14600 South Railroad Crossing Environmental Study

Final

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1.0 Introduction

1.1 Background

The City of Bluffdale proposes to build a new 14600 South highway crossing of the Union Pacific Railroad (UP) and Utah Transit Authority (UTA) rail lines. The current crossing, which is just west of 1000 West, is a one-lane underpass with low vertical clearance, sharp curves, and steep embankments that narrows 14600 South to a one-way street under the existing bridge. The traffic on 14600 South is expected to increase as development continues in this area; a wider road is needed to allow easier east-west travel on 14600 South. See Figure 1

Figure 1. Existing Railroad Bridge and 14600 South Underpass

Source: Google Maps

1.2 Project Study Area

The study area for the railroad crossing project is a 115-acre, irregularly shaped polygon **(**See Figure 2) encompassing the existing railroad bridge and the surrounding land where physical impacts from the project could occur depending on the final crossing location and the selected roadway realignment approach. The study area also includes lands that might be needed for a temporary railroad bridge and temporary shoofly.

Relocating the railroad crossing would require realigning and adjusting the profile of the 14600 South roadway. Modifying the roadway profile would require adjusting the intersections at Springhill Parkway and at Noell Nelson Drive (1100 West). The Jordan and Salt Lake City Canal would need to be crossed with a new pipe or box culvert, which would also require short segments of the open canal to be realigned and lined with concrete for improved hydraulic performance.

The existing land use in the study area is a mix of residential, heavy commercial, light industrial, mixed use, and open space. The Jordan River is about ½ mile to the west of the study area, and Interstate 15 (I-15) is about 1 mile to the east.

Figure 2. Project Study Area

1.3 Previous Planning Studies

Although the railroad crossing project would not address corridor-wide (Redwood Road to I-15) improvements that are needed to address the projected traffic on 14600 South in 2050, the project team reviewed previous planning studies to inform the proposed roadway cross section and intersection designs for this project. These studies are summarized in this section.

1.3.1 14600 South Railroad Crossing Study

The City of Bluffdale commissioned a feasibility study in 2021 to investigate the impacts and cost of constructing a new roadway crossing for 14600 South under the UTA and UP tracks in Bluffdale. The current crossing, which is just west of 1000 West, is a one-lane underpass with low vertical clearance (12 feet), sharp curves, and steep embankments that narrows 14600 South to a one-way street under the bridge.

The study team developed a screening process to investigate different alignments for a new roadway and crossing of 14600 South at the railroad tracks. The alignments ranged from the existing alignment to alignments south of 14600 South. The alignments were coupled with three basic railroad and canal crossing schemes: Under, Over, and Thread (under the railroad and over the Jordan and Salt Lake City Canal). The preferred option from the feasibility study was the Thread Option, which consists of moving the underpass south to create a straight alignment for 14600 South, providing a new underpass under the railroad tracks by constructing a new structure for the tracks, and running 14600 South over the Jordan and Salt Lake City Canal. This option is evaluated further in this Environmental Study (see Section 2.0, *Project Description*).

1.3.2 Bluffdale Transportation Plan

Bluffdale's transportation plan (The City of Bluffdale 2020) identifies 14600 South as a major roadway or arterial street. The City of Bluffdale considers 14600 South an important east-west corridor that runs through the middle of the city and is a primary connector between Redwood Road and I-15. Continued growth in Bluffdale and development of the surrounding land has substantially increased traffic on 14600 South.

The transportation plan includes an analysis of the roadway level of service (LOS) for major roads in Bluffdale. 14600 South is a two-lane road with a bottleneck caused by the single-lane railroad underpass, which currently operates at a poor level of service (LOS D and E). To be consistent with the policy of the Utah Department of Transportation (UDOT) and to be more economically responsible, Bluffdale's transportation plan recommends that the acceptable threshold for arterial roads in Bluffdale be updated to LOS D. (Most arterial roads in Bluffdale are operated by UDOT.)

What is a major arterial?

Major arterials typically connect interstates and freeways with minor arterials and collector streets.

What is level of service (LOS)?

Level of service is a measure of the operating conditions on a road or at an intersection. For more information, see Section 1.4.1, *Current Traffic Conditions*.

1.3.3 Regional Transportation Plans

The project team used the Wasatch Front Regional Council's 2019–2050 *Wasatch Front Regional Transportation Plan* (RTP) (WFRC 2019) to establish future traffic projections (2050) for 14600 South. The RTP is a fiscally constrained 30-year plan of anticipated projects that would be needed to meet future travel demand. Transportation needs are based on projected and planned socioeconomic factors and land use in a region.

The 2019–2050 RTP identifies three timeframes, or phases, for construction:

- Phase 1: 2019 to 2030
- Phase 2: 2031 to 2040
- Phase 3: 2041 to 2050

What is a fiscally constrained plan?

Fiscally constrained means that a plan demonstrates that the listed projects can be implemented using committed, available, or reasonably available revenue sources, with reasonable assurance that the federally supported transportation system is being adequately operated and maintained.

The RTP provides a comprehensive overview of planned projects on highways and state routes. State routes are major roads that are under UDOT's jurisdiction. Locally planned projects are also shown on the RTP in order to provide a better understanding of all planned improvements in an area. Fiscally constrained projects in the RTP are on state routes and can be constructed with anticipated funding available to UDOT through 2050. These projects are phased based on when they are needed. Local projects are not included in UDOT's list of fiscally constrained projects because they would likely be constructed using local or other funds. Improvements to 14600 South are identified as a Phase 1 project in the 2019–2050 RTP.

The project team also reviewed the Mountainland Association of Governments' (MAG) regional planning document, *TransPlan 40*. Projected growth in northern Utah County is expected to contribute more traffic into Salt Lake County and the WFRC planning area including Bluffdale. For example, in 2000, about 11% of Utah County residents worked in Salt Lake County. By 2040, this percentage is projected to grow to 31%. Some of that intercounty growth in work trips is associated with a planned mixed-use development around the Point of the Mountain, which is the dividing line between Utah and Salt Lake counties.

1.4 Project Purpose and Need

Bluffdale is a rapidly growing community, and development is occurring in all available areas. The area of the former Utah State Prison is one of the last large, open areas to be developed in central Salt Lake County. The redevelopment of the former prison site (The Point) will bring an even greater surge of traffic to 14600 South. Without a substantial upgrade to the existing railroad underpass, the future level of service on 14600 South will be unacceptable, particularly during peak periods when many vehicles are lined up in both directions to cross under the existing railway bridge.

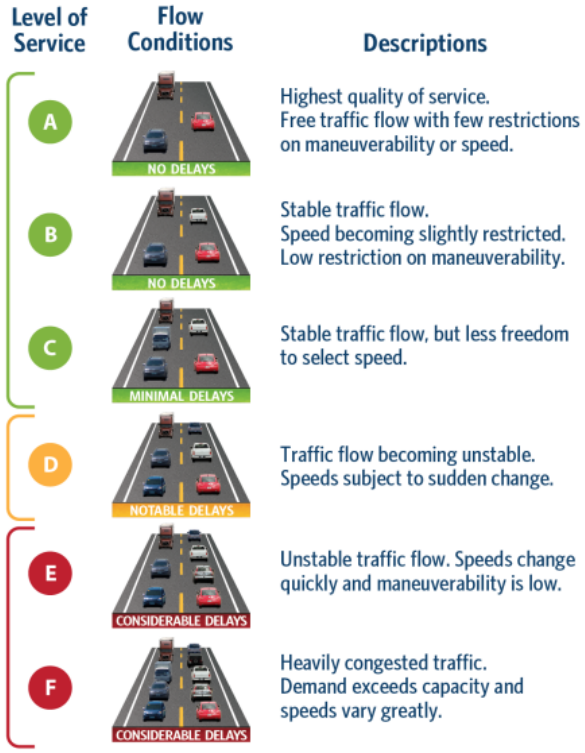
The City of Bluffdale engaged Hales Engineering to assess current (2022) and projected future (2050) traffic conditions on 14600 South. Hales Engineering determined that the railroad underpass is currently operating at a poor level of service during both the morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak periods.

1.4.1 Current Traffic Conditions

During peak traffic periods, traffic backs up in each direction at the railroad underpass as drivers wait to cross under the bridge. The current City of Bluffdale transportation plan shows the need for a four-lane 14600 South between Redwood Road and I-15. The regional transportation model that Hales Engineering used confirmed this need. The railroad crossing has not been improved yet because of the cost of overcoming the topographic challenges in this location and because UP and UTA also own infrastructure at the project site.

During the morning peak period, eastbound traffic at the railroad underpass frequently backs up about 2,000 feet, blocking Spring View Parkway and the Jordan River Trail crossing. Also during the morning peak period, westbound traffic at the underpass often backs up to Noell Nelson Drive (1100 West).

During the evening peak period, westbound traffic often backs up about 3,500 feet, blocking Noell Nelson Drive and Heritage Crest Way. In the eastbound direction, only minor traffic backups usually occur during the evening peak period.



These backed-up vehicles currently cause poor levels of service at the railroad underpass (LOS E), Noell Nelson Drive (LOS D), and Heritage Crest Way (LOS F) during the AM or PM peak periods.

1.4.2 Future Traffic Conditions

Hales Engineering obtained future (2050) traffic forecasts for 14600 South from the WFRC/MAG travel demand model and Bluffdale's transportation plan (The City of Bluffdale 2020) and obtained future (2050) forecasts of traffic the proposed "The Point" development. Hales Engineering analyzed future traffic conditions in the study area both without the proposed project (No Build scenario) and with the proposed project (Build scenario).

2050 No Build Scenario

For the 2050 No-Build scenario, Hales Engineering assumed that the following improvements would be completed according to the 2019–2050 RTP:

- Construct a grade-separated trail crossing for the Jordan River Trail at 14600 South.
- Widen Redwood Road to seven lanes through the study area as shown in the RTP.

Under the No Build scenario, the railroad underpass would cause the eastbound traffic during the AM peak period to back up more than 5,000 feet (1 mile) to Redwood Road. During the PM peak period, westbound traffic would back up 6,200 feet (1.2 miles) to the I-15 interchange. The No-Build scenario would create

severe congestion at the Redwood Road and I-15 intersections and at all intersections in between. Extensive delays would occur at all intersections in the study area due to these traffic backups, which would cause extreme safety concerns.

Table 1 shows that the projected levels of service under the No Build scenario for key intersections in and near the study area are LOS E and LOS F.

2050 Build Scenario

For the 2050 Build scenario, Hales Engineering assumed that a four-lane railroad underpass would be constructed and that 14600 South would be widened to five lanes (4 travel lanes and a center turn lane) through the entire study area. Nonetheless, some intersections are projected to operate poorly even with a widened 14600 South. The following five intersection improvements would be needed to bring all intersections in the study area to an acceptable level of service. Two of these intersection improvements would be constructed with this project, and the other three would be constructed when funding becomes available for other corridor improvements.

The following intersection improvements would be constructed along with this railroad crossing project:

- **Noell Nelson Drive (1100 West).** Eliminate the roundabout and install a traffic signal with an eastbound right-turn lane and a westbound left-turn lane.
- **Spring View Parkway.** Install a traffic signal with an eastbound left-turn lane.

The following three intersection improvements would need to be constructed as future improvements separate from this railroad crossing project:

- **Heritage Crest Way.** Install a traffic signal with left-turn lanes on all approaches and right-turn pockets on all but the southbound approach.
- **1690 West.** Install a traffic signal with a westbound right-turn pocket.
- **Redwood Road.** Install dual southbound left-turn lanes.

Table 1 shows the projected levels of service for the 2050 No Build and Build scenarios.

Table 1. Levels of Service under the 2050 No Build and Build Scenarios at Key Intersections on 14600 South during the AM and PM Peak Periods

Intersection on 14600 South	LOS in 2050 under No Build		LOS in 2050 under Build	
	AM Peak	PM Peak	AM Peak	PM Peak
Heritage Crest Way	F	F	B	B
Noell Nelson Drive	F	E	B	B
Railroad underpass	F	F	NA[a]	NA[a]
Spring View Parkway	F	F	A	A
1690 West	F	F	A	A
Redwood Road	E	E	C	C

Source: Hales Engineering 2022

[a] Not applicable. With a new railroad underpass, the existing traffic signals would be removed, so there would be no intersections at this location.

1.4.3 Geometric Deficiencies

The current crossing also has substandard vertical clearance and sharp horizontal curves. The current vertical alignment will only accommodate a design speed of about 30 mph and has minimal stopping sight distances. With the project, The City would address horizontal alignment and vertical curves to improve roadway safety.

2.0 Project Description

The railroad crossing project consists of shifting the railroad bridge and underpass south to create a straight east-west alignment for 14600 South, constructing a new underpass under the railroad tracks by constructing a new structure (box culvert or bridge) for the railroad tracks, widening 14600 South to two travel lanes in each direction under the railroad tracks, and running 14600 South over the Jordan and Salt Lake City Canal in a new box culvert. The canal crossing would require lining sections of the canal with concrete at the entrance and exit of the canal box culvert. In addition, the 14600 South roadway would be widened from about Noell Nelson Drive (1100 West) to about 1280 West near the at-grade pedestrian crossing of the Jordan River Parkway.

