Kimball Junction
ENVIRONMENTAL IMPACT STATEMENT

FINAL

Combined Environmental Impact Statement and Record of Decision

Kimball Junction Project

in Summit County, Utah

Utah Department of Transportation

UDOT Project No. S-0224(50)12

Submitted pursuant to

42 USC 4332(2)(c) and 49 USC 303

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding (MOU) dated May 26, 2022, and executed by the Federal Highway Administration and UDOT. UDOT has fully carried out all responsibilities assumed under the MOU in accordance with the MOU and applicable federal laws, regulations, and policies.

UDOT Keeping Utah Moving

August 2025

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Kimball Junction
in
Summit County, Utah

Combined
Final Environmental Impact Statement
and
Record of Decision

Submitted pursuant to 42 USC 4332(2)(c) and 49 USC 303
by the Utah Department of Transportation (UDOT)

Cooperating agencies: U.S. Army Corps of Engineers and
U.S. Environmental Protection Agency

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August 2025

08/15/2025

Date of Approval

Robert Stewart, P.E.
Region Two Director
Utah Department of Transportation

08/15/2025

Date of Approval

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Abstract

The purpose of the Kimball Junction Project is to address transportation-related safety and mobility issues for all users of the Kimball Junction area by:

- Improving operations and travel times on State Route 224 (SR-224) from the Interstate 80 (I-80) interchange through Olympic Parkway;
- Improving safety by reducing vehicle queue lengths on I-80 off-ramps;
- Improving pedestrian and bicyclist mobility and accessibility throughout the needs assessment evaluation area; and
- Maintaining or improving transit travel times throughout the needs assessment evaluation area.

The primary alternatives carried forward for detailed study in this Environmental Impact Statement (EIS) are the No-Action Alternative and the following two action alternatives.

Alternative A: Split Diamond Interchange with Intersection Improvements consists of a split-diamond interchange configuration on I-80 with intersection and pedestrian improvements on SR-224. The existing single-point urban interchange (SPUI) at Kimball Junction would be converted into a tight-diamond configuration (traffic signals at each off-ramp), and the interchange traffic would be split between the existing location at SR-224 and a new intersection with a bridge crossing I-80 to the west of SR-224.

The split-diamond interchange would disperse traffic between the new access and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area. One-way frontage roads for both eastbound and westbound directions would connect the two intersections and tie into the on- and off-ramps for I-80. The shared-use path on the south side of I-80 and the existing pedestrian bridge over I-80 would remain in place for pedestrian comfort. A pedestrian undercrossing at Ute Boulevard, intersection improvements, and a buffered bike lane along SR-224 are proposed to move all users more efficiently through the area. Intersection improvements include adding northbound and southbound through lanes on SR-224 between Olympic Parkway and I-80.

Alternative C: Intersection Improvements with Pedestrian Enhancements consists of spot improvements and widening areas of existing pavement while keeping most of the existing Kimball Junction area layout and pavement in place, including the existing I-80 and SR-224 SPUI. This alternative consists of additional through travel lanes, additional turn lanes at the intersections to improve intersection efficiency and improvements for pedestrian and bicyclist accessibility. The main improvements would consist of adding dual left-turn lanes at Olympic Parkway for southbound-to-eastbound movement, adding dual left-turn lanes at Ute Boulevard for southbound-to-eastbound and northbound-to-westbound movement, and building a pedestrian undercrossing south of Ute Boulevard.

This alternative would also include adding an additional northbound and southbound lane on SR-224 from Olympic Parkway to Ute Boulevard, along with extending the westbound-to-northbound right-turn lane on Newpark Boulevard and extending the eastbound-to-northbound dual left-turn lanes on Ute Boulevard.

Environmental impacts in 15 resource categories are evaluated in this EIS, and mitigation measures to reduce the impacts are described. Impacts to the natural environment as well as social and economic impacts have been minimized through coordination with the public, resource agencies, and local governments.

After evaluating the information in the Draft EIS, approved local and regional planning documents, the project file, and public and agency input to date, UDOT has identified **Alternative C: Intersection Improvements with Pedestrian Enhancements** as the selected alternative in this Final EIS and Record of Decision.

UDOT has issued this single Final EIS and Record of Decision document pursuant to 23 USC 139(n)(2).

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Abbreviations

Abbreviation	Definition
303(d)	Section 303(d) of the Clean Water Act
AADT	annual average daily traffic
ACHP	Advisory Council on Historic Preservation
ACS	American Community Survey
ADA	Americans with Disabilities Act
AM	morning
APE	area of potential effects
Area Plan	*Kimball Junction and SR-224 Area Plan*
ATSPM	Automated Traffic Signal Performance Measure
AU	assessment unit
BLTS	bicycle level of traffic stress
BMP	best management practice
CATV	community antenna television
CCA	Candidate Conservation Agreement
CDP	Census Designated Place
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental, Response, Compensation, and Liability Information System
CFR	*Code of Federal Regulations*
CH_4	methane
CLG	certified local government
CLOMR	Conditional Letter of Map Revision
CO	carbon monoxide
CO_2	carbon dioxide
CVMA	Canyons Village Management Association
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DERR	Utah Division of Environmental Response and Remediation
ECOS	Environmental Conservation Online System
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency

Abbreviation	Definition
ESA	Endangered Species Act
EWA	Enforceable Written Assurances (sites)
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	flood insurance rate map
FPPA	Farmland Protection Policy Act
FUD	Formerly Used Defense (sites)
GHG	greenhouse gases
GIS	geographic information systems
GPS	global positioning system
HAP	hazardous air pollutant
HCM	*Highway Capacity Manual*
HOV	high-occupancy vehicle
I-80	Interstate 80
ICE	indirect and cumulative effects
ID	identifier
KOP	key observation point
L_{eq}	equivalent noise level
LOMR	Letter of Map Revision
LOS	level of service
LRTP	long-range transportation plan
LTS	level of traffic stress
LUST	leaking underground storage tank
MAG	Mountainland Association of Governments
mg/L	milligrams per liter
MOU	Memorandum of Agreement
MP	milepost
mpg	miles per gallon
mph	miles per hour
MS4	municipal separate storm sewer system
MSAT	mobile-source air toxic compound
NA	not applicable
N_2O	nitrous oxide
NA	not applicable
NAAQS	National Ambient Air Quality Standards
NAC	noise-abatement criteria
NEPA	National Environmental Policy Act
NFHL	National Flood Hazard Layer
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act

Abbreviation	Definition
NO_2	nitrogen dioxide
NOI	Notice of Intent
NPL	National Priorities List
NRHP	National Register of Historic Places
O_3	ozone
O-D	origin-destination
PLTS	pedestrian level of traffic stress
PM	afternoon
PM	particulate matter
PM_{10}	particulate matter 10 microns in diameter or less
$PM_{2.5}$	particulate matter 2.5 microns in diameter or less
R	Rule
RDCC	Resource Development Coordinating Committee
ROD	Record of Decision
RPO	rural planning organization
RV	recreational vehicle
Section 106	Section 106 of the National Historic Preservation Act
Section 303(d)	Section 303(d) of the Clean Water Act
Section 4(f)	Section 4(f) of the Department of Transportation Act
Section 401	Section 401 of the Clean Water Act
Section 404	Section 404 of the Clean Water Act
Section 6(f)	Section 6(f) of the Land and Water Conservation Fund Act
Section 7	Section 7 of the Endangered Species Act
SELDM	Stochastic Empirical Loading and Dilution Model
SFHA	special flood hazard area
SHPO	State Historic Preservation Officer
SIP	state implementation plan
spp.	various subspecies
SPUI	single-point urban interchange
SR	state route
SWPPP	stormwater pollution prevention plan
TDM	travel demand management
TDS	total dissolved solids
TMDL	total maximum daily load
TNM	FHWA's Traffic Noise Model
TNW	traditional navigable waterbody
TRI	Toxic Release Inventory
TSM	transportation system management
U.S.	United States
UAC	Utah Administrative Code

Abbreviation	Definition
UDDW	Utah Division of Drinking Water
UDEQ	Utah Department of Environmental Quality
UDOT	Utah Department of Transportation
UDWaR	Utah Division of Water Resources
UDWQ	Utah Division of Water Quality
UDWRe	Utah Division of Wildlife Resources
UDWRi	Utah Division of Water Rights
UPDES	Utah Pollutant Discharge Elimination System
US-40	United States Highway 40
USACE	United States Army Corps of Engineers
USC	*United States Code*
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tank
UTA	Utah Transit Authority
VIA	visual impact assessment
VMT	vehicle-miles traveled
WWTP	wastewater treatment plant

Kimball Junction
ENVIRONMENTAL IMPACT STATEMENT

Record of Decision

Kimball Junction Environmental Impact Statement

Lead agency:
Utah Department of Transportation

August 2025

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by UDOT pursuant to 23 USC 327 and a Memorandum of Understanding (MOU) dated May 26, 2022, and executed by the Federal Highway Administration and UDOT. UDOT has fully carried out all responsibilities assumed under the MOU in accordance with the MOU and applicable federal laws, regulations, and policies.

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1.0 Introduction

This document is the Utah Department of Transportation's (UDOT) Record of Decision (ROD) for the Kimball Junction Project in Summit County, Utah. The environmental impact statement (EIS) for the Kimball Junction Project was initiated to evaluate and address transportation-related safety and mobility issues at the Interstate 80 (I-80) and State Route 224 (SR-224) interchange and on SR-224 from Kimball Junction through the Olympic Parkway intersection.

This ROD constitutes UDOT's approval of Alternative C: Intersection Improvements with Pedestrian Enhancements as described in the *Kimball Junction Final Environmental Impact Statement* (Final EIS). UDOT's decision to approve this alternative is based on the information presented in the Final EIS and supporting technical documents, the associated project file, and input received from the public and interested local, state, and federal agencies. In making this decision, UDOT considered the expected impacts of Alternative C and alternative courses of action under the National Environmental Policy Act (NEPA), Section 4(f) of the Department of Transportation Act of 1966, and other applicable laws, thereby balancing the need for safe and efficient transportation with national, state, and local environmental protection goals.

The environmental review, consultation, and other actions required by applicable federal environmental laws for this project are being or have been carried out by UDOT pursuant to 23 *United States Code* (USC) Section 327 and a Memorandum of Understanding (MOU) dated May 26, 2022, and executed by the Federal Highway Administration (FHWA) and UDOT. UDOT has fully carried out all responsibilities assumed under the MOU in accordance with the MOU and applicable federal laws, regulations, and policies.

This ROD was prepared in accordance with 23 *Code of Federal Regulations* (CFR) Section 771.124 and FHWA Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*. This ROD was prepared concurrently with the Kimball Junction Final EIS in accordance with 23 USC Section 139(n)(2), 49 USC Section 304a(b), and the U.S. Department of Transportation's *Guidance on the Use of Combined Final Environmental Impact Statements/Records of Decision and Errata Sheets in National Environmental Policy Act Reviews* (April 25, 2019), the U.S. Department of Transportation's (USDOT) *Section 139 Environmental Review Process: Efficient Environmental Review for Project Decisionmaking and One Federal Decision – Interim Final Guidance* (December 2024), and USDOT Order 5610.1D, *DOT's Procedures for Considering Environmental Impacts* (June 25, 2025), which provide that the Final EIS and ROD should be combined unless:

1. The Final EIS makes substantial changes to the proposed action that are relevant to environmental or safety concerns, or
2. There are significant new circumstances or information relevant to environmental concerns that bears on the proposed action or the impacts of the proposed action.

Neither the project limits nor Alternative C have been modified since the Draft EIS was released in March 2025. There are no new circumstances or information relevant to environmental or safety concerns that would substantially alter the conclusions of the NEPA analysis. Therefore, it is appropriate for the Kimball Junction Project that this ROD has been completed and approved at the same time as the Final EIS.

2.0 Decision

In this ROD for the Kimball Junction Project, UDOT selects Alternative C: Intersection Improvements with Pedestrian Enhancements.

Pursuant to 23 CFR Section 771.124, UDOT finds that the requirements of NEPA and other applicable laws have been satisfied for the construction and operation of the selected alternative. This ROD is based on the process followed by UDOT in setting forth and considering the effects of the available alternatives. This process included preparing the Draft Environmental Impact Statement (Draft EIS), the Final EIS, and supporting technical memoranda.

This ROD describes the basis for the decision, describes the alternatives considered, and documents the mitigation measures that will be implemented. The summary descriptions in this ROD do not supersede or negate any of the information, descriptions, or evaluations provided in the environmental review documents. This ROD and the associated Final EIS and supporting technical memoranda, which are incorporated into this ROD by reference, constitute UDOT's environmental record for the Kimball Junction Project.

Based on the analysis and evaluation in the Final EIS and after careful consideration of the social, economic, and environmental factors and input from the public involvement process, UDOT hereby approves the selection of Alternative C as identified in the Final EIS. This approval constitutes UDOT's acceptance of Alternative C and completes the approval process for the environmental evaluation.

UDOT has determined that Alternative C, shown in Figure 2.5-2, *Alternative C: Intersection Improvements with Pedestrian Enhancements*, of the Final EIS, best meets the transportation needs for the traveling public while considering environmental, safety, and socioeconomic factors. Alternative C is also the environmentally preferable alternative. This decision is based on the Final EIS, public and agency comments received during the EIS process, and the entire project record.

UDOT selects Alternative C because it would meet the purpose of the project by substantially improving traffic flow compared to the no-action conditions in 2050 during the AM and PM peak periods in the needs assessment evaluation area. The additional capacity from widening SR-224 to three through lanes each direction, adding dual left-turn lanes to Ute Boulevard and Olympic Parkway, and adding turn lanes to and from the I-80 ramps would have the following benefits:

- All intersections would operate at acceptable levels of service.
- Through travel times on SR-224 through Kimball Junction to and from I-80 would be reduced by as much as 8 minutes.
- Transit travel times would be improved.
- Vehicle queueing from ramps onto the I-80 mainline would be eliminated.

Alternative C is a more reasonable expenditure of funds for the anticipated operational benefits compared to Alternative A, which was also evaluated in the EIS. For more information, see Section 2.5.6, *Basis for Identifying the Selected Alternative*, of the Final EIS.

Consistent with 23 CFR Section 771.111(f), purpose and need and alternatives development and screening for the Kimball Junction Project were developed to make sure the project connects logical termini and is of sufficient length to address environmental matters on a broad scope; has independent utility; and does not

restrict consideration of alternatives for other reasonably foreseeable transportation improvements. Section 1.1.1, *Description of the Needs Assessment Evaluation Area and Logical Termini*, of the Final EIS provides more information about the logical termini and independent utility of the project. Chapter 2, *Alternatives*, and Appendix 2A, *Final Alternatives Development and Screening Results Report*, of the Final EIS describe the benefits and independent utility of Alternative C and how Alternative C is compatible with and supports other reasonably foreseeable transportation improvements.

In reaching its decision, UDOT has considered all of the issues raised in the project record including the information contained in (and comments on) the Draft EIS. Alternative C was developed through a public process that included project adjustments to avoid and minimize environmental impacts.

UDOT consulted with other federal and state agencies including the 12 participating agencies and 2 cooperating agencies, namely the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency. UDOT understands that Summit County, a participating agency, is considering land use changes and development options in the Kimball Junction area. Alternative C does not preclude Alternative A or other similar improvements from being implemented in the future if demand warrants.[1] A summary of interagency coordination is included in Chapter 4, *Coordination*, of the Final EIS.

2.1 Environmentally Preferable Alternative

When an EIS has been prepared for a project under NEPA, the lead agency must prepare a ROD to document its selected alternative. The ROD also identifies the environmentally preferable alternative, which is the alternative that would cause the least damage to the biological and physical environment and would best protect, preserve, and enhance historical, cultural, and natural resources. Designation of the environmentally preferable alternative typically involves judgment and balancing some environmental values against others. Comments on environmental documents (such as the Draft EIS, Final EIS, and supplemental information reports for a project) can help the lead agency develop and determine the environmentally preferable alternative.

Although the No-Action Alternative would have less environmental impact than Alternative C, the No-Action Alternative does not meet any of the project's purpose elements.

Alternative C is the environmentally preferable alternative because, of the alternatives evaluated in the project's alternatives development and screening process, Alternative C is the alternative that best meets the project's purpose elements with the least amount of impact. During the alternatives development and screening process, UDOT evaluated three action alternatives and screened out one of those alternatives (Alternative B: Grade-separated Intersections with One-way Frontage Roads to the I-80 Interchange) because it did not meet all of the project's purpose elements and required substantially more highway width, resulting in more resource impacts compared to the other two action alternatives.

In addition to Alternative C, UDOT carried Alternative A: Split Diamond Interchange with Intersection Improvements forward for detailed analysis in the EIS because it would have similar levels of environmental impacts as Alternative C; however, Alternative C better meets the project's purpose elements with slightly less environmental impact and is a more reasonable expenditure of funds for the anticipated operational benefits compared to Alternative A. For more information, see Section 2.5.5, *Comparison of Alternatives*, of the Final EIS.

[1] Any future improvements would be evaluated in a separate environmental study.

2.2 Permits and Approvals

The permits and certifications required for the selected alternative include a Nationwide Permit under Section 404 of the Clean Water Act granted by the U.S. Army Corps of Engineers, a Clean Water Act Section 402 Permit (Utah Pollutant Discharge Elimination System [UPDES] Permit) and a Section 401 water quality certification granted by the Utah Division of Water Quality, Floodplain Development Permits granted by local jurisdictions, a Stream Alteration Permit granted by the Utah Division of Water Rights, an Air Quality Approval Order granted by the Utah Division of Air Quality, and an approval of the Operations and Safety Assessment by FHWA. Additional permit requirements are discussed in Section 3.19, *Permits, Reviews, Clearances, and Approvals*, of the Final EIS.

3.0 Purpose and Need

As described in Section 1.1.1, *Description of the Needs Assessment Evaluation Area and Logical Termini*, of the Final EIS, the needs assessment evaluation area includes the I-80 and SR-224 interchange at Kimball Junction and SR-224 from Kimball Junction through the two at-grade intersections on SR-224 at Ute Boulevard and Olympic Parkway. The evaluation area also extends from milepost (MP) 143.2 to MP 145.6 on I-80.

What is the needs assessment evaluation area?

The needs assessment evaluation area is the area that was used to define the transportation issues that help develop the project purpose that was defined in Chapter 1, *Purpose and Need*, of the Final EIS.

SR-224 is a four-lane arterial road and a major north-south route that connects the Park City community, including Main Street, Deer Valley Resort, and Park City Mountain Resort with key Snyderville basin destinations such as Canyons Village at Park City and Kimball Junction, and other roads and destinations such as I-80 and the Salt Lake Valley. In addition to SR-224 and I-80, the main roads in the evaluation area are Ute Boulevard and Olympic Parkway.

For the Kimball Junction Project, UDOT looked at the expected transportation mobility needs in the needs assessment evaluation area in 2050. These mobility needs are related primarily to traffic delay during morning (AM) and afternoon (PM) peak hours. This delay is due to projected growth in population, employment, tourism, and development in the Kimball Junction area, in surrounding areas, and regionally.

This projected growth in the area will lead to the following issues:

- Future (2050) failing conditions at the intersections of SR-224 and I-80, Ute Boulevard, and Olympic Parkway will create delay and unreliable travel times.
- Vehicle queues on the I-80 off-ramps will extend back onto mainline I-80, which will result in unsafe travel conditions.

In addition, UDOT looked at expected active transportation mobility needs in the evaluation area, also during 2050. The active transportation mobility needs are related in part to future upgrades in transit service in the evaluation area as well as to growth of the regional trail system, community interest in walking and bicycling

in the evaluation area and to access local recreation amenities, and developing land uses in the evaluation area. These factors will lead to the following issue:

- Growing east-west active transportation (walking and bicycling) demand across SR-224 will require additional crossing facilities.

