standards that must be implemented.

Using the 2011 National Air Toxics Assessment, EPA further identified nine MSATs that are among the national and regional-scale cancer risk drivers or contributors and noncancer hazard contributors. These are the MSATs that should be evaluated during a NEPA analysis. FHWA's *Updated Interim Guidance on Mobile-source Air Toxic Analysis in NEPA Documents* (FHWA 2023) specifies how MSATs should be considered in NEPA documents. FHWA developed a tiered approach for analyzing MSATs in NEPA documents, depending on the following specific project circumstances:

- **Tier 1:** No analysis for projects with no potential for meaningful MSAT effects;
- **Tier 2:** Qualitative analysis for projects with low potential MSAT effects; or
- **Tier 3:** Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

The Heber Valley Corridor Project is a Tier 2 project. The types of projects included in the Tier 2 category are those that serve to improve operations of highway, transit, or freight without adding substantial new

capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. Examples of these types of projects include minor widening projects, new interchanges, replacing a signalized intersection on a surface street, and projects for which design-year (2050) traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

Both action alternatives would add road capacity in Heber City. Alternative A would improve existing US-40 north of downtown Heber City between SR-32 and 900 North and would circumvent the west side of Heber City between 900 North and US-189. This alternative would be a freeway-type facility with a combination of free-flow ramps and grade-separated interchanges. For more information about Alternative A, see Section 2.4.3.2, *Alternative A*. Alternative B would extend through the north fields and would circumvent the west side of Heber City. This alternative is designed with free-flow ramps and interchanges. For more information about Alternative B, see Section 2.4.3.3, *Alternative B*.

Design-year (2050) traffic on US-40 between SR-32 and 900 North is expected to be about 48,100 AADT, which would not exceed the threshold for quantitative analysis in FHWA's guidance (a threshold of 140,000 to 150,000 AADT). Design-year traffic for other road segments in the evaluation area would be less than that for US-40 (see Appendix 2C, *Action Alternatives Traffic Memo*).

3.10.2.4 Greenhouse Gases

Gases that trap heat in the atmosphere are called *greenhouse gases* (GHG). The primary GHGs are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). In 2022, CO_2 accounted for about 79.9% of all U.S. GHG emissions from human activities (EPA 2024). The main source of these emissions is the combustion of fossil fuels (coal, natural gas, and oil) for energy and transportation. Transportation activities account for 34.7% of U.S. CO_2 emissions.

In contrast to broad-scale actions such as those involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the impacts of GHG emissions for a particular transportation project. GHG emissions from a single project are usually very small. GHG emissions are better addressed at the regional, state, and transportation systems level where multiple sources and projects can be analyzed in aggregate.

3.10.3 Affected Environment

3.10.3.1 Attainment Status

The air quality evaluation area is an attainment area for all criteria pollutants.

The Utah Division of Air Quality (UDAQ) maintains a network of air quality monitoring stations throughout the state. These monitoring stations follow stringent siting and quality assurance criteria as described in the monitoring network requirements in 40 CFR Part 58. These monitoring stations are EPA-approved and are used to make regulatory determinations of NAAQS attainment. In general, these monitoring stations are located where there are known air quality problems with higher population, so they are usually in or near urban areas or close to specific emission sources. Other stations are located in suburban locations or remote areas to provide an indication of regional air pollution levels.

As of April 2025, there were no UDAQ air quality monitoring stations in Wasatch County. The nearest stations are located in Salt Lake and Utah Counties, which are nonattainment and/or maintenance areas for

several criteria pollutants. For that reason, the air quality monitoring data from those stations are not applicable to the air quality evaluation area.

3.10.4 Environmental Consequences and Mitigation Measures

This section describes the effects of the project alternatives on air quality. The impacts of construction would be temporary and are discussed in Section 3.19.2.2.6, *Air Quality Impacts from Construction*. The operational impacts of the project alternatives would be long-term and would be directly due to highway traffic. Operational impacts to air quality are discussed below in this section.

3.10.4.1 No-action Alternative

With the No-action Alternative, the improvements associated with the Heber Valley Corridor Project would not be made. However, other regionally significant transportation projects identified in *TransPlan50* (MAG 2023), MAG's 2023–2050 regional transportation plan for urban Utah County, would still be built and would contribute to local air quality impacts throughout the air quality evaluation area.

With the No-action Alternative, congestion levels at key intersections in the air quality evaluation area would increase compared to the existing conditions in 2019. UDOT modeled the projected level of service at intersections in the evaluation area with each of the project alternatives. Table 3.7-1, *Weekday PM Peak-hour Intersection Level of Service and Average Delay per Vehicle for the Project Alternatives*, on page 3-85 summarizes the results of this modeling. In Table 3.7-1, failing conditions (LOS F) are shaded red, and near-failing conditions (LOS E) are shaded orange. With the No-action Alternative, 7 out of 11 of the existing US-40 intersections would operate at failing or near-failing conditions, and travel time would more than double at these intersections.

Compared to the existing conditions in 2019, vehicle emissions would be greater with the No-action Alternative in 2050 due to increased traffic congestion and travel times. More fuel is burned at slower speeds in congested conditions with stop-and-go driving movements, which can increase emissions of transportation-related pollutants (EPA 2014; Texas A&M Transportation Institute 2024; U.S. Department of Energy, Vehicle Technologies Office 2021). Vehicle emission rates are generally lowest at moderate speeds in free-flow conditions (U.S. Department of Energy, Vehicle Technologies Office 2022). Congestion relief can reduce travel delays, engine idle time, and unproductive fuel consumption (USDOT 2023).

3.10.4.2 Action Alternatives

3.10.4.2.1 Alternative A

Alternative A would improve existing US-40 north of downtown Heber City between SR-32 and 900 North and would circumvent the west side of Heber City between 900 North and US-189. This alternative would be a freeway-type facility with a combination of free-flow ramps and grade-separated interchanges. For more information on Alternative A, see Section 2.4.3.2, *Alternative A*.

Alternative A would operate with better performance than the No-action Alternative to the extent that one intersection would operate at LOS F (see Table 3.7-1, *Weekday PM Peak-hour Intersection Level of Service and Average Delay per Vehicle for the Project Alternatives*, on page 3-85). Two intersections, US-40/Center Street and US-40/US-189, would operate at LOS E. With Alternative A, the level of service would improve

and travel times would decrease at five of the seven intersections that would operate at LOS E or F with the No-action Alternative (University Avenue, one of the intersections that would operate at LOS E with the No-action Alternative, does not exist with Alternative A).

Overall, vehicle emissions would be reduced with Alternative A as a result of decreased traffic congestion and reduced travel times compared to vehicle emissions with the existing conditions and the No-action Alternative.

3.10.4.2.2 Alternative B

Alternative B would extend through the north fields and would circumvent the west side of Heber City. This alternative is designed with free-flow ramps and interchanges. For more information on Alternative B, see Section 2.4.3.3, *Alternative B*.

Alternative B would operate with better performance than the No-action Alternative to the extent that no intersections would operate at LOS F (see Table 3.7-1, *Weekday PM Peak-hour Intersection Level of Service and Average Delay per Vehicle for the Project Alternatives*, on page 3-85). One intersection, US-40/US-189, would operate at LOS E. With Alternative B, the level of service would improve and travel times would decrease at six of the seven intersections that would operate at LOS E or F with the No-action Alternative (University Avenue, one of the intersections that would operate at LOS E with the No-action Alternative, does not exist with Alternative B).

Overall, vehicle emissions would be reduced with Alternative B as a result of decreased traffic congestion and reduced travel times compared vehicle emissions with the existing conditions and the No-action Alternative.

3.10.4.3 MSAT Emissions

For each alternative evaluated in this EIS, the amount of MSATs emitted would be proportional to the vehicle-miles traveled (VMT) assuming that other variables, such as fleet mix, are the same for each alternative. As shown in Table 3.10-2, average daily VMT with the No-action Alternative is forecasted to increase by 347,000 miles per day (125.7%) compared the existing conditions, and average daily VMT for Alternatives A and B are forecasted to increase by 389,000 to 384,000 miles per day (141% to 139%, respectively) compared to the existing conditions. These forecasted increases in average daily VMT are primarily a result of the forecasted increase in population, travel behaviors based on the function of the transportation network with each alternative, and, consequently, the number of vehicles traveling through the air quality evaluation area.

Why is VMT different for each alternative?

Projected traffic congestion and road capacity influence VMT. The action alternatives provide additional road capacity, which reduces congestion overall and accommodates more vehicles on the transportation network in the Heber Valley. Alternative A is projected to have slightly more congestion on Main Street than Alternative B; therefore, it would be less attractive for those traveling outside the Heber Valley, and more traffic would stay in the valley, resulting in slightly higher VMT. The No-action Alternative conditions would have higher congestion and serve fewer vehicles overall.

Table 3.10-2. Average Daily VMT for Existing Conditions and Forecasts for 2050

Conditions or Alternative	Average Daily VMT[a]	Percent Change from Existing Conditions	Percent Change from No-action Alternative
Existing conditions (2019)	276,000	NA	NA
2050 Estimates			
No-action Alternative	623,000	125.7%	NA
Alternative A	665,000	140.9%	6.7%
Alternative B	660,000	139.1%	5.9%

Source: Appendix 2C, *Action Alternatives Traffic Memo*

Definitions: NA = not applicable; VMT = vehicle-miles traveled

[a] Average daily VMT information was obtained from the Summit-Wasatch travel demand model version 2.1 2024-03-28.

The average daily VMT for Alternative A is forecasted to increase by 42,000 (about 6.7%) compared to the No-action Alternative. The average daily VMT for Alternative B is forecasted to increase by 37,000 (about 5.9%) compared to the No-action Alternative. Alternatives A and B would increase VMT because they propose new roads that would increase the capacity of the transportation system in the Heber Valley, and they have longer routes for through travel. Although travel times would be faster with the action alternatives, they would increase the distance traveled by some vehicles depending on the destination.

In addition, regardless of the alternative selected, emissions in the design year (2050) would likely be lower than they are currently as a result of improved fuel efficiency and options for alternative fuel vehicles. These standards are projected to reduce annual MSAT emissions by over 76% from 2020 to 2060 (FHWA 2023). Although local conditions might differ from these national projections in terms of fleet mix, VMT growth rates, and local control measures, the magnitude of the EPA-projected reductions is so great (even with VMT growth) that MSAT emissions in the air quality evaluation area are likely to be lower in the future in nearly all cases.

3.10.4.3.1 Incomplete or Unavailable Information for Project-Specific MSAT Health Impacts Analysis

FHWA has issued standard language that addresses incomplete or unavailable information related to MSATs (FHWA 2023, Appendix C). That language is presented here for reference.

> In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.
>
> The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health

effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects) or in the future as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts—each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk" (EPA IRIS database, Diesel Engine Exhaust, Section II.C, https://iris.epa.gov/static/pdfs/0642_summary.pdf).

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in

some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf).

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

3.10.4.4 Greenhouse Gas Emissions

With the No-action Alternative, the improvements associated with the Heber Valley Corridor Project would not be made. However, other regionally significant transportation projects identified in *TransPlan50*, MAG's 2023–2050 regional transportation plan, would still be built and would contribute to GHG emissions throughout the air quality evaluation area.

GHG emissions are expected to increase by 2050 regardless of whether the Heber Valley Corridor Project is implemented or not. This increase is a direct factor of increased VMT in the evaluation area. The carbon content in fuel is constant, and the amount of GHG produced is directly related to the amount of fuel consumed. Increased VMT equates to more fuel burned and more GHG released into the atmosphere. Although fuel economy is expected to increase in the future, it would not be enough to offset the increase in VMT.

However, it is important to note that using VMT as a GHG factor does not consider the additional fuel consumption and higher emissions rates at lower speeds that would result from congestion, which both action alternatives would reduce compared to the No-action Alternative.

3.10.4.5 Mitigation Measures

Although VMT is projected to increase by 2050, overall, vehicle emissions would be reduced with either action alternative as a result of decreased traffic congestion and reduced travel times compared to vehicle emissions with the existing conditions and the No-action Alternative. In addition, regardless of the alternative selected, emissions in the design year (2050) would likely be lower than they are currently as a result of improved fuel efficiency and options for alternative fuel vehicles. No mitigation for air quality impacts from implementing either action alternative is proposed. For the proposed air quality mitigation related to construction, see Section 3.19, *Construction Impacts*.

3.11 Noise

3.11.1 Introduction

Section 3.11 describes the existing noise conditions in the noise evaluation area and the expected noise impacts of the project alternatives. Traffic noise impacts are evaluated using the noise model and methodologies approved by FHWA and UDOT (FHWA 2011; UDOT 2020).

What is the noise evaluation area?

The noise evaluation area is the land adjacent to the action alternatives that could be affected by changes in noise levels to a distance of approximately 500 feet.

Where appropriate, noise barriers or other abatement measures are evaluated to mitigate noise impacts, and recommendations are made for noise-abatement measures consistent with UDOT Policy 08A2-01, Noise Abatement, revised May 28, 2020. For detailed information about the UDOT noise analysis described in Section 3.11, see Appendix 3F, *Noise Technical Report*.

Noise Evaluation Area. The noise evaluation area is the land adjacent to the action alternatives that could be affected by an increase in noise levels to a distance of approximately 500 feet (see Figure 3.11-1, *Noise Evaluation Area and Monitoring Locations*, on page 3-125).

Noise Policy Applicability. Under UDOT's noise-abatement policy, the Heber Valley Corridor Project is classified as a Type I project because both of the project's action alternatives are proposing new roads on new locations or changes to the horizontal and vertical alignments of existing roads.

3.11.2 Regulatory Setting

The federal regulation that FHWA uses to assess noise impacts is 23 CFR Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise. This regulation was updated on July 13, 2010. The highway traffic noise prediction requirements, noise analysis, and noise-abatement criteria described in Section 3.11 are consistent with 23 CFR Part 772 and with UAC R930-3, Highway Noise Abatement.

UAC R930-3 and UDOT's noise-abatement policy establish UDOT's noise impact and abatement policies and procedures. Because UDOT's noise-abatement policy is consistent with 23 CFR Part 772 and has been approved by FHWA, it was used by UDOT for the noise evaluation in this EIS.

Noise-abatement Criteria. FHWA has established noise-abatement criteria (NAC) for several categories of land use activities (Table 3.11-1). FHWA's NAC are based on sound levels that are considered to be an impact to nearby noise-sensitive areas, also known as receptors. According to FHWA guidance (FHWA 2011), UDOT must give primary consideration for noise abatement to exterior areas that are frequently used by people.

UDOT has developed a noise-abatement policy for transportation projects, and this policy conforms to FHWA's noise-abatement requirements in 23 CFR Part 772. For each land use category, UDOT's noise-abatement criterion is the A-weighted decibel (dBA) value reflecting the approach criterion of 1 dBA below the noise-abatement criterion value listed in 23 CFR Part 772 for that land use category (Table 3.11-1).

Table 3.11-1. UDOT's Noise-abatement Criteria

Activity Category	FHWA Criterion L_{eq} (dBA)	L_{eq} Noise Level (dBA)	Evaluation Location	Description of Activity Category
A	57	56	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67	66	Exterior	Residential.
C	67	66	Exterior	Active sports areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails and trail crossings.
D	52	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting room, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in categories A–D or F.
F	—	—	—	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	—	—	—	Undeveloped lands that are not permitted.

Source: UDOT 2020
Definitions: dBA = A-weighted decibel; L_{eq} = equivalent sound level; Section 4(f) = Section 4(f) of the Department of Transportation Act of 1966

UDOT's noise-abatement policy states that a traffic noise impact occurs when either (1) the future worst-case noise level is equal to or greater than the UDOT noise-abatement criterion for a specified land-use category or (2) the future worst-case noise level is greater than or equal to an increase of 10 dBA over the existing noise level.

Noise impact and abatement analyses are required within land use activity categories A, B, C, D, and E (Table 3.11-1 above) only when development exists or has been permitted (formal building permit issued prior to the date when the final environmental decision document is approved). Activity categories F and G include lands that are not sensitive to traffic noise. There are no impact criteria for these land use types, and an analysis of noise impacts is not required.

Section 3.11.4.1, *Methodology for Assessing Noise Impacts*, describes how impacts are assessed for noise.

3.11.3 Affected Environment

The noise evaluation area that was used to determine the existing noise levels is described in Section 3.11.1, *Introduction*, and shown in Figure 3.11-1. This noise evaluation area contains a mix of residential developments, parks, recreation areas, schools, churches, commercial properties, and undeveloped land. The properties in the evaluation area fall within activity categories B, C, E, F, and G under UDOT's NAC. The predominant source of noise in the evaluation area is automobile, bus, and truck traffic on US-40, US-189, and other roads in the area.

3.11.3.1 Noise Monitoring

Existing noise levels in the noise evaluation area for existing conditions were determined by taking short-term (20-minute) sound-level measurements at 24 locations throughout the evaluation area with a Larson Davis model 824 sound-level meter. On-site measurements were taken on July 7, 13, 14, and 16, 2022.

Noise-measurement locations were selected to represent existing residential developments or other areas of frequent human outdoor use where people could be exposed to traffic noise for extended periods. Traffic was counted during the short-term monitoring events so that vehicle counts and vehicle classifications could be determined. Weather conditions and other parameters that could affect measured noise levels were noted. Noise measurements were conducted under the following conditions:

- Wind speeds less than 12 miles per hour
- Dry weather conditions
- Dry road conditions

The 24 noise-monitoring locations (ML) are shown in Figure 3.11-1 and listed in Table 3.11-2. The noise descriptor used in the noise monitoring is the hourly equivalent sound level (L_{eq}).

The measured noise levels and traffic information collected in the field were used to validate FHWA's Traffic Noise Model (TNM) version 2.5. These measured noise levels were used to establish baseline conditions. The traffic volumes were also counted at each of the monitoring locations shown above in Table 3.11-1 and were used to determine vehicle mix (that is, the percentage of cars, medium trucks, and heavy trucks) during each measurement period as well as the directional flow of traffic on the roads.

By following this process of measuring noise and counting traffic volumes and vehicle mixes at each monitoring location, UDOT does not need to monitor noise at every receptor and can develop a noise model that can predict the noise levels at all receptors in the noise evaluation area for existing and future conditions. This process of validating the noise model ensures that the measured noise levels recorded in the field agree with the traffic volumes recorded during the measurement period.

Measured noise levels that are within 3 dBA of the modeled noise are considered accurate for the purpose of validating the noise model. As shown below in Table 3.11-2, the modeled noise levels were within 3 dBA of the measured noise levels, so the TNM is considered valid for use on this project.

Figure 3.11-1. Noise Evaluation Area and Monitoring Locations

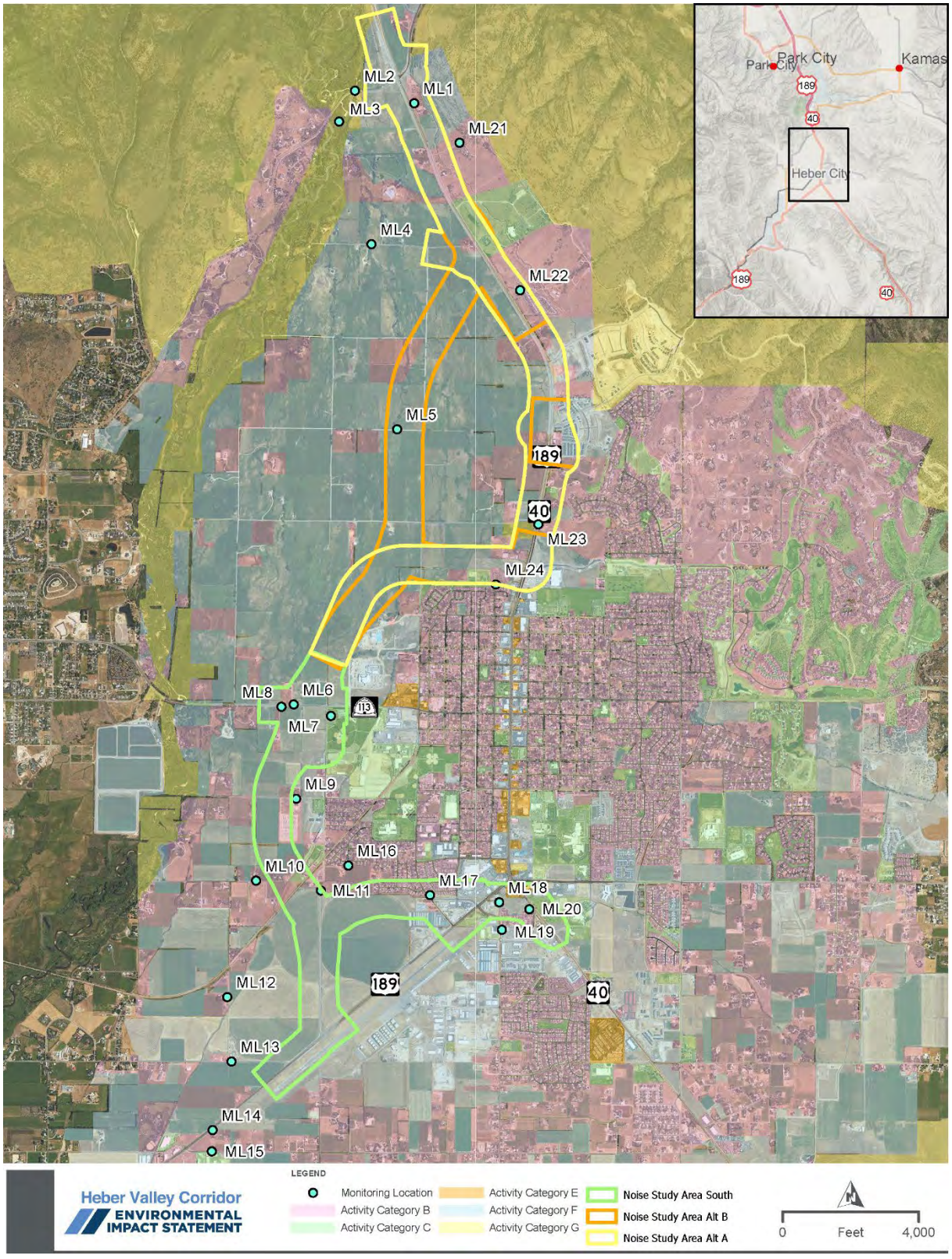


Table 3.11-2. Model Validation

Monitoring Location	Address	Activity Category and Noise Level (dBA L_{eq})	Measured Noise Level (dBA)	Modeled Noise Level (dBA)	Difference (dBA)
ML-1	Residential; 3920 N. Old Highway 40	B	68.3	69.7	1.4
ML-2	Vacant; 3850 River Road	E	66.8	67.3	0.5
ML-3	Residential; 40.55431, –111.43186	B	46.0	48.1	2.1
ML-4	Agricultural; 850 W. Potters Lane	F	50.7	52.2	1.5
ML-5	Agricultural; 1035 West 1800 North	F	52.6	51.6	–1.0
ML-6	Residential (borders agricultural); approx. 1350 W. SR-113	B	69.0	70.3	1.3
ML-7	Southfield Park; approx. Southfield Road and SR-113	C	55.1	55.3	0.2
ML-8	Residential; approx. 1485 W. SR-113	B	70.7	68.6	–2.1
ML-9	Residential; 1465 West 650 South	B	55.7	56.5	0.8
ML-10	Residential; approx. 1642 West 1200 South	B	61.6	60.2	–1.4
ML-11	Residential; approx. 1275 Southfield Road	B	57.4	55.2	–2.2
ML-12	Agricultural (borders residential); approx. 1960 Edwards Lane, Heber City	F	43.6	41.9	–1.7
ML-13	Agricultural (borders residential); approx. 1744 West 2400 South	F	62.8	60.7	–2.1
ML-14	Residential; 2693 S. US-189	B	80.1	76.9	–0.7
ML-15	Residential; 1938 West 3000 South	B	63.0	61.6	–1.6
ML-16	Residential; approx. 1035 West 1060 South	B	43.2	41.0	–2.2
ML-17	Residential open space with trail; approx. 1267 S. Industrial Parkway, Heber City	B	54.0	53.9	–0.1
ML-18	Restaurant; Betty's Café, 1375 S. Daniels Road	E	62.0	60.8	–1.2
ML-19	Retail (borders residential); approx. 1551 S. Daniels Road	E	61.2	58.6	–2.6
ML-20	Residential; 1390 S. Highway 40	B	63.6	61.9	–1.7
ML-21	Residential; 425 W. Moulton Lane	B	50.8	51.6	0.8
ML-22	Residential; 2790 N. Commons Boulevard	B	60.5	63.2	2.7
ML-23	Residential; 1200 N. Highway 40 (east side of Highway 40)	B	77.3	75.5	–1.8
ML-24	Residential; Elmbridge Apartments, approx. 82 West 750 North	B	50.1	53.0	2.9

Definitions: approx. = approximately; dBA = A-weighted decibel; L_{eq} = equivalent sound level

3.11.3.2 Existing Noise Levels in the Noise Evaluation Area

The predominant source of noise in the noise evaluation area is automobile, bus, and truck traffic on US-40, US-189, and other roads in the area.

3.11.3.2.1 Methodology for the Existing Traffic Model

UDOT evaluated existing noise levels using noise models and methodologies approved by FHWA and UDOT (UDOT Policy 08A2-01, Noise Abatement, revised May 28, 2020). Existing noise levels were established with noise modeling for receptors adjacent to US-40, US-189, and the edge of the proposed right-of-way of the action alternatives. More details about the methodology and data used for the noise model for the existing conditions analysis are provided in Appendix 3F, *Noise Technical Report*.

3.11.3.2.2 Summary of Existing Noise Model Results

The noise model developed for the existing conditions scenarios included 1,480 receptors for Alternative A and 1,417 receptors for Alternative B. Because the northern segments of Alternatives A and B are on different alignments, the number of receptors for Alternative A and Alternative B are different. Under the existing conditions, 105 Alternative A and 102 Alternative B receptors experience a noise level above the NAC threshold. The noise levels for the existing conditions and locations of the receptors are shown in Appendix 3F, *Noise Technical Report*.

Overall, noise levels with the existing conditions range from 32 to 72 dBA.

3.11.4 Environmental Consequences and Mitigation Measures

3.11.4.1 Methodology for Assessing Noise Impacts

According to UDOT's noise-abatement policy, a traffic noise impact occurs when either of the following conditions occurs at a sensitive land use (that is, at land uses defined in activity categories A, B, C, D, or E):

- The future-year worst-case noise level is equal to or greater than the UDOT NAC listed above in Table 3.11-1, *UDOT's Noise-abatement Criteria*, for each corresponding land-use category, or
- The future-year worst-case noise level is equal to or greater than an increase of 10 dBA over the existing noise level (a substantial increase). This second impact criterion applies regardless of existing noise levels.

Traffic-related noise impacts with the two action alternatives were estimated with TNM version 2.5 based on the roadway design for each of the action alternatives.

The TNM estimates acoustic intensity at receptor locations based on the level of sound energy generated from a series of straight-line road segments. Where appropriate, the effects of local shielding from existing structures (for example, existing barriers and rows of homes), terrain, and other adjustment factors were included in the model to provide higher levels of detail and accuracy. The noise evaluation for the action alternatives used the same receptors that were used for the existing conditions analysis; these receptors are located within 500 feet from the edge of the proposed right-of-way of the five action alternatives.

The noise models for the action alternatives used traffic volumes at a level of service of LOS C to represent the worst-case noise conditions while traffic is operating at uncongested, free-flow speeds for the proposed

project noise analyses. The TNM inputs also include traffic volume and speed for the following vehicle classifications: automobiles, medium trucks, heavy trucks, and buses. More details are provided in Appendix 3F, *Noise Technical Report*.

3.11.4.2 No-action Alternative

The noise levels with the No-action Alternative would be the same as those modeled for the existing conditions.

Because the northern segments of Alternatives A and B are on different alignments, the number of receptors for Alternative A and Alternative B are different. The noise model developed for the existing conditions scenario included 1,480 receptors for Alternative A, and 1,417 receptors for Alternative B. Under the existing conditions, 105 receptors for Alternative A and 102 receptors for Alternative B experience a noise level above the NAC threshold. The noise levels for the existing conditions and locations of the receptors are shown in Appendix 3F, *Noise Technical Report*.

Overall, noise levels with the existing conditions range from 32 to 72 dBA.

3.11.4.3 Action Alternatives

3.11.4.3.1 Alternative A

Overall, noise levels with Alternative A would range from 35 to 72 dBA compared to the existing conditions of 32 to 72 dBA.

With Alternative A, 230 of the 1,480 receptors (227 activity category B and 3 activity category C) would have traffic noise impacts; that is, they would exceed the NAC as defined in Section 3.11.2, *Regulatory Setting*. A total of 78 of the 230 impacted receptors would have future worst-case noise levels greater than or equal to an increase of 10 dBA over the existing noise level. The locations of those receptors exceeding the NAC are shown in Appendix 3F, *Noise Technical Report*.

3.11.4.3.2 Alternative B

Overall, noise levels with Alternative B would range from 34 to 79 dBA compared to the existing conditions of 32 to 72 dBA.

With Alternative B, 277 of the 1,417 receptors (273 activity category B, 3 activity category C, and 1 activity category E) would have traffic noise impacts; that is, they would exceed the NAC as defined in Section 3.11.2, *Regulatory Setting*. A total of 70 of the 277 impacted receptors would have future worst-case noise levels greater than or equal to an increase of 10 dBA over the existing noise level. The locations of those receptors exceeding the NAC are shown in Appendix 3F, *Noise Technical Report*.

What impacts to would occur to planned developments?

The noise impacts for both Alternative A and Alternative B would include impacts to planned receptors. Most of the planned receptors are located in the North US-40 segment. The presence of planned receptors was based on development plans provided by Heber City and Wasatch County in February 2025. Some of these developments might be completed by the time this EIS is published.

Before the Record of Decision for the Heber Valley Corridor Project is issued, UDOT will confirm the approval status of planned developments with Heber City and Wasatch County, and any unapproved developments will not be recommended for noise abatement in the Record of Decision.

3.11.4.4 Summary of Noise Impacts

Table 3.11-3 summarizes the modeled noise impacts for the existing conditions and the No-action and action alternatives.

Table 3.11-3. Traffic Noise Impacts for Existing Conditions and the No-action and Action Alternatives

Alternative	Total Receptors Modeled	Existing Conditions and No-action Alternative Receptors with Modeled Noise Greater than UDOT NAC	Traffic Noise Impacts with Action Alternative
Alternative A	1,480	105 (104)	230 (227)
Alternative B	1,417	102 (101)	277 (273)

Impacts to land use activity category B (residential properties) are listed in parentheses.

As listed in Table 3.11-3 above, the action alternatives would cause noise impacts to 230 to 277 total receptors, depending on the alternative. Alternative B would have more total noise impacts (277) and more residential noise impacts (273), and Alternative A would have fewer total noise impacts (230) and fewer residential noise impacts (227).

For each action alternative, detailed summary tables with the existing and action noise levels and maps showing the receptor locations are included in Appendix 3F, *Noise Technical Report*.

3.11.4.5 Mitigation Measures

According to UDOT's noise-abatement policy, specific conditions must be met before traffic noise abatement is implemented. Noise abatement must be considered both feasible and reasonable.

The factors considered when determining whether abatement is feasible are:

- **Engineering Considerations.** Engineering considerations such as safety, presence of cross streets, sight distance, access to adjacent properties, barrier height, topography, drainage, utilities, maintenance access, and maintenance of the abatement measure must be taken into account as part of establishing feasibility. Noise-abatement measures are not intended to serve as privacy fences or safety barriers. Abatement measures installed on structures will not exceed 10 feet in height measured from the top of deck or roadway to the top of the noise barrier. Noise barriers will not be installed on structures that require retrofitting to accommodate the noise-abatement measure. Noise-abatement measures will be considered if the project meets the criteria established in this policy if structure replacement is included as part of the project. Abatement measures shall be consistent with general American Association of State Highway and Transportation Officials (AASHTO) design principles.
- **Safety on Urban Non-access-controlled Roads.** To avoid a damaged barrier from becoming a safety hazard, in the event of a failure, barrier height must be no greater than the distance from the back-of-curb to the face of the proposed barrier. Because the distance from the back-of-curb to the face of a proposed barrier varies, barrier heights that meet this safety requirement might also vary.
- **Acoustic Feasibility.** Noise abatement must be considered "acoustically feasible." This is defined as achieving at least a 5-dBA highway traffic noise reduction for at least 50% of front-row receptors.

The following factors are considered when determining whether abatement is reasonable:

- **Noise-abatement Design Goal.** Every reasonable effort should be made to obtain substantial noise reductions. UDOT defines the minimum noise reduction (design goal) from proposed abatement measures to be 7 dBA or greater for at least 35% of front-row receptors.
- **Cost-effectiveness.** The cost of a noise-abatement measure must be deemed reasonable in order for it to be included in a project. Noise-abatement costs are based on a fixed unit cost of $20 per square foot, multiplied by the height and length of the barrier, in addition to the cost of any other item associated with the abatement measure that is critical to safety. The fixed unit cost is based on the historical average cost of noise barriers installed on UDOT projects and is reviewed at regular intervals, not to exceed 5 years. The cost-effectiveness of abatement is determined by analyzing the cost of a barrier that would provide a noise reduction of 5 dBA or more for a benefited receptor. A reasonable cost is considered to be a maximum of $30,000 per benefited receptor for activity category B and $360 per linear foot for activity categories A, C, D, or E. If the anticipated cost of the noise-abatement measure is less than the allowable cost, then the abatement is deemed reasonable.

  The cost-effectiveness calculation also takes into account the cost of any items associated with the abatement measure that is critical to safety, such as snow storage and safety barriers where applicable.
- **Viewpoints of Property Owners and Residents.** As part of the final design phase, public balloting would take place if noise-abatement measures meet the feasible criteria and reasonable noise-abatement design goal and cost-effectiveness criteria (listed above) in UDOT's noise-abatement policy.

  Section C.2l of UDOT's noise-abatement policy requires balloting for all benefited receivers (property owners or tenants who would receive a 5-dBA or greater reduction in noise from the noise-abatement measure) or receivers whose property would abut the proposed noise-abatement measures. Balloting approval is contingent on at least 75% of the total ballots being returned and 75% of the returned ballots being in favor of the proposed noise-abatement measure.

3.11.4.5.1 Noise Barriers

For a noise barrier to be effective, it must be high enough and long enough to block the view of the noise source from the receptor's perspective. FHWA's *Highway Traffic Noise: Analysis and Abatement Guidance* (FHWA 2011) states that a good rule of thumb is that the noise barrier should extend 4 times as far in each direction as the distance from the receptor to the barrier. For instance, if the receptor is 50 feet from the proposed noise barrier, the barrier needs to extend at least 200 feet on either side of the receptor in order to shield the receptor from noise traveling past the ends of the barrier.

Openings in noise barriers for driveway and cross street access greatly reduce the effectiveness of noise barriers. Therefore, impacted receptors with direct access onto local streets do not qualify for noise barriers.

The anticipated cost of each barrier was calculated by multiplying the barrier area and the barrier cost per square foot ($20). The allowable cost was calculated using two variables: (1) activity category B allowable cost and (2) activity category C allowable cost.

1. The activity category B allowable cost was calculated by multiplying the allowable cost per benefited receptor ($30,000) by the number of receptors benefited by the barrier.
2. The activity category C allowable cost was calculated by multiplying the length of the barrier associated with activity category C land use by the allowable cost for activity category C land ($360 per linear foot).

These two variables, activity category B allowable cost and activity category C allowable cost, were combined to produce the allowable cost for each barrier (for detailed barrier analyses, see Appendix 3F, *Noise Technical Report*).

To provide an objective analysis of traffic noise reduction at impacted receptors, UDOT considered a variety of noise barrier heights in areas with noise impacts that do not have an existing noise barrier. If multiple barrier heights would meet noise-abatement requirements, UDOT considered the number of benefitted receptors and the cost per benefitted receptor to identify the noise barrier height that would be recommended for balloting. A total of 24 noise barriers were considered for the action alternatives. See the noise barrier maps in Appendix 3F, *Noise Technical Report*.

3.11.4.5.2 Noise-abatement Evaluation for the Action Alternatives

UDOT evaluated 24 noise barriers at locations where noise impacts would occur with the action alternatives. Of the 24 modeled noise barriers for the action alternatives, 4 met UDOT's feasibility and reasonableness acoustic and cost criteria (Table 3.11-4).

- **Alternative A:** 4 of the 24 modeled noise barriers (Barriers F, HH, II, and M) met UDOT's feasibility and reasonableness acoustic and cost criteria.
- **Alternative B:** 3 of the 24 modeled noise barriers (Barriers F, HH, and II) met UDOT's feasibility and reasonableness acoustic and cost criteria.

Maps showing the locations of the noise barriers evaluated for the action alternatives are shown in Figure 3.11-2 and Figure 3.11-3. More detailed information for each barrier is available in Appendix 3F, *Noise Technical Report*.

Table 3.11-4. Barrier Analysis Summary

Proposed Barrier	Alternative(s)	Is Barrier Feasible, Reasonable, and Recommended for Balloting?	Recommended Barrier Height
A	A and B	No	NA
B	A and B	No	NA
C	A and B	No	NA
D	A and B	No	NA
E	A and B	No	NA
F	**A and B**	**Yes**	**11 feet**
AA	A and B	No	NA
BB	A and B	No	NA
CC	A and B	No	NA
DD	A and B	No	NA
EE	A and B	No	NA
FF	A and B	No	NA
GG	A and B	No	NA
HH	**A and B**	**Yes**	**13 feet**
II	**A and B**	**Yes**	**9 feet**
G	A	No	NA
H	A	No	NA
I	A	No	NA
J	A	No	NA
K	A	No	NA
L	A	No	NA
M	**A**	**Yes**	**17 feet**
N	A	No	NA
O	A	No	NA
G	B	No	NA
H	B	No	NA
I	B	No	NA
J	B	No	NA
K	B	No	NA
L	B	No	NA
M	B	No	NA
N	B	No	NA
O	B	No	NA

Figure 3.11-2. Noise Walls Evaluated for Alternative A

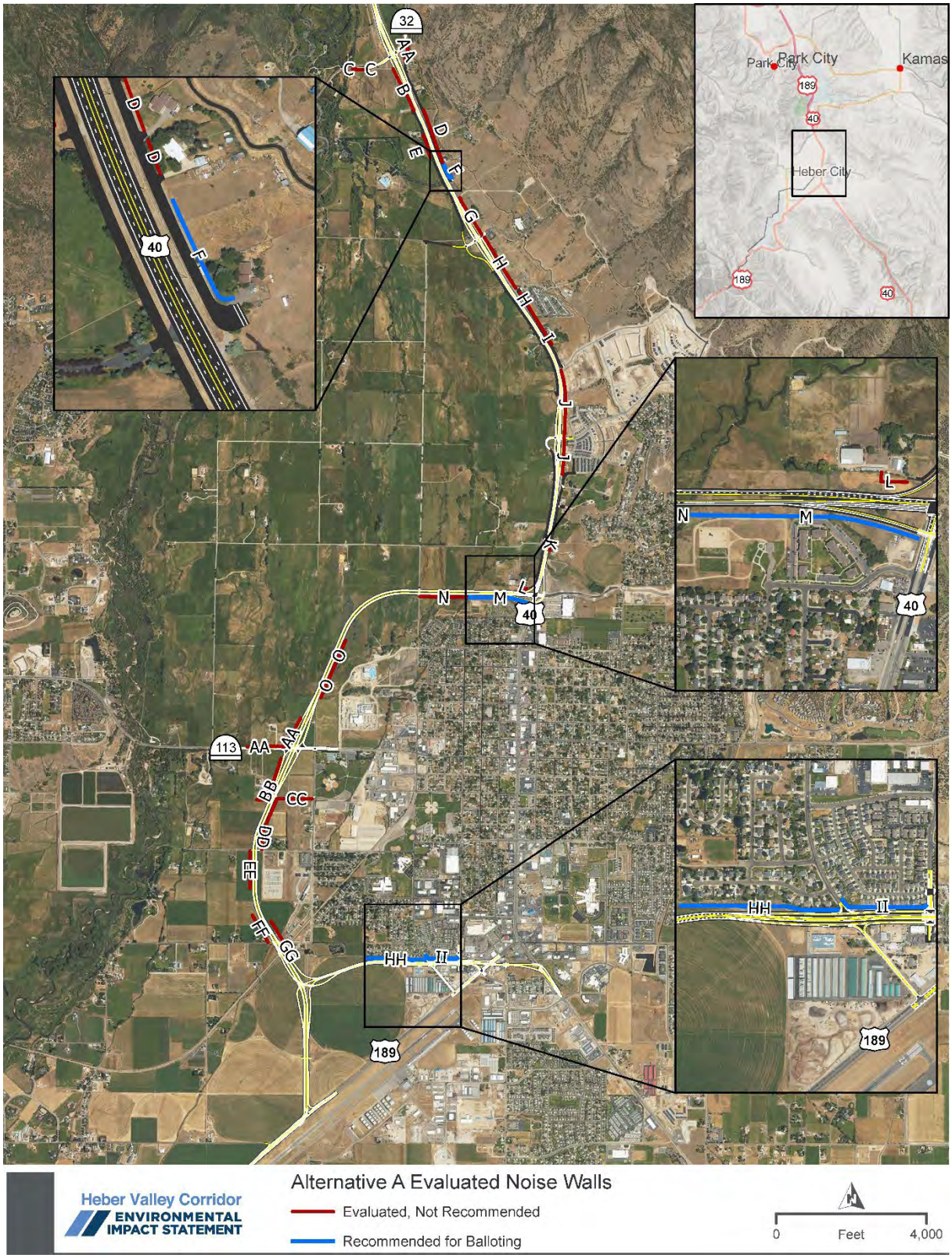


Figure 3.11-3. Noise Walls Evaluated for Alternative B

Noise-abatement Consideration during Final Design. Recommended noise barriers in the noise evaluation area that met the requirements of UDOT's current noise-abatement policy are summarized in Table 3.11-4 above. UDOT's noise policy is under review and could change in the future. UDOT would not make the final decision to build a noise barrier until the project design is completed and refined utility and right-of-way costs are available. During final design, UDOT would revisit reasonableness using refined costs before balloting residents whose residences would be benefited by a noise barrier using the noise policy that is current at that time. A barrier identified as recommended for balloting is a barrier that has been shown to be both feasible and reasonable. However, that finding is not a commitment to build a barrier.

To be conservative on building assumptions for the Draft EIS noise analysis, UDOT has included planned developments (based on information provided by Heber City and Wasatch County) that might not have final, formal building permits. Before the Record of Decision for the Heber Valley Corridor Project is issued, UDOT will confirm the approval status of planned developments with Heber City and Wasatch County, and any unapproved developments will not be recommended for noise abatement in the Record of Decision.

3.11.4.6 Construction Noise

Noise during construction is discussed in Section 3.19.2.2.7, *Noise Impacts from Construction*.

3.12 Cultural (Archaeological and Architectural) Resources

3.12.1 Introduction

Section 3.12 discusses the archaeological and historic architectural properties present in the area of potential effects study area, the effects of the No-action alternative and two action alternatives on the resources listed in or eligible for listing in the National Register of Historic Places (NRHP), and mitigation for effects on those resources as applicable.

What is the area of potential effects (APE)?

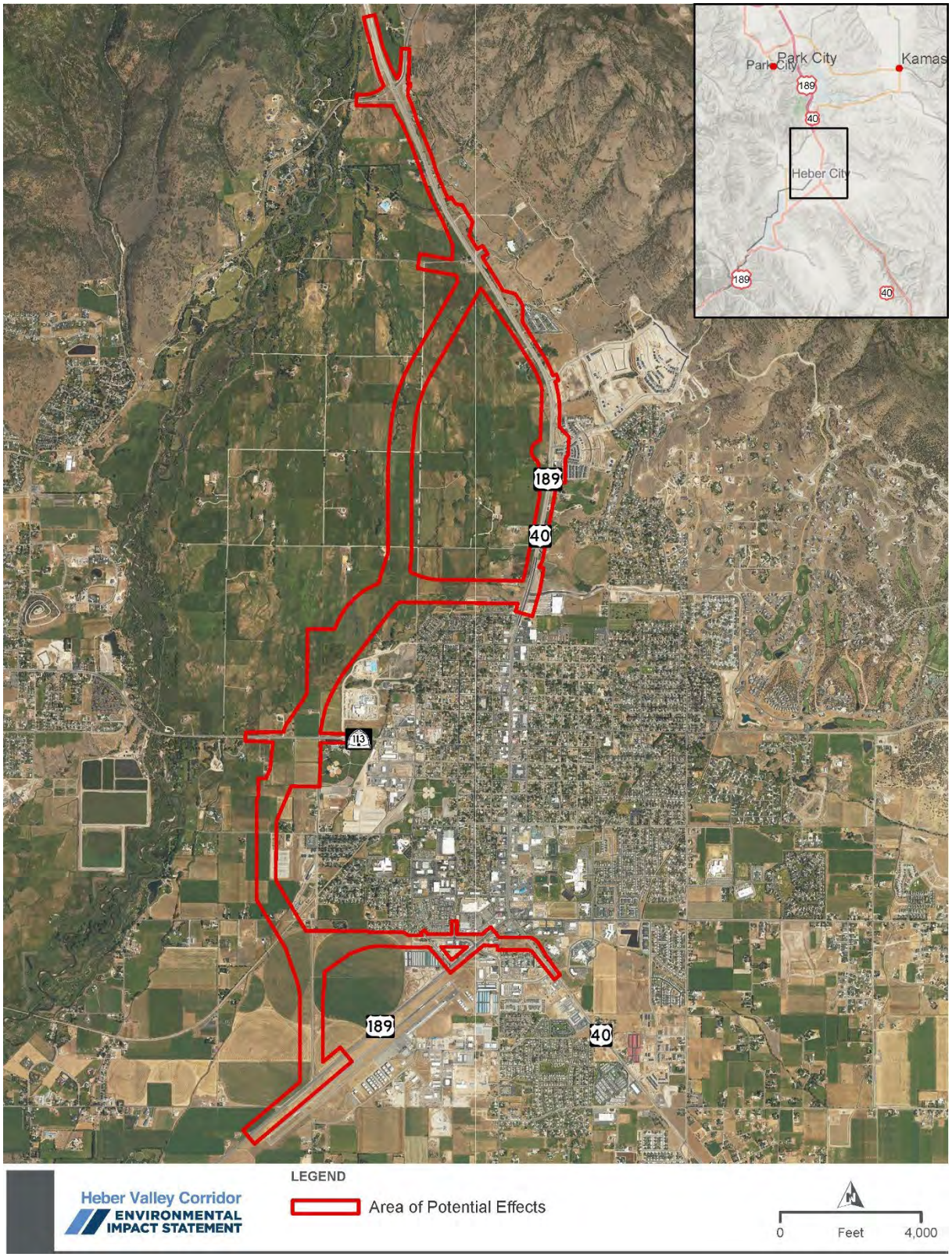
The APE is the area where the action alternatives could affect existing or potential historic architectural or archaeological properties.

To be considered "historic," a resource must generally be at least 50 years old. To account for the amount of time that could elapse between identifying resources and implementing any project decision, UDOT identified and evaluated cultural resources that were at least 45 years old at the time of field surveys in 2025.

For this analysis, *cultural resources* include historic architectural and archaeological resources. *Architectural resources* can include structures, objects, historic buildings, or districts composed of these resources. *Archaeological resources* are sites, features, structures, or districts that are composed primarily of nonarchitectural elements.

Area of Potential Effects. The area of potential effects (APE), or the survey area for cultural resources, consists of a series of wide, interconnected corridors extending roughly north-south along US-40 north of Heber City and through the central part of the Heber Valley as shown in Figure 3.12-1. These corridors were defined to encompass the combined areas of anticipated physical disturbance, right-of-way acquisition, and easements for the action alternatives being evaluated in this EIS. The survey area encompasses approximately 870.27 acres, most of which comprises open agricultural land.

Figure 3.12-1. Area of Potential Effects



3.12.2 Regulatory Setting

Section 106 of the National Historic Preservation Act of 1966 (NHPA; 16 USC Section 470), as amended, requires that federally funded projects be evaluated for their effects on historic properties listed in, or eligible for listing in, the NRHP. Also, the Utah Historic Preservation Act (Utah Code Annotated Section 9-8-401 and subsequent sections) was passed to provide protection of "all antiquities, historic and prehistoric ruins, and historic sites, buildings, and objects which, when neglected, desecrated, destroyed, or diminished in aesthetic value, result in an irreplaceable loss to the people of this state."

UDOT has assumed FHWA's responsibilities for complying with the NHPA for certain federal-aid highway projects under a Memorandum of Understanding pursuant to 23 USC Section 327, which applies to the Heber Valley Corridor Project. UDOT's Section 106 responsibilities are further defined in the *Third Amended Programmatic Agreement among the Federal Highway Administration, the Utah State Historic Preservation Officer, the Advisory Council on Historic Preservation, the United States Army Corps of Engineers, Sacramento District, and the Utah Department of Transportation Regarding Section 106 Implementation for Federal-Aid Transportation Projects in the State of Utah* (UDOT 2017b). The Archaeological Resources Protection Act of 1979 (ARPA), as amended (16 USC Sections 470aa–470mm; Public Law 96-95), provides protection to archeological sites located on public lands and provides federal officials increased authority to better manage archeological sites on public land.

The term *eligible for inclusion in the NRHP* includes both properties formally determined as such and all other properties that meet the NRHP criteria, which are listed in Table 3.12-1.

Table 3.12-1. Criteria for Evaluating Eligibility for the NRHP

NRHP Criterion	Characteristic
A	Associated with events that have made a significant contribution to the broad patterns of our history.
B	Associated with the lives of persons significant in our past.
C	Embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic value, or that represent a significant and distinguishable entity whose components may lack individual distinction.
D	Yielded, or may likely to yield, information important in prehistory or history.

Source: NPS 1997

The Utah State Historic Preservation Office (SHPO) has developed a rating system (Table 3.12-2) to qualify buildings in a reconnaissance-level survey to be used in conjunction with the NRHP criteria for evaluation.

Table 3.12-2. SHPO Rating Definitions for Historic Structures

SHPO Criterion	Characteristic
Eligible/Contributing (EC)	Built within the historic period and retains integrity; good example of a style or type; eligible for the NRHP as part of a potential historic district or primarily for historical, rather than architectural, reasons.
Ineligible/Non-contributing (NC)	Built during the historic period but has had major alterations or additions; no longer retains integrity.
Ineligible/Out-of-period (OP)	Constructed outside the historic period.

3.12.3 Affected Environment

3.12.3.1 Consultation

UDOT consulted with SHPO as part of the effort to define the APE, identify historic architectural and archaeological properties, and determine the expected effects of the action alternatives. SHPO concurred with the APE in a letter dated May 23, 2022, which is included in Appendix 3G, *Area of Potential Effects*. SHPO concurred with the eligibility determinations for historic architectural and archaeological properties in a letter dated June 4, 2025, which is included in Appendix 3H, *Determinations of Eligibility and Findings of Effect*.

UDOT sent letters to the following Native American tribes and entities inviting them to become consulting parties under Section 106 of the NHPA:

- Confederated Tribes of Goshute Reservation
- Eastern Shoshone Tribe of the Wind River Reservation
- Northwestern Band of Shoshone Nation
- Shoshone-Bannock Tribes of the Fort Hall Reservation
- Skull Valley Band of Goshute Indians
- Ute Indian Tribe of the Uintah and Ouray Reservation
- Heber City certified local government (CLG)
- Heber Valley Heritage Foundation (HVHF)
- Wasatch County Chapter of the Daughters of Utah Pioneers

HVHF accepted the invitation to be a consulting party. To date, no other responses have been received from the consulting party invitations. See Chapter 5, *Public and Agency Consultation and Coordination*, for additional details regarding agency consultation.