The City of Bluffdale is considering two options for constructing the new railroad underpass:

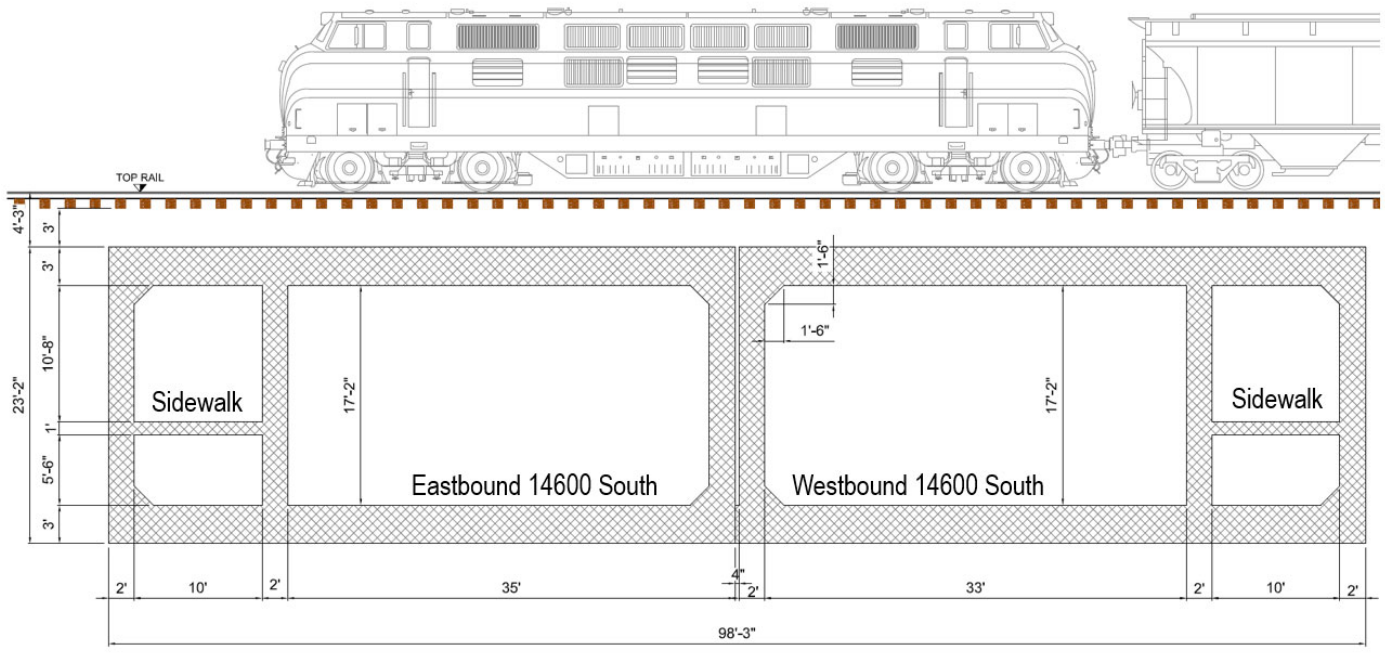
- Box culvert (preferred option)
- New bridge and temporary shoofly

The final location and configuration of the new railroad underpass and the alignment for 14600 South roadway would be essentially the same with both options.

2.1 Box Culvert Option (Preferred Option)

The preferred option is to push a new box culvert under the existing railroad tracks at the new underpass location to minimize service disruptions to UP's freight line and UTA's FrontRunner tracks. Figure 3 presents the preliminary layout for the Box Culvert Option. Note that this design is subject to change in final design. The existing railroad embankment would be excavated as the new box culvert is inserted into the embankment. This option would also reduce the amount of time that 14600 South is closed during construction. The City of Bluffdale is coordinating with UP, UTA, and the contractor community to confirm the feasibility of this option.

Figure 3. Box Culvert Option



2.2 New Bridge and Temporary Shoofly Option

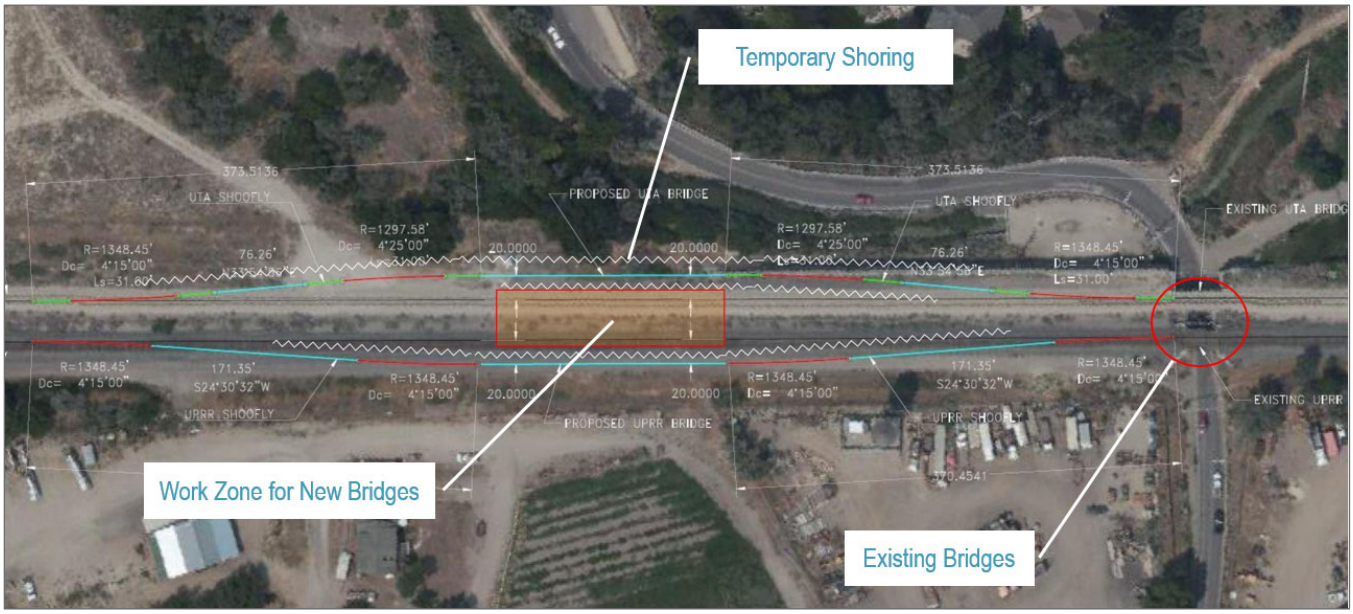
The other construction option would be to construct a new bridge for the UP and UTA rail lines. This option would require constructing a temporary railroad bridge while the new bridge is being built. A temporary shoofly would be constructed to divert the tracks around the construction zone. Once the new bridge is constructed, the tracks would be placed on the new bridge, the temporary bridge and shoofly would be removed, and the roadway could be completed under the new bridge.

What is a shoofly?

A shoofly is temporary track to avoid and obstacle or construction zone on the main track section.

Figure 4 shows the new bridge and temporary shoofly option. Note that the length of the shoofly and the final location of the new bridge would be determined during the final design of this option.

Figure 4. New Bridge and Temporary Shoofly Option

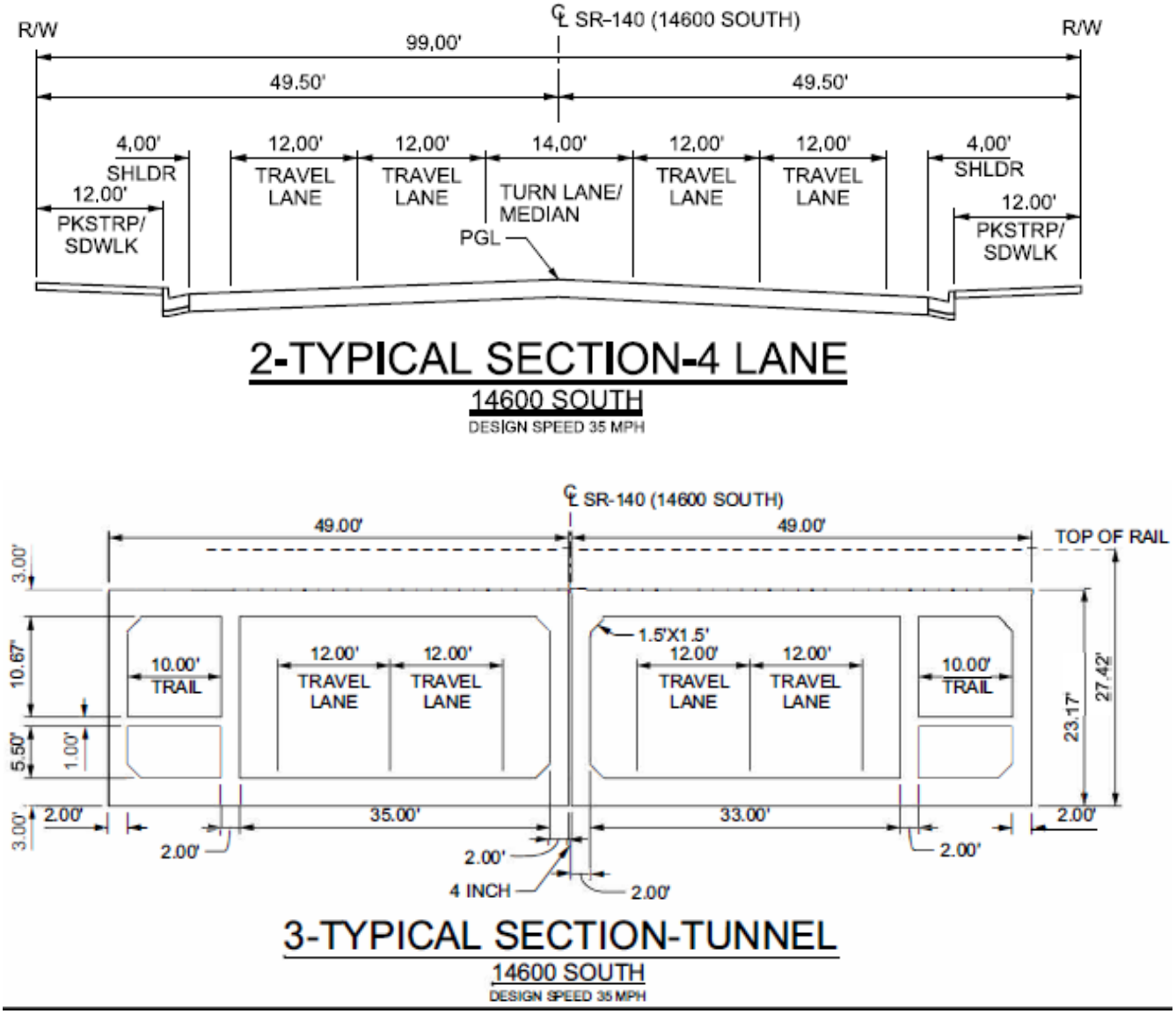


2.3 Roadway Improvements

A five-lane roadway section is proposed for 14600 South as part of this project. This general cross section includes four 12-foot-wide travel lanes (two in each direction), a 14-foot-wide center turn lane, 4-foot-wide shoulders, and a 12-foot-wide park strip and sidewalk on each side of the road. The total width would be about 99 feet.

At the railroad crossing, the roadway section is narrowed to four travel lanes (no center turn lane) to minimize the cost of the structure and because the center turn lane would not be needed at the crossing. The sidewalk is reduced to 10 feet wide, and the total cross section width maybe reduced slightly to 98 feet. The difference in total width is about 1 foot less because of the thickness of the structure walls. See Figure 5 and Figure 3. Note that the dimensions are subject to change in final design after more detailed engineering analysis is completed.

Figure 5. Typical Roadway Cross Sections



The 14600 South roadway would be improved from Noell Nelson Drive (1100 West) on the east end of the study area to about 1280 West near the at-grade pedestrian crossing of the Jordan River Parkway. Figure 6 shows the limits of the roadway reconstruction. Also see Appendix A, Preliminary Plan and Profile, for detailed preliminary design plans.

Please note that Figure 6 and Appendix A are based on a preliminary design and subject to change.

Figure 6. Limits of Roadway Improvements

3.0 Environmental Analysis

This section describes the existing environmental, community, and economic conditions in the study area. These conditions serve as a baseline for evaluating the impacts of the project options. This section provides information about the following resources:

- Land use, zoning, and property acquisitions
- Community facilities and recreation areas
- Traffic noise
- Water resources (stream, floodplains, and canals)
- Biological resources (wetlands and wildlife habitat)
- Cultural resources (archaeological and historic sites)
- Hazardous material sites
- Major utilities

The project team conducted a preliminary environmental screening to determine environmental resources that are not in the study area and are therefore not likely to be affected by the project options. The following resources were investigated but were excluded from detailed analysis:

- **Prime Farmland, Unique Farmland, and Farmland of Statewide Importance.** No agricultural land uses are identified in the study area. Land in the study area is zoned residential west of the railroad tracks and commercial, light industrial, and mixed use east of the railroad tracks. No detailed farmland impact analysis was required.
- **Economics.** Project construction would not adversely affect local economic conditions or induce major land use changes. There is an area of commercial development east of the railroad tracks. One business relocation would be required. The project could result in temporary access changes, but access would be maintained during construction and restored after construction.
- **Energy Resources.** The railroad crossing project is a small-scale project that would not require a significant amount of construction equipment or broad changes in transportation-related energy use in the study area.
- **Air Quality.** The 14600 South corridor widening project, of which this project will complete a segment, is included in the 2019–2050 RTP. The RTP is in conformity with the state implementation program for regional air quality. Therefore, no additional air quality analysis was conducted.
- **Paleontological Resources.** The Utah Geologic Survey was consulted, and staff did not identify any known paleontological localities in the study area. The area has a “low potential to yield significant fossil localities.” Therefore, no further research was conducted.

For each resource analyzed, the following sections describe the regulatory environment, current conditions, and expected impacts of the project options as well as any required mitigation measures.