Finally, because of projected growth in the area, Summit County has proposed transit improvements to alleviate vehicle travel demand and improve transit mobility and reliability as part of a separate project on SR-224: the SR-224 Bus Rapid Transit (BRT) Project. Although the SR-224 BRT Project has independent utility from the Kimball Junction Project, the Kimball Junction Project's design will accommodate any approved transit upgrades that are part of the SR-224 BRT Project.

The purpose of the Kimball Junction Project is to address transportation-related safety and mobility issues for all users of the Kimball Junction area by:

- Improving operations and travel times on SR-224 from the I-80 interchange through Olympic Parkway;
- Improving safety by reducing vehicle queue lengths on I-80 off-ramps;
- Improving pedestrian and bicyclist mobility and accessibility throughout the needs assessment evaluation area; and
- Maintaining or improving transit travel times throughout the evaluation area

A full discussion of the project's purpose and need is provided in Chapter 1, *Purpose and Need*, of the Final EIS.

4.0 History of the Project

Before the Kimball Junction EIS process was initiated, many transportation planning studies were conducted in and around the needs assessment evaluation area (for more information, see Section 1.1.2, *Background*, of the Final EIS). The most relevant study was the *Kimball Junction and SR-224 Area Plan* (Area Plan; UDOT 2021), which was developed to summarize the transportation needs in the Kimball Junction area and establish an initial range of improvements to reduce congestion and improve multimodal travel and connectivity, including at the two at-grade intersections on SR-224.

An objective of the Area Plan process was to work with the study partners, including Summit County and Park City, to analyze and develop a range of highway, intersection, and pedestrian and bicyclist improvements to improve capacity and multimodal transportation options in the Kimball Junction area and address the existing and long-term mobility needs of residents, commuters, and visitors between the I-80 interchange and the two at-grade traffic signals at Ute Boulevard and Olympic Parkway on SR-224.

Together with the study partners and the public, the study team developed a wide range of over 30 conceptual alternatives that could be implemented to address the study goals and identified problems and opportunities. The conceptual alternatives included a wide range of potential solutions, such as bypass lanes, new interchange locations and configurations, intersection improvements, and intersection and access point changes in the study area.

The conceptual alternatives were assessed using a two-step screening process to determine which alternatives were reasonable and feasible and should be considered for further study.

Based on the results of the alternatives development and the Level 1 and Level 2 screening processes, UDOT advanced for further evaluation in the EIS three action alternatives that combined improvements on the I-80 and SR-224 interchange, on the SR-224 mainline, and on adjacent roads in the needs assessment evaluation area.

For more information regarding Level 1 and Level 2 screening criteria, measurements, and results, see Appendix 2A, *Final Alternatives Development and Screening Results Report*, of the Final EIS.

5.0 Alternatives Considered

5.1 Overview of the Alternatives Development and Screening Process

UDOT conducted a four-level screening evaluation of alternatives that spanned the Area Plan and EIS processes. UDOT conducted Level 1 and Level 2 screening during the 2021 Area Plan process and conducted Level 3 and Level 4 screening during the EIS process, which began in winter 2022. Three conceptual alternatives were advanced from the Level 1 and Level 2 screening evaluations completed during the Area Plan for further evaluation in the Draft EIS.

The alternatives development and screening process for the Kimball Junction EIS consisted of the following phases:

- **Refine Alternatives.** As part of the alternatives refinement process, the three conceptual alternatives that resulted from the Area Plan and that were introduced to the public during the EIS scoping phases were further developed based on additional topographic information and traffic analysis performed during the Level 3 and Level 4 screening processes.
- **Level 3 Screening.** Screening criteria were applied to eliminate alternatives that did not meet the project's purpose. The alternative options that passed this screening were refined for further evaluation.
- **Level 4 Screening.** Screening criteria were applied to eliminate alternatives that met the purpose of the project but would be unreasonable for other reasons—for example, an alternative that would have unreasonable impacts to the natural and human environment, would not meet regulatory requirements, or would duplicate the benefits of a less costly alternative with similar impacts to the natural and human environment.

More details about the alternatives development and screening process are provided in Chapter 2, *Alternatives*, and Appendix 2A, *Final Alternatives Development and Screening Results Report*, of the Final EIS.

5.2 Results of the Alternatives Development and Screening Process

Based on the results of the Level 3 and Level 4 screening processes, UDOT advanced a No-Action Alternative and the following two action alternatives for further study in the EIS:

- **Alternative A: Split Diamond Interchange with Intersection Improvements.** This alternative consists of a split-diamond interchange configuration on I-80 with intersection and pedestrian improvements on SR-224. The existing single-point urban interchange (SPUI) at Kimball Junction would be converted into a tight-diamond configuration (traffic signals at each off-ramp), and the interchange traffic would be split between the existing location at SR-224 and a new intersection with a bridge crossing I-80 to the west of SR-224.

  The split-diamond interchange would disperse traffic between the new access and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area. One-way frontage roads for both eastbound and westbound directions would connect the two intersections and tie into the on- and off-ramps for I-80. The shared-use path on the south side of I-80 and the existing pedestrian bridge over I-80 would remain in place for pedestrian comfort. A pedestrian undercrossing at Ute Boulevard, intersection improvements, and a buffered bike lane along SR-224 are proposed to move all users more efficiently through the area. Intersection improvements include adding northbound and southbound through lanes on SR-224 between Olympic Parkway and I-80.

- **Alternative C: Intersection Improvements with Pedestrian Enhancements.** This alternative consists of spot improvements and widening areas of existing pavement while keeping most of the existing Kimball Junction area layout and pavement in place, including the existing I-80 and SR-224 SPUI. This alternative consists of additional through travel lanes, additional turn lanes at the intersections to improve intersection efficiency, and improvements for pedestrian and bicyclist accessibility. The main improvements would be adding dual left-turn lanes at Olympic Parkway for southbound-to-eastbound movement, adding dual left-turn lanes at Ute Boulevard for southbound-to-eastbound and northbound-to-westbound movements, and building a pedestrian undercrossing south of Ute Boulevard.

  This alternative would also include adding an additional northbound and southbound lane on SR-224 from Olympic Parkway to Ute Boulevard, along with extending the westbound-to-northbound right-turn lane on Newpark Boulevard and extending the eastbound-to-northbound dual left-turn lanes on Ute Boulevard.

Conceptual design graphics and more detailed information about the features of the action alternatives are included Chapter 2, *Alternatives,* of the Final EIS. The alternatives development, refinement, and screening process is documented in Appendix 2A, *Final Alternatives Development and Screening Results Report*, of the Final EIS.

6.0 Measures to Minimize Harm from the Selected Alternative

Table 1 summarizes the environmental impacts of each alternative evaluated in detail in the EIS. For detailed information about the environmental impacts of the alternatives, see Chapter 3, *Affected Environment, Environmental Consequences, and Mitigation Measures*, of the Final EIS.

The mitigation measures that will be adopted to avoid, minimize, rectify, reduce, or compensate impacts from the selected alternative are listed in Attachment A, *Mitigation Measures*, of this ROD and in the individual resources sections of the Final EIS. Funding for mitigation will be included in the cost of construction for the project. Practicable means to avoid or minimize environmental harm from the selected alternative have been adopted.

UDOT will have the final responsibility for implementing mitigation measures. UDOT or its designated contractor(s) will implement a mitigation and monitoring tracking system to ensure that all mitigation measures identified in this ROD are implemented and that appropriate monitoring for effectiveness takes place. If a mitigation measure is determined to be not effective, UDOT or its contractor(s), in consultation with UDOT and other agencies (permitting agencies or cooperating agencies where UDOT has agreed to coordinate), will refine the mitigation measure or develop other appropriate mitigation.

Table 1. Environmental Impacts of the No-Action and Action Alternatives

Impact Category	Unit	No-Action Alternative	Alternative A	Alternative C
Impacts to local roadway network	None	• Congestion levels at the interchange and the rest of the study area would continue to increase from the existing conditions in 2022 and would reach severe congestion by 2050. • The operational deficiencies described in Chapter 1, *Purpose and Need*, of the Final EIS would not be corrected.	• Improves operations, vehicle and BRT travel times, and safety. • Offers direct access between I-80 and the west side of Kimball Junction. • Increases traffic on Landmark Drive.	• Improves operations, vehicle and BRT travel times, and safety.
Pedestrian and bicyclist improvements	None	None	• Adds striped and buffered bike lanes to SR-224 in the pedestrian and bicyclist issues evaluation area and adds one pedestrian underpass at Ute Boulevard.	• Adds striped and buffered bike lanes to SR-224 in the pedestrian and bicyclist issues evaluation area and adds one pedestrian underpass at Ute Boulevard.
Land converted to roadway use	Acres	0	4.86	3.5
Consistent with local land use plans	Yes/no	No	Yes	Yes
Potential residential relocations	Number	0	0	0
Potential business relocations	Number	0	0	0
Utility impacts	Level	Low	Highest	High
Recreation areas and trails affected	Number	0	0	0
Community facilities affected	Number	0	0	0
Air quality impacts above regulations	Yes/no	No	No	No
Receptors with modeled noise levels above criteria	Number	139	138	139
Water quality improvements	Yes/no	No	Yes	Yes

(*Continued on next page*)

Table 1. Environmental Impacts of the No-Action and Action Alternatives

Impact Category	Unit	No-Action Alternative	Alternative A	Alternative C
Impacts to aquatic resources	Acres	0	0.044	0.004
Direct impacts to threatened, endangered, and sensitive species	Acres	0	0	0
Adverse impacts to cultural resources	Number	0	0	0
Hazardous waste sites affected (high, moderate, and low risk sites combined)	Number	0	2	2
Floodplain impacts	Acres	0	0.79	0
Visual changes	Category	Neutral	Neutral	Neutral
Section 4(f) uses	Number	0	0	0

Definitions: BRT = bus rapid transit; Section 4(f) = Section 4(f) of the Department of Transportation Act of 1966

7.0 Fiscal Constraint

Federal regulations require that all regionally significant transportation projects be included in a regional transportation plan. To demonstrate fiscal constraint for a project, at least one subsequent phase of the project must be shown in the statewide transportation improvement program (STIP) or transportation improvement program (TIP).

The selected alternative would be constructed based on available funding. UDOT could construct portions of the selected alternative based on the amount of funding while considering safety and operational benefits. The *Utah Long-range Transportation Plan 2023–2050* identifies the selected alternative for construction in Phase 1 (2023–2032) with Unique ID No. U2023032. The selected alternative is also identified on UDOT's 2025–2030 STIP under Project Identification Number (PIN) 16388 with $50 million in funding identified for right-of-way, final design, and construction. The selected alternative is estimated to cost about $48.5 million (in 2026 dollars).

8.0 Next Steps

UDOT will proceed with the remaining steps of project development (right-of-way acquisition, final engineering, and construction) based on available funding. UDOT or its contractor(s) will obtain all required permits and approvals for constructing the selected alternative. UDOT will procure a construction contractor or contractors.

UDOT might construct portions of the selected alternative based on the amount of available funding while considering safety and operational benefits. Any implemented portion of the selected alternative would need to operate in an independent and acceptable manner with appropriate and functional project limits. If funding allows UDOT to construct the Kimball Junction Project all at once, the sequencing of construction would be based on the selected construction contractor's proposal. UDOT would require the contractor to develop a maintenance-of-traffic plan to minimize traffic congestion from construction.

9.0 Conclusion

This ROD constitutes UDOT's approval of **Alternative C: Intersection Improvements with Pedestrian Enhancements** as described in the Final EIS. When identifying its selected alternative, UDOT considered transportation performance, impacts to the natural and human environment, and cost. UDOT's decision to approve this alternative and options is based on the information presented in the Draft and Final EISs and supporting technical analysis and documents, approved local and regional planning documents, the associated project file, and input received from the public and interested local, state, and federal agencies. In making this decision, UDOT considered the expected impacts of Alternative C and alternative courses of action under NEPA, Section 4(f) of the Department of Transportation Act of 1966, and other applicable laws, thereby balancing the need for safe and efficient transportation with national, state, and local environmental protection goals.

9.1 Limitation on Claims

On behalf of UDOT, FHWA will publish a notice in the *Federal Register*, pursuant to 23 USC Section 139(l)(1), stating that one or more federal agencies (or UDOT through its NEPA delegation authority from FHWA) have taken final action on permits, licenses, or approvals for this transportation project. After the notice is published, claims seeking judicial review of those actions will be barred unless such claims are filed within 150 days after the date of publication of the notice, or within such shorter period as is specified in the federal laws pursuant to which judicial review of the action is allowed.

08/15/2025

Date of Approval

Ben Huot, P.E., Deputy Director
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Attachment A. Mitigation Measures

This attachment to the Record of Decision for the Kimball Junction Project summarizes the mitigation measures developed to avoid, minimize, rectify, reduce, or compensate impacts from the selected alternative (Alternative C: Intersection Improvements with Pedestrian Enhancements).

The mitigation items listed in this attachment are the same items that are listed in Sections 3.1 through 3.15 and summarized in Section 3.20, *Mitigation Summary*, of the Final Environmental Impact Statement (EIS) for the Kimball Junction Project. For consistency, the mitigation measures are listed in the same order as they are organized in Chapter 3, *Affected Environment, Environmental Consequences, and Mitigation Measures*, of the Final EIS.

The mitigation measures include standard Utah Department of Transportation (UDOT) best practices, expected permit conditions, legal requirements, and other measures specifically targeted to mitigate for unique impacts. UDOT does not typically propose mitigation for resources that are anticipated to experience negligible or beneficial impacts from the selected alternative.

The mitigation measures listed below include additional detail and commitment regarding mitigation measures based on permitting processes, public comments on the Draft EIS, and continued coordination with agencies, Summit County and Park City, and other stakeholders.

Funding for mitigation will be included in the cost of construction; UDOT will have the final responsibility for implementation.

UDOT or its designated contractor will implement a mitigation and monitoring tracking system to ensure that all mitigation identified in this attachment is performed and that appropriate monitoring for effectiveness takes place. If a mitigation measure is determined to not be effective, the contractor will consult with UDOT to develop other appropriate mitigation.

A.1 Mitigation Measures for Impacts to Land Use

Because the selected alternative would have no impacts to land use or zoning, no mitigation is proposed.

A.2 Mitigation Measures for Community and Property Impacts

As stated in the Final EIS, the social impacts of the selected alternative would be generally beneficial or would be temporary during construction. No mitigation is necessary because there would be no disproportionate impact to any particular social group. More information is provided below about UDOT's best practices for project development.

A.2.1 Community Cohesion

The selected alternative would benefit the communities and neighborhoods in the social environment evaluation area. No mitigation is proposed.

A.2.2 Quality of Life

The selected alternative would benefit the communities and neighborhoods in the social environment evaluation area. No mitigation is proposed.

A.2.3 Recreation Resources

Mitigation for impacts to recreation resources typically includes replacing or relocating impacted amenities, including trails, or providing other items that can enhance the recreation use of the recreation resource. With the selected alternative, removing east-west crosswalks across State Route 224 (SR-224) will be compensated for by adding a grade-separated pedestrian underpass south of Ute Boulevard. Reconstructing the multi-use paths that parallel SR-224 between Olympic Parkway and Ute Boulevard would have temporary impacts to active transportation users, and these impacts will be managed through public outreach and signed detours for nonmotorized users.

During the final design of the selected alternative, UDOT will work with Summit County and the Snyderville Basin Special Recreation District (Basin Recreation) to evaluate opportunities to further mitigate temporary impacts to trails.

A.2.4 Community Facilities

There would be no impacts to community facilities from the selected alternative. No mitigation is proposed.

A.2.5 Public Safety and Security

During the final design of the selected alternative, UDOT will evaluate the feasibility of adding wildlife exclusionary cattle guards at the Interstate 80 (I-80) interchange on- and off-ramps to connect the fencing along both sides of I-80.

A.2.6 Utilities

All impacts to utilities would be temporary. The UDOT document *Accommodation of Utilities and the Control and Protection of State Highway Rights-of-Way* (Utah Administrative Code Rule R930-6) would be followed. The construction contractor would contact local businesses and residences if any loss of utility service is required during construction. If utilities need to be relocated, UDOT would work with the utility companies during final design process for the selected alternative or during the design-build process.

UDOT would also identify and obtain all appropriate permits from state and local government agencies, as necessary, related to relocating and modifying utilities. UDOT would comply with all permit conditions.

A.2.7 Mitigation Measures for Property Impacts

No mitigation for property impacts is proposed beyond the requirements of federal and state relocation assistance acts.

During the final design process for the selected alternative, UDOT will look at measures that avoid or minimize property acquisition. Where property acquisition is necessary, UDOT will acquire all property according to the federal Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (as amended July 2008) and the Utah Relocation Assistance Act. These regulations require fair compensation for property owners to offset or eliminate any financial hardship that private individuals or entities could experience as a result of acquiring property for public purposes.

A.3 Mitigation Measures for Impacts to Economic Conditions

For impacts related to business strip takes, the impacts analysis assumed that any businesses that experience property impacts as a result of the Kimball Junction Project will receive assistance in accordance with UDOT's right-of-way acquisition practices. Property acquisitions will be completed according to the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Utah Relocation Assistance Act, Utah Code, Title 57, Chapter 12.

A.4 Mitigation Measures for Impacts to Traffic and Transportation

The selected alternative would improve travel times and level of traffic stress compared to the no-action conditions. No mitigation for traffic and transportation impacts is proposed.

A.5 Mitigation Measures for Pedestrian and Bicycle Facilities

The selected alternative would be an improvement over the no-action conditions. No mitigation for pedestrian and bicycle facility impacts is proposed.

A.6 Mitigation Measures for Impacts to Air Quality

Air quality impacts are expected to be negligible, and air quality is expected to improve over time. No mitigation for air quality impacts from implementing the selected alternative is proposed.

A.7 Mitigation Measures for Impacts to Noise

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

Feasible. UDOT considers the following factors when determining whether abatement is feasible:

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

Reasonable. UDOT considers the following factors when determining whether abatement is reasonable:

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

A reasonable cost is considered to be a maximum of $30,000 per benefited receptor for activity category B and $360 per linear foot for activity categories A, C, D, or E. If the anticipated cost of the noise-abatement measure is less than the allowable cost, then the abatement is deemed reasonable.

The cost-effectiveness calculation also takes into account the cost of any items associated with the abatement measure that is critical to safety, such as snow storage and safety barriers, where applicable. Costs for additional items are not currently needed for the abatement measures evaluated in this Draft EIS. The cost of constructing items necessary for snow storage and safety barriers will be considered as part of the cost-effectiveness calculation during final design, if applicable.

- **Viewpoints of Property Owners and Residents.** As part of the final design phase for the selected alternative, balloting would be conducted if noise-abatement measures meet the feasible criteria, reasonable noise-abatement design goal, and cost-effectiveness criteria (listed above) in UDOT's noise-abatement policy.

  Section C.2(c)(1) of UDOT's noise-abatement policy requires balloting for all benefited receptors (property owners or tenants that would receive a 5-dBA or greater reduction in noise from the noise-abatement measure) or receptors whose property would abut the proposed noise-abatement measures. Balloting approval is contingent on at least 75% of the total ballots being returned and 75% of the returned ballots being in favor of the proposed noise-abatement measure.

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

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

For this analysis, UDOT considered barriers up to 17 feet, which is the current approved UDOT standard for noise barrier heights. The 17-foot height is considered a feasible engineering consideration. Barrier heights over 17 feet would require additional review and approval from UDOT's Structures Division.