A comment was received on the Heber Valley Corridor Project from a Midway resident stating that the project would cross “Ute ceremonial grounds.” Based on the historic and prehistoric archaeological record, UDOT recognizes that the Heber Valley is part of the Ute traditional lands; however, the archaeological survey of the APE did not reveal any sites of Native American association, and historical research did not reveal reference to lands with tribal designation. The Ute Tribe was invited to be a consulting party on the project in April 2021, and a follow-up email was sent to the Ute Tribe in January 2023 asking for information. UDOT reached out to the Ute Tribal Historic Preservation Officer in December 2022 and left a detailed voicemail message; however, a response has not been received to date.

A meeting was held on April 18, 2023, with Michael Moulton of HVHF to discuss the Heber Valley Corridor Project. Mr. Moulton expressed concern regarding the effects of the action alternatives on structures from the early settlement period and to the north fields area. HVHF has been consulted with on resource identification and significance as part of the Section 106 process. An additional meeting was held with HVHF on June 24, 2025, to discuss mitigation ideas for offsetting adverse effects on eligible historic architectural resources.

UDOT submitted its determinations of eligibility and findings of effect (DOE/FOE) report for architectural and archaeological properties to SHPO on May 11, 2023; an addendum to the DOE/FOE on July 12, 2023; and a second addendum to the DOE/FOE on June 2, 2025. SHPO concurred with all determinations and findings

in letters dated May 12, 2023; July 13, 2023; and June 4, 2025. A copy of the 2025 DOE/FOE, including SHPO's concurrence letter, is provided in Appendix 3H, *Determinations of Eligibility and Findings of Effect*.

As per standard Section 106 procedure, because an **adverse effect** finding was made for the Heber Valley Corridor Project, UDOT notified the Advisory Council on Historic Preservation (ACHP) of the finding and asked whether ACHP wanted to participate in the project. ACHP acknowledged the correspondence and declined project participation.

3.12.3.2 Archaeological Sites

An **archaeological inventory** conducted for the project identified five NRHP-eligible archaeological sites in the APE (Table 3.12-3). Additional details are provided in *A Reconnaissance-level Archaeological Resource Assessment for the Heber Valley Corridor EIS, Wasatch County, Utah* (Certus 2023a), *A Supplemental Reconnaissance-level Archaeological Resource Assessment for the Heber Valley Corridor EIS, Wasatch County, Utah* (Certus 2023b), and the memorandum *Heber Valley Parkway (PIN 17523); Archaeological Resources in Expanded Area of Potential Effects* (Certus 2025a).

All of the identified archaeological sites are important chiefly because of their association with events that have made a significant contribution to the broad patterns of our history and/or because they embody distinctive characteristics of a type, period, or method of construction.

Table 3.12-3. NRHP-eligible Archaeological Sites in the APE

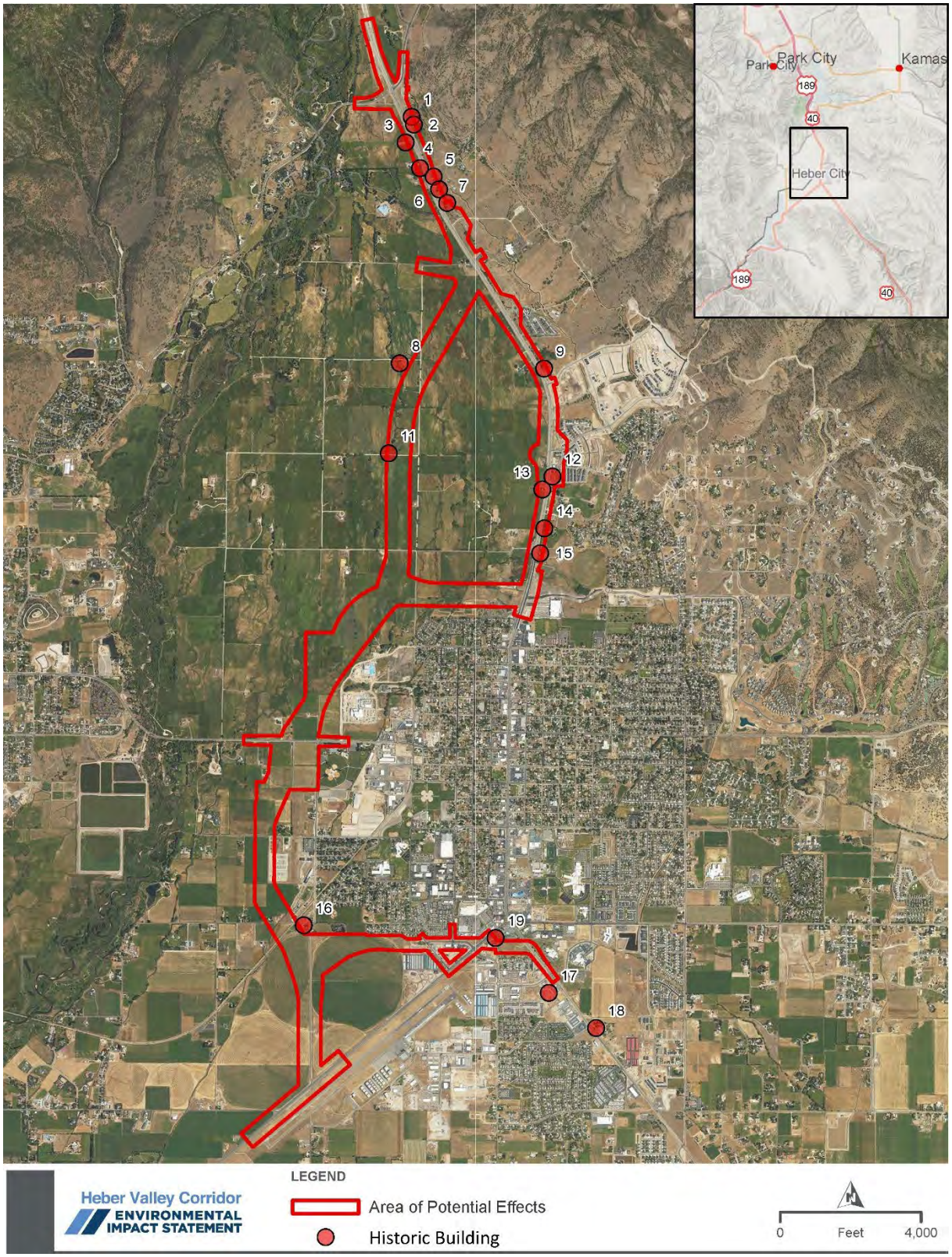
Site Number	Site Name	NRHP Evaluation
42WA112	D&RGW Provo Branch/Heber Creeper	Eligible (Criterion A)
42WA217	Wasatch Canal System	Eligible (Criterion A)
42WA238	Sagebrush and Spring Creek Canal	Eligible (Criteria A and C)
42WA294	Lower Canal	Eligible (Criteria A and C)
42WA541	Rock Creek/Rock Ditch Irrigation System	Eligible (Criterion A)

3.12.3.3 Architectural Resources

A **historic structures survey** conducted for the project identified previously documented buildings and structures as well as other buildings and structures that could be eligible for listing in the NRHP. Some of the previously documented buildings and structures had been demolished. Ultimately, 19 structures within the APE were determined to be eligible for listing in the NRHP. Subsequent to the initial cultural resources inventory and eligibility determination and prior to the second addendum to the inventory, the eligible historic structure at 2032 N. Highway 40 (ID #10) was demolished by the property owner, leaving a total of 18 eligible structures within the APE. All 18 are recommended as eligible/contributing (EC) under the Utah Division of State History's rating system. Figure 3.12-2 shows the properties within the APE that are eligible for listing in the NRHP.

Additional details are provided in *A Selective Reconnaissance-level Historic Structures Inventory for the Heber Valley Corridor EIS, Wasatch County, Utah* (Certus 2023c), *A Supplemental Selective Reconnaissance-level Historic Structures Inventory for the Heber Valley Corridor EIS, Wasatch County, Utah* (Certus 2023d), and *A Supplemental Selective Reconnaissance-level Historic Structures Inventory for the Refined Heber Valley Parkway EIS Alternatives, Wasatch County, Utah* (Certus 2025b). Descriptions and pictures of the properties are included in Appendix 3I, *Historic Architectural Resources Inventory*.

Figure 3.12-2. Eligible Historic Architectural Resources in the APE



3.12.4 Environmental Consequences and Mitigation Measures

3.12.4.1 Methodology

The historic architectural and archaeological properties present in the APE and determined eligible for listing in the NRHP were evaluated to determine whether the action alternatives would impact any portion of the resource or site and whether that impact would constitute an effect under Section 106. Effects could be direct or indirect.

- **Direct** – a physical alteration of any portion of the primary historic building, contributing historic outbuilding(s), or historically associated land as a result of one or more of the action alternatives. Includes activities that would diminish those qualities of the site that contribute to its historic significance.
- **Indirect** – associated effects that are removed in space or time such as visual, audible, or atmospheric impacts.

Once UDOT determined that an eligible historic architectural resource would be affected, UDOT assessed the nature and extent of those effects on the characteristics of the resource that make it eligible for listing in the NRHP under a particular criterion. If an alternative would alter the important characteristics such that some portion of the resource's eligibility would be affected, an adverse effect was considered likely. If the alternative would not significantly alter those important characteristics, the alternative was considered to have no adverse effect on the resource.

UDOT's DOE/FOE, which was submitted to SHPO on May 11, 2023, an Addendum to the DOE/FOE submitted to SHPO on July 12, 2023, and a second Addendum to the DOE/FOE submitted to SHPO on June 2, 2025, provide greater detail regarding the eligibility determinations and effects findings. SHPO concurred with all determinations and findings in letters dated May 12, 2023, July 13, 2023, and June 4, 2025. A copy of the 2025 DOE/FOE and SHPO's concurrence is provided in Appendix 3H, *Determinations of Eligibility and Findings of Effect*.

3.12.4.2 No-action Alternative

With the No-action Alternative, the Heber Valley Corridor Project would not be implemented. The No-action Alternative would have no effect on archaeological sites or eligible historic architectural resources and would result in a finding of **no historic properties affected**.

3.12.4.3 Action Alternatives

Table 3.12-4 and Table 3.12-5 summarize the effects of the action alternatives on archaeological sites and historic architectural resources, respectively. Figures showing impacts to eligible historic architectural resources and archaeological sites for Alternative A and Alternative B are available in the 2025 DOE/FOE (see Appendix 3H, *Determinations of Eligibility and Findings of Effect*). In Table 3.12-4 where Alternative A and Alternative B have both common and independent effects on an archaeological site, the common effects are discussed first, effects unique to Alternative A are discussed second, and effects unique to Alternative B are discussed third.

3.12.4.3.1 Archaeological Sites

Alternative A

Alternative A would have **no adverse effect** on archaeological sites, as summarized in Table 3.12-4. Alternative A would bridge over the Heber Creeper Railroad; a temporary construction easement would be required for the at-grade trail crossing of the railroad tracks. The linear feet of effect (length of impact measured along the linear features) on the four canal systems affected by Alternative A would include a combination of culverts, relocations, and fill and would range from 563 to 3,622 linear feet, plus temporary construction easements ranging from 15 to 445 linear feet. All of the effects represent less than 13% of the total length of the specific canal system.

Alternative B

Alternative B would have **no adverse effect** on archaeological sites, as summarized in Table 3.12-4. Alternative B would bridge over the Heber Creeper Railroad; a temporary construction easement would be required for the at-grade trail crossing of the railroad tracks. The linear feet of effect on the four canal systems affected by Alternative B would include a combination of culverts, relocations, and fill and would range from 2,712 to 5,684 linear feet, plus temporary construction easements ranging from 15 to 445 linear feet. All of the effects represent less than 13% of the total length of the specific canal system.

Table 3.12-4. Impacts to NRHP-eligible Archaeological Sites

Site Number; NRHP Criteria	Site Name or Description	Alternative(s) with Effects	Description of Impact	Finding of Effect
42WA112 Criterion A	D&RGW Provo Branch/Heber Creeper	Alternative A Alternative B	• Alternative and interchange ramps would bridge over the railroad tracks in segment 4 (Western Corridor). • The multi-use trail would cross the railroad tracks at grade. No right-of-way would be purchased from the railroad, but a temporary construction easement would be required. The crossing would include pavement striping to designate the crossing location, signage, and safety apparatus. During construction for the crossing, a temporary restriction on rail traffic might be necessary for a short time; this restriction would be coordinated with the railroad to minimize disruption of their operations. There would be no permanent adverse physical impacts to the features and attributes that make the railroad eligible for the NRHP.	No adverse effect
42WA217 Criteria A & C	Wasatch Canal System	Alternative A Alternative B	• Northern interchange at River Road/SR-32 in segment 1 (North US-40); canal is within existing SR-32 right-of-way; no new impact. • Access consolidation on US-40 in segment 1 (North US-40) could affect various locations of the canal along the west side of US-40 from River Road to just south of Moulton Lane; ~1,152 linear feet potentially culverted, relocated or filled. Total of ~1,152 linear feet of the canal potentially affected.	No adverse effect

(*Continued on next page*)

Table 3.12-4. Impacts to NRHP-eligible Archaeological Sites

Site Number; NRHP Criteria	Site Name or Description	Alternative(s) with Effects	Description of Impact	Finding of Effect
42WA217 Criteria A & C	Wasatch Canal System	Alternative A	• Continued US-40 access consolidation in segment 1 (North US-40) could affect the canal along the west side of US-40 from south of Moulton Lane to University Avenue; ~838 linear feet potentially culverted or relocated. • Ramps for the new interchange at Potter Lane/College Way in segment 1 (North US-40); ~1,115 linear feet potentially culverted or relocated. • US-40 access consolidation and the interchange at Coyote Canyon Parkway in segment 1 (North US-40) would affect the canal along the west side of US-40; ~517 linear feet potentially culverted or relocated and another ~88 linear feet within a temporary construction easement. Total of ~2,470 linear feet of the canal potentially culverted or relocated; ~88 linear feet within temporary construction easement.	No adverse effect
42WA217 Criteria A & C	Wasatch Canal System	Alternative B	• Continued US-40 access consolidation in segment 1 (North US-40) could affect the canal along the west side of US-40 from south of Moulton Lane to Potter Lane/College Way; ~1,107 linear feet potentially culverted or relocated. • South of Potter Lane/College Way, new alignment would cross the canal in several locations in segment 2 (North Fields Extension); ~2,002 linear feet potentially culverted or relocated. Total of ~3,109 linear feet of the canal potentially affected.	
42WA238 Criteria A & C	Sagebrush and Spring Creek Canal	Alternative A Alternative B	Canal would be affected at several locations in segment 4 (Western Corridor): • New alignment would cross the canal north of SR-113 to the west of Southfield Road. Multi-use trail and the canal would parallel the north side of SR-113 east of the interchange; ~1,000 linear feet culverted or relocated. • South of SR-113 and west of Southfield Road, the multi-use trail would potentially affect the canal in several locations; ~401 linear feet culverted or relocated. • New alignment and multi-use trail would cross canal at 1200 South; ~385 linear feet culverted or relocated. Total potential impact: ~1,751 linear feet culverted or relocated.	No adverse effect
42WA238 Criteria A & C	Sagebrush and Spring Creek Canal	Alternative A	The new alignment would cross the canal in two locations and would parallel the canal along the north side of Muirfield Park in segment 3 (900 North). ~1,558 linear feet of the canal would be culverted or relocated; another ~21 linear feet would be within temporary construction easement.	No adverse effect

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Table 3.12-4. Impacts to NRHP-eligible Archaeological Sites

Site Number; NRHP Criteria	Site Name or Description	Alternative(s) with Effects	Description of Impact	Finding of Effect
42WA238 Criteria A & C	Sagebrush and Spring Creek Canal	Alternative B	The new alignment would cross the canal in two locations and would parallel the canal along the north side of Muirfield Park in segment 3 (900 North). ~1,563 linear feet of the canal would be culverted or relocated; another ~21 linear feet would be within temporary construction easement.	No adverse effect
42WA294 Criteria A & C	Lower Canal	Alternative A Alternative B	Canal parallels north side of US-189 in segment 4 (Western Corridor); ~2,712 linear feet potentially culverted or relocated; another ~445 linear feet within temporary construction easement.	No adverse effect
42WA541 Criterion A	Rock Creek/Rock Ditch Irrigation System	Alternative A	New alignment would cross the canal west of Northfield Road at the junction of segments 3 and 4 (900 North and Western Corridor); ~563 linear feet would be culverted or relocated, and another ~15 linear feet would be within a temporary construction easement.	No adverse effect
42WA541 Criterion A	Rock Creek/Rock Ditch Irrigation System	Alternative B	Numerous crossings of this canal in segment 2 (North Fields Extension): • Between 2400 North and 1200 North, the new alignment would cross the canal several times; ~4,962 linear feet would be culverted or relocated, and another ~74 linear feet would be within a temporary construction easement. • Where the new alignment provides an interchange connecting back to US-40 where segments 2, 3, and 4 come together (North Fields Extension, 900 North, and Western Corridor) there would be two crossings of the canal; ~722 linear feet would be culverted or relocated, and another ~35 linear feet would be within a temporary construction easement. Total of ~5,684 linear feet potentially culverted or relocated; ~109 linear feet within a temporary construction easement.	No adverse effect

Definitions: ~ = approximately; D&RGW = Denver & Rio Grande Western Railroad; NRHP = National Register of Historic Places

3.12.4.3.2 Historic Architectural Resources

Alternative A

Table 3.12-5 summarizes the effects of the action alternatives on the NRHP-eligible historic resources in the APE. Alternative A would require demolition of three eligible historic architectural resources and would come within 8 feet of a fourth structure, making it a fourth displacement (**adverse effect**). Eight eligible historic architectural resources would require partial property acquisition, but the structures would remain intact more than 15 feet from the right-of-way (**no adverse effect**). Four resources would be avoided (**no historic properties affected**), and two were too far from the Alternative A alignment to require an effect assessment for this action alternative.

Alternative B

Table 3.12-5 summarizes the effects of the action alternatives on the NRHP-eligible historic resources in the APE. Alternative B would come within 8 feet of one of the eligible historic architectural resource structures, making it a displacement **(adverse effect**). Eight eligible historic architectural resources would require partial property acquisition, but the structures would remain intact more than 15 feet from the right-of-way (**no adverse effect**). Four resources would be avoided (**no historic properties affected**), and five were too far from the Alternative B alignment to require an effect assessment for this action alternative.

Table 3.12-5. Impacts to NRHP-eligible Historic Architectural Structures and Resources

ID	Address	Property Description	Alternative(s) with Effects	Description of Impact	Finding of Effect
1	3920 N. Hwy. 40	Early Ranch (with garage) single-family dwelling	Alternative A Alternative B	Partial acquisition: 0.01 acrea	No adverse effect
2	3882 N. Hwy. 40	Two 1.5-story Intermountain-type barns; early 20th century	Alternative A Alternative B	Partial acquisition: 0.03 acre 16 feet from ROW to structure	No adverse effect
3	3769 N. Hwy. 40	1-story Agricultural outbuilding (equipment shed) with an attached lean-to	Alternative A Alternative B	Partial acquisition: 0.9 acre; 68 feet from ROW to structure	No adverse effect
4	3631 N. Hwy. 40	1-story single-wide Manufactured Home[b]	Alternative A Alternative B	Property avoided	No historic properties affected
5	3570 N. Hwy. 40	1-story Early Ranch/Rambler style single-family dwelling	Alternative A Alternative B	Partial acquisition: 0.08 acrea; 8 feet from ROW to structure	**Adverse effect**
6	3480 N. Hwy. 40	1-story Ranch/Rambler style (with garage) single-family dwelling	Alternative A Alternative B	Partial acquisition: 0.02 acrea; 25 feet from ROW to structure	No adverse effect
7	3390 N. Hwy. 40	1-story Split Level single-family dwelling; Ranch/Rambler and Split Level styles	Alternative A Alternative B	Partial acquisition: 0.19 acre; 42 feet from ROW to structure	No adverse effect
8	721 West 2400 North	1-story Inside-Out granary building; Other style	Alternative B	Partial acquisition: 3.32 acres; temporary construction easement: 0.10 acre; 428 feet from ROW to structure	No adverse effect

(*Continued on next page*)

Table 3.12-5. Impacts to NRHP-eligible Historic Architectural Structures and Resources

ID	Address	Property Description	Alternative(s) with Effects	Description of Impact	Finding of Effect
9	2300 N. Hwy. 40	1-story Early Ranch (with garage) single-family dwelling	Alternative A	Partial acquisition: 0.46 acre; structure taken	Adverse effect
11	~800 West 1800 North	1-story agricultural outbuilding (animal shelter); Other style	Alternative B	Partial acquisition: 2.06 acres; temporary construction easement: 0.04 acre; 142 feet from ROW to structure	No adverse effect
12	1646 N. Hwy. 40	1.5-story Cross-wing single-family dwelling; Classical: Other style	Alternative A	Partial acquisition: 0.03 acre; 22 feet from ROW to structure	No adverse effect
13	1543 N. Hwy. 40	1-story Ranch (with garage) single-family dwelling exhibiting Ranch/Rambler and Period Revival styles	Alternative A	Partial acquisition: 1.86 acres; structure taken	Adverse effect
14	1340 N. Hwy. 40	1-story Cross-wing single-family dwelling; Classical style	Alternative A	Partial acquisition: 0.45 acre; structure taken	Adverse effect
15	1200 N. Hwy. 40	1-story WWII-Era Cottage single-family dwelling; Minimal Traditional style	Alternative A	Partial acquisition: 0.16 acre; 23 feet from ROW to structure	No adverse effect
16	1206 West 1200 South	1.5-story Intermountain-style barn; Other style	Alternative A Alternative B	Partial acquisition: 0.03 acre; 332 feet from ROW to structure	No adverse effect
17	~1600 S. Hwy. 40	Industrial complex. Multiple 1-story Other Public/Commercial buildings; Post-WWII: Other style	Alternative A Alternative B	Property avoided	No historic properties affected
18	1891 S. Hwy. 40	1-story Other Apartment type multifamily dwelling; Ranch/ Rambler style	Alternative A Alternative B	Property avoided	No historic properties affected
19	1290 S. Daniels Rd.	1-story Commercial building; Vernacular Modern/Other style	Alternative A Alternative B	Property avoided	No historic properties affected

Definitions: ~ = approximately; NRHP = National Register of Historic Places; ROW = right-of-way; WWII = World War II

[a] Historic boundary estimated by HDR used to quantify impacts. Historic boundary created for eligible historic properties based on fence lines or edge of existing roadway in locations where UDOT would be acquiring ROW but Wasatch County parcel data do not show an impact.

[b] Historic boundary limited to the structure; no land associated with the mobile home structure.

3.12.4.3.3 Summary of Action Alternatives

Archaeological Sites. As shown in Table 3.12-6, both action alternatives would affect five archaeological sites, bridging the Heber Creeper Railroad and requiring a combination of culverts, relocations and fill of four canal systems. Effects on the Lower Canal are the same for both alternatives, and similar for the Wasatch and Sagebrush and Spring Creek canal systems. Although Alternative B impacts a substantially greater number of linear feet of the Rock Creek/Rock Ditch system, both alternatives were found to have **no adverse effect** on the canal systems.

Table 3.12-6. Summary of Impacts to NRHP-eligible Archaeological Sites

Archaeological Site	Alternative A	Alternative B
D&RGW Provo Branch/Heber Creeper	Bridged; trail requires temporary construction easement	Bridged; trail requires temporary construction easement
Wasatch Canal System	~3,622 lf	~4,261 lf
Sagebrush and Spring Creek Canal	~3,309 lf + ~21 lf in TCE	~3,314 lf + ~21 lf in TCE
Lower Canal	~2,712 lf + ~445 lf in TCE	~2,712 lf + ~445 lf in TCE
Rock Creek/Rock Ditch Irrigation System	~563 lf + ~15 lf in TCE	~5,684 lf + ~109 lf in TCE
Total	**~10,206 lf + ~481 lf in TCE**	**~15,971 lf + ~575 lf in TCE**

Definitions: ~ = approximately; D&RGW = Denver & Rio Grande Western Railroad; lf = linear feet; NRHP = National Register of Historic Places; TCE = temporary construction easement

Historic Architectural Resources. Table 3.12-7 summarizes the effects of the action alternatives on the NRHP-eligible historic architectural resources in the APE. Both action alternatives would come within 8 feet of the eligible structure for one resource (ID 5), resulting in a displacement and an adverse effect. Alternative A requires demolition of structures for three additional resources (IDs 9, 13, and 14) resulting in three additional adverse effects. Both action alternatives require partial acquisitions from eight resources; six of these are common to both alternatives (IDs 1, 2, 3, 6, 7, and 16), and two each are unique to one action alternative (Alternative A: IDs 12 and 15; Alternative B: IDs 8 and 11).

Table 3.12-7. Summary of Effects on NRHP-eligible Historic Architectural Structures and Resources

Alternative	Adverse Effect on Historic Resources	No Adverse Effect on Historic Resources	Historic Resources Avoided	Historic Resources Outside APE of this Alternative
Alternative A	4	8	4	2
Alternative B	1	8	4	5

Definitions: APE = area of potential effects

3.12.4.4 Mitigation Measures

During final design of the selected alternative, UDOT will work to minimize acquiring property from archaeological sites and eligible historic architectural resources.

3.12.4.4.1 Mitigation Measures for Impacts to Archaeological Sites

The archaeological sites identified in the APE consist of canals and irrigation ditches plus the Heber Creeper Railroad. The proposed impacts would not substantially impact or alter the character-defining features of the canals and irrigation ditches. The rail line would be bridged by the alternatives and interchange ramps. The multi-use trail would cross the rail line at-grade but would require only a temporary construction easement for striping the crossing location on the pavement and installing safety signs and apparatus. Both action alternatives would have **no adverse effect** on archaeological sites, so no specific mitigation measures are necessary.

3.12.4.4.2 Mitigation Measures for Impacts to Eligible Historic Architectural Resources

Both action alternatives would avoid several of the eligible historic architectural resources, and each would require partial acquisition from eight resources without affecting the eligible structures on the properties. These impacts result in **no adverse effect** findings; therefore, no specific mitigation measures are required for these resources.

Both Alternative A and Alternative B would come within 8 feet of the right-of way of one eligible historic architectural resource, resulting in a displacement and an **adverse effect**. Alternative A would require demolition of an additional three eligible historic architectural resources and **adverse effects**. UDOT consulted with SHPO and HVHF to explore potential mitigation measures to offset the adverse effects. A memorandum of agreement (MOA) between SHPO and UDOT has been drafted to address the adverse effects for this project. A copy of the draft MOA is included in Appendix 3J, *Memorandum of Agreement*.

In accordance with the MOA, the structures that would be demolished will be documented by a person(s) meeting the Secretary of the Interior's Historic Preservation Professional Qualification Standards. Documentation will be completed in accordance with the Utah State Intensive-level Survey Standards as required by SHPO. This documentation will include a completed Historic Site Form, photographs of the exterior of the building(s), a sketch map of the property layout, aerial photograph maps showing the location(s) of the building(s), and a U.S. Geological Survey map showing the location(s) of the building(s).

In addition, prior to construction, UDOT will consult with Heber City, the Heber City CLG, and the Community Alliance for Main Street to create an appropriately scaled public interpretive outreach product. Possible examples of interpretive outreach could include a Main Street wayside or interpretive panel focused on the history of transportation in Heber City (roads, railroads, etc.), or a visual display of Heber City's built environment as an interpretive area in a library or City Hall, or financial support for Heber City's reconnaissance-level survey efforts.

3.13 Water Quality and Water Resources

3.13.1 Introduction

Section 3.13 describes the existing conditions of surface water and groundwater in the water quality and water resources evaluation area. This section also discusses the expected effects of the project alternatives on surface water and groundwater.

The focus of this section is on the expected impacts to water quality and water resources after the proposed improvements and project elements associated with either of the action alternatives have been constructed. Water quality impacts during construction are addressed in Section 3.19, *Construction Impacts*. The existing conditions of riparian areas and wetlands, and the expected impacts to these areas from the project alternatives, are discussed in Section 3.14, *Ecosystem Resources*. Impacts to regulatory floodplains from the project alternatives are discussed in Section 3.15, *Floodplains*.

What is the water quality and water resources evaluation area?

The water quality and water resources evaluation area is the combined project right-of-way or footprint for both action alternatives and includes the Middle Provo River watershed between Jordanelle Reservoir and just upstream of Snake Creek's confluence with the Provo River.

Water Quality and Water Resources Evaluation Area. The water quality and water resources evaluation area is the combined project right-of-way or footprint for both action alternatives and also includes the Middle Provo River watershed between Jordanelle Reservoir and just upstream of Snake Creek's confluence with the Provo River. This area was chosen to analyze the drinking water source protection zones and water right points of diversion that could be affected by the action alternatives. The upstream Provo River watershed, which is mostly outside the action alternative footprints, was included in the water quality modeling to establish baseline water quality and to help assess the expected impacts of the project alternatives to surface water and groundwater quality.

3.13.2 Regulatory Setting

The Utah Divisions of Water Quality and Drinking Water within the Utah Department of Environmental Quality (UDEQ) regulate the quality of Utah's water bodies. These agencies act pursuant to delegated authority to enforce the federal Clean Water Act and the federal Safe Drinking Water Act and also act pursuant to Utah's water quality laws and regulations. The water quality laws and regulations that apply to the Heber Valley Corridor Project are summarized in Table 3.13-1 and discussed in the following sections.

3.13.2.1 Water Quality Standards

Under the Clean Water Act, every state must establish and maintain water quality standards designed to protect, restore, and preserve the quality of waters of the state. UDEQ oversees Utah's water quality standards, which broadly consist of an antidegradation policy and numeric and narrative standards for beneficial uses that apply to all waters within the state boundaries.

What are beneficial uses?

Lakes, rivers, and other water bodies have uses for people and other forms of life called *beneficial uses*.

Table 3.13-1. Laws and Regulations Related to Water Quality and Water Resources

Regulation	Regulating Agency and Requirement	Applicability
Clean Water Act Section 401 Utah Water Quality Certification (UAC R317-15, Water Quality Certification)	If a Clean Water Act Section 404 permit is needed for the Heber Valley Corridor Project, the Section 404 permit would require UDEQ to certify that the project would not cause Utah water quality standards (narrative and numeric) to be exceeded. This certification is a Section 401 Water Quality Certification.	**Water Quality Certification** UDEQ provides this certification to USACE if a Section 404 permit is required.
Clean Water Act Section 402 (UAC R317-8, Utah Pollutant Discharge Elimination System) (UPDES)	EPA has delegated authority for the National Pollutant Discharge Elimination System program in Utah to UDEQ. Construction projects that discharge stormwater to surface water and construction projects that disturb 1 or more acres of land must obtain a UPDES permit to minimize impacts to water quality associated with construction activities. Operators of municipal separate storm sewer systems (MS4), such as UDOT, must comply with their UPDES permit to minimize water quality impacts associated with discharges from the project site. A UPDES Construction Dewatering or Hydrostatic Testing General Permit must be obtained if dewatering activities discharge project water to surface waters during construction.	**UPDES Permits** Permits are required for roadway construction and stormwater discharges to surface water, such as dewatering activities that discharge project water to surface waters. Compliance with UDOT's MS4 UPDES permit for ongoing operations is also required for all facilities.
UAC R317-2-7.2, Narrative Water Quality Standards (limits discharges)	This regulation states that it is unlawful to discharge substances that could cause undesirable effects on human health or aquatic life into surface waters.	**Narrative Standards** Surface water discharges must comply with narrative standards.
UAC R317-2-14, Numeric Criteria (in-stream standards)	Numeric standards for water quality are based on the water's designated beneficial uses, such as providing drinking water, supporting game fish, or supporting swimming. For surface waters exceeding water quality standards for pollutants identified on the state 303(d) list (of impaired waters), this regulation requires UDEQ to develop a total maximum daily load (TMDL) study to restore water quality standards and beneficial uses.	**Numeric Standards** Surface water discharges are permitted as long as beneficial uses are protected. Discharges to surface waters with approved TMDL studies need to comply with pollutant load allocations defined in the TMDL studies.
UAC R317-2-3, Antidegradation Policy	UDEQ assigns protection categories to manage the allowable level of degradation of water bodies in the state. Antidegradation procedures are applied to each protection category on a parameter-by-parameter basis. Antidegradation reviews are required for any action that requires a Section 401 Water Quality Certification or UPDES permit or any action that has the potential for major impacts to water quality.	**Antidegradation Review** Reviews might be required to support the Section 401 Water Quality Certification required by USACE's Section 404 permit.
UAC R309-605, Drinking Water Source Protection for Surface Waters (regulates activities near drinking water sources)	Owners of public water systems are responsible for protecting sources of drinking water and for submitting a drinking water source protection plan to the Utah Division of Drinking Water. The protection plans must identify drinking water source protection zones around each drinking water source (such as a lake or river), existing sources of contamination, and the types of new construction projects that are restricted within each zone.	**Source Protection** Land uses and potential sources of contamination should be managed in compliance with the drinking water source protection plans.

(*Continued on next page*)

Table 3.13-1. Laws and Regulations Related to Water Quality and Water Resources

Regulation	Regulating Agency and Requirement	Applicability
Clean Water Act Section 404 UAC R655-13, Stream Alteration	Any changes to a natural streambed and stream banks require a Clean Water Act Section 404 permit for stream alteration. This permit, which has been jointly authorized by USACE and the State of Utah, can be obtained from the Utah Division of Water Rights pursuant to certain rules.	**Stream Alteration Permit** Any project that proposes to alter a natural stream must receive a state stream alteration permit for alteration activities.
UAC R317-6, Groundwater Quality Protection	UDEQ classifies aquifers and permits discharges to groundwater to protect and maintain groundwater quality. Permits are required for water discharges to groundwater.	**Groundwater Discharge Permits** Stormwater management facilities are "permitted by rule" by the Utah Division of Water Quality.

EPA = U.S. Environmental Protection Agency; MS4 = municipal separate storm sewer system; R = rule; TMDL = total maximum daily load; UAC = Utah Administrative Code; UDEQ = Utah Department of Environmental Quality; UPDES = Utah Pollutant Discharge Elimination System; USACE = U.S. Army Corps of Engineers

3.13.2.1.1 Antidegradation Policy and Reviews

Utah's antidegradation policy states that waters that have an existing quality that is better than established standards for their designated beneficial uses should be maintained at a high quality (UAC R317-2-3.1). Discharges that could lower or degrade water quality are allowable if UDEQ determines that these discharges are necessary for important economic or social development. However, discharges must not impair the existing in-stream beneficial uses of these high-quality waters.

Highway stormwater runoff is generally considered a nonpoint source discharge, whether it flows overland and is discharged directly to an adjacent water body or is collected in a storm drain system that discharges to a water body at one or more points.

An antidegradation review determines whether a proposed activity complies with the applicable antidegradation requirements for receiving waters that might be affected. Antidegradation reviews are required for any activity that requires a federal permit and/or water quality certification or for projects, which, as determined by the director of the Utah Division of Water Quality, could have a major impact on water quality. To facilitate Utah's antidegradation policy, all waters in Utah are designated as Category 1, 2, or 3 waters.

- **Category 1 Waters.** With Category 1 waters, new point discharges are not allowed; however, new discharges from nonpoint sources are allowed if best management practices (BMPs) are used to the extent feasible to address the effects of pollution. Point-source discharges are allowed in these waters if the discharges are determined to be either temporary and limited or temporary and related only to sediment or turbidity and if fish spawning would not be impaired. BMPs are discussed further in Section 3.13.2.1.3, *Stormwater Discharges*.
- **Category 2 Waters.** Category 2 waters have the same requirements as Category 1 waters, except that point-source discharges are allowed if the discharge does not degrade existing water quality.
- **Category 3 Waters.** With Category 3 waters, point-source discharges are allowed, and degradation of water quality may occur as long as an antidegradation review is completed and approved to ensure that existing beneficial uses will be maintained and protected.

3.13.2.1.2 Beneficial-use Designations, Numeric Standards, and Narrative Standards

UDEQ designates all surface water bodies in Utah according to how the water is used. Table 3.13-2 lists the applicable beneficial-use classifications for surface waters in the state.

Table 3.13-2. Possible Beneficial-use Designations for Surface Waters in Utah

Class	Description
1C	Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
2A	Protected for frequent primary-contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water, such as swimming, rafting, kayaking, diving, or waterskiing.
2B	Protected for infrequent primary contact recreation and for secondary-contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
3A	Protected for cold-water species of game fish and other cold-water aquatic life, including the necessary aquatic organisms in their food chain.
3B	Protected for warm-water species of game fish and other warm-water aquatic life, including the necessary aquatic organisms in their food chain.
3C	Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
3D	Protected for waterfowl, shore birds, and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
3E	Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.
4	Protected for agricultural uses, including irrigation of crops and stock watering.
5	Various designations that involve open and transitional water of the Great Salt Lake that are protected for infrequent primary- and secondary-contact recreation, waterfowl, shore birds, and other water-oriented wildlife, including their necessary food chain.

Source: UAC R317-2-6, Use Designations, updated January 25, 2023

Each beneficial-use designation has numeric standards for water quality that are intended to protect the designated beneficial uses of the water, such as providing drinking water, supporting game fish and other wildlife, or protecting waders or swimmers (UAC R317-2-14). Numeric standards refer to pollutant concentration limits that are applied to each class of water to protect its beneficial uses.

Narrative standards, which are general policy statements that prohibit the discharge or waste or other substances that result in unacceptable water quality conditions, such as visible pollution or conditions that are harmful to healthy aquatic life, also apply to waters in the water quality and water resources evaluation area.

What is a 303(d) list?

When a lake, river, or stream fails to meet the water quality standards for its designated beneficial use, the State places the water body on a list of "impaired" waters—also known as a *303(d) list*, from Section 303(d) of the Clean Water Act—and prepares a study called a total maximum daily load (TMDL).

When a lake, river, or stream fails to meet the water quality standards for its beneficial uses, the State places the water body on a list of "impaired" waters—also known as a 303(d) list—and prepares a study called a total maximum daily load (TMDL). A TMDL study aims to

determine the allowable load of a given pollutant for an impaired water body and to allocate that load among different pollutant sources. The TMDL process is crucial for improving water quality because it links water quality standards with implementing control actions that are designed to attain those standards.

3.13.2.1.3 Stormwater Discharges

Under the Utah Pollutant Discharge Elimination System (UPDES) program rules, industries and municipalities that could discharge wastewater, stormwater, or other pollutants into water bodies must obtain a UPDES permit to minimize impacts to water quality.

What is a best management practice (BMP)?

A BMP is a stormwater facility that is designed to manage and treat stormwater runoff by removing pollutants or reducing the volume of potentially polluted runoff that reaches a water body.

UDOT has been issued a statewide municipal separate storm sewer system (MS4) permit (UTS000003) that allows stormwater to be discharged from transportation facilities to waters of the state. In addition to managing stormwater runoff during construction by implementing a stormwater pollution prevention plan (SWPPP), UDOT must address postconstruction stormwater runoff from new and redeveloped roads in accordance with its permit requirements. Regarding the Heber Valley Corridor Project, UDOT must, to the extent practical, evaluate permanent stormwater management BMPs (such as vegetated swales or infiltration trenches) that minimize impacts to surface water quality from the discharge of additional stormwater runoff associated with the proposed improvements and project elements. BMPs are designed to remove pollutants from the runoff and/or reduce the total volume of stormwater runoff that is discharged.

3.13.2.1.4 Groundwater Quality and Discharges

The Utah Water Quality Board classifies aquifers according to their quality and use. The Utah Division of Water Quality publishes numeric standards for each class of aquifer (UAC R317-6-3). Aquifers in Utah are classified as shown in Table 3.13-3.

The Utah Division of Water Quality requires groundwater permits for activities that discharge pollutants into groundwater. However, some flood-control facilities do not require a groundwater discharge permit and are instead considered “permitted by rule” (UAC R317-6-6.2(A)(5) and R317-6-6.2(A)(7)). Under this generalized permit by rule, UDOT is not required to obtain a groundwater discharge permit provided that the groundwater discharge does not cause groundwater to exceed groundwater quality standards or total dissolved solids (TDS) limits for the applicable class of aquifer. Flood-control systems that are considered “permitted by rule” include detention basins, catch basins, and wetland treatment facilities used for collecting or conveying stormwater runoff, such as BMPs that infiltrate stormwater.

Table 3.13-3. Aquifer Classifications in Utah

Class	Description	TDS Concentration (mg/L)	Can Exceed Contaminant Concentrations in UAC R317-6-2?
IA – Pristine	A source of groundwater that is protected to the maximum extent feasible from degradation due to facilities that would discharge or would probably discharge to groundwater.	<500	No
IB – Irreplaceable	A source of groundwater for a community public drinking water system for which no reliable supply of comparable quality and quantity is available.	NA	NA
1C – Ecologically Important	A source of groundwater discharge that is important to the continued existence of wildlife habitat.	NA	NA
II – Drinking Water Quality	A source of groundwater that is protected for use as drinking water or other similar beneficial use with prior conventional treatment.	500–3,000	No
III – Limited Use	A source of groundwater that is protected as a potential source of drinking water with substantial prior treatment or as a source of water for industry or agriculture.	3,000–10,000	Yes
IV – Saline Groundwater	Groundwater that has a high concentration of TDS.	>10,000	Yes

Sources: UAC R317-6-3, Ground Water Classes, and UAC R317-6-4, Ground Water Class Protection Levels, updated October 24, 2013
Definitions: mg/L = milligrams per liter; NA = not applicable; TDS = total dissolved solids; UAC = Utah Administrative Code

3.13.2.2 Drinking Water Source Protection Plans and Zones

Owners of public water systems are responsible for protecting sources of drinking water and for submitting a drinking water source protection plan to the Utah Division of Drinking Water. Such plans must identify drinking water source protection zones around each drinking water source (such as a lake, river, spring, or groundwater well), identify existing and potential sources of contamination, and propose methods to control sources of pollution within each zone.

For both groundwater and surface water sources, the Division of Drinking Water requires that a drinking water source protection plan be prepared to identify four distinct drinking water source protection zones for each well or surface water source. Table 3.13-4 describes these four zones.

Table 3.13-4. Drinking Water Source Protection Plan Zone Descriptions

Zone	Groundwater Source Zone Description	Surface Water Source Zone Description
Zone 1	The area within a 100-foot radius of the wellhead	The area from 100-feet downstream of the system intake to 15 miles above the intake and a half mile on each side of the drainage
Zone 2	The area within a 250-day groundwater time of travel to the wellhead	The area between 15 and 65 miles upstream from the intake and 1,000 feet on each side of the drainage
Zone 3	The area within a 3-year groundwater time of travel to the wellhead	The area between 65 miles upstream from the intake and the edge of the watershed and 500 feet on each side of the drainage.
Zone 4	The area within a 15-year groundwater time of travel to the wellhead	The rest of the contributing watershed outside Zones 1, 2, and 3

In addition to the surface water source protection zones, watershed management plans, antidegradation reviews, and standards for surface water, beneficial-use designations provide many mechanisms for protecting

drinking water sources. Land managers are responsible for protecting drinking water sources from contamination in coordination with the public water system owners. Through zoning and land use, Cities control which forms of development are allowable within each of the various drinking water source protection zones.

In general, if transportation development within source protection Zone 1 is determined by the owner to harm the function of a well or surface water intake, methods to reduce and/or eliminate the harm might be proposed.

3.13.2.3 Water Rights

All waters in Utah are public property. The Utah Division of Water Rights regulates the appropriation and distribution of water in Utah. A water right is a right to use water diverted at a specific location (water right point of diversion) on a water source and put it to beneficial uses at set locations (UDWRi 2025a). The defining elements of a typical water right include the following elements:

- A defined nature and extent of beneficial use
- A priority date
- A defined quantity of water allowed for diversion by flow rate and/or volume
- A specified point of diversion and source of water
- A specified place of beneficial use

The Utah Division of Water Rights oversees water right points of diversion. Knowing the location of and protecting existing points of diversion is important to ensure that a project does not affect the physical point of diversion, the water quality, or the beneficial use of the existing points of diversion. For administrative purposes, water rights are classified into the following categories based on their status:

- **Perfected.** Perfected water rights are fully developed and have been certificated by the State Engineer, decreed by a court of law, or certificated legislatively. These rights are considered real property (UDWRi 2025a).
    - Unperfected water rights are classified as either **Approved** or **Unapproved**. Approved water rights have been granted through an application to the State Engineer, whereas unapproved water rights have been applied for but have not yet been granted. These water rights might become perfected once the owner has submitted sufficient proof to the State Engineer that the water is being used according to its beneficial uses (OLRGC 2023).
- **Terminated.** Terminated water rights have been ended by a court order (UDWRi 2025a).

3.13.3 Affected Environment

The main surface water bodies in the water quality and water resources evaluation area are the Provo River, Rock Creek, Spring Creek, the Sagebrush and Spring Creek Canal, the Surplus Canal, and the Wasatch Canal. Also, several small, unnamed, intermittent or ephemeral drainages originate in the foothills east of US-40 and cross the water quality and water resources evaluation area. These surface waters have assigned beneficial uses, antidegradation categories, and water quality impairments. This section also discusses the groundwater quality and resources, drinking water source protection zones, and water right points of diversion in the evaluation area.

Figure 3.13-1 and Figure 3.13-2 show the footprints for the action alternatives, surface water bodies, and water right points of diversion by current status in the evaluation area.

Figure 3.13-1. Surface Waters and Water Right Points of Diversion near Alternative A

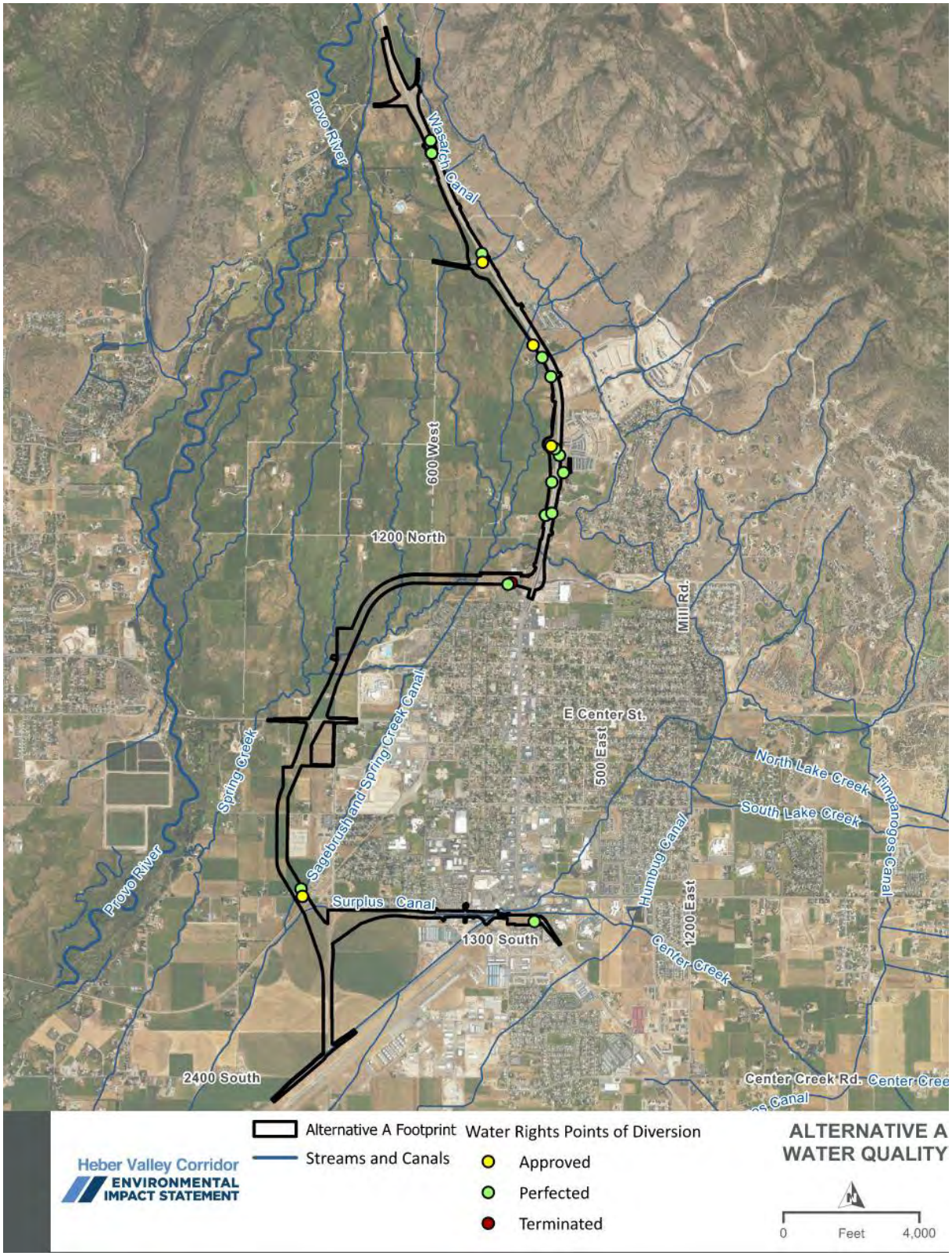
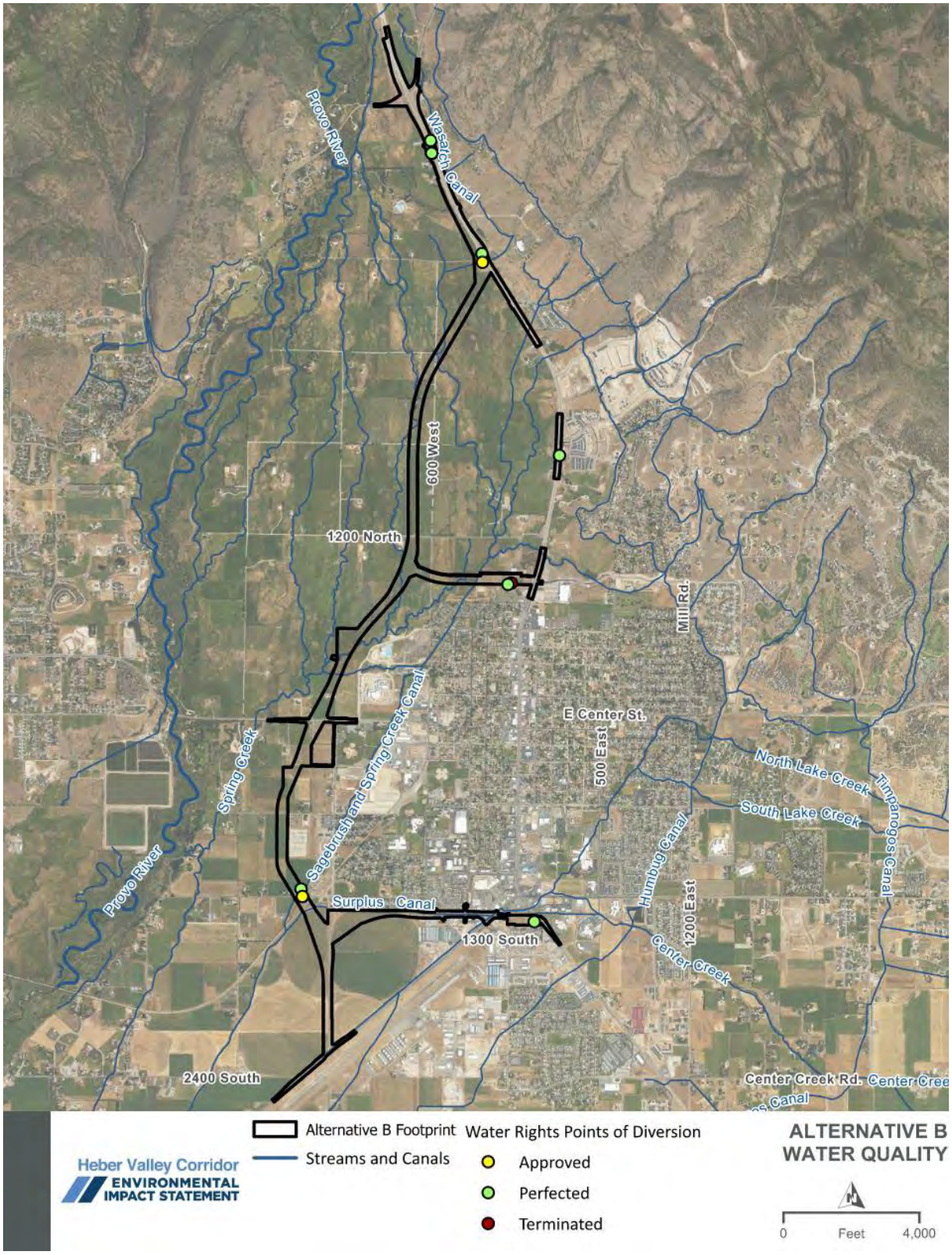


Figure 3.13-2. Surface Waters and Water Right Points of Diversion near Alternative B



3.13.3.1 Surface Waters and Beneficial-use Classifications

There are three natural surface water bodies in the water quality and water resources evaluation area: the Provo River, Rock Creek, and Spring Creek. The intermittent or ephemeral drainages that cross US-40 have similar beneficial uses as these main surface water bodies because they are tributary to these water bodies. The Sagebrush and Spring Creek Canal, the Surplus Canal, and the Wasatch Canal also have beneficial uses. The water bodies in the evaluation area are located in three different assessment units (AU). An AU is an area that the Utah Division of Water Quality has defined to determine whether beneficial uses of the surface waters are supported.