3.1 Land Use, Zoning, and Property Acquisitions

This section describes the existing land use patterns and zoning in the study area. It also analyzes the expected impacts of the project on land use patterns in this area.

Current Conditions

The State of Utah delegates 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 had the opportunity to participate in the land-planning process by reviewing and commenting on draft land use and zoning plans before the plans were approved by local officials.

In Bluffdale, land in the study area is zoned residential west of the railroad tracks and heavy commercial, light industrial, and mixed use east of the railroad tracks. In total, the study area covers about 115 acres. Table 2 lists, and Figure 7 shows, the different land uses in the study area.

Table 2. The City of Bluffdale Land Use Zoning in the Study Area

Land Use Category	Acres in Study Area	Percentage	Land Use Description
R-1-43 – Residential (1-acre)	5.41	4.7%	The R-1-43 residential zone is established to provide areas within the city for single-family dwellings on relatively large lots. Higher-density development is discouraged in this zone due to lack of infrastructure and services.
R-1-43 – Cluster Residential Overlay (CRO)	77.10	67.1%	The CRO zone is established to provide for cluster residential development within limited areas of the city. It is expressly provided that the CRO zone is not intended to be utilized for all residential development within the city, but should be limited to such areas and for development of property containing unique or sensitive lands and/or property which is located adjacent to compatible development within neighboring jurisdictions.
MU – Mixed Use	18.94	16.5%	The intent of the MU mixed-use zone is to provide a land use pattern that provides for a complementary and compatible mix of uses and a diversity of dwelling unit types. MU allows for the establishment of necessary supporting commercial, light industrial, and other uses consistent with a convenient and pedestrian-friendly development layout.
I-1 – Light Industrial	1.80	1.6%	The I-1 light industrial zone is established to provide areas within the city for manufacturing, processing, and warehousing of goods and materials. The zone allows for limited commercial and service uses.
HC – Heavy Commercial (HC)	11.61	10.1%	The HC heavy commercial zone is established to provide areas within the city for various uses that under the right circumstances are compatible with each other. The zone allows for limited commercial and service uses.

Source: Bluffdale Municipal Code, Chapter 11, *Land Use Regulations*

Figure 7. Current Zoning in the Study Area

Environmental Impacts

The project would affect up to about 29 parcels. The acreage of impacts would total about 17 acres. On the west side of the railroad tracks, the majority of the roadway widening would occur on the south side of 14600 South. This land is zoned residential, but the majority of the right-of-way (ROW) that is not currently designated as roadway would be acquired from nonresidential parcels owned by the Jordan and Salt Lake City Canal company, the Utah Transit Authority, and Salt Lake County (Spring View Farms open space). A sliver of ROW would be needed from four residential parcels and from the Spring View Farms Homeowners Association. The total ROW needed from these residentially zoned parcels totals about 0.23 acre. See Table 3 and Figure 8.

East of the railroad tracks, the zoning is heavy commercial, mixed use, and light industrial. About 6 parcels would be impacted totaling about 6.24 acres. The majority of the property needs would come from two properties on the east side of the proposed underpass: DKM Leasing and Big Rock Properties. See Table 3 and Figure 8.

Note that the ROW needed is approximate and could change during the final design of the selected option.

Table 3. Property Acquisitions

Parcel ID	Owner	Address	Approximate Acreage Needed for the Project Options
Residential			
33111510060000	Mather, Cody	1280 W. 14600 S.	0.044
33111510150000	Logan, Terry	1258 W. 14600 S.	0.020
33111510170000	Logan, John	1246 W. 14600 S.	0.001
33111510600000	Way Ward Ranch	1260 W. 14600 S.	0.039
33111790030000	Spring View Farms Homeowners	14416 S. Spring View Parkway	0.109
33111810210000	Spring View Farms Homeowners	14535 S. Spring View Parkway	0.021
Mixed Use			
33113260080000	William Newman	1069 W. 14600 S.	0.783
Light Industrial			
33112510560000	Center Point Business Park	950 W. 14600 S.	0.162
33112550010000	Mountain Point Business Center	930 W. 14600 S.	0.022
Heavy Commercial			
33114010040000	Ron Osborne Trucking	14703 S. Noell Nelson Drive	0.107
33114020020000	Big Rock Properties	985 W. 14600 S.	0.675
33111780010000	DKM Leasing	1003 W. 14600 S.	4.492

The City of Bluffdale is proposing a full acquisition and relocation of the business on the DKM Leasing property, which is located between the proposed and existing alignments of 14600 South. This property would be needed for construction staging and storing material.

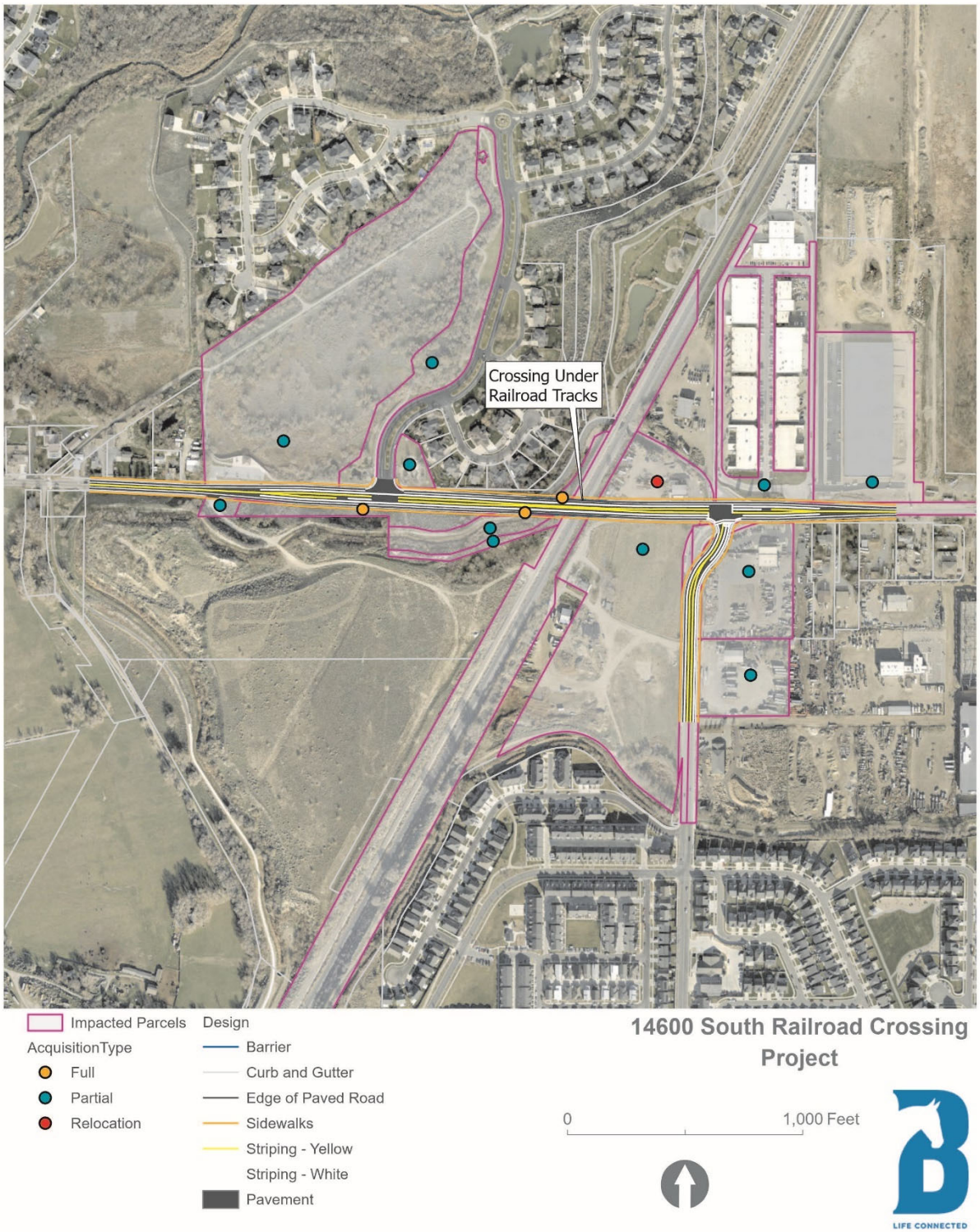
Converting these areas to a transportation use would not change the current patterns of residential, commercial, or light industrial land use in the study area. However, acquiring the ROW needed for the project options would affect individual landowners and businesses through partial or full (meaning Bluffdale would purchase the entire parcel) acquisitions of property. The project is consistent with the City's general plans.

See also Section 4, Construction Impacts, for potential property access needs during construction, depending on the construction approach

Mitigation

Property acquisitions will be completed according to the provisions of the Utah Relocation Assistance Act, Utah Code, Section 57-12. The purpose of the Act is to establish a uniform policy for the fair and equitable treatment of persons displaced by the acquisition of real property by state and local land acquisition programs, by building code enforcement activities, or by a program of voluntary rehabilitation of buildings or other improvements conducted pursuant to governmental supervision. The Act requires the City of Bluffdale to compensate landowners for the fair market value for the land needed for the project and any land improvements affected, a comparable replacement property, as well as the compensation of moving expenses for the landowner.

Figure 8. Anticipated Property Acqusitions



3.2 Community Facilities and Recreation Areas

Transportation projects can produce social and economic effects and can influence the character and nature of communities. This section describes the social environment in the community and recreation evaluation area and the impacts to the social environment from the project. The community and recreation evaluation area is broader than the immediate study area. The community evaluation focuses on the overall community setting, community facilities, recreation resources, and health services.

Community facilities generally include (but are not limited to) schools, churches, libraries, community centers, senior centers, cemeteries, healthcare centers, and city facilities (such as city halls). Recreation resources include community parks, nature and wildlife preserves, county fair parks, golf courses, and trail systems. Health and public services include fire stations, hospitals, and other private medical facilities.

Current Conditions

There are no community facilities in the study area. Currently, the UP and UTA railroad tracks and the single-lane railroad underpass bisect Bluffdale's southeastern quadrant from the main city populace, which is mostly west of the tracks. Currently, some residents in areas of the city east of the tracks might feel isolated from the majority of Bluffdale. Although there are several community facilities east of the tracks, fewer recreation facilities, parks, and healthcare facilities are located on the east side of the tracks.

The following describe the current conditions related to accessing community facilities and recreation areas in the evaluation area.

Public Education Facilities. There are no educational facilities in the study area. Three schools are located outside the study area but within the larger community and recreation evaluation area (Figure 9). Because of morning traffic congestion, 14600 South is likely not currently a major travel route to these schools.

Mountain Point Elementary School, at 15345 South 1200 West, has a service area that includes areas both west and east of the railroad tracks. The current travel pattern for the residential areas west of the tracks is most likely south and then east along Porter Rockwell Boulevard.

Hidden Valley Middle School, which is east of the railroad tracks at 115410 S. Harmon Day Drive, has a service area that extends from the Utah County border north to about 12600 South. For most Bluffdale residents using this middle school, the fastest route to the school would be to travel south along Redwood Road to Porter Rockwell Boulevard before crossing the railroad tracks.

The majority of the service area for Riverton High School is located west of the railroad tracks and north of 14600 South. A small percentage of this school's service area lies east of the railroad tracks.

Figure 9. Community Facilities in the Community and Recreation Evaluation Area

Academies. Three private academies (Summit Academy – Independence, Summit Academy High School, and South Park Academy) are located east of the railroad tracks within the community and recreation evaluation area (Figure 10). One (Summit Academy – Bluffdale) is west of the tracks. The project team did not find information about these institutions' service areas. Because of morning traffic congestion, 14600 South is not likely currently a major travel route to these academies.

Civic Facilities. There are no civic facilities in the study area. Fire Station 91 is located west of the railroad tracks, and Fire Station 92 is located east of the tracks (Figure 10). Depending on the location of the incident, emergency response can come directly from either one of these stations without responders first having to navigate the railroad underpass at 14600 South.

Churches. There are no churches in the study area. Two churches are located in the community and recreation evaluation area (Figure 10). Assuming Sunday service and light weekend traffic, access along 14600 South to the two churches near the study area is not substantially impeded.

Recreation Facilities. The Spring View Farms Trailhead is located at about 1150 West 14600 South. This trailhead serves the Spring View Farms Open Space, which includes 4.5 miles of paved trails and 21 acres of natural open space between Bangerter Highway and 14600 South. It connects to the Jordan River Parkway, a major north-south-running trail along the Jordan River, although the trail is offset from the river through the study area. See Figure 9 and Figure 10 for the locations of the trailhead and trails in the community and recreation evaluation area. The Phillips Gate Memorial Park is located in the north portion of the study area at the south end of Royal Coachman Drive. The park is accessible for emergency access only via 14600 South.

Trails and Parkways. Phillips Gate Memorial Park, Spring View Farms Trailhead, and the Jordan River Parkway provide access to regional and local trails in and near the study area (See Figure 9 and Figure 10). Given the restricted width of the current 14600 South roadway, especially through the existing railroad underpass, no formal trails have been planned along 14600 South.

Figure 10. Trails and Parkways in the Community and Recreation Evaluation Area

Environmental Impacts

There are no community facilities in the study area, though there are several in the broader area surrounding the study area. Traffic improvements would improve automobile access to schools, churches, and recreation facilities in The City. The project options would also provide a better alternative route to community facilities in the broader Bluffdale community.

Currently, most of 14600 South lacks sidewalks in the area around the existing railroad underpass and many areas west and east of the underpass. As discussed in Section 2.3, *Roadway Improvements*, new 10-foot-wide sidewalks are proposed as part of this project. The sidewalks would improve pedestrian access to the Spring View Farms Trailhead, the Jordan River Parkway, and other trail and pathway systems in the area.