Barrier heights over 17 feet could be considered in circumstances only where a 17-foot-tall noise barrier meets the acoustic feasibility criteria and does not meet the reasonable design goal or cost effectiveness criteria. In these circumstances, noise barriers over 17 feet tall would be evaluated to determine whether they would meet the reasonable design goal or cost-effectiveness criteria.

To provide an objective analysis of traffic noise reduction at impacted receptors, UDOT considered a variety of noise barrier heights in areas with noise impacts that do not have an existing noise barrier. If multiple barrier heights would meet noise-abatement requirements, UDOT considered the number of benefitted receptors and the cost per benefitted receptor to identify the noise barrier height recommended for balloting.

Six noise barriers were considered for the selected alternative. Two of these six barriers (Noise Barriers 1 and 2) were found to be both feasible and reasonable for the selected alternative and are recommended for balloting. The evaluation of the reasonableness factor for the "viewpoints of property owners and residents" would take place as part of the final design phase for the selected alternative.

A.7.1 Noise Barriers

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

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

The anticipated cost of each wall was calculated by multiplying the wall area and the wall cost per square foot ($20). The allowable cost was calculated using two variables: (1) activity category B allowable cost and (2) activity category C allowable cost. The category B allowable cost was calculated by multiplying the allowable cost per benefited receiver ($30,000) by the number of receivers benefited by the wall. The category C allowable cost was calculated by multiplying the length of the wall associated with category C land use by the allowable cost for category C land ($360 per linear foot). These two variables, activity category B allowable cost and activity category C allowable cost, were combined to produce the allowable cost for each wall (for detailed wall analyses, see Appendix 3B, *Noise Technical Report*, of the Final EIS).

For areas with noise impacts that do not have an existing noise wall, in an effort to provide an objective analysis of traffic noise reduction at impacted receivers, a variety of noise wall heights were considered. If multiple wall heights would meet noise-abatement requirements, the shortest wall height found to be both feasible and reasonable would be recommended for balloting.

A total of six noise barriers were considered for the selected alternative. See the noise wall maps in Appendix 3B, *Noise Technical Report*, of the Final EIS.

A.7.2 Noise-abatement Evaluation for the Selected Alternative

UDOT evaluated six noise barriers for the selected alternative, Alternative C, at locations where noise impacts would occur. Two of the six noise barriers met UDOT's feasibility and reasonableness acoustic and cost criteria. Maps showing the locations of the noise barriers evaluated for Alternative C and more detailed information are available for each barrier that was evaluated in Attachment D, *Noise Barrier Maps for Alternative A and Alternative C*, of Appendix 3B, *Noise Technical Report*, of the Final EIS.

Table 3.7-4, *Noise Barrier Analysis Summary,* of the Final EIS summarizes the analyzed noise barriers and the results of the noise barrier analysis for the selected alternative, Alternative C. The locations of the noise barriers are shown in Figure 3.7-2 through Figure 3.7-4 of the Final EIS and in Attachment D, *Noise Barrier Maps for Alternative A and Alternative C*, of Appendix 3B, *Noise Technical Report*, of the Final EIS.

The two noise barriers recommended in this analysis for the selected alternative would benefit (reduce noise levels by at least a 5-dBA reduction) 32 receptors.

Noise-abatement Consideration during Final Design. Recommended noise walls in the noise evaluation area that met the requirements of UDOT's noise-abatement policy are summarized in Table A-1 and shown in Figure A-1 and Figure A-2. A barrier identified as recommended for balloting is a barrier that has been shown to meet the feasible criteria and reasonable design goal and cost-effectiveness criteria as defined in UDOT's noise-abatement policy. However, that finding is not a commitment to build a barrier.

Noise barriers shown in this analysis include replacement noise barriers for areas with existing noise walls and new or extended noise walls for locations modeled to have noise impacts from the selected alternative. The final height for replacement noise barriers would be at least equal to the existing height. The new noise barriers are preliminary and must meet the feasibility and reasonableness requirements of the UDOT noise-abatement policy.

The final lengths and heights for any of the noise barriers identified in the environmental study phase are still subject to final design and the feasibility and reasonableness criteria as defined in the UDOT noise-abatement policy (and summarized in Section 3.7.4.5, *Mitigation Measures for Noise Impacts*, of the Final EIS). UDOT would not decide whether to construct the proposed noise barrier until the final design is completed and refined utility relocation and right-of-way costs are available. Reasonableness would be evaluated using updated costs based on the final design.

UDOT will conduct balloting for the proposed noise-abatement measures with the final design engineering considerations and costs that meet the feasibility criteria, the reasonable design goal, and the reasonable cost effectiveness criteria as defined in UDOT's noise-abatement policy. As described in Section 3.7.4.5.1, *Noise-abatement Feasibility and Reasonableness*, of the Final EIS, Section C.2(c)(1) of UDOT's noise-abatement policy requires balloting for all benefited receptors (property owners or tenants that would receive a 5 dBA or greater reduction in noise from the noise-abatement measure) or receptors whose property would abut the proposed noise-abatement measures. Balloting approval is contingent on at least 75% of the total ballots being returned and 75% of the returned ballots being in favor of the proposed noise-abatement measure.

Table A-1. Noise Barrier Analysis Summary for the Selected Alternative

Alternative and Evaluated Barrier	Is Barrier Feasible, Reasonable, and Recommended for Balloting?	Recommended Barrier Height, Length
Selected Alternative: Alternative C		
Noise Barrier 1 (NW01)	Yes	17 feet tall, 1,300 feet long
Noise Barrier 2 (NW02)	Yes	14 feet tall, 600 feet long
Noise Barrier 3 (NW03)	No	Not applicable
Noise Barrier 4 (NW04)	No	Not applicable
Noise Barrier 5 (NW05)	No	Not applicable
Noise Barrier 6 (NW06)	No	Not applicable

Figure A-1. Noise Wall Evaluation for the Selected Alternative (1 of 2)

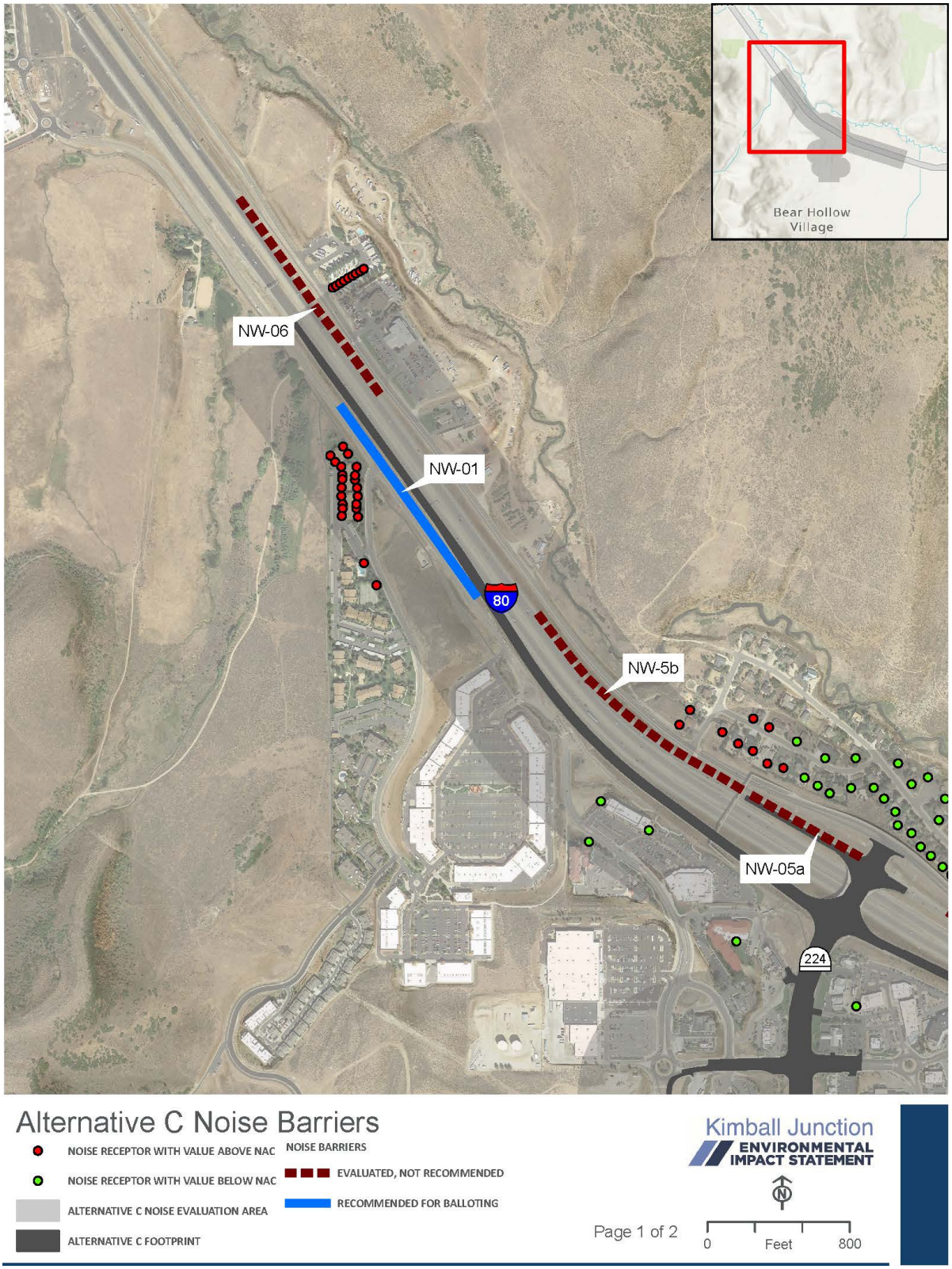

Figure A-2. Noise Wall Evaluation for the Selected Alternative (2 of 2)

A.8 Mitigation for Impacts to Water Quality and Water Resources

UDOT proposes the following mitigation measures to help ensure that water quality and water resources are maintained:

- UDOT or its design consultants will follow all applicable requirements of UDOT's *Stormwater Quality Design Manual* (UDOT 2021) to design best management practices (BMPs) that meet municipal separate storm sewer system (MS4) permit and groundwater permit-by-rule requirements.
- UDOT or its design consultants will follow UDOT's *Drainage Manual of Instruction* (UDOT 2024a) to design stream crossings and culverts.
- UDOT will visually inspect and maintain stormwater quality BMPs to ensure that they are functioning properly. These BMPs would likely include detention basins; however, other BMPs from UDOT's *Stormwater Quality Design Manual* might be chosen during the final design phase of the project.
    - During construction, inspectors for the project will certify that the BMPs are installed according to contract documents and UDOT standards.
    - After construction, UDOT will document and maintain records of inspections, any deficiencies identified during inspections, and the repairs performed on the BMPs.
- UDOT will comply with the Clean Water Act Section 404 permit, including any required Section 401 Water Quality Certifications and applicable Stream Alteration Permits for activities that place fill into waters of the United States and alter natural stream beds and banks.
- UDOT will maintain wetland hydrology and existing surface water conveyance patterns by installing culverts or other engineering alternatives through the roadway embankment.
- UDOT will collaborate with the public water system owners that have drinking water source protection zones in place that might be impacted by the project during final design and construction to mitigate any impacts to water distribution infrastructure.
- UDOT will coordinate with the owners of any impacted water right points of diversion during final design and construction to protect or replace the impacted points of diversion as necessary.
- UDOT will design and implement countermeasures to mitigate potential impacts to a stream's natural flow pattern, velocity, profile, channel stability, aquatic habitats, streambank vegetation, and riparian habitats that could result from replacing, lining, extending, or repairing conveyance structures for the project.

A.9 Mitigation Measures for Impacts to Ecosystem Resources

UDOT's best practices for project development include the following mitigation measures for impacts to ecosystem resources.

A.9.1 Mitigation Measures for Vegetation Impacts

The selected alternative would remove vegetation and could also introduce noxious species into the surrounding areas. To prevent further, permanent effects, UDOT would mitigate temporary impacts to vegetation once construction is complete and no further disturbance is anticipated. Mitigation would include the following measures:

- All fill materials brought onto the construction site would be required to be clean of any chemical contamination per UDOT's Standard Specifications, Section 02056, Embankment, Borrow, and Backfill. Topsoil used for roadside stabilization or landscaping must meet UDOT's Standard Specifications, Section 02912, Topsoil.
- Compacted soils will be ripped, stabilized, and reseeded.
- The contractor will be required to follow noxious weed mitigation and control measures identified in the most recent version of UDOT's Standard Specification Section 02924, Noxious Weed Control.
- Disturbed areas will be reseeded.

A.9.2 Mitigation Measures for Terrestrial and Aquatic Wildlife Impacts

UDOT would implement the following mitigation measures to conserve and minimize impacts to migratory birds and in furtherance of Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*:

- Trees and shrubs will be removed during the non-nesting season (July 15 to April 1). If removing trees and shrubs during this time is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys of the area that would be disturbed. The preconstruction surveys will be conducted by a qualified wildlife biologist no more than 14 days before ground-disturbing activities. The surveys will determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to minimize or avoid impacts to migratory birds.

A.9.3 Mitigation Measures for Aquatic Resources Impacts

To fill jurisdictional wetlands and other jurisdictional aquatic resources, the Kimball Junction Project must be authorized by the U.S. Army Corps of Engineers (USACE) as part of a Clean Water Act Section 404 permit before construction. Nationwide permits are a type of Clean Water Act Section 404 permit that authorize impacts to jurisdictional aquatic resources that are considered no more than minimal. Both of the action alternatives would qualify for authorization under a nationwide permit because permanent impacts to jurisdictional aquatic resources would be less than the nationwide permit threshold of 0.50 acre. This permit

authorization would not likely require compensatory mitigation because permanent wetland impacts would be less than 1/10th of an acre and no streams would be impacted.

Potential temporary construction impacts to aquatic resources would be minimized through considering construction methods and using BMPs such as silt fences and other erosion-control features in areas adjacent to wetlands and streams. Any necessary temporary construction impacts to aquatic resources that are authorized by a Clean Water Act Section 404 permit will be restored through regrading to natural contours and through revegetation measures.

Because more than 1 acre of ground would be disturbed, a Utah Pollutant Discharge Elimination System (UPDES) General Storm Water Discharge Permit and a stormwater pollution prevention plan (SWPPP), consistent with UDOT's Standard Specifications, Section 01355, will be required. The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. Restoration efforts will also be monitored to ensure successful revegetation as typically required by an SWPPP.

A.9.4 Mitigation Measures for Threatened and Endangered Species

UDOT will conduct 2 more years of clearance surveys for Ute ladies'-tresses (*Spiranthes diluvialis*) (1 more year of surveys will be conducted in 2025 in the potentially suitable habitat identified in the ecosystem resources evaluation area, and 2 more years of surveys will be conducted in 2025 and 2026 in the potentially suitable habitat identified in the action area for Alternative C). All surveys will be conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017).

Potentially suitable Ute ladies'-tresses habitat identified adjacent to the roadway and project footprint will be flagged and protected. Construction crews will be provided information about the importance of containing all work activities to the project footprint and existing roadway and instructed that no disturbance can occur outside of that when adjacent to potentially suitable Ute ladies'-tresses habitat, nor in areas flagged for protection.

On January 7, 2025, USFWS issued a proposed rule (90 *Federal Register* 1054) to remove Ute ladies'-tresses from the Federal List of Endangered and Threatened Plants. If the species is delisted, the future planned surveys will not be required nor conducted, and the mitigation measures would not apply.

A.10 Mitigation Measures for Impacts to Floodplains

UDOT and/or its construction contractor would take measures to reduce floodplain impacts and to ensure that the selected alternative would comply with all applicable regulations (see Section 3.10.2.2, *Executive Order 11988, Floodplain Management*, of the Final EIS). These mitigation measures would include the following:

- Where new or rehabilitated bridges or culverts are included in the final design of the selected alternative, the design would follow the Federal Emergency Management Agency's requirements and the requirements of UDOT's *Drainage Manual of Instruction*, where applicable. Where no Special Flood Hazard Area is defined, culverts and bridges would be designed to accommodate a 50-year (2%-annual-chance) or greater-magnitude flood. Where regulatory floodplains are defined, hydraulic structures would be designed to accommodate at least a 100-year (1%-annual-chance) flood.

A.11 Mitigation Measures for Impacts to Historic and Archaeological Resources

Because no adverse effects would occur to historic properties (that is, resources included in or eligible for inclusion in the National Register of Historic Places), no mitigation measures are necessary under the National Historic Preservation Act.

A.12 Mitigation Measures for Impacts to and from Hazardous Materials and Waste Sites

During construction, UDOT will coordinate with the Utah Division of Environmental Response and Remediation (DERR), the construction contractor, and the appropriate property owners. This coordination will involve determining the status of the sites of concern, identifying newly created sites, and minimizing the risk to all parties involved. Environmental site assessments might be conducted at the sites of concern to further evaluate the nature and extent of contamination (if any) and to better identify the potential risks of encountering hazardous materials when constructing the selected alternative.

Previously unidentified sites or contamination could be encountered during construction. In such a case, all work will stop in the contamination area according to UDOT Standard Specifications, and the contractor will consult with UDOT and DERR to determine the appropriate remedial measures. Hazardous materials will be handled according to UDOT Standard Specifications and DERR's requirements and regulations. The construction contractor will implement measures to prevent spreading contamination and limit worker exposure. Engineering controls (such as dust mitigation, temporary soil covers, and groundwater extraction) and personal protective equipment for construction workers will be used to reduce the potential for public or worker exposure to hazardous materials, as determined necessary by UDOT.

A.13 Mitigation Measures for Impacts to Visual and Aesthetic Resources

UDOT proposes to implement the following mitigation measures for impacts to visual and aesthetic resources:

- All aesthetic treatments will be installed in accordance with UDOT Policy 08A-03, *Project Aesthetics and Landscaping Plan Development and Review* (UDOT 2014a), and UDOT's *Aesthetics Guidelines* (UDOT 2014b). UDOT's policy is to set a budget for aesthetics and landscape enhancements based on the aesthetics guidelines. The aesthetic features considered during the final design phase of the selected alternative could include vegetation and plantings (such as street trees); the color of bridges, structures, and retaining walls; and other architectural features, such as railings. Aesthetic treatments are typically evaluated during the final design phase. UDOT will coordinate with Summit County to determine whether any desired aesthetics could be implemented.
- Lighting treatments are typically evaluated during the final design phase. Lighting will be designed to meet current design standards. All lighting design and construction work will follow UDOT Policy 06C-06, *Highway Lighting* (UDOT 2016). In addition, the requirements in UDOT's latest *Lighting Design Manual* will be followed.

A.14 Mitigation Measures for Energy Impacts

No mitigation measures for energy impacts are proposed.

A.15 Mitigation Measures for Construction Impacts

The following mitigation measures are currently proposed to be implemented during construction.

A.15.1 Mitigation Measures for Construction Phasing

No specific mitigation has been identified for construction phasing. If a phased approach is taken, the project mitigation identified in the EIS is proposed to be implemented for the specific design for each phase. Future mitigation for subsequent construction phases would take into account the final design for that phase, and any changes in regulations or potential improvements to BMPs would be followed and implemented with each phase.

A.15.2 Mitigation Measures for Impacts to Community and Property from Construction

A.15.2.1 Mitigation Measures for Impacts to Public Safety and Security from Construction

A thorough public information program will be implemented to inform the public and businesses about construction activities and to minimize construction-related impacts. Information will include work hours and alternate routes. Construction signs will be used to notify drivers about work activities and changes in traffic

patterns. Construction sequencing and activities will be coordinated with emergency service providers to minimize delays and response times during construction.