Table 3.13-5 summarizes the beneficial-use classifications and antidegradation categories of the surface waters in the evaluation area. These waters are discussed in more detail after the table.

Table 3.13-5. Beneficial Uses and Antidegradation Categories of Surface Waters in the Water Quality and Water Resources Evaluation Area

Water Body	Assessment Unit	Reach Description	Beneficial Uses	Antidegradation Category
Provo River	Provo River-4	Provo River from Deer Creek Reservoir to Jordanelle Reservoir	1C – Domestic/drinking water with prior treatment 2B – Infrequent primary-contact recreation 3A – Cold-water fishery/aquatic life 4 – Agricultural uses including irrigation of crops and stock watering	Category 3
Spring Creek / Rock Creek	Spring Creek-Heber	Spring Creek and tributaries from confluence with Provo River to headwaters	1C – Domestic/drinking water with prior treatment 2B – Infrequent primary-contact recreation 3A – Cold-water fishery/aquatic life 4 – Agricultural uses including irrigation of crops and stock watering	Category 3
Other Provo River east-side tributaries	Heber Valley	Provo River east-side tributaries from Daniels Creek to Little South Fork except Lake Creek	1C – Domestic/drinking water with prior treatment 2B – Infrequent primary-contact recreation 3A – Cold-water fishery/aquatic life 4 – Agricultural uses including irrigation of crops and stock watering	Category 3
Sagebrush and Spring Creek Canal / Wasatch Canal	Heber Valley	All irrigation canals and ditches statewide, except as otherwise designated	2B – Infrequent primary-contact recreation 3E – Severely habitat-limited waters 4 – Agricultural uses including irrigation of crops and stock watering	Category 3
Surplus Canal	Heber Valley	All drainage canals and ditches statewide, except as otherwise designated	2B – Infrequent primary-contact recreation 3E – Severely habitat-limited waters	Category 3

Source: UAC R317-2-12, Category 1 and Category 2 Waters, and UAC R317-2-13, Classification of Waters of the State, as in effect January 25, 2023. Any surface water not explicitly categorized as Category 1 or Category 2 in UAC R317-2-12 is considered to be Category 3.

Provo River. The Provo River watershed comprises about 673 square miles of drainage area from the high Uinta Mountains to Utah Lake in Utah County. Elevations range from about 4,500 feet to 10,500 feet. The reach of the Provo River in the evaluation area has beneficial-use classifications of 1C, 2B, 3A, and 4.

Spring Creek. Spring Creek is a tributary to the Provo River just south of SR-113. There are several diversions from Spring Creek, including the Sagebrush and Spring Creek Canal, the Upper Charleston Canal, and the Middle Ditch. Spring Creek has beneficial-use classifications of 1C, 2B, 3A, and 4.

Rock Creek. Rock Creek is a diversion off of the Provo River just upstream of the US-40 crossing of the Provo River. Rock Creek generally flows south until it becomes a tributary of Spring Creek just west of the Heber City municipal boundary near 500 North. Rock Creek has beneficial-use classifications of 1C, 2B, 3A, and 4.

Sagebrush and Spring Creek Canal. The Sagebrush and Spring Creek Canal begins just east of the headwaters of Spring Creek and generally flows southwest. The canal ends at Daniels Creek (a tributary to Deer Creek Reservoir). The Sagebrush and Spring Creek Canal has beneficial-use classifications of 2B, 3E, and 4.

Surplus Canal. The Surplus Canal begins near the intersection of US-40 and US-189 on the south end of Heber City as a combination of Center Creek and the Lower Wasatch Canal. It generally flows east to and along the Heber Valley Railroad tracks to the Provo River. The Surplus Canal has beneficial-use classifications of 2B and 3E.

Wasatch Canal. The Wasatch Canal is a diversion off of Rock Creek just north of the intersection of SR-32 and US-40. It generally flows to the south and southeast to the eastern part of Heber City, where it eventually joins with Center Creek to form the Surplus Canal. The Wasatch Canal has beneficial-use classifications of 2B, 3E, and 4.

3.13.3.2 Impaired Surface Waters

Some of the surface waters in the water quality and water resources evaluation area are impaired for some constituents and do not meet the water quality standards for some of their beneficial uses. These surface waters have been added to the State's 303(d) list, and the State will need to complete the required TMDL studies to determine the sources of pollutants in these waters and approaches for reducing the pollutants' concentrations.

Table 3.13-6 lists the impaired surface waters in the evaluation area and the priority for developing a TMDL study. The approved TMDL studies and their conclusions are also discussed below. The Provo River is not listed in Table 3.13-6 because the reach of the Provo River in the evaluation area fully supports (meets water quality standards for) its beneficial uses.

The approved TMDL for *E. coli* on Spring Creek (UDWQ 2021) lists the nonpoint sources of *E. coli* as livestock, unregulated stormwater, on-site septic systems, pet waste, and irrigated pastures. The Jordanelle Special Service District Water Reclamation Facility is also a point source of *E. coli* and operates under a UPDES permit.

Any stormwater that reaches a surface water body from a UDOT facility is regulated by UDOT's MS4 permit, including from the selected alternative that might be constructed. Stormwater was also assumed to likely not be a chronic source of *E. coli* loading to Spring Creek in the TMDL study for Spring Creek (UDWQ 2021).

Table 3.13-6. Impaired Surface Waters in the Water Quality and Water Resources Evaluation Area

Impaired Water Body	Assessment Unit / Reach	Constituents or Measurement	Description of Impairment	Priority
Spring Creek–Heber Rock Creek	Spring Creek and tributaries from confluence with Provo River to headwaters	pH	Does not meet water quality standards for beneficial uses 1C (domestic/drinking water with prior treatment), 2B (infrequent primary-contact recreation), 3A (cold-water fishery/aquatic life), and 4 (agricultural uses) because pH measurements have been recorded outside the allowable range.	Low
		Escherichia coli (*E. coli*)	Does not meet water quality standards for beneficial uses 1C (domestic/drinking water with prior treatment) and 2B (infrequent primary-contact recreation) because of high levels of *E. coli*.	Low (TMDL approved)
Other Provo River east-side tributaries	Provo River east-side tributaries from Daniels Creek to Little South Fork except Lake Creek	pH	Does not meet water quality standards for beneficial uses 1C (domestic/drinking water with prior treatment), 2B (infrequent primary-contact recreation), 3A (cold-water fishery/aquatic life), and 4 (agricultural uses) because pH measurements have been recorded outside the allowable range.	Low
		E. coli	Does not meet water quality standards for beneficial uses 1C (domestic/drinking water with prior treatment) and 2B (infrequent primary-contact recreation) because of high levels of *E. coli*.	Low

Source: UDWQ 2024

3.13.3.3 Groundwater Resources and Quality

There are no sole-source aquifers in the water quality and water resources evaluation area (EPA 2025b); therefore, impacts to sole-source aquifers are not evaluated further in Section 3.13.

What is a sole-source aquifer?

A sole-source aquifer is an aquifer that is the only source of drinking water for a community.

The evaluation area is entirely within the Heber Valley groundwater basin, and the underlying aquifer provides an important source of drinking water. Because the water in the aquifer is high quality, it has been classified by UDEQ as a Class IA – Pristine aquifer.

In the evaluation area, existing transportation corridors are not listed as potential sources of groundwater contamination. Flood-control facilities, such as the stormwater BMPs (for example, infiltration facilities) that might be constructed as part of the selected alternative, are considered "permitted by rule" (UAC R317-6-6.2(A)(5) and R317-6-6.2(A)(7)).

According to previous studies, the existing groundwater gradient in the evaluation area is from east to west, meaning that groundwater flows from the evaluation area toward the Provo River (SWCA 2020). This groundwater movement occurs naturally, and embankments such as what might be built with the action alternatives could obstruct this natural groundwater movement.

3.13.3.4 Drinking Water Source Protection Zones

This section discusses the drinking water source protection zones in the water quality and water resources evaluation area. These areas have protection plans in place which include allowable activities, types of development, and measures to protect water quality from potential pollution sources.

Within the evaluation area, three public water systems draw water from surface water sources and have established drinking water source protection zones. These public water systems are those operated by the Jordan Valley Water Conservancy District, the Central Utah Water Conservancy District, and the Metropolitan Water District of Salt Lake and Sandy. Each of these public water systems has established one Zone 1 designation, the Jordan Valley Water Conservancy District has established two Zone 2 designations, the Central Utah Water Conservancy District and the Metropolitan Water District of Salt Lake and Sandy have each established one Zone 4 designation, and the Jordan Valley Water Conservancy District has established four Zone 4 designations.

Within the evaluation area, no public water systems draw water from groundwater sources; therefore, no groundwater drinking water source protection zones have been established.

3.13.3.5 Water Right Points of Diversion

This section identifies water right points of diversion in the water quality and water resources evaluation area. For groundwater points, the point of diversion is typically the wellhead. For surface waters, the point of diversion could be a diversion structure in a stream or a collection system around a spring.

The Utah Division of Water Rights tracks water rights according to an inventoried water right number. Each water right number can represent one or more actual groundwater wells, springs, or surface water sources or a combination of these sources. Table 3.13-7 summarizes the number of water rights by type in the evaluation area. The approximate locations of points of diversion or clusters of water rights (shown as one point in the figures) are shown above in Figure 3.13-1 and Figure 3.13-2 for Alternative A and Alternative B, respectively.

Table 3.13-7. Water Right Points of Diversion by Type and Status in the Project Right-of-way

Type of Point	Number of Sources	Point Status	Owners
Surface	7	P – Perfected (6), T – Terminated (1)	Elmbridge LLC (T), Fair Play Farms LLC (P), Heber City Corporation (P), North Field Irrigation Company (P), and third-party individuals (P)
Underground	14	A – Approved (4), P – Perfected (10)	Extension Irrigation Company (A), Heber City Corporation (P), North Field Irrigation Company (A), Spring Creek Irrigation Company (P), Two Girls Real Estate LLC (P), and third-party individuals (A, P)
Spring	1	P – Perfected (1)	North Field Irrigation Company (P)

Note that a single point of diversion in Figure 3.13-1 and Figure 3.13-2 above can represent more than one water right.

3.13.4 Environmental Consequences and Mitigation Measures

This section discusses the expected water quality impacts to surface water quality, groundwater quality, drinking water, and water rights from the project alternatives.

3.13.4.1 Methodology

Throughout the study, UDOT received many comments expressing concerns about impacts to water quality. In response, UDOT used the Stochastic Empirical Loading and Dilution Model (SELDM), which was developed by FHWA and the U.S. Geological Survey (USGS), to estimate the effects of the action alternatives on water quality. UDOT assessed the impacts of 11 pollutants of concern—which include solids, nutrients, and metals—which are common pollutants in highway stormwater runoff.

The environmental consequences were determined by comparing the modeling results for Alternatives A and B to the modeling results for the No-action Alternative to understand the change that could occur from implementing either of the action alternatives. The modeling results were compared in the following ways:

- Determining the percentage of simulated storms for the project alternatives that produced an in-stream concentration greater than or equal to the surface water quality standards at a point on the Provo River downstream of all project elements (the modeled point is located just above Snake Creek's confluence with the Provo River).
- Determining the percentage of simulated storms for the project alternatives that produced a highway runoff concentration greater than or equal to the groundwater quality standards for a Class IA – Pristine aquifer.
- Determining the modeled central range of in-stream (Provo River) pollutant concentrations (the range of concentrations that would be expected for between 80% [low end, occurs most often] and 20% [high end, occur less often] of storms) for the project alternatives. The central range of in-stream concentrations is typically used in stochastic analysis to understand the impacts of an action while excluding the events that would statistically almost never occur.

UDOT intends to continue using any existing water quality control facilities (or BMPs) along the existing roads and to design and construct any new facilities that are needed to address the stormwater runoff from additional impervious areas that would be added with the selected alternative. UDOT's approach is that all additional stormwater runoff from the selected alternative would not be discharged directly to surface water sources but would instead be infiltrated into the ground. In the Heber Valley, flows in the Provo River and shallow groundwater are intermingled at various locations; therefore, any stormwater runoff that is infiltrated into the aquifer could end up in the Provo River downstream of the project elements. Therefore, UDOT conducted the water quality analysis to understand what the impacts could be if stormwater were discharged directly and mixed with surface waters.

In addition to the surface water and groundwater modeling that is described in the supplemental water quality technical report (UDOT 2025), UDOT used GIS files of drinking water source protection zones (UDDW 2025) and water right points of diversion (UDWRi 2025b). These shapefiles were overlaid on the preliminary design and right-of-way for each action alternative to determine the impacts to drinking water source protection zones and water right points of diversion.

UDOT also counted the number of new stream crossings or encroachments that would be required for each action alternative to allow water to pass under the road. Depending on the design and construction methods, new stream crossings and encroachments with the required culverts or bridges could adversely affect a stream's natural flow pattern, velocity, profile, channel stability, aquatic habitats, streambank vegetation, and riparian habitats, and could cause downstream erosion. The physical condition of any existing crossings along US-40 and other existing roads will be evaluated during the final design phase of the project, and the appropriate action for each location will be taken. These actions might include replacing, lining, extending, or repairing conveyance structures, as well as a number of other methods or techniques that might be pursued to limit the impacts of the work. Mitigation measures for these actions are discussed in Section 3.13.4.5, *Mitigation Measures*.

3.13.4.2 No-action Alternative

This section describes the impacts to water quality and water resources from the No-action Alternative. With this alternative, the Heber Valley Corridor Project would not be implemented; therefore, there would be no additional impervious areas added and no change to the current effects of highway stormwater runoff on water quality and water resources as a result of the project. Stormwater would be treated as it is currently, through detention ponds and infiltration, because vehicles would continue to use the existing roads in the Heber Valley.

Other projects would be completed independently of the Heber Valley Corridor Project; however, the impacts to water quality and water resources from these projects would be addressed through individual UPDES permits (construction and/or community MS4 permits) and other regulatory processes that are in place to protect water quality.

3.13.4.2.1 Surface Waters and Beneficial-use Classifications

With the No-action Alternative, there would be no change to existing highway stormwater runoff to surface waters as a result of the Heber Valley Corridor Project. The completed *E. coli* TMDL study for Spring Creek does not specify highway stormwater runoff as a main contributor to the existing exceedance of water quality standards.

UDOT prepared a version of the water quality model for the No-action Alternative to establish a baseline (conditions in 2050) against which to compare the modeled water quality of the action alternatives. A description of the baseline model results for the Provo River is provided in Section 2.3.1, *Alternative A*, and Section 2.3.2, *Alternative B,* of Appendix 3K, *Water Quality Technical Report*.

3.13.4.2.2 Groundwater Resources and Quality

The No-action Alternative would not additionally affect any groundwater resources or quality.

3.13.4.2.3 Drinking Water Source Protection Plans and Protection Zones

The No-action Alternative would not additionally affect drinking water source protection zones.

3.13.4.2.4 Water Right Points of Diversion

The No-action Alternative would not affect any water right points of diversion.

3.13.4.2.5 Stream and Canal Crossings

The No-action Alternative would not add any new stream crossings. A condition assessment for existing culverts and bridges would not be conducted as a part of the No-action Alternative, but one might be conducted by UDOT as part of regular maintenance.

3.13.4.3 Alternative A

This section describes the impacts to water quality and water resources from Alternative A. With Alternative A, UDOT would construct about 91 acres of additional impervious area, which would result in a net increase of impervious area that contributes stormwater runoff. Stormwater runoff would be managed through BMPs that can infiltrate 100% of the runoff from the additional impervious area. These BMPs would be designed in accordance with UDOT's *Stormwater Quality Design Manual* (UDOT 2021). The footprint for Alternative A is shown above in Figure 3.13-1, *Surface Waters and Water Right Points of Diversion near Alternative A*.

3.13.4.3.1 Surface Waters and Beneficial-use Classifications

UDOT analyzed the highway stormwater runoff from Alternative A and its expected impacts to surface waters. This section discusses the results for pollutants where an existing stream in the evaluation area has impairments. The results and a comparison of the results to surface water quality standards for all pollutants of concern are provided in Section 2.3, *SELDM Results*, and Section 2.3.4, *Surface Water Impacts from SELDM Modeling*, of Appendix 3K, *Water Quality Technical Report*. Even though stormwater runoff from Alternative A would not be discharged directly to any surface waters, a conservative assumption for the water quality modeling was made for the runoff to be directly discharged to surface waters without passing through a BMP. The Provo River and the underlying groundwater aquifer intermingle at various locations in the Heber Valley.

The modeling shows that the expected in-stream concentration ranges for most of the pollutants of concern analyzed in the Provo River downstream of the project area would not materially change between the No-action Alternative and Alternative A. Furthermore, the concentrations would not exceed the surface water quality standards associated with the Provo River (for beneficial uses 1C, 2B, 3A, and 4) as a result of most storms.

Table 3.13-8 shows the high end (20% of modeled storms) of the expected pollutant concentrations in the Provo River downstream of the project for the No-action Alternative, Alternative A, and Alternative B and compares them to surface water quality standards.

Table 3.13-8. Upper End of the Expected Downstream Provo River Concentrations for the No-action Alternative, Alternative A, and Alternative B Compared to Surface Water Quality Standards

Pollutant	Units	Maximum Expected Concentration in the Provo River Downstream of the Project			Surface Water Quality Standards by Beneficial Use			
		No-action Alternative	Alternative A	Alternative B	1C	2B	3A	4
TDS	mg/L	199	199	202	—	—	—	1,200
TSS	mg/L	12.3	14.7	14.2	—	—	—	—
Dissolved nitrogen	mg/L	0.663	0.615	0.635	10 (4[a])	—	4[a]	—
Total phosphorus	mg/L	0.0470	0.0496	0.0482	0.05[a]	—	0.05[a]	—
Dissolved cadmium	µg/L	0.369	0.361	0.384	10	—	1.8[b]	10
Dissolved chromium	µg/L	2.03	2.03	2.03	50	—	16[b,c]	100
Dissolved copper	µg/L	4.31	4.22	3.88	—	—	65[b]	200
Dissolved lead	µg/L	1.10	1.18	1.16	15	—	65[b]	100
Dissolved zinc	µg/L	12.4	13.3	12.8	—	—	120[b]	—
Dissolved chloride	mg/L	12.8	14.1	14.9	—	—	—	—
pH	—	8.37	8.29	8.27	6.5–9.0	6.5–9.0	6.5–9.0	6.5–9.0

Definitions: µg/L = micrograms per liter; mg/L = milligrams per liter; TDS = total dissolved solids; TSS = total suspended solids

Beneficial-use definitions: 1C – domestic/drinking water with prior treatment; 2B = infrequent primary-contact recreation; 3A = cold-water fishery/aquatic life; 4 = agricultural uses including irrigation of crops and stock watering

[a] Pollution indicator

[b] The 1-hour criterion was chosen because impacts from stormwater runoff typically move downstream and dissipate quickly.

[c] Hexavalent chromium (has a more stringent water quality standard than trivalent chromium [570 µg/L]).

The Provo River currently fully supports all its beneficial uses (pollutant concentrations are below the associated water quality standards) between Jordanelle Reservoir and Deer Creek Reservoir. Some of the Provo River tributaries between Jordanelle Reservoir and Deer Creek Reservoir are impaired for pH and *E. coli*. The modeling shows that pH values outside of the water quality standards (6.5 to 9.0) would be unlikely to occur (only 0.07% of simulated storms had the pH in the Provo River to be outside the standards). *E. coli* is not typically a contaminant of concern for highway projects (NCHRP 2019), and the approved TMDL study for *E. coli* places a low likelihood that stormwater is a chronic source of *E. coli* in Spring Creek; therefore, further analysis was not conducted.

UDOT would implement the requirements of its *Stormwater Quality Design Manual* and meet the terms and conditions of its MS4 permit (No. UTS000003), which authorizes the discharge of stormwater and addresses UDOT's obligations to control water quality, both in the short term during construction and in the long term after construction. UDOT's stormwater management goal is to mirror the amount and composition of predevelopment runoff and improve water quality through the use of stormwater BMPs.

3.13.4.3.2 Groundwater Resources and Quality

Stormwater runoff from Alternative A would be discharged to water quality BMPs that would be designed to convey and infiltrate stormwater into the ground. UDOT anticipates that this water would eventually reach

the groundwater aquifer. Section 2.3.3, *Highway Stormwater Runoff*, and Section 2.3.5, *Groundwater Impacts from SELDM Modeling,* of Appendix 3K, *Water Quality Technical Report*, compare the statistical distribution of concentrations typically found in highway stormwater runoff to the water quality standards for a Class IA – Pristine aquifer. To summarize the results of the statistical analysis using SELDM, the TDS concentrations in highway stormwater runoff would not exceed the groundwater quality standards for the majority of storm events. This analysis models stormwater concentrations prior to stormwater conveyance and infiltration and does not consider pollutant removal or treatment from stormwater BMPs or filtration of stormwater through the soil that overlies the aquifer. UDOT anticipates that, after final design and implementation of stormwater BMPs, impacts to groundwater quality with Alternative A would be minor. The underlying aquifer would not exceed protective groundwater quality standards because the volume of highway stormwater runoff would be small compared to the volume of the underlying aquifer and because of the benefits provided by the implemented BMPs.

In addition to the SELDM analysis, UDOT calculated the potential TDS concentrations using mass-loading approach. Section 2.4, *TDS Analysis from De-icing Practices*, through Section 2.4.2, *TDS Model Results*, of Appendix 3K, *Water Quality Technical Report*, provide a TDS-specific analysis of average concentrations in snowmelt runoff that would result specifically from UDOT's winter de-icing practices (salt applications). That analysis assumed various amounts of salt (pounds) was applied for different snow accumulation (inches) and found that TDS concentrations in snowmelt runoff with Alternative A would exceed the water quality standard of 500 milligrams per liter (mg/L) for Class IA (Pristine) aquifers. However, the analysis is conservative and is probably an overestimation because not all of the salt applied to the road surface would be dissolved in snowmelt and conveyed to the aquifer. Some salt would accumulate on the shoulder and adjacent areas of the right-of-way. In addition, this analysis does not consider any pollutant removal provided by stormwater BMPs or filtration of stormwater through the soil that overlies the aquifer.

EPA reviewed UDOT's SELDM approach and Winter Operations Salt Application Runoff modeling tools on December 6, 2022. In its comments, EPA suggested that UDOT implement additional operational and salt-specific BMPs for managing salt in highway stormwater runoff, including using salt traps and washing the roadway after the winter season. These BMPs are not typically included by UDOT on its projects, and they are not included in UDOT's *Stormwater Quality Design Manual*. Nonetheless, UDOT will consider these salt-specific BMPs during the final design of the selected alternative. In addition, UDOT will consider the use of alternative de-icing products that contain less salt for use on the Heber Valley Corridor.

To address stakeholders' and landowners' concerns that the roadway embankment could obstruct the natural flow of groundwater, if Alternative A is selected, UDOT will evaluate the potential to design and implement cross-drainage features through the embankment to facilitate natural groundwater movement.

3.13.4.3.3 Drinking Water Source Protection Plans and Protection Zones

The project footprint for Alternative A intersects 11 drinking water source protections zones for surface water sources. These drinking water source protection zones are the same as those listed in Section 3.13.3.4, *Drinking Water Source Protection Zones*. The intakes for drinking water source protection zones are not shown in a figure for security reasons.

All of the drinking water source protection zones that would be intersected by Alternative A currently have transportation infrastructure, including portions of US-40 and US-189, inside their zone boundaries. The Heber Valley Corridor would be used in a similar manner as the existing infrastructure. UDOT anticipates

that no additional mitigation measures would be needed to protect these drinking water sources; however, UDOT will collaborate with the owners of the public water systems that have established these drinking water source protection zones to mitigate any impacts to these zones that Alternative A could cause.

3.13.4.3.4 Water Right Points of Diversion

Twenty-two water right points of diversion are located within the proposed right-of-way for Alternative A as shown above in Figure 3.13-1, *Surface Waters and Water Right Points of Diversion near Alternative A*. Seventeen of these points of diversion (5 surface, 1 spring, and 11 underground) are near the existing north US-40. Two surface points of diversion are west of US-40 near the proposed 900 North and US-40 intersection. Two points of diversion are groundwater sources near the 1200 South crossing of the Sagebrush and Spring Creek Canal. The final point of diversion is for an underground source located near south US-40.

3.13.4.3.5 Stream and Canal Crossings

Alternative A would require several new stream and canal crossings. UDOT would design appropriate culverts and/or bridges in each new crossing location to maintain hydraulic conveyance across the new roadway. In addition, an approximately 1,150-foot-long segment of the Surplus Canal just north of 1300 South would be conveyed in a culvert due to the encroachments on the existing canal proposed for Alternative A. This culvert would have minimum size and conveyance requirements because it is a Heber City and Wasatch County flood-control facility (Funk 2022). In addition, wetland hydrology would be maintained across the Heber Valley Corridor by including cross-drainage features in the final design of Alternative A as needed.

There are also several existing stream crossings in the water quality and water resources evaluation area. The condition of the existing culverts would be analyzed, and these culverts would be replaced, extended, or rehabilitated as UDOT determines necessary during the final design of Alternative A.

3.13.4.4 Alternative B

This section describes the impacts to water quality and water resources from Alternative B. With Alternative B, UDOT would construct about 96 acres of additional impervious area, which would result in a net increase of impervious area that contributes stormwater runoff. Stormwater runoff would be managed through BMPs that can infiltrate 100% of the runoff from the additional impervious area. These BMPs would be designed in accordance with UDOT's *Stormwater Quality Design Manual*. The footprint for Alternative B is shown above in Figure 3.13-2, *Surface Waters and Water Right Points of Diversion near Alternative B*.

3.13.4.4.1 Surface Waters and Beneficial-use Classifications

UDOT analyzed the highway stormwater runoff from Alternative B and its expected impacts to surface waters. The results and a comparison of the results to surface water quality standards are provided in Section 2.3, *SELDM Results*, and Section 2.3.4, *Surface Water Impacts from SELDM Modeling*, of Appendix 3K, *Water Quality Technical Report*. Even though stormwater runoff from Alternative B would not be discharged directly to any surface waters, a conservative assumption for the water quality modeling was made for the runoff to be directly discharged to surface waters without passing through a BMP.

The modeling shows that the expected in-stream concentration ranges for most of the pollutants of concern analyzed in the Provo River downstream of the project area would not materially change between the No-action Alternative and Alternative B. Furthermore, the concentrations would not exceed the surface water quality standards associated with the Provo River (for beneficial uses 1C, 2B, 3A, and 4) as a result of most storms. Table 3.13-8 above shows the high end of the expected pollutant concentrations in the Provo River downstream of the project for the No-action Alternative, Alternative A, and Alternative B and compares them to surface water quality standards.

The Provo River currently fully supports all its beneficial uses (pollutant concentrations are below the associated water quality standards) between Jordanelle Reservoir and Deer Creek Reservoir. Some of the Provo River tributaries between Jordanelle Reservoir and Deer Creek Reservoir are impaired for pH and *E. coli*. The modeling shows that pH values outside of the water quality standards (6.5 to 9.0) would be unlikely to occur (only 0.07% of simulated storms had the pH in the Provo River to be outside the standards). *E. coli* is not typically a contaminant of concern for highway projects (NCHRP 2019), and the approved TMDL study for *E. coli* places a low likelihood that stormwater is a chronic source of *E. coli* in Spring Creek; therefore, further analysis has not been conducted.

UDOT would implement the requirements of its *Stormwater Quality Design Manual* and meet the terms and conditions of its MS4 permit (No. UTS000003), which authorizes the discharge of stormwater and addresses UDOT's obligations to control water quality, both in the short term during construction and in the long term after construction. UDOT's stormwater management goal is to mirror the amount and composition of predevelopment runoff and improve water quality through the use of stormwater BMPs.

3.13.4.4.2 Groundwater Resources and Quality

Stormwater runoff from Alternative B would be discharged to water quality BMPs that would be designed to convey and infiltrate stormwater into the ground. UDOT anticipates that this water would eventually reach the groundwater aquifer. Section 2.3.3, *Highway Stormwater Runoff,* and Section 2.3.5, *Groundwater Impacts from SELDM Modeling*, of Appendix 3K, *Water Quality Technical Report*, compare the statistical distribution of concentrations typically found in highway stormwater runoff to the water quality standards for a Class IA – Pristine aquifer. To summarize the results of the statistical analysis using SELDM, the TDS concentrations in highway stormwater runoff would not exceed the groundwater quality standards for the majority of storm events. This analysis models stormwater concentrations prior to stormwater conveyance and infiltration and does not consider pollutant removal or treatment from stormwater BMPs or filtration of stormwater through the soil that overlies the aquifer. UDOT anticipates that, after final design and implementation of stormwater BMPs, impacts to groundwater quality with Alternative B would be minor. The underlying aquifer would not exceed protective groundwater quality standards because the volume of highway stormwater runoff would be small compared to the volume of the underlying aquifer and because of the benefits provided by the implemented BMPs.

In addition to the SELDM analysis, UDOT calculated the potential TDS concentrations using a mass-loading approach. Section 2.4, *TDS Analysis from De-icing Practices*, through Section 2.4.2, *TDS Model Results*, of Appendix 3K, *Water Quality Technical Report*, provide a TDS-specific analysis of average concentrations in snowmelt runoff that would result specifically from UDOT's winter de-icing practices (salt applications). That analysis assumed various amounts of salt (pounds) is applied for different snow accumulation (inches) and found that TDS concentrations in snowmelt runoff with Alternative B would exceed the 500-mg/L water

quality standard for Class IA (Pristine) aquifers. However, the analysis is conservative and is probably an overestimation because not all of the salt applied to the road surface would be dissolved in snowmelt and conveyed to the aquifer. Some salt would accumulate on the shoulder and adjacent areas of the right-of-way. In addition, this analysis does not consider any pollutant removal potentially provided by stormwater BMPs or filtration of stormwater through the soil that overlies the aquifer.

EPA has suggested that UDOT implement salt-specific BMPs for managing salt in highway stormwater runoff, including using salt traps and washing the roadway after the winter season. These BMPs are not typically included by UDOT on its projects, and they are not included in UDOT's *Stormwater Quality Design Manual*. Nonetheless, UDOT will consider the suggested salt-specific BMPs. In addition, UDOT will consider using alternative de-icing products that contain less salt for use on the Heber Valley Corridor.

To address stakeholders' and landowners' concerns that the roadway embankment could obstruct the natural flow of groundwater, if Alternative B is selected, UDOT will evaluate the potential to design and implement cross-drainage features through the embankment to facilitate natural groundwater movement.

3.1.2.1.2 Drinking Water Source Protection Plans and Protection Zones

The impacts to the drinking water source protection zones from Alternative B would be the same as with Alternative A.

3.13.4.4.3 Water Right Points of Diversion

Thirteen water right points of diversion are located within the proposed right-of-way for Alternative B as shown above in Figure 3.13-2, *Surface Waters and Water Right Points of Diversion near Alternative B*. Eight of these points of diversion (1 surface, 1 spring, and 6 underground) are near the existing north US-40. Two surface points of diversion are west of US-40 near the proposed 900 North and US-40 intersection. Two points of diversion are groundwater sources near the 1200 South crossing of the Sagebrush and Spring Creek Canal. The final point of diversion is for an underground source located near south US-40.

3.13.4.4.4 Stream and Canal Crossings

The impacts to stream and canal crossings from Alternative B would be the same as with Alternative A.

3.13.4.5 Mitigation Measures

The following mitigation measures will address surface water and groundwater quality:

- UDOT or its design consultants will follow all applicable requirements of UDOT's *Stormwater Quality Design Manual* to design BMPs that meet MS4 permit and groundwater permit-by-rule requirements.
- UDOT or its design consultants will follow UDOT's *Drainage Manual of Instruction* (UDOT 2024) to design or rehabilitate stream crossings and culverts.

- UDOT will visually inspect and maintain stormwater quality BMPs to ensure that they are functioning properly. These BMPs are anticipated to infiltrate stormwater; however, other BMPs from UDOT's *Stormwater Quality Design Manual* might be chosen during the final design phase of the project.
    - During construction, inspectors for the project will certify that the BMPs are installed according to contract documents and UDOT standards.
    - After construction, UDOT will document and maintain records of inspections, any deficiencies identified during inspections, and the repairs performed on the BMPs.
- UDOT or its construction contractors will prepare stormwater pollution prevention plans (SWPPP), obtain a UPDES permit for stormwater discharges associated with construction activities, and will monitor restoration efforts for revegetation success.
- If construction activities require dewatering that would discharge water to surface waters, UDOT or its construction contractors will obtain a UPDES Construction Dewatering or Hydrostatic Testing General Permit.
- UDOT will comply with the Clean Water Act Section 404 permit, including any required Section 401 Water Quality Certifications and applicable Stream Alteration Permits for activities that place fill into waters of the United States and alter natural stream beds and banks.
- UDOT will maintain wetland hydrology and existing surface water conveyance patterns by installing culverts or other engineering alternatives through the roadway embankment.
- UDOT will collaborate with the public water systems that have drinking water source protection zones in place that might be impacted by the project during final design and construction to mitigate any impacts to water distribution infrastructure.
- UDOT will coordinate with the owners of any impacted water right points of diversion during final design and construction to protect or replace the impacted points of diversion as necessary.
- UDOT will evaluate the potential to design and implement cross-drainage features through the roadway embankment to minimize impacts to natural groundwater movement during the final design and construction phases of the project.
- UDOT will design and implement countermeasures to mitigate potential impacts to a stream's natural flow pattern, velocity, profile, channel stability, aquatic habitats, streambank vegetation, and riparian habitats that could result from installing, replacing, lining, extending, or repairing conveyance structures for the project.
- During the final design phase of the project, UDOT will investigate the feasibility of salt-specific BMPs suggested by EPA. Also, after the Heber Valley Corridor is constructed, UDOT will also investigate the use of alternative de-icing products that contain less salt for use on the Heber Valley Corridor during ongoing maintenance.

3.14 Ecosystem Resources

3.14.1 Introduction

Section 3.14 describes the ecosystem resources, habitat types, and wildlife species in the ecosystem resources evaluation area and how these resources would be directly and indirectly affected by the project alternatives.

What is the ecosystem resources evaluation area?

The ecosystem resources evaluation area encompasses the right-of way-that would be needed of the action alternatives plus a buffer to allow design refinements to the alternatives.

Ecosystem Resources Evaluation Area. The ecosystem resources evaluation area is located in the Heber Valley in Wasatch County, Utah. The evaluation area is about 870 acres and ranges from about 5,500 to 5,700 feet above mean sea level. The evaluation area:

- Encompasses US-40 between MP 12.91 (just north of River Road/SR-32) and MP 16.33 (around 750 North) and between MPs 18.12 and 18.39 southeast of the location where US-189 joins US-40
- Includes US-189 between MPs 28.40 and 28.71 and between MPs 27.00 and 27.68, southwest of the location where US-189 joins US-40
- Includes portions of large agricultural areas referred to as the north fields and south fields to the west of US-40
- Encompasses the right-of way-that would be needed for the action alternatives plus a buffer to allow design refinements to the alternatives (Figure 3.14-1)

3.14.2 Regulatory Setting

3.14.2.1 Threatened and Endangered Species

The Endangered Species Act (ESA; 16 USC Sections 1531–1544) establishes a framework to protect and conserve species listed as threatened or endangered and their habitats. The ESA prohibits the take of endangered species except when the take is incidental to, and not the purpose of, carrying out of an otherwise lawful activity or when take is for scientific purposes or to enhance the propagation or survival of the species.

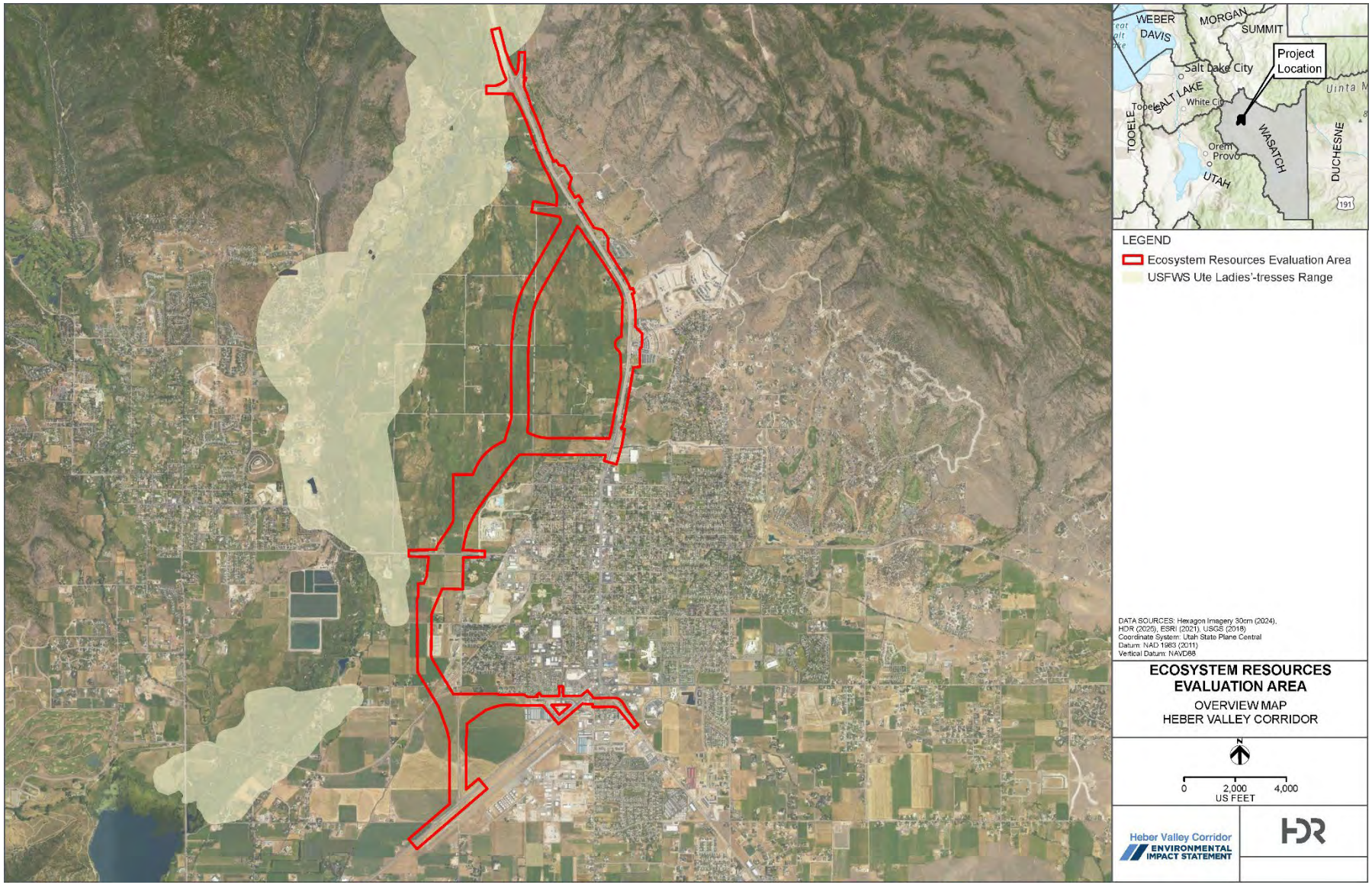
What is a take of a listed species?

The term "take" means to harass, harm,[1] pursue, hunt, shoot, wound, kill, trap, capture, or collect an individual of a species listed as threatened or endangered (16 USC Section 1532).

Under Section 7 of the ESA, federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) before taking any action that will likely affect a federally listed threatened or endangered species or designated critical habitat for an endangered species. In addition, federal agencies must ensure that their actions are not likely to jeopardize the continued existence of any listed species or to destroy or adversely modify any designated critical habitat.

[1] On April 17, 2025, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service proposed a rule to rescind the regulatory definition of "harm" under the Endangered Species Act. As of June 2, 2025, this proposed rule had not been finalized.

Figure 3.14-1. Ecosystem Resources Evaluation Area



Under the Memorandum of Understanding described in Section 1.1, *Introduction*, UDOT has been assigned FHWA's responsibilities for compliance with Section 7 requirements as part of the environmental review process for highway projects in Utah. A federal action agency (in this case, UDOT acting in the role of FHWA) makes an effect determination for a proposed action for each listed species in the ecosystem resources evaluation area.

- **"No Effect" Determination.** A "no effect" determination means that the proposed action would not impact listed species or their designated critical habitats and does not require consultation or concurrence from USFWS.
- **"May Affect, but Not Likely to Adversely Affect" Determination.** A "may affect, but not likely to adversely affect" determination means that any effects on listed resources would be beneficial, insignificant, or discountable. If a federal agency makes this determination, it can satisfy its Section 7 consultation responsibilities by obtaining concurrence with its determination from USFWS.
- **"May Affect, and Is Likely to Adversely Affect" Determination.** When listed resources are likely to be exposed to a proposed project's actions and are likely to respond negatively to the exposure, a "may effect, and is likely to adversely affect" determination is made by the federal action agency. This determination requires the federal agency to formally consult with USFWS regarding the impacts of the proposed action. After formal consultation is completed, USFWS prepares its Biological Opinion regarding whether the proposed action will jeopardize the continued existence of the species or adversely modify its designated critical habitat.

3.14.2.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 USC Sections 703–712) makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, barter, purchase, transport, export, or import any migratory bird, or any part, nest, or egg or any such bird, with the exception of the taking of game birds during established hunting seasons. Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (January 10, 2001), directs federal agencies taking actions likely to affect migratory birds to support the implementation of the Migratory Bird Treaty Act.

3.14.2.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Sections 668–668d) makes it unlawful to take, import, export, sell, purchase, transport, or barter any bald or golden eagle or their parts, products, nests, or eggs. "Take" includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing eagles.

3.14.2.4 Candidate Conservation Agreements

USFWS considers candidate species to be those plants and animals that are candidates for listing under the ESA. These are species for which there is enough information regarding their biological status and threats to propose them as threatened or endangered, but listing is currently precluded by higher-priority listing activities. Candidate species are not subject to the legal protections of the ESA.

A Candidate Conservation Agreement (CCA) is a formal, voluntary agreement among USFWS and one or more parties to address the conservation needs of candidate species or species that could become

candidates in the near future. Participants voluntarily commit to implement specific actions designed to remove or reduce threats to the covered species. The development of a CCA serves as one of the primary ways of identifying appropriate conservation efforts. Proactive conservation efforts for candidate species can, in some cases, eliminate the need to list them under the ESA.

3.14.2.5 Clean Water Act

The 1972 Clean Water Act (33 USC Sections 1251–1387) provides authority for EPA and USACE to define waters of the United States. *Waters of the United States* are jurisdictional waters, currently defined in 33 CFR Section 328.3 and 40 CFR Section 120.2.

Section 404 of the Clean Water Act requires authorization from the USACE to discharge dredged or fill material into all waters of the United States. Any person, firm, or agency planning to alter or work in waters of the United States, including the discharge of dredged or fill material, must first obtain authorization from USACE under Clean Water Act Section 404 and, if applicable, Section 10 of the Rivers and Harbors Act of 1899 (33 USC Section 403) for work within navigable waters of the United States. Additionally, Executive Order 11990, *Protection of Wetlands*, directs federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out agency responsibilities.

USACE issues permits to allow discharges into waters of the United States pursuant to the Section 404(b)(1) Guidelines established by EPA and defined in 40 CFR Part 230. One of the key requirements in the guidelines is that a Section 404 permit cannot be issued for an alternative if there is another practicable alternative that would cause a less adverse impact to aquatic resources. This requirement is commonly known as the requirement to select the "least environmentally damaging practicable alternative." In addition, Executive Order 11990 also states that agencies are directed to avoid new construction in wetlands unless an agency determines that there are no practicable alternatives to such construction.

What are aquatic resources?

Aquatic resources include rivers, lakes, streams, creeks, natural ponds, and wetlands.

Conformance with *Sackett v. Environmental Protection Agency*. In September 2023, EPA and USACE issued an amended rule changing the definition of "waters of the United States." On March 12, 2025, EPA and USACE issued a memo concerning proper implementation of a continuous surface connection under the definition of "waters of the United States" in conformance with the U.S. Supreme Court's 2023 ruling in Sackett v. Environmental Protection Agency, in which the Court held that the Clean Water Act extends only to wetlands that have a continuous surface connection with "waters of the United States."

On March 12, 2025, EPA and USACE issued a memo (USACE and EPA 2025a) concerning proper implementation of a continuous surface connection under the definition of "waters of the United States" in conformance with the U.S. Supreme Court's 2023 ruling in *Sackett v. Environmental Protection Agency*. On November 17, 2025, EPA and USACE announced their proposed revisions to the 2023 definition of

What is continuous surface water connection?

In light of the Supreme Court's *Sackett* ruling, a continuous surface water connection refers to a physical, uninterrupted link between a wetland and a jurisdictional water body. This connection must be evident on the surface and sustained over time, even if only seasonally. It excludes indirect or intermittent links via non-jurisdictional ditches, swales, pipes, or culverts.

"waters of the United States." The proposed revisions are focused on relatively permanent, standing or continuously flowing bodies of water and wetlands that are connected and indistinguishable from such waterbodies (USACE and EPA 2025b). The definition of "waters of the United States" is an evolving issue that UDOT is following closely.

USACE has not completed an Approved Jurisdictional Determination (AJD) for the aquatic resources delineation for this EIS. The jurisdictional wetlands impacts used to compare the action alternatives might change if an AJD differs from the wetlands UDOT identified as likely jurisdictional and when EPA and USACE finalize the definition of "waters of the United States."

What is an Approved Jurisdictional Determination (AJD)?

An AJD is a process used by USACE to make a definitive, official determination whether aquatic resources in the review are or are not jurisdictional.

3.14.3 Affected Environment

3.14.3.1 Methodology

3.14.3.1.1 Data Collection

UDOT used several methods to collect data regarding the ecosystem resources in the ecosystem resources evaluation area that could be affected by the action alternatives. These methods included conducting literature reviews; consulting with resource agency personnel; and interpreting aerial photographs. UDOT also conducted field surveys for wildlife; vegetation; rare, threatened, and endangered species; and aquatic resources from June to November 2021, from June to November 2022, in August 2023, and in September 2024.

UDOT obtained a species list from the USFWS Information, Planning, and Conservation System (IPaC) website for federally threatened, endangered, or candidate species that might occur in the evaluation area and/or might be affected by the action alternatives (USFWS 2025a). UDOT also consulted the USFWS Environmental Conservation Online System (ECOS) for a list of species under conservation agreement that are known to occur in Wasatch County (USFWS 2025b). Additionally, UDOT obtained a species list from the Utah Division of Wildlife Resources' Wildlife Habitat Analysis Tool to determine whether there are records of occurrence for any of the federally listed threatened, endangered, and candidate species or species under conservation agreement in the vicinity of the evaluation area (Utah Division of Wildlife Resources 2025a). Reports from IPaC and the Wildlife Habitat Analysis Tool are provided in Appendix 3L, *Species Lists*.

The Utah Species Field Guide (Utah Division of Wildlife Resources, no date), NatureServe (www.natureserve.org), Audubon (Audubon, no date), and Cornell Lab's All About Birds website (Cornell Lab of Ornithology 2019) were referenced for species habitat descriptions.

For 786 acres of the 870-acre evaluation area, UDOT identified, mapped, and delineated wetlands and other aquatic resources in the evaluation area using the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast (Version 2.0)* (USACE 2010), and applicable guidance for delineating the ordinary high water mark of non-wetland features. Aquatic resource boundaries were mapped through a combination of global positioning system (GPS)-based field mapping (using ArcGIS Collector software and a tablet) and desktop digitization referencing aerial images.

For some portions of the evaluation area, aquatic resources have not been formally delineated. These areas are new to the project in 2025 and total 84 acres. For these areas, UDOT reviewed aerial images and conducted visual field checks to refine the USFWS National Wetlands Inventory (NWI) data (USFWS 2023). The most recent NWI data for the area were published in 2023 through a mapping project to update NWI data developed by the Utah Geological Survey in collaboration with the Utah Division of Wildlife Resources, Wasatch County, and Heber City (Goodwin and Stimmel 2023). UDOT's refinements to these data were primarily attributed to recent urban development. The combination of formally delineated aquatic resources and refined NWI data was used to calculate the area, lengths, and widths of aquatic resources in the evaluation area. UDOT is planning to formally delineate the remaining portions of the evaluation area and incorporate the updated data into the Final EIS.

3.14.3.1.2 Ute Ladies'-tresses Surveys

USFWS's Utah Ecological Services Field Office has established guidelines for the minimum standards for conducting botanical surveys for plant species listed under the ESA in Utah (USFWS 2011). Clearance surveys, which are used to document compliance with the provisions of Section 7 of the ESA, are one type of survey described in these guidelines.

Clearance surveys cover 100% of a project area to determine whether a target plant species is present. "Project area" is the area in which a target species might be impacted by a proposed activity. Clearance surveys also determine species distribution and abundance before ground-disturbing activities begin. Clearance surveys must include an assessment of all potential habitat in the project area plus a buffer. The standard buffer for clearance surveys is 300 feet from the project area.

In accordance with the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants* (USFWS 2011), a 300-foot buffer was applied to the ecosystem resources evaluation area, and evaluation area and the buffer area were assessed for potentially suitable habitat for Ute ladies'-tresses in areas where the USFWS Ute ladies'-tresses range map and the evaluation area plus buffer area overlap.[2] Figure 3.14-1, *Ecosystem Resources Evaluation Area*, above provides an overview map that shows where the USFWS range map overlaps with the evaluation area.

After the potentially suitable habitat was identified, UDOT performed clearance surveys on August 26, 2022; August 29 and 30, 2023; and September 5, 2024, to determine the presence or absence of Ute ladies'-tresses in the potentially suitable habitat polygons. The surveys were conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a). Clearance surveys did not identify any Ute ladies'-tresses individuals.

The portions of the evaluation area and buffer area that have not been previously assessed will be surveyed for potentially suitable Ute ladies'-tresses habitat during the 2025 field season. This information will be included in the Final EIS. A clearance survey will be conducted on any new potentially suitable habitat that is identified.

[2] About 84 acres of the 870-acre ecosystem resources evaluation area are new to the project in 2025. UDOT conducted field surveys for these areas in summer 2025.

3.14.3.2 General Overview of the Ecosystem Resources Evaluation Area

The ecosystem resources evaluation area is located in the Heber Valley in Wasatch County, Utah, and is part of the Mountain Valleys subregion in the Wasatch and Uinta Mountains Ecoregion (Woods and others 2001). The Mountain Valleys subregion is generally characterized by low terraces, floodplains, alluvial fans, and hills, and it has a short growing season. Irrigated cropland, irrigated pastureland, and rangeland are common in this subregion. The evaluation area consists primarily of agricultural land and areas with residential and commercial development.