Overall, the project would improve access to community facilities in Bluffdale's southeastern quadrant. Improved access would enhance the overall community setting and community cohesion compared to the current conditions (a limited number of railroad crossings and congestion caused by the existing single-lane underpass).

Mitigation

No mitigation is proposed for impacts to community facilities and recreation areas.

3.3 Traffic Noise

The City of Bluffdale does not have a traffic noise policy. The federal regulation that the Federal Highway Administration (FHWA) uses to assess traffic noise impacts is 23 Code of Federal Regulations (CFR) Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. This regulation was most recently updated on July 13, 2010. In Utah, Utah Administrative Code (UAC) Rule R930-3 and UDOT's Policy 08A2-01, *Noise Abatement* (May 2020) establish noise impact and abatement policies and procedures that are compliant with 23 CFR Part 772. The noise policy describes procedures for conducting traffic noise studies including identifying existing and predicted future traffic noise levels associated with the project, determining whether impacts would occur as a result of project development, and evaluating abatement measures.

For this analysis, the project team considered UDOT's noise policy, which states that potential noise impacts must be evaluated for Type I projects, as defined by 23 CFR Section 772.5. Type I projects include those projects that involve constructing new highways, or reconstructing existing highways, by significantly changing either the horizontal or vertical alignment, adding through travel lanes or auxiliary lanes, or making other alterations such as relocating interchange lanes or restriping. This project would qualify as a Type I project because of the horizontal and vertical changes proposed to 14600 South.

Traffic noise is measured in A-weighted sound levels in decibels (dBA), which most closely approximates the way that people hear sounds at different frequencies. Since traffic noise varies over time, the sound levels for this noise analysis are expressed as "equivalent levels" or L_{eq}, which represents the average sound level over a 1-hour period.

Noise impact and abatement analyses are typically conducted for projects located in land use activity categories A, B, C, D, and E (see Table 4) only when development exists or has been permitted (that is, a formal building permit has been issued before the final environmental decision document is approved).

Activity categories F and G include lands that are not sensitive to traffic noise, and noise analyses are not required.

Table 4. UDOT's Noise-abatement Criteria

Activity Category	Criterion in dBA $L_{eq}(h)$	Evaluation Location	Activity Description
A	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	66	Exterior	Residential.
C	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	51	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	71	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in Categories A–D or F.
F	—[a]	—[a]	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	—[a]	—[a]	Undeveloped lands that are not permitted.

Source: UDOT 2020

dBA = A-weighted decibels; $L_{eq}(h)$ = 1-hour equivalent sound level

[a] The F and G activity categories do not have specified noise-abatement criteria.

Noise-abatement criteria (NAC) define the noise levels (in hourly A-weighted sound-level decibels) that are considered an impact for each land use activity category. UDOT's noise policy states that a traffic noise impact occurs when either (1) the future worst-case noise level is equal to or greater than the NAC for specified land use categories or (2) the future worst-case noise level is greater than or equal to an increase of 10 dBA over the existing noise level. The NAC are summarized in Table 4 above. For context, Table 5 presents representative sound levels from different source types.

Table 5. Representative Sound Levels

Sound Source	Level dBA	Description
Aircraft carrier deck operation	140	Limit of amplified speech
	130	Painfully load
Jet Takeoff at 200 feet away) Automobile horn at 3 feet)	120	Threshold of feeling and pain
Jet take-off at 2,000 feet	100	
Shouting	100	Very annoying
Heavy Truck	90	Hearing damage with 8-hour exposure
Passenger train at 100 feet Freight Train at 50 feet	80	Annoying
Freeway traffic at 50 feet	70	Intrusive
Air conditioning unit at 20 feet Light auto traffic	60	
Normal speech	50	Quiet
Living room, library	40	
Soft whisper at 15 feet	30	Very Quiet
Broadcasting studio	20	
Just audible	10	
Threshold of hearing	0	

Current Conditions

The project team identified the existing residential and recreation land uses (Activity categories B, C, and E) in the study area. (Table 6). Activity category B land uses include all residences. Activity category C land uses include the Jordan River Parkway Trail and Spring View Farms Trailhead. Activity category E land uses include offices. UDOT's noise policy states that a noise impact analysis is not required for activity categories F and G. However, for activity category G, an estimate of the distance to the approach criteria must be provided to local governments.

Table 6. Noise-sensitive Land Uses

Activity Category	Description of Land Uses within Study Area
A	None
B	Residential locations within the noise study area
C	Jordan River Parkway Trail and Spring View Farms Trailhead
D	None
E	Offices along 14600 South, east of the railroad
F	Warehouses and workshops
G	Undeveloped lands within the noise study area

The primary source of existing noise in the noise evaluation area is traffic from 14600 South and 1000 West. Noise from trains on the UP and UTA lines is also occasionally present. The majority of 14600 South in the noise evaluation area consists of one eastbound lane and one westbound lane. The project team established existing noise levels though noise modeling using the Federal Highway Administration's Traffic Noise Model (TNM) 2.5 software for receptors located adjacent to, and about 500 feet from, 14600 South and 1000 West. Existing traffic sound levels for receptors in this area were calculated with TNM using existing conditions (2022 LOS C traffic volumes, a vehicle mix based on observed peak-hour vehicle counts, existing travel lane configurations, and the posted speed limit).

Under the existing conditions, four receptors (R02, R03, R07, and R08) exceeded the NAC as defined above. The calculated noise levels for the existing conditions are shown in Table 7. The locations of the receptors are shown in Figures 10 and 11.

Environmental Impacts

Projected traffic noise levels with the project (either option) were calculated with TNM software using build conditions (travel lane configurations and traffic volumes). To be consistent with UDOT's noise policy, LOS C traffic volumes were used to determine the greatest hourly traffic noise conditions that are likely to occur regularly. Vehicle mixes were based on observed peak-hour counts near the project study area.

Overall, noise levels with the project were modeled to range from 48 to 71 dBA compared to the existing conditions of 46 to 68 dBA. Changes in noise levels are expected to vary from a reduction of 7 dBA to an increase of 8 dBA, with the average change being an increase of about 2 dBA. Some receptors have reduced modeled noise levels in locations where the proposed roadway would be shifted away from the existing alignment or because changes in the vertical alignment of the roadway would shield nearby noise receptors.

With the project, 8 of the 55 receptors (7 in activity category B and 1 in activity category C) would have traffic noise that exceed the NAC as defined above. The receptors that are projected to exceed the NAC are R02, R03, R05, R07, R08, R09, R34, and R37. With the project, no receptors would have modeled noise levels with an increase of 10 dBA or greater than the modeled existing noise levels. Modeled noise levels for each receptor are shown in Table 7. In the table, the darker-shaded cells indicate existing or future noise levels exceeding NACs. The locations of those receptors exceeding the NAC are shown in Figure 11 and Figure 12.

Table 7. Modeled Existing and Future Noise Levels in the Noise Evaluation Area with the Proposed Project

Receptor	Activity Category/ NAC in dBA $L_{eq}(h)$	Number of Dwelling Units Represented	Existing		With Proposed Project		
			Existing Noise Level (dBA)	≥ NAC?	Proposed Project Noise Level (dBA)	≥ NAC?	≥ 10 dBA Increase over Existing Noise Level?
R01	B / 66	1	60	No	63	No	No
R02	B / 66	1	66	Yes	69	Yes	No

Table 7. Modeled Existing and Future Noise Levels in the Noise Evaluation Area with the Proposed Project

Receptor	Activity Category/ NAC in dBA $L_{eq}(h)$	Number of Dwelling Units Represented	Existing		With Proposed Project		
			Existing Noise Level (dBA)	≥ NAC?	Proposed Project Noise Level (dBA)	≥ NAC?	≥ 10 dBA Increase over Existing Noise Level?
R03	B / 66	1	66	Yes	69	Yes	No
R04	B / 66	1	50	No	53	No	No
R05	B / 66	1	65	No	68	Yes	No
R06	B / 66	1	61	No	64	No	No
R07	B / 66	1	68	Yes	71	Yes	No
R08	B / 66	1	66	Yes	69	Yes	No
R09	C / 66	1	63	No	66	Yes	No
R10	B / 66	1	58	No	61	No	No
R11	B / 66	1	61	No	62	No	No
R12	B / 66	1	65	No	61	No	No
R13	B / 66	1	65	No	58	No	No
R14	B / 66	1	63	No	57	No	No
R15	B / 66	1	60	No	57	No	No
R16	B / 66	1	59	No	56	No	No
R17	B / 66	1	59	No	55	No	No
R18	B / 66	1	58	No	52	No	No
R19	B / 66	1	53	No	56	No	No
R20	B / 66	1	55	No	57	No	No
R21	B / 66	1	56	No	55	No	No
R22	B / 66	1	56	No	54	No	No
R23	B / 66	1	56	No	52	No	No
R24	B / 66	1	51	No	53	No	No
R25	B / 66	1	52	No	59	No	No
R26	B / 66	1	46	No	48	No	No
R27	B / 66	1	47	No	48	No	No
R28	B / 66	1	47	No	48	No	No
R29	B / 66	1	47	No	49	No	No
R30	E / 71	1	63	No	66	No	No
R31	E / 71	1	62	No	65	No	No
R32	E / 71	1	63	No	67	No	No

Table 7. Modeled Existing and Future Noise Levels in the Noise Evaluation Area with the Proposed Project

Receptor	Activity Category/ NAC in dBA $L_{eq}(h)$	Number of Dwelling Units Represented	Existing		With Proposed Project		
			Existing Noise Level (dBA)	≥ NAC?	Proposed Project Noise Level (dBA)	≥ NAC?	≥ 10 dBA Increase over Existing Noise Level?
R33	E / 71	1	63	No	67	No	No
R34	B / 66	1	65	No	68	Yes	No
R35	B / 66	1	60	No	63	No	No
R36	E / 71	1	63	No	66	No	No
R37	B / 66	1	65	No	66	Yes	No
R38	B / 66	1	64	No	65	No	No
Trail01	C / 66	1	46	No	49	No	No
Trail02	C / 66	1	48	No	51	No	No
Trail03	C / 66	1	51	No	54	No	No
Trail04	C / 66	1	55	No	58	No	No
Trail05	C / 66	1	60	No	63	No	No
Trail06	C / 66	1	62	No	65	No	No
Trail07	C / 66	1	54	No	57	No	No
Trail08	C / 66	1	50	No	52	No	No
Trail09	C / 66	1	49	No	51	No	No
Trail10	C / 66	1	47	No	50	No	No
Trail11	C / 66	1	49	No	52	No	No
Trail12	C / 66	1	50	No	54	No	No
Trail13	C / 66	1	53	No	56	No	No
Trail14	C / 66	1	54	No	57	No	No
Trail15	C / 66	1	55	No	58	No	No
Trail16	C / 66	1	56	No	60	No	No
Trail17	C / 66	1	59	No	63	No	No

Source: HDR 2022

Darker-shaded cells indicate existing or future noise impacts.

Figure 11. Noise Receptors (1 of 2)

Figure 12. Noise Receptors (2 of 2)

Of the 55 receptors that were modeled (representing 32 individual dwelling units, 5 offices, and 18 recreation locations), 8 are predicted to equal or exceed the NAC. Of the 8 impacted receptors, 7 are residences and 1 is a recreation area (R09, Spring View Farms Trailhead).

Mitigation

The project overall would generally result in a 2-dBA increase in noise levels. People generally cannot detect differences of 1 to 2 dBA between noise sources. Under ideal listening conditions, differences of 2 or 3 dBA can be detected by some people. A 5-dBA change would probably be perceived by most people under normal listening conditions.

Six impacted receptors (R02, R03, R05, R07, R08, and R09) are located on the north side of 14600 South west of Spring View Parkway. Two receptors (R34 and R37) are located on the south side of 14600 South east of Noell Nelson Drive (1100 West). All eight receptors exceeding NACs have direct access to 14600 South. Because gaps in the noise walls would be required to preserve the access to the properties, noise walls would not be feasible for these impacted receptors. In order for noise walls to achieve noise reduction, they need to be continuous and not have any gaps.

Based on the preliminary design, the roadway profile would be raised as much as about 20 feet in the area between Spring View Parkway and the Jordan and Salt Lake City Canal. A retaining wall would be required to limit the amount of fill placed and eliminate the embankment so that the project would not directly impact four properties (R12, R13, R14, and R15) whose back yards back to 14600 South. Due to privacy concerns related to an increase in the vertical profile and concerns related to noise impacts within the Spring View Farms neighborhood, The City of Bluffdale is proposing an 8-foot noise wall/privacy wall along the proposed retaining wall on the north side of 14600 South. See Figure 13.

Table 8 presents the modelled noise levels with an 8-foot noise wall. Table 8 also presents the noise reduction (difference) with the wall compared to the existing noise levels and expected noise levels with the project. A noise wall would decrease sound levels by 2 to 5 dBA compared to the project without a wall for the residents in this neighborhood. The combination of roadway profile changes and implementation of a noise wall would result in noise levels 7 to 9 dBA lower, compared to the existing condition, for several “first row” receptors (R11 to R16).