A.15.2.2 Mitigation Measures for Impacts to Utilities from Construction

Utility agreements will be completed to coordinate utility relocations. The project specifications will require the contractor to coordinate with the utility companies to plan work so that utility disruptions to businesses occur when the businesses are closed or during off-peak times. UDOT's Accommodation of Utilities and the Control and Protection of State Highway Rights-of-Way (Utah Administrative Code R930-6) will be followed. If any loss of service is required during construction, the construction contractor will contact affected parties.

Before beginning work, the contractor will contact Blue Stakes to identify the locations of all utilities in the work area. The contractor will use care when excavating to avoid unplanned utility disruptions. If utilities are unintentionally disrupted, UDOT will work with the contractor and the utility companies to restore service as quickly as possible.

A.15.2.3 Mitigation Measures for Impacts to Property and Right-of-way from Construction

In locations of temporary easements, UDOT will compensate the property owners for the temporary use of their property, and the restored property will be returned to the owner when UDOT no longer needs to use the property.

Fencing could be altered during project construction. The contractor will maintain fences and gate operations to protect the property owner's resources during construction.

A.15.3 Mitigation Measures for Impacts to Economic Conditions from Construction

Access to businesses will be maintained during the construction and post construction phases of this project. For each phase of the project, UDOT will coordinate with property owners and businesses to evaluate ways to maintain access while still allowing efficient construction operations. This coordination could entail sharing a temporary access among businesses or identifying acceptable timeframes when access is not needed. Adequate signs will be placed in construction areas to direct drivers to businesses. Other potential mitigation measures for construction impacts could include the following:

- A traffic access management plan developed and implemented by the construction contractor that maintains the public's access to the business during normal business hours
- Frequent notifications provided to all businesses in the construction area describing the progress of the construction and upcoming construction events
- Business access signs that identify business access points in the construction limits
- Meetings with business representatives to inform them of upcoming construction activities and to provide a forum for the representatives to express their concerns about the project

A.15.4 Mitigation Measures for Impacts to Traffic and Transportation from Construction

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 and residences must be maintained, and existing roads must be kept open to traffic unless alternate routes are provided.

Even with implementing the maintenance of traffic plan, short-term increases in traffic and congestion would increase in the construction area. Road closures will be limited to what is specified in the maintenance of traffic plan as approved by UDOT before the start of construction.

A.15.5 Mitigation Measures for Impacts to Pedestrian and Bicycle Facilities from Construction

Each existing pedestrian and bicycle facility that would be closed and removed during construction will be replaced with a similar facility near its current location. Trail closures would be limited in duration, and construction detours will accommodate pedestrians and bicyclists as well as vehicles. Detours for pedestrians and bicyclists will be as direct as possible to minimize lengthy route deviations. Project construction for pedestrian and bicycle facilities will be phased to minimize disruptions to the public to the extent feasible.

UDOT will coordinate with Summit County and Basin Recreation during the final design of the selected alternative to mitigate disruptions to trail users. Potential mitigation for disruption will include providing signed on-road detours where feasible, closing facilities during low-use seasons (winter), and providing information to the public about trail closures.

A.15.6 Mitigation Measures for Impacts to Air Quality from Construction

UDOT or its contractor will take measures to reduce fugitive dust generated by construction. Dust-suppression techniques such as watering or chemical stabilization of exposed soil, opacity observations and checks, washing vehicle tires, or other dust minimization techniques approved by the Utah Division of Air Quality will be applied by UDOT or its contractor during construction in accordance with UDOT's Standard Specifications for Road and Bridge Construction (UDOT's Standard Specifications), Section 01355, Environmental Protection, Part 1.10, Fugitive Dust (UDOT 2024b).

A.15.7 Mitigation Measures for Impacts to Noise from Construction

To reduce temporary noise impacts associated with construction, the contractor will comply with all state and local regulations relating to construction noise, including UDOT's Standard Specifications, Section 00555, Prosecution and Progress, for nighttime construction work to reduce the impacts of construction noise on the surrounding community (UDOT 2024b).

A.15.8 Mitigation Measures for Impacts to Water Quality and Water Resources from Construction

Because more than 1 acre of ground would be disturbed, a UPDES permit and an SWPPP, consistent with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.13, Stormwater Management Compliance, will be required (UDOT 2024b). The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. In addition, BMPs could include measures such as silt fences, erosion-control fabric, fiber mats, straw bales, silt drains, detention basins, mulching, and revegetation. Restoration efforts will also be monitored to ensure successful revegetation as typically required by an SWPPP.

If construction activities require dewatering that would discharge project water to surface waters, UDOT or its construction contractors will obtain a UPDES Construction Dewatering or Hydrostatic Testing General Permit.

A.15.9 Mitigation Measures for Impacts to Ecosystem Resources from Construction

A.15.9.1 Mitigation Measures for Impacts to Threatened and Endangered Species, Wildlife, and Utah Sensitive Species from Construction

Trees and shrubs will be removed during the non-nesting season (July 15 to April 1). If removing trees and shrubs during this time is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys of the area that would be disturbed. The preconstruction surveys will be conducted by a qualified wildlife biologist no more than 14 days before ground-disturbing activities. The surveys will determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to minimize or avoid impacts to migratory birds.

Constructing the selected alternative could impact habitat that is potentially suitable for Ute ladies'-tresses. UDOT prepared a biological assessment and determined that the selected alternative "may affect, but is not likely to adversely affect" Ute ladies'-tresses. UDOT requested USFWS concurrence with this determination in a letter sent on March 11, 2025. USFWS concurred with this determination on March 27, 2025, via a time/date stamp.

Potentially suitable Ute ladies'-tresses habitat identified adjacent to the roadway and project footprint will be flagged and protected. Construction crews will be provided information about the importance of containing all work activities to the project footprint and existing roadway and instructed that no disturbance can occur outside of that when adjacent to potentially suitable Ute ladies'-tresses habitat, nor in areas flagged for protection.

A.15.9.2 Mitigation Measures for Impacts to Aquatic Resources from Construction

The selected alternative would impact less than 0.1 acre of aquatic resources and might require a Stream Alteration Permit or Nationwide Permit.

In addition, BMPs such as silt fences and other erosion-control features will be used in areas adjacent to wetlands to mitigate potential temporary construction impacts to wetlands and other waters of the United

States. BMPs such as silt fences and other erosion-control features would be used in areas adjacent to aquatic resources. In addition, aquatic resources outside of but adjacent to the construction footprint would be fenced so that the area would be avoided.

A.15.9.3 Mitigation Measures for Impacts to Noxious Weeds from Construction

The contractor will follow UDOT's Standard Specifications 02924, Noxious Weed Control, to minimize construction impacts. To mitigate possibly introducing noxious and invasive weeds during construction, the contractor will:

- Follow the noxious weed mitigation and control measures identified in UDOT's Standard Specifications for Noxious Weed Control (UDOT 2024b).
- Follow the BMPs to reduce the potential for weed infestations.
- Reseed disturbed areas.

A.15.10 Mitigation Measures for Impacts to Historic and Archaeological Resources from Construction

In accordance with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.12, Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites or Human Remains, if cultural resources are discovered during construction, activities in the area of the discovery will immediately stop (UDOT 2024b). The construction contractor will notify UDOT of the nature and exact location of the finding and will not damage or remove the resource.

Work in the area of the discovery would be delayed until UDOT evaluates the extent and cultural significance of the site in consultation with the Utah State Historic Preservation Office. The course of action and the construction delay would vary depending on the nature and location of the discovery. Construction would not resume until the contractor receives written authorization from UDOT to continue.

A.15.11 Mitigation Measures for Impacts to Hazardous Materials and Waste Sites from Construction

If contamination is discovered during construction, mitigation measures will be coordinated according to UDOT Standard Specifications, Section 01355, Environmental Compliance, Part 1.7, Hazardous Waste, which directs the construction contractor to stop work and notify the construction engineer of the possible contamination (UDOT 2024b). Coordination with the Utah Department of Environmental Quality might be necessary if a discovery is made. Any hazardous materials will be disposed of according to applicable state and federal guidelines.

A.15.12 Mitigation Measures for Impacts to Visual and Aesthetic Resources from Construction

After the project is completed, the contractor will prepare and implement an appropriate seeding vegetation and/or landscaping plan to restore or enhance aesthetics.

A.15.13 Mitigation Measures for Construction Staging and Material Borrow Areas

Because the exact locations of staging areas and sources of fill material are not known, no mitigation is proposed at this time for construction staging and material borrow areas. Once those areas are identified, standard mitigation measures such as using existing roads and disturbed areas to the extent possible, minimizing ground disturbance, controlling dust and erosion, managing waste, and protecting vegetation will be used.

A.16 References

[FHWA] Federal Highway Administration

2011 Highway Traffic Noise: Analysis and Abatement Guidance. FHWA-HEP-10-025. https://www.fhwa.dot.gov/environment/noise/regulations_and_guidance/analysis_and_abatement_guidance/revguidance.pdf. December.

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2014b UDOT Aesthetics Guidelines. https://drive.google.com/file/d/1J4rzaTOO7TPo6ij3mxpvgtjAXL_T1hMa/view. November 5.

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Chapter S: Summary

S.1 Who is leading the project?

In December 2022, the Utah Department of Transportation (UDOT) initiated an environmental impact statement (EIS) for the Kimball Junction Project according to the provisions of the National Environmental Policy Act (NEPA), Federal Highway Administration (FHWA) regulations and guidelines, and other pertinent environmental laws, regulations, and directives.

UDOT, as the project sponsor and lead agency for the project, is responsible for preparing the Kimball Junction EIS. The environmental review, consultation, and other actions required by applicable federal environmental laws for this action have been carried out by UDOT pursuant to 23 *United States Code* (USC) Section 327 and a May 26, 2022, Memorandum of Understanding between FHWA and UDOT.

The U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency were involved as cooperating agencies in the development of this EIS.

S.2 Where is the project located, and why is the project needed?

The needs assessment evaluation area (Figure S.2-1) for the Kimball Junction Project includes the Interstate 80 (I-80) and State Route 224 (SR-224) interchange at Kimball Junction and SR-224 from Kimball Junction through the two at-grade intersections on SR-224 at Ute Boulevard and Olympic Parkway in Summit County, Utah. The evaluation area also extends from milepost (MP) 143.2 to MP 145.6 on I-80.

SR-224 is a four-lane arterial road and a major north-south route that connects the Park City community, including Main Street, Deer Valley Resort, and Park City Mountain Resort, with key Snyderville Basin destinations such as Canyons Village at Park City and Kimball Junction and other roads and destinations such as I-80 and the Salt Lake Valley. In addition to SR-224 and I-80, the main roads in the evaluation area are Ute Boulevard and Olympic Parkway.

Figure S.2-1. Needs Assessment Evaluation Area

As described in Section 1.2.1, *Need for the Project*, of Chapter 1, *Purpose and Need*, the Kimball Junction Project is intended to address the expected transportation mobility needs for all users in the needs assessment evaluation area in 2050. These mobility needs are related primarily to traffic delay during morning (AM) and afternoon (PM) peak hours. This delay is due to projected growth in population, employment, tourism, and development in the Kimball Junction area, in surrounding areas, and regionally. The projected growth in the area is expected to create future (2050) failing conditions at the intersections of SR-224 and I-80, Ute Boulevard, and Olympic Parkway leading to travel delay and unreliable travel times. In addition, vehicle queues on the I-80 off-ramps are expected to extend back onto mainline I-80, which will result in unsafe travel conditions.

UDOT also looked at expected active transportation mobility needs in the needs assessment evaluation area, related in part to future upgrades in transit service as well as to growth of the regional trail system, community interest in walking and bicycling, and developing land uses in the evaluation area. These factors will lead to growing east-west active transportation (walking and bicycling) demand across SR-224, which will require additional crossing facilities.

Finally, because of projected growth in the area, Summit County has proposed transit improvements to alleviate vehicle travel demand and improve transit mobility and reliability as part of a separate project on SR-224: the SR-224 Bus Rapid Transit (BRT) Project. Although the SR-224 BRT Project has independent utility from the Kimball Junction Project, the Kimball Junction Project's design will accommodate any approved transit upgrades that are part of the SR-224 BRT Project.

S.3 What is the purpose of the project?

The purpose of the Kimball Junction Project is to address transportation-related safety and mobility issues for all users of the Kimball Junction area by:

- Improving operations and travel times on SR-224 from the I-80 interchange through Olympic Parkway;
- Improving safety by reducing vehicle queue lengths on I-80 off-ramps;
- Improving pedestrian and bicyclist mobility and accessibility throughout the needs assessment evaluation area; and
- Maintaining or improving transit travel times throughout the evaluation area.

S.4 What is the history of the project?

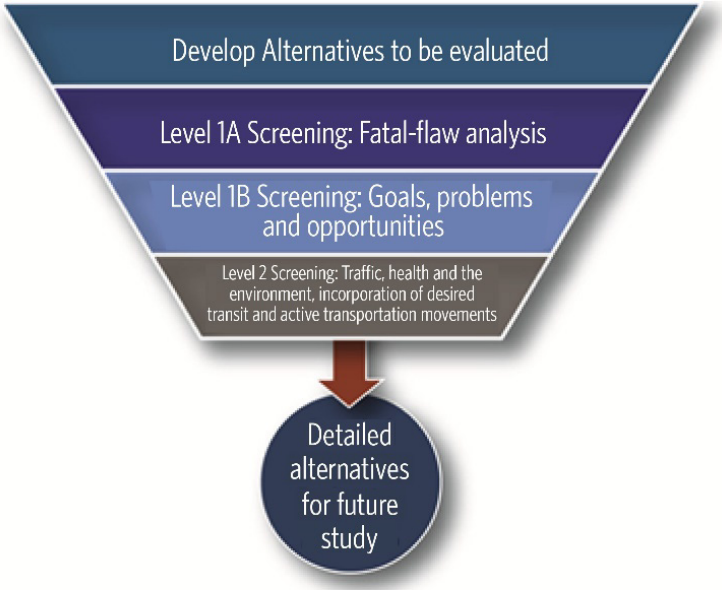
Before the Kimball Junction EIS process was initiated, many transportation planning studies were conducted in and around the needs assessment evaluation area (for more information, see Section 1.1.2, *Background*, of Chapter 1, *Purpose and Need*).

The most relevant study was the *Kimball Junction and SR-224 Area Plan* (Area Plan; UDOT 2021), which was developed to summarize the transportation needs in the Kimball Junction area and establish an initial range of improvements to reduce congestion and improve multimodal travel and connectivity, including at the two at-grade intersections on SR-224.

An objective of the Area Plan process was to work with the study partners, including Summit County and Park City, to analyze and develop a range of highway, intersection, and pedestrian and bicyclist improvements to improve capacity and multimodal transportation options in the Kimball Junction area and address the existing and long-term mobility needs of residents, commuters, and visitors between the I-80 interchange and the two at-grade traffic signals at Ute Boulevard and Olympic Parkway on SR-224.

Together with the study partners and the public, the study team developed a wide range of over 30 conceptual alternatives that could be implemented to address the study goals and identified problems and opportunities. The conceptual alternatives included a wide range of potential solutions, such as bypass lanes, new interchange locations and configurations, intersection improvements, and intersection and access point changes in the study area.

Figure S.4-1. Overview of the Kimball Junction Area Plan's Alternatives Development and Screening Process



The conceptual alternatives were assessed using a two-step screening process as shown in Figure S.4-1 to determine which alternatives were reasonable and feasible and should be considered for further study.

Based on the results of the alternatives development and Levels 1 and 2 screening processes, UDOT advanced three action alternatives that combined improvements on the I-80 and SR-224 interchange, on the SR-224 mainline, and on adjacent roads in the needs assessment evaluation area for further evaluation in the EIS.

For more information regarding Level 1 and Level 2 screening criteria, measurements, and results, see the Area Plan, which is available on the Kimball Junction EIS website (https://kimballjunctioneis.udot.utah.gov), and Appendix 2A, *Final Alternatives Development and Screening Results Report*, of this EIS.

The *Federal Register* notice for this EIS was posted on December 21, 2022. On December 15, 2022, UDOT published a draft *Purpose and Need Technical Report* (UDOT 2022) for review by the agencies and the public. The draft purpose and need was also discussed at the agency scoping meeting held on January 9, 2023. A scoping comment period was held from December 27, 2022, through January 27, 2023.

Based on the alternatives suggested by the public and agencies during the scoping period and the review of the purpose and need statement, UDOT conducted an alternatives development and screening process. The results of this process were published in the *Draft Alternatives Development and Screening Results Report* (UDOT 2024) on February 26, 2024, for agency and public review. A public meeting was not required or provided, but UDOT posted the screening results on the project website and held a 30-day public comment period between February 26 and March 27, 2024.

The Draft EIS was released for public review and comment on March 14, 2025, followed by a 45-day public review period that ended on April 28, 2025. UDOT sent Notice of Availability emails and letters to the

cooperating and participating agencies and tribes on March 14, 2025. In addition, as part of the Draft EIS process, UDOT held public hearings on April 8 and April 10, 2025.

S.5 What alternatives were considered for the project?

The EIS process began in winter 2022. As illustrated in Figure S.5-1 below, UDOT conducted a four-level screening evaluation of alternatives that spanned the Area Plan and EIS processes. UDOT conducted Level 1 and Level 2 screening during the 2021 Area Plan process described above in Section S.4 and conducted Level 3 and Level 4 screening during the EIS process. As described in Section S.4, three conceptual alternatives were advanced from the Level 1 and Level 2 screening evaluations completed during the Area Plan process for further evaluation in the Draft EIS.