The evaluation area is located in the Provo watershed, hydrologic unit code 16020203 (USGS 2025). The watershed includes Jordanelle Reservoir, the Middle Provo River between Jordanelle Reservoir and Deer Creek Reservoir, and the Lower Provo River between Deer Creek Reservoir and Utah Lake. Numerous surface waters in the Heber Valley portion of the watershed drain to either the Middle Provo River or Deer Creek Reservoir. High groundwater is present in lower areas of the Heber Valley toward the Middle Provo River and Deer Creek Reservoir. Seasonal water-level fluctuations of up to 30 feet occur primarily because of changes in recharge from unconsumed irrigation water. Water levels generally are highest during June or July when recharge from irrigation is at a maximum and lowest during the winter when irrigation is absent and recharge is at a minimum (USGS, no date).

Throughout the Heber Valley, streams have been modified through agricultural practices and urbanization. Beginning in the 1800s, Euro-American pioneers in the Heber Valley developed a system of irrigation canals that crisscrosses many of the natural stream channels (Psomas 2000). Streams, canals, and ditches are used to convey and distribute irrigation flows, irrigation return flows, and stormwater drainage. Segments of some streams in the evaluation area have been straightened and channelized, but most stream segments maintain natural meanders and are not deeply incised.

About 1 mile north of the evaluation area, Rock Creek branches off the Middle Provo River at a constructed diversion. Rock Creek and other streams and conveyances (canals and ditches) that branch off Rock Creek convey flows through the evaluation area and eventually drain into Spring Creek. Spring Creek begins at its headwater spring channel located east of US-40 in the evaluation area and generally flows southwesterly through the evaluation area, then drains to the Middle Provo River west of the evaluation area. The surface waters in the evaluation area include four named streams (Rock Creek, Spring Creek, Middle Ditch, and Lake Creek), three unnamed streams, three named canals (Sagebrush and Spring Creek Canal, Surplus Canal, and Wasatch Canal), and many ditches.

Most of the northern and west-central portions of the evaluation area are agricultural fields referred to by Heber Valley residents as the north fields and the south fields. These areas are separated by Spring Creek, and both are located from just west of US-40 to the Middle Provo River and are situated in a lower portion of the Heber Valley that has high groundwater. The north fields extend from immediately north of Spring Creek to the intersection of US-40 and River Road near the northern end of the evaluation area. The south fields extend from immediately south of Spring Creek to the Sagebrush and Spring Creek Canal.

3.14.3.2.1 Vegetation

General Plant Species

Vegetation in the ecosystem resources evaluation area is typical of that in residential, irrigated cropland, and irrigated pastureland environments. The northwest side appears to be more hydrologically saturated and contains wetland areas in pasture fields. Common plant species in the pasture fields include timothy (*Phleum pratense*), creeping meadow foxtail (*Alopecurus arundinaceus*), white clover (*Trifolium repens*), red clover (*Trifolium pratense*), strawberry clover (*Trifolium fragiferum*), redtop (*Agrostis gigantea*), Nebraska sedge (*Carex nebrascensis*), mountain rush (*Juncus arcticus* ssp. *littoralis*), and Kentucky bluegrass (*Poa pratensis*). Woody riparian vegetation occurs primarily along Rock Creek and Spring Creek. Common riparian species include crack willow (*Salix fragilis*), Bebb willow (*Salix bebbiana*), narrowleaf willow (*Salix exigua*), narrowleaf cottonwood (*Populus angustifolia*), box elder (*Acer negundo*), and black hawthorn (*Crataegus douglasii*).

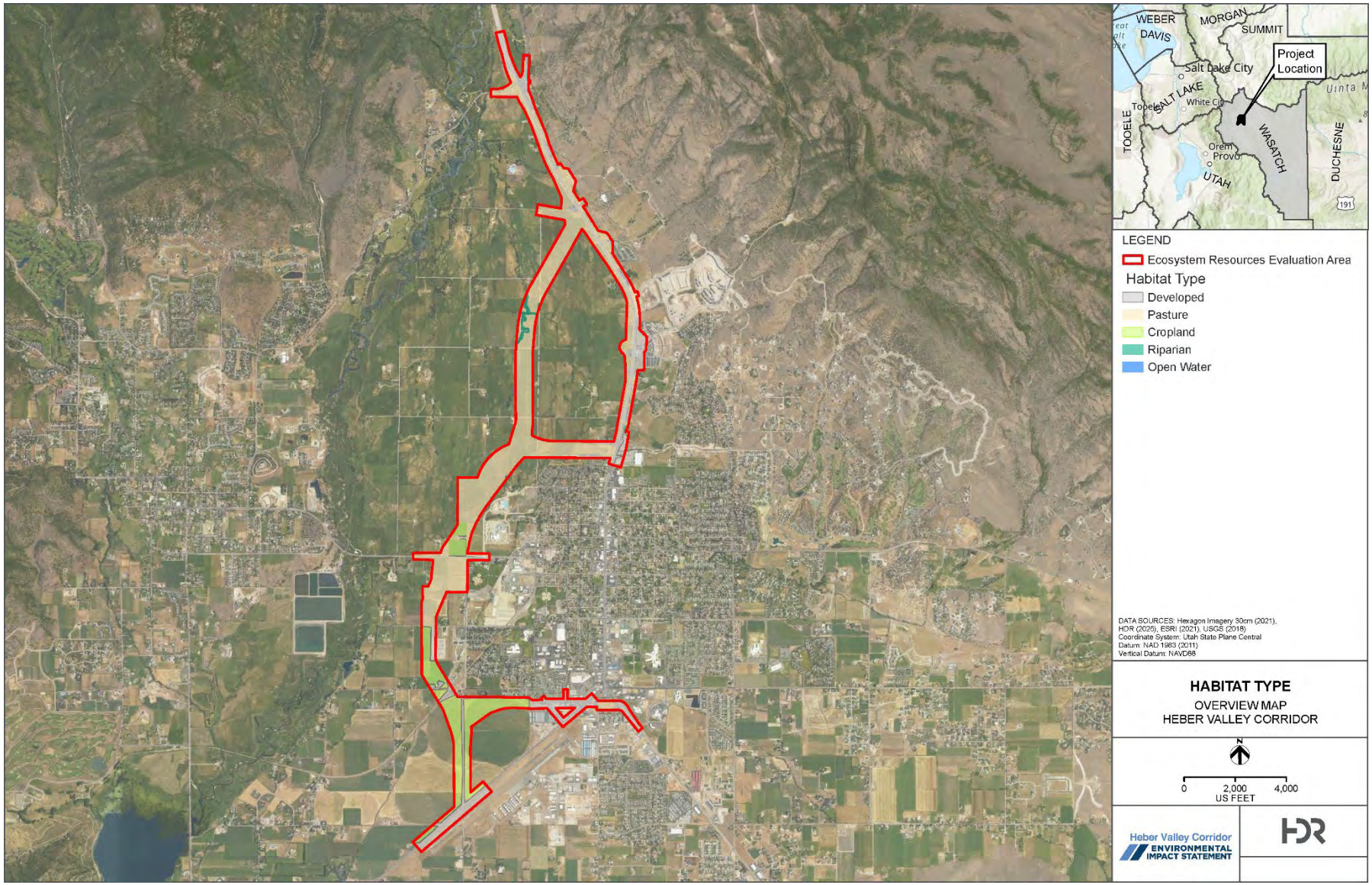
UDOT categorized the evaluation area into four broad habitat types: pasture fields, cropland, riparian habitat, and open water. These habitat types make up about 635 acres of the 870-acre evaluation area. The remaining 235 acres are developed spaces, which includes existing roads, business facilities, and residential areas.

Table 3.14-1 at right lists, and Figure 3.14-2 below shows, the distribution of these habitat types throughout the evaluation area. A list of plant species observed in the area is included in the aquatic resources delineation report for the Heber Valley Corridor Project (Appendix 3N, *Aquatic Resources Delineation Report*).

Table 3.14-1. Habitat Acreage in the Ecosystem Resources Evaluation Area

Habitat Type	Acres	Percentage of Existing Habitat
Developed	235.12	27%
Pasture	467.24	54%
Cropland	153.67	18%
Riparian	7.41	1%
Open water	0.33	<1%
Total	**870.28**	**100%**

Figure 3.14-2. Habitat Types in the Ecosystem Resources Evaluation Area



3.14.3.3 Threatened, Endangered, and Candidate Species

The IPaC report identified several federally listed species that might occur in the ecosystem resources evaluation area and/or might be affected by the action alternatives: one bird species, yellow-billed cuckoo (*Coccyzus americanus*); two mammal species, Canada lynx (*Lynx canadensis*) and North American wolverine (*Gulo gulo luscus*); and one plant species, Ute ladies'-tresses (*Spiranthes diluvialis*). The IPaC report also identified two insect species that are proposed to be listed under the ESA: monarch butterfly (*Danaus plexippus*) and Suckley's cuckoo bumble bee (*Bombus suckleyi*). The evaluation area does not include designated or proposed critical habitat for any of these species.

Table 3.14-2 describes the preferred habitat for each species. There is no suitable habitat in the evaluation area for yellow-billed cuckoo, Canada lynx, or North American wolverine. Potentially suitable habitat exists in the evaluation area for the monarch butterfly and Suckley's cuckoo bumble bee. Potentially suitable habitat could exist in the evaluation area for Ute ladies'-tresses.

Species under Conservation Agreement

In an effort to keep greater sage-grouse (*Centrocercus urophasianus*) off the federal endangered species list, Utah Governor Gary Herbert signed an executive order on February 10, 2015, directing state agencies to protect and preserve greater sage-grouse and its habitat.

Greater sage-grouse are found throughout sage-steppe communities and rely on sagebrush for shelter and forbs for feeding. There is no suitable greater sage-grouse habitat in the ecosystem resources evaluation area, and the evaluation area is not in a sage-grouse management area.

General Wildlife Species

Large mammals found in the ecosystem resources evaluation area include elk (*Cervus canadensis*), moose (*Alces alces*), mule deer (*Odocoileus hemionus*), mountain lions (*Puma concolor*), and coyotes (*Canis latrans*). Smaller animals found in the evaluation area include birds, raccoons, skunks, foxes, beavers, rabbits, squirrels, bats, voles, marmots, weasels, muskrats, snakes, and mice.

Birds are also abundant throughout the evaluation area. Bird species observed during field surveys include American kestrel (*Falco sparverius*), osprey (*Pandion haliaetus*), Canada goose *(Branta canadensis*), red-winged blackbird (*Agelaius phoeniceus*), yellow-winged blackbird (*Agelasticus thilius*), black-billed magpie (*Pica hudsonia*), barn swallow (*Hirundo rustica*), raven (*Corvus corax*), red-tailed hawk (*Buteo jamaicensis*), Swainson's hawk (*Buteo swainsoni*), sandhill crane (*Antigone canadensis*), and turkey vulture (*Cathartes aura*). In addition, ospreys (*Pandion haliaetus*) were observed using a platform nest near the intersection of US-40 and River Road.

Table 3.14-2. Federally Listed Species That Might Occur in the Ecosystem Resources Evaluation Area and/or Might Be Affected by the Action Alternatives

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat[c] Present?	Potentially Suitable Habitat Present?
Birds				
Yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	Yellow-billed cuckoos breed and nest in multilayered riparian vegetation patches that vary in shape and size with riparian canopy trees and at least one layer of understory shrubby vegetation. Riparian overstory and understory vegetation that supports suitable cuckoo habitat can include cottonwood (*Populus* spp.), willow (*Salix* spp.), alder (*Alnus* spp.), walnut (*Juglans* spp.), boxelder (*Acer* spp.), sycamore (*Plantanus* spp.), ash (*Fraxinus* spp.), mesquite (*Prosopis* spp.), tamarisk (*Tamarix* spp.), and Russian olive (*Elaeagnus angustifolia*). USFWS's guidelines for identifying suitable habitat for this species in Utah specify that patches should be at least 12 acres or greater in extent and be separated from other patches of suitable habitat by at least 300 meters (984 feet). Somewhere within a patch, the multilayered riparian vegetation should be at least 100 meters (328 feet) wide by 100 meters long (USFWS 2017b).	Final critical habitat has been designated for this species. The evaluation area is outside the critical habitat.	There is no suitable habitat in the evaluation area or within a ½-mile radius. The existing riparian vegetation does not meet habitat size requirements. There are records of individuals within ½-mile and 2-mile radii of the evaluation area (Utah Division of Wildlife Resources 2025a; the last recorded observation was in 1996).
Insects[c]				
Monarch butterfly (*Danaus plexippus*)	Proposed[d] endangered	In the spring, summer, and early fall, monarch butterflies can be found wherever there are milkweeds in fields, meadows, and parks. They overwinter in the cool, high mountains of central Mexico and woodlands in central and southern California. Milkweed (*Asclepias* spp.) is an essential feature of quality monarch habitat. Female monarch butterflies lay their eggs on the underside of young leaves or flower buds of milkweed. Common places milkweed occurs include short- and tall-grass prairies, livestock pastures, agricultural margins, roadsides, wetland and riparian areas, sandy areas, and gardens. In addition to milkweed, other nectar sources, trees for roosting, and close proximity to water are key components of monarch habitat (Western Association of Fish and Wildlife Agencies 2019).	There is proposed critical habitat for this species. The evaluation area is outside the critical habitat.	Potentially suitable habitat exists in the evaluation area. Milkweed plants were observed growing along ditches and road shoulders during field surveys. There are records of individuals within ½-mile and 2-mile radii of the evaluation area (Utah Division of Wildlife Resources 2025a).

(*Continued on next page*)

Table 3.14-2. Federally Listed Species That Might Occur in the Ecosystem Resources Evaluation Area and/or Might Be Affected by the Action Alternatives

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat[c] Present?	Potentially Suitable Habitat Present?
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	Proposed[d] endangered	Suckley's cuckoo bumble bee is an obligate parasitic species that is entirely dependent on the workers of host colonies to raise their young. Suckley's cuckoo bumble bee has two confirmed hosts, the western bumble bee (*Bombus occidentalis*) and the Nevada bumble bee (*Bombus nevadensis*); the western bumble bee is the most widely known host. Western bumble bees are known to nest primarily in underground cavities and abandoned animal burrows more often than they do in aboveground structures. Suckley's cuckoo bumble bee has a broad distribution across North America, primarily in the western half of the United States and the Yukon of Canada. It and has been found between 6 and 10,500 feet in elevation in various habitat types including prairies, grasslands, meadows, woodlands, forests, croplands, and urban areas from 6 to 10,500 feet in elevation. Suckley's cuckoo bumble bees require diverse pollen and nectar resources for nutrition (USFWS 2024).	Critical habitat has not been designated for this species.	Potentially suitable habitat exists in evaluation area. The area offers potential nesting sites and diverse pollen and nectar sources for foraging.
Mammals				
Canada lynx (*Lynx canadensis*)	Threatened	The preferred habitat of Canada lynxes is boreal and montane regions dominated by coniferous or mixed forest with thick undergrowth, but lynxes also enter open forest, rocky areas, and tundra to forage for abundant prey. The major limiting factor is the abundance of snowshoe hares.	Final critical habitat has been designated for this species. The evaluation area is outside the critical habitat.	There is no suitable habitat in the evaluation area. The evaluation area consists primarily of roads and lacks extensive coniferous or mixed forest vegetation.
North American wolverine (*Gulo gulo luscus*)	Threatened	Wolverines prefer alpine tundra and mountain forest habitats in areas where snow cover persists late into the spring. Wolverines prefer areas that are not frequented by humans. Wolverines are not common in Utah.	Critical habitat has not been designated for this species.	There is no suitable habitat in the evaluation area. The evaluation area consists primarily of roads and agricultural land and lacks the characteristics of quality North American wolverine habitat.

(*Continued on next page*)

Table 3.14-2. Federally Listed Species That Might Occur in the Ecosystem Resources Evaluation Area and/or Might Be Affected by the Action Alternatives

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat[c] Present?	Potentially Suitable Habitat Present?
Plants				
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	This white-flowered orchid is found below 7,000 feet in elevation in moist to very wet meadows, along streams, in abandoned stream meanders, and near springs, seeps, and lake shores where competition for light, space, water, and other resources is normally kept low by periodic or recent disturbance. Ute ladies'-tresses are also known to occur in seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, and lake shores. Populations have also been observed along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands (Fertig and others 2005).	Critical habitat has not been designated for this species.	Potentially suitable habitat could exist in the evaluation area and within a 300-foot buffer. The portions of the evaluation area and buffer area that have not been previously assessed will be surveyed for potentially suitable Ute ladies'-tresses habitat during the 2025 field season. A clearance survey will be conducted on any new potentially suitable habitat identified. There are records of individuals within a 2-mile radius of the evaluation area (Utah Division of Wildlife Resources 2025a; the last recorded observation was in 1996).

[a] Source: Species list from USFWS 2025a

[b] Sources: Audubon, no date; Cornell Lab of Ornithology 2019; NatureServe, no date; Utah Division of Wildlife Resources, no date; Utah Native Plant Society, no date; and recovery plans found in USFWS ECOS (USFWS 2025c)

[c] "Critical habitat" is a term defined in the ESA (Section 3(5)(A)); it refers to specific areas that contain physical or biological features that are essential to the conservation of a species and that might need special management or protection.

[d] A "proposed" species is any species that USFWS has determined is likely to become endangered within the foreseeable future throughout all or a significant portion of its range or is in danger of extinction throughout all or a significant portion of its range, and USFWS has proposed a draft rule to list the species as threatened or endangered. Proposed species are not protected by the take prohibitions of Section 9 of the ESA until the rule to list is finalized. Under Section 7(a)(4) of the ESA, "Federal agencies must confer with the [USFWS] if their action will jeopardize the continued existence of a proposed species" (USFWS 2025d).

3.14.3.3.1 Big-game Species

Several areas identified as big-game range are situated on the periphery of the ecosystem resources evaluation area. The project team obtained information regarding big-game ranges in Utah from Utah Division of Wildlife Resources habitat range maps (Utah Division of Wildlife Resources 2025b). Big-game habitat is described in terms of seasonal use (year-long, winter, spring, or summer) and habitat value. Habitat value is described as either crucial or substantial.

- **Crucial-value habitat** is defined by Utah Division of Wildlife Resources as "habitat on which the local population of a wildlife species depends for survival because there are no alternate ranges or habitats available. Crucial habitat is essential to the life history requirements of a wildlife species."
- **Substantial-value habitat** is defined by Utah Division of Wildlife Resources as "habitat that is used by a wildlife species but is not considered crucial for population survival."

Elk and mule deer habitat ranges do not cross the evaluation area, but crucial winter habitat for both of these species is mapped just outside and to the northeast and northwest of the evaluation area. In addition, crucial year-long habitat for moose is mapped just outside and northwest of the evaluation area. Figure 3.14-3 provides an overview of Utah Division of Wildlife Resources mapped big-game habitat in relation to the evaluation area.

Based on maps provided by Utah Division of Wildlife Resources, no known wildlife migration corridors cross the evaluation area (Utah Division of Wildlife Resources 2025c, 2025d). The nearest migration corridors, which are for mule deer, are to the north and east of the evaluation area, outside the Heber Valley.

Wildlife–vehicle Collisions

UDOT consulted with the Utah Division of Wildlife Resources to obtain data for wildlife–vehicle collisions in the ecosystem resources evaluation area. The data represent points where contractors or Division staff have picked up a carcass. The Division of Wildlife Resources has records for 188 wildlife–vehicle collisions in the evaluation area between January 2018 and March 2025 (Ehrhart 2024). Table 3.14-3 lists these collisions by species and road segment, and Figure 3.14-4 shows the location of each wildlife–vehicle collision in the evaluation area.

Table 3.14-3. Wildlife–vehicle Collisions in the Ecosystem Resources Evaluation Area between January 2018 and March 2025

Common Name	Scientific Name	Road		
		US-40	SR-113	US-189
Mule deer	*Odocoileus hemionus*	159	1	21
Moose	*Alces alces*	3	0	0
Northern racoon	*Procyon lotor*	2	0	0
Striped skunk	*Mephitis mephitis*	2	0	0
Total		**166**	**1**	**21**

3.14.3.3.2 Migratory Birds

The pasture fields, cropland, open water, and woody riparian corridors in the ecosystem resources evaluation area provide suitable foraging and/or potential nesting habitat for migratory birds.

Figure 3.14-3. Big-game Habitat in the Ecosystem Resources Evaluation Area

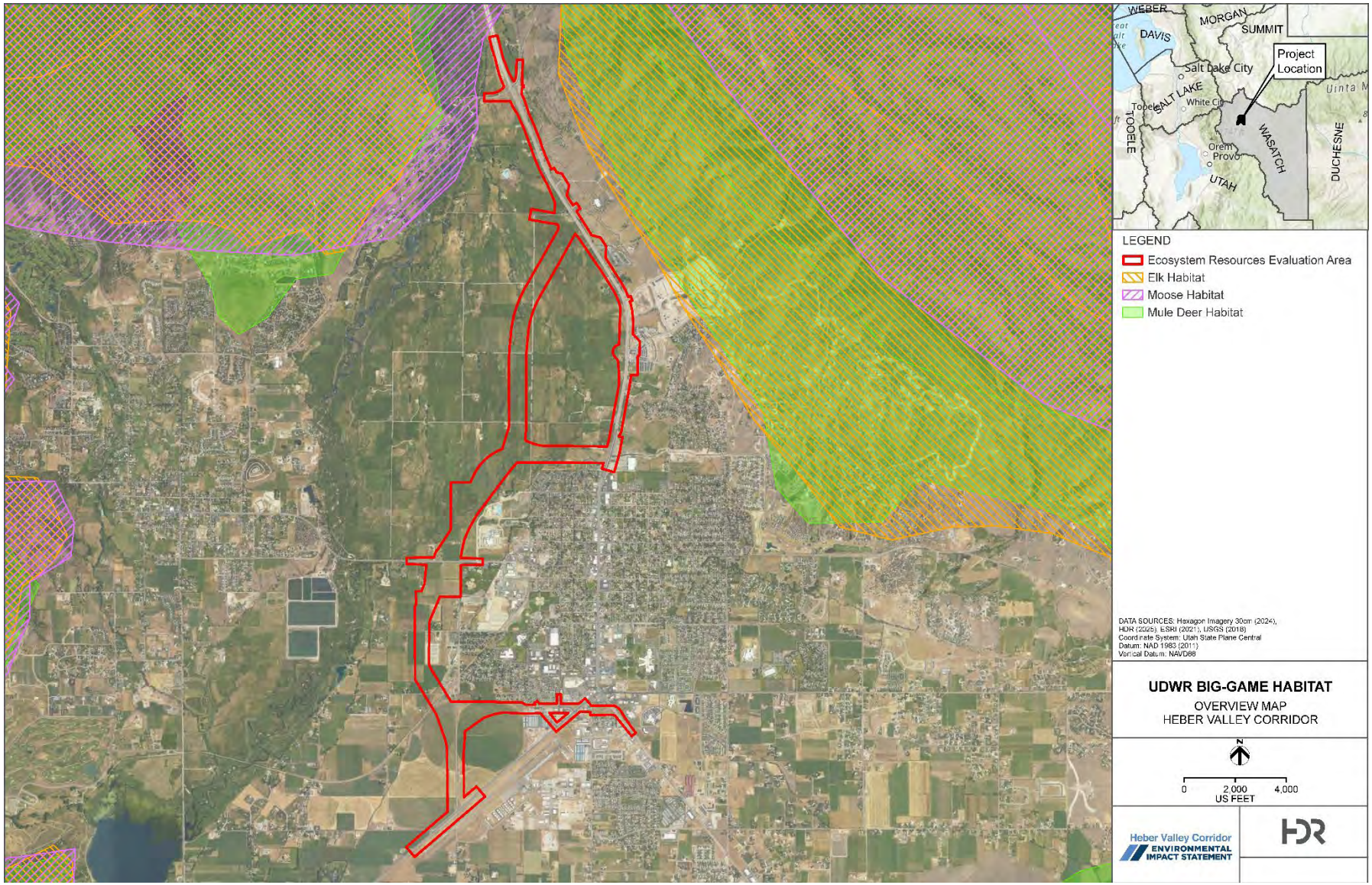
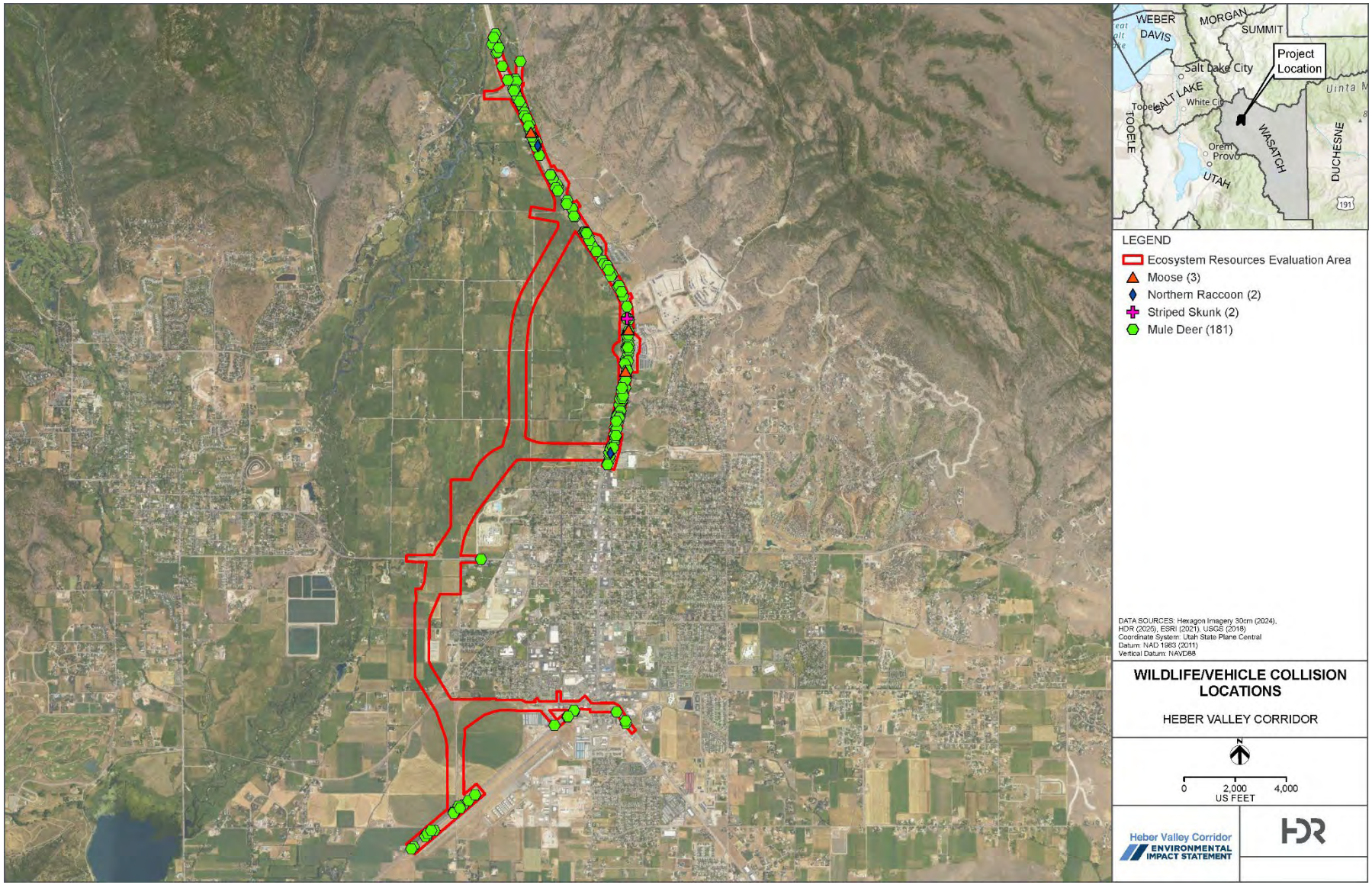


Figure 3.14-4. Locations of Wildlife–vehicle Collisions in the Ecosystem Resources Evaluation Area



3.14.3.4 Aquatic Resources

A total of 171.60 acres of aquatic resources were mapped in the 870-acre ecosystem resources evaluation area, including 123.77 acres that were formally delineated and 47.83 acres that were mapped through reviewing and refining NWI data. These resources consist of 129 wetland features (palustrine emergent and palustrine shrub-scrub) that total 162.06 acres. The evaluation area also contains 5.50 acres (15,630 linear feet) of perennial stream channels, 0.16 acre of open-water ponds, and 3.88 acres (33,054 linear feet) of canals and ditches. Characteristics of these aquatic resources are summarized in the aquatic resources delineation report for the Heber Valley Corridor Project (Appendix 3N, *Aquatic Resources Delineation Report*). Figure 3.14-5 shows the general distribution of aquatic resources in the evaluation area. The aquatic resources delineation report will be updated for the Final EIS to include new wetlands data collected during summer 2025.

Aquatic resources are jurisdictional waters if they meet the definitions in 33 CFR Section 328.3 and 40 CFR Section 120.2. Based on these definitions and associated regulatory guidance, most of the aquatic resources in the ecosystem resources evaluation area are likely jurisdictional, but some are not. Under U.S. Supreme Court precedent, wetlands must have a “continuous surface connection” with another jurisdictional water (such as a stream or a lake) in order to be jurisdictional wetlands (USACE 2025). The jurisdictional status of aquatic resources is formally determined by USACE.

Wetlands

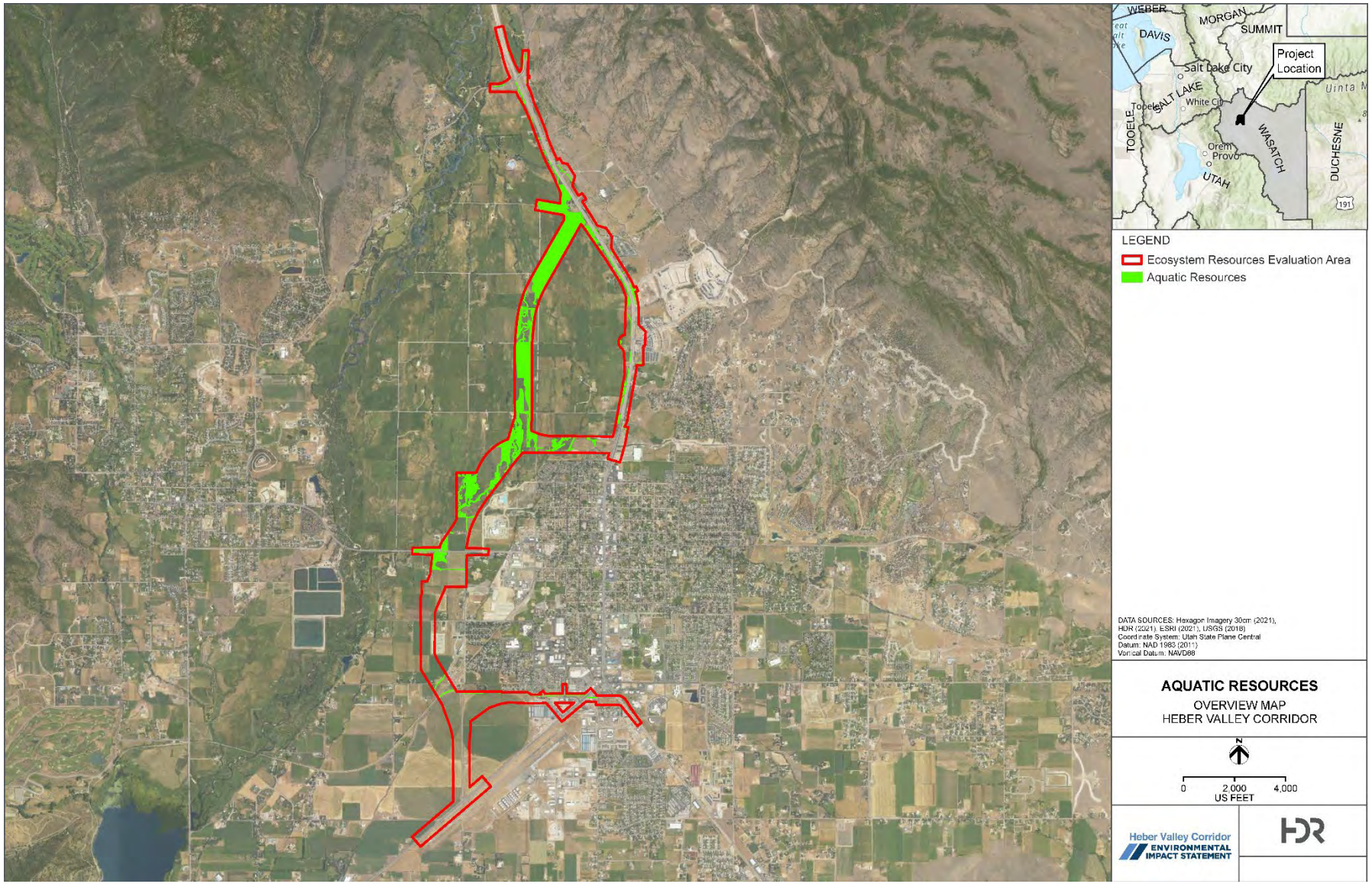
Wetlands were mapped in the ecosystem resources evaluation area as 129 separate polygons totaling 162.06 acres. Based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin and others 1979), 127 of these polygons were identified as palustrine emergent wetlands and 2 polygons were identified as palustrine shrub-scrub wetlands. The palustrine shrub-scrub wetlands have herbaceous vegetation that is similar to palustrine emergent wetlands but also includes shrubby willow (*Salix* species) vegetation.

All of the wetlands in the evaluation area are located in the northern and to central parts of the evaluation area on lands referred to as the north fields and south fields. The wetlands are part of a large wetland complex that continues to the north and west beyond the evaluation area adjacent to the Middle Provo River. Most of this portion of the evaluation area experiences seasonally high groundwater; includes several streams, canals, and ditches; and is regularly irrigated.

A majority of the wetlands are located in large pastures that are grazed by livestock, especially cattle. At least a portion of most wetlands is located along streams or canals, but large portions of many wetlands are located beyond the extent of annual flooding from these surface waters. The portions of wetlands that are not located along surface waters are inundated and/or saturated by seasonally high groundwater and/or flood irrigation. Other wetlands are located entirely on low terraces along surface waters. Nearly all of the wetlands are located in areas fenced for grazing.

The existing wetlands in the evaluation area can be generally characterized as being slightly to moderately altered or disturbed. Invasive species cover is generally low, but most wetlands are at least somewhat disturbed by livestock, and many of the wetlands receive irrigation or other modified hydrology sources. Some wetlands are bisected by roads.

Figure 3.14-5. Aquatic Resources in the Ecosystem Resources Evaluation Area



Wetlands in the evaluation area perform physical, chemical, and biological functions. Surface and subsurface water storage are physical functions performed by most wetlands in the evaluation area. Wetlands located along surface waters also provide particulate retention and energy dissipation. Nutrient cycling and organic carbon export are chemical functions provided by all wetlands in the evaluation area. Biological functions performed by wetlands in the evaluation area consist of supporting wetland vegetation communities and animal communities that use wetland environments to complete lifecycle requirements. The extent to which each wetland provides these functions varies depending on characteristics such as condition, hydrogeomorphology, size, and land use.

In April 2024, UDOT requested an AJD from USACE for aquatic resources that would be impacted by the action alternatives. As part of USACE's AJD process, USACE typically conducts a field review to observe delineated aquatic resources and evaluate their jurisdictional status. In May 2025, USACE and UDOT conducted a field review to assist in USACE's AJD, but, as of December 2025, an AJD has not been issued. The wetland impacts in this Draft EIS are based on wetlands UDOT identified as likely jurisdictional in accordance with current regulations and guidance, including the guidance EPA and USACE issued on March 12, 2025.

The jurisdictional wetlands impacts used to compare the action alternatives might change if an AJD differs from the wetlands UDOT identified as likely jurisdictional and when EPA and USACE finalize the definition of "waters of the United States." The definition of "waters of the United States" is an evolving issue that UDOT is following closely.

Streams

A total of 5.50 acres (15,630 linear feet) of perennial stream channel were mapped in the ecosystem resources evaluation area. These resources consist of four named streams (Rock Creek, Spring Creek, Middle Ditch, and Lake Creek) and three unnamed streams.

As described in Section 3.14.3.2, *General Overview of the Ecosystem Resources Evaluation Area*, throughout the Heber Valley streams have been modified through agricultural practices and urbanization. Streams are used to convey and distribute irrigation flows, irrigation return flows, and stormwater drainage. Segments of some streams in the evaluation area have been straightened and channelized, but most stream segments largely maintain natural meanders and are not deeply incised. Some stream segments include woody species such as willows along the banks, but herbaceous vegetation is predominant along most stream segments in the evaluation area.

Spring Creek is the largest stream in the evaluation area. All other streams in the evaluation area drain to Spring Creek, which drains to the Middle Provo River west of the evaluation area. The width of Spring Creek varies from approximately 10 to 35 feet, and its condition ranges from moderately degraded to good condition. Most segments of Spring Creek generally maintain natural meanders, and many include low floodplain terraces. However, some segments have been degraded by steepening streambanks and leveling adjacent land for agricultural use, and by livestock damaging vegetation and eroding streambanks.

Rock Creek, Middle Ditch, Lake Creek, and three unnamed streams in the evaluation area are smaller perennial streams with widths varying from 3 to 30 feet. Similar to Spring Creek, most segments of these streams maintain natural meanders with connected floodplains, and their condition ranges from moderately degraded to good condition. In addition to having been degraded by agricultural practices, some segments of these streams have been straightened and channelized for urban development.

The primary functions of the stream segments in the evaluation area that maintain natural meanders with low floodplain terraces are supporting riparian and wetland habitats, providing aquatic habitat, slowing runoff, and storing flood water. Channelized areas have limited floodplain functionality and are generally unable to support adjacent wetlands.

Open-water Ponds

Three open-water ponds totaling 0.16 acre were mapped in the ecosystem resources evaluation area. Mapped open-water features generally consist of constructed impoundments such as irrigation ponds and stock ponds.

Canals and Ditches

A total of 3.88 acres (33,054 linear feet) of canals and ditches were mapped in the ecosystem resources evaluation area. These resources consist of three named canals—Surplus Canal, Sagebrush and Spring Creek Canal, and Wasatch Canal—and 70 unnamed features that were mapped as ditches. All of these features appear to be connected to other aquatic resources that eventually drain to Spring Creek, the Middle Provo River, or Deer Creek Reservoir.

All of the canals and ditches appear to be entirely human-made in order to provide water delivery for irrigation or drainage functions. Some segments of these features contain little vegetation, while others are dominated by upland vegetation, and some segments contain wetland vegetation along banks or within channel features. Conversely, drainage features that appear naturalized and filled in with wetland vegetation were mapped as wetlands.

3.14.4 Environmental Consequences and Mitigation Measures

This section discusses the direct impacts and indirect effects of the project alternatives on the ecosystem resources in the ecosystem resources evaluation area. Vegetation, wildlife, special-status species, and aquatic resources would continue to be affected by current and future use.

3.14.4.1 Methodology

Impacts to habitat types and aquatic resources were calculated using GIS software.

3.14.4.2 No-action Alternative

With the No-action Alternative, the Heber Valley Corridor Project would not be built, and there would be no impacts to ecosystem resources in the ecosystem resources evaluation area from the project. Vegetation, terrestrial and aquatic wildlife, special-status wildlife species, and aquatic resources would continue to be affected by current and future development.

3.14.4.3 Action Alternatives

3.14.4.4 Common Impacts for Both Action Alternatives

3.14.4.4.1 Vegetation

Both action alternatives would convert pasture, cropland, and riparian habitat to highway use. Table 3.14-4 shows the impacts to habitat types by alternative. Alternative B would convert more acreage of habitat to transportation use. In addition, construction equipment could disturb soils and create favorable conditions for noxious weeds to become established. Noxious weeds that are present in the disturbed areas of the ecosystem resources evaluation area could spread into areas affected by roadway construction. During construction, vegetation would be temporarily disturbed by movement of equipment, storage of materials, and disturbance of staging areas. Temporarily disturbed areas would be restored to preconstruction conditions as described in Section 3.14.4.5.1, *Mitigation Measures for Vegetation Impacts*.

Table 3.14-4. Permanent Impacts to Habitat Types in the Ecosystem Resources Evaluation Area by Alternative

Habitat Type	Impacts by Alternative (acres)	
	Alternative A	Alternative B
Developed	122.07	102.06
Pasture	132.57	167.01
Cropland	78.53	78.79
Riparian	0.07	2.39
Open water	0.00	0.00
Total	***333.24***	**350.25**

3.14.4.4.2 Aquatic Resources

Both action alternatives would convert aquatic resources to transportation use. Table 3.14-5 shows the impacts, by alternative, to aquatic resources that UDOT identified as likely jurisdictional. Alternative B would convert the greatest acreages of aquatic resources to transportation use.

Indirect effects on aquatic resources could occur from sediment discharges associated with stormwater, erosion, hydrologic modifications, and the establishment of noxious weeds. Most of these indirect effects could be reduced or eliminated through the mitigation measures listed in Section 3.14.4.5.3, *Mitigation Measures for Aquatic Resources Impacts*.

Table 3.14-5. Direct Impacts to Aquatic Resources in the Ecosystem Resources Evaluation Area by Alternative

Aquatic Resource Type	Impacts by Alternative (acres)	
	Alternative A	Alternative B
Palustrine emergent wetland	19.91	50.34
Perennial stream	0.98	2.12
Canals and ditches	1.63	1.46
Open water	<0.01	<0.01
Total	**22.52**	**53.92**

3.14.4.4.3 Terrestrial and Aquatic Wildlife

General Wildlife Species

Alternative A would be a freeway-type facility between SR-32 and US-189 and US-40 south of downtown Heber City. On the North US-40 segment of the proposed Heber Valley Corridor between SR-32 and 900 North, Alternative A would include four 12-foot-wide travel lanes (two for northbound traffic and two for southbound traffic); a 14-foot wide center median; two 24-foot-wide, discontinuous frontage roads; and a 12-foot-wide paved trail that would be located on the east side of US-40. The addition of the frontage roads and trail would increase noise and visual disturbance to wildlife near the road and would also increase the barrier to wildlife crossing US-40. Between January 2018 and March 2025, the Utah Division of Wildlife Resources documented 166 wildlife–vehicle collisions on US-40 between SR-32 and 900 North (see Table 3.14-3, *Wildlife–vehicle Collisions in the Ecosystem Resources Evaluation Area between January 2018 and March 2025*, above). The addition of the frontage roads and path would lengthen the distance that wildlife need to travel to cross US-40 and could increase the number of wildlife–vehicle collisions in this segment of US-40.

On the 900 North and Western Corridor segments of the proposed Heber Valley Corridor, Alternative A would add a new road with four 12-foot-wide travel lanes (two for northbound traffic and two for southbound traffic) and a 50-foot-wide center median connecting US-40 near 900 North with US-189 in the south at its existing junction with Southfield Road. A 12-foot-wide paved trail would also be located on the east side of the roadway. This new road and trail would increase noise and visual disturbance to wildlife and add a barrier to wildlife movement in the area.

On the 1300 South segment of the proposed Heber Valley Corridor, Alternative A would provide an east-west connection at 1300 South between the Western Corridor segment and south US-40. This connection would include two 12-foot-wide travel lanes (one for westbound traffic and one for eastbound traffic) and two 12-foot wide, one-way frontage roads (one for westbound traffic and one for eastbound traffic). The 1300 South connection would also include a 5-foot-wide sidewalk on the south side and a 12-foot-wide paved trail on the north side. This new road, trail, and sidewalk would increase noise and visual disturbance to wildlife and add a barrier to wildlife movement in the area.

Alternative B is the same as Alternative A except in the North Fields Extension segment of the proposed Heber Valley Corridor between Potter Lane/College Way and 900 North. With Alternative B, a new road would be built through the north fields between Potter Lane/College Way and 900 North, whereas

Alternative A would use the existing US-40 corridor. The roadway would have four 12-foot-wide travel lanes (two for northbound traffic and two for southbound traffic) and a 50-foot-wide center median connecting Potter Lane/College Way and 900 North. A 12-foot-wide paved trail would also be located on the east side of the roadway. The road would connect to the Western Corridor segment described above for Alternative A. This new road and trail would increase noise and visual disturbance to wildlife and add a barrier to wildlife movement in the area.

Special-status Wildlife Species

UDOT identified potentially suitable habitat for one federally listed plant species, Ute ladies'-tresses, and two insect species proposed for ESA listing, monarch butterfly and Suckley's cuckoo bumble bee. Potentially suitable habitat was also identified for migratory birds.

Ute Ladies'-tresses. Ute ladies'-tresses are found in moist to very wet meadows, along streams, in abandoned stream meanders, and near springs, seeps, and lake shores where competition for light, space, water, and other resources is normally kept low by periodic or recent disturbance. Ute ladies'-tresses are also known to grow in seasonally flooded river terraces, subirrigated or spring-fed abandoned stream channels and valleys, and lake shores. Populations have also been observed growing along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands. Potentially suitable habitat could exist in the ecosystem resources evaluation area and within a 300-foot buffer.

Monarch Butterfly. Milkweed is an essential feature of quality monarch habitat, and milkweed plants were observed growing in the evaluation area. Proposed species are not protected by the take prohibitions of Section 9 of the ESA until the rule to list is finalized. Under Section 7(a)(4) of the ESA, "Federal agencies must confer with the [USFWS] if their action will jeopardize the continued existence of a proposed species" (USFWS 2025d). Given that the proposed critical habitat for this species is outside the evaluation area, the Heber Valley Corridor Project would not jeopardize the continued existence of monarch butterflies.

Suckley's Cuckoo Bumble Bee. Suckley's cuckoo bumble bees are an obligate parasitic species that are entirely dependent on the workers of host colonies to raise their young; the western bumble bee is the most widely known host. Western bumble bees nest primarily in underground cavities and abandoned animal burrows. Suckley's cuckoo bumble bees are found across North America between 6 and 10,500 feet in elevation. They require a diversity of native floral resources (pollen and nectar) for nutrition, and common habitat types include prairies, grasslands, meadows, woodlands, forests, croplands, and urban areas. Potentially suitable nesting and foraging habitat exists in the survey area. Ground disturbance would eliminate potential nesting sites, and vegetation removal would eliminate potential foraging material.

Proposed species are not protected by the take prohibitions of Section 9 of the ESA until the rule to list is finalized. Under Section 7(a)(4) of the ESA, "Federal agencies must confer with the [USFWS] if their action will jeopardize the continued existence of a proposed species" (USFWS 2025d). Suckley's cuckoo bumble bees have not been observed in the United States since 2016 (USFWS 2024), and critical habitat has not been proposed for this species. Given the broad nature of potentially suitable nesting and foraging habitat, the lack of observations in the United States, and the fact that critical habitat has not been proposed, the Heber Valley Corridor Project would not jeopardize the continued existence of Suckley's cuckoo bumble bees.

Migratory Birds. Numerous migratory bird species were observed during field surveys, including ospreys using a platform nest near the intersection of US-40 and River Road/SR-32. The platform nest would be relocated to accommodate either of the action alternatives.

Impacts to migratory birds and raptors would include a loss of pasture, cropland, and woody riparian habitat. Table 3.14-4, *Permanent Impacts to Habitat Types in the Ecosystem Resources Evaluation Area by Alternative*, above lists the loss of habitat for each action alternative. Alternative B would convert more acreage of habitat to transportation use. In addition, construction activities could result in take or displacement of birds from habitat in or near construction areas. To mitigate potential impacts to birds, and in accordance with the Migratory Bird Treaty Act, UDOT will implement the mitigation measures in Section 3.14.4.5.2, *Mitigation Measures for Terrestrial and Aquatic Wildlife Impacts*.

3.14.4.5 Mitigation Measures

3.14.4.5.1 Mitigation Measures for Vegetation Impacts

All of the action alternatives would remove vegetation and could also introduce noxious species into the surrounding areas. To prevent further, permanent effects, UDOT will mitigate temporary impacts to vegetation once construction is complete and no further disturbance is anticipated. Mitigation will include the following measures:

- All fill materials brought onto the construction site will be required to be clean of any chemical contamination per UDOT's General Standard Specifications, Section 02056, Embankment, Borrow, and Backfill. Topsoil for landscaping must also be free of weed seeds per UDOT's General Standard Specifications, Section 02912, Topsoil.
- Compacted soils will be ripped, stabilized, and reseeded.
- The contractor will be required to follow noxious weed mitigation and control measures identified in the most recent version of UDOT Special Provision Section 02924S, Invasive Weed Control.
- Disturbed areas will be reseeded.

3.14.4.5.2 Mitigation Measures for Terrestrial and Aquatic Wildlife Impacts

UDOT will implement the following mitigation measures to conserve and minimize impacts to migratory birds and in furtherance of Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*:

- Trees and shrubs should be removed during the non-nesting season (about July 15 to April 1). If this is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys, to be conducted no more than 10 days before ground-disturbing activities, by a qualified wildlife biologist of the area that would be disturbed to determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager/Biologist.

3.14.4.5.3 Mitigation Measures for Aquatic Resources Impacts

In order to fill jurisdictional wetlands and other aquatic resources as part of the project, UDOT must prepare a Clean Water Act Section 404 permit application and submit it to USACE for approval before construction. The permit application must contain a compensatory mitigation plan that describes the proposed mitigation efforts and how they will compensate for the functions and values lost from unavoidable impacts to aquatic resources from the selected alternative. Compensatory mitigation may include any one or a combination of the following five types: (1) restoring a previously existing wetland or other aquatic site, (2) establishing (that is, creating) a new aquatic site, (3) enhancing an existing aquatic site's functions, (4) preserving an existing aquatic site, and/or (5) purchasing credits from an authorized wetland mitigation bank or in-lieu fee program.

In general, compensatory mitigation actively restores or creates aquatic sites, thereby providing direct ecological benefits such as improved water quality, groundwater recharge, flood control, and wildlife habitat. The purpose of compensatory mitigation is to offset the unavoidable aquatic resource impacts of a project by restoring, establishing, enhancing, or preserving aquatic resources. This process aims to ensure that the losses in aquatic resource area and functions are compensated for, ideally with a net gain in the overall ecological health of an area. This is uniquely different from conservation easements in that compensatory mitigation plans require that mitigation areas retain their function as a natural conservation areas in perpetuity, whereas agricultural conservation easements restrict development and preserve open space but do not require that the area maintains certain ecological functions.

Throughout the study, UDOT has heard from the public and local government officials that they want to protect the north fields. In response, and as a commitment to the community, UDOT will prioritize establishing a mitigation site in the north fields and will submit this recommendation to USACE for its approval in UDOT's Clean Water Act Section 404 permit application. The size of the mitigation site in the north fields would depend on what types of mitigation are incorporated and the corresponding replacement ratios that are determined by USACE. Based other UDOT mitigation efforts, the wetland replacement ratios can range from 2:1 (about 45 acres for 22.52 acres of aquatic resource impacts from Alternative A and about 108 acres for 53.92 acres of aquatic resource impacts from Alternative B) to 15:1 (about 338 acres for 22.52 acres of aquatic resource impacts from Alternative A and 809 acres for 53.92 acres of aquatic resource impacts from Alternative B).

Although either action alternative would provide transportation benefits, the mitigation site would provide the benefits of protected open space with ecological benefits, such as improved water quality, groundwater recharge, flood control, and wildlife habitat, in perpetuity. UDOT will proactively work with the community, as it has on previous projects elsewhere, to identify aquatic resource mitigation sites that would be favorable for restoring, enhancing, preserving, or establishing aquatic resources.. UDOT would purchase the land for the mitigation site, working with willing sellers in the north fields first when identifying potential mitigation sites. A conservation easement (or alternative site-protection legal instrument) would be required to maintain the mitigation site as open space with aquatic resources maintained in perpetuity. A local example of a wetland mitigation site protected in perpetuity is an existing UDOT mitigation site from a previous project for US-40 located immediately west of US-40 and south of 1200 North in Heber City along Spring Creek.