Table 8. Noise Levels with Proposed 8-foot Noise Wall

Receptor	Existing Noise Level (dBA)	Noise Level with Project (dBA)	≥ NAC with Project?	Noise Levels with an 8-ft Noise Wall (dBA)	Difference in Noise Levels from Existing Condition (dBA)	Difference in Noise Level for the Project without a Wall (dBA)
R10	58	61	No	58	0	-3
R11	61	62	No	58	-3	-4
R12	65	61	No	58	-7	-3
R13	65	58	No	56	-9	-2
R14	63	57	No	54	-9	-3
R15	60	57	No	52	-8	-5

Receptor	Existing Noise Level (dBA)	Noise Level with Project (dBA)	≥ NAC with Project?	Noise Levels with an 8-ft Noise Wall (dBA)	Difference in Noise Levels from Existing Condition (dBA)	Difference in Noise Level for the Project without a Wall (dBA)
R16	59	56	No	52	-7	-4
R17	59	55	No	51	-8	-4
R18	58	52	No	49	-9	-3
R19	53	56	No	52	-1	-4
R20	55	57	No	54	-1	-3
R21	56	55	No	51	-5	-4
R22	56	54	No	51	-5	-3
R23	56	52	No	50	-6	-2
R24	51	53	No	50	-1	-3

See Appendix B, 14600 South Railroad Crossing Noise Study, for the complete noise analysis and noise wall assessment. Note that this Appendix B follows UDOT policy, which does not apply to The City of Bluffdale's projects. The City of Bluffdale can implement noise abatement regardless of whether or not it need abatement goals in UDOT Policy.

Figure 13. Proposed Noise Wall / Privacy Fence Location

3.4 Water Resources

This section addresses streams, canals, and floodplains in and near the study area. Figure 14 and Figure 15 shows the locations of these water resources. This section also describes the current water quality downstream of the study area and the regulatory environment related to water quality protections during both the construction and operations (or postconstruction) stages of the project. Also see Section 3.5, *Biological Resources*, for a discussion of impacts to wetlands and other waters of the United States.

3.4.1 Streams and Water Quality

Water quality is regulated by the Utah Divisions of Water Quality and Drinking Water within the Utah Department of Environmental Quality (UDEQ). These agencies act pursuant to delegated authority to enforce the federal Clean Water Act and the Safe Drinking Water Act.

Under the Clean Water Act, every State must establish and maintain water quality standards designed to protect, restore, and preserve the quality of waters in the state. UDEQ oversees these water quality standards in Utah. Utah's water quality regulations consist of three types of standards: an antidegradation policy, beneficial-use designations and their associated water quality criteria (UAC R317-2-6), and narrative standards that apply to all waters within the state.

Utah's antidegradation policy states that waters whose existing quality is better than the established standards for the designated uses should be maintained at high quality (UAC R317-2-3.1). UDEQ also designates all surface water bodies in the state according to how the water is used, and each designation has associated standards. 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 after Section 303(d) of the Clean Water Act. The State then prepares an analysis called a Total Maximum Daily Load (TMDL), which evaluates water quality standards, designated uses, and numeric criteria, and assigns maximum pollutant load allocations to dischargers. TMDLs help to restore water quality and beneficial uses for the impaired water bodies.

The State of Utah administers the Utah Pollutant Discharge Elimination System (UPDES) under the Utah Water Quality Act (UAC R317-8). Bluffdale's *Storm Water Management Plan* (October 2020) was implemented to limit, to the maximum extent practicable, the discharge of pollutants from Bluffdale's storm drain system. The *Storm Water Management Plan* was developed and implemented to meet the requirements under the State of Utah UPDES Permit No. UTS000001, *Authorization to Discharge Municipal Storm Water*, Section II, in accordance with Section 402(p)(3)(B) of the federal Clean Water Act and the State of Utah stormwater regulations (UAC R317-8-3.9).

Section 401 of the Clean Water Act requires state certification for any permit or license issued by a federal agency for an activity that could discharge fill into waters of the United States. This requirement allows each State to have input into federally approved projects that could affect its waters (rivers, streams, lakes, and wetlands) and to ensure that the projects will comply with state water quality standards and any other water quality requirements of state law. Any Section 401 certification in Utah also ensures that the certified project will not adversely affect impaired waters (waters that do not meet state water quality standards) and that the project complies with applicable water quality improvement plans. See Section 3.5, *Biological Resources*, for the impacts to waters of the United States in the study area.

Figure 14. Water Resources in and near the Study Area

Current Conditions

The Jordan River (Assessment Unit Jordan River-6) is the only natural stream near the study area. The beneficial uses of this segment of the Jordan River are 1C (protected for domestic purposes), 2B (infrequent contact recreation), 3B (warm-water species of game fish and other warm-water aquatic life), and 4 (agricultural). The Jordan River is currently not supporting its beneficial uses due to high total dissolved solids and low benthic macroinvertebrates. The causes of these impairments are not known. This segment of the river is a low priority for total maximum daily load (TMDL) evaluation. A TMDL, once complete, would define the source of pollution or cause for the impairment and allocate a waste load to discharges, or identify other remedial efforts, with the goal for water quality to meet intended beneficial uses.

All irrigation canals and ditches in Utah are assigned classifications 2B (infrequent contact recreation), 3E (severely habitat-limited waters), and 4 (agricultural). Narrative standards also apply to protect these waters for aquatic wildlife. The Jordan and Salt Lake City Canal and the East Jordan Canal are located in the study area. No water quality assessment has been conducted to determine whether the canals in the study area are meeting numeric water quality criteria for the canals' default beneficial-use classifications. For more information, See Section 3.4.3, *Canals*.

Environmental Impacts

Roadway improvements add additional impervious area by widening the roadway pavement for additional travel lanes, turn lanes, shoulders, and sidewalks. The project would add about 4.06 acres of additional impervious area. The additional impervious surface could affect water quality by increasing the volume and velocity of stormwater runoff and increasing the amount of pollutants entering waters from stormwater runoff.

Common pollutants found in roadway stormwater runoff include metals, nutrients, and suspended and dissolved solids.

- **Metals.** Sources of metals in highway runoff include the wearing of brake pads (dissolved copper and cadmium), galvanized materials (zinc), corrosion of metals in vehicle components, and paints.
- **Nutrients.** Nutrients such as phosphorus and nitrogen can overstimulate the growth of aquatic plants to the detriment of other aquatic life and the beneficial uses of the receiving waters. Sources of phosphorus in highway runoff include upstream agricultural and residential land uses.
- **Solids.** Solids can be present in stormwater as total dissolved solids or total suspended solids. Sources of total suspended solids from highways include erosion, sediment-laden runoff from construction sites, and particulate matter from abrasion of the road surface.

Mitigation

Pursuant to the UPDES and The City of Bluffdale's *Storm Water Management Plan,* stormwater runoff during construction will be managed to the maximum extent practicable. The City, or its construction contractor, will submit a notice of intent seeking coverage under the State of Utah's construction general

permit for construction activities and will prepare a stormwater pollution prevention plan (SWPPP) for the project. The SWPPP will address the six required control measures:

1. Public education and outreach
2. Public participation and involvement
3. Illicit discharge detection and elimination
4. Construction site runoff control and best management practices to address water quality
5. Postconstruction runoff control
6. Pollution prevention and good housekeeping

3.4.2 Floodplains

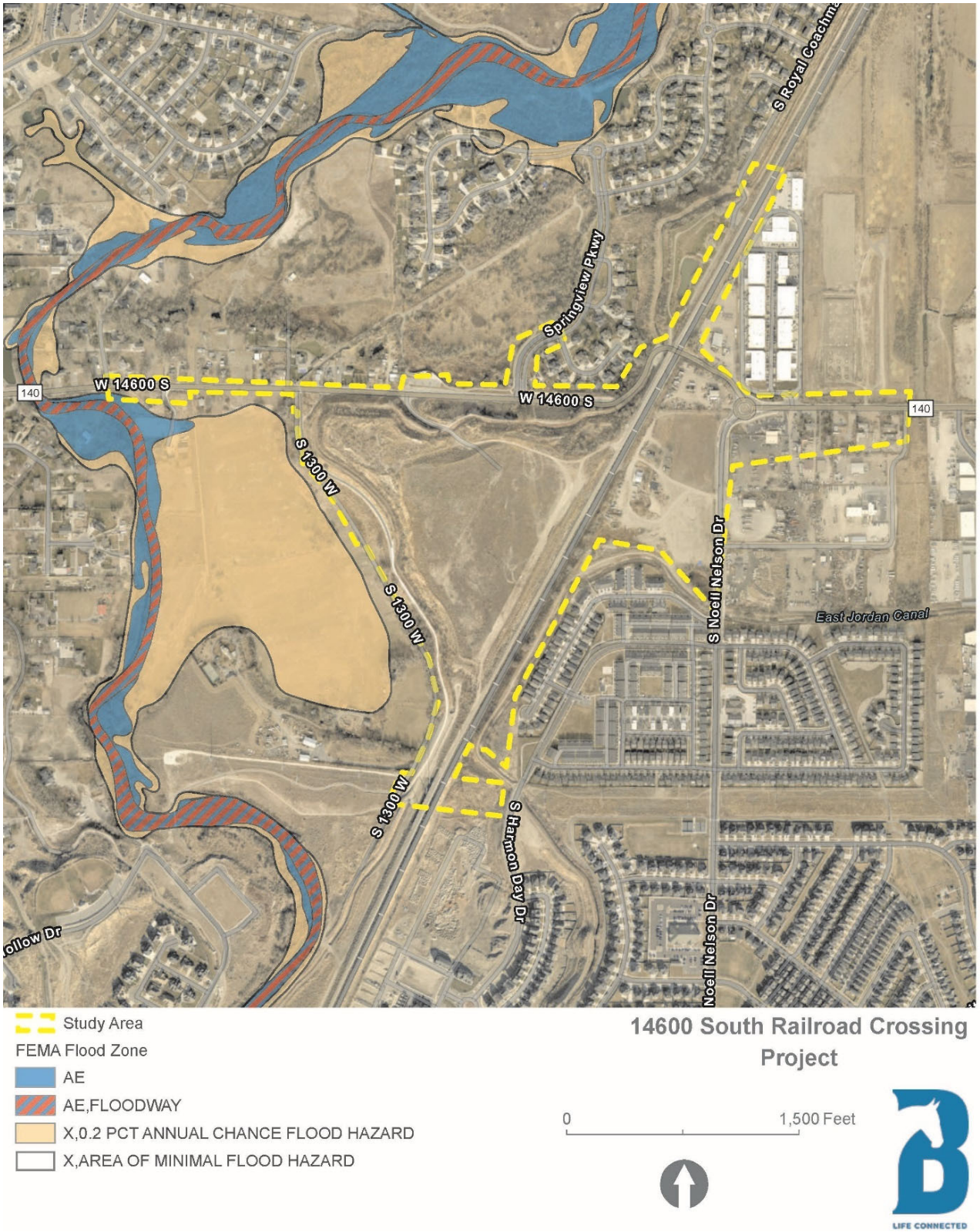
In 1968, Congress established the National Flood Insurance Program, which is administered by the Federal Emergency Management Agency (FEMA). Under this program, the federal government makes flood insurance available in those communities that practice sound floodplain management. FEMA establishes regulatory floodplain boundaries and requirements for identifying and mapping special flood hazard areas (44 CFR Parts 60 and 65).

Floods are usually described in terms of their statistical frequency. A 100-year floodplain is the area that would be flooded by a water course, such as the Jordan River, during a 100-year flood. The 100-year flood (base flood) is a level of flood water that has a 1% chance of occurring in any given year. The boundary of the 100-year flood is referred to as the regulatory floodplain, which identifies areas where development is restricted in accordance with FEMA requirements.

Current Conditions

The project footprint lies about 0.3 mile (1,700 feet) east of the Jordan River. The study area lies in a floodplain Zone X, which is an area of minimal flood hazard. There is a 500-year floodplain (0.2% chance of flooding) near but outside the project footprint. See Figure 15.

Figure 15. Floodplains in and near the Study Area



Environmental Impacts

The project footprint lies outside any special flood hazard areas, and there would be no floodplain impacts associated with the project.

Mitigation

Because would be no floodplain impacts associated with the project, no mitigation for floodplain impacts is proposed.

3.4.3 Canals

Canals are human-made features used to transport water for irrigation and other uses. Most canals in Utah are managed by a canal or irrigation company with shareholder and joint ownership in the water right diverted into the canal. Some canals receive roadway stormwater runoff from urban areas by agreement with the canal owners.

Current Conditions

Jordan and Salt Lake City Canal. Construction of the Jordan and Salt Lake City Canal began in 1879; it was one of the first canals to irrigate land in the Salt Lake Valley. The canal is about 1 mile long (5,200 feet) in the study area. The open canal is about 15 feet wide and about 3 feet deep in the study area, and long segments of open canal extend south of the study area. A portion of the industrial park area on 14600 South at about 1200 West discharges stormwater to this canal.

East Jordan Canal. The main East Jordan Canal was completed sometime between 1878 and 1883 to carry water from the Jordan River to land at the southern edge of Salt Lake City. It is one of the older and most substantial irrigation systems to serve this part of the Salt Lake Valley.

Because these canals divert water from a jurisdictional water body (the Jordan River) and have return flows to a natural water, they are likely to be considered by the U.S. Army Corps of Engineers (USACE) as jurisdictional waters of the United States and therefore subject to Clean Water Act Section 404 permitting. For more information, see Section 3.5, *Biological Resources*.

Environmental Impacts

Constructing either project option would disturb about 500 feet, or 10%, of the Jordan and Salt Lake City Canal. The canal would cross the realigned 14600 South in an approximately 130-foot-long box culvert. An additional 330 feet of channel would be concrete-lined.

The East Jordan Canal is outside the project footprint, and neither project option would impact it.

Mitigation

During the final design of the selected option, The City of Bluffdale will coordinate with the owners of the Jordan and Salt Lake City Canal to define construction windows to minimize disruptions to the canal during the irrigation season, which is generally April to November.