S.5.1 Alternatives Refinement and Screening during the EIS Process

The alternatives development and screening process for the Kimball Junction EIS consisted of the following phases:

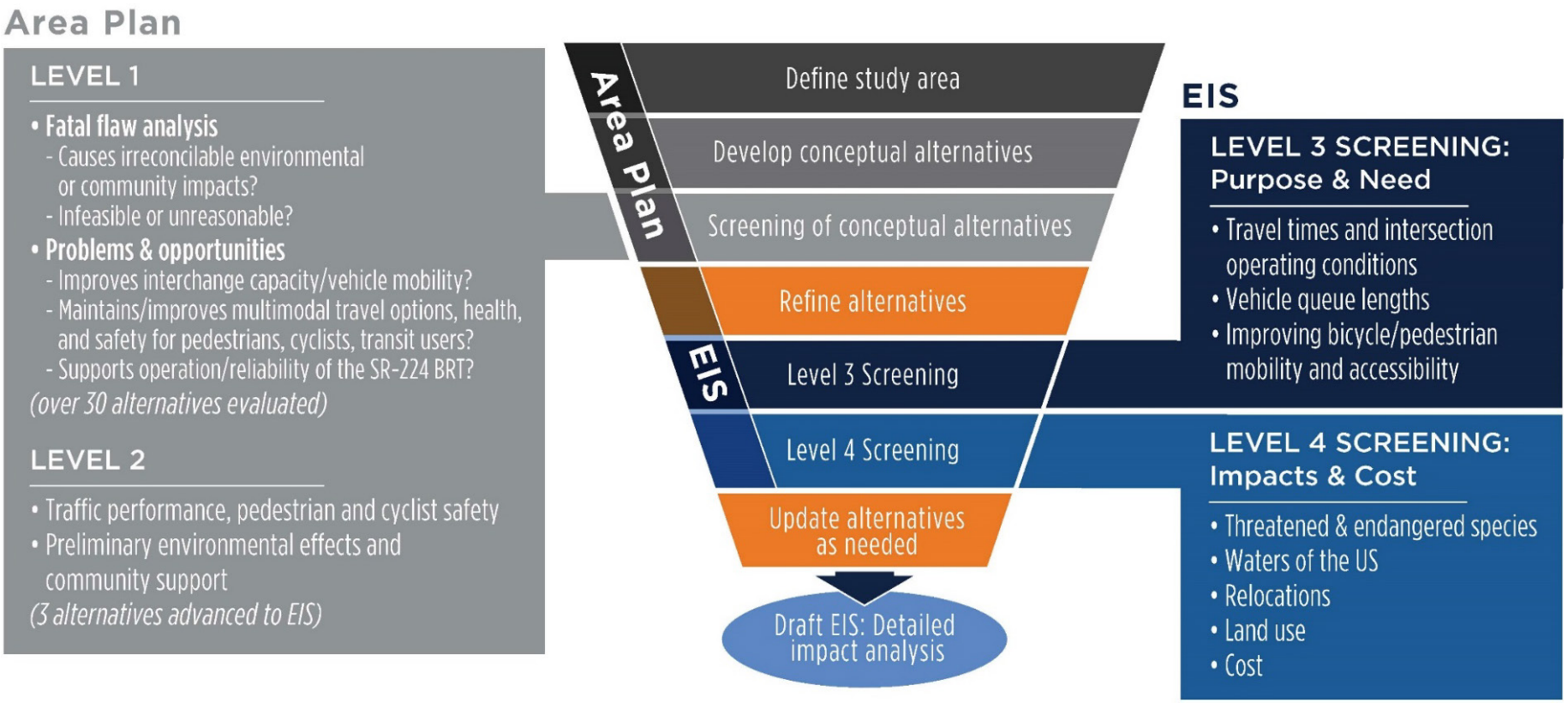
- **Refine Alternatives.** As part of the alternatives refinement process, the three conceptual alternatives resulting from the Area Plan and introduced to the public during the EIS scoping phases were further developed based on additional topographic information and traffic analysis performed during the Level 3 and Level 4 screening processes.
- **Level 3 Screening.** Screening criteria were applied to eliminate alternatives that do not meet the project's purpose and need. The alternative options that passed this screening were refined for further evaluation.
- **Level 4 Screening.** Screening criteria were applied to eliminate alternatives that meet the purpose of and need for the project but would be unreasonable for other reasons—for example, an alternative that would have unreasonable impacts to the natural and human environment, would not meet regulatory requirements, or duplicates the benefits of a less costly alternative with similar impacts to the natural and human environment.

In addition, UDOT simplified the names of the three conceptual alternatives that were recommended by the study partners in the Area Plan for further study in EIS, as shown in Table S.5-1.

Table S.5-1. New Names for EIS Alternatives

Area Plan Name	EIS Name
Alternative 1: Half-diamond interchange and tight-diamond interchange with through movements, Texas U-turns, and a pedestrian tunnel at Ute Boulevard	**Alternative A:** Split Diamond Interchange with Intersection Improvements
Alternative 3: Grade-separated intersections with enhanced pedestrian crossing facilities at Ute Boulevard and Olympic Parkway and alternate connections to the I-80 interchange	**Alternative B:** Grade-separated Intersections with One-way Frontage Roads to the I-80 Interchange
Alternative 4: Combination of stand-alone surface street improvements	**Alternative C:** Intersection Improvements with Pedestrian Enhancements

Figure S.5-1. Overview of the Kimball Junction EIS Alternatives Development and Screening Process



UDOT conducted an initial traffic evaluation on the conceptual alternatives resulting from the Area Plan process to determine whether they met applicable design criteria and the purpose of the project by screening for initial traffic measures for Level 3 screening. Based on initial traffic results, UDOT refined the conceptual alternative designs to establish an adequate number of lanes, median spacing, lane widths, and safe curve geometry for the proposed travel speeds and estimated travel demand before Level 3 screening was conducted.

During this initial traffic evaluation on the conceptual alternatives, Alternative B resulting from the Area Plan process failed the Level 3 screening traffic criteria because multiple intersections would fail and vehicles would back onto the I-80 mainline. The design of Alternative B was then refined to determine whether Alternative B could operate with better traffic metrics and thereby pass Level 3 screening. The concept of the depressed roadway with frontage roads remained consistent with both the conceptual and Refined Alternative B, although Refined Alternative B resulted in a wider footprint to pass the traffic-related screening measures.

Along with refinements to Alternative B, Alternatives A and C were also further refined and developed in enough design detail to allow UDOT to forecast future traffic in 2050 for the roadway alternatives.

S.5.2 Summary of EIS Screening Process

During Level 3 screening, the alternatives were screened against criteria pertaining to travel time, intersection level of service, percent served, length of vehicle queues, pedestrian and bicyclist level of traffic stress, and walking and transit travel times. Attachment D, *Kimball Junction Alternatives and Traffic Modeling Data Report*, of Appendix 2A, *Final Alternatives Development and Screening Results Report*, of this EIS includes the traffic and active transportation modeling methodology, data, and figures used for Level 3 screening.

Level 3 screening analysis showed that, while the refined Alternative B meets traffic criteria, it did not improve pedestrian and bicyclist mobility and accessibility throughout the needs assessment evaluation area compared to the No-Action Alternative, and therefore it does not meet the overall purpose of the project. Alternatives that are determined to not meet the purpose of the project are typically considered unreasonable for NEPA purposes. Refined Alternatives A and C both met the purpose of the project and passed all Level 3 screening measures.

Because Refined Alternatives A and C would have similar levels of impacts, the Level 4 screening analysis did not give UDOT a reason to eliminate either alternative. Therefore, UDOT decided that both Refined Alternatives A and C would advance for detailed evaluation in the Draft EIS. Because Refined Alternative B does not meet the purpose of the project (it failed Level 3 screening for pedestrian and bicyclist mobility and comfort) and would have the most impacts to waters of the United States, the most relocations, and the highest cost, UDOT eliminated Refined Alternative B from further consideration.

S.5.3 Additional Alternatives Development

Summit County and some members of the public suggested combining elements of the refined versions of Alternatives A and C presented in the draft screening report after completion of the Draft EIS screening process. Summit County specifically requested that the improvements on SR-224 included with Alternative C also be included in Alternative A. Several members of the public requested that bike lanes be included in Alternative A.

In response to Summit County's request to combine elements of Alternative C with Alternative A, UDOT revised the design of Alternative A on SR-224 to match the design of Alternative C. This design improvement also allowed striped and buffered bike lanes to be added between the through lane and the right-turn lane. The buffered bike lanes provide a striped buffer between the bike lane and the vehicle travel lane, thereby providing more formal separation from vehicle travel lanes and greater safety at the two intersections. Alternative C was also improved to include striped and buffered bike lanes.

S.6 What alternatives were carried forward for detailed analysis in the EIS?

Based on the results of the alternatives refinement, the Level 3 and 4 screening process, and additional improvements made to the alternatives based on Summit County's and public comments, UDOT advanced the following three alternatives for further study in the EIS.

S.6.1 No-Action Alternative

NEPA requires an analysis of a No-Action Alternative. With this alternative, the Kimball Junction Project would not be implemented. This alternative serves as a baseline so that decision-makers can compare the effects of the action alternatives.

S.6.2 Alternative A: Split Diamond Interchange with Intersection Improvements

As shown in Figure S.6-1, this alternative consists of a split-diamond interchange configuration on I-80 with intersection and pedestrian improvements on SR-224. The existing single-point urban interchange (SPUI) at Kimball Junction would be converted into a tight-diamond configuration (traffic signals at each off-ramp), and the interchange traffic would be split between the existing location at SR-224 and a new intersection with a bridge crossing I-80 to the west of SR-224.

The split-diamond interchange would disperse traffic between the new access and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area. One-way frontage roads for both eastbound and westbound directions would connect the two intersections and tie into the on- and off-ramps for I-80. The shared-use path on the south side of I-80 and the existing pedestrian bridge over I-80 would remain in place for pedestrian comfort. A pedestrian undercrossing at Ute Boulevard, intersection improvements, and a buffered bike lane along SR-224 are proposed to move all users more efficiently through the area. Intersection improvements include adding northbound and southbound through lanes on SR-224 between Olympic Parkway and I-80.

For more details regarding Alternative A, including its connection to Landmark Drive, see Section 2.5.2, *Alternative A*, of Chapter 2, *Alternatives*.

S.6.3 Alternative C: Intersection Improvements with Pedestrian Enhancements

As shown in Figure S.6-2, this alternative consists of spot improvements and widening areas of existing pavement while keeping most of the existing Kimball Junction area layout and pavement in place, including the existing I-80 and SR-224 SPUI. This alternative consists of additional through travel lanes, additional turn lanes at the intersections to improve intersection efficiency and improvements for pedestrian and bicyclist accessibility. The main improvements would consist of adding dual left-turn lanes at Olympic Parkway for southbound-to-eastbound movement, adding dual left-turn lanes at Ute Boulevard for southbound-to-eastbound and northbound-to-westbound movement, adding striped and buffered bike lanes on SR-224 in both the northbound and southbound directions between Olympic Parkway and Rasmussen Road, and building a pedestrian undercrossing south of Ute Boulevard.

This alternative would also include adding an additional northbound and southbound lane on SR-224 from Olympic Parkway to Ute Boulevard, along with extending the westbound-to-northbound right-turn lane on Newpark Boulevard and extending the eastbound-to-northbound dual left-turn lanes on Ute Boulevard.

For more details regarding Alternative C, see Section 2.5.3, *Alternative C*, of Chapter 2, *Alternatives*.

The alternatives development, refinement, and screening process is documented in Appendix 2A, *Final Alternatives Development and Screening Results Report*, of this EIS.

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Figure S.6-1. Alternative A: Split Diamond Interchange with Intersection Improvements

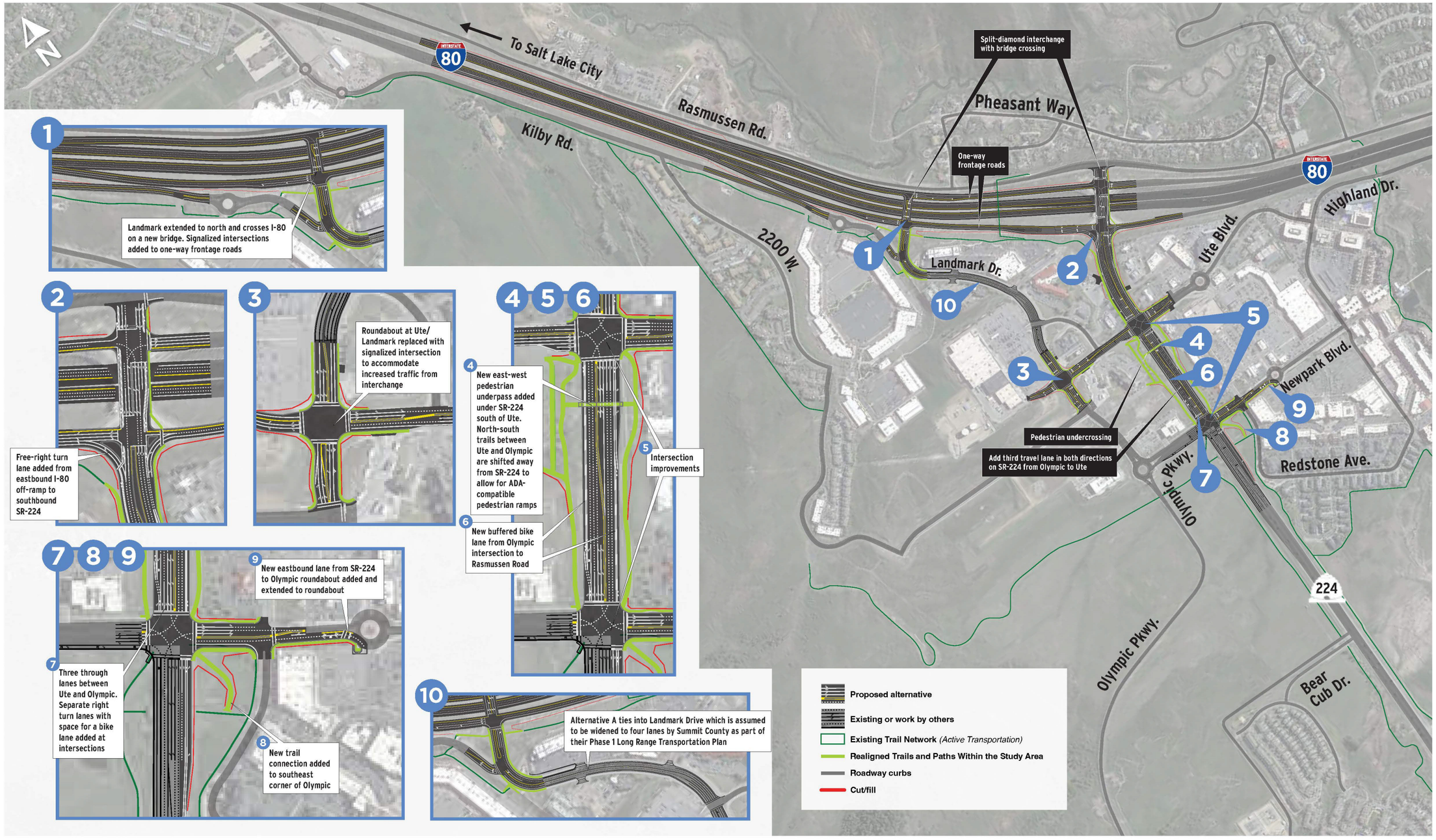
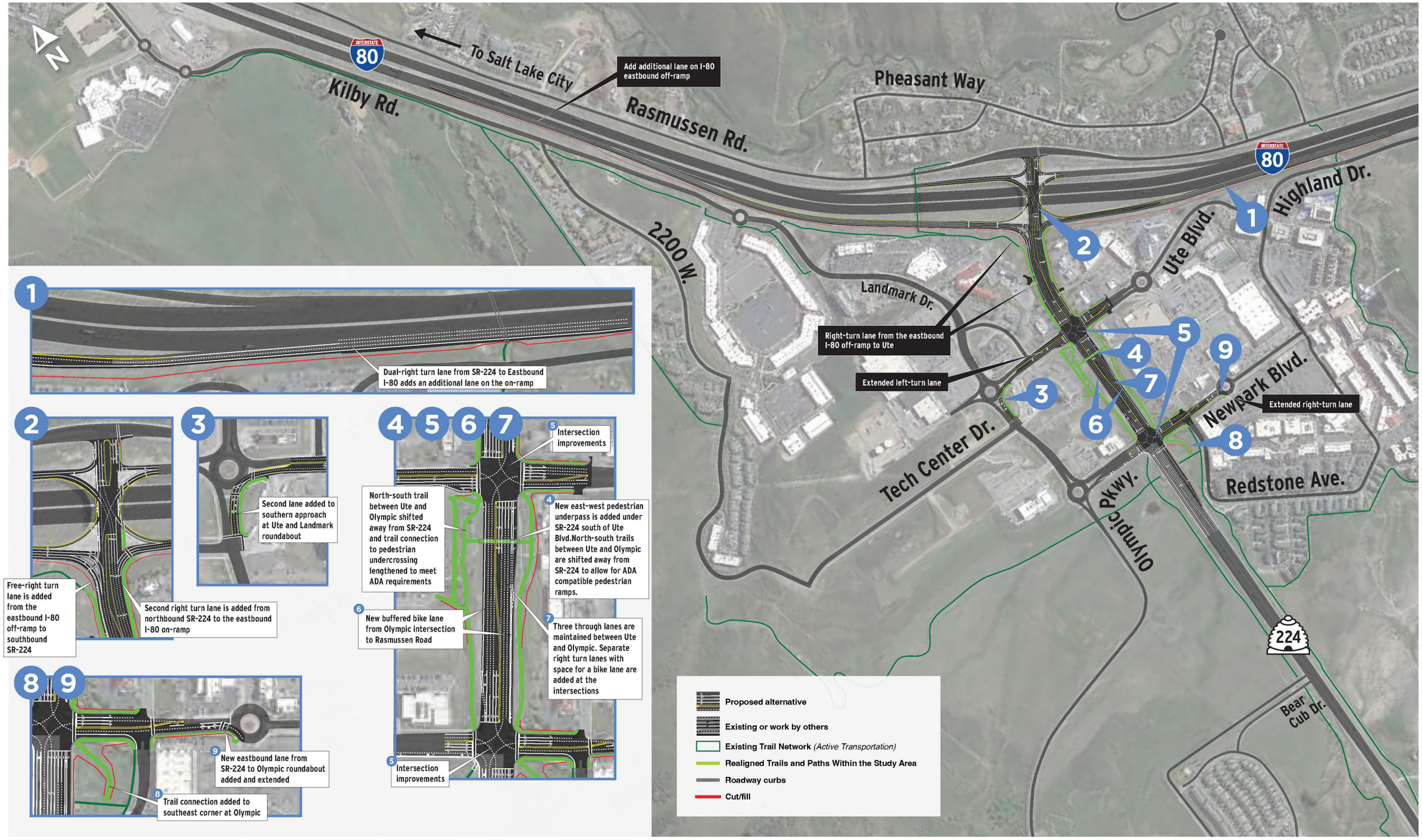


Figure S.6-2. Alternative C: Intersection Improvements with Pedestrian Enhancements



S.7 What impacts would the project have?

Table S.7-1 summarizes the environmental impacts of the No-Action and action alternatives. For detailed information about the environmental impacts of the project alternatives, see Chapter 3, *Affected Environment, Environmental Consequences, and Mitigation Measures*.

S.8 Which alternative did UDOT select, and what benefits does the alternative have?

After evaluating the information in this EIS, approved local and regional planning documents, the project file, and public and agency input to date, UDOT has identified **Alternative C: Intersection Improvements with Pedestrian Enhancements** as the selected alternative.

Alternatives A and C would similarly improve operations and travel times on SR-224 from the I-80 interchange through Olympic Parkway, would similarly improve level of service and percent served at intersections in the needs assessment evaluation area, would similarly improve BRT travel times through the evaluation area, and would similarly improve pedestrian and bicyclist mobility and accessibility throughout the evaluation area.

However, Alternative C would result in a greater reduction in travel delay and faster travel speeds through the needs assessment evaluation area during both the AM and PM peak periods than Alternative A, would provide acceptable level of service at all intersections in the needs assessment evaluation area, and would result in off-ramp vehicle queue lengths that are 200 feet shorter than with Alternative A. Alternative C is a more reasonable expenditure of funds for the anticipated operational benefits compared to Alternative A.

Table S.7-1. Resource Impacts from Each Project Alternative

Impact Category	Unit	No-Action Alternative	Alternative A	Alternative C
Impacts to local roadway network	None	• Congestion levels at the interchange and the rest of the study area would continue to increase from the existing conditions in 2022 and would reach severe congestion by 2050. • The operational deficiencies described in Chapter 1, *Purpose and Need*, would not be corrected.	• Improves operations, vehicle and BRT travel times, and safety. • Offers direct access between I-80 and the west side of Kimball Junction. • Increases traffic on Landmark Drive.	• Improves operations, vehicle and BRT travel times, and safety.
Pedestrian and bicyclist improvements	None	None	• Adds striped and buffered bike lanes to SR-224 in the pedestrian and bicyclist issues evaluation area and adds one pedestrian underpass at Ute Boulevard.	• Adds striped and buffered bike lanes to SR-224 in the pedestrian and bicyclist issues evaluation area and adds one pedestrian underpass at Ute Boulevard.
Land converted to roadway use	Acres	0	4.86	3.5
Consistent with local land use plans	Yes/no	No	Yes	Yes
Potential residential relocations	Number	0	0	0
Potential business relocations	Number	0	0	0
Utility impacts	Level	Low	Highest	High
Recreation areas/trails affected	Number	0	0	0
Community facilities affected	Number	0	0	0
Air quality impacts above regulations	Yes/no	No	No	No
Receptors with modeled noise levels above criteria	Number	139	138	139
Water quality improvements	Yes/no	No	Yes	Yes
Impacts to aquatic resources	Acres	0	0.044	0.004

(*Continued on next page*)

Table S.7-1. Resource Impacts from Each Project Alternative

Impact Category	Unit	No-Action Alternative	Alternative A	Alternative C
Direct impacts to threatened, endangered, and sensitive species	Acres	0	0	0
Adverse impacts to cultural resources	Number	0	0	0
Hazardous waste sites affected (high, moderate, and low risk sites combined)	Number	0	2	2
Floodplain impacts	Acres	0	0.79	0
Visual changes	Category	Neutral	Neutral	Neutral
Section 4(f) uses	Number	0	0	0

Definitions: BRT = bus rapid transit; Section 4(f) = Section 4(f) of the Department of Transportation Act of 1966

S.9 Were any notable refinements made to the selected alternative, and what new information was provided between the Draft and Final EISs?