Potential temporary construction impacts to aquatic resources would be minimized through consideration of construction methods and use of BMPs such as silt fences and other erosion-control features in areas adjacent to wetlands and streams. Any necessary temporary construction impacts to aquatic resources that

are authorized by a Clean Water Act Section 404 permit will be restored through regrading to natural contours and through revegetation measures.

3.14.4.5.4 Threatened and Endangered Species Commitments

UDOT will coordinate with USFWS if additional clearance surveys for Ute ladies'-tresses are required. All surveys will be conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a).

UDOT will consult with USFWS regarding impacts to any Ute ladies'-tresses plants, if required.

3.15 Floodplains

3.15.1 Introduction

Section 3.15 discusses the floodplains in the floodplains evaluation area and the effects of the project alternatives on these floodplains. For a discussion of aquatic resources associated with floodplains, see Section 3.14, *Ecosystem Resources*.

Floodplains Evaluation Area. The floodplains evaluation area is the combined project right-of-way or footprint for both action alternatives. The right-of-way for each action alternative is shown below in Figure 3.15-2 through Figure 3.15-3 (labeled as the alternative footprint).

What is the floodplains evaluation area?

The floodplains evaluation area is the combined project right-of-way (footprint) for all action alternatives.

3.15.2 Regulatory Setting

The terms *100-year floodplain* and *100-year flood* are key regulatory concepts in federal guidance, which is summarized in Section 3.15.2.1, *Federal Emergency Management*, and Section 3.15.2.2, *Executive Order 11988, Floodplain Management*.

Floods are usually described in terms of their statistical frequency. A 100-year flood (also referred to as a *base flood*) is a level of flood water that has a 1% chance of occurring in a given location in any given year. A 100-year floodplain is the area that would be flooded by a body of water during a 100-year flood.

This concept does not mean that such a flood will occur only once in 100 years. If a 100-year flood occurs during a given year, there would still be a 1% chance of a similar flood occurring in the same location the following year.

3.15.2.1 Federal Emergency Management

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA). Through the NFIP, the federal government makes flood insurance available in those communities that practice sound floodplain management. To participate, state and local governments are required to develop and implement floodplain-management programs. FEMA requirements for land management and use, and for identifying and mapping special flood hazard areas, are described in 44 CFR Parts 60 and 65, respectively.

A *special flood hazard area* (SFHA) is the area in and around a surface water resource, such as a river or a lake, that would be inundated by a 100-year flood. These areas are established by FEMA, and NFIP regulations are based on these SFHAs. SFHAs are given a zone designation based on the level of detail of the FEMA study and the anticipated type of flooding.

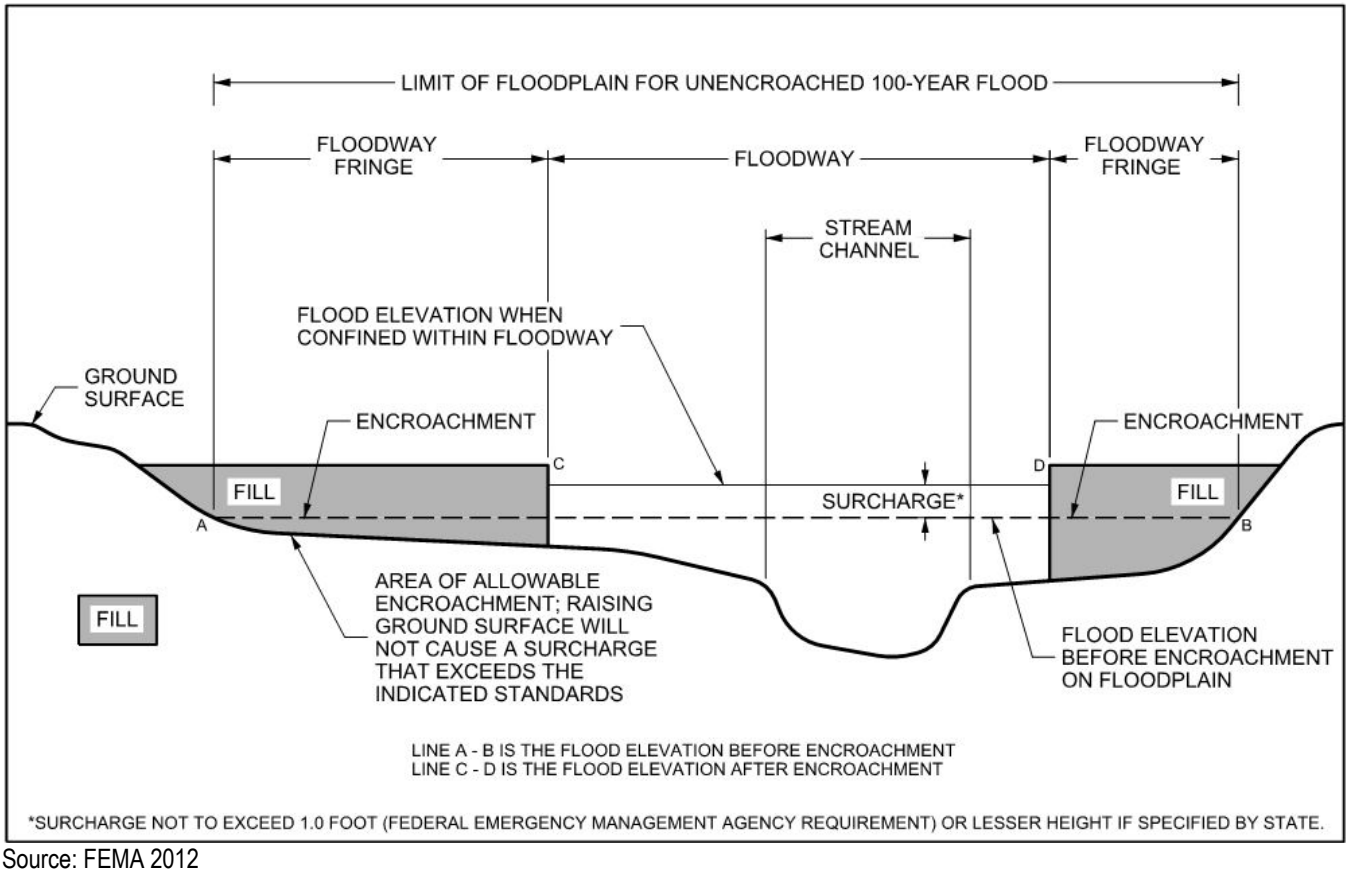
FEMA publishes Flood Insurance Rate Maps (FIRMs) for many communities that contain SFHAs. The FIRMs might also show other zones that represent greater or lesser flood risk if these zones are defined.

The following SFHA zones are located within the floodplains evaluation area (FEMA 2025a):

- **Zone A:** Areas that would be flooded by a 100-year flood. Detailed analyses have not been performed for these areas; therefore, no depths or base flood elevations have been established.
- **Zone AE:** Areas that would be flooded by a 100-year flood and where base flood elevations have been established through detailed analyses. Zone AE floodplains might also include a floodway.
- **Zone X:** Areas of minimal or moderate flood hazard. Areas of minimal flood hazard (outside the 500-year flood hazard area) are not shaded on the FIRM, while areas of moderate flood hazard (between the 100-year and 500-year flood hazard areas) are shaded. This zone is present in the floodplains evaluation area, but impacts have not been quantified because they are not pertinent to this analysis.

In AE zones, the floodplain might consist of both a floodway and a floodway fringe, as shown in Figure 3.15-1. The *floodway* is the defined riverine channel and the adjacent areas that must be kept free of encroachment to pass the 100-year flood without increasing the water surface elevation by more than a designated height. The *floodway fringe* is the area between the floodway and the boundary of the floodplain.

Figure 3.15-1. FEMA Floodplain Schematic



Source: FEMA 2012

3.15.2.2 Executive Order 11988, Floodplain Management

Executive Order 11988, Floodplain Management (May 24, 1977), established federal policy "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." This floodplain evaluation relies on the regulations that FHWA adopted based on Executive Order 11988, which govern the development of projects that could affect floodplains (23 CFR Part 650, Subpart A).

These regulations clearly state that the project must conform to 44 CFR Parts 60 and 65 as well as the floodplain management ordinance of the affected community, and they require the project proponent (in this case, UDOT) to not approve a project that involves a "significant encroachment" on a floodplain unless the significant encroachment is the "only practicable alternative" (23 CFR Section 650.113).

What constitutes a "significant encroachment" is determined on a case-by-case basis by considering adjacent development. FEMA has set a 1-foot increase in the 100-year flood elevation as the upper limit of the allowable encroachment caused by the cumulative encroachments (past, those included with the proposed project, and future) from development. If the project impacts exceed the standards defined in the regulations, the project could be subject to conditional approval from FEMA in accordance with 44 CFR Section 65.12.

Under FHWA's regulations, a significant encroachment can arise from any of the following situations:

- A significant potential for interfering with a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route
- A significant risk of upstream flooding with the potential for property loss or hazard to life
- A significant adverse impact to natural and beneficial floodplain values including flood conveyance, storage, and control; groundwater recharge; water quality function; and wildlife habitat and diversity

In addition, the FHWA regulations require that a hydraulic report be prepared during the final design of a selected alternative to demonstrate that the requirements of 44 CFR Parts 60 and 65 have been met by the project. This hydraulic report would include the results of a detailed hydraulic analysis for each impacted drainage facility to confirm that the proposed bridges and culverts, with the roadway embankments and other features in place, would adequately convey flood waters. Additionally, UDOT would compare the elevations of the designed roadways to the elevations of the surrounding floodplains to determine the potential for floodplains to interfere with the transportation facility. These detailed analyses, together with roadway and drainage plans and profiles, would demonstrate compliance with various regulations, permitting requirements, and design criteria. Overall impacts to the floodplains and beneficial floodplain values would be measured against the impacts and requirements documented in the EIS.

3.15.3 Affected Environment

The streams that are located in the floodplains evaluation area originate in the Heber Valley generally to the north and east of the evaluation area. All streams are part of the Middle Provo River watershed between Jordanelle and Deer Creek Reservoirs.

Information about the floodplains evaluation area was gathered from a variety of sources including FEMA's Community Status Book, the Wasatch County flood insurance study (FEMA 2012), National Flood Hazard Layer (NFHL) data (FEMA 2025b), USGS topographic maps, and the Utah GIS Portal.

3.15.3.1 Communities Participating in FEMA's National Flood Insurance Program

The floodplains evaluation area includes both incorporated and unincorporated parts of Wasatch County. All of the communities in the evaluation area participate in FEMA's National Flood Insurance Program, which requires communities to enact ordinances to protect natural floodplains, prevent damage to property, and protect the safety of the public. The identification numbers for each community are listed in Table 3.15-1.

Table 3.15-1. Identification Numbers for Communities Participating in the National Flood Insurance Program

Community	FEMA Community Identification Number
Wasatch County	490164
Heber City	490166

Source: FEMA 2025c

3.15.3.2 Floodplains in the Floodplains Evaluation Area

What is a regulatory floodplain?

A water body has a regulatory floodplain if the floodplain has been identified and mapped by FEMA as an SFHA.

Streams and floodplains in the floodplains evaluation area are described below and include named waterways and isolated areas for which regulatory floodplains are defined. Effective floodplain maps for the analysis area are based on the latest flood insurance study published for Wasatch County (FEMA 2012). No Letters of Map Revision (LOMR) or Letters of Map Amendment (LOMA) (FEMA's modifications to an effective floodplain map) have been approved in the evaluation area since the latest flood insurance study was published. Stream names are based on the FEMA data and are consistent with the names found on the USGS Heber City 7.5-minute topographic quadrangle (USGS 2020a) and USGS Charleston 7.5-minute topographic quadrangle (USGS 2020b).

In the following descriptions, references to Wasatch County refer to unincorporated parts of the county. Streams and floodplains in the floodplains evaluation area are shown in Figure 3.15-2 and Figure 3.15-3. In the figures, NHD refers to the National Hydrography Dataset.

Spring Creek. Spring Creek begins just north of 1200 North and east of 600 West in unincorporated Wasatch County. Spring Creek generally flows southwest through unincorporated Wasatch County and Heber City. Spring Creek flows into the Provo River south of SR-113.

Surplus Canal. The Surplus Canal is a Heber City flood-control facility that conveys flows from the Lower Wasatch Canal, the Humbug Canal, and Center Creek. The Surplus Canal flows west from US-189 just west of the hub intersection with US-40 on the north side of the proposed south US-40 connection in Heber City, then continues west to the Heber Valley Railroad rail line in unincorporated Wasatch County. The Surplus Canal then flows southwest along the south side of the railroad embankment, crosses to the north side of the embankment at Edwards Lane, and flows to the southwest and west along the north side of the embankment and into the Provo River.

Figure 3.15-2. Floodplains in the Floodplains Evaluation Area for Alternative A

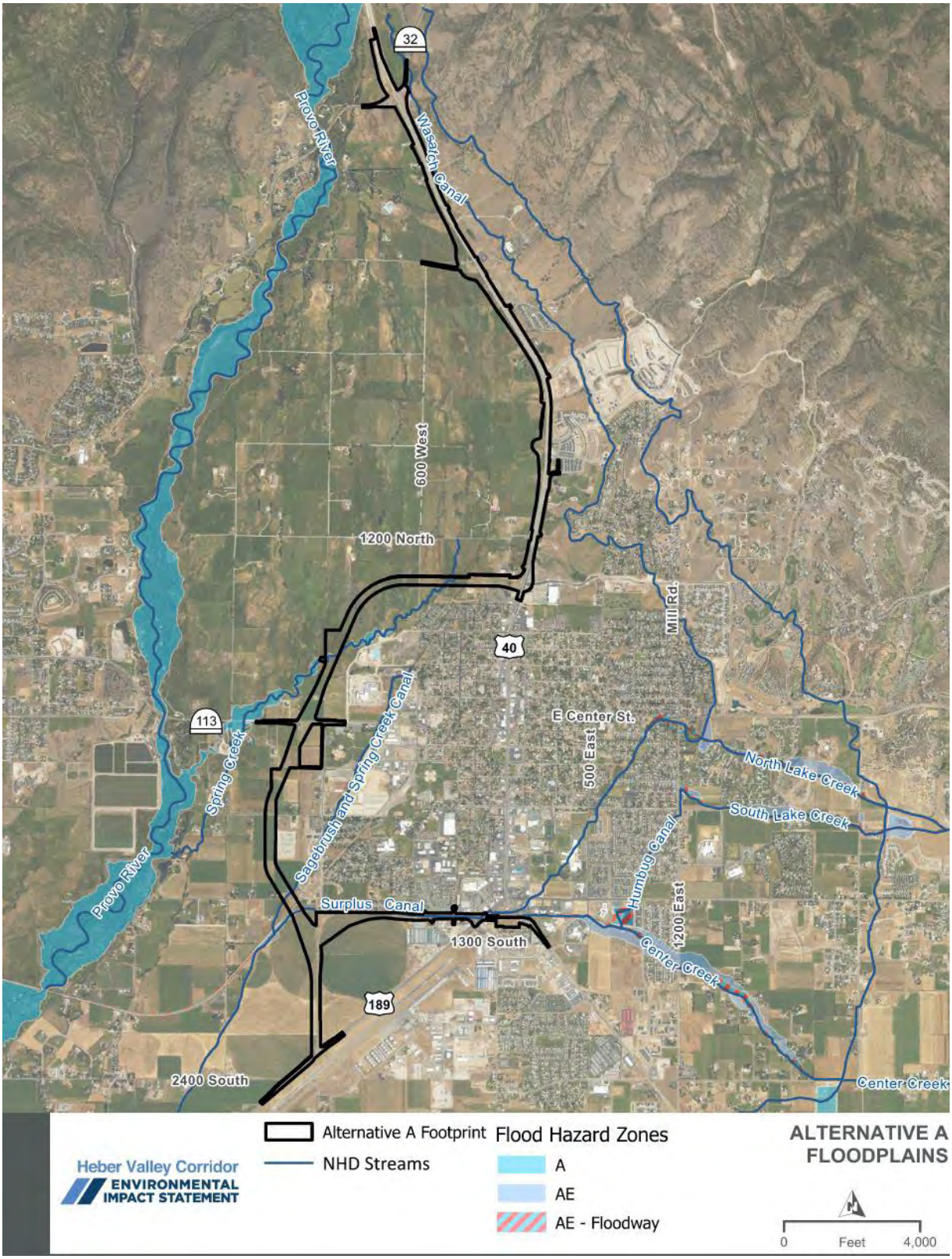
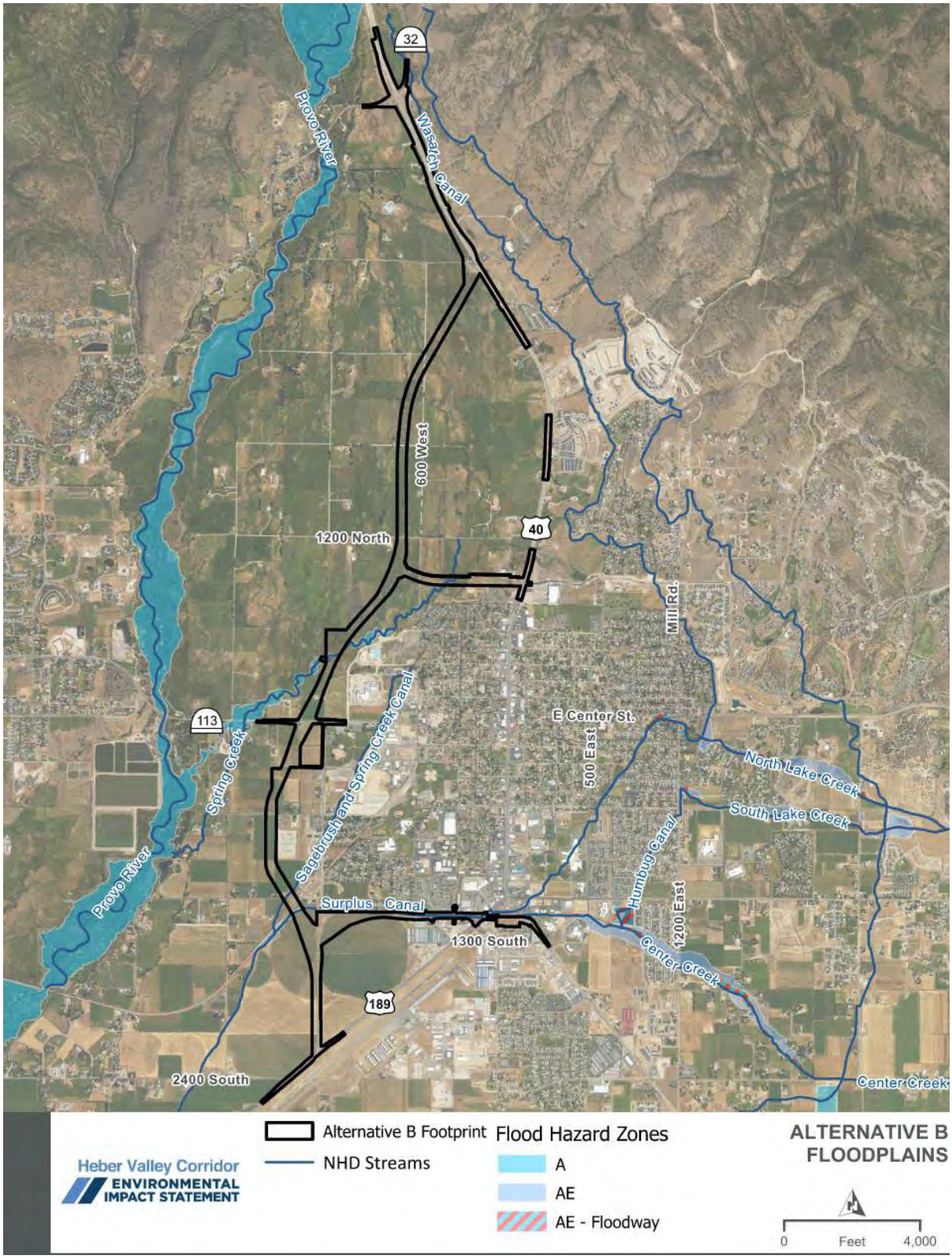


Figure 3.15-3. Floodplains in the Floodplains Evaluation Area for Alternative B



3.15.4 Environmental Consequences and Mitigation Measures

This section discusses the floodplain impacts from each of the project alternatives based on the footprint for each action alternative, which includes the roadway surface, embankment limits, and the area that would experience temporary impacts from construction. In most cases, the footprint for each action alternative has been approximated as the area within the proposed right-of-way line.

3.15.4.1 Methodology

UDOT determined the floodplain impacts from the action alternatives using a GIS approach by comparing the current FEMA NFHL data obtained for Wasatch County (FEMA 2025b) to the right-of-way footprint of each action alternative to identify the locations of regulatory floodplain crossings and to quantify the impacted area. Floodplain crossings can be transverse or longitudinal based on the impact of the proposed infrastructure to the floodplain.

What are transverse and longitudinal crossings?

Transverse crossings are perpendicular or nearly perpendicular to the direction of flow. Longitudinal crossings are parallel or nearly parallel to a stream or the edge of a lake.

The floodplain impacts described in this EIS are based on a preliminary roadway design with a sufficient level of detail to conduct the analysis. During the final design process for the selected alternative, detailed hydraulic studies would be conducted to ensure that the project design meets FEMA and FHWA regulatory requirements.

3.15.4.2 No-action Alternative

With the No-action Alternative, the Heber Valley Corridor Project would not be implemented, and no floodplains would be affected by the action alternatives. Regulatory floodplains would continue to be managed by local floodplain administrators based on local ordinances and National Flood Insurance Program requirements.

3.15.4.3 Action Alternatives

3.15.4.3.1 Alternative A

Table 3.15-2 summarizes the impacts to regulatory floodplains from Alternative A. Impacts are identified by FEMA zone and impact type (transverse or longitudinal) and are quantified by the number of acres that would be impacted. The community in which the impacts would be located is also identified. Regulatory floodplains in the floodplains evaluation area are shown above in Figure 3.15-2, *Floodplains in the Floodplains Evaluation Area for Alternative A*.

Table 3.15-2. Regulatory Floodplain Impacts from Alternative A

Stream	FEMA Zone(s)	Type of Impact	Community	Acreage of Floodplain Impacts
Spring Creek	A	Transverse	Wasatch County	1.11
Surplus Canal	AE	Transverse	Wasatch County	0.63
	AE Floodway	Transverse	Wasatch County	0.24
		Longitudinal	Heber City	1.23

As shown above in Table 3.15-2, Alternative A would have both transverse and longitudinal crossings of regulatory floodplains. These crossings include about 1.1 acres of impacts to the Zone A floodplains associated with Spring Creek and about 2.1 acres of impacts to the Zone AE floodplains associated with the Surplus Canal (including about 1.5 acres of floodway).

3.15.4.3.2 Alternative B

Table 3.15-3 summarizes the impacts to regulatory floodplains from Alternative B. Impacts are identified by FEMA zone and impact type (transverse or longitudinal) and are quantified by the number of acres that would be impacted. The community in which the impacts would be located is also identified. Regulatory floodplains in the floodplain analysis area are shown above in Figure 3.15-3, *Floodplains in the Floodplains Evaluation Area for Alternative B*.

Table 3.15-3. Regulatory Floodplain Impacts from Alternative B

Stream	FEMA Zone(s)	Type of Impact	Community	Acreage of Floodplain Impacts
Spring Creek	A	Transverse	Wasatch County	1.27
Surplus Canal	AE	Transverse	Wasatch County	0.63
	AE Floodway	Transverse	Wasatch County	0.24
		Longitudinal	Heber City	1.23

As shown above in Table 3.15-3, Alternative B would have both transverse and longitudinal crossings of regulatory floodplains. These crossings include about 1.3 acres of impacts to the Zone A floodplains associated with Spring Creek and about 2.1 acres of impacts to the Zone AE floodplains associated with the Surplus Canal (including about 1.5 acres of floodway).

3.15.4.4 Summary of Floodplain Impacts

Based on the floodplain impact analysis, the finding of a practicable alternative as required by 23 CFR Part 650, Subpart A, is not required. The action alternatives would not cause a significant impact to or encroachment on any floodplain because the action alternatives would not cause an interruption to a transportation facility, a significant risk of upstream flooding, or an adverse impact to natural and beneficial floodplain values. Note that neither action alternative would have substantially greater floodplain impacts than the other; however, Alternative B would have greater floodplain impacts than Alternative A.

3.15.4.5 Mitigation Measures

UDOT and/or its construction contractor will take measures to reduce floodplain impacts and to ensure that, if an action alternative is selected, the selected alternative complies with all applicable regulations (see Section 3.15.2.2, *Executive Order 11988, Floodplain Management*). These mitigation measures will include the following:

- The selected alternative will require a number of stream and floodplain crossings in the same locations where they presently exist as well as several new stream and floodplain crossings. Where new or rehabilitated bridges and culverts are included in the design of an alternative, the design will follow FEMA requirements and the requirements of UDOT's *Drainage Manual of Instruction*, where applicable. Where no SFHA is defined, culverts and bridges will be designed to accommodate a 50-year (2%-annual-chance) or greater-magnitude flood. Where regulatory floodplains are defined, hydraulic structures will be designed to accommodate a 100-year (1%-annual-chance) flood.
- Stream alteration permits will be obtained for stream crossings as required by the Utah Division of Water Rights to satisfy state regulations, and in some circumstances, these permits may also be used to meet Clean Water Act Section 404 permitting requirements (through use of Army Corps of Engineers Programmatic General Permit 10).
- Floodplain development permits will be obtained for all locations where the proposed roadway embankment or structural elements would encroach on a regulatory floodplain. FEMA requires that construction within a floodway must not increase the base (100-year) flood elevation. FEMA Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) processes will be executed in compliance with 44 CFR Sections 60.3 and 65.12 as necessary based on hydrologic and hydraulic analyses and the nature of anticipated changes in base flood elevation and/or floodplain limits. The LOMR process takes place after construction impacts have occurred to modify and update an effective floodplain map. The CLOMR process (if required) must be completed before construction impacts take place to receive FEMA's concurrence that, if the selected alternative is constructed as designed, a LOMR could be issued to modify and update the effective floodplain map. The following cases apply:
    - For areas of Zone A floodplain impacts, existing and proposed conditions will be analyzed and project features designed to achieve compliance such that a CLOMR would not be required. In these areas, FEMA performed floodplain mapping based on approximate methods. The absence of a detailed study or floodway delineation places the burden on UDOT to perform hydrologic and hydraulic analyses consistent with FEMA standards. These analyses will confirm or refine the FEMA floodplain mapping and could increase or decrease the estimate of affected areas.
    - For areas of Zone AE floodplain impacts, proposed conditions will be analyzed relative to the effective floodplain mapping (with base flood elevations defined), and project features will be designed such that compliance is achieved as much as possible. UDOT and Heber City have discussed potential solutions to mitigate the longitudinal impacts to the floodway associated with the Surplus Canal in Heber City and Wasatch County. Although Heber City would prefer to keep the channel open as it is now for ease of maintenance, the City agrees that segments of the canal could be conveyed in a box culvert where necessary as long as the culvert meets minimum dimensions and the flow capacity is not reduced (Funk 2022). This action would involve preparing a CLOMR that FEMA would need to accept prior to the start of construction

and issuing a floodplain development permit from Heber City and/or Wasatch County unless there is no increase in the base (100-year) flood elevation. UDOT would also work with Heber City to acquire any flood-control permit that Heber City requires.

- Roadway elevations will be a minimum of 2 feet above adjacent floodplain elevations, where those elevations are defined, so that flooding will not interfere with a transportation facility needed for emergency vehicles or evacuation.
- Walls will be designed and constructed to minimize longitudinal floodplain impacts.

3.16 Hazardous Materials and Hazardous Waste Sites

3.16.1 Introduction

Section 3.16 describes potentially hazardous sites near the project alternatives that could contain hazardous materials and hazardous waste sites and analyzes the expected effects of the project alternatives on these sites. Hazardous materials include any solid, liquid, or gaseous materials that, if improperly managed or disposed of, could pose hazards to human health and the environment. A material is considered hazardous if it exhibits one or more of the following characteristics: ignitability, corrosivity, reactivity, and toxicity.

What is the hazardous materials and hazardous waste sites evaluation area?

The overall hazardous materials and hazardous waste sites evaluation area is the area within 1 mile of the centerlines of the action alternatives.

Hazardous Materials and Hazardous Waste Sites Evaluation Area.

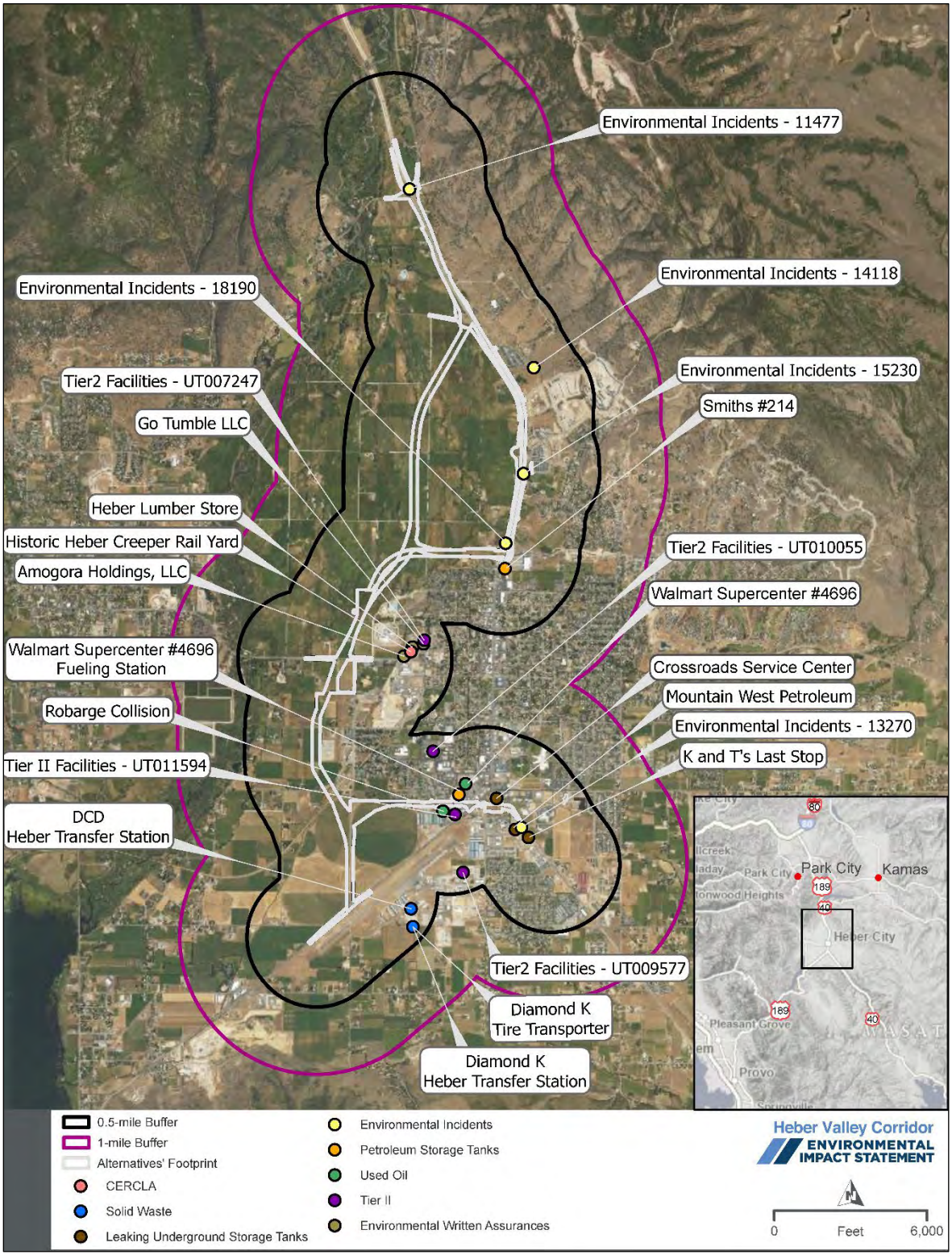
The analysis in Section 3.16 identifies hazardous materials and hazardous waste sites using three search areas (buffer distances): within 1 mile of the centerlines of the action alternatives, within 0.5 mile of those centerlines, and within the alternatives' footprints or on adjacent properties (Figure 3.16-1). The overall evaluation area encompasses all three search areas. The evaluation area includes parts of Heber City, Daniel, Charleston, and Wasatch County adjacent to US-40 north and south of Heber City. For Section 3.16, the evaluation area does not include Main Street in Heber City because no project construction would occur on Main Street and therefore no hazardous materials or hazardous waste sites would be impacted by the project.

3.16.2 Regulatory Setting

Hazardous materials are regulated by the Resource Conservation and Recovery Act (RCRA); by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and by Utah Administrative Code Title 19, *Environmental Quality Code*. The following concerns are raised when a transportation project could affect sites with hazardous materials:

- The spread of existing soil or groundwater contamination through construction activities
- The potential for increased construction costs
- The potential for construction delays
- The health and safety of construction workers and people who live near the sites with hazardous materials
- The short-term and long-term liability associated with acquiring environmentally distressed properties

Figure 3.16-1. Hazardous Material Facilities in the Hazardous Materials and Hazardous Waste Sites Evaluation Area and Search Areas



3.16.3 Affected Environment

3.16.3.1 Resource Identification Methods

Hazardous materials and waste sites were evaluated by reviewing records from UDEQ. These sites included Brownfields sites; Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) sites; Environmental Incidents; Enforceable Written Assurances (EWA) sites; Formerly Used Defense (FUD) sites; leaking underground storage tank (LUST) sites (DERR 2025a); National Priorities List (NPL) sites; Solid Waste Sites (Utah Division of Hazardous Waste 2025); Tier II sites; Toxic Release Inventory (TRI) sites; Used Oil Facilities; and underground storage tank (UST) sites (DERR 2025a). Sites were reviewed for their potential to be affected by the action alternatives or affect construction based on search areas as shown in Table 3.16-1.

To determine the sites of greatest concern, UDOT screened hazardous material–related sites, areas, and facilities to identify those that have a higher probability of containing contaminated soil or groundwater and those that are located closer to the construction areas for the action alternatives using criteria established in UDOT's *Environmental Process Manual of Instruction* (UDOT 2023b). The site type defined the search areas listed in Table 3.16-1. For example, NPL sites are sites with known contamination, and a wide search area (1 mile) was used to identify these sites. Conversely, USTs are regulated sites that store petroleum products but no spill or leak has been reported; therefore, a narrower search area (project footprint and adjacent properties) was used to identify these site types.

3.16.3.2 Facilities with Hazardous Materials in the Hazardous Materials and Hazardous Waste Sites Evaluation Area

Figure 3.16-1 above shows the locations of the 23 sites in the hazardous materials and hazardous waste sites evaluation area that are known or suspected to contain, or have previously contained, hazardous materials. As described in this section, these sites could present a low, medium, or high risk that any construction in the area would encounter contamination.

3.16.3.2.1 Brownfields Sites

There are no Brownfields sites in the 0.5-mile search area.

3.16.3.2.2 CERCLIS Sites

There is one CERCLIS site in the 0.5-mile search area. See Table 3.16-2 below for a listing of the CERCLIS site and Figure 3.16-1 above for the location.

Historic Heber Creeper Rail Yard is located at 600 West 100 South. A resident reported that up to 12 drums of waste were buried on site under the direction of the site owner in 1996. Also, contaminants could be on site from the rail maintenance activities that occurred from 1971 to 1990. The site is an area of concern because it is close to residences, surface water, and an unconfined aquifer used as a drinking water source. About 80 homes and mobile homes are located within 0.25 mile of the roundhouse (DERR 2025b). Soil and groundwater contamination could

What is a roundhouse?

A roundhouse is a building with a circular shape often used by railroads for servicing and storing locomotives.

remain on site, and, if contamination is present, it could have migrated into the evaluation area. This site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **moderate** risk that construction would encounter contamination.

Table 3.16-1. Descriptions of Hazardous Materials Sites and Associated Search Areas

Site Type	Search Area	Description
Brownfields	0.5 mile	Brownfields are former industrial areas.
CERCLIS	0.5 mile	CERCLIS sites contain listed chemicals under CERCLA but have not been categorized as NPL sites.
Environmental Incident	Alternative footprints or adjacent properties	Environmental incidents are locations where a spill or other incident regarding hazardous materials has been reported.
EWA	0.5 mile	EWA sites are properties where the owner has come to an agreement with UDEQ regarding obligations associated with hazardous materials or waste on the site.
FUD	0.5 mile	FUD sites were once under the jurisdiction of the US-Department of Defense and could contain hazardous, toxic, or radioactive wastes in the soil, water, or containers on site.
LUST	Alternative footprints or adjacent properties	LUST sites are UST sites where a leak has been detected.
NPL	1 mile	NPL sites are those containing listed chemicals under CERCLA and that have been identified as priorities for cleanup.
Solid Waste	0.5 mile	Solid waste sites include landfills and transfer stations.
Tier II	0.5 mile	Tier II sites are sites with documented hazardous chemicals stored on site. No chemical spills or release is implied by the database listing.
TRI	Alternative footprints or adjacent properties	TRI sites are sites such as manufacturing or mining facilities that manufacture or process listed chemicals.
Used Oil Facility	Alternative footprints or adjacent properties	Used oil facilities are sites that store, transport, or recycle used oil.
UST	Alternative footprints or adjacent properties	USTs are sites where underground storage tanks are currently being used or have been used to store petroleum products such as gasoline or diesel fuel.

Definitions: CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CERCLIS = Compensation, and Liability Information System; EWA = Enforceable Written Assurances; FUD = Formerly Used Defense; LUST = leaking underground storage tank; NPL = National Priorities List; TRI = Toxic Release Inventory; UDEQ = Utah Department of Environmental Quality; UST = underground storage tank

3.16.3.2.3 Environmental Incidents

Five environmental incidents have been reported as occurring within the alternatives' footprints or on adjacent properties. See Table 3.16-2 below for a listing of a listing of reported environmental incidents and Figure 3.16-1 above for the locations.

Environmental Incidents – 11477 is a report by a caller on July 21, 2013, that a pup trailer attached to a semitruck tipped over at the junction of SR-32 and US-40, releasing 1,000 gallons of an emulsion material. The caller stated that the material is not a hazardous material regulated by the U.S. Department of Transportation. No water or storm drains were impacted (DERR 2025b). This site is within the alternatives' footprints but represents a **low** risk that construction would encounter contamination.

What is a Phase II environmental investigation?

A Phase II environmental investigation is when scientist drill and sample soil, soil-vapor, and groundwater for potential pollution.

Environmental Incidents – 13270 is a record from December 25, 2017, that a pre-sale assessment of property revealed historical soil contamination on site from an aboveground storage tank. The site is located 1520 S. US-40. An investigation concluded that soil contaminant is primarily diesel fuel in excess of UDEQ's initial screening levels. No evidence of groundwater contamination was found at the time of the investigation. A Phase II environmental investigation in 2017 found residual petroleum-related contamination in area soils (DERR 2025b). This site is also listed in the LUST and UST databases (site 1100082, Mountain West Petroleum), which stated that the contamination was remediated. The site is within the alternatives' footprints and represents a **moderate** risk that construction would encounter contamination.

Environmental Incidents – 14118 is a report by a caller on September 16, 2019, that a company was dumping asphalt into an irrigation ditch. This site is located at 2400 N. US-40 (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

Environmental Incidents – 15230 is a report from October 5, 2021, that silt was being discharged from a construction project into a privately owned, unnamed stream on a neighboring property south of The Springs at Coyote Ridge subdivision. It was reported that silt was "slightly" discharging into the stream because perimeter controls had not been installed on the construction site. A site visit by UDEQ on October 14, 2021, found the construction project to be in compliance with permit regulations. During the visit, it was determined that the stream was a privately owned drainage ditch, and that there was a berm in good condition along the south end of the construction site preventing runoff into the ditch and private property. There was no sign of silt discharge during the site visit (DERR 2025b). This site is within the alternatives' footprints and represents a **low** risk that construction would encounter contamination.

Environmental Incidents – 18190 is a report from August 4, 2023, of suspected harmful algal blooms in the Sagebrush and Spring Creek Canal. The site is located at 895 N. US-40 (DERR 2025b). This site is adjacent to the alternatives' footprints and represents a **low** risk that construction would encounter contamination.

3.16.3.2.4 Enforceable Written Assurances (EWA) Sites

There are three EWA sites in the 0.5-mile search area. See Table 3.16-2 below for a listing of the EWA sites and Figure 3.16-1 above for the locations.

Amogora Holdings, LLC is located at 722 West 100 South, Suite B. Amogora Holdings submitted an EWA application on June 9, 2016, because contaminants were potentially released from the former Heber Creeper Rail Yard (listed above as a CERCLIS site) onto this property. On September 15, 2016, UDEQ approved the EWA that no enforcement action regarding this property would be initiated by UDEQ against Amogora Holdings (DERR 2025b). This site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

Go Tumble, LLC is located at 89 North 600 West. Go Tumble, LLC, submitted an EWA application on December 28, 2016, because contaminants were potentially released from the former Heber Creeper Rail Yard (listed above as a CERCLIS site) onto this property. No conclusion information is available in UDEQ's database (DERR 2025b). This site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

Heber Lumber Store is located at 700 West 100 South. This site is located within the boundaries of the former Heber Creeper Rail Yard (listed above as a CERCLIS site) and has been a lumber yard for over 40 years. Part of the site is currently occupied by a trucking company, and the other part is unoccupied commercial buildings (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

3.16.3.2.5 FUD Sites

There are no FUD sites in the 0.5-mile search area.

3.16.3.2.6 Leaking Underground Storage Tank (LUST) Sites

There are three LUST sites within the alternatives' footprints or on adjacent properties (DERR 2025a). See Table 3.16-2 below for a listing of the LUST sites and Figure 3.16-1 above for the locations.

Crossroads Service Center is located at 1500 S. Main Street. In 1988, an unknown amount of hazardous material (not natural gas, but potentially gasoline) was released, requiring the Crossroads Lounge to be evacuated and ventilated. In 1994, storage tanks were removed, and UDEQ determined that no further corrective action was needed. The file notes that the water and soil on the site is not considered contaminated (DERR 2025b). This site is outside the alternatives' footprints but on adjacent property and represents a **low** risk that construction would encounter contamination.

K and T's Last Stop (Wasatch Eagle Stop) is located at 1590 S. US-40. On August 31, 2015, the site owner submitted a closure notice. On September 9, 2015, UDEQ recommended that no further corrective action was needed and that contaminant concentrations were below the State of Utah cleanup levels, and approved the closure notice (DERR 2025b). The site is also a UST site. The site is within the alternatives' footprints and represents a **moderate** risk that construction would encounter contamination.

Mountain West Petroleum is located at 1520 S. US-40. In 2017, a release of petroleum from an aboveground storage tank was discovered. This release was handled by the Utah Division of Environmental Response and Remediation (DERR) using typical UST procedures because the petroleum could have

affected groundwater. One month after notification, the incident at the site was cleaned up, and UDEQ determined that no further corrective action was needed. This release was not believed to contaminate groundwater (DERR 2025b). The site is within the alternatives' footprints and represents a **moderate** risk that construction would encounter contamination.

3.16.3.2.7 NPL Sites

There are no NPL sites in the 1-mile search area.

3.16.3.2.8 Solid Waste Sites

There are three solid waste sites in the 0.5-mile search area. See Table 3.16-2 below for a listing of the solid waste sites and Figure 3.16-1 above for the locations.

DCD Heber Transfer Station is located at 639 W. Airport Road. According to the latest document for this site on UDEQ's website (dated September 9, 2021), several small violations were noted, including that UDEQ needs copies of the following documents: the facility's Plan of Operations, daily operating reports, inspection reports, the most recent annual report, and a written training record. A large pile of metal debris and refuse was observed outside the transfer station building, a 255-gallon tote was observed with lead acid batteries in it, and a couple small oil leaks were noted under some on-site equipment. No updated paperwork is available on UDEQ's website stating whether these violations have been addressed (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **moderate** risk that construction would encounter contamination.

Diamond K – Heber Transfer Station is located at 2214 South 670 West. During the latest inspection in August 2021, the site was found to be missing a sign near the entrance to the property. Other than the missing sign, the facility was in compliance with its approved plan of operations (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

Diamond K – Tire Transporter is located at 2214 South 670 West. Diamond K – Tire Transporter has records in UDEQ's database that the business is registered to store and transfer waste tires, but no violations were noted (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

3.16.3.2.9 Tier II Sites

There are four Tier II sites in the 0.5-mile search area. See Table 3.16-2 below for a listing of the Tier II sites and Figure 3.16-1 above for the locations.

Tier II Facilities – UT007247 (Verizon Wireless) is located at 99 North 600 West. No information about this site is available in UDEQ's database (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

Tier II Facilities – UT009577 (Amerigas Heber) is located at 1865 S. Wendell Lane. No information about this site is available in UDEQ's database (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

Tier II Facilities – UT010055 (Miro Industries) is located at 844 South 430 West. No information about this site is available in UDEQ's database (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

Tier II Facilities – UT011594 (Sunbelt Rentals) is located at 280 W. US-189. No information about this site is available in UDEQ's database (DERR 2025b). The site is outside the alternatives' footprints but within the 0.5-mile search area and represents a **low** risk that construction would encounter contamination.

3.16.3.2.10 Toxic Release Inventory (TRI) Sites

There are no TRI sites within the alternatives' footprints or on adjacent properties.

3.16.3.2.11 Used Oil Facility Sites

There are two Used Oil Facility sites within the alternatives' footprints or on adjacent properties. See Table 3.16-2 below for a listing of the Used Oil Facility sites and Figure 3.16-1 above for the locations.

Robarge Collision is located at 1365 Industrial Parkway. There is potential for fuel or hydraulic oil leaks from this auto yard and collision repair facility (DERR 2025b). The site is within the alternatives' footprints and represents a **moderate** risk that construction would encounter contamination.

Walmart Supercenter #4696 is located at 1274 S. Highway 189. There is potential for fuel or hydraulic oil leaks from the auto service center (DERR 2025b). The site is outside the alternatives' footprints but on adjacent property and represents a **low** risk that construction would encounter contamination.

3.16.3.2.12 Underground Storage Tank (UST) Sites

There are two UST sites within the within the alternatives' footprints or on adjacent properties (DERR 2025a). See Table 3.16-2 below for a listing of the UST sites and Figure 3.16-1 above for the locations.

Smith's Gas Station at 900 N. US-40 installed new storage tanks in 2024. No leaks or compliance violations were noted in UDEQ's database (DERR 2025b). The site is outside the alternatives' footprints but on adjacent property and represents a **low** risk that construction would encounter contamination.

Walmart Supercenter #4696 is located at 1274 S. Highway 189. There is potential for fuel or hydraulic oil leaks from the auto service center (DERR 2025b). The site is outside the alternatives' footprints but on adjacent property and represents a **low** risk that construction would encounter contamination.

3.16.3.2.13 Summary of Facilities in the Evaluation Area with Hazardous Materials

Table 3.16-2 lists the sites with hazardous materials that were identified in the appropriate search area for each type of site. These sites present a low or moderate risk that any construction in the area would encounter contamination.

Table 3.16-2. Hazardous Materials Sites Identified in the Search Areas

Name	Address	Site Type	Risk to Encounter Contamination
Historic Heber Creeper Rail Yard	600 West 100 South	CERCLIS	Moderate
Environmental Incidents – 11477	SR-32 and US-40	Environmental Incident	Low
Environmental Incidents – 13270	1520 S. US-40	Environmental Incident	Moderate
Environmental Incidents – 14118	2400 N. US-40	Environmental Incident	Low
Environmental Incidents – 15230	1566 Victory Highway	Environmental Incident	Low
Environmental Incidents – 18190	895 N. US-40	Environmental Incident	Low
Amogora Holdings, LLC	722 West 100 South, Suite B	EWA	Low
Go Tumble, LLC	89 North 600 West	EWA	Low
Heber Lumber Store	700 West 100 South	EWA	Low
Crossroads Service Center	1500 S. Main Street	LUST	Low
K and T's Last Stop (Wasatch Eagle Stop)	1590 S. US-40	LUST/UST	Moderate
Mountain West Petroleum	1520 S. US-40	LUST/UST	Moderate
DCD Heber Transfer Station	639 W. Airport Road	Solid Waste	Moderate
Diamond K – Heber Transfer Station	2214 South 670 West	Solid Waste	Low
Diamond K – Tire Transporter	2214 South 670 West	Solid Waste	Low
Tier II Facilities – UT007247 (Verizon Wireless)	99 North 600 West	Tier II	Low
Tier II Facilities – UT009577 (Amerigas Heber)	1865 S. Wendell Lane	Tier II	Low
Tier II Facilities – UT010055 (Miro Industries)	844 South 430 West	Tier II	Low
Tier II Facilities – UT011594 (Sunbelt Rentals)	280 W. US-189	Tier II	Low
Robarge Collision	1365 Industrial Parkway	Used Oil Facility	Moderate
Walmart Supercenter #4696	1274 S. Highway 189	Used Oil Facility	Low
Smith's Gas Station	900 N. US-40	UST	Low
Walmart Supercenter #4696	1274 S. Highway 189	UST	Low

Definitions: CERCLIS = Compensation, and Liability Information System; EWA = Enforceable Written Assurances; LUST = leaking underground storage tank; UST = underground storage tank

3.16.4 Environmental Consequences and Mitigation Measures

3.16.4.1 Methodology

UDOT assessed the expected environmental risks to the project by comparing the sites' risk to encounter contaminants listed in Table 3.16-2 above and considering reported contamination, reported remedial actions, and the locations of facilities containing hazardous materials in relation to the locations of the action alternatives. For this analysis, the footprint for each alternative is considered to be the right-of-way and temporary construction easement requirements for that alternative as described in Section 3.6, *Right-of-way and Relocations*. The criteria for classifying the risk (high, moderate, or low) of an alternative encountering contaminated soil and/or groundwater at each hazardous material site were defined according to UDOT's *Environmental Process Manual of Instruction* (UDOT 2023b).

- **High-risk site. A** high-risk site is one with a high potential that contamination exists on site, and the site is located within or closer to the alternative's footprint.
- **Moderate-risk site. A** moderate-risk site is a site with a higher potential to contain contamination, but the site is located farther from the alternative's footprint. Similarly, a moderate-risk site is one with a moderate-to-low potential of contamination, but the site is located within or immediately adjacent to the alternative's footprint.
- **Low-risk site. A** low-risk site is a site with a lower potential to contain contamination, and the site is farther from the alternative's footprint.

As a result of this assessment, a site with a higher general risk to encounter contaminants (as described in Section 3.16.3.2, *Facilities with Hazardous Materials in the Hazardous Materials and Hazardous Waste Sites Evaluation Area*) might be considered a lower-risk site for this project specifically. To determine the sites of greatest concern, UDOT classified the sites identified in Section 3.16.3.2 as having a high, moderate, or low probability of contamination using criteria established in UDOT's *Environmental Process Manual of Instruction* and considered each site's location relative to the footprint for each action alternative.

3.16.4.2 No-action Alternative

With the No-action Alternative, the improvements associated with the Heber Valley Corridor Project would not be made, so no impacts to or disturbances of hazardous materials sites would occur as a result of the project. Existing sites would continue to be managed in accordance with state and federal regulations. Other projects in the hazardous materials and hazardous waste sites evaluation area might disturb hazardous materials sites during construction or result in site cleanup activities.

3.16.4.3 Action Alternatives

One CERCLIS site, 5 environmental incidents, 3 EWA sites, 3 LUST sites, 3 solid waste sites, 4 Tier II sites, 2 Used Oil Facility sites, and 2 UST sites have been identified in the appropriate search area for each type of site. Table 3.16-3 lists each site's risk to construction for each of the action alternatives. Sites of concern (sites that represent a moderate risk to construction) are bolded in the table.