3.5 Biological Resources

This section presents the impacts to wetlands and wildlife habitat.

3.5.1 Wetlands

As described in 40 CFR Part 230, the objective of the Clean Water Act is to maintain and restore the chemical, physical, and biological integrity of the waters of the United States [40 CFR Section 230.1(a)]. 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 (Title 33 United States Code Section 403) for work in navigable waters of the United States.

Waters of the United States is the encompassing term for areas that qualify for federal regulation under Section 404 of the Clean Water Act. Section 404 of Clean Water Act CWA gives the U.S. Environmental Protection Agency (EPA) and USACE regulatory and permitting authority regarding discharge of dredged or fill material into "navigable waters of the United States." Section 502(7) of the Clean Water Act defines navigable waters as "waters of the United States, including territorial seas."

On April 21, 2020, USACE and EPA published the Navigable Waters Protection Rule (NWPR) which provided definitions of waters of the United States and became effective June 22, 2020 (85 Federal Register 22250). However, on August 30, 2021, the U.S. District Court for the District of Arizona ordered vacatur and remand of the NWPR. In light of this order, USACE and EPA have halted implementation of the NWPR and are interpreting "waters of the United States" consistent with the pre-2015 regulatory regime until further notice. On December 7, 2021, the agencies published a proposed rule to put back into place the pre-2015 definition of "waters of the United States," updated to reflect Supreme Court decisions (86 Federal Register 69372).

Prior to the NWPR (which is no longer considered applicable as of August 30, 2021) and consistent with the pre-2015 regulatory regime, waters of the United States are defined as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce.
- All impoundments of waters otherwise defined as waters of the U.S. under the definition;
- Tributaries of waters of the U.S. identified above; or
- Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in the paragraphs above. The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by manmade dikes or barriers, natural river berms, beach dunes, and the like are "adjacent wetlands."

Current Conditions

The project team conducted aquatic resource delineations in May 2022. See Appendix C, Aquatic Resource Delineation Report (HDR 2022). The entire delineation survey area contains about 2.4 acres of aquatic resources. These aquatic resources consist of 0.77 acre of palustrine emergent wetlands, 0.001 acre (12 linear feet) of perennial streams, 0.004 acre (61 linear feet) of ditches, 1.45 acres (4,940 linear feet) of canals, and 0.13 acre of open-water ponds. Most of these aquatic resources would likely be considered jurisdictional waters subject to Clean Water Act Section 404 permitting. USACE would make the final jurisdictional determination.

Figure 16. Aquatic Resources in the Study Area

Environmental Impacts

Aquatic resources would be impacted by reconstructing 14600 South and by constructing a box culvert for and concrete-lining the Jordan and Salt Lake City Canal. A total of about 0.189 acre of jurisdictional waters would be impacted. These impacts consist of about 0.042 acre of palustrine emergent wetlands east of the Spring View Farms Trailhead and about 0.147 acre of the Jordan and Salt Lake City Canal (Figure 17).

No additional impacts would occur from constructing a new bridge and temporary shoofly.

Mitigation

During the final design of the selected option, The City of Bluffdale will attempt to avoid or minimize impacts to aquatic resources by shifting the alignment or changing the profile of 14600 South to reduce the area of fill needed to construct the roadway embankment in aquatic resources. The City will also work with the owners of the Jordan and Salt Lake City Canal to minimize the amount of the canal that is lined while optimizing the hydraulic performance of the canal and box culvert.

The City of Bluffdale will obtain a Clean Water Act Section 404 permit from USACE for unavoidable impacts. The project will likely qualify for a Nationwide Permit 14 for Linear Transportation Projects. This permit is for projects that impact less than 0.5 acre of waters of the United States. Nationwide Permit 14 requires submitting a preconstruction notice to USACE before construction. UDEQ has issued a Clean Water Act Section 401 water quality certification for Nationwide Permit 14.

Figure 17. Aquatic Resource Impacts from the Project

3.5.2 Wildlife Habitat

This section describes the current conditions of and expected impacts to federally threatened, endangered, or candidate species; bald and golden eagles; migratory birds, and State of Utah conservation agreement species.

The Endangered Species Act of 1973 serves as the vehicle for protecting federally listed threatened, endangered, and candidate species and designated critical habitat for such species. The Endangered Species Act is administered by the U.S. Fish and Wildlife Service (USFWS). Section 10 of the Act requires that state and local governments, tribes, and private landowners consult with USFWS regarding the development of private or public property that is inhabited by species listed under the Act. Section 7 of the Act requires federal agencies to consult with USFWS before taking any action that could 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. Although this is a City–led environmental study, Section 7 of the Endangered Species Act would apply to any permit that would be requested under Clean Water Act Section 404.

The project team also assessed the project for impacts that that might affect species protected by the Migratory Bird Treaty Act of 1918, species protected by the Bald and Golden Eagle Protection Act of 1940, and conservation species identified as those receiving special management under a State of Utah conservation agreement.

Resource and land management agencies, including the Utah Division of Wildlife Resources, the U.S. Department of Agriculture Forest Service, the National Park Service, and the Bureau of Land Management, designate sensitive species, identify wildlife habitat areas (such as those for big-game species), and establish conservation agreements. These agencies and USFWS also manage designated lands as wildlife refuges or lands otherwise protected for wildlife. Sensitive species and conservation agreement species typically include species listed under the Endangered Species Act and additional species identified as those that warrant management considerations and actions in order to avoid becoming threatened or endangered. Candidate Conservation Agreements encourage conservation actions for species that are candidates for listing as threatened or endangered, or that are likely to become candidates. Conservation agreements are designed to remove enough threats to the target species to eliminate the need for protection under the Endangered Species Act.

Current Conditions

The project team used several methods to collect data regarding the biological resources in the study area. These methods included conducting literature reviews, interpreting aerial photographs, and conducting a reconnaissance-level field study for biological resources on May 4 and 10, 2022.

The project team 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 study area and/or might be affected by the proposed improvements (USFWS 2022). The project team also consulted the USFWS Environmental Conservation Online System (ECOS) for a list of species under conservation agreement that are known to occur in Salt Lake County. Additionally, the project team obtained a species list from the Utah Natural Heritage Program online data request website to determine whether there are records

of for any of the federally listed threatened, endangered, and candidate species or species listed under conservation agreement in the vicinity of the study area (UDWR 2022).

The Utah Species Field Guide (UDWR, 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.

See Appendix D, Biological Resources Evaluation

Threatened, Endangered, and Candidate Species. The IPaC report identified one federally listed plant species (Ute ladies'-tresses). Potentially suitable habitat does not exist in the study area for this species. The IPaC report identified one federally listed bird species (yellow-billed cuckoo) and one federally listed insect species (monarch butterfly) that might occur in the study area and/or might be affected by the project options. Potentially suitable habitat does not exist in the study area for either of these species.

Species Listed under Conservation Agreements. The project team consulted the USFWS ECOS for a list of species listed under conservation agreements that are known to occur in Salt Lake County. One amphibian species (Columbian spotted frog) and two fish species (Bonneville cutthroat trout and least chub) were identified. Potentially suitable habitat exists in the study area for Columbia spotted frogs. No suitable habitat exists for the two fish species.

Migratory Birds. Sixteen migratory bird species included in the IPaC report are birds of particular concern because they either are on the USFWS Birds of Conservation Concern list or warrant special attention in the study area. There is potentially suitable habitat in the study area for 1 of the 16 identified species (long-eared owl). Note that this is not a list of every migratory bird species protected by Migratory Bird Treaty Act that might be found in the study area.

Environmental Impacts

The project team's records research identified 1 federally listed plant species, 2 federally listed wildlife species, 3 species listed under conservation agreements, and 16 migratory bird species that might occur in the study area and/or might be affected by the project. Of these species, potentially suitable habitat was identified in the study area for 1 federally listed wildlife species (monarch butterfly), 1 species listed under conservation agreement (Columbia spotted frog), and 1 migratory bird species (long-eared owl). The following describe the expected impacts to habitats for these species.

Monarch Butterfly. Milkweed is an essential feature of quality monarch habitat. Although no milkweed plants were observed during the field survey, it could occur in the study area. If possible, milkweed plants should be avoided if identified prior to the proposed work.

Columbia Spotted Frog. Columbia spotted frogs are highly aquatic and are rarely found far from permanent quiet water. They usually live at the grass and sedge margins of streams, lakes, ponds, springs, and marshes and use stream-side small-mammal burrows as shelter.

The project would disturb and fill about 0.19 acre of aquatic resources, thereby eliminating these areas as potentially suitable habitat for Columbia spotted frogs. However, these aquatic sites are adjacent to the road shoulder, are lined with invasive species, and are continually disturbed by traffic noise and highway debris. For these reasons, these aquatic sites would be considered low-quality habitat, the loss of which is not likely to reduce the viability of Columbia spotted frogs if they are present.

Long-eared Owl. Long-eared owls are often found in woodland areas adjacent to open habitats. They roost and nest in deciduous and coniferous woodlands, orchards, parks, and other dense vegetation, and forage in open grasslands or shrublands. Nest sites are usually in a tree, sometimes in a giant cactus or on a cliff ledge, typically in nests abandoned by other birds.

Woody riparian areas adjacent to the Jordan and Salt Lake City Canal in the study area provide potentially suitable nesting habitat for long-eared owls. To avoid impacts, trees and shrubs should be removed during the non-nesting season (about August 15 to April 1). If this is not possible, preconstruction nesting surveys of the area should be performed by a qualified biologist to determine whether active bird nests are present.

Mitigation

To avoid impacts to migratory birds, trees and shrubs will be removed during the non-nesting season (about August 15 to April 1). If this is not possible, preconstruction nesting surveys of the area that would be disturbed will be performed by a qualified biologist no more than 10 days before ground-disturbing activities to determine whether active bird nests are present.

3.6 Cultural Resources

The City of Bluffdale would receive state funding for the project, potentially invoking requirements of UAC R9-8-404 for the consideration of cultural resources in project planning and implementation. UAC R9-8-404 requires an evaluation of an undertaking's effects on historic properties (archeological resources and historic properties). It also requires coordination with the Utah State Historic Preservation Office (SHPO) regarding the historic properties' eligibility for listing on the National Register of Historic Places (NRHP) as well as feedback regarding the finding of effects for the NHRP-eligible sites.

The project might also be subject to permits requiring federal agency action. Therefore, the project team evaluated historic properties in the study area for their eligibility for the NRHP under four specific criteria and with consideration for seven elements of integrity. A resource may be considered eligible for listing on the NRHP if it:

A. is associated with events that have made a significant contribution to the broad patterns of our history;

B. is associated with the lives of persons significant in our past;

C. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction;

D. has yielded, or may be likely to yield, information important in prehistory or history.

Historic properties considered potentially eligible under one of the above criteria were also evaluated for integrity of location, design, setting, materials, workmanship, feeling, and association. To be eligible for listing on the NRHP, a resource must possess integrity of those elements directly related to the criterion or criteria under which it would be determined eligible.

The project team also evaluated historic buildings and structures in the study area using a rating system established by the Historic Preservation Program at the SHPO. This rating system assigns one of four

ratings to buildings and structures based on the degree to which they retain historical and architectural integrity. These ratings are as follows:

ES Eligible/Significant: built within the historic period and retains integrity; excellent example of a style or type; unaltered or only minor alterations or additions; individually eligible for the NRHP under criterion "C"; also buildings of known historical significance.

EC Eligible/Contributing: built within the historic period and retains integrity; good example of a style or type, but not as well-preserved or well-executed as "ES" buildings; more substantial alterations or additions than "ES" buildings, though overall integrity is retained; eligible for NRHP as part of a potential historic district or primarily for historical, rather than architectural, reasons.

NC Ineligible/Non-Contributing: built during the historic period but has had major alterations or additions; no longer retains integrity.