UDOT made no refinements to Alternative C, the selected alternative, between the Draft and Final EIS phases. None of the comments received on the Draft EIS from the cooperating or participating agencies or the general public required changes to the alternative.

During the comment period on the Draft EIS, the Utah Division of Wildlife Resources submitted a comment requesting the installation of wildlife exclusion guards or grates to connect existing fencing and integrate with the new intersection design. Though exclusion guards or grates were not added to the selected alternative at this time, during the final design of the alternative, UDOT will evaluate the feasibility of adding exclusionary cattle guards at the Kimball Junction interchange on- and off-ramps.

Other commentors requested additional safety and wayfinding measures at the Ute Boulevard roundabout. Although Ute Boulevard is under Summit County's jurisdiction, during the final design of the selected alternative, UDOT could work with Summit County to include additional signs and lights at all roundabout crossings.

Since the publication of the Draft EIS, UDOT received concurrence from the U.S. Fish and Wildlife Service (USFWS) regarding UDOT's determination that the selected alternative may affect but is not likely to adversely affect Ute ladies'-tresses (*Spiranthes diluvialis*). Section 3.9, *Ecosystem Resources*, and Section 3.19, *Permits, Reviews, Clearances, and Approvals*, of this Final EIS include updated information regarding this concurrence. Appendix 3F, *Biological Assessment and USFWS Concurrence*, of this Final EIS includes UDOT's request with USFWS's concurrence.

In addition, based on comments received on the Draft EIS from the U.S. Environmental Protection Agency, UDOT also made some updates to its water quality analyses. This information is presented in Section 3.8, *Water Quality and Water Resources*, and Appendix 3C, *Water Quality Technical Report*, of this Final EIS.

S.10 Who made the decision about which alternative was selected for construction?

UDOT made the decision about which alternative was selected for construction. This decision, which is provided in the Record of Decision (ROD) for the Kimball Junction Project, is supported by information in this Final EIS, taking into account environmental and technical information, community and agency input, and other relevant information. See the ROD for more information about this decision.

S.11 What happens next? How much will the project cost, and when and how would it be constructed?

After all project approvals and permits are received, UDOT can proceed toward implementing the selected alternative identified in the ROD and this Final EIS. The selected alternative is Alternative C: Intersection Improvements with Pedestrian Enhancements.

The cost estimate shown in Table S.10-1 is based on the preliminary engineering conducted for the EIS and includes the total project cost for construction, right-of-way acquisition, utility relocation, and design engineering. The cost estimate is in 2026 dollars.

The selected alternative would be constructed based on available funding. UDOT could construct portions of the selected alternative based on the amount of funding while considering safety and operational benefits. The *Utah Long-range Transportation Plan 2023–205*0 identifies the selected alternative for construction in Phase 1 (2023–2032) with Unique ID No. U2023032. The selected alternative is also identified on UDOT's 2025–2030 Statewide Transportation Improvement Program (STIP) under Project Identification Number (PIN) 16388 with $50 million in funding for right-of-way, final design, and construction identified. The selected alternative is estimated to cost about $48.5 million (in 2026 dollars).

Table S.10-1. Preliminary Cost Estimate for the Selected Alternative

In 2026 dollars

Alternative Cost Category	Selected Alternative – Alternative C: Intersection Improvements with Pedestrian Enhancements
Right-of-way (strip takes)	$3,307,000
Roadway and structures	$20,224,000
Utilities	$6,062,000
Drainage	$4,123,000
Traffic control and maintenance of traffic	$859,000
Miscellaneous (CE, PE, and contingency) [a]	$13,895,000
Total cost	**$48,580,000**

Definitions: CE = construction engineering; PE = preliminary engineering

[a] Note that this category includes a contingency of 20% for items that were not otherwise estimated to account for final design elements that have not been analyzed at this level of design.

S.12 What major themes were identified in comments submitted during the EIS process?

UDOT designed the EIS process to comply with all federal laws by reaching out to the public agencies and tribes to solicit input and provide an opportunity to collaborate on defining the project purpose and need, identifying potential alternatives, and developing screening criteria. UDOT requested comments during these key milestones.

S.12.1 Scoping

During the scoping period, UDOT received over 170 individual comment submissions from the public on the conceptual alternatives resulting from the Kimball Junction and SR-224 Area Plan. Comments addressed a variety of issues including congestion, concerns about noise impacts, wildlife crossings and general wildlife protection, the source of possible funding, pedestrian options and safety, public transit options, how alternatives might affect development and existing businesses, and the cost of the alternatives.

Comments regarding the conceptual alternatives included suggested changes to existing intersections, improvements to other existing roads, new bridges, additional pedestrian enhancements, and various new bypass roads.

Copies of the comments received during the scoping period are included in the *Scoping Summary Report* on the project website. UDOT considered these scoping comments during the alternatives development and screening process and Draft EIS impact analyses where applicable.

S.12.2 Alternatives Development and Screening Methodology

During the comment period on the *Alternatives Development and Screening Methodology Report*, UDOT received 77 public comments. Most comments did not pertain to the proposed alternatives screening methodology, criteria, or measures; instead, they referred to preferences for one or more of the conceptual alternatives presented at the January 2023 scoping meetings or invoked environmental issues that would be studied in the EIS as part of any alternative moving forward for detailed study rather than used as criteria for screening. Many comments were related to concerns about congestion, concerns about noise, pedestrian options and safety, public transit options, how alternatives might affect existing businesses, and the cost of the alternatives.

S.12.3 Draft Alternatives Development and Screening Results

During the public comment period for the *Draft Alternatives Development and Screening Results Report*, UDOT received about 135 individual comment submissions from the public. Comments were submitted on a variety of topics including the purpose and need, population growth, traffic growth and analysis, opinions on (or modifications to) the alternatives, suggestions for new alternatives, environmental concerns, active transportation options and safety, public transit, and economic impacts of the project. Several comments requested that the project be included in the Statewide Transportation Improvement Program. A summary of the comments received is included in the *Final Alternatives Development and Screening Results Report*. In addition, UDOT posted a frequently asked questions document on the website.

Although UDOT considered all comments, UDOT did not necessarily make changes to the alternatives or screening evaluation measures in response to each comment. After consideration of all comments received, UDOT evaluated two new alternatives: Summit County's Alternative B+ and Summit County's request for a pedestrian overpass in place of the proposed pedestrian underpass included with Alternatives A and C. In addition, based on public comments, UDOT made additional changes to the existing Alternatives A and C that are described in Section S.5.3, *Additional Alternatives Development*.

S.12.4 Draft EIS Comment Period

During the Draft EIS comment period held between March 14, 2025, and April 28, 2025, UDOT received 60 comments from individuals, organizations, and government agencies, though most of the 60 comments contained multiple comments within.

Most of the comments addressed concerns over UDOT's selection of Alternative C as the preferred alternative and UDOT's methodology to assess congestion relief, as well as opposition to the preferred alternative because of the perception that it would not solve the transportation problems identified in the needs assessment evaluation area. Many commentors still believed that Alternative B—or another grade-separated alternative or bypass alternative—should have been selected. Other comments suggested other alternatives in addition to grade separation that were eliminated during either the Area Plan or alternatives development and screening phases of the EIS. Comments also advocated land use or other transportation changes that are outside UDOT's authority or jurisdiction. UDOT also received comments in support of the preferred (now selected) alternative.

Responses to the comments received on the Draft EIS are included in Appendix 4A, *Responses to Comments on the Draft EIS*, of this Final EIS. Reproduction copies of all comments with attachments, along with a copy of the public hearing transcript, are included in Appendix 4B, *Reproductions of Comments on the Draft EIS with Attachments and Public Hearing Transcripts*. More information regarding the Draft EIS comment period is included in Section 4.4.6, *Draft EIS Notice of Availability, Outreach, and Comment Period*, of Chapter 4, *Coordination*.

S.12.5 Summary

UDOT has received input from city and county officials, residents, business owners and operators, and commuters in the Kimball Junction Project study area, as well as agency representatives. Most stakeholders have agreed that capacity and safety improvements are required in the Kimball Junction area. However, the public has identified planned development and traffic, noise, impacts to open space and wildlife, business and economic impacts, highway congestion, and safety as their primary concerns.

The project alternatives carried forward through the alternatives analysis process were developed by reviewing existing land use and transportation plans, through outreach at public informational meetings, and through meetings with Summit County, Park City, and resource agencies. Feedback from public comments also shaped the alternatives considered and the screening process.

S.13 What additional federal actions would be required before the project is implemented?

The following additional federal actions would be required before the Kimball Junction Project is implemented:

- Nationwide Permit under Section 404 of the Clean Water Act (U.S. Army Corps of Engineers)
- Operations and Safety Assessment for modifications to the interchange (Federal Highway Administration)
- Endangered Species Act compliance (U.S. Fish and Wildlife Service)

S.14 References

[UDOT] Utah Department of Transportation

2022 Draft Purpose and Need Technical Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2022/12/Kimball_Jct_EIS-Draft-Purpose-and-Need_V5_12-15-2022.pdf. December 15.

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Chapter 1: Purpose and Need

1.1 Introduction

The Utah Department of Transportation (UDOT) is preparing an Environmental Impact Statement (EIS) to evaluate proposed transportation improvements at the Interstate 80 (I-80) and State Route 224 (SR-224) interchange at Kimball Junction in Summit County, Utah. UDOT recognizes that the federal Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) implementing regulations were rescinded effective April 11, 2025. For purposes of transparency, UDOT completed most of the substantive analysis summarized in this EIS in accordance with the 2020 CEQ NEPA implementing regulations, as amended in 2022, that were in effect when the Notice of Intent to prepare this EIS was published in December 2022.

This EIS conforms to applicable Federal Highway Administration (FHWA) regulations, policy, and guidance; the provisions of 23 *United States Code* (USC) Section 139, *Efficient Environmental Reviews for Project Decisionmaking and One Federal Decision*; executive directives; and other applicable environmental laws and regulations referenced in this EIS, as of February 25, 2025. This EIS also conforms to the requirements of UDOT, the project sponsor and lead agency.

FHWA has assigned its responsibilities under NEPA and other federal environmental laws to UDOT for highway projects in Utah, pursuant to 23 USC Section 327, in a Memorandum of Understanding (MOU) dated May 26, 2022. In accordance with the assignment MOU, UDOT is carrying out the environmental review process for the Kimball Junction Project in lieu of FHWA and serves as the lead agency in the NEPA process. The assignment MOU does not change the roles and responsibilities of any other federal agency whose review or approval is required for the project.

1.1.1 Description of the Needs Assessment Evaluation Area and Logical Termini

1.1.1.1 Needs Assessment Evaluation Area

The needs assessment evaluation area includes the I-80 and SR-224 interchange at Kimball Junction and SR-224 from Kimball Junction through the two at-grade intersections on SR-224 at Ute Boulevard and Olympic Parkway. The evaluation area also extends from milepost (MP) 143.2 to MP 145.6 on I-80 (Figure 1.1-1).

SR-224 is a four-lane arterial road and a major north-south route that connects the Park City community, including Main Street, Deer Valley Resort, and Park City Mountain Resort with key Snyderville basin destinations such as Canyons Village at Park City and Kimball Junction, and other roads and destinations such as I-80 and the Salt Lake Valley. In addition to SR-224 and I-80, the main roads in the evaluation area are Ute Boulevard and Olympic Parkway.

Figure 1.1-1. Needs Assessment Evaluation Area

1.1.1.2 Logical Termini

For the Kimball Junction Project, the north terminus is Rasmussen Road and SR-224, the south terminus is the Olympic Parkway intersection on SR-224, the west terminus is the Jeremy Ranch interchange on I-80, and the east terminus is the U.S. Highway 40 (US-40) interchange on I-80.

For the north and south termini, UDOT concluded that improvements from the I-80 interchange through Olympic Parkway would be reasonable and would allow both the I-80 interchange and SR-224 through Kimball Junction to operate efficiently, even if no additional improvements were made.

What are logical termini?

Logical termini are the rational end points for evaluating proposed transportation improvements. Generally, they are the points of major traffic generation such as intersecting roads.

Because there is enough separation between Kimball Junction and the next traffic signal to the south (at Bobsled Boulevard), UDOT would not need to make additional improvements on SR-224 to alleviate traffic issues in the Kimball Junction area. Moreover, improving this segment of SR-224 and the I-80 interchange would not restrict alternatives for other reasonably foreseeable transportation projects along SR-224 south of Olympic Parkway.

For the west and east termini, UDOT selected the Jeremy Ranch and US-40 interchanges, respectively, to satisfy FHWA's Interstate Access Change Request requirements. Similarly to the proposed project improvements on SR-224, the proposed project improvements at the Kimball Junction interchange would not force additional improvements on points east and west of this interchange on I-80.

In addition to considering traffic generation and traffic effects when developing the logical termini, UDOT also considered influencing factors (such as access, travel demand, and type of use on SR-224) from surrounding communities, businesses, and future developments.

1.1.1.3 Evaluation Area Context

The needs assessment evaluation area contains a mix of highly developed, mixed-use residential, commercial, and retail businesses as well as open space and conservation easement lands bordering the commercial zone. Kimball Junction is the designated town center in the Snyderville Basin and is the focal point for living, working, shopping, and entertainment.

According to the *Snyderville Basin General Plan* (Summit County 2015), Kimball Junction serves as a vital hub and employment center of the area. Kimball Junction is the arrival point for the greater Snyderville Basin–Park City region. Among the neighborhood's strengths are its proximity to several primary transportation corridors, its economic vitality, and the nearby open space and recreation amenities.

1.1.2 Background

1.1.2.1 Kimball Junction and SR-224 Area Plan

UDOT used its Solutions Development process to study the unique context of the Kimball Junction area and developed a set of preliminary solutions to meet identified transportation needs. The solution sets that UDOT identified included elements such as roadway improvements for motor vehicles, transit and/or active transportation, travel demand management, Intelligent Transportation Systems (ITS) improvements, and land use and other policy changes that would be implemented by local government partners.

The *Kimball Junction and SR-224 Area Plan* (Area Plan; UDOT 2021) was developed to summarize the needs in the Kimball Junction area and establish an initial range of improvements to reduce congestion and improve multimodal travel and connectivity, including at the two at-grade intersections on SR-224. In developing the Area Plan, UDOT also coordinated with agencies, stakeholders, and the public to identify transportation needs, preliminary alternatives, and potentially significant environmental issues. The Area Plan identified the following mobility concerns, which established the foundation for the Purpose and Need Statement for the current EIS process (the Kimball Junction EIS).

What is travel demand?

Travel demand is the expected number of transportation trips in an area. Travel demand can be met by various modes of travel, such as automobile, bus, walking, and bicycling.

- Traffic congestion during peak hours limits mobility to and from I-80 through Kimball Junction.
- Vehicles on the I-80 interchange ramps back up onto the I-80 mainline, and vehicles on SR-224 back up south of Kimball Junction for over 1 mile.
- Travel time on SR-224 through the Kimball Junction area is unreliable.
- Residences and businesses along SR-224 through the Kimball Junction area are often difficult to access.
- The increase in travel demand from forecasted job, residential, and recreational growth will lead to decreased mobility.
- East-west mobility is lacking on SR-224 through the Kimball Junction area for all travel modes.

1.1.2.2 Previous Planning Studies

Many plans and studies completed over the last 15-plus years, such as local transportation plans, plans for the development of adjacent land use, and regional and statewide plans, discuss the growing traffic congestion in the Kimball Junction area. Table 1.1-1 presents the relevant regional plans and studies that were used to inform the purpose of and need for the Kimball Junction Project.

Table 1.1-1. Previous Studies

Plan or Study	Year(s)
SR-224 Bus Rapid Transit Categorical Exclusion	2023
Park City Forward Transportation Plan	2022
Park City Short Range Transit Plan	2022
Summit County Long-range Transportation Plan	2022, 2019, and 2015
Kimball Junction and SR-224 Area Plan	2021
Kimball Junction and SR-224 Area Plan Incorporating FHWA Health in Transportation Corridor Planning Framework	2021
Park City and Summit County Short-range Transit Development Plan	2020 and 2016
Kimball Junction Master Plan	2019
Kimball Junction Neighborhood Plan	2019
Summit County Active Transportation Plan	2019
SR-248 Environmental Assessment	2019
Valley to Mountain Alternatives Analysis	2018
Let's Go Summit County Transportation Sales Tax Initiative	2016
Downtown and Main Street Parking Plan	2016
Snyderville Basin General Plan	2015
Abridged Snyderville Basin Long-range Transportation Plan	2015
Park City General Plan	2014
SR-224 Corridor Study	2012
Park City Traffic and Transportation Plan	2011
Park City Transportation Demand Management Plan	2011
SR-248 Corridor Plan	2009
Entry Corridors Management Strategic Plan	2006

1.2 Summary of Purpose and Need

1.2.1 Need for the Project

For the Kimball Junction Project, UDOT looked at the expected transportation mobility needs in the needs assessment evaluation area in 2050. These mobility needs are related primarily to traffic delay during morning (AM) and afternoon (PM) peak hours. This delay is due to projected growth in population, employment, tourism, and development in the Kimball Junction area, in surrounding areas, and regionally.

What are the AM and PM peak hours?

The AM and PM peak hours are the 1-hour periods of the morning and afternoon, respectively, during which there is the greatest number of vehicles on the roadway system. The peak hours that were modeled in the analysis were 8:00 to 9:00 AM and 4:00 to 5:00 PM. Peak hours are looked at by transportation officials when examining the need for a project.

This projected growth in the area will lead to the following issues:

- Future (2050) failing conditions at the intersections of SR-224 and I-80, Ute Boulevard, and Olympic Parkway will create delay and unreliable travel times.
- Vehicle queues on the I-80 off-ramps will extend back onto mainline I-80, which will result in unsafe travel conditions.

In addition, UDOT looked at expected active transportation mobility needs in the evaluation area, also during 2050. The active transportation mobility needs are related in part to future upgrades in transit service in the evaluation area, as well as to growth of the regional trail system, community interest in walking and bicycling in the evaluation area and to access local recreational amenities, and developing land uses in the evaluation area. These factors will lead to the following issue:

- Growing east-west active transportation (walking and bicycling) demand across SR-224 will require additional crossing facilities.

Finally, because of projected growth in the area, Summit County has proposed transit improvements to alleviate vehicle travel demand and improve transit mobility and reliability as part of a separate project on SR-224: the SR-224 Bus Rapid Transit (BRT) Project. Although the SR-224 BRT Project has independent utility from the Kimball Junction Project, the Kimball Junction Project's design will accommodate any approved transit upgrades that are part of the SR-224 BRT Project.

1.2.2 Purpose of the Project

The purpose of the Kimball Junction Project is to address transportation-related safety and mobility issues for all users of the Kimball Junction area by:

What is the Kimball Junction area?