Table 3.16-3. Hazardous Material Site Risk

Site	Alternative A	Alternative B
Historic Heber Creeper Rail Yard	**Moderate**	**Moderate**
Environmental Incidents – 11477	Low	Low
Environmental Incidents – 13270	**Moderate**	**Moderate**
Environmental Incidents – 14118	Low	NA[a]
Environmental Incidents – 15230	Low	NA[a]
Environmental Incidents – 18190	Low	NA[a]
Amogora Holdings, LLC	Low	Low
Go Tumble, LLC	Low	Low
Heber Lumber Store	Low	Low
Crossroads Service Center	Low	Low
K and T's Last Stop (Wasatch Eagle Stop)	**Moderate**	**Moderate**
Mountain West Petroleum	**Moderate**	**Moderate**
DCD Heber Transfer Station	**Moderate**	**Moderate**
Diamond K – Heber Transfer Station	Low	Low
Diamond K – Tire Transporter	Low	Low
Tier II Facilities – UT007247 (Verizon Wireless)	Low	Low
Tier II Facilities – UT009577 (Amerigas Heber)	Low	Low
Tier II Facilities – UT010055 (Miro Industries)	Low	Low
Tier II Facilities – UT011594 (Sunbelt Rentals)	Low	Low
Robarge Collision	**Moderate**	**Moderate**
Walmart Supercenter #4696[b]	Low	Low
Walmart Supercenter #4696 Fueling Station[b]	Low	Low
Smith's Gas Station	Low	Low

[a] Not applicable; hazardous materials site is more than 0.5 mile from the search area.
[b] The Walmart Supercenter is both a Used Oil Facility and a UST site.

Table 3.16-4 lists the number of sites that represent a high, moderate, or low risk to construction for each action alternative.

Table 3.16-4. Summary of Hazardous Material Site Risk

Site Type	Alternative A	Alternative B
Sites that present a high risk to construction	0	0
Sites that present a moderate risk to construction	6	6
Sites that present a low risk to construction	17	14
Sites that would not affect or be affected by construction	0	3

Sites of concern (sites that represent a high or moderate risk to construction) are the same for both action alternatives. None of these sites are the type that present substantial risks to construction. If an action alternative is selected, UDOT will conduct site investigations or screening-level soil and groundwater testing within the alternative's right-of-way near the sites of concern. UDOT will conduct additional research and site investigations, if warranted, for the lower-risk sites depending on the alternative selected.

3.16.4.4 Mitigation Measures

Site investigations conducted by UDOT during the final design of the selected alternative will determine potential hazards, if any, and the appropriate protective measures. In the case of an identified chemical hazard, UDOT will negotiate the site remedy with the property owner before property is acquired and disturbed by construction and through possible coordination with EPA and DERR.

Previously unidentified sites or contamination could be encountered during construction. The construction contractor will implement measures to prevent the spread of contamination and to limit worker exposure. In such a case, all work will stop in the area of the contamination according to UDOT Standard Specifications, and the contractor will consult with UDOT and DERR to determine the appropriate remedial measures. Hazardous materials will be handled according to UDOT Standard Specifications and the requirements and regulations of DERR.

During construction, coordination will take place among UDOT, EPA, or DERR, the construction contractor, and the appropriate property owners. This coordination will involve determining the status of the sites of concern, identifying newly created sites, identifying the nature and extent of remaining contamination (if any), and minimizing the risk to all parties involved. Environmental site assessments might be conducted at the sites of concern to further evaluate the nature and extent of contamination and to better identify the potential risks of encountering hazardous materials when constructing the selected alternative.

Engineering controls (such as dust mitigation, temporary soil covers, and groundwater extraction) and personal protective equipment for construction workers will be used to reduce the potential for public or worker exposure to hazardous materials as determined necessary by UDOT.

3.17 Visual and Aesthetic Resources

3.17.1 Introduction

The visual and aesthetic resources of a community or area include the physical features that make up the visible landscape and vistas, features including land, water, vegetation, topography and human-made features such as buildings, roads, utilities, and structures, combined with the viewer response to the area. Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, the number of views seen, the distance of the viewers, and the viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed.

What is the visual and aesthetic resources evaluation area?

The visual and aesthetic resources evaluation area is defined as all areas where physical changes associated with the action alternatives could be seen.

Section 3.17 considers the visual resources in the visual and aesthetic resources evaluation area for the Heber Valley Corridor EIS, the typical viewer groups that would view those resources, and the effects, or viewer response, of the action alternatives on those resources.

Visual and Aesthetic Resources Evaluation Area. The visual and aesthetic resources evaluation area is defined as all areas where physical changes associated with the action alternatives could be seen. The views include both looking outward from the alternatives and looking toward the alternatives from key viewpoints. The visual and aesthetic resources evaluation area is displayed in Figure 3.17-1 on page 3-222.

3.17.2 Regulatory Setting

UDOT considers aesthetic values during project development. To consider the aesthetic effects of the action alternatives, UDOT performed a visual analysis for the EIS. An analysis of visual impacts is required in an EIS by FHWA's Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987).

This section was also prepared with reference to guidance from FHWA's *Guidelines for the Visual Impact Assessment for Highway Projects* (FHWA 2015b) to assess visual impacts. In accordance with these guidelines, the existing visual character and quality of the affected environment, as well as the viewer response to those resources, provide the framework for assessing the change in visual character that would occur as a result of the Heber Valley Corridor Project.

3.17.2.1 Visually Sensitive Resources

In addition to following the FHWA regulatory guidance above, UDOT reviewed local plans for evidence of the community's visual preferences and scenic resources. The north and south fields in the Heber Valley are prized natural and visual resources for residents. Views of the north fields are prized for their openness and rural and agricultural landscape character. Views of the south fields are prized for wildlife viewing in addition to a similar rural and agricultural landscape character as the north fields. Views of the north and south fields are not protected by any specific plan, policy, or regulation; however, the community's preferences to protect views of the north and south fields are well documented in the *Heber City Envision 2050 General Plan* and the *Wasatch County General Plan 2001–2016*, and through the numerous public comments received during the scoping and alternatives screening phases of the EIS. More information about these visual sensitive

resources is included in Appendix 3O, *Visual Resources Technical Report*. The efforts by the local governments to protect the north and south fields and the public response to the Heber Valley Corridor Project are important considerations of this visual resource analysis.

3.17.3 Methodology

The UDOT analyzed the visual resources and visual character in the visual and aesthetic resources evaluation area (the area of visual effect) and of the action alternatives using the following analysis method. UDOT implemented this approach consistent with FHWA's *Guidelines for the Visual Impact Assessment for Highway Projects*. This analysis method uses the following phases (and associated steps) to conduct a visual impact assessment (VIA):

- **Establishment Phase.** This phase provides the regulatory context, defines the area of visual effect, and includes a field review of visual resources.
- **Inventory Phase.** This phase is a summary of the visual resources in the affected environment. This information provides the baseline for analysis of the action alternatives.
- **Analysis Phase.** This phase is an assessment of the impact of the visual change of the action alternatives within the area of visual effect.
- **Mitigation Phase.** This phase describes the visual resource mitigation measures that could be implemented to lessen any adverse effects of the action alternatives.

More information about each phase is provided in Appendix 3O, *Visual Resources Technical Report*.

3.17.4 Affected Environment

This section describes the existing visual character of the visual and aesthetic resources evaluation area for assessing visual resources. The information in this section comes from the tasks in the establishment and inventory phases of the analysis methodology described in Section 1.1, *Analysis Method*, of Appendix 3O, *Visual Resources Technical Report*. This section provides information about the character of the regional landscape and the land use patterns that have modified the natural landscape.

3.17.4.1 Geographic Setting and Topography

Heber Valley is on the "back side" of the Wasatch Mountains, and the area is often referred to as the Wasatch Back. Heber Valley is a high-elevation mountain valley. The valley sits at an elevation of 5,595 feet above sea level and is surrounded by the Wasatch Mountains to the west and the foothills of the Uinta Mountains to the east. The Heber Valley Corridor action alternatives traverse the valley floor.

3.17.4.2 Affected Viewers and Sensitivity

For a visual analysis, two basic user groups are associated with a transportation network: *those using the network* (who have views from the road, also known as "travelers") and *those looking at the transportation network* (who have views of the road, also known as "neighbors"). People using the road see some of the same views as people looking at the road. The visual sensitivity of these user groups depends on the

number and type of viewers and the frequency and duration of views. Visual sensitivity is also affected by viewer activity, awareness, and visual expectations in regard to the views.

3.17.4.2.1 Neighbors

Neighbors are a viewer group that consists of owners and renters of single-family homes, multifamily homes, apartments, condominiums, and other dwelling units used primarily by permanent residents. Residential neighbors are the most sensitive viewers to visual change. Some important residential areas adjacent to the action alternatives and in the visual and aesthetic resources evaluation area include the outer edges of downtown Heber City near Muirfield Park, 600 West, SR-113, Southfield Road, and 1300 South. These residential areas are at the same elevation as the action alternatives. Additional residential areas are located in Midway and the eastern foothills. These residential areas are higher in elevation and have more-sweeping views of the valleys.

Also included in this viewer group are recreationists, some of whom would be moving slowly through the landscape (for example, walking to the top of Memorial Hill) and have longer-duration views than do travelers (discussed below). For this analysis, “neighbors” are residents and recreationists in the valley.

3.17.4.2.2 Travelers

Travelers are a viewer group that consists of those who are traveling on US-40 or on the routes of the action alternatives and have views of the road in the visual and aesthetic resources evaluation area. Because of the nature of dynamic viewsheds, travelers are typically not as sensitive to visual change as are neighbors. More than half of this viewer group is residents who live in the Heber Valley. Some travelers are visitors or tourists who do not live in the valley and would be the least sensitive to visual change. Travelers entering the valley from US-40 have elevated views of the valley. Most other travelers on US-40 in the valley are at a similar elevation as the routes of the action alternatives.

3.17.4.3 Overview of the Viewsheds

Static viewsheds are what *neighbors* of the road see from a stationary location. Dynamic viewsheds are what *travelers* on the road see as they move through the landscape. Static and dynamic viewsheds were identified with the selection of key views and are listed in Table 3.17-1.

The most dominant natural features in the viewsheds in the Heber Valley are the Wasatch Mountain Range to the west, the Provo River and Mount Timpanogos to the southwest, and the foothills to the south and east. The dominant human-made or human-altered features in the viewshed include the transportation system; US-40, US-189, Heber City’s Main Street, and the associated local roads; and the single-family homes, apartment complexes, downtown Heber City, and the surrounding neighborhoods and agricultural fields.

3.17.4.3.1 Identify Key Views

The existing visual character and the visual impact analysis are documented to or from key viewpoints. The key views discussed in this section were chosen by UDOT to help provide context from the visual quality of the area near the alignments for the action alternatives and the views of those using the road network and those looking at the road network in the viewsheds. The key views were selected based on the field review

and are summarized in Table 3.17-1. Figure 3.17-1 below shows the location and direction of each of the nine key views listed in Table 3.17-1. Some drone images were captured near four key views and are included in this section to describe the viewsheds.

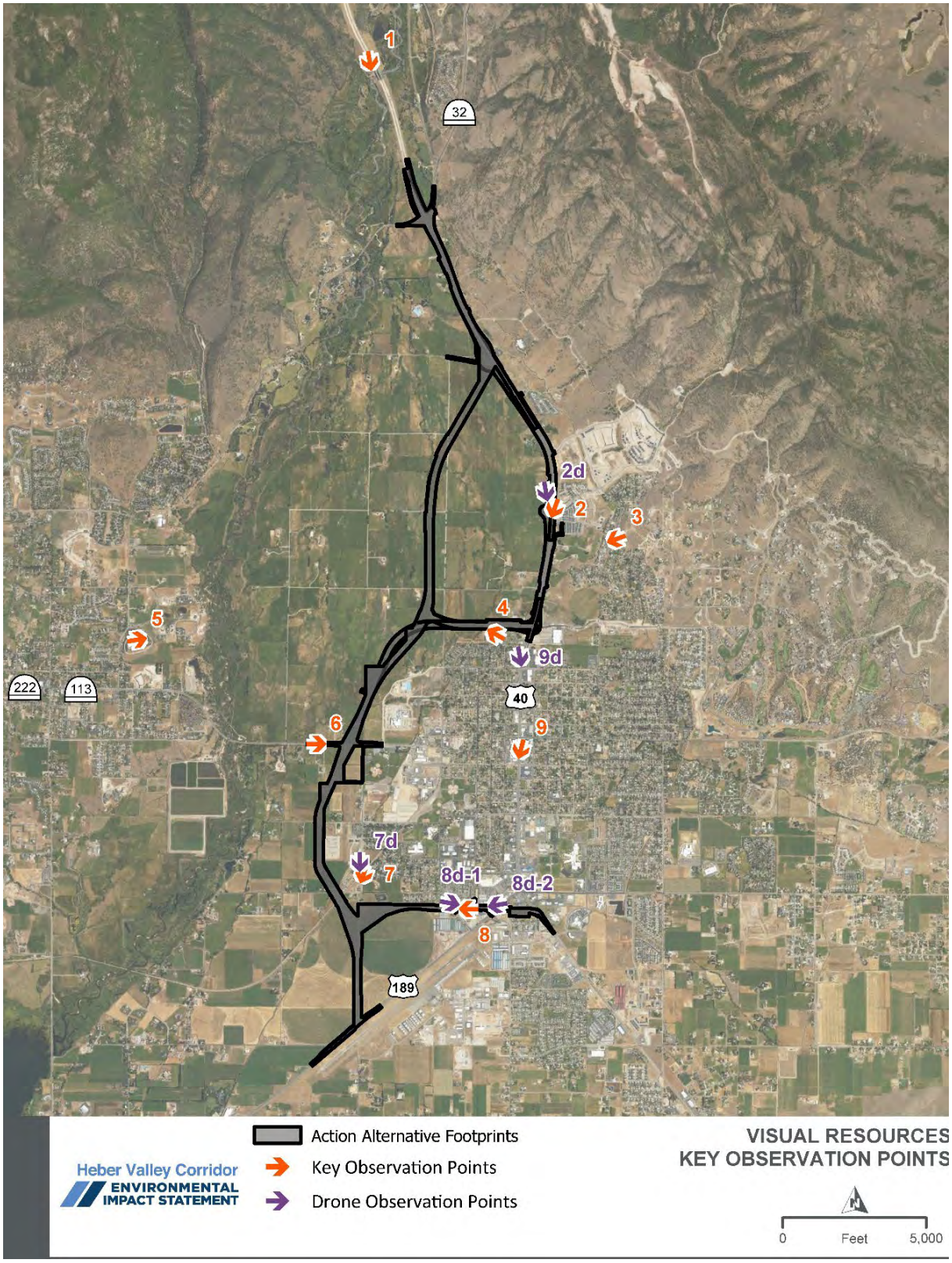
Table 3.17-1. Key Views and Rationales for Their Locations

Key View	Address	Viewer / Viewshed Type[a]	Rationale for Location
1	US-40 above the Provo River	Traveler / dynamic	Capture views for residents and travelers as the viewers enter the Heber Valley from the north. Views of the valley are valued.
2	US-40 / Coyote Canyon Parkway	Traveler / dynamic	Capture existing conditions when traveling toward Heber City.
2d	US-40 / Coyote Canyon Parkway Drone	Drone imagery	Capture existing conditions for residents north of Heber City.
3	1525 Valley Hills Boulevard	Neighbor / static	Capture views for residents and travelers. Views across the valley, of the north fields, and of the mountains are valued.
4	Muirfield Park	Neighbor / static	Capture views for residents and recreationists. Views of the north fields are valued.
5	Memorial Hill	Neighbor / static	Capture existing conditions for Midway residents. Views of the valley are valued.
6	SR-113 looking east	Traveler / dynamic	Capture views for travelers between Midway and Heber City. Views of the south fields are valued.
7	Southfield Road / 1100 South	Neighbor / static	Capture views for residents who live near the proposed interchange in the sewer fields. Views of the south fields are valued.
7d	Southfield Road / 1100 South drone	Drone imagery	Capture views for residents who live near the proposed interchange in the sewer fields. Views of the south fields are valued.
8d-1	1300 South drone looking East	Drone imagery	Capture existing conditions in the neighborhood near 1300 South looking east toward the hub intersection.[b]
8	1300 South / Industrial Parkway	Traveler / dynamic	Capture existing conditions for travelers on 1300 South. Views of the south fields are valued.
8d-2	1300 South drone looking West	Drone imagery	Capture existing conditions of the neighborhood near 1300 South looking west. Views of the south fields are valued.
9	Center Street and US-40 intersection	Neighbor / static	Capture views of Main Street in downtown Heber City for pedestrians.
9-d	500 North and US-40 intersection	Drone imagery	Capture views of Main Street in downtown Heber City.

[a] Drone images are not representative of what travelers or neighbors might see. Drone images are provided in this section as another vantage point to understand the viewshed at a key view.

[b] The hub intersection is the intersection of US-40 and US-189 on the south side of Heber City.

Figure 3.17-1. Key Views in the Visual and Aesthetic Resources Evaluation Area



3.17.4.4 Visual Character and Landscape Units

Visual character is the description of the visible attributes of a view or object typically using artistic terms such as form, line, color, and texture. The visual character of an area can be divided among the natural, developed, and roadway settings in the landscape. US-40 and US-189 are major corridors that provide the first glimpse of Heber Valley from the north and south. For this reason, these highways provide an opportunity to showcase the valley.

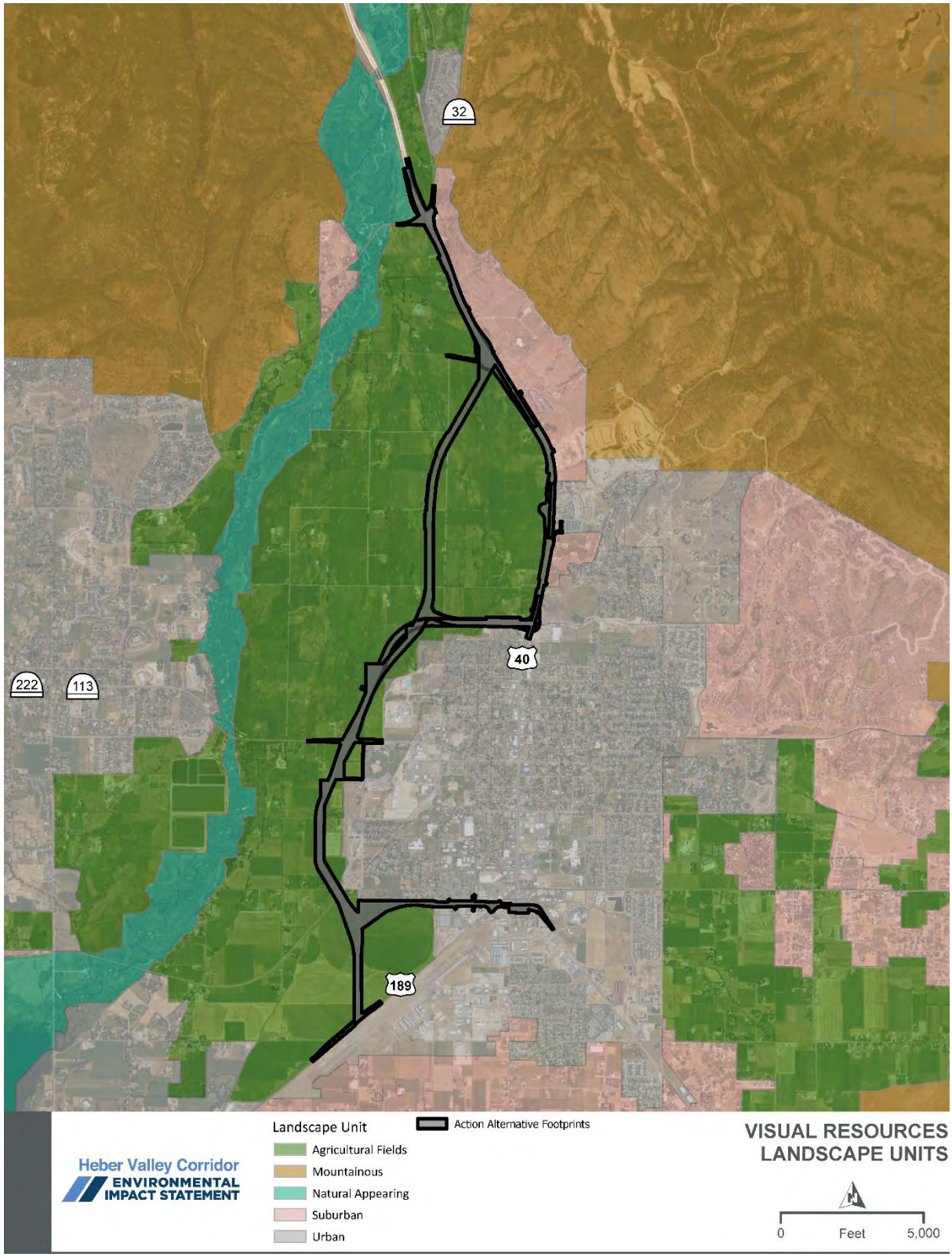
To develop and delineate landscape units (LUs), this analysis implemented an approach consistent with FHWA's *Guidelines for the Visual Impact Assessment for Highway Projects*; LUs are defined by viewsheds and landscape type. These LUs were refined in the evaluation area to better represent the current landscape character that could be affected by the action alternatives (Figure 3.17-3). The remainder of Section 3.17.4.4 describes the existing LUs.

3.17.4.4.1 Agricultural Fields

The agricultural fields LU is a prized resource of residents in the Heber Valley. The extent of this LU is from approximately the Provo River on its west boundary to Heber City and US-40 on its east and north boundaries. This LU is both human-altered and natural-appearing. It is characterized by large areas of open lands, wooded stream and river corridors, hedgerows along fences, dirt roads, and human-made structures such as homes, barns, fences, and power poles. Agricultural pattern elements (flat forms, clean lines, green and natural undertones, and rich rural textures) currently dominate the LU, especially in views from the north fields to the west looking toward Mount Timpanogos and the Wasatch Mountain Range. See Figure 3.17-2 for a representative picture. The open, unwooded lands support agricultural activities such as cattle grazing and alfalfa crop production. These open lands might be natural-appearing to some viewers, but they are not in a natural state due to the agricultural activities. In the middle ground of Figure 3.17-2, new homes under construction are visible. These homes are an example of the changing visual character of the valley and encroachment of the Suburban LU on the agricultural fields LU.

Figure 3.17-2. Agricultural Fields in the Heber Valley

Figure 3.17-3. Landscape Units in the Visual and Aesthetic Resources Evaluation Area



3.17.4.4.2 Mountainous

The mountainous LU includes the surrounding mountains and foothills of the Heber Valley. For a representative picture, see the background views in Figure 3.17-2 above. Views of the mountains are prized by residents. The existing landscape character in this LU is influenced by direct and indirect human activities but appears natural to most viewers. Natural elements include forests, shrublands, grasslands, and the peaks and rock faces above the tree line. Mountain pattern elements (angular forms, clean lines, dark green and natural undertones, and rocky textures) currently dominate the LU. Human influence in this LU includes dirt roads, off-highway-vehicle trails, foot trails, road cuts, road pullouts, dispersed cabins, and power lines. These human influences are typically obscured from view by topography or vegetation depending on the vantage point and distance. The mountainous LU is the most intact of all the LUs in the Heber Valley.

3.17.4.4.3 Natural Appearing

The natural appearing LU consists of the Provo River corridor, which cuts generally north-south along the west side of the Heber Valley. This corridor has not been as heavily altered for agricultural purposes as are the neighboring LU, agricultural fields. Natural elements include the river corridor, cottonwood trees, and native shrubs and grasses. Natural pattern elements (rolling forms, soft lines, sage green and natural undertones, and natural textures) currently dominate the LU. Human elements include trails and recreation access for fishing. These human influences are typically obscured from view by topography or vegetation depending on the vantage point and distance.

3.17.4.4.4 Suburban

Figure 3.17-4. Suburban Development in Midway

The suburban LU is the large-lot residential development near the foothills and on the outer edges of some of the urban LU. This existing landscape character is heavily influenced by human activities; however, it has more green spaces and separation of buildings than does the urban LU. Suburban pattern elements include roads, fences, single-family homes, power lines, and ornamental landscaping (Figure 3.17-4). The suburban pattern elements include a combination of linear urban forms and colors (structural lines and gray and tan undertones) as well as softer, rolling forms of the landscaping and greenspaces (soft lines and green and natural undertones). These human influences can range in appearance from disorderly and inharmonious to orderly and harmonious depending on the vantage point and the level of upkeep of the properties and subdivision.

3.17.4.4.5 Urban

The urban LU includes both residential and urban developments in and adjacent to Heber City, Daniel, Midway, Charleston, and parts of Wasatch County and along the main transportation corridors of US-40, US-189, and SR-113, which connects the cities of Heber City and Midway. The existing landscape character is influenced heavily by human activities and includes historic buildings in Heber City (Figure 3.17-5), some commercial and industrial areas, and residential areas of the incorporated cities.

Figure 3.17-5. The Tabernacle on Main Street

Urban pattern elements include roads, fences, parking lots, buildings, power lines, and ornamental landscaping. Urban pattern elements (linear and concrete forms, more-dominant highway and structural lines, gray and black undertones, and concrete and pavement textures) create a strong change in visual character compared to the agricultural fields and natural appearing LUs. The vegetated elements of the urban LU consist of ornamental landscaping, hedgerows on fence lines of larger parcels, parks, school recreation fields, and park strips that are more clearly altered by human activities.

3.17.4.5 Existing Visual Quality at Key Views

The visual quality of the key views in the visual and aesthetic resources evaluation area is summarized in Section 2.5, *Existing Visual Quality at Key Views*, of Appendix 3O, *Visual Resources Technical Report*. Visual quality is an assessment (what viewers like and dislike) of the composition of the character-defining features of the landscape and its aesthetics. Under the FHWA VIA guidelines, visual quality is determined by evaluating the viewed landscape's characteristic in terms of natural harmony, cultural order, and project coherence (FHWA 2015b). For more information, see Section 1.1.2.3, *Assess Visual Quality of the Landscape by Key View*, of Appendix 3O. The visual quality at these key views serves as the baseline for analyzing the action alternatives.

3.17.5 Environmental Consequences and Mitigation Measures

This section describes the visual changes from the No-action and action alternatives and potential measures to mitigate these changes. The information in this section comes from the tasks in the analysis and mitigation phases of the analysis methodology described in Section 1.1, *Analysis Method*, of Appendix 3O, *Visual Resources Technical Report*.

The visible features of each action alternative and the visual change in the landscape are summarized for each key view. The visual impacts of the action alternatives are the combined assessment of the visual compatibility of the action alternative and viewer sensitivity at each key view to determine the degree of visual impact. Impacts to visual quality are a function of the visual compatibility of the action alternative and viewer sensitivity to visual changes at each key view. Impacts to visual quality can be **adverse**, **beneficial**, or **neutral**. Not every action alternative is visible from every key view.

What are adverse, beneficial, and neutral impacts?

As used in Section 3.17, an *adverse impact* refers to the degradation in visual quality due to the incompatibility of action in the landscape or by obstructing or altering desired views.

A *beneficial impact* is visually compatible or results in an improvement or enhancement to the visual quality or a view.

A *neutral impact* is either not perceptible to a viewer or the change would not detract from or enhance the visual quality or view.

3.17.5.1 No-action Alternative

3.17.5.1.1 Construction Impacts

With the No-action Alternative, the changes associated with the Heber Valley Corridor Project would not be made, and US-40 would remain in its current condition. The visual nature of the visual and aesthetic resources evaluation area would be similar to that described in Section 3.17.4.4, *Visual Character and Landscape Units*. Because no major roadway improvements would be made, there would be no large topographic changes or soil disturbances or associated construction equipment from cuts and fills related to roadway construction.

3.17.5.1.2 Long-term Impacts

With the No-action Alternative, US-40 would remain in its current configuration, and the Heber Valley Corridor would not be constructed west of Heber City. Because the area is rapidly developing and the slopes of the Wasatch Mountains make development difficult, the current types of land use and development would continue in the valley with or without the Heber Valley Corridor Project. The long-term impacts of the No-action Alternative are summarized by LU below.

Agricultural Fields LU. The majority of the agricultural fields LU is privately owned. With the No-action Alternative, future visual changes to the agricultural fields LU could occur as landowners choose to develop or subdivide their parcels based on current zoning, thereby transitioning the area to the suburban LU. Some developments have already been approved along north US-40 but have not been constructed. The suburban LU has smaller lot sizes, less open space, and more homes. However, for the most part, the adopted plans envision the large lots and agricultural uses in this LU to continue.

Mountainous LU. The western and southern parts of the mountainous LU are mostly protected land under jurisdiction of the U.S. Department of Agriculture Forest Service. These areas would not be developed and would visually stay the same. The foothills east of US-40 are private land that, according to adopted plans, is anticipated to be developed and would transition to an urban LU. Much of the development is already

approved, and some of it was under construction when this EIS was published. For more information regarding future development, see Section 3.2, *Land Use*.

Natural Appearing LU. The natural appearing LU would look mostly the same with the No-action Alternative because the majority of the LU is part of the Provo River Restoration Property and will not be developed.

Suburban LU. The suburban LU would continue to expand in the Heber Valley consistent with zoning and approved development plans. Some land currently in the agricultural fields LU or on the foothills in the mountainous LU might transition to a suburban LU as private property changes ownership or as developments are permitted and constructed.

Urban LU. The urban LU would continue to expand around the core of Heber City consistent with zoning and approved development plans. A portion of the mountainous LU, east of existing US-40, would transition to an urban LU in the future. Within downtown Heber City, traffic would increase and erode the visual character of Main Street due to higher traffic congestion.

Given these assumptions, with the No-action Alternative, changes to the views in the visual and aesthetic resources evaluation area would be the result of the development and growth that is currently occurring and that is consistent with adopted land use plans.

3.17.5.2 Alternative A

3.17.5.2.1 Construction Impacts

With Alternative A, short-term, construction-related impacts would include construction vehicle activity and accompanying staging areas, stockpiling of excavated material, and construction-related dust, all of which would be visible during construction. The location of the new freeway west of Heber City would be cleared of vegetation, so the excavation and grading work would contrast with the existing conditions until the area revegetates. Once the freeway construction is complete, the areas outside the new freeway alignment would be revegetated, and visual quality would improve.

The areas where the existing roads would be widened, such as US-40 north of Heber City and south of the hub intersection, the excavation and grading work would minimally contrast with the existing conditions. Once the freeway construction is complete, the areas outside the new freeway alignment would be revegetated, and visual quality would be similar to the existing conditions. In the locations of the interchanges and elevated structures, the visual quality would change for viewers located in close proximity. These visual changes are described in Section 3.17.5.2.2 below.

What is the hub intersection?

The hub intersection is the intersection of US-40 and US-189 on the south side of Heber City.

3.17.5.2.2 Long-term Impacts

For a description of the visual changes by segment, see Section 3.2.2.1, *Main Elements of Alternative A That Would Have Visual Changes*, of Appendix 3O, *Visual Resources Technical Report*.

3.17.5.2.3 Visual Impacts by Key View

Visual impacts from Alternative A to viewers in the visual and aesthetic resources evaluation area would depend on their vantage point and proximity to the Heber Valley Corridor. Some viewers would not experience impacts due to distance and the Heber Valley Corridor blending in with other human-made features in the valley, or obstructions in the foreground views such as vegetation or homes that screen the freeway from view. Other viewers would have visual impacts due to close proximity without existing obstructions or vantage point. This section describes the visual impacts from Alternative A by key view. For the original photos at these locations, see Section 2.5, *Existing Visual Quality at Key Views*, of Appendix 3O, *Visual Resources Technical Report*. The views from drone imagery are not described in this section since it is not a vantage point of travelers or neighbors. However, the drone images are helpful to show the existing development, and these images were used in some photo simulations to show more of the proposed alternative.

Key View 1 from North US-40

The foreground and middleground views from residences or trailheads near US-40 and River Road/SR-32 would change with Alternative A. The background views would not change from this vantage point. Alternative A would construct a new interchange at River Road/SR-32 and frontage roads on the north and south sides of US-40.

Compatibility. With Alternative A, a grade-separated interchange would be visible at this location. US-40 would be elevated over River Road/SR-32, thereby introducing a new urban form and obscuring some middleground views. The form, materials, and visual character would be similar to the existing conditions. Due to distance and the existing urban development, the Heber Valley Corridor would blend in with views of Heber City within the middleground views. The existing middleground views are interrupted by residential development, rural roads, and the power line when viewed from this vantage point; therefore, the alternative would introduce expected urban forms, would maintain a similar level of cultural order, and would be of weak contrast to the existing conditions. The alternative would not change background views from this vantage point.

Viewer Sensitivity. Travelers are the dominant viewer group near Key View 1. Neighbors (residents and recreationists) are a small group of viewers near this vantage point. Viewer sensitivity of travelers along US-40 as they enter the valley on US-40 would be low because of the speed at which they travel and the distance to the Heber Valley Corridor, thereby limiting the duration viewers are exposed to the change in the landscape. Residents and recreationists viewing from a stationary point near Key View 1 would be able to view the new interchange at River Road/SR-32 and frontage roads and might be sensitive to the change in the middleground views; however, the interchange would be viewed from a long distance and against the existing development of Heber City, thereby reducing their awareness of the visual change.

Visual Quality. Overall, the visual impact would be **neutral**.

Key View 2 from Coyote Lane and US-40

The foreground and middleground views from residences near Coyote Canyon Parkway or the shared-use path on the east side of US-40 would change with Alternative A. Alternative A would construct a new interchange at Coyote Canyon Parkway and frontage roads on the east and west sides of US-40. A house on the west side of US-40 would be removed.

Figure 3.17-6 shows a drone image at Key View 2 looking southeast above US-40 near the Coyote Canyon Parkway intersection. Figure 3.17-7 shows a photo simulation looking southeast at Coyote Canyon Parkway with the Heber Valley Corridor. This simulation is based on the drone image; it is not representative of what travelers or neighbors might see, but it illustrates the proposed interchange. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*.

Compatibility. The Heber Valley Corridor would have a grade-separated interchange at this location. US-40 would be elevated over Coyote Canyon Parkway, thereby introducing a new urban form and obscuring the foreground, middleground, and background views from this vantage point.

The area is a transportation corridor under the existing (2019) conditions and would remain a transportation corridor with Alternative A. The interchange would be compatible with the typical conditions of a transportation corridor; however, the interchange would obstruct current views from this vantage point for residents closest to the interchange.

Viewer Sensitivity. The viewer sensitivity of travelers on the Heber Valley Corridor would be low. The new features of the interchange would complement the existing transportation corridor; therefore, the natural harmony and cultural order would be similar to the existing conditions, and travelers would be less sensitive to these changes.

The viewer sensitivity of neighbors along the Heber Valley Corridor would be high. The interchange would obstruct current views from this vantage point for residents and people at businesses closest to the interchange.

Visual Quality. Overall, the visual impact would be **adverse** due to the close proximity of and the number of viewers present in the residential development at Coyote Canyon Parkway.

Figure 3.17-6. Drone Image of Key View 2 Looking Southeast above US-40 near the Coyote Canyon Parkway Intersection

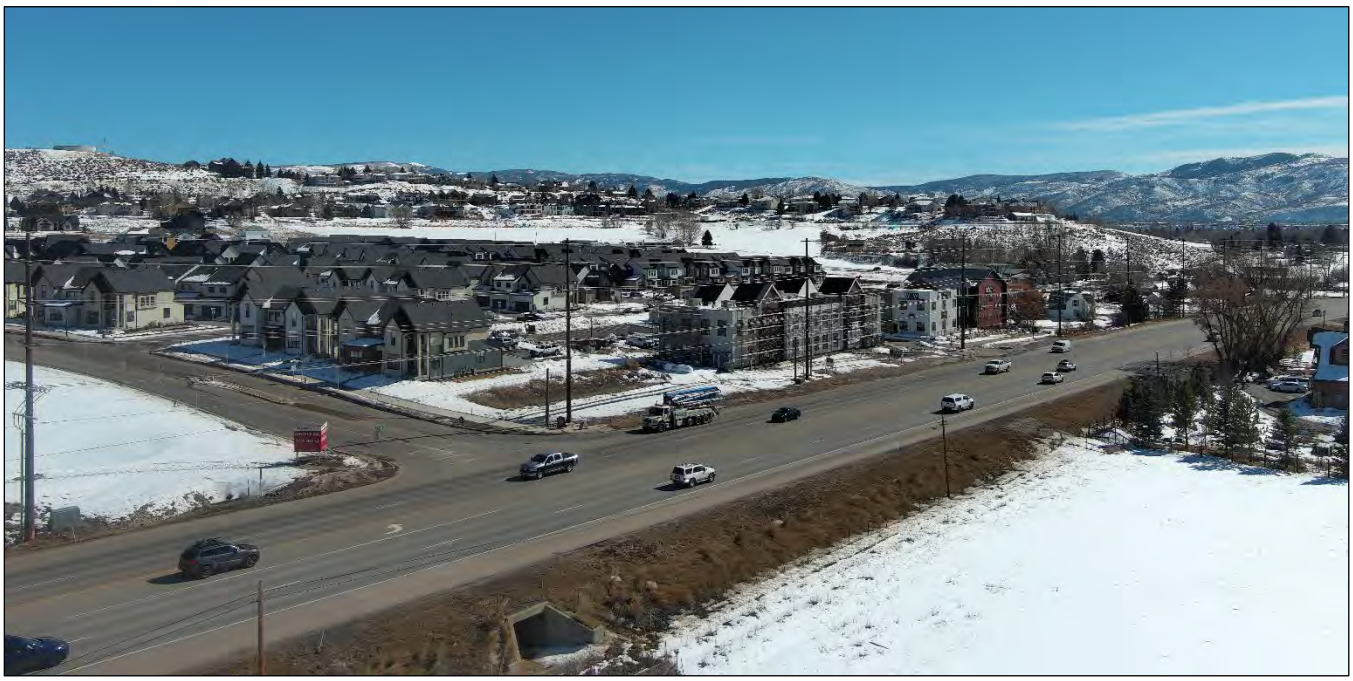


Figure 3.17-7. Key View 2 with Photo Simulation of Alternative A

Key View 3 from Valley Hills Boulevard

The foreground views from residences or trailheads on Valley Hills Boulevard would change. With Alternative A, an interchange would be constructed at Coyote Canyon Parkway (just out of view in Figure 2-8, *Key View 3 Looking West across the North Fields*, of Appendix 3O, *Visual Resources Technical Report*), and a frontage on the east side of US-40 would be visible. From this key view, the elevation change for the interchange would be visible on the lower right-hand side of the image. The middleground views would change on the boundary of the residential development of Heber City where the 900 North segment of the Heber Valley Corridor would be visible following the eastern segment of the power line corridor. The alternative would have an underpass for 600 West and would be slightly elevated at that location. The background views would not change as a result of Alternative A at this location.

Compatibility. With Alternative A, the visual changes to existing US-40 in the foreground views would not be very noticeable from this vantage point. US-40 is a transportation corridor, and the form, materials, and visual character of the Heber Valley Corridor would be similar to the existing conditions, though with the addition of grade-separated interchanges. In the middleground views, where the Heber Valley Corridor would connect SR-113 with US-40 near 900 North, the Heber Valley Corridor would moderately contrast with the surrounding agricultural landscape. This segment of the Heber Valley Corridor would be located on the boundary of suburban and urban Heber City and the north fields. The existing middleground views closer to downtown Heber City are currently interrupted by residential development, rural roads, and the power line corridor, and the alternative would introduce expected urban forms, thereby maintaining a similar level of cultural order on the outer edge of the city. The alternative would not change the background views.

Viewer Sensitivity. The viewers in this area would be predominantly the residents who live on the east benches and are accustomed to seeing the stationary vertical elements of the power line corridor and the urban elements of the outer edge of downtown Heber City (that is, urban forms on the boundary of the agricultural fields LU). However, these viewers might be sensitive to the visual change of the moving, urban element of the new freeway on the 900 North segment. The current views that residents have of the north and south fields would be interrupted by the new freeway on the outer edge of downtown Heber City; however, the middleground views would not be dominated by the new freeway. The middleground views north of the Heber Valley Corridor (that is, the majority of the north fields) would not be affected. The alternative would not change the background views.

Visual Quality. Overall, the visual impact would be **neutral**.

Key View 4 from Muirfield Park

The foreground and middleground views would be affected by Alternative A due to the close proximity of the new freeway to the park property. The alternative would not change the background views.

Compatibility. The Heber Valley Corridor would border the northern edge of Muirfield Park and would have an underpass for 600 West. This underpass would contrast in form, texture, and color with the park's natural vegetation and visual qualities. The freeway and trail would introduce moving elements of vehicles and recreationists that do not currently exist. The Heber Valley Corridor would contrast strongly with the existing visual character.

Viewer Sensitivity. The viewers in this area would be predominantly the residents who live around the park and people who use the park. Viewers would be sensitive to this visual change because they would be close

to the Heber Valley Corridor and would view it for extended durations. Figure 3.17-8 shows an image at Key View 4 looking west-northwest from Muirfield Park toward the north fields, and Figure 3.17-9 shows a photo simulation looking west and northwest beyond Muirfield Park with the Heber Valley Corridor. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*.

Visual Quality. Overall, the visual impact would be **adverse**.

Figure 3.17-8. Key View 4 Looking West-northwest from Muirfield Park toward the North Fields

Figure 3.17-9. Key View 4 with Simulation of Alternative A

Key View 5 from Memorial Hill

With Alternative A, the foreground and background views from Memorial Hill would not change. The middleground views would change on the boundary of the residential development of Heber City where the Heber Valley Corridor would connect US-40 near 900 North with SR-113, following the eastern segment of the power line corridor. The Heber Valley Corridor would have free-flow ramps at 900 North, an underpass for 600 West, and a grade-separated interchange at SR-113. All of these features would be elevated at those locations and therefore would be more visible.

Compatibility. The existing middleground views of Heber City are interrupted by residential development, rural roads, and the power line corridor in the location of the Heber Valley Corridor. In the middleground views, where the Heber Valley Corridor would connect US-40 near 900 North with SR-113, the Heber Valley Corridor would moderately contrast with the surrounding agricultural landscape. This segment of freeway would be located on the boundary of suburban and urban Heber City and the north fields and would be elevated over 600 West and SR-113. The existing middleground views closer to downtown Heber City are currently interrupted by residential development, rural roads, and the power line corridor, and the alternative would introduce expected urban forms, thereby maintaining a similar level of cultural order on the outer edge of the city. The alternative would not change the background views.

Viewer Sensitivity. The viewers would be predominantly the residents in Midway who live on the west benches and people who recreate on Memorial Hill. Both groups are accustomed to seeing the stationary vertical elements of the power line corridor; however, they might be sensitive to the visual change of the

moving vehicles and their lights on the Heber Valley Corridor. The current views that residents have of the north and south fields would be interrupted by the new freeway; however, the middleground views would not be dominated by the freeway, and the middleground views of the north fields, north of the Heber Valley Corridor, would not be changed. The existing middleground views closer to downtown Heber City are currently interrupted by residential development, roads, and the power line corridor, and the alternative would introduce expected urban forms, thereby maintaining a similar level of cultural order on the outer edge of the city. The alternative would not change the background views.

Visual Quality. Overall, the visual impact would be **neutral**.

Key View 6 from SR-113

The middleground and background views would change with Alternative A. The foreground views of SR-113 would not change. Figure 3.17-10 shows Key View 6 looking east along SR-113 toward Heber City, and Figure 3.17-11 shows a photo simulation of the Heber Valley Corridor looking east on SR-113 when driving from Midway into Heber City. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*. Alternatives A and B are the same at this location.

Compatibility. The Heber Valley Corridor would have a grade-separated interchange at this location. The freeway would be elevated, introducing a new urban form, obscuring some background views, and bringing co-dominance between agricultural and urban forms, lines, colors, and textures. The interchange would contrast with the existing conditions.

Viewer Sensitivity. The viewers would be predominantly the travelers from Midway or points from the west as they drive to Heber City and a few residents who live along SR-113. Viewer sensitivity of travelers along SR-113 as they enter the Heber City on the new Heber Valley Corridor might be low because of the speed at which they travel and the expectation that they are entering the urban area of Heber City. However, the interchange would present an abrupt change between the rural qualities of the north and south fields and downtown Heber City.

Visual Quality. Overall, the visual impact would be **adverse**.

Figure 3.17-10. Key View 6 Looking East along SR-113 toward Heber City

Figure 3.17-11. Key View 6 with Photo Simulation of Alternatives A and B

Key View 7 from Southfield Road

The middleground views would change with Alternative A. The foreground views of Southfield Road and the background views of Mount Timpanogos would not change from this vantage point. Figure 3.17-12 shows Key View 7 looking south-southwest from the Southfield Road railroad crossing, and Figure 3.17-13 shows a photo simulation looking southwest from Southfield Road when driving from Heber City with the Heber Valley Corridor. Figure 3.17-14 shows a drone image captured in 2025 of Key View 7 looking south above Southfield Road, and Figure 3.17-15 shows a photo simulation of the proposed interchange in the sewer fields at this location. This simulation is based on a drone image and is not representative of what travelers or neighbors might see. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*. Alternatives A and B are the same at this location.

Compatibility. The Heber Valley Corridor would have a grade-separated interchange southwest of this location (not visible from this vantage point in Figure 3.17-12) and would have an underpass for the railroad corridor that is visible. The Heber Valley Corridor would be elevated, obscuring some middleground views. Because of the Heber Valley Corridor's distance from Southfield Road and existing vegetation and development, it would not dominate the views where it is visible from Southfield Road. However, for residents who live in the residential development along Heron Way and Crane Drive just west of Southfield Road, the visual contrast would be strong. The elevated interchange and railroad underpass would change views from agricultural-dominant to transportation corridor–dominant. The Heber Valley Corridor would contrast in form, texture, and color with the natural vegetation and with the visual qualities of these viewers' current views, which includes some views of the prized south fields.

Viewer Sensitivity. The viewers would be predominantly the travelers on Southfield Road and the Heber Valley Railroad and the residents who live along Southfield Road and in the new developments on Heron Way and Crane Drive. Viewers on Southfield Road and east of Southfield Road would be less sensitive to the visual change due to the distance to the Heber Valley Corridor and some vegetation and existing buildings which screen it from view. Residents on Heron Way and Crane Drive would be highly sensitive to the visual change due to the close proximity of the Heber Valley Corridor and its interchange and underpass for the railroad corridor and the potential for these elevated features to block views.

Visual Quality. The visual impact from the vantage point of the key view would be **neutral**. However, for residents who live in the residential developments along Heron Way and Crane Drive, the visual impact would be **adverse**.

Figure 3.17-12. Key View 7 Looking South-southwest from the Southfield Road Railroad Crossing

Figure 3.17-13. Key View 7 with Photo Simulation of Alternatives A and B

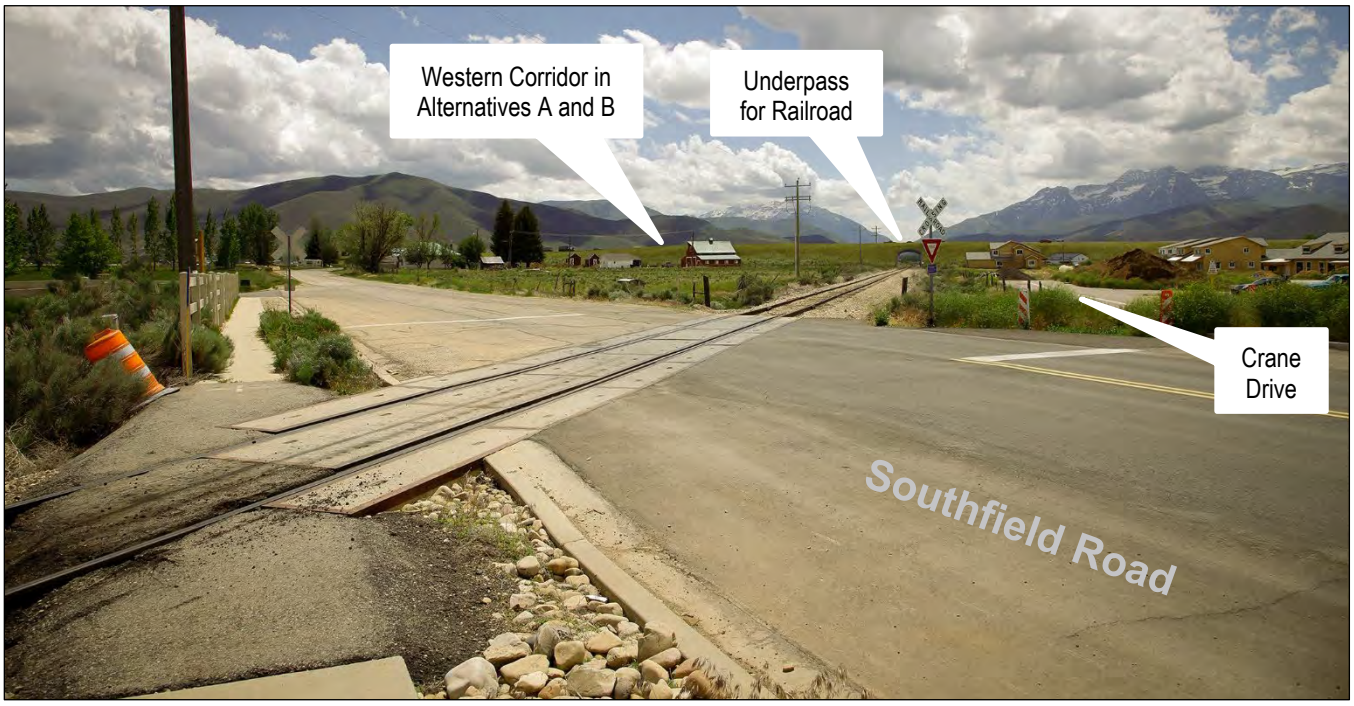
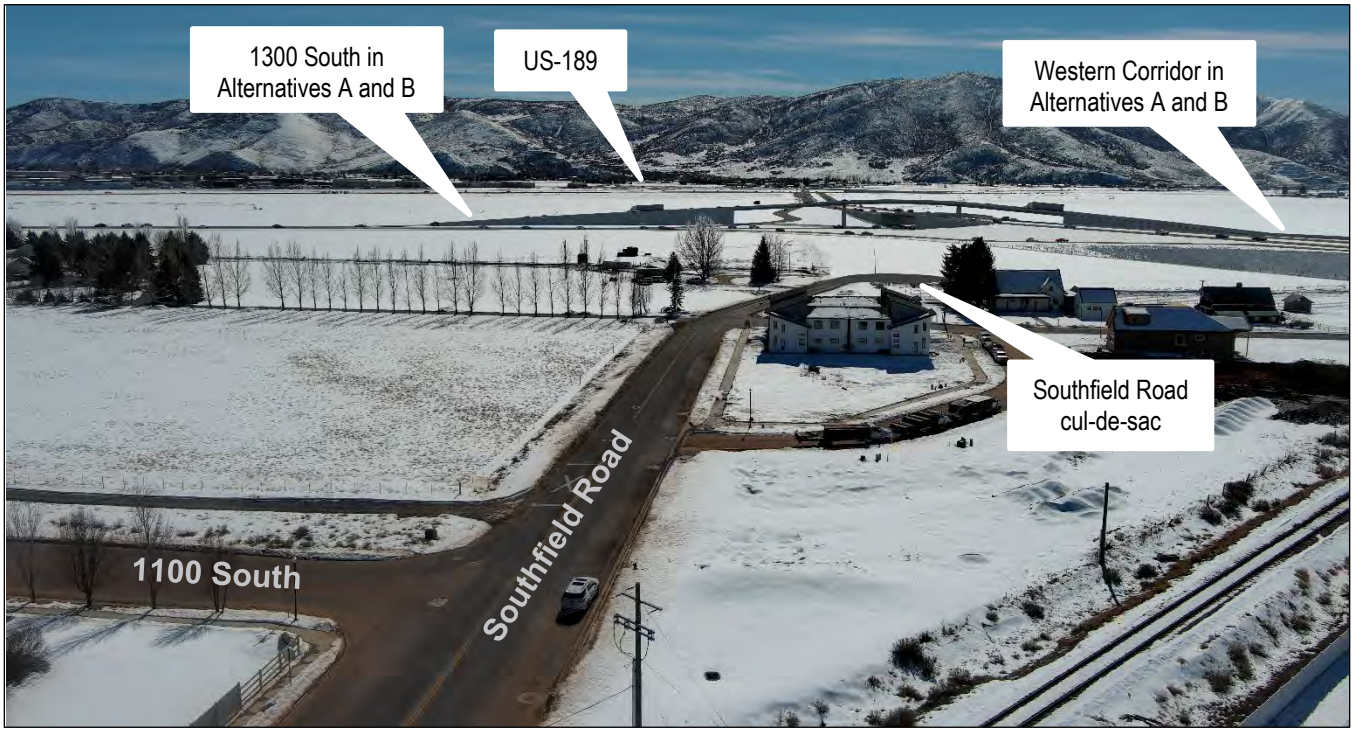


Figure 3.17-14. Drone Image of Key View 7 Looking South above Southfield Road

Figure 3.17-15. Key View 7d with Photo Simulation of Alternatives A and B



Key View 8 from 1300 South

The foreground, middleground, and background views would change with Alternative A. The existing 1300 South is a narrow transportation corridor through a mostly developed area of Heber City. With Alternative A, 1300 South would be elevated between Industrial Parkway and south US-40. To the west of Industrial Parkway, the Heber Valley Corridor would continue to the interchange in the sewer fields.