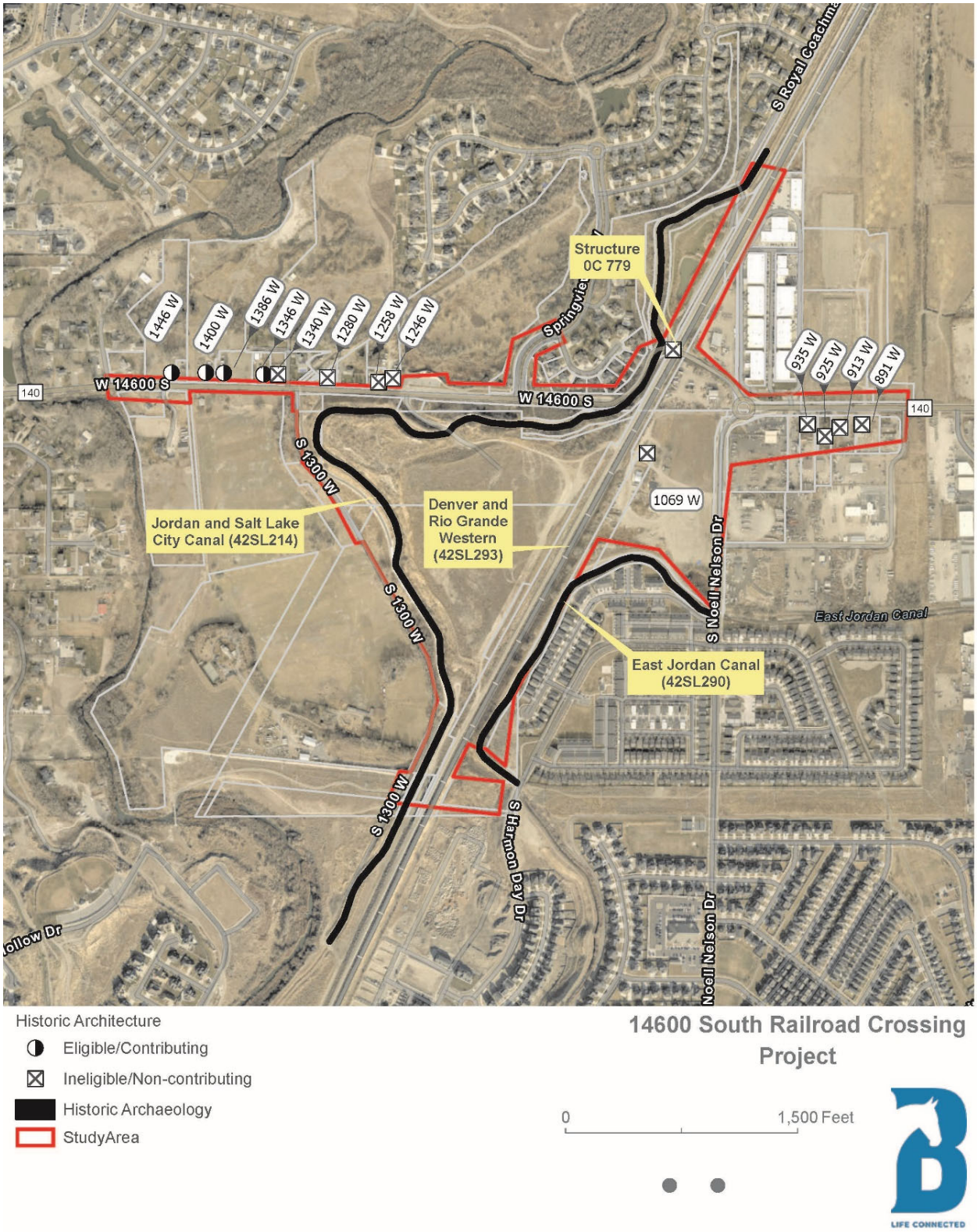
OP Ineligible/Out-of-period: constructed outside the historic period.

Current Conditions

Archaeological Sites. The project team's investigations found three previously recorded and NRHP-eligible archeological sites in the study area: the Jordan and Salt Lake City Canal (42SL214), the East Jordan Canal (42SL290), and the Denver & Rio Grande Western Railroad (42SL293), which is now owned and operated by UP (Table 9 and Figure 18).

Historic Structures. In addition, 14 historic structures were identified in the study area. Four of the buildings are eligible for the NRHP (Table 10 and Figure 18).

Figure 18. Cultural Resources in the Study Area



Environmental Impacts

Archaeological Sites

The project team's investigations found three archaeological sites in the study area. All three sites were previously recorded in some capacity. Two of the sites (42SL214 and 42SL293) extend into the project area. Site 42SL290 is outside. The City of Bluffdale has adopted the NRHP eligibility recommendations presented by Certus as a result of the cultural resource survey and evaluation. These determination of eligibility and findings of effect are presented in Table 9.

Table 9. Determinations of Eligibility and Findings of Effect

Site	Name	NRHP Eligibility	Finding of Effect
42SL214	Jordan and Salt Lake City Canal	Eligible (Criterion A)	No adverse effect
42SL290	East Jordan Canal	Eligible (Criterion A)	No historic properties affected
42SL293	Denver & Rio Grande Western Railroad	Eligible (Criteria A and C)	No adverse effect

Jordan and Salt Lake City Canal (42SL214). Construction of the Jordan and Salt Lake City Canal began in 1879; it was one of the first canals to irrigate land in the Salt Lake Valley. The canal is about 1 mile long (5,200 feet) in the study area. The open canal is about 15 feet wide and about 3 feet deep in the study area, and long segments of open canal extend south of the study area. The site is determined eligible for the NRHP under Criterion A. Constructing either option for the new railroad crossing would disturb about 300 feet, or 10%, of the canal in the study area. No significant structural features of the canal were identified. This project would result in a finding of **no adverse effect** to this site.

East Jordan Canal (42SL290). The main canal was completed sometime between 1878 and 1883 to carry water from the Jordan River to land at the southern edge of Salt Lake City. It is one of the older and most substantial irrigation systems to serve this part of the Salt Lake Valley. The site is determined eligible for the NRHP under Criterion A. The canal is outside the project limits and the project would not impact 42SL290. This project would result in a finding of **no historic properties affected** to this site.

Denver & Rio Grande Western Railroad (42SL293). The railroad line in the study area was originally constructed by the Sevier Valley Railway, which was incorporated in 1880 and shortly thereafter was officially merged into the Denver & Rio Grande Western Railroad. The Denver & Rio Grande Western Railroad merged with Southern Pacific Transportation Company in 1988, which then merged with UP in 1996. The railroad line is determined eligible for the NRHP under Criterion A. The historic railroad bridge (Structure 0C 779) that is the subject of this project was constructed in 1935 and contributes to 42SL293 as a contributing feature to the site under Criterion C, but it is not individually eligible for the NRHP according to the determinations of the *Utah Historic Bridge Inventory* (Mead & Hunt 2011).

With the box culvert option, the goal would be to minimize impacts to the existing track and ballast. With the new bridge option, a minor amount of disturbance would be needed to construct temporary switches for trains to be diverted onto the temporary shoofly. Additionally, about 150 feet of track would be removed, and new track and ballast would be installed on top of the new bridge. The existing historic railroad bridge (Structure 0C 779) would remain in place to provide maintenance access to the Jordan and Salt Lake City Canal. With either option, this project would result in a finding of **no adverse effect** to this site.

Historic Structures

Fourteen historic structures were identified in the study area. The four eligible historic structures, all of which received a rating of Eligible/Contributing (EC). None of the eligible historic structures would impacted by the project. For this reason, the project would result in a finding of **no historic properties affected** for these eligible structures.

Table 10. Historic Structures

Address	Eligibility Rating	Finding of Effect
891 W. 14600 S.	NC/Not Eligible	No historic properties affected
913 W. 14600 S.	NC/Not Eligible	No historic properties affected
925 W. 14600 S.	NC/Not Eligible	No historic properties affected
935 W. 14600 S.	NC/Not Eligible	No historic properties affected
Structure 0C 779	NC/Not Eligible	No historic properties affected
1069 W. 14600 S.	NC/Not Eligible	No historic properties affected
1246 W. 14600 S.	NC/Not Eligible	No historic properties affected
1258 W. 14600 S.	NC/Not Eligible	No historic properties affected
1280 W. 14600 S.	NC/Not Eligible	No historic properties affected
1340 W. 14600 S.	NC/Not Eligible	No historic properties affected
1346 W. 14600 S.	EC/Eligible	No historic properties affected (property is outside the APE)
1386 W. 14600 S.	EC/Eligible	No historic properties affected (property is outside the APE)
1400 W. 14600 S.	EC/Eligible	No historic properties affected (property is outside the APE)
1436 W. 14600 S.	EC/Eligible	No historic properties affected (property is outside the APE)

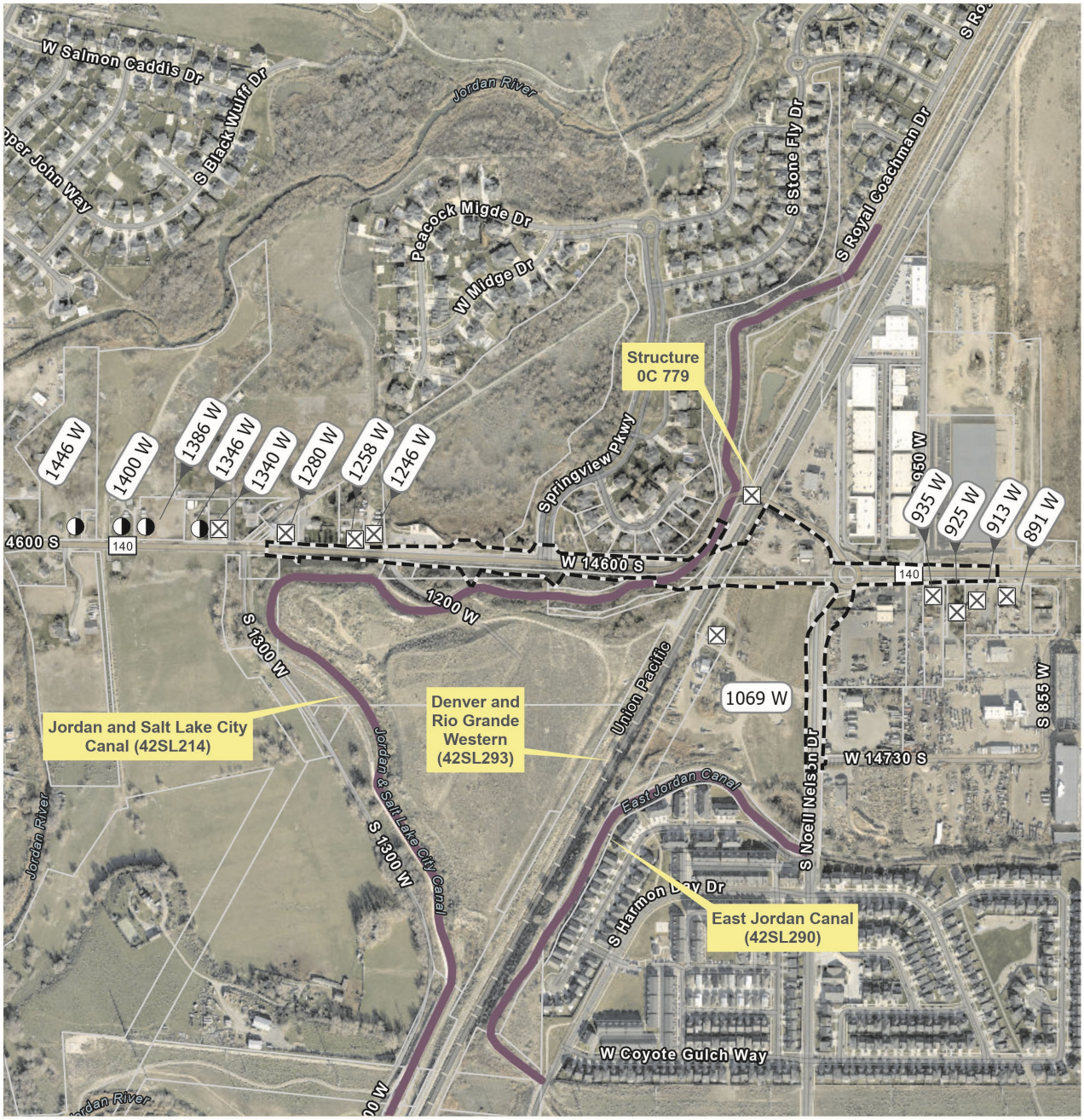
Given the information described above, the project would have an overall result of **no adverse effects** to historic properties. The City of Bluffdale requested that the Utah State Historic Preservation Office review of the eligibility determinations and impacts of the project on these sites.

The Utah State Historic Preservation Office agreed with the findings on October 17, 2022. The cultural resources report and SHPO correspondence is included in Appendix E.

Mitigation

No mitigation for cultural resources is required.

Figure 19. Impact to Cultural Resources



3.7 Hazardous Material Sites

The project team conducted a preliminary screening to identify potentially hazardous waste sites in and near the study area. This evaluation is not a standard Phase I Environmental Site Assessment (ESA) pursuant to ASTM E1527-21. This screening was limited to a review of the Utah Geospatial Resource Center's (UGRC) Land-Related Contaminant and Cleanup database.[1] This database contains information regarding EPA and state designated hazardous materials storage sites and contamination cleanup program.

Hazardous materials include any solid, liquid, or gaseous materials that, if improperly managed or disposed of, could pose substantial 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, or if is specifically listed as a hazardous substance in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Hazardous materials are regulated by Resource Conservation and Recovery Act (RCRA), by the CERCLA, and by Utah Administrative Code Title 19, *Environmental Quality Code*.

The following concerns are raised when a transportation project could affect sites with known or suspected 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

The evaluation area for identifying hazardous material sites was a 0.5-mile radius around the study area.

The project team screened potentially hazardous sites in the hazardous materials evaluation area by reviewing records on sites in the UGRC database from Utah Department of Environmental Quality's on-line database. The screening evaluated the potential of a site to affected, or be affected by, the project options based on site types and a location or distance to the project footprint. For example, CERCLA and leaking underground storage tanks (LUST) sites are sites where the nature and primary extent of contamination is often characterized (or was investigated) and a more-detailed review is warranted to more thoroughly understand and describe construction risks. All of these site types in the evaluation area were considered "sites of concern." Conversely, environmental incident sites, for example, are typically locations of a truck spill that was reported in a timely manner and likely cleaned up soon after the incident. These sites represent a lower risk to construction, and a narrower screening distance (adjacent to the footprint for the projects) was used to identify sites of concern.

[1] UGRC, *DEQ Land-related Contaminant and Cleanup Data*, https://gis.utah.gov/data/environment/deq-land-related-contaminant-cleanup-sites, accessed September 2022.

Current Conditions

The project team's research found seven environmental incident sites, one LUST site, and one CERCLA site near (within ½ mile of) the study area (Figure 20). These sites were screened by reviewing records to determine sites of concern. Two sites were retained as sites of concern and were evaluated to determine the potential risks to construction.

Environmental Impacts

No hazardous material sites would be directly impacted by the project footprint. The sites of concern in the evaluation area are one LUST site and one CERCLA site. None of the seven environmental incident sites are near the study area, and none of them had major environmental spills; therefore, they were not retained as sites of concern.