The Kimball Junction area includes the I-80 and SR-224 interchange through the two at-grade intersections on SR-224 (Ute Boulevard and Olympic Parkway).

- Improving operations and travel times on SR-224 from the I-80 interchange through Olympic Parkway;
- Improving safety by reducing vehicle queue lengths on I-80 off-ramps;
- Improving pedestrian and bicyclist mobility and accessibility throughout the needs assessment evaluation area; and
- Maintaining or improving transit travel times throughout the evaluation area.

1.3 Planning for Future Conditions in the Needs Assessment Evaluation Area

1.3.1 Projected Growth

The Kem C. Gardner Policy Institute at the University of Utah produces long-term demographic and economic projections for the state of Utah and its counties. As shown in Table 1.3-1, Wasatch and Summit Counties are projected to have large increases in population, employment, and households by 2050. These projected increases are included in UDOT's *Utah Long-range Transportation Plan 2023–2050* (UDOT 2023) and are expected to result in additional travel demand on the transportation network in the Kimball Junction area.

Table 1.3-1. Projected Regional Population, Employment, and Household Growth in Wasatch and Summit Counties

County	Population		Employment		Households	
	2020	2050 Projection (Percent Change from 2020)	2020	2050 Projection (Percent Change from 2020)	2020	2050 Projection (Percent Change from 2020)
Summit	42,394	56,493 (33%)	38,852	59,582 (53%)	15,688	25,379 (62%)
Wasatch	34,933	69,493 (99%)	17,609	28,752 (63%)	11,040	26,856 (143%)

Sources: Kem C. Gardner Policy Institute 2022a, 2022b

1.3.2 Future Land Development

The needs assessment evaluation area is within the Kimball Junction neighborhood boundaries as defined in the *Kimball Junction Neighborhood Plan*, which is included in Summit County's *Snyderville Basin General Plan* (Summit County 2015). The zoning in the Kimball Junction neighborhood is a combination of Rural Residential, Community Commercial, and Town Center. According to the neighborhood plan, existing development agreements establish project-specific development standards that are unique and supersede the underlying base zoning requirements.

Several ongoing and emerging land-development activities are approved or planned near the evaluation area that will contribute to the anticipated future demographics.

Park City Tech Center. Although most of the needs assessment evaluation area is built out or preserved as open space, several proposals have been made to develop the northwest quadrant of the Kimball Junction neighborhood (see Section 3.1, *Land Use and Planning*), which is currently undeveloped. The proposed Park City Tech Center development would be on a 51-acre parcel west of SR-224 and the Kimball Junction Transit Center and near the Skullcandy building. This area is identified as mixed-use on the future land use map for the Kimball Junction neighborhood (see Figure 3.1-3, *Future Land Use Map for the Kimball Junction Neighborhood Planning Area*).

The initial development agreement for this parcel was approved for research, development, and technology uses and had an approved amendment that also included uses for outdoor industries and support businesses. In 2019, the parcel owner, Dakota Pacific Real Estate, applied to Summit County to amend the initial development agreement to allow a mix of residential units as well as retail, office, and commercial

space. Since 2019, several plans with varying zoning designations and proposed densities have been submitted by Dakota Pacific to Summit County for its review and approval.

On December 18, 2024, the Summit County Council approved the current development concept, which would create a mixed-use town center near the existing Richins Building and allow the construction of between 865 and 915 housing units (a portion of which would be deed-restricted affordable units), a new civic plaza, and an expanded transit center (Malatesta 2024).

The traffic analysis process used for this EIS considered the future land uses adopted in the *Summit County Long-range Transportation Plan 2022–2050* (Summit County 2022), including local and regional growth assumptions for multiple areas in and around the needs assessment evaluation area. These growth assumptions include the planned Park City Tech Center and adequately capture the density included in the approved development plans (Parametrix 2022a).

Canyons Village Management Association. The Canyons Village Management Association (CVMA) is located at Park City Mountain's Canyons Village base side. This development is the SR-224 corridor's largest employer, even though it is only about 35% built out. The CVMA area ramped up approved development in 2017 and in 2021 broke ground on employee housing accommodations on 7.7 acres adjacent to the Canyons Village Transit Hub. The new Slopeside Village employee housing complex will accommodate more than 1,100 employees (CVMA 2022). The first phase was completed in the summer of 2023. Based on existing development rights, the CVMA area is forecasted to grow substantially over the next 10 years.

Bonanza Park Site. The Bonanza 5-acre site is located on Bonanza Drive and Kearns Boulevard, two major arterial roads in a commercially active part of Park City called Bonanza Park. Park City is currently establishing a mixed-use development at this site that will include community gathering spaces, affordable housing, retail, access to public transportation, and a new Kimball Art Center (Park City, no date). In June 2024, Park City published the draft *Bonanza Park Small Area Plan* (Park City 2024a), which will lead to the creation of the new Bonanza Park Mixed Use Zoning District.

Park City Mountain Resort Base Area Redevelopment. Park City Municipal Corporation is currently working with a developer regarding plans to redevelop the base of Park City Mountain Resort, including its parking lot area. The planned development encompasses 10 acres and calls for a hotel, residences, restaurants, retail shops, community plazas, and above-grade parking garages.

Deer Valley Snow Park Village Redevelopment. In November 2022, Deer Valley Resort submitted applications to the Park City planning department to redevelop the existing Snow Park Village parking lots and base area. The applications seek to redevelop the base area in three phases. The planning process for this anticipated redevelopment is ongoing and Deer Valley Resort's latest plans were submitted to the Park City Planning Commission in October 2024. The Planning Commission has held several public hearings between October 2024 and January 2025 (Park City 2024b).

1.3.3 UDOT's Long-range Transportation Plan and Planning Horizon

UDOT's Long-range Transportation Plan. In addition to the needs identified in the local and regional plans listed above in Table 1.1-1, *Previous Studies*, UDOT's *Utah Long-range Transportation Plan 2023–2050* (LRTP; UDOT 2023) identifies a need for improvements to the Kimball Junction interchange. This section evaluates that need based on projected population, employment, and recreational growth and travel demand data; the existing transportation system and planned improvements; and the identified mobility issues in the evaluation area.

UDOT's LRTP was used to establish the planning horizon (2050) for the Kimball Junction EIS. The LRTP 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 socioeconomic factors and planned land use in a region. UDOT updates the LRTP every 4 years to ensure that it remains consistent with the land use and transportation planning in areas outside metropolitan centers.

What is a fiscally constrained LRTP?

Fiscally constrained means that an LRTP 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.

Planning Horizon. The planning horizon for a project is used to assess how well the project alternatives would support future travel demand. A no-action condition is used to inform the needs assessment. For the Kimball Junction EIS, the no-action condition is the condition of the transportation operations of the transportation system without the improvements that are part of the Kimball Junction Project. There are currently two planned projects on the LRTP in the needs assessment evaluation area: the I-80 Interchange Upgrade at Kimball Junction and the SR-224 BRT.

UDOT's 2023–2050 LRTP identifies three timeframes, or phases, for construction:

- Phase 1: 2023 to 2032
- Phase 2: 2033 to 2042
- Phase 3: 2043 to 2050

The LRTP 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 in the LRTP in order to provide a better understanding of all planned improvements in an area. Fiscally constrained projects in the LRTP 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 in the Kimball Junction area are identified as a Phase 1 project (2023 to 2032).

1.4 Existing and Future Mobility

Transportation improvements are needed to address existing and future mobility challenges and improve multimodal travel and connectivity through the Kimball Junction area. *Mobility* refers to the ease with which people can move from place to place using a transportation system. Impediments to mobility for vehicles can include traffic congestion, numerous accesses to properties, higher accident rates, and other factors. Impediments to mobility for pedestrians and bicyclists can include a lack of overpasses and/or underpasses, a lack of sidewalks, inadequate separation between motorists and nonmotorists, and a lack of lighting, signs, and/or crosswalks.

SR-224 has many mobility challenges today because it has a high average daily traffic (about 33,000 vehicles per day) and seasonal fluctuations. In addition, many pedestrians and bicyclists cross this corridor. The future mobility concerns in the needs assessment evaluation area are based primarily on (1) existing operational deficiencies, including traffic backups at off-ramps and intersections that experience heavy turning movements; (2) potential impacts to the existing system caused by a changing level and type of travel demand associated with projected growth in population, employment, tourism, and development in Summit County; and (3) failures in the existing system with regard to mobility, congestion, access, and travel time reliability.

1.4.1 Traffic and Mobility

Typically, travelers will use a combination of arterial, collector, and local roads for their trips. Each type of road has a specific purpose or function. Arterial roads provide a high level of mobility for traffic passing through and provide limited access to adjacent properties, while local roads provide a high level of access to properties but a low level of mobility. Local roads are typically used for access to residential neighborhoods and have low speed limits. Collector roads provide a balance between mobility and property access. For a transportation system to operate efficiently, all three types of roads are needed. UDOT further classifies arterials and collectors as shown in Table 1.4-1.

The needs assessment evaluation area includes two arterial roads that serve high volumes of traffic: I-80 and SR-224. I-80 is used primarily for east-west travel to and through the evaluation area, and SR-224 is a principal arterial from I-80 to Park City. SR-224 serves as a primary arterial into Park City's Old Town and to two of the major economic drivers in the region: Park City Mountain Resort and Deer Valley Resort.

Other key destinations are reached via SR-224, including Canyons Village at Park City, the Utah Olympic Park, the Swaner Preserve and EcoCenter, and the Kimball Junction commercial centers. SR-224 serves as a commuter corridor from residential areas primarily north of the evaluation area, including Salt Lake City and the Jeremy Ranch and Summit Park areas, and for rural communities in Summit and Wasatch counties.

Ute Boulevard is currently classified as a major collector on the east side or SR-224 and a minor arterial on the west side of SR-224. Olympic Parkway (New Park Boulevard) is classified as a major collector. Bitner Road, which is on the north side of I-80, is also a major collector.

Table 1.4-1. Highway Functional Classifications

Functional Classification	Characteristics
Arterials	
Interstates	Interstates are the highest classification of arterials designed and constructed with mobility and long-distance travel in mind.
Freeways and expressways	Freeways and expressways are similar to interstates. They are designed to maximize mobility. Directional travel lanes are typically separated by some type of physical barrier, and access is limited to on- and off-ramp locations.
Principal arterials	Principal arterials serve major centers of metropolitan areas with a high degree of mobility. In rural areas, they provide a high degree of mobility with trip length and travel density characteristics indicative of substantial statewide or interstate travel. Principal arterials can provide access to at-grade intersections with other roads and driveways to specific parcels. They provide similar service in both urban and rural areas, the primary difference being that there are usually multiple arterial routes in an urban area.
Minor arterials	Minor arterials provide service for trips of moderate length and offer connectivity to the higher arterial system. In rural settings, minor arterials are typically designed to provide relatively high overall travel speeds, with minimum interference to through movement.
Collectors	
Major collectors	Major collectors serve primarily intra-county travel (rather than statewide) and constitute those routes on which predominant travel distances are shorter than on arterial routes.
Minor collectors	Minor collectors are similar to major collectors, but they are usually shorter in length, have fewer travel lanes and driveways, and have lower speed limits. They provide more access and less mobility compared to major collectors.
Local roads	
Local roads	Local roads provide direct access to adjacent land and are not intended for use in long-distance travel, except at the origin or destination end of the trip. They are often designed to discourage through traffic.

Source: FHWA 2013

1.4.1.1 Travel Demand and 2050 No-action Conditions

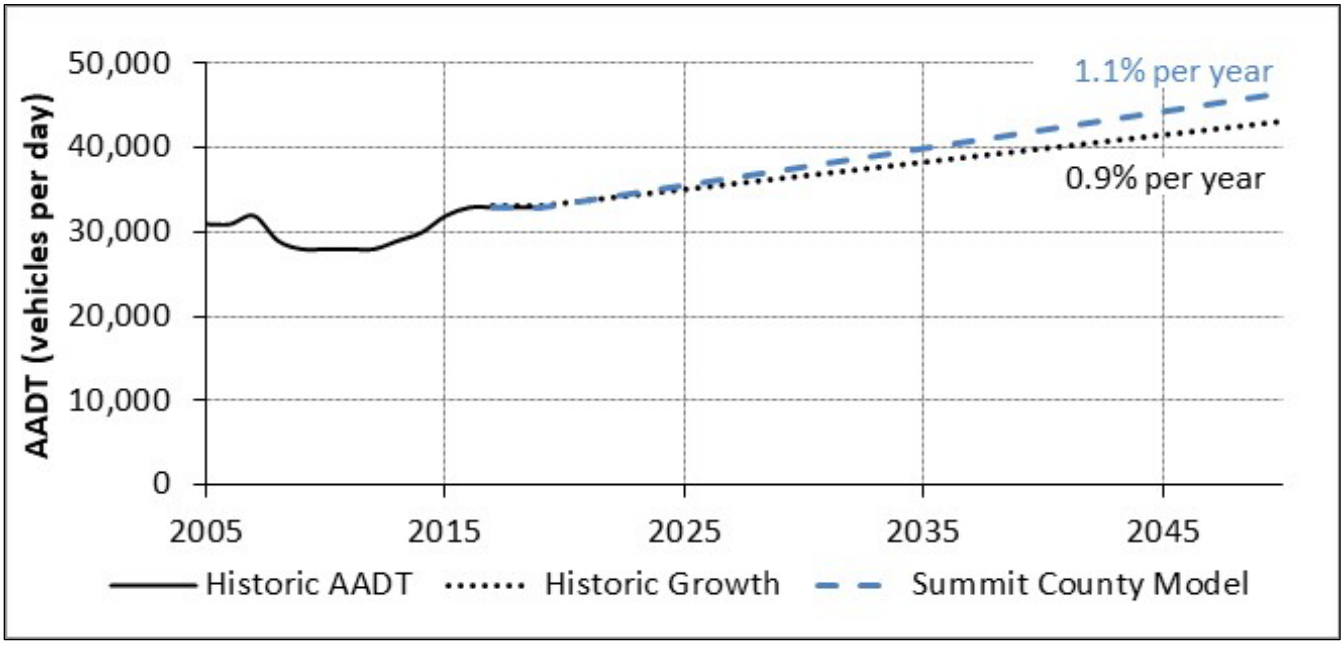
The traffic modeling conducted for the 2050 no-action conditions used Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14 (Summit County model). The model includes assumptions about future land uses as developed by the Mountainland Association of Governments, Summit County, Wasatch County, and the Kem C. Gardner Policy Institute at the University of Utah. These assumptions are guided by existing and approved development plans, land use plans, and statewide demographic projections. In addition, the traffic modeling included the planned SR-224 BRT service.

Traffic volume is expected to increase within the Kimball Junction area by 2050. Traffic volumes on SR-224 during the weekday AM and PM peak hours are anticipated to increase by up to 30% to 40% by 2050 under the no-action conditions. This increase in traffic volumes on SR-224 includes growth in the number of vehicles traveling between I-80 and Park City and within the Kimball Junction area as more development occurs.

The Summit County model was used to generate forecasts of traffic under the no-action conditions in 2050. As shown in Figure 1.4-1, both the historic growth trends in traffic and the traffic modeling conducted for the 2050 no-action conditions predict an average daily traffic volume of over 40,000 vehicles per day in 2050, or just over a 30% increase over the existing conditions in 2022. The following sections discuss the level of

service at key intersections on SR-224 and the travel times that will result from the overall traffic growth that is forecasted for the Kimball Junction area.

Figure 1.4-1. Traffic Growth Projections



Definition: AADT = annual average daily traffic

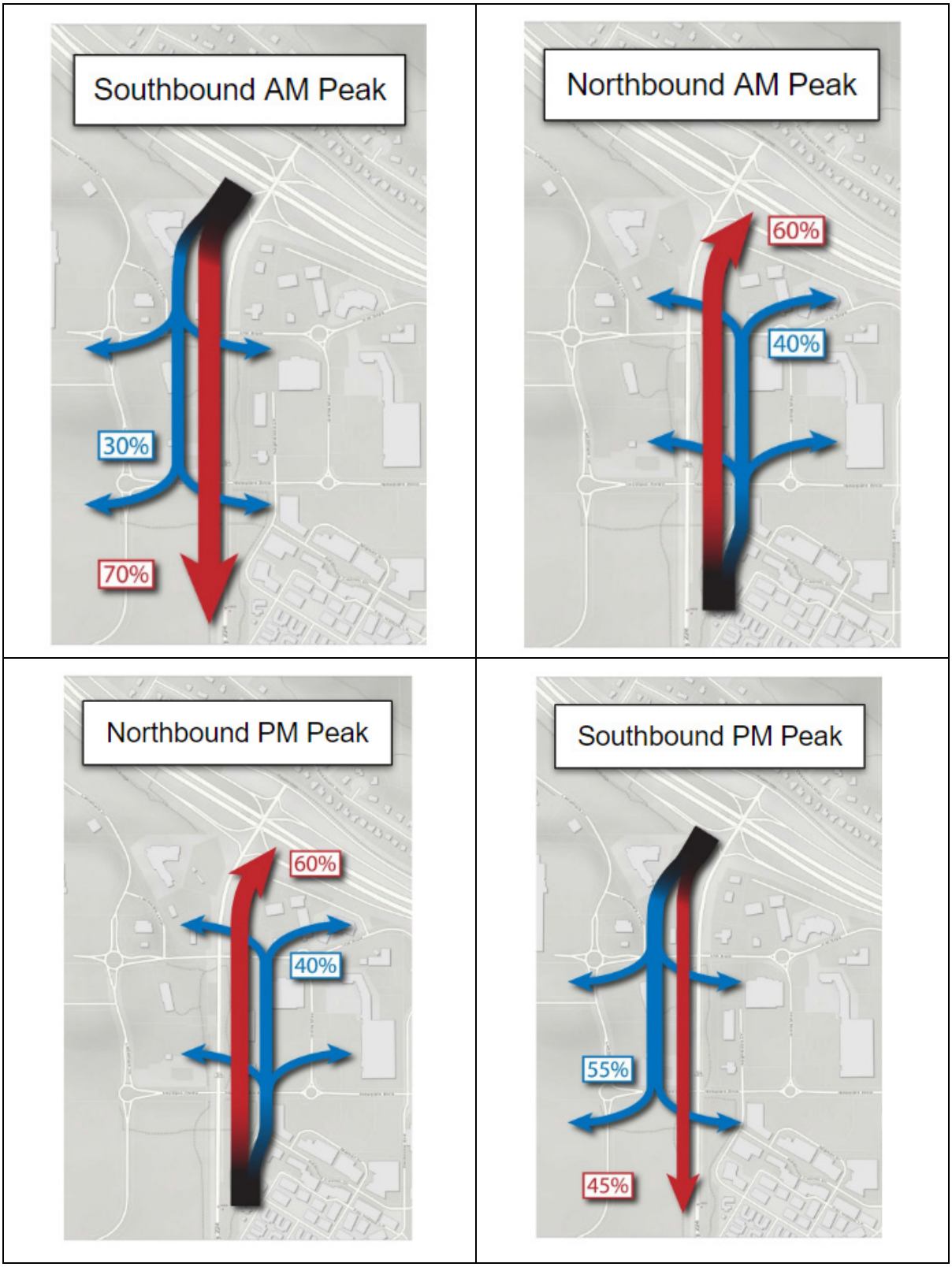
1.4.1.2 Traffic Volumes and Distribution

The existing traffic distribution in 2022 is a mix of through traffic and traffic destined to Kimball Junction businesses and residential areas. Most through traffic is traffic originating from I-80 (primarily during the AM hours) headed to areas south of the evaluation area and traffic (primarily during the PM hours) originating from areas south headed for I-80. Traffic headed to the Kimball Junction area during the AM and PM hours coincides with the peak through traffic. Figure 1.4-2 presents the approximate traffic distribution during the AM and PM peak hours.