Compatibility. The Heber Valley Corridor would be elevated and would extend westward from this vantage point, removing the vegetation and a house in the middleground view and continuing the transportation corridor to an interchange west of Southfield Road in the sewer fields. The Heber Valley Corridor would be an extension of the existing transportation corridor and development and its urban pattern elements. However, constructing an elevated section of roadway would contrast with the scale of the existing conditions of the local road network and its at-grade intersections.

Viewer Sensitivity. The viewers are travelers on 1300 South and residents and people at businesses on both sides of 1300 South. Travelers on 1300 South would be less sensitive to the visual change because the road would be continued. The current road is wide and ends abruptly, so continuing the road would improve coherence for travelers (that is, drivers expect wide roads to continue). Residents who live along 1300 South, the south fields, and the sewer fields would be more sensitive to visual changes in the landscape, and those with close proximity to the Heber Valley Corridor and east of Industrial Parkway would have their views altered.

Visual Quality. Overall, the visual impact would be **adverse**.

Two simulations are provided in Figure 3.17-17 and Figure 3.17-19 for 1300 South near Key View 8 to illustrate how the elevated section of Alternative A would appear. Figure 3.17-16 and Figure 3.17-18 show the original images. These simulations are based on drone images and are not representative of what travelers or neighbors might see from their vantage points, but they illustrate the scale of the proposed change. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*. Alternatives A and B are the same at this location.

Figure 3.17-16. Drone Image of Key View 8d-1 Looking East from above 1300 South and Industrial Parkway

Figure 3.17-17. Key View 8d-1 with Simulation of Alternatives A and B Looking East

Figure 3.17-18. Drone Image of Key View 8d-2 Looking West from above 1300 South near US-189

Figure 3.17-19. Key View 8d-2 with Simulation of Alternatives A and B Looking West

Key View 9 from Main Street

The Heber Valley Corridor would not be visible from Key View 9; however, the Heber Valley Corridor would benefit traffic conditions on Heber City's Main Street.

Compatibility. Although the Heber Valley Corridor would not be visible from Main Street, it would reduce congestion and truck traffic on Main Street in 2050, thereby benefiting the street's visual character. Reduced vehicle congestion and truck traffic is compatible with the downtown vision in the *Heber City Envision 2050 General Plan*.

Viewer Sensitivity. The viewers would be predominantly the travelers on Main Street and pedestrians and people at businesses on each side of the street. These viewers are sensitive to the existing traffic conditions of Main Street due to their proximity and would notice a benefit of improved traffic conditions.

Visual Quality. Overall, the visual impact would be **beneficial** compared to the no-action conditions.

3.17.5.3 Alternative B

3.17.5.3.1 Construction Impacts

The construction impacts from Alternative B would be the same as those from Alternative A except in the North Fields Extension and North US-40 segments. With Alternative B, free-flow ramps would be constructed at Potter Lane/College Way, and a new section of freeway would be constructed between Potter Lane/College Way and about 900 North through the north fields, thereby extending the temporary visual impacts of construction. US-40 between Potter Lane/College Way and 900 North would be an arterial road with at-grade intersections, similar to existing conditions. No interchange at Coyote Canyon Parkway and no free-flow ramps at 900 North would be constructed on north US-40 with Alternative B.

3.17.5.3.2 Long-term Impacts

The long-term visual impacts from Alternative B would be the same as those from Alternative A except in the North Fields Extension and North US-40 segments. With Alternative B, the new freeway would continue between Potter Lane/College Way and about 900 North through the north fields, thereby adding a new paved road through a rural agricultural area. With Alternative B, the North US-40 segment between Potter Lane/College Way and 900 North would be similar to the existing conditions with minor widening for turn lanes at 900 North, Coyote Canyon Parkway, and Commons Boulevard.

With Alternative B, the overall long-term visual changes to visual quality would be **neutral** to **adverse** compared to the existing conditions, depending on the vantage point. In locations of neutral visual impacts, the alternative would maintain a similar level of natural harmony, cultural order, and landscape composition as the existing conditions. That is, in urban areas, in areas of existing roads, or where the Heber Valley Corridor is viewed from a great distance and blends in with the existing development, the visual impact would be **neutral**. In locations where the alternative would introduce a new freeway where one does not currently exist or where the new freeway is viewed in close proximity, the visual impact would be **adverse**. For a description of the visual changes by segment, see Section 3.3.2.1, *Main Elements of Alternative B That Would Have Visual Changes*, of Appendix 3O, *Visual Resources Technical Report*.

3.17.5.3.3 Visual Impacts by Key View

Visual impacts from Alternative B to viewers in the visual and aesthetic resources evaluation area would depend on their vantage point and proximity to the Heber Valley Corridor. Some viewers would not experience impacts due to distance and the Heber Valley Corridor blending in with other human-made features in the valley, or obstructions in the foreground views such as vegetation or homes that screen the freeway from view. Other viewers would have visual impacts due to close proximity without existing obstructions or vantage point. This section describes the visual impacts from Alternative B by key view.

Key View 1 from North US-40

With Alternative B, the Heber Valley Corridor would be visible from Key View 1 except where the vegetation or topography would screen the freeway from view. The foreground and middleground views would be changed by Alternative B. The Heber Valley Corridor would not change the background views. The alternative would construct a new interchange at River Road/SR-32, would construct free-flow ramps at Potter Lane/College Way, and would traverse the middle of the north fields in the Heber Valley. From the vantage point of Key View 1, the Heber Valley Corridor would appear to traverse farther to the west, closer to the Provo River corridor, though the freeway would not be near the river. Figure 3.17-20 shows Key View 1 looking south at Heber City and the north fields from US-40, and Figure 3.17-21 shows a photo simulation of Alternative B looking south and southeast from the existing US-40. Labeling has been added to Figure 3.17-21 to help the reader navigate the valley features from this perspective. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*.

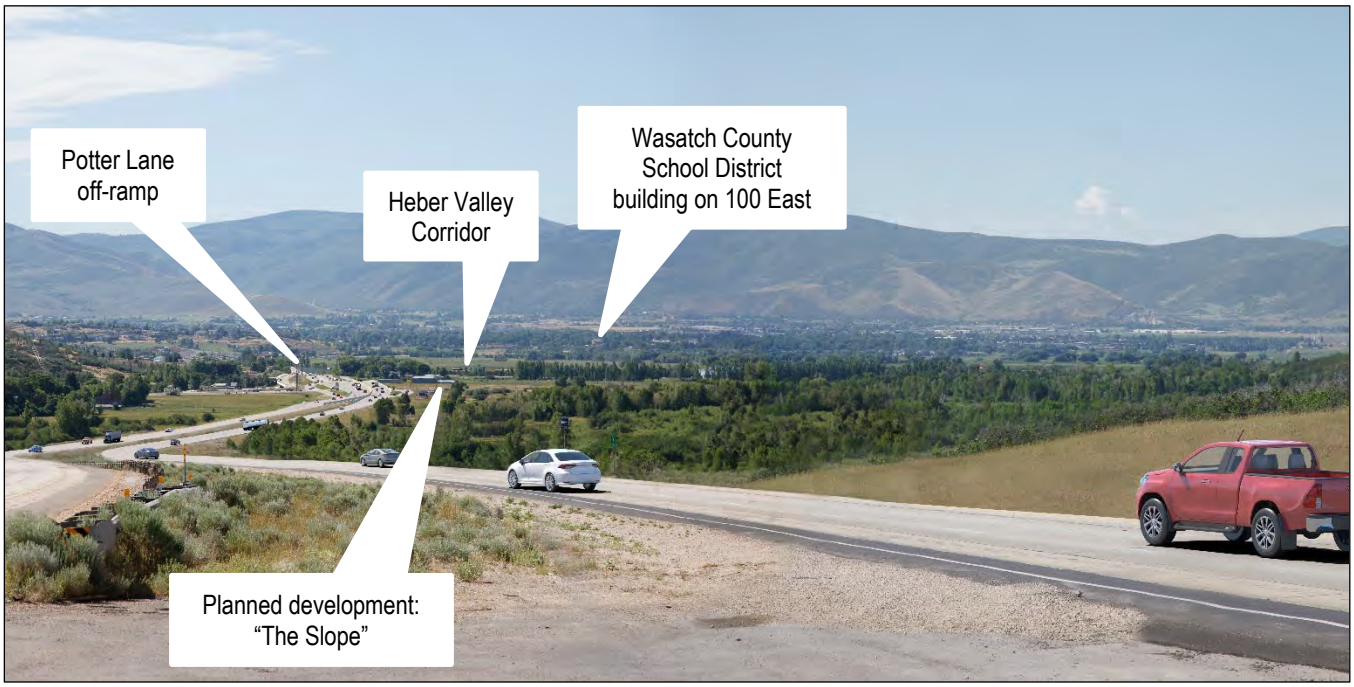
Compatibility. A new transportation corridor through the north fields would contrast strongly in form, texture, and color with the natural vegetation and visual qualities of the current views where the corridor is visible. The vegetation and structures in the north fields closer to River Road/SR-32 would obscure the North Fields Extension segment. Future development at the River Road/SR-32 interchange would future obscure the North Fields Extension segment of the Heber Valley Corridor. The primary visual features would be the interchange and free-flow ramps at Potter Lane/College Way. The alternative would not change the background views.

Viewer Sensitivity. Viewer sensitivity of travelers along US-40 as they enter the valley on the new Heber Valley Corridor would be moderate due to the change in the landscape versus their expectations. More than half of the travelers are residents, and residents of the valley have identified this as an important view. Residents and recreationists viewing from a stationary point near Key View 1 would be able to see the freeway and would be sensitive to the change in the middleground views.

Visual Quality. Overall, the visual impact would be **adverse**.

Figure 3.17-20. Key View 1 Looking South at Heber City and the North Fields from US-40

Figure 3.17-21. Key View 1 with Simulation of Alternative B



Key View 2 from Coyote Canyon Parkway and US-40

The visual qualities of Alternative B at Key View 2 would be similar to the existing conditions except for the addition of turn lanes on US-40. Viewers are not likely to be sensitive to the addition of turn lanes in an existing urban transportation corridor. Overall, the visual impact would be **neutral**.

Key View 3 from Valley Hills Boulevard

With Alternative B, the new freeway would be visible from Key View 3 except where vegetation would screen the roadway from view. The middleground views of the north fields would be changed by Alternative B. The alternative would not change the foreground or background views. The freeway would start near the urban development of Heber City and would extend to Potter Lane/College Way across the north fields. From the vantage point of Key View 3, the freeway would traverse the middle ground of the north fields.

Compatibility. The human influence in the Heber Valley and in the agricultural fields LU is more apparent when viewed from above. A new transportation corridor through the north fields when viewed from this vantage point and distance would moderately contrast in form, texture, and color with the natural vegetation and visual qualities of the current views. The primary visual features would be the locations where the Heber Valley Corridor is elevated at interchanges and at underpasses to maintain local road and driveway connectivity. From this vantage point, the Heber Valley Corridor would parallel existing roads in the north fields, following similar horizontal lines, and would be screened in some locations by vegetation.

Viewer Sensitivity. The viewers in this area would be predominantly the residents who live on the east benches and who are accustomed to seeing the human influence in the north fields; however, they would be sensitive to the new moving, urban element of the Heber Valley Corridor—that is, vehicles and their lights at night. The current views that residents have of the north and south fields would be interrupted by the new freeway, and the middleground views of the freeway would attract attention. The alternative would not change the foreground or background views.

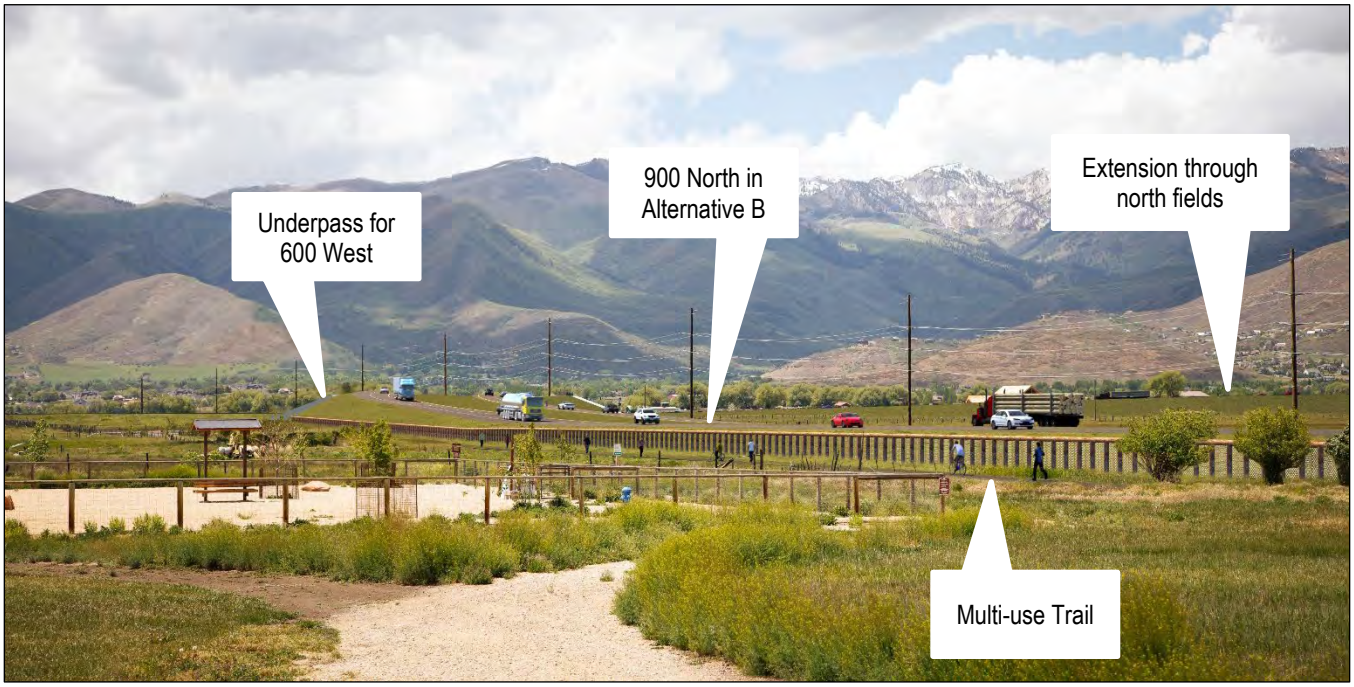
Visual Quality. Overall, the visual impact would be **adverse**.

Key View 4 from Muirfield Park

The visual qualities of Alternative B would be the same as those of Alternative A; however, viewers would also see the Heber Valley Corridor as it extends northward through the north fields. Figure 3.17-22 shows Key View 4 looking west-northwest from Muirfield Park toward the north fields, and Figure 3.17-23 shows a photo simulation of Alternative B looking west and northwest beyond Muirfield Park. Overall, the visual impact would be **adverse**. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*.

Figure 3.17-22. Key View 4 Looking West-northwest from Muirfield Park toward the North Fields

Figure 3.17-23. Key View 4 with Photo Simulation of Alternative B



Key View 5 from Memorial Hill

Similar to Key View 3, except looking east across the valley, the Heber Valley Corridor would be visible from Key View 5 except where vegetation would screen the roadway from view. The middleground views would

be changed by Alternative B. The alternative would not change the foreground or background views. The Heber Valley Corridor would start near the urban development of Heber City and extend to Potter Lane/College Way across the north fields. From the vantage point of Key View 5, the Heber Valley Corridor would traverse the middle ground of the north fields.

Compatibility. A new transportation corridor through the north fields would moderately contrast in form, texture, and color with the natural vegetation and visual qualities of the current views. The primary visual features would be the elevated interchanges and underpasses to maintain local road and driveway connectivity. From this vantage point, the Heber Valley Corridor would parallel existing rural roads in the north fields, following similar horizontal lines, and would be screened in some locations by vegetation.

Viewer Sensitivity. The human influence in the Heber Valley and in the agricultural fields LU is more apparent when viewed from above. From this vantage point, looking east and north, the current views that residents have of the north and south fields would be interrupted by the new freeway, and the middleground views of the freeway would attract attention. The alternative would not change the foreground or background views.

Looking south, some viewers would see the interchanges of SR-113 and 1300 South which may be visually intrusive compared to the existing at-grade intersections of the current transportation network.

Visual Quality. Overall, the visual impact would be **adverse**.

Key View 6 from SR-113

The visual qualities of Alternative B at Key View 6 would be the same as those with Alternative A. Overall, the visual impact would be **neutral**.

Key View 7 from Southfield Road

The visual qualities of Alternative B at Key View 7 would be the same as those with Alternative A.

Figure 3.17-13, *Key View 7 with Photo Simulation of Alternatives A and B*, above shows a photo simulation of Alternatives A and B looking southwest from Southfield Road when driving from Heber City. For larger versions of the photo simulations, see Attachment A, *Photo Simulations*, of Appendix 3O, *Visual Resources Technical Report*. Overall, the visual impact would be **neutral**.

However, for residents who live in the residential developments along Heron Way and Crane Drive, the visual impact would be **adverse**. The railroad underpass would change views from agricultural-dominant to transportation corridor–dominant. The Heber Valley Corridor would contrast in form, texture, and color with the natural vegetation and visual qualities of their current views.

Key View 8 from 1300 South

The visual qualities of Alternative B at Key View 8 would be the same as those with Alternative A. Overall, the visual impact would be **neutral**.

Key View 9 from Main Street

The visual qualities of Alternative B at Key View 11 would be the same as those with Alternative A. Overall, the visual impact would be **beneficial**.

3.17.5.4 Summary of Visual Impacts by Alternative

Table 3.17-2 summarizes the impacts by key view and by proposed alternative. Of the project alternatives, Alternative A would be the most visually impactful to those who reside along north US-40 in the North Village, and Alternative B would be the most visually impactful to those who live in the north fields. Either action alternative would reduce traffic on Main Street compared to the No-action Alternative and would thereby reduce the visual impact of future traffic.

Table 3.17-2. Summary of Visual Impacts by Key View and Alternative

	Location and Key View								
	North Fields	US-40	North Fields	Muirfield Park	North Fields	SR-113	South Fields[a]	1300 South	Main Street
Alternative	1	2	3	4	5	6	7	8	9
No-action	N	N	N	N	N	N	N	N	A
Alternative A	N	A	N	A	N	A	A	A	B
Alternative B	A	N	A	A	A	A	A	A	B

Shading: B = beneficial visual impacts, N = neutral visual impacts, A = adverse visual impacts

[a] In the case of Southfield Road, impacts would be greater for residents (adverse) than for travelers (neutral).

3.17.6 Mitigation Measures

All aesthetic treatments will be completed in accordance with UDOT Policy 08A-03, *Project Aesthetics and Landscaping Plan Development and Review* (UDOT 2014a), and UDOT's *Aesthetics Guidelines* (UDOT 2014b). UDOT's policy is to set a budget for aesthetics and landscape enhancements based on the aesthetics guidelines. The aesthetic features considered during the final design phase of the selected alternative could include lighting; vegetation and plantings; the color of bridges, structures, and retaining walls; and other architectural features such as railings.

For the action alternatives, vegetation and plantings could be implemented in a way to prioritize screening the Heber Valley Corridor in areas with a high number of residential viewers (the neighbor viewer group). Plantings could take into account vegetation heights to obscure the Heber Valley Corridor in the

middleground and foreground views while retaining background views of the Wasatch Mountains. Some examples of vegetation and plantings include:

- **Key Views 3 and 5 of the north fields:** Trees and shrubs could be used to obscure the underpasses for local roads and break up the long, linear features of the Heber Valley Corridor.
- **Key View 4 of Muirfield Park:** Lower trees and shrubs could be used to partially screen the Heber Valley Corridor and retain the background views of the Wasatch Mountains.
- **Key View 8 of 1300 South:** Trees could be used to obscure the walls of the elevated 1300 South for residents. Due to the height and proximity of 1300 South, background views might be lost east of Industrial Parkway.

Aesthetic treatments are typically evaluated during the final design phase of a project after an alternative is selected in the project's Record of Decision and funding has been allocated for the project. UDOT will coordinate with the local municipalities to determine whether the desired aesthetics can be implemented.

3.18 Energy

3.18.1 Introduction

What is the energy evaluation area?

The energy evaluation area includes the transportation system in the center of Heber Valley and the roads that connect to SR-32, US-40, SR-113, 1300 South, and US-189.

FHWA Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, and NEPA regulations (40 CFR Section 1502.16) require an examination of the energy requirements of a proposed project and the potential of the project for conserving energy.

Fuel consumption varies with traffic characteristics. The primary traffic characteristics are traffic flow (average vehicle speed), driver behavior, the geometric configuration of the roadway, the vehicle mix (cars versus trucks), 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 travel. Fuel efficiency under steady-flow, "cruising" driving conditions peaks at 45 miles per hour (mph) to 60 mph and then rapidly declines as speeds increase. At lower speeds, fuel efficiency is reduced by engine friction, underinflated tires, use of powered accessories (such as power steering and air conditioning), and repeated braking and acceleration (Davis and Diegel 2003).

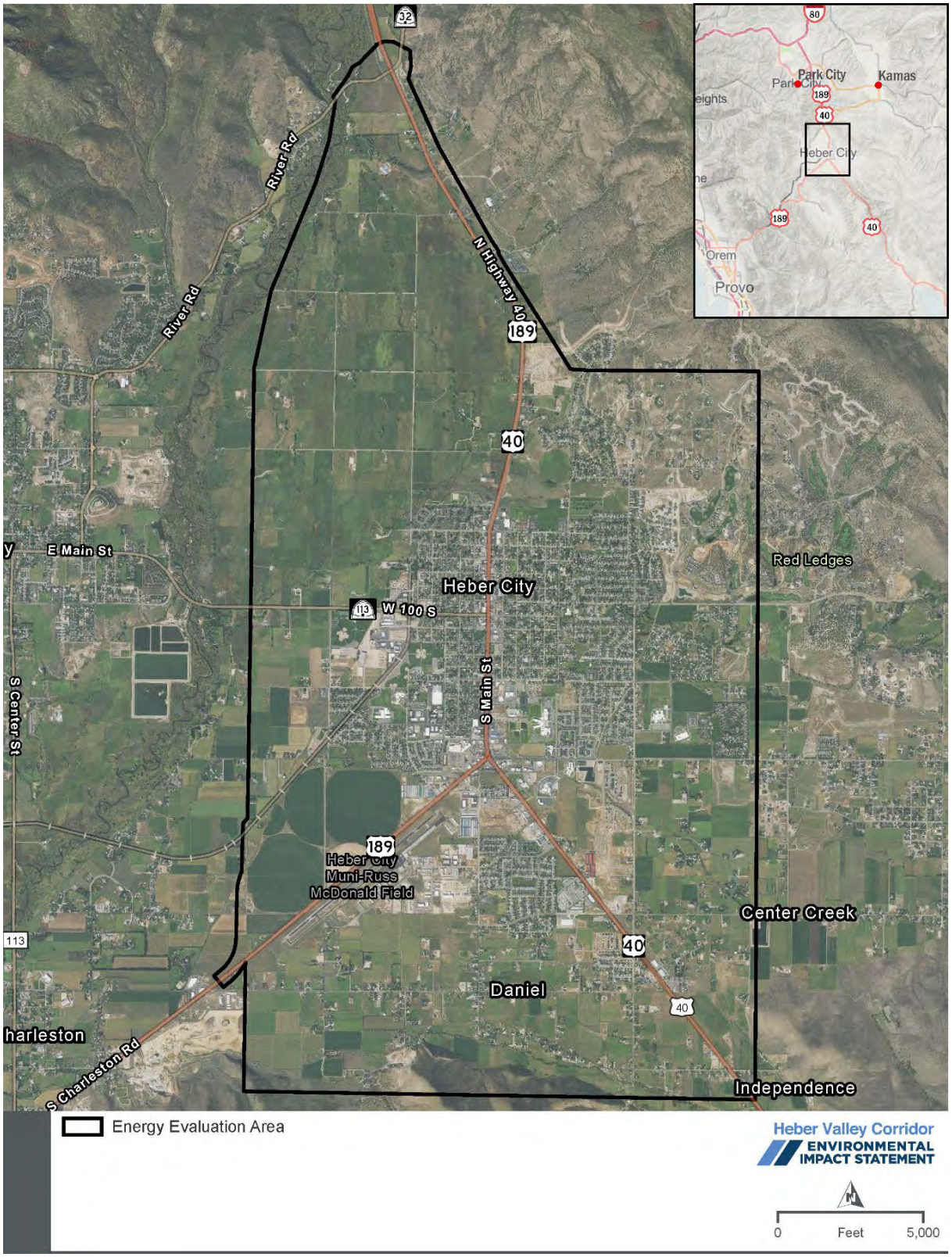
Section 0 examines the existing energy use in the energy evaluation area as well as the energy requirements of the project alternatives. Energy is evaluated primarily in the form of vehicle fuel consumption.

Energy Evaluation Area. The energy evaluation area includes the transportation system in the center of the Heber Valley and the roads that connect to SR-32, US-40, SR-113, 1300 South, and US-189 (Figure 3.18-1).

3.18.2 Regulatory Setting

Under FHWA Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, and 40 CFR Section 1502.16, UDOT is required to consider the energy requirements and conservation potential for each project alternative.

Figure 3.18-1. Energy Evaluation Area



3.18.3 Methodology

To determine existing energy use, UDOT used the Summit-Wasatch travel demand model, version 2.1 2024-03-28, to determine the average daily VMT in the energy evaluation area with and without the action alternatives. For existing (2023) conditions, an average vehicle fuel efficiency of 24.8 miles per gallon (mpg) was used based on information from the U.S. Energy Information Administration (EIA 2023); this number includes on-the-road estimates for both cars and light trucks. The average on-the-road fuel efficiency of 24.8 mpg was divided into the average daily VMT to determine the total daily fuel consumption for each alternative.

For future (2050) conditions, an average vehicle fuel efficiency of 36.1 mpg was used (EIA 2023); this number includes on-the-road estimated for both cars and light trucks. The average on-the-road fuel efficiency of 36.1 mpg was divided into the predicted daily average VMT to determine the total daily fuel consumption for each alternative for comparison.

3.18.4 Environmental Consequences and Mitigation Measures

Table 3.18-1 summarizes existing conditions and the projected 2050 conditions for the No-action and action alternatives in the energy evaluation area. Overall, energy requirements (that is, fuel consumption) are expected to increase in 2050 due to higher travel demand and population growth.

Additionally, the numbers in Table 3.18-1 do not reflect the negative impact of higher traffic congestion on fuel economy with the No-action Alternative. Traffic congestion and increased idling can lead to higher fuel consumption.

Table 3.18-1. Average Daily VMT and Fuel Consumption for Existing Conditions and Forecasts for 2050

Conditions or Alternative	Average Daily VMT[a]	Fuel Consumption			
		Average Fuel Consumption (gallons/day)	% Change from Existing Conditions	Change from No-action Alternative (gallons)	% Change from No-action Alternative
Existing conditions (2019)	276,000	11,129	NA	NA	NA
2050 Estimates					
No-action Alternative	623,000	17,258	55%	NA	NA
Alternative A	665,000	18,421	66%	1,163	6.7%
Alternative B	660,000	18,283	64%	1,025	5.9%

Definitions: NA = not applicable; VMT = vehicle-miles traveled

[a] Average daily VMT information was obtained from a review of the Summit-Wasatch travel demand model, version 2.1 2024-03-28, for roads in the Heber Valley with and without the action alternatives (see Appendix 2C, *Action Alternatives Traffic Memo*).

3.18.4.1 No-action Alternative

3.18.4.1.1 Construction-related Energy Impacts

With the No-action Alternative, the changes associated with the Heber Valley Corridor Project would not be made. The only construction-related energy impacts would be caused by roadway maintenance and any roadway work that occurs as part of ongoing commercial and residential development in the vicinity of US-40.

3.18.4.1.2 Direct Energy Impacts

With the No-action Alternative, increased traffic and congestion resulting from the projected growth in the region (see Chapter 1, *Purpose and Need*) would increase overall energy requirements compared to existing conditions. With the No-action Alternative, average daily VMT in the energy evaluation area is projected to increase by 347,000 miles per day, or 126%, compared to the current conditions, primarily due to the projected increase in population and, consequently, the number of vehicles traveling through the Heber Valley. With the No-action Alternative, operational fuel consumption is projected to increase by 6,129 gallons per day, or 55%, compared to the current fuel consumption levels as a result of the average daily VMT increasing in the evaluation area. Table 3.18-1 above summarizes the estimated direct energy impacts with the No-action Alternative.

The calculation in Table 3.18-1 above does not quantify the impact of traffic congestion on fuel consumption. Traffic congestion, and increased idling, can lead to higher fuel consumption. Most vehicles' lowest fuel economy conditions occur during idling or very-low-speed conditions. Vehicle fuel economy is typically best at moderate speeds and starts to decrease at higher speeds. With the No-action Alternative, vehicle queue lengths on the North US-40 segment of the proposed Heber Valley Corridor are forecasted to extend 3 miles long during the weekday PM peak period; the average vehicle queue is forecasted to be greater than 1.5 miles. These long queues of vehicles would lead to stop-and-go traffic and poor fuel consumption for all vehicles on the North US-40 segment that are entering downtown Heber City. For more information on traffic conditions with the No-action Alternative, see Section 3.7, *Transportation*.

3.18.4.2 Action Alternatives

3.18.4.2.1 Construction-related Energy Impacts

Constructing either of the action alternatives would involve the operation of heavy machinery with a resulting increase in energy use, since fuel would be consumed as part of the construction activities. In addition, traffic congestion could increase during construction, so more fuel would be used. The construction-related energy consumption would be temporary.

3.18.4.2.2 Direct Energy Impacts

With either of the action alternatives, increased traffic resulting from the projected growth in the region (see Chapter 1, *Purpose and Need*) would increase overall energy requirements compared to existing conditions (in 2019) and the No-action Alternative (in 2050).

With Alternative A, average daily fuel consumption in the energy evaluation area is projected to increase by 1,163 gallons per day, or 6.7%, compared to the no-action conditions. With Alternative B, average daily fuel

consumption in the energy evaluation area is projected to increase by 1,025 gallons per day, or 5.9%, compared to the no-action conditions.

Table 3.18-1 above summarizes the estimated direct energy impacts from the action alternatives.

3.18.4.3 Mitigation Measures

No mitigation measures for energy impacts are proposed.

3.19 Construction Impacts

3.19.1 Introduction

Section 3.19 describes the construction impacts associated with the action alternatives for each of the environmental resources analyzed in this EIS.

What resources could be affected by construction of the action alternatives?

Construction could cause temporary impacts to property, land use, farmland, public services and utilities, public safety, travel patterns, economics (businesses), pedestrian and bicyclist facilities, air quality, noise levels, water quality, noxious weeds, aquatic resources (wetlands), wildlife, cultural resources, Section 4(f) resources, hazardous materials sites, and visual resources.

Constructing the Heber Valley Corridor would cause a number of temporary impacts from disturbing the ground and operating construction equipment. Construction could affect property, land use, farmland, public services and utilities, public safety, travel patterns, economics (businesses), pedestrian and bicyclist facilities, air quality, noise levels, water quality, noxious weeds, aquatic resources (wetlands), wildlife, cultural resources, Section 4(f) resources, hazardous materials sites, and visual resources. In addition, construction could cause impacts from the use of sand and gravel pits and from hauling sand and gravel by truck between the construction staging and material borrow areas and the construction site.

The specific nature and timing of these impacts would be related to the project's construction methods, the details of which would be determined by the construction contractor at the time of construction. Most construction-related impacts to the public would be associated with travel delays during construction. It is possible that the Heber Valley Corridor would be constructed in phases, depending on available funding.

3.19.2 Environmental Consequences

3.19.2.1 No-action Alternative

With the No-action Alternative, the improvements associated with the Heber Valley Corridor Project would not be made; therefore, there would be no construction-related impacts from the project.

3.19.2.2 Action Alternatives

Overall, construction-related impacts from the action alternatives would be temporary. The following discussion of construction-related impacts applies to both action alternatives unless otherwise stated.

3.19.2.2.1 Property, Land Use, and Farmland Impacts from Construction

UDOT might need to obtain easements for some properties to construct the action alternatives. These properties are not included in the right-of-way analysis in Section 3.6, *Right-of-way and Relocations*. Construction easements would be required for properties that are outside the right-of-way but would be temporarily affected by equipment during construction, would be necessary for utility relocations, or would accommodate property access modifications. UDOT would temporarily use these properties during construction and would provide compensation to the landowner for the temporary use.

Temporary impacts during construction in agricultural areas could result in the loss of vegetation and compacted soil within temporary construction easements. Construction activities could also disrupt the slope and flow patterns of flood-irrigated fields or limit the operation of mechanical irrigation systems, both of which could diminish crop yields. Farmland impacts during construction would be greater for Alternative B, which traverses a section of the north fields.

3.19.2.2.2 Social Impacts from Construction

Public Services and Utilities

Utilities and services could be temporarily disrupted during construction. UDOT would coordinate with utility providers to minimize disruption of these services.

Public Safety

Lane closures, detours, increased congestion, and reduced travel speeds in construction zones could increase emergency response times.

Travel Patterns

Area residents and commuters could experience temporary impacts with both alternatives while traveling on SR-32, US-40, Heber City's Main Street, US-189, SR-113, Daniels Road, and 1300 South during construction. Traffic impacts would likely include temporary detours to business and residential access, traffic delays, rerouting, and temporary lane closures. Although all access on affected travel routes would likely be maintained during construction, some accesses to businesses and residences could be altered during construction—for example, a business access could be rerouted to another side of a parking lot or accessed through a side street.

3.19.2.2.3 Economic Impacts from Construction

The congestion associated with construction could cause increased travel delays and lost worker productivity where the construction would affect existing roads. Constructing roads on new alignments would not cause delay or congestion on existing roads except in areas where the new alignments would connect to the existing roads. The areas of potential construction delay or congestion impacts are the North US-40 segment of the proposed Heber Valley Corridor, the connections of the alternatives to US-40 (north and south of Heber City), SR-113, 1300 South, 300 West, US-189, and Daniels Road. These impacts would affect both commuters and businesses that rely on these roads.

Temporary adverse impacts could also occur if business accessibility is reduced during construction. The businesses most likely to be affected are convenience businesses—those that cater to "in-route" shopping such as gas stations and convenience stores. Construction impacts would be temporary but could substantially affect individual businesses depending on the length of construction—that is, travelers might decide to bypass the businesses in favor of businesses located in less-congested areas not affected by construction. Destination businesses—those that customers plan to visit in advance of their trip such as grocery stores and sit-down restaurants—would experience moderate impacts.

Construction would temporarily increase employment opportunities and local tax revenue.

3.19.2.2.4 Traffic Impacts from Construction

The following primary construction impacts could affect vehicle traffic during construction of either of the action alternatives:

- Traffic detours and some temporary road closures could change frequently throughout construction. Changes in road conditions could include rerouting of traffic onto other roads, temporary closure of lanes or sections, and temporary lane shifts. Detours and road closures could temporarily increase vehicle commute times, fuel use, and air pollutant emissions.
- Access to commercial properties could be temporarily disrupted, which could cause longer commute times and a potential loss of revenue for some businesses.

Areas with potential delays are listed in Section 3.19.2.2.3, *Economic Impacts from Construction*.

3.19.2.2.5 Impacts to Pedestrians and Bicyclists from Construction

The Midway Lane Connector Trail, an existing pedestrian and bicyclist path that parallels SR-113, would be intersected by both alternatives where they cross SR-113. Legally, cyclists and pedestrians can use the road shoulders in the Heber Valley. The Midway Lane Connector Trail and the road shoulders and sidewalks of active construction zones could be temporarily closed during construction.

3.19.2.2.6 Air Quality Impacts from Construction

Air quality impacts during construction would be limited to short-term increases in fugitive dust, particulates, and local air pollutant emissions from construction equipment. Construction would generate air pollutant emissions from the following activities:

- Fugitive dust from excavation and embankment cut and fill
- Mobile emissions from construction workers' vehicles as they travel to and from the project site
- Mobile emissions from delivering and hauling construction supplies and debris to and from the project site
- Stationary emissions from on-site construction equipment
- Mobile emissions from vehicles whose speeds are slowed because of increased congestion caused by construction

Because construction would be local and short-term, any impacts to individual air quality receptors would also be short-term. The most common air pollutant caused by construction would be particulate matter 10 microns in diameter or less (PM_{10}).

3.19.2.2.7 Noise Impacts from Construction

Land uses that are sensitive to traffic noise are also sensitive to construction noise and could be affected by construction. Constructing roads causes a substantial amount of temporary noise. Noise during construction could be a nuisance to nearby residents and businesses. Either action alternative would generate some noise that would occur sporadically in different locations throughout the construction period.

The most common noise source in construction areas would be from engine-powered machinery such as earth-moving equipment (bulldozers), material-handling equipment (cranes), and stationary equipment (generators). Mobile equipment (such as trucks and excavators) operates in a sporadic manner, while stationary equipment (generators and compressors) generates noise at fairly constant levels. The loudest and most disruptive construction activities would be pile driving (including driving sheet pile).

Pile driving would likely be necessary at new bridge locations.

- With Alternative A, 15 new bridges would be constructed: at the interchanges at SR-32, Commons Boulevard, Coyote Canyon Parkway, 900 North, SR-113, 1300 South near Southfield Road, US-189 near Southfield Road, and south US-40, and for the grade-separated crossings of 600 West, 650 South, 1200 South, the Heber Valley Railroad crossing south of 1200 South, 300 West, US-189 near the hub intersection, and Daniels Road.
- With Alternative B, 13 new bridges would be constructed: at the interchanges at SR-32, Potter Lane/College Way, SR-113, 1300 South near Southfield Road, US-189 near Southfield Road, and south US-40, and for the grade-separated crossings of 600 West, 650 South, 1200 South, the Heber Valley Railroad crossing south of 1200 South, 300 West, US-189 near the hub intersection, and Daniels Road.

Typical noise levels from construction equipment range from 74 dBA to 101 dBA at 50 feet from the source; however, most typical construction activities fall within the 75-to-85-dBA range at 50 feet. Peak noise levels

from pile driving associated with structures such as interchanges and overpasses are about 101 dBA at 50 feet (FHWA 2006). To some people, noise at 70 dBA is intrusive and noise at 80 dBA is annoying. At 100 dBA, people must shout to be heard (FHWA 2006). As an example, typical vacuum cleaners have a noise level of about 80 dBA.

Construction noise at locations farther away than 50 feet would decrease by about 6 to 8 dBA for each doubling of the distance from the source. For example, if the noise level from a jackhammer is 89 dBA at 50 feet, it would decrease to about 83 dBA at 100 feet and about 76 dBA at 200 feet. Some sensitive noise receptors adjacent to the alternatives could experience noise from pile driving during construction. Many residences in the construction zone would be farther than 100 feet from construction except the residences west and east of existing US-40, near the railroad tracks at 1200 South, north of 1300 South, and south of the hub intersection where residences could be about 50 to 100 feet from construction activities. Construction noise would be temporary.

3.19.2.2.8 Cultural Resources Impacts from Construction

Temporary construction easements on historic properties are disclosed in the Determinations of Eligibility and Findings of Effect available in Appendix 3H, *Determinations of Eligibility and Findings of Effect*. Of the 18 structures listed in or determined eligible for listing in the National Register of Historic Places, Alternative A would require the demolition of 4 eligible historic structures, and Alternative B would require the demolition of 1 eligible historic structure. The structure that would be impacted by Alternative B would also be impacted by Alternative A. In accordance with Section 106 of the National Historic Preservation Act, 4 of the eligible structures were determined to be adversely affected by the action alternatives as described in Section 3.12, *Cultural (Archaeological and Architectural) Resources*. In addition, ground-disturbing activities during construction could result in the discovery of previously unidentified subsurface cultural resources.

3.1.2.1.3 Section 4(f) Resource Impacts from Construction

Impacts from Alternatives A and B to Section 4(f) historic architectural resources have been determined to be greater than *de minimis*. For more information, see Chapter 4, *Section 4(f) Evaluation*.

3.19.2.2.9 Water Quality Impacts from Construction

Construction could temporarily reduce surface water quality during the construction phase for the selected alternative. Construction activities—such as clearing and grubbing, grading, stockpiling, and material staging—disturb vegetation and increase the potential for erosion. Runoff from disturbed areas could temporarily increase the amount of sediment and pollutants (oil, gasoline, lubricants, cement, and so on) discharged into receiving waters. Discharges of pollutants, which would be mostly sediment, can be minimized with the use of BMPs, which keep soil from leaving the construction site.

3.19.2.2.10 Noxious Weeds Impacts from Construction

Construction operations would remove the existing hard surfaces and established vegetation, which would expose the underlying soils to the risk of being invaded by noxious and invasive weeds. Materials and equipment delivered to the job site could introduce noxious and invasive weeds into the area if seeds are present in imported soil or on equipment that is not properly cleaned.

3.19.2.2.11 Impacts to Wildlife Species from Construction

Construction activities could disrupt the feeding, nesting, and reproductive activities of wildlife in or near the right-of-way because of higher noise levels, construction equipment activity, and lights. These temporary construction activities are of particular concern during nesting periods for migratory birds near the right-of-way because the activities could disrupt nesting or cause birds to flee the nest. During construction, some habitat could be temporarily disturbed by movement of equipment, storage of materials, and disturbance of staging areas. For more information, see Section 3.14, *Ecosystem Resources*.

3.19.2.2.12 Aquatic Resource Impacts from Construction

Construction-related impacts and mitigation to aquatic resources, such as wetlands and streams, are identified in Section 3.14, *Ecosystem Resources*. BMPs such as silt fences and other erosion-control features would be used in areas adjacent to aquatic resources. In addition, aquatic resources outside of but adjacent to the construction footprint would be fenced so that the area would be avoided. If any construction activities would affect aquatic resources through increased sediments or fill, the construction contractor would be required to identify the additional amount of aquatic resources that would be affected. The contractor would also be responsible for obtaining the necessary authorization from USACE and all other environmental clearances before affecting these areas.

3.19.2.2.13 Hazardous Materials Impacts from Construction

Contaminated soil and/or groundwater could be encountered during excavation on or near properties that are known to have stored hazardous materials or that have documented releases of hazardous materials. Coordination with UDEQ might be needed if a discovery is made.

3.19.2.2.14 Visual Impacts from Construction

During construction, the work zone would be cleared of vegetation, and the exposed bare ground would contrast visually with the surrounding agricultural, recreational, and residential areas that viewers of the area are accustomed to seeing. Construction equipment operating in the roadway, lane closures and lane shifts, construction signs, modifications to business access, and potential detours during construction could temporarily and adversely affect the visual quality of the project environment. Construction equipment (such as cranes) and dust would be visible from a distance and would modify views of the surrounding landscape. In addition, the movement of equipment and materials would be noticeable and would detract from neighboring views of the surrounding landscape. Any construction specific impacts to visual resources would be short-term.

3.19.2.2.15 Construction Staging and Material Borrow Areas

During construction, the contractor would establish staging areas for equipment and would obtain fill material for improvements. Because a contractor has not yet been selected, the exact location of staging areas and sources of fill material is not known.

3.19.3 Mitigation Measures

The following mitigation measures will be implemented during construction if either action alternative is selected and funded.

3.19.3.1 Mitigation Measures for Property, Land Use, and Farmland Impacts from Construction

To the extent possible, the contractor will be required to ensure that irrigation systems remain intact and fully functional. Fencing that contains livestock could be altered during project construction. The contractor will be required to maintain fences and gate operations to protect livestock, as well as construction crews and the traveling public, during the construction phase. In locations of temporary easements where UDOT would temporarily use private property during construction, UDOT will provide compensation to the landowner for the temporary use.

3.19.3.2 Mitigation Measures for Social Impacts from Construction

Public Safety

A thorough public information program will be implemented to inform the public about construction activities and to reduce impacts. Information will include work hours and alternate routes. Construction signs will be used to notify drivers about work activities and changes in traffic patterns. Construction sequencing and activities will be coordinated with emergency service providers to minimize delays and response times during construction.

Public Services and Utilities

Utility agreements will be completed to coordinate utility relocations. The project specifications will require the contractor to coordinate with the utility companies to plan work so that utility disruptions to a business occur when the business is closed or during off-peak times. Before beginning work, the contractor will be required to contact Blue Stakes to identify the locations of all utilities. The contractor will be required to use care when excavating to avoid unplanned utility disruptions. If utilities are unintentionally disrupted, UDOT will work with the contractor and the utility companies to restore service as quickly as possible.

Travel Patterns

The contractor will be required to develop a maintenance of traffic plan that defines measures to reduce construction impacts to traffic. A general requirement of this plan is that, to the extent reasonably practical, safe access to businesses and residences must be maintained and existing roads must be kept open to traffic unless alternate routes are provided.

Even with the implementation of the maintenance of traffic plan, traffic congestion would increase in the construction area in the short term. Road closures will be limited to what is specified in the maintenance of traffic plan as approved by UDOT before the start of construction. Additional considerations are listed in Section 3.19.3.3, *Mitigation Measures for Economic Impacts from Construction*.

3.19.3.3 Mitigation Measures for Economic Impacts from Construction

Access to businesses will be maintained during the construction and postconstruction phases of this project. For each phase of the project, UDOT will coordinate with property owners and businesses to evaluate ways to maintain access while still allowing efficient construction operations. This coordination could entail sharing a temporary access or identifying acceptable timeframes when access is not needed. Adequate signs will be placed in construction areas to direct drivers to businesses. Other potential mitigation measures for construction impacts could include:

- A traffic access management plan developed and implemented by the construction contractor that maintains the public's access to the business during normal business hours
- A frequent newsletter provided to all businesses in the construction area describing the progress of the construction and upcoming construction events
- Business access signs that identify business access points within the construction limits
- Meetings with business representatives to inform them of upcoming construction activities and to provide a forum for the representatives to express their concerns with the project

3.19.3.4 Mitigation Measures for Traffic Impacts from Construction

The contractor will be required to develop a maintenance of traffic plan that defines measures to reduce construction impacts to traffic. A general requirement of this plan is that, to the extent reasonably practical, safe access to businesses and residences must be maintained and existing roads must be kept open to traffic unless alternate routes are provided.

Even with the implementation of the maintenance of traffic plan, traffic congestion would increase in the construction area in the short term. Road closures will be limited to what is specified in the maintenance of traffic plan as approved by UDOT before the start of construction. Additional considerations are listed in Section 3.19.3.3, *Mitigation Measures for Economic Impacts from Construction*.

3.19.3.5 Mitigation Measures for Impacts to Pedestrians and Bicyclists from Construction

All existing pedestrian and bicyclist facilities including shoulder ways that would be temporarily impacted during construction will be reconstructed as part of the project. The Midway Lane Connector Trail and the road shoulders of active construction zones could be closed temporarily during construction. Trail closure would be limited in duration, and construction detours will accommodate pedestrians and bicyclists as well as vehicles. To minimize lengthy route deviations, detours for pedestrians and bicyclists will be as direct as possible.

3.19.3.6 Mitigation Measures for Air Quality Impacts from Construction

Measures will be taken to reduce fugitive dust generated by construction. Dust-suppression techniques will be applied during construction in accordance with UDOT's Standard Specifications for Road and Bridge Construction, Section 01355, Environmental Compliance, Part 1.11, Fugitive Dust.

3.19.3.7 Mitigation Measures for Noise Impacts from Construction

To reduce temporary noise impacts associated with construction, the contractor will comply with all state and local regulations relating to construction noise, including UDOT's 2023 Standard Specification 00555 for nighttime construction work to reduce the impacts of construction noise on the surrounding community.

3.19.3.8 Mitigation Measures for Cultural Resources Impacts from Construction

In accordance with UDOT's Standard Specifications for Road and Bridge Construction, Section 01355, Environmental Protection, Part 1.13, Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites or Human Remains, if cultural resources are discovered during construction, activities in the area of the discovery will immediately stop. The construction contractor will notify UDOT of the nature and exact location of the finding and will not damage or remove the resource. Work in the area of the discovery would be delayed until UDOT evaluates the extent and cultural significance of the site in consultation with the Utah State Historic Preservation Office. The course of action and the construction delay would vary depending on the nature and location of the discovery. Construction would not resume until the contractor receives written authorization from UDOT to continue.

3.19.3.9 Mitigation Measures for Section 4(f) Resource Impacts from Construction

Any Section 4(f) property approved for temporary use during construction will be regraded and revegetated when construction is complete or when the use of the property is no longer required.

3.19.3.10 Mitigation Measures for Water Quality Impacts from Construction

Because more than 1 acre of ground would be disturbed, a UPDES permit and an SWPPP, consistent with UDOT's Standard Specifications for Road and Bridge Construction, Section 01355, Environmental Protection, Part 1.9, Water Resource Permits, and Part 1.14, Stormwater Management Compliance, will be required. The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. In addition, BMPs could include such measures as silt fences, erosion-control fabric, fiber mats, straw bales, silt drains, detention basins, mulching, and revegetation.

3.19.3.11 Mitigation Measures for Noxious Weeds Impacts from Construction

The contractor will be required to follow UDOT Special Provision 02924S, *Invasive Weed Control*, to minimize construction impacts. To mitigate the possible introduction of noxious and invasive weeds due to construction activities, the contractor will:

- Be required to follow the noxious weed mitigation and control measures identified in UDOT's Standard Specifications for Invasive Weed Control
- Strictly follow the BMPs to reduce the potential for weed infestations
- Reseed disturbed areas

3.19.3.12 Mitigation Measures for Impacts to Threatened and Endangered Species, Wildlife, and Utah Sensitive Species from Construction

Migratory Bird Mitigation Measures. Trees and shrubs will be removed during the non-nesting season (about July 15 to April 1). If this is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys, to be conducted no more than 10 days before ground-disturbing activities, by a qualified wildlife biologist of the area that would be disturbed to determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to avoid take of migratory birds.

For more proposed mitigation measures, see Section 3.14.4.5, *Mitigation Measures*, which are proposed to reduce ecosystem resource impacts.

3.19.3.13 Mitigation Measures for Aquatic Resource Impacts from Construction

Both alternatives would convert aquatic resources to transportation use. In order to fill jurisdictional wetlands and other aquatic resources as part of the project, UDOT must prepare a Clean Water Act Section 404 permit application and submit it to USACE for approval before construction. The permit application must contain a compensatory mitigation plan that describes the proposed mitigation efforts and how they will offset the functions and values eliminated by the selected alternative.