Dwight W. Petersen and Sons Excavating (LUST 4001834). Two 5,000-gallon fuel underground storage tanks were removed in 1998. No signs of contamination were noted, and the LUST record and the LUST case were closed with a no further action needed letter from UDEQ in July 1998. **This site represents a low risk to construction.**

Bluffdale Salvage (UTD988078614). This CERCLA site is located at 709 West 14600 South about 0.4 mile from the study area. The site covers about 54 acres and is split by the East Jordan Canal. The southern portion is about 34 acres and has been used for agricultural purposes; the salvage yard is located on northern 20 acres of the property. According to site records, about 600,000 pounds of scrap and junk had been hauled to the site. This included 1,000 pounds of dynamite and 6,000 pounds of aluminum-enhanced ammonium nitrate, which were removed in 1991 and 1992. Soil and canal water were sampled in 1998. UDEQ concluded that there was little evidence of contamination, and the site does not pose a threat to human health or the environment. **This site represents a low risk to construction.**

These two sites should not materially affect construction activities or introduce a substantial risk to construction workers' health and safety.

Mitigation

If groundwater is encountered during construction, The City of Bluffdale (or its construction contractor) will obtain coverage for construction dewatering under Utah's General Permit for Construction Dewatering or Hydrostatic Testing (UTG070000) or a Ground Water Discharge Permit, pursuant to state groundwater protection rules (UAC R317-6). If contaminated soil or groundwater is encountered during construction, a soil and groundwater management plan will be developed to identify soil and groundwater management and disposal strategies to address all applicable laws and regulations.

Figure 20. Potentially Hazardous Material Sites

3.8 Major Utilities

The project team contacted utility companies and water districts to learn more about major belowground and overhead utilities in the study area. The project options could affect utilities along 14600 South. The City of Bluffdale would determine the effects on these utilities and appropriate utility treatments by working with local jurisdictions during the final design of the selected option. All utility relocations would be coordinated with the utility owner during the final design of the selected option to ensure the safety and continuity of utility service during construction.

Current Conditions

Table 11 lists the major utilities in the study area. Rocky Mountain Power owns poles and overhead power lines along the south side of 14600 South from the eastern project extent to Noell Nelson Drive. The power lines continue west along the proposed alignment of 14600 South, cross the railroad tracks and the Jordan and Salt Lake City Canal, and continue west along the south side of 14600 South to the western project extent. Other communication cables (MCI and VerizonXO) use the electric distribution lines.

Table 11. Major Utilities in the Study Area

Provider	Utility Type
Rocky Mountain Power	Electric
MCI/VerizonXO	Fiber optic communications
Lumen	Buried fiber
Jordan Valley Water	Water
Dominion Energy	High-pressure natural gas
South Valley Sewer	Sanitary sewer
The City of Bluffdale	Storm drains

Two water lines owned by the Jordan Valley Water Conservation District are also present in the study area. One of the water lines follows the existing alignment of 14600 South, crosses the railroad tracks at the existing underpass, and follows the existing roadway alignment past Spring View Parkway to the western project extent. The other water line runs straight west from Noell Nelson Drive, under the railroad bridge near the location of the proposed new underpass, and continues along 14600 South to a blow-off structure near the Spring View Farms Trailhead.

For security reasons, these utilities are not shown on a figure.

Environmental Impacts

Impacts to utilities would be temporary and would occur during construction. In general, utilities are considered to be affected if the utility would need to be relocated (that is, lowered farther into the ground or moved to the edge of the new roadway). The project would cross some facilities (including communication, gas, water, sewer, electrical, and storm drainage), and the effects on these utilities would be determined by The City of Bluffdale by working with local jurisdictions and utility providers during the final design of the selected option. Impacts to these utilities can often be avoided during final design.

Mitigation

The City of Bluffdale will continue to work closely with all utility providers to verify the utility impacts from the selected option and to perform all required utility relocations. Utility relocation plans will be created to

minimize service disruptions during construction. The construction contractor will contact local businesses and residences if any loss of service is required during construction.

4.0 Construction Impacts

This section describes the anticipated construction impacts from the project. Construction could cause temporary construction-related impacts from ground disturbance and the operation of construction equipment. Construction could also cause impacts to air quality, water quality, traffic flow, and access to residents and businesses. Construction impacts to Utilities is described in Section 3.8, Major Utilities, above.

4.1 Property Easements for Construction

To construct the project, The City of Bluffdale might need to obtain permanent or temporary easements for some properties that are not included in the property acquisition analysis in Section 3.1, *Land Use, Zoning, and Property Acquisitions*. Construction easements would be required for properties that are outside the needed right-of-way but would be affected by the cuts or fills during construction, would be used by equipment during construction, would be necessary for utility relocations, or would accommodate modifications to property accesses (driveways).

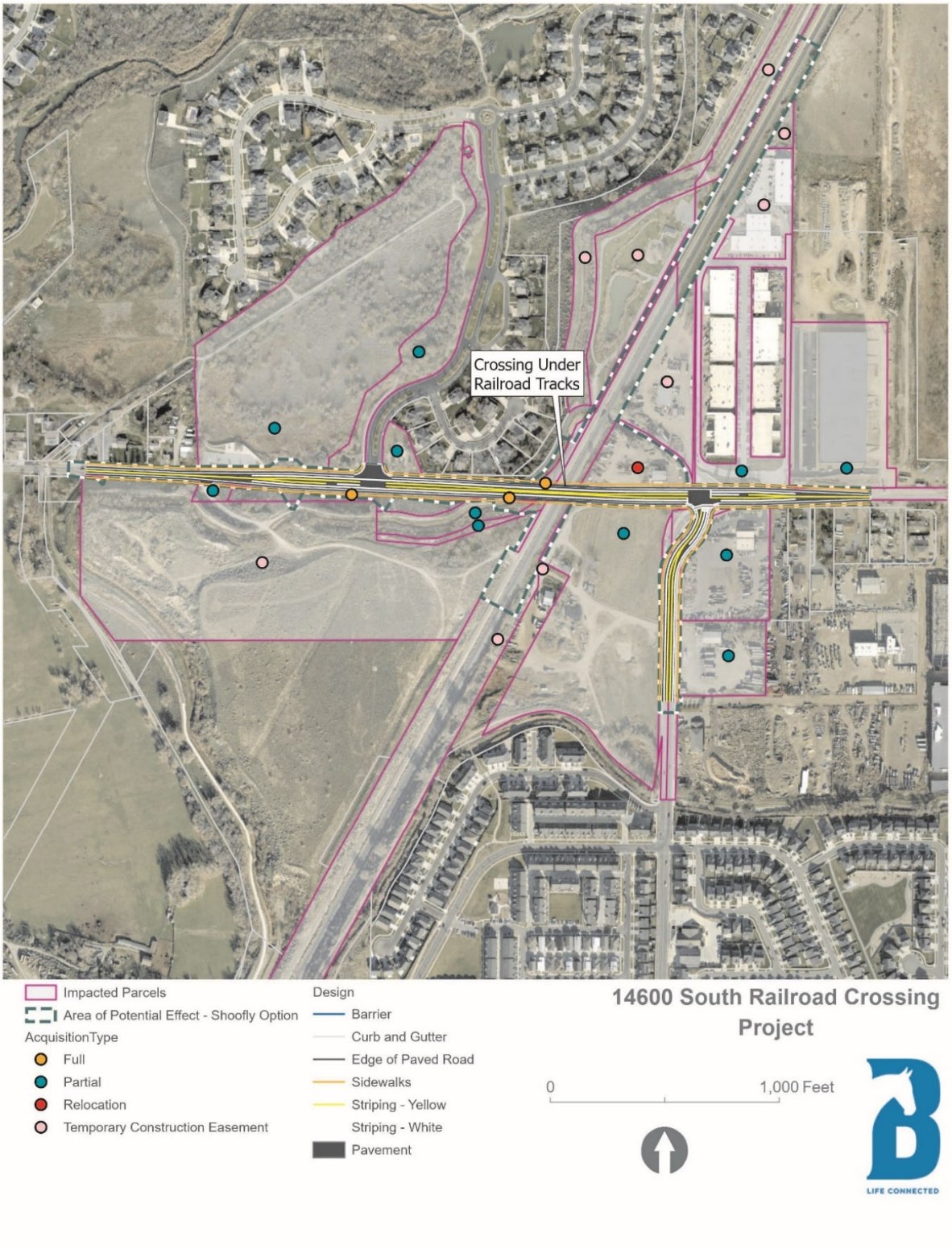
In situations requiring temporary construction easements, The City of Bluffdale would use these properties and would provide compensation to the landowner for the use. For some construction and utility easements, the property would be fully returned to the owner when the use of the property is no longer required, typically when construction is complete or the utility is buried. These properties might be temporarily affected, but no long-term impacts are expected. For some utilities such as water lines, sewer lines, and power poles, permanent easements might be required. The locations of these easements would be determined during the final design phase of the project in coordination with the utility companies. For this reason, the exact locations of the easements are not shown in this document.

For the new bridge option, the temporary shoofly would require easements from 10 parcels. Three of these parcels are associated with the existing railroad right-of-way. About 1.4 acres of construction easements would be needed from another seven properties. Table 12 lists the properties where a temporary construction easement might be needed to construct the temporary shoofly for the new bridge option. These properties potentially requiring construction easements for the shoofly option are shown in Figure 21.

Table 12. Temporary Construction Easements Required for the New Bridge Option

Parcel ID	Owner	Address	Approximate Acreage Needed to Construct the Temporary Shoofly
33111760010000	Jordan and Salt Lake City Canal	Not applicable	0.813
33111770010000	SEI Properties	1020 W. 14600 S.	0.117
33111820030000	The City of Bluffdale	14359 S. Royal Coachman Drive	0.008
33112000320000	Salt Lake City (canal right-of-way)	14287 S. Royal Coachman Drive	0.127
33112510560000	Center Point Business Park, Owners Association	950 W. 14600 S.	0.249
33112510580000	The Nine of Bluffdale, LLC	974 W. 14420 S.	0.053
33113260050000	Allmendiger, LCC (Vista's @ Riverbend LLC)	1071 W. 14600 S.	0.014

Figure 21. Potential Temporary Construction Easements



4.2 Air Quality Impacts from Construction

Air quality impacts during construction of any of the action alternatives 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:

- Excavation related to cut-and-cover
- 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
- Blasting (related dust)

Because construction would be local and short-term, any impacts would also be short-term. The most common air pollutant caused by construction would be particulate matter 10 microns in diameter or less (PM10).

The City of Bluffdale will require the construction contractor implement fugitive dust controls (watering or dust palliatives) and street sweeping of sediment track out areas.

4.3 Water Quality Impacts from Construction

Excavation, grading, blasting, and other construction activities could increase sediment and pollution (oil, gasoline, lubricants, cement, pollutants from temporary restrooms, and so on) levels in stormwater runoff, and these pollutants could enter nearby waterways. The potential for sediment and pollution levels to increase would exist until the project construction is completed and permanent soil stabilization measures are fully functional.

To control construction stormwater runoff, the contractor will develop and implement a stormwater pollution prevention plan. The plan will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. As part of the stormwater pollution prevention plan, the contractor will develop a water quality protection implementation and monitoring plan.

4.4 Traffic Impacts During Construction

The primary construction impacts that could affect vehicle traffic during construction of any of the action alternatives are the following:

- Traffic detours and some temporary road closures could change frequently throughout construction. Changes in roadway 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 travel times, fuel use, and air pollutant emissions. Delays in Little Cottonwood Canyon could deter people from recreating until construction is completed.

- Access to commercial properties could be temporarily disrupted, which could cause longer commute times and a potential loss of revenue for some businesses.

The contractor will 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, residences, and recreation areas must be maintained and existing roads kept open to traffic.

Even with the implementation of the maintenance-of-traffic plan, traffic congestion would increase over the short term in the construction area. Road closures would be limited to what is specified in the maintenance of traffic plan. The City of Bluffdale, or its construction contractor will conduct appropriate outreach program for notifying the public of potential construction delays, temporary road closures, and detours.

5.0 Public Involvement Summary

This Draft Environmental Study was posted to: https://www.bluffdale.com/367/Projects-in-Bluffdale. An Open House meeting for the project was held on December 6, 2022, at City Hall. The public and other interested parties may submit comments at the public meeting or from **November 15 to December 21, 2022** via the following comment methods:

Email:	**OneLaneBridge@bluffdale.com**
Mail:	**City of Bluffdale** **ATTN: Engineering** **2222 West 14400 South** **Bluffdale UT, 84065**
Phone:	**801-849-8472**

The City of Bluffdale hosted an Open House on to December 6, 2022.

Location:	**Bluffdale City Hall** **2222 West 14400 South**
Date:	**December 6, 2022**
Time:	**6:00 to 7:30 pm with a presentation at 6:15**

A City Council meeting for potential adoption of the Project will be held February 8, 2023. The Council may solicit additional public feedback at that time.

Location:	**Bluffdale City Hall** **2222 West 14400 South**
Date:	**February 8, 2023**
Time:	**7:00 pm**

Comments gathered during the public meeting the public comment period will be considered during future stages of the project. The City will consider comments including those related to project design elements, impacts, and the mitigation measures proposed to minimize and mitigate project affects.

6.0 References

The City of Bluffdale

2020 Transportation Plan. https://www.bluffdale.com/DocumentCenter/View/3650/BluffdaleTransportationPlan--2020. Published August 2017; updated February 2020.

Hales Engineering

2022 Level of Service Results

July 5

[WFRC] Wasatch Front Regional Council

2019 Wasatch Front 2019–2050 Regional Transportation Plan. https://wfrc.org/vision-plans/regional-transportation-plan/2019-2050-regional-transportation-plan/.