During the AM hours, the predominant traffic direction on SR-224 is southbound. As shown in Figure 1.4-2, the AM peak hours show a strong through pattern; 70% of the southbound traffic continues south and passes through the Kimball Junction area, and 30% stops at area restaurants, grocery stores, or other retail businesses. Although the existing peak AM northbound traffic (about 775 vehicles per hour as modeled at Olympic Parkway) is overall less than the AM peak southbound traffic (about 1,750 vehicles per hour), a higher percentage (40%) of that traffic is accessing areas surrounding SR-224 in Kimball Junction.

The PM traffic distribution is different. The predominant traffic movement is northbound (about 1,695 vehicles per hour northbound and 975 vehicles per hour southbound as modeled at Ute Boulevard); about 60% is through traffic, and 40% of the traffic accesses areas in Kimball Junction. At the same time, 55% of the southbound traffic is accessing areas in Kimball Junction and 45% is through traffic.

Figure 1.4-2. Traffic Distribution during the AM and PM Peak Hours in 2022



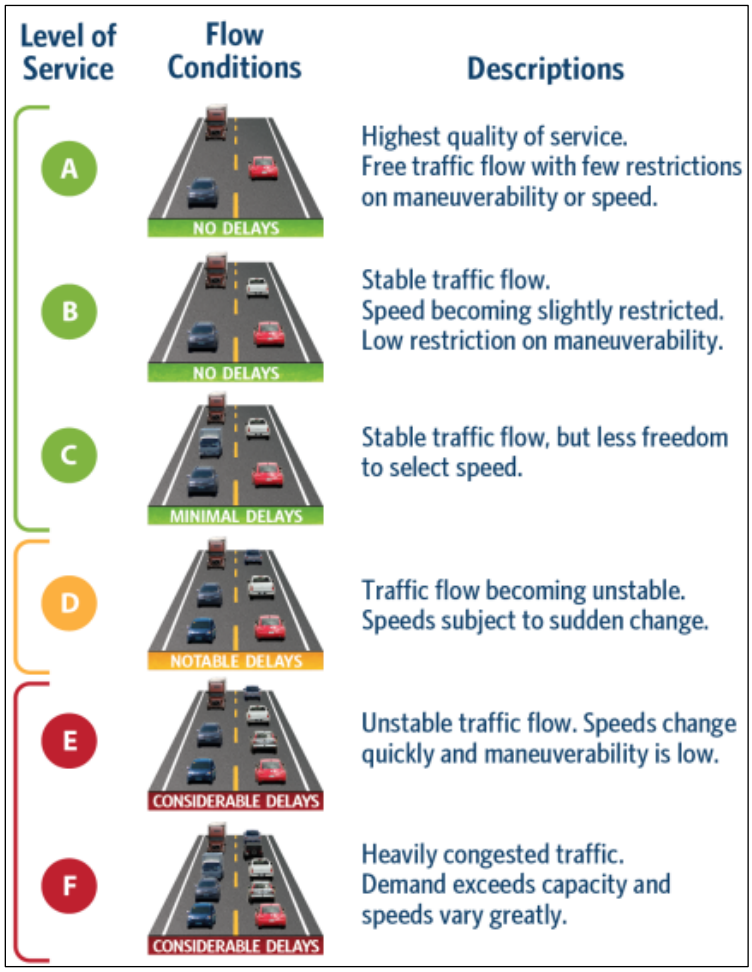
The overall traffic distribution percentages for the AM and PM peak hours are not expected to change substantially by 2050. Given that the overall traffic volume is expected to increase by just over 30% on SR-224 and on both sides of the Kimball Junction neighborhood by 2050, severe congestion is anticipated. The following sections explain the effects of this traffic growth on mobility.

1.4.1.3 Level of Service

Traffic conditions were analyzed at key intersections on SR-224 during the AM and PM peak hours for a representative day during the winter season. This section summarizes the existing (2022) and future (2050) traffic and safety conditions in the Kimball Junction area.

Level of service (LOS) is measure of the vehicle-carrying capacity and performance of a street, freeway, or intersection (Figure 1.4-3). When the capacity of a road is exceeded, the result is congestion, delay, and a poor level of service. Level of service is represented by a letter “grade” ranging from A for excellent conditions (free-flowing traffic and little delay) to F for failure conditions (extremely congested, stop-and-go traffic, and excessive delay). LOS B through LOS E describe progressively worse traffic conditions.

Figure 1.4-3. Levels of Service



UDOT has set a goal of maintaining urban roads at LOS D or better during peak travel periods. Typically, in urban areas, LOS E and F are considered unacceptable operating conditions, and LOS A through D are considered acceptable operating conditions.

A level of service analysis was completed for the Kimball Junction area that evaluated the traffic conditions during the peak hours under existing conditions in 2022 and under the no-action conditions in 2050. Analyzing weekday peak hours is standard practice for a traffic analysis, but this study reviewed all days of the week before determining a representative day. For this project, the peak hour during the morning is 8:00–9:00 AM, and the peak hour during the afternoon is 4:00–5:00 PM. The PM peak hour is typically the more congested travel period because, during the afternoon hours, people tend make trips to run errands and attend activities in addition to making work-based trips. Table 1.4-2 shows the level of service for key SR-224 intersections in the needs assessment evaluation area under existing and 2050 no-action conditions.

The level of service at intersections is based on the average vehicle delay at each traffic signal. It is possible for an intersection as a whole to have an acceptable level of service even if the traffic movement in one direction is operating at unacceptable conditions (LOS E or F).

As shown in Table 1.4-2, several intersections during the AM and PM peak hours operate at LOS E or F. During the AM peak hour, traffic exiting eastbound I-80 to proceed south on SR-224 results in a level of service of LOS F at the I-80 interchange signal. This limits the flow rate at which vehicles reach Ute Boulevard and Olympic Parkway. During the PM peak hour, the Ute Boulevard and Olympic Parkway intersections experience delay from northbound SR-224 traffic. Northbound traffic on SR-224 is congested at Olympic Parkway, which produces long northbound vehicle queue lengths and intersection delay at Ute Boulevard and SR-224/I-80 interchange. Both conditions indicate heavy vehicle delays with long vehicle queue lengths and extended travel times.

Table 1.4-2. Level of Service at Key SR-224 Intersections during the Weekday AM and PM Peak Hours (Existing [2022] and No-action [2050] Conditions)

SR-224 Intersection	Existing (2022)		No-action (2050)	
	Average Vehicle Delay (seconds/vehicle)	LOS	Average Vehicle Delay (seconds/vehicle)	LOS
AM Peak Hour				
I-80 interchange	>100	F	>100	F
Ute Boulevard	29	C	37	D
Olympic Parkway	31	C	36	D
PM Peak Hour				
I-80 interchange	25	C	>100	F
Ute Boulevard	54	E	63	E
Olympic Parkway	>100	F	>100	F

1.4.1.4 Travel Times

Vehicle travel times are expected to increase from the existing conditions in 2022 to the no-action conditions in 2050. The travel time from the eastbound I-80 off-ramp to southbound SR-224 at a point about 1,100 feet south of Olympic Parkway is about 5:30 minutes during the existing AM peak hour. For context, during midday, off-peak hours, the southbound travel time is about 2:30 minutes. This peak-hour travel time is projected to increase to about 11:00 minutes under the 2050 no-action conditions. Similarly, the travel time on northbound SR-224 from a point just north of Canyons Resort Drive to the I-80 interchange is about 12:00 minutes during the existing PM peak hour (compared to 4:15 minutes during off-peak hours). This travel time is projected to increase to 23:30 minutes under the 2050 no-action conditions. Table 1.4-3 summarizes the travel time comparison.

Table 1.4-3. Travel Times during the Weekday AM and PM Peak Hours (Existing [2022] and No-action [2050] Conditions)

Segment	Travel Time (minutes)	
	Existing (2022)	No-action (2050)
AM Peak Hour		
Eastbound I-80 off-ramp to southbound SR-224 at a point about 1,100 feet south of Olympic Parkway	5:30	11:00
PM Peak Hour		
Northbound SR-224 from a point just north of Canyons Resort Drive to the I-80 interchange	12:00	23:30

Figure 1.4-4 and Figure 1.4-5 show travel times and vehicle queue lengths, respectively, for the existing (2022) and no-action (2050) conditions during the AM and PM peak hours.

Figure 1.4-4. Travel Times for the Existing (2022) and No-action (2050) Conditions during the AM and PM Peak Hours

Figure 1.4-5. Vehicle Queue Lengths for the Existing (2022) and No-action (2050) Conditions during the AM and PM Peak Hours

1.4.1.5 Vehicle Queue Lengths on the I-80 Off-ramp and SR-224

The long vehicle queue lengths during the existing peak hours on weekdays reflect the poor level of service and long travel times currently experienced on SR-224 during the AM and PM peak hours. These vehicle queue lengths are projected to increase substantially by 2050 (Table 1.4-4).

Table 1.4-4. Vehicle Queue Lengths during the Weekday AM and PM Peak Hours (Existing [2022] and No-action [2050] Conditions)

Location	95th-percentile Queue Length	
	Existing (2022)	No-action (2050)
AM Peak Hour		
Eastbound I-80 off-ramp vehicle queue	2,600 feet (0.5 mile)	19,400 feet (>3 miles)
PM Peak Hour		
SR-224 northbound queue starting at Olympic Parkway	1.8 miles	>2.3 miles

During the AM peak hour, a location of concern for vehicle queuing is the eastbound I-80 off-ramp to SR-224. Under existing conditions, the 95th-percentile vehicle queue length at this off-ramp during the AM peak hour is about 0.5 mile. This line of vehicles results in slow speeds and vehicles backing up onto the I-80 mainline. During the winter of 2022 (through November 2022), queues of vehicles on this off-ramp backed onto the I-80 mainline on 49 mornings. Under the 2050 no-action conditions, the 95th-percentile vehicle queue length at this off-ramp is projected to exceed 3 miles which, if not mitigated, would be long enough to back up onto the I-80 mainline to the Jeremy Ranch interchange.

What is the 95th percentile?

The 95th percentile is a value at which 95% of the numbers in a data set are less than the reported value. It is considered a statistical maximum and is often used in transportation engineering for measuring performance. For comparison, the 50th percentile is the mean value at which 50% of numbers are higher and 50% are lower.

During the PM peak hour, a location of concern for vehicle queuing is northbound SR-224 starting at Olympic Parkway. Under existing conditions, the 95th-percentile vehicle queue length in the northbound direction is about 1.8 miles, or a line of queued vehicles extending from the I-80 interchange past Bear Hollow Drive. During the winter of 2022 (through November 2022), a vehicle queue length of 2 miles occurred on 25 afternoons. Under the 2050 no-action conditions, the 95th-percentile queue is projected to increase to more than 2.3 miles, or past the Canyons Resort Drive intersection.

1.4.1.6 Traffic Summary

Several of the intersections in the needs assessment evaluation area currently operate at LOS E or LOS F, which indicates heavy vehicle delays with long vehicle queues and long travel times. Traffic is expected to increase on SR-224 and on both sides of the Kimball Junction neighborhood by 2050. Under the 2050 no-action conditions, severe congestion is anticipated to occur, particularly for the I-80 eastbound off-ramp during the weekday AM peak hour and on northbound SR-224 during the weekday PM peak hour. Average vehicle delay, vehicle travel times, and vehicle queue lengths are all anticipated to increase from the existing conditions to 2050 no-action conditions. Travel times during peak hours for key travel movements are anticipated to nearly double from existing conditions for vehicles traveling northbound on SR-224 to I-80.

1.4.2 Transit

1.4.2.1 Transit Service in the Evaluation Area

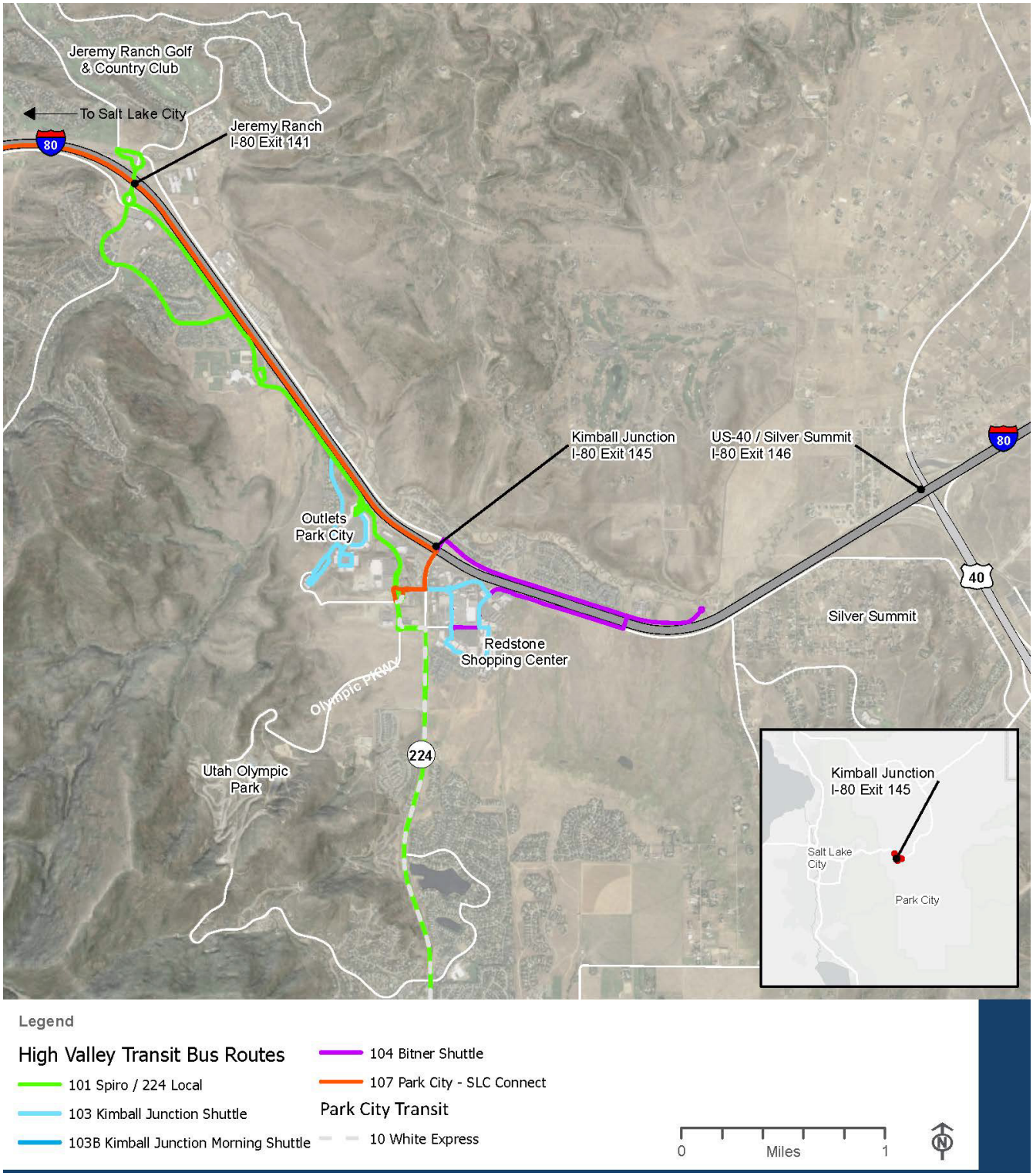
The Kimball Junction area is well-served by local and regional transit (Figure 1.4-6) and is reached via connecting service from Park City Transit's and High Valley Transit's regional routes. The Kimball Junction Transit Center is on the west side of SR-224 and is accessed via either Ute Boulevard or Olympic Parkway. Four bus routes currently operate on SR-224 in the needs assessment evaluation area.

- High Valley Transit Route 101 (Spiro) operates along the full distance of SR-224 from the Jeremy Ranch park-and-ride lot through the Old Town Transit Center and into Deer Valley Resort.
- High Valley Transit Route 103 (Kimball Junction Shuttle) circulates on SR-224 within the Kimball Junction area between the Kimball Junction Transit Center and Junction Commons (formerly Outlets Park City).
- High Valley Transit Route 104 (Bitner Shuttle) operates between the Kimball Junction Transit Center and areas northeast of the evaluation area including the Canyon Creek Club Homes.
- Park City Transit Route 10 (White, Kimball Junction Main Street Express) operates the full distance of SR-224 between the Kimball Junction Transit Center and the Old Town Transit Center.

High Valley Transit and Park City Transit are planning to convert the Route 10 White into BRT service by adding a dedicated transit lane in each direction on most of SR-224. The transit lanes would begin and end south of the Olympic Parkway intersection and would provide some capacity improvements to the intersection. Construction of the BRT project is slated to begin in 2025 with a project opening anticipated for late 2027.

In addition, on December 11, 2022, High Valley Transit assumed operation of the regional commuter service between Park City and Salt Lake City (the PC-SLC Connect). The PC-SLC Connect provides a minimum of nine round trips each day between Park City and Salt Lake City, and this service helps alleviate congestion and reduce the demand for employee and guest parking at area ski resorts and in Park City's Old Town. The PC-SLC Connect terminates at the Kimball Junction Transit Center.

Figure 1.4-6. Existing Transit Service in the Needs Assessment Evaluation Area



1.4.2.2 Transit Ridership

Regionally, nearly 2.3 million trips were made in 2018 on Park City Transit buses, a 10% increase over 2017. This number includes more than 1 million riders during the peak winter months. Ridership grew again in 2019, when the system provided about 2.8 million trips. Between January and July 2022, High Valley Transit, the transit operator predominantly serving the Kimball Junction area, carried nearly half a million riders.

Transit ridership is expected to increase dramatically by 2050, especially during the winter months. Projected boardings at the Kimball Junction Transit Center in 2035 are estimated at 270 boardings per day. By 2050, boardings are expected to approach 1,700 peak winter daily boardings, a 529% increase. Therefore, maintaining or improving transit travel times through the needs assessment evaluation area are important elements of the project's purpose and was considered in the conceptual design and screening of the alternatives selected for detailed evaluation in this EIS.

1.4.3 Active Transportation

1.4.3.1 Active Transportation Facilities

The Kimball Junction area includes active transportation infrastructure to enable people to walk and bicycle to, from, and within the area (Figure 1.4-7). A buffered, multi-use trail for commuters and recreationists runs on the east side of SR-224 along the entire length of the highway. From the Kimball Junction Transit Center area trail users can cross under SR-224 via a pedestrian tunnel and travel all the way to Park City via the 10-foot-wide paved Basin Express trail along the east side of SR-224. The Basin Express trail connects to other regional trails.

On the west side of SR-224, a similar multi-use trail buffered by landscaping from the roadway runs continuously throughout the Kimball Junction area. To the north, this trail provides connections to a pedestrian bridge crossing of I-80 as well as trails paralleling both sides of I-80 toward the east and west. South of Kimball Junction, the multi-use trail extends to Bear Hollow Drive, which provides access to unpaved recreation trails south and west of the Kimball Junction area and to the vast trail regional trail network (Figure 1.4-8).

Intersection crossings for the multi-use trails in the Kimball Junction area are typically provided via crosswalk signals that are activated by the user pushing a button at existing traffic signals. At-grade crosswalks are located at the signalized intersections of SR-224 with Ute Boulevard and Olympic Parkway. There is also a sidewalk and crosswalks for four I-80 ramps along the east side of SR-224 as the road crosses over I-80 to Rasmussen Road.

Figure 1.4-7. Active Transportation Facilities in the Needs Assessment Evaluation Area