In addition, BMPs such as silt fences and other erosion-control features will be used in areas adjacent to wetlands to mitigate potential temporary construction impacts to wetlands and other waters of the United States. For more information, see Section 3.14, *Ecosystem Resources*.

3.19.3.14 Mitigation Measures for Hazardous Materials Impacts from Construction

If contamination is discovered during construction, mitigation measures will be coordinated according to UDOT Standard Specification 01355, *Environmental Compliance*, Part 1.7, *Hazardous Waste*, which directs the construction contractor to stop work and notify the engineer of the possible contamination. Coordination with UDEQ might be necessary if a discovery is made. Any hazardous materials will be disposed of according to applicable state and federal guidelines.

3.19.3.15 Mitigation Measures for Visual Impacts from Construction

The contractor will prepare and implement an appropriate seeding vegetation and/or landscaping plan to restore or enhance aesthetics after the project is completed.

3.19.3.16 Mitigation Measures for Construction Staging and Material Borrow Areas

No mitigation for construction staging and material borrow areas is proposed.

3.20 Short-term Uses versus Long-term Productivity

3.20.1 Regulatory Setting

FHWA's guidelines for environmental documents state that an EIS should discuss in general terms the proposed action's relationship of local short-term impacts and use of resources and the maintenance and enhancement of long-term productivity, including recognition that transportation improvements are based on state and/or local planning that considers the need for present and future traffic requirements within the context of present and future land use development (FHWA 1987). NEPA Section 102, as amended by the Fiscal Responsibility Act, clarifies the requirements for an EIS that agencies must analyze and reasonably disclose "any reasonably foreseeable adverse environmental effects [that] cannot be avoided should the proposal be implemented" (42 USC Section 4332(C)(ii)) and "the relationship between local short-term uses of [the] environment and the maintenance and enhancement of long-term productivity" (42 USC Section 4332(C)(iv)).

3.20.2 Short-term Uses versus Long-term Productivity

The short-term use of the environmental resources versus preserving their long-term productivity relates to converting the productivity of the land (which is viewed as a long-term and renewable use) to a developed transportation use (which could have a shorter period with economic and transportation benefits depending on how long the land is in transportation use). The long-term, natural productivity of the area that could be impacted by the action alternatives comes from agricultural land along with the area's wildlife productivity, vegetation habitat, and wetlands. Instead of being used for its natural productivity, the land within the right-of-way would be used for the selected alternative. The Heber Valley Corridor would be consistent with the *Utah Long-range Transportation Plan 2023–2050* (UDOT 2023c) and the *Heber City Envision 2050 General Plan*. Both action alternatives would convert some land zoned for nontransportation uses to transportation use. There would be an increase in transportation efficiency and economic productivity with the transportation use as long as the land is in transportation use.

The short-term use of the undeveloped land would be a negative impact to the long-term productivity of the land as a natural resource, but it would have a positive economic impact while the land is used for transportation use. Alternative B would have greater impacts to natural resources compared to Alternative A because Alternative B extends through the north fields. Mitigation required under the Clean Water Act would offset impacts from either of the action alternatives to jurisdictional aquatic resources. For further information regarding impacts and recommended mitigation measures, see Section 3.2, *Land Use*; Section 3.3, *Farmland*; and Section 3.14, *Ecosystem Resources*.

In general, the action alternatives would be consistent with local land use and transportation plans, which demonstrate a need for the Heber Valley Corridor to accommodate planned growth. Overall, the Heber Valley Corridor Project would improve the long-term productivity of the area by providing a more efficient transportation network to meet future transportation needs.

3.21 Irreversible and Irretrievable Commitment of Resources

3.21.1 Introduction

The term *irreversible commitment* of resources refers to the use of nonrenewable resources, including fossil fuels, historic buildings and other unique cultural resources, manufactured structural materials, and land converted to long-term business and industrial use. Irretrievable commitments of resources can also cause the lost production or use of renewable resources such as timber, rangeland, or wildlife habitat.

3.21.2 Regulatory Setting

FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, provides guidance for evaluating irreversible and irretrievable commitments of resources.

3.21.3 No-action Alternative

There would not be any irreversible or irretrievable commitment of resources with the No-action Alternative.

3.21.4 Action Alternatives

Implementing either action alternative would involve a commitment of a range of natural, physical, human, and fiscal resources. Land used for constructing either action alternative would be considered an irreversible commitment of these resources during the time that the land is used for the Heber Valley Corridor and its interchanges. However, if a greater need for use of the land arises, or if the Heber Valley Corridor or its interchanges are no longer needed, the land could be converted to another use. At present, such a conversion is not reasonably foreseeable.

To construct either action alternative, fossil fuels, labor, and roadway construction materials such as cement, aggregate, and bituminous material would be expended. Additionally, large amounts of labor and natural resources would be necessary for fabricating and preparing the construction materials. These materials are generally not retrievable, but they are not in short supply, and their use would not have an adverse effect on the continued availability of these resources.

Constructing either action alternative would also require an expenditure of irretrievable funds. The commitment of these resources is based on the premise that residents in the area, the state, and the region would benefit from the improved quality of the transportation system. These economic benefits would consist of improved accessibility and mobility, increased safety, and savings in travel time, all of which are economic benefits that are anticipated to outweigh the commitment of these financial resources. Wetlands in the study area would be lost from constructing either action alternative, as discussed in Section 3.14, *Ecosystem Resources*, though the loss of these wetlands would be mitigated. Historic buildings would be affected by either action alternative, as described in Section 3.12, *Cultural (Archaeological and Architectural) Resources*. The demolition of historic buildings as part of construction is an irreversible commitment of resources.

3.22 Permits, Reviews, Clearances, and Approvals

3.22.1 Introduction

Section 3.22 discusses the permits, reviews, clearances, and approvals that would be required to construct either action alternative. Throughout the EIS process, UDOT has coordinated with the resource agencies responsible for the permits and approvals discussed in this section.

3.22.2 Federal Permits, Reviews, Clearances, and Approvals

3.22.2.1 Individual Permit under Section 404 of the Clean Water Act (USACE)

Project applicants are required to obtain a Clean Water Act Section 404 permit if a proposed action would discharge dredged or fill materials in waters of the United States, including wetlands. Either action alternative would place fill material in waters of the United States and would require an individual permit. The agency responsible for issuing a Section 404 permit is USACE. Before a Section 404 permit can be issued, the applicant must first obtain a Section 401 water quality certification, which is a finding by the state water quality agency that the project complies with the state's water quality standards.

UDOT has been coordinating throughout the EIS process with USACE regarding the Section 404 process and alternatives that meet the requirements of that process. UDOT anticipates that USACE would issue a Section 404 permit or permits for the selected alternative at some point after the Record of Decision is issued for the Heber Valley Corridor Project. UDOT could implement the project in phases based on available funds. Section 404 permitting also could be phased. UDOT would be responsible for any required changes or additions to the Section 404 permit due to design changes or construction activities.

3.22.2.2 Endangered Species Act Compliance (USFWS)

Under Section 7 of the Endangered Species Act, federal agencies are required to consult with USFWS if their proposed actions or approvals could affect Endangered Species Act–listed species or designated critical habitat.

Ute ladies'-tresses (*Spiranthes diluvialis*), a white-flowered orchid, grows in low- to mid-elevation wetlands and riparian zones in the central Rocky Mountains. Potentially suitable Ute ladies'-tresses habitat could exist in the ecosystem resources evaluation area and within a 300-foot buffer. About 84 acres of the 870-acre evaluation area are new to the project in 2025. The portions of the evaluation area and buffer area that have not been previously assessed will be surveyed for potentially suitable Ute ladies'-tresses habitat during the 2025 field season. A clearance survey will be conducted on any new potentially suitable habitat identified. UDOT will coordinate with USFWS if additional clearance surveys for Ute ladies'-tresses are required. All surveys will be conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a).

3.22.2.3 Migratory Bird Treaty Act (USFWS and Utah Division of Wildlife Resources)

The action alternatives could affect nests of migratory birds during construction by removing vegetation. If protected species are found nesting in the construction zone or buffer zone before or during construction, the contractor would coordinate with the UDOT Natural Resources Manager to ensure compliance with the Migratory Bird Treaty Act. See Section 3.14, *Ecosystem Resources*, for potential mitigation measures for impacts to migratory birds.

3.22.2.4 Section 106, National Historic Preservation Act (Utah SHPO and ACHP)

For this Heber Valley Corridor EIS, UDOT is the lead agency under the Section 106 process. Section 106 of the National Historic Preservation Act requires agencies to take into account the effects of their actions on historic properties and to give ACHP a reasonable opportunity to comment. Any property that is included in or is eligible for listing in the NRHP is considered a historic property. For projects that could affect a historic property, the federal agency must consult with the relevant SHPO.

For the Heber Valley Corridor Project, UDOT has consulted with the Utah SHPO, who has concurred with UDOT's Determinations of Eligibility and Findings of Effect for historic properties. An MOA was prepared between UDOT and the SHPO to address the adverse effects on eligible historic architectural properties; a copy of the MOA is included in Appendix 3J, *Memorandum of Agreement*. Because the action alternatives would result in a finding of **adverse effect** on historic properties, UDOT consulted with ACHP. ACHP acknowledged the correspondence but declined to participate in the project. UDOT has also consulted with Native American tribes; no comments were received from Native American tribes regarding the project.

3.22.2.5 Section 4(f) of the Department of Transportation Act (UDOT on Behalf of FHWA)

Section 4(f) of the Department of Transportation Act of 1966 and the Section 4(f) regulations (23 CFR Section 774.3) state that FHWA (in this case, UDOT acting on behalf of FHWA) may not approve the use of a Section 4(f) property unless:

(a) FHWA determines that (1) there is no feasible and prudent avoidance alternative to the use of the property and (2) the action includes all possible planning to minimize harm to the property resulting from such use; or

(b) FHWA determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, would have a *de minimis* impact on the property.

What is Section 4(f)?

Section 4(f) of the Department of Transportation Act prohibits the approval of federal transportation projects that use publicly owned parks, recreation areas, wildlife and waterfowl refuges, or historic sites [Section 4(f) properties] unless there is no feasible and prudent alternative and the project includes all possible planning to minimize harm.

For historic sites, a *de minimis* impact means FHWA has determined that no historic property would be affected by the project or that the project would have no adverse effect on the historic property in question. For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact means that FHWA has determined that the project would not adversely affect the activities, features, or attributes of the park, recreation area, or wildlife or waterfowl refuge eligible for protection.

Chapter 4, *Section 4(f) Evaluation*, provides a detailed analysis of the Section 4(f) requirements, analysis, and approval.

3.22.2.6 Notice of Proposed Construction or Alteration (FAA)

The action alternatives do intersect the transitional surface for the Heber Valley Airport parallel to the runway at Southfield Road and south of the hub intersection. The transitional surface is an imaginary, sloping surface that extends outward and upward from the sides of the primary and approach surfaces at a 7:1 slope, designed to protect aircraft during approach and departure.

To construct the Heber Valley Corridor, UDOT would be required to request a transitional surface exemption from FAA through the transitional surface exemption process via FAA *Notice of Proposed Construction or Alteration* Form 7460. UDOT and FAA have been coordinating regarding this exemption process. The action alternatives are the same near the airport.

3.22.3 State Permits, Reviews, Clearances, and Approvals

3.22.3.1 Water Quality Certification under Section 401 of the Clean Water Act (Utah Division of Water Quality)

Section 401 of the Clean Water Act requires that, before a federal agency issues a permit authorizing a discharge into waters of the United States, it must obtain certification from the State that the discharge will not violate water quality standards. For the Heber Valley Corridor Project, UDOT must obtain a certification from the Utah Division of Water Quality before USACE issues a Clean Water Act Section 404 permit for the project. Both action alternatives would require a Section 404 permit [as discussed in Section 3.22.2.1, *Individual Permit under Section 404 of the Clean Water Act (USACE)*] due to placing fill material in waters of the United States and therefore would require a water quality certification in accordance with Section 401 of the Clean Water Act from the Division of Water Quality.

UDOT does not believe that the impacts to the Provo River or the aquifer would have a significant adverse effect on water quality. For all activities conducted in waters of the state, UDOT will implement and maintain BMPs to fully protect the waters' assigned beneficial uses.

3.22.3.2 Utah Pollutant Discharge Elimination System Permit under Section 402 of the Clean Water Act (Utah Division of Water Quality)

Section 402 of the Clean Water Act regulates discharges of pollutants to surface waters. Construction projects that disturb 1 or more acres of land must be covered under the statewide UPDES stormwater permit. Both action alternatives would disturb 1 or more acres of land and would require coverage under the UPDES stormwater permit.

Additionally, UDOT might be required to obtain a UPDES Construction Dewatering or Hydrostatic Testing General Permit during construction if construction dewatering activities discharge project water to surface waters. UDOT will coordinate with the Utah Division of Water Quality to obtain this permit if it is required.

As described in Section 3.13, *Water Quality and Water Resources*, UDOT will address postconstruction stormwater runoff from the selected alternative in accordance with its statewide MS4 permit. UDOT will also coordinate with the Utah Division of Water Quality to ensure that MS4 permit conditions are met.

Additionally, UDOT will coordinate with local municipalities, as appropriate, to ensure that any stormwater runoff or stormwater facilities from the selected alternative would not affect any municipal MS4 permits.

3.22.3.3 Utah State Stream Alteration Permit (Utah Division of Water Rights)

The Utah Division of Water Rights requires project applicants to obtain a stream alteration permit if a stream crossing would alter bed or banks of a natural stream. Constructing any new drainage structures at a stream crossing would constitute a stream alteration. UDOT anticipates that stream alteration permits would be required for either of the action alternatives.

3.22.3.4 Air Quality Approval Order (Utah Division of Air Quality)

An air quality approval order is required to build, own, or operate a facility that pollutes the air, including either of the action alternatives. To obtain an air quality approval order, a notice of intent must be submitted to the Utah Division of Air Quality describing the construction activities and emissions that would be associated with operating construction equipment. The permit applicant must include provisions for controlling dust and emission sources, and the permit might require other construction approvals depending on the source and location of aggregate, asphalt, combustion, and/or fuel storage facilities. This permit will be obtained by the contractor before construction.

3.22.3.5 Approval of Remediation Work Plan (UDEQ or EPA)

Several hazardous waste sites are within the vicinity of the action alternatives as described in Section 3.16, *Hazardous Materials and Hazardous Waste Sites*. Sites of concern (sites that represent a moderate risk to construction) are the same for either action alternative. None of these sites are the type that present substantial risks to construction. UDOT will conduct site investigations or screening-level soil and groundwater testing within the alternative's right-of-way near the sites of concern. UDOT will conduct additional research and site investigations, if warranted, for the lower-risk sites depending on the alternative selected.

If a hazardous site is found during construction, a remediation work plan would be submitted and approved by the regulatory agency (either UDEQ or EPA) if construction activities would occur on existing hazardous waste sites. The remediation work plan will define clean-up levels and protective measures for construction workers.

3.22.4 Local Permits and Clearances

3.22.4.1 Floodplain Development Permit (Local Jurisdictions)

Floodplain development permits would be required from local jurisdictions if construction, including placement of highway fill and drainage structures at stream crossings, is required within the FEMA 100-year floodplain boundary.

The Cities and Counties in the study area have adopted FEMA's National Flood Insurance Program. This program includes the preparation of flood insurance rate maps that show the 100-year floodplain boundaries within a community.

The action alternatives would cross several floodplains, washes, rivers, and creeks as described in Section 3.15, *Floodplains*. Both action alternatives would overlap several 100-year floodplains. In accordance with Executive Order 11988, Floodplain Management, coordination with FEMA would be required during the construction phase to ensure that local jurisdictions' flood design standards are met and to obtain floodplain development permits from the local jurisdictions.

3.22.4.2 Construction-related Permits and Clearances (Various Agencies)

The construction contractor will be responsible for obtaining all construction-related permits and other environmental clearances for activities occurring outside the right-of-way, such as activities in construction staging areas, and batch plant sites.

3.22.5 Summary of Permits, Reviews, Clearances, and Approvals

Table 3.22-1 lists the permits and clearances that would be required for construction. These permits and clearances would apply to either action alternative. To make sure the contractor follows environmental commitments, UDOT will include commitments in contract documents.

Table 3.22-1. Permits, Reviews, Clearances, and Approvals Likely To Be Required for the Heber Valley Corridor Project

Permit	Granting Agency(ies)	Applicant	Application Time	Granting Time	Applicable Portion of Project
Federal Permits, Reviews, and Approvals					
Individual Permit under Section 404 of the Clean Water Act	USACE	UDOT	After the Final EIS	Before construction	Impacts to aquatic resources such as wetlands and streams
Endangered Species Act compliance	USFWS	UDOT	During the EIS	Before construction	Required if Ute ladies'-tresses are discovered during field work
Migratory Bird Treaty Act compliance	USFWS and Utah Division of Wildlife Resources	UDOT	Construction phase	Before construction	Required if nests of migratory birds could be affected during construction by removing vegetation.
Compliance with Section 106 of the National Historic Preservation Act	Utah SHPO	FHWA	Concurrent with EIS	Final EIS	Considerations of impacts to historic properties; includes consultation between agencies and interested parties
Notice of Proposed Construction or Alteration Form 7460	FAA	UDOT	Construction phase	Before construction	Impacts to the transitional surface of the Heber Valley Airport

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Table 3.22-1. Permits, Reviews, Clearances, and Approvals Likely To Be Required for the Heber Valley Corridor Project

Permit	Granting Agency(ies)	Applicant	Application Time	Granting Time	Applicable Portion of Project
State Permits, Reviews, and Clearances					
Water quality certification under Section 401 of the Clean Water Act	Utah Division of Water Quality	UDOT	Concurrent with Section 404 Individual Permit	Concurrent with Section 404 Individual Permit	Required if the project could discharge fill into navigable waters
UPDES permit under Section 402 of the Clean Water Act	Utah Division of Water Quality	Contractor	Construction phase	Before construction	Stormwater quality during construction phase
Stream alteration permit	Utah Division of Water Rights	UDOT	Final design phase	Before construction	Required for new or modified stream crossings proposed as part of the preferred alternative
Local Permits and Clearances					
Floodplain development permit	Local jurisdictions	UDOT	Final design phase	Final design phase	Portions of roadway or structure in FEMA floodplain
Construction-related permits	Various agencies	Contractor	Construction phase	Before construction	Impacts associated with off-site activities such as activities in construction staging areas, borrow areas, batch plant sites, and so on

Definitions: FEMA = Federal Emergency Management Agency; SHPO = State Historic Preservation Office; UPDES = Utah Pollutant Discharge Elimination System; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service

3.23 Mitigation Summary

Table 3.23-1 summarizes the mitigation measures that UDOT developed to avoid, minimize, rectify, reduce, or compensate impacts from the action alternatives for the Heber Valley Corridor Project. The mitigation measures listed in this section are the same measures that are listed in Sections 3.2 through 3.19 of this EIS. For consistency, the mitigation measures are listed in the same order as they are organized in this chapter.

The mitigation measures include standard UDOT best practices, expected permit conditions, legal requirements, and other measures specifically targeted to mitigate for unique impacts. UDOT does not typically propose mitigation for resources that are anticipated to have negligible or beneficial impacts from the selected alternative.

Funding for mitigation will be included in the cost of construction; UDOT will have the final responsibility for implementation.

UDOT or its designated contractor will implement a mitigation and monitoring tracking system to ensure that all mitigation identified in this EIS is performed and that appropriate monitoring for effectiveness takes place. If a mitigation measure is determined to not be effective, the contractor will consult with UDOT to develop other appropriate mitigation.

Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Land Use	No mitigation for impacts to land use is required or proposed.
Farmland	UDOT will work with each farm owner on a case-by-case basis to determine the farm's eligibility for benefits under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and other federal and state guidelines. Generally, UDOT will provide compensation for the expense of re-establishing farm enterprises and for the fair market value of the buildings and land. **Mitigation for Impacts to FPPA-regulated Farmland** Because the farmland impact conversion ratings for both action alternatives are below the 160-point threshold at which further consideration for protection is required, no additional mitigation is being considered for FPPA-regulated farmland.
Social Environment	**Mitigation for Impacts to Recreation Resources** Access to recreation resources will be maintained during construction to the maximum extent practicable. The Midway Lane Connector Trail would be closed during the construction of the new alignment around the SR-113 SPUI, but a temporary detour would be provided. UDOT will implement a public involvement program to inform recreation users of closures of roads and recreation sites. **Mitigation for Impacts to Utilities** UDOT will provide suitable replacement land to offset impacts to the sewer farm, providing an equivalent number of irrigable acres for disposing of wastewater. Suitable replacement land is subject to the Utah Division of Water Quality's approval and land in the Heber Valley is a limited commodity, but HVSSD has identified potential replacement parcels. If replacement land is not located adjacent to HVSSD's sewer pipe, which transports wastewater from the treatment facility to the sewer farm, UDOT will compensate HVSSD to construct a new pipe to carry wastewater to the replacement property. During right-of-way negotiations, UDOT will evaluate necessary costs to mitigate for impacts to HVSSD, and these negotiations will likely require additional analysis and design for the selected alternative. UDOT will provide access for HVSSD equipment (swather and bailer) across the Heber Valley Corridor through an underpass. Conversations between UDOT and HVSSD are ongoing and will continue through final design and construction of the selected alternative. All alternatives could temporarily disrupt other utility services during construction. The impact to these utilities (including communication, gas, water, sewer, electrical, and storm drainage) would be determined by UDOT by working with local jurisdictions and utility providers during the final design of the selected alternative. Impacts to these utilities can often be avoided during final design. UDOT will continue to communicate with local jurisdictions and utility providers throughout the project to minimize service disruptions.

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Economic Conditions	This impacts analysis assumes that any businesses that experience property impacts (displacements or minor property strip impacts) as a result of this project would receive compensation and/or relocation assistance in accordance with UDOT's right-of-way acquisition practices. Property will be acquired according to the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Utah Relocation Assistance Act, Utah Code, Section 57-12. These provisions would also apply to any agricultural properties that UDOT would need to acquire. For business that experiences short-term access and visibility problems during construction, a traffic access management plan will be developed and implemented by the construction contractor. This plan will maintain the public's access to the business during normal business hours.
Right-of-way and Relocations	No mitigation is required other than that required under federal and state relocation assistance acts and programs. After construction funding is identified for the Heber Valley Corridor Project, the project would enter the final design process. During this process, UDOT would look at measures that could avoid needing to acquire properties. Where necessary, UDOT will acquire all property according to the federal Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (42 USC Section 61 and the implementing regulation 49 CFR Part 24) and the Utah Relocation Assistance Act. These regulations require fair compensation for property owners and qualified renters to offset or eliminate any financial hardship that private individuals or entities could experience as a result of property being acquired for public purposes. No individual or family would be required to relocate until adequate, decent, safe, and sanitary housing is available. Relocation resources will be available to all residents and businesses that are relocated, and the process for acquiring replacement housing and other sites will be fair and open.
Transportation	No mitigation for transportation impacts is proposed. Both action alternatives would improve transportation in the transportation evaluation area compared to the No-action Alternative. UDOT will request a transitional surface exemption from FAA through the transitional surface exemption process via FAA's Form 7460, *Notice of Proposed Construction or Alteration*, for the selected alternative once the Heber Valley Corridor EIS process concludes.
Pedestrian and Bicyclist Issues	The Midway Lane Multi-use Trail is the only existing trail that would be affected by construction. It will be temporarily rerouted during construction and will be reconnected in a new alignment south of the interchange at SR-113 once construction is finished. UDOT will coordinate with Heber City, Wasatch County, and MAG during the final design of the selected alternative to mitigate disruptions to pedestrians, bicyclists, and trail users.
Joint Development	No mitigation measures for joint development impacts are proposed.

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Air Quality	Although VMT is projected to increase by 2050, overall, vehicle emissions would be reduced with either action alternative as a result of decreased traffic congestion and reduced travel times compared to vehicle emissions with the existing conditions and the No-action Alternative. In addition, regardless of the alternative selected, emissions in the design year (2050) would likely be lower than they are currently as a result of improved fuel efficiency and options for alternative fuel vehicles. No mitigation for air quality impacts from implementing either action alternative is proposed. For the proposed air quality mitigation related to construction, see Section 3.19, *Construction Impacts*.
Noise	According to UDOT's noise-abatement policy, specific conditions must be met before traffic noise abatement is implemented. Noise abatement must be considered both feasible and reasonable. **Feasible.** UDOT considers the following factors when determining whether abatement is feasible: • **Engineering Considerations.** Engineering considerations such as safety, presence of cross streets, sight distance, access to adjacent properties, wall height, topography, drainage, utilities, maintenance access, and maintenance of the abatement measure must be taken into account as part of establishing feasibility. • **Safety on Urban Non-access-controlled Roads.** To avoid a damaged noise barrier from becoming a safety hazard in the event of a failure, barrier height must be no greater than the distance from the back of the curb to the face of the proposed barrier. Because the distance from the back of the curb to the face of a proposed barrier varies, barrier heights that meet this safety requirement might also vary. • **Acoustic Feasibility.** Noise abatement must be considered "acoustically feasible." This is defined as achieving at least a 5-dBA highway traffic noise reduction for at least 50% of front-row receivers. **Reasonable.** UDOT considers the following factors when determining whether abatement is reasonable: • **Noise-abatement Design Goal.** Every reasonable effort should be made to obtain substantial noise reductions. UDOT defines the minimum noise reduction (design goal) from proposed abatement measures to be 7 dBA or greater for at least 35% of front-row receivers. • **Cost-effectiveness.** The cost of a noise-abatement measure must be deemed reasonable in order for it to be included in a project. Noise-abatement costs are based on a fixed unit cost of $20 per square foot, multiplied by the height and length of the wall, in addition to the cost of any other item associated with the abatement measure that is critical to safety. A reasonable cost is considered to be a maximum of $30,000 per benefited receiver for activity category B and $360 per linear foot for activity categories A, C, D, or E. If the anticipated cost of the noise-abatement measure is less than the allowable cost, then the abatement is deemed reasonable. • **Viewpoints of Property Owners and Residents.** As part of the final design phase, balloting would take place if noise-abatement measures meet the feasible criteria and reasonable noise-abatement design goal and cost-effectiveness criteria in UDOT's noise-abatement policy. (*Noise mitigation continues below*)

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Noise (*continued*)	UDOT evaluated 24 noise barriers at locations where noise impacts would occur with the action alternatives. Of the 24 modeled noise barriers for the action alternatives, 4 met UDOT's feasibility and reasonableness acoustic and cost criteria (Table 3.11-4, *Barrier Analysis Summary*). • **Alternative A:** 4 of the 24 modeled noise barriers (Barriers F, HH, II, and M) met UDOT's feasibility and reasonableness acoustic and cost criteria. • **Alternative B:** 3 of the 24 modeled noise barriers (Barriers F, HH, and II) met UDOT's feasibility and reasonableness acoustic and cost criteria. Maps showing the locations of the noise barriers evaluated for the action alternatives are shown in Figure 3.11-2 and Figure 3.11-3, *Noise Walls Evaluated*. More detailed information for each barrier is available in Appendix 3F, *Noise Technical Report*. UDOT would not make the final decision to build a noise barrier until the project design is completed and refined utility and right-of-way costs are available. UDOT would revisit reasonableness using refined costs before balloting residents whose residences would be benefited by a noise barrier. A barrier identified as recommended for balloting is a barrier that has been shown to be both feasible and reasonable. However, that finding is not a commitment to build a barrier.
Cultural (Archaeological and Architectural) Resources	During final design of the selected alternative, UDOT will work to minimize acquiring property from archaeological sites and eligible historic architectural resources. **Mitigation Measures for Impacts to Archaeological Sites** The archaeological sites identified in the APE consist of canals and irrigation ditches plus the Heber Creeper Railroad. The proposed impacts would not substantially impact or alter the character-defining features of the canals and irrigation ditches. The rail line would be bridged by the alternatives and interchange ramps. The multi-use trail would cross the rail line at-grade but would require only a temporary construction easement for striping the crossing location on the pavement and installing safety signs and apparatus. Both action alternatives would have **no adverse effect** on archaeological sites, so no specific mitigation measures are necessary. **Mitigation Measures for Impacts to Eligible Historic Architectural Resources** Both action alternatives would avoid several of the eligible historic architectural resources, and each would require partial acquisition from eight resources without affecting the eligible structures on the properties. These impacts result in **no adverse effect** findings; therefore, no specific mitigation measures are required for these resources. Both Alternative A and Alternative B would come within 8 feet of the right-of way of one eligible historic architectural resource, resulting in a displacement and an **adverse effect**. Alternative A would require demolition of an additional three eligible historic architectural resources and **adverse effects**. UDOT consulted with SHPO and HVHF to explore potential mitigation measures to offset the adverse effects. A memorandum of agreement (MOA) between SHPO and UDOT has been drafted to address the adverse effects for this project. A copy of the draft MOA is included in Appendix 3J, *Memorandum of Agreement*. (*Cultural resources mitigation continues below*)

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Cultural (Archaeological and Architectural) Resources (*continued*)	In accordance with the MOA, the structures that would be demolished will be documented by a person(s) meeting the Secretary of the Interior's Historic Preservation Professional Qualification Standards. Documentation will be completed in accordance with the Utah State Intensive-level Survey Standards as required by SHPO. This documentation will include a completed Historic Site Form, photographs of the exterior of the building(s), a sketch map of the property layout, aerial photograph maps showing the location(s) of the building(s), and a U.S. Geological Survey map showing the location(s) of the building(s). In addition, prior to construction, UDOT will consult with Heber City, the Heber City CLG, and the Community Alliance for Main Street to create an appropriately scaled public interpretive outreach product. Possible examples of interpretive outreach could include a Main Street wayside or interpretive panel focused on the history of transportation in Heber City (roads, railroads, etc.), or a visual display of Heber City's built environment as an interpretive area in a library or City Hall, or financial support for Heber City's reconnaissance-level survey efforts.
Water Quality and Water Resources	The following mitigation measures will address surface water and groundwater quality: • UDOT or its design consultants will follow all applicable requirements of UDOT's *Stormwater Quality Design Manual* to design BMPs that meet MS4 permit and groundwater permit-by-rule requirements. • UDOT or its design consultants will follow UDOT's *Drainage Manual of Instruction* (UDOT 2024) to design or rehabilitate stream crossings and culverts. • UDOT will visually inspect and maintain stormwater quality BMPs to ensure that they are functioning properly. These BMPs are anticipated to infiltrate stormwater; however, other BMPs from UDOT's *Stormwater Quality Design Manual* might be chosen during the final design phase of the project. o During construction, inspectors for the project will certify that the BMPs are installed according to contract documents and UDOT standards. o After construction, UDOT will document and maintain records of inspections, any deficiencies identified during inspections, and the repairs performed on the BMPs. • UDOT or its construction contractors will prepare stormwater pollution prevention plans (SWPPP), obtain a UPDES permit for stormwater discharges associated with construction activities, and will monitor restoration efforts for revegetation success. • If construction activities require dewatering that would discharge water to surface waters, UDOT or its construction contractors will obtain a UPDES Construction Dewatering or Hydrostatic Testing General Permit. • UDOT will comply with the Clean Water Act Section 404 permit, including any required Section 401 Water Quality Certifications and applicable Stream Alteration Permits for activities that place fill into waters of the United States and alter natural stream beds and banks. • UDOT will maintain wetland hydrology and existing surface water conveyance patterns by installing culverts or other engineering alternatives through the roadway embankment. (*Water quality and water resources mitigation continues below*)

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Water Quality and Water Resources (*continued*)	• UDOT will collaborate with the public water systems that have drinking water source protection zones in place that might be impacted by the project during final design and construction to mitigate any impacts to water distribution infrastructure. • UDOT will coordinate with the owners of any impacted water right points of diversion during final design and construction to protect or replace the impacted points of diversion as necessary. • UDOT will evaluate the potential to design and implement cross-drainage features through the roadway embankment to minimize impacts to natural groundwater movement during the final design and construction phases of the project. • UDOT will design and implement countermeasures to mitigate potential impacts to a stream's natural flow pattern, velocity, profile, channel stability, aquatic habitats, streambank vegetation, and riparian habitats that could result from installing, replacing, lining, extending, or repairing conveyance structures for the project. During the final design phase of the project, UDOT will investigate the feasibility of salt-specific BMPs suggested by EPA. Also, after the Heber Valley Corridor is constructed, UDOT will also investigate the use of alternative de-icing products that contain less salt for use on the Heber Valley Corridor during ongoing maintenance.
Ecosystem Resources	**Mitigation Measures for Vegetation Impacts** All of the action alternatives would remove vegetation and could also introduce noxious species into the surrounding areas. To prevent further, permanent effects, UDOT will mitigate temporary impacts to vegetation once construction is complete and no further disturbance is anticipated. Mitigation will include the following measures: • All fill materials brought onto the construction site will be required to be clean of any chemical contamination per UDOT's General Standard Specifications, Section 02056, Embankment, Borrow, and Backfill. Topsoil for landscaping must also be free of weed seeds per UDOT's General Standard Specifications, Section 02912, Topsoil. • Compacted soils will be ripped, stabilized, and reseeded. • The contractor will be required to follow noxious weed mitigation and control measures identified in the most recent version of UDOT Special Provision Section 02924S, Invasive Weed Control. • Disturbed areas will be reseeded. (*Ecosystem resources mitigation continues below*)

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Ecosystem Resources (*continued*)	**Mitigation Measures for Terrestrial and Aquatic Wildlife Impacts** UDOT will implement the following mitigation measures to conserve and minimize impacts to migratory birds and in furtherance of Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*: • Trees and shrubs should be removed during the non-nesting season (about July 15 to April 1). If this is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys, to be conducted no more than 10 days before ground-disturbing activities, by a qualified wildlife biologist of the area that would be disturbed to determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager/Biologist. **Mitigation Measures for Aquatic Resources Impacts** In order to fill jurisdictional wetlands and other aquatic resources as part of the project, UDOT must prepare a Clean Water Act Section 404 permit application and submit it to USACE for approval before construction. The permit application must contain a compensatory mitigation plan that describes the proposed mitigation efforts and how they will compensate for the functions and values lost from unavoidable impacts to aquatic resources from the selected alternative. Compensatory mitigation may include any one or a combination of the following five types: (1) restoring a previously existing wetland or other aquatic site, (2) establishing (that is, creating) a new aquatic site, (3) enhancing an existing aquatic site's functions, (4) preserving an existing aquatic site, and/or (5) purchasing credits from an authorized wetland mitigation bank or in-lieu fee program. In general, compensatory mitigation actively restores or creates aquatic sites, thereby providing direct ecological benefits such as improved water quality, groundwater recharge, flood control, and wildlife habitat. The purpose of compensatory mitigation is to offset the unavoidable aquatic resource impacts of a project by restoring, establishing, enhancing, or preserving aquatic resources. This process aims to ensure that the losses in aquatic resource area and functions are compensated for, ideally with a net gain in the overall ecological health of an area. This is uniquely different from conservation easements in that compensatory mitigation plans require that mitigation areas retain their function as a natural conservation areas in perpetuity, whereas agricultural conservation easements restrict development and preserve open space but do not require that the area maintains certain ecological functions. Throughout the study, UDOT has heard from the public and local government officials that they want to protect the north fields. In response, and as a commitment to the community, UDOT will prioritize establishing a mitigation site in the north fields and will submit this recommendation to USACE for its approval in UDOT's Clean Water Act Section 404 permit application. The size of the mitigation site in the north fields would depend on what types of mitigation are incorporated and the corresponding replacement ratios that are determined by USACE. Based other UDOT mitigation efforts, the wetland replacement ratios can range from 2:1 (about 45 acres for 22.52 acres of aquatic resource impacts from Alternative A and about 108 acres for 53.92 acres of aquatic resource impacts from Alternative B) to 15:1 (about 338 acres for 22.52 acres of aquatic resource impacts from Alternative A and 809 acres for 53.92 acres of aquatic resource impacts from Alternative B). (*Ecosystem resources mitigation continues below*)

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Ecosystem Resources (*continued*)	Although either action alternative would provide transportation benefits, the mitigation site would provide the benefits of protected open space with ecological benefits, such as improved water quality, groundwater recharge, flood control, and wildlife habitat, in perpetuity. UDOT will proactively work with the community, as it has on previous projects elsewhere, to identify aquatic resource mitigation sites that would be favorable for restoring, enhancing, preserving, or establishing aquatic resources.. UDOT would purchase the land for the mitigation site, working with willing sellers in the north fields first when identifying potential mitigation sites. A conservation easement (or alternative site-protection legal instrument) would be required to maintain the mitigation site as open space with aquatic resources maintained in perpetuity. A local example of a wetland mitigation site protected in perpetuity is an existing UDOT mitigation site from a previous project for US-40 located immediately west of US-40 and south of 1200 North in Heber City along Spring Creek. Potential temporary construction impacts to aquatic resources would be minimized through consideration of construction methods and use of BMPs such as silt fences and other erosion-control features in areas adjacent to wetlands and streams. Any necessary temporary construction impacts to aquatic resources that are authorized by a Clean Water Act Section 404 permit will be restored through regrading to natural contours and through revegetation measures. **Threatened and Endangered Species Commitments** UDOT will coordinate with USFWS if additional clearance surveys for Ute ladies'-tresses are required. All surveys will be conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a). UDOT will consult with USFWS regarding impacts to any Ute ladies'-tresses plants, if required.
Floodplains	UDOT and/or its construction contractor will take measures to reduce floodplain impacts and to ensure that, if an action alternative is selected, the selected alternative complies with all applicable regulations (see Section 3.15.2.2, *Executive Order 11988, Floodplain Management*). These mitigation measures will include the following: • The selected alternative will require a number of stream and floodplain crossings in the same locations where they presently exist as well as several new stream and floodplain crossings. Where new or rehabilitated bridges and culverts are included in the design of an alternative, the design will follow FEMA requirements and the requirements of UDOT's *Drainage Manual of Instruction*, where applicable. Where no SFHA is defined, culverts and bridges will be designed to accommodate a 50-year (2%-annual-chance) or greater-magnitude flood. Where regulatory floodplains are defined, hydraulic structures will be designed to accommodate a 100-year (1%-annual-chance) flood. • Stream alteration permits will be obtained for stream crossings as required by the Utah Division of Water Rights to satisfy state regulations, and in some circumstances, these permits may also be used to meet Clean Water Act Section 404 permitting requirements (through use of Army Corps of Engineers Programmatic General Permit 10). (*Floodplains mitigation continues below*)

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Floodplains (*continued*)	• Floodplain development permits will be obtained for all locations where the proposed roadway embankment or structural elements would encroach on a regulatory floodplain. FEMA requires that construction within a floodway must not increase the base (100-year) flood elevation. FEMA Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) processes will be executed in compliance with 44 CFR Sections 60.3 and 65.12 as necessary based on hydrologic and hydraulic analyses and the nature of anticipated changes in base flood elevation and/or floodplain limits. The LOMR process takes place after construction impacts have occurred to modify and update an effective floodplain map. The CLOMR process (if required) must be completed before construction impacts take place to receive FEMA's concurrence that, if the selected alternative is constructed as designed, a LOMR could be issued to modify and update the effective floodplain map. The following cases apply: o For areas of Zone A floodplain impacts, existing and proposed conditions will be analyzed and project features designed to achieve compliance such that a CLOMR would not be required. In these areas, FEMA performed floodplain mapping based on approximate methods. The absence of a detailed study or floodway delineation places the burden on UDOT to perform hydrologic and hydraulic analyses consistent with FEMA standards. These analyses will confirm or refine the FEMA floodplain mapping and could increase or decrease the estimate of affected areas. o For areas of Zone AE floodplain impacts, proposed conditions will be analyzed relative to the effective floodplain mapping (with base flood elevations defined), and project features will be designed such that compliance is achieved as much as possible. UDOT and Heber City have discussed potential solutions to mitigate the longitudinal impacts to the floodway associated with the Surplus Canal in Heber City and Wasatch County. Although Heber City would prefer to keep the channel open as it is now for ease of maintenance, the City agrees that segments of the canal could be conveyed in a box culvert where necessary as long as the culvert meets minimum dimensions and the flow capacity is not reduced (Funk 2022). This action would involve preparing a CLOMR that FEMA would need to accept prior to the start of construction and issuing a floodplain development permit from Heber City and/or Wasatch County unless there is no increase in the base (100-year) flood elevation. UDOT would also work with Heber City to acquire any flood-control permit that Heber City requires. • Roadway elevations will be a minimum of 2 feet above adjacent floodplain elevations, where those elevations are defined, so that flooding will not interfere with a transportation facility needed for emergency vehicles or evacuation. • Walls will be designed and constructed to minimize longitudinal floodplain impacts.
Hazardous Materials and Hazardous Waste Sites	Site investigations conducted by UDOT during the final design of the selected alternative will determine potential hazards, if any, and the appropriate protective measures. In the case of an identified chemical hazard, UDOT will negotiate the site remedy with the property owner before property is acquired and disturbed by construction and through possible coordination with EPA and DERR. Previously unidentified sites or contamination could be encountered during construction. The construction contractor will implement measures to prevent the spread of contamination and to limit worker exposure. In such a case, all work will stop in the area of the contamination according to UDOT Standard Specifications, and the contractor will consult with UDOT and DERR to determine the appropriate remedial measures. Hazardous materials will be handled according to UDOT Standard Specifications and the requirements and regulations of DERR. (*Hazardous materials and hazardous waste sites mitigation continues below*)

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Hazardous Materials and Hazardous Waste Sites (*continued*)	During construction, coordination will take place among UDOT, EPA, or DERR, the construction contractor, and the appropriate property owners. This coordination will involve determining the status of the sites of concern, identifying newly created sites, identifying the nature and extent of remaining contamination (if any), and minimizing the risk to all parties involved. Environmental site assessments might be conducted at the sites of concern to further evaluate the nature and extent of contamination and to better identify the potential risks of encountering hazardous materials when constructing the selected alternative. Engineering controls (such as dust mitigation, temporary soil covers, and groundwater extraction) and personal protective equipment for construction workers will be used to reduce the potential for public or worker exposure to hazardous materials as determined necessary by UDOT.
Visual and Aesthetic Resources	All aesthetic treatments will be completed in accordance with UDOT Policy 08A-03, *Project Aesthetics and Landscaping Plan Development and Review* (UDOT 2014a), and UDOT's *Aesthetics Guidelines* (UDOT 2014b). UDOT's policy is to set a budget for aesthetics and landscape enhancements based on the aesthetics guidelines. The aesthetic features considered during the final design phase of the selected alternative could include lighting; vegetation and plantings; the color of bridges, structures, and retaining walls; and other architectural features such as railings. For the action alternatives, vegetation and plantings could be implemented in a way to prioritize screening the Heber Valley Corridor in areas with a high number of residential viewers (the neighbor viewer group). Plantings could take into account vegetation heights to obscure the Heber Valley Corridor in the middleground and foreground views while retaining background views of the Wasatch Mountains. Some examples of vegetation and plantings include: • **Key Views 3 and 5 of the north fields:** Trees and shrubs could be used to obscure the underpasses for local roads and break up the long, linear features of the Heber Valley Corridor. • **Key View 4 of Muirfield Park:** Lower trees and shrubs could be used to partially screen the Heber Valley Corridor and retain the background views of the Wasatch Mountains. • **Key View 8 of 1300 South:** Trees could be used to obscure the walls of the elevated 1300 South for residents. Due to the height and proximity of 1300 South, background views might be lost east of Industrial Parkway. Aesthetic treatments are typically evaluated during the final design phase of a project after an alternative is selected in the project's Record of Decision and funding has been allocated for the project. UDOT will coordinate with the local municipalities to determine whether the desired aesthetics can be implemented.
Energy	No mitigation measures for energy impacts are proposed.

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Mitigation Measures for Construction Impacts	
Property, Land Use, and Farmland Impacts from Construction	To the extent possible, the contractor will be required to ensure that irrigation systems remain intact and fully functional. Fencing that contains livestock could be altered during project construction. The contractor will be required to maintain fences and gate operations to protect livestock, as well as construction crews and the traveling public, during the construction phase. In locations of temporary easements where UDOT would temporarily use private property during construction, UDOT will provide compensation to the landowner for the temporary use.
Social Impacts from Construction	**Public Safety** A thorough public information program will be implemented to inform the public about construction activities and to reduce impacts. Information will include work hours and alternate routes. Construction signs will be used to notify drivers about work activities and changes in traffic patterns. Construction sequencing and activities will be coordinated with emergency service providers to minimize delays and response times during construction. **Public Services and Utilities** Utility agreements will be completed to coordinate utility relocations. The project specifications will require the contractor to coordinate with the utility companies to plan work so that utility disruptions to a business occur when the business is closed or during off-peak times. Before beginning work, the contractor will be required to contact Blue Stakes to identify the locations of all utilities. The contractor will be required to use care when excavating to avoid unplanned utility disruptions. If utilities are unintentionally disrupted, UDOT will work with the contractor and the utility companies to restore service as quickly as possible. **Travel Patterns** The contractor will be required to develop a maintenance of traffic plan that defines measures to reduce construction impacts to traffic. A general requirement of this plan is that, to the extent reasonably practical, safe access to businesses and residences must be maintained and existing roads must be kept open to traffic unless alternate routes are provided. Even with the implementation of the maintenance of traffic plan, traffic congestion would increase in the construction area in the short term. Road closures will be limited to what is specified in the maintenance of traffic plan as approved by UDOT before the start of construction. Additional considerations are listed in Section 3.19.3.3, *Mitigation Measures for Economic Impacts from Construction*.

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Economic Impacts from Construction	Access to businesses will be maintained during the construction and postconstruction phases of this project. For each phase of the project, UDOT will coordinate with property owners and businesses to evaluate ways to maintain access while still allowing efficient construction operations. This coordination could entail sharing a temporary access or identifying acceptable timeframes when access is not needed. Adequate signs will be placed in construction areas to direct drivers to businesses. Other potential mitigation measures for construction impacts could include: • A traffic access management plan developed and implemented by the construction contractor that maintains the public's access to the business during normal business hours • A frequent newsletter provided to all businesses in the construction area describing the progress of the construction and upcoming construction events • Business access signs that identify business access points within the construction limits • Meetings with business representatives to inform them of upcoming construction activities and to provide a forum for the representatives to express their concerns with the project
Impacts to Pedestrians and Bicyclists from Construction	All existing pedestrian and bicyclist facilities including shoulder ways that would be temporarily impacted during construction will be reconstructed as part of the project. The Midway Lane Connector Trail and the road shoulders of active construction zones could be closed temporarily during construction. Trail closure would be limited in duration, and construction detours will accommodate pedestrians and bicyclists as well as vehicles. To minimize lengthy route deviations, detours for pedestrians and bicyclists will be as direct as possible.
Air Quality Impacts from Construction	Measures will be taken to reduce fugitive dust generated by construction. Dust-suppression techniques will be applied during construction in accordance with UDOT's Standard Specifications for Road and Bridge Construction, Section 01355, Environmental Compliance, Part 1.11, Fugitive Dust.
Noise Impacts from Construction	To reduce temporary noise impacts associated with construction, the contractor will comply with all state and local regulations relating to construction noise, including UDOT's 2023 Standard Specification 00555 for nighttime construction work to reduce the impacts of construction noise on the surrounding community.
Cultural Resources Impacts from Construction	In accordance with UDOT's Standard Specifications for Road and Bridge Construction, Section 01355, Environmental Protection, Part 1.13, Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites or Human Remains, if cultural resources are discovered during construction, activities in the area of the discovery will immediately stop. The construction contractor will notify UDOT of the nature and exact location of the finding and will not damage or remove the resource. Work in the area of the discovery would be delayed until UDOT evaluates the extent and cultural significance of the site in consultation with the Utah State Historic Preservation Office. The course of action and the construction delay would vary depending on the nature and location of the discovery. Construction would not resume until the contractor receives written authorization from UDOT to continue.

(*Continued on next page*)

Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Section 4(f) Resource Impacts from Construction	Any Section 4(f) property approved for temporary use during construction will be regraded and revegetated when construction is complete or when the use of the property is no longer required.
Water Quality Impacts from Construction	Because more than 1 acre of ground would be disturbed, a UPDES permit and an SWPPP, consistent with UDOT's Standard Specifications for Road and Bridge Construction, Section 01355, Environmental Protection, Part 1.9, Water Resource Permits, and Part 1.14, Stormwater Management Compliance, will be required. The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. In addition, BMPs could include such measures as silt fences, erosion-control fabric, fiber mats, straw bales, silt drains, detention basins, mulching, and revegetation.
Noxious Weeds Impacts from Construction	The contractor will be required to follow UDOT Special Provision 02924S, Invasive Weed Control, to minimize construction impacts. To mitigate the possible introduction of noxious and invasive weeds due to construction activities, the contractor will: • Be required to follow the noxious weed mitigation and control measures identified in UDOT's Standard Specifications for Invasive Weed Control • Strictly follow the BMPs to reduce the potential for weed infestations • Reseed disturbed areas
Impacts to Threatened and Endangered Species, Wildlife, and Utah Sensitive Species from Construction	**Migratory Bird Mitigation Measures.** Trees and shrubs will be removed during the non-nesting season (about July 15 to April 1). If this is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys, to be conducted no more than 10 days before ground-disturbing activities, by a qualified wildlife biologist of the area that would be disturbed to determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to avoid take of migratory birds. For more proposed mitigation measures, see Section 3.14.4.5, *Mitigation Measures*, which are proposed to reduce ecosystem resource impacts.
Aquatic Resource Impacts from Construction	Both alternatives would convert aquatic resources to transportation use. In order to fill jurisdictional wetlands and other aquatic resources as part of the project, UDOT must prepare a Clean Water Act Section 404 permit application and submit it to USACE for approval before construction. The permit application must contain a compensatory mitigation plan that describes the proposed mitigation efforts and how they will offset the functions and values eliminated by the selected alternative. In addition, BMPs such as silt fences and other erosion-control features will be used in areas adjacent to wetlands to mitigate potential temporary construction impacts to wetlands and other waters of the United States. For more information, see Section 3.14, *Ecosystem Resources*.
Hazardous Materials Impacts from Construction	If contamination is discovered during construction, mitigation measures will be coordinated according to UDOT Standard Specification 01355, Environmental Compliance, Part 1.7, Hazardous Waste, which directs the construction contractor to stop work and notify the engineer of the possible contamination. Coordination with UDEQ might be necessary if a discovery is made. Any hazardous materials will be disposed of according to applicable state and federal guidelines.

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Table 3.23-1. Mitigation Summary

Resource	Mitigation Measure
Visual Impacts from Construction	The contractor will prepare and implement an appropriate seeding vegetation and/or landscaping plan to restore or enhance aesthetics after the project is completed.
Construction Staging and Material Borrow Areas	No mitigation for construction staging and material borrow areas is proposed.

Definitions: BMP = best management practice; CFR = *Code of Federal Regulations*; CLG = certified local government; CLOMR = Conditional Letter of Map Revision; DERR = Utah Division of Environmental Response and Remediation; EPA = U.S. Environmental Protection Agency; FAA = Federal Aviation Administration; FEMA = Federal Emergency Management Agency; FPPA = Farmland Protection Policy Act; HVHF = Heber Valley Heritage Foundation; HVSSD = Heber Valley Special Service District; LOMR = Letter of Map Revision; MAG = Mountainland Association of Governments; MOA = Memorandum of Agreement; MS4 = municipal separate storm sewer system; Section 4(f) = Section 4(f) of the Department of Transportation Act; Section 404 = Section 404 of the Clean Water Act; SFHA = special flood hazard area; SHPO = Utah State Historic Preservation Office; SPUI = single-point urban interchange; SR = state route; SWPPP = stormwater pollution prevention plan; UDOT = Utah Department of Transportation; UPDES = Utah Pollutant Discharge Elimination System; US-40 = U.S. Highway 40; USACE = U.S. Army Corps of Engineers; USC = *United States Code*; USFWS = U.S. Fish and Wildlife Service

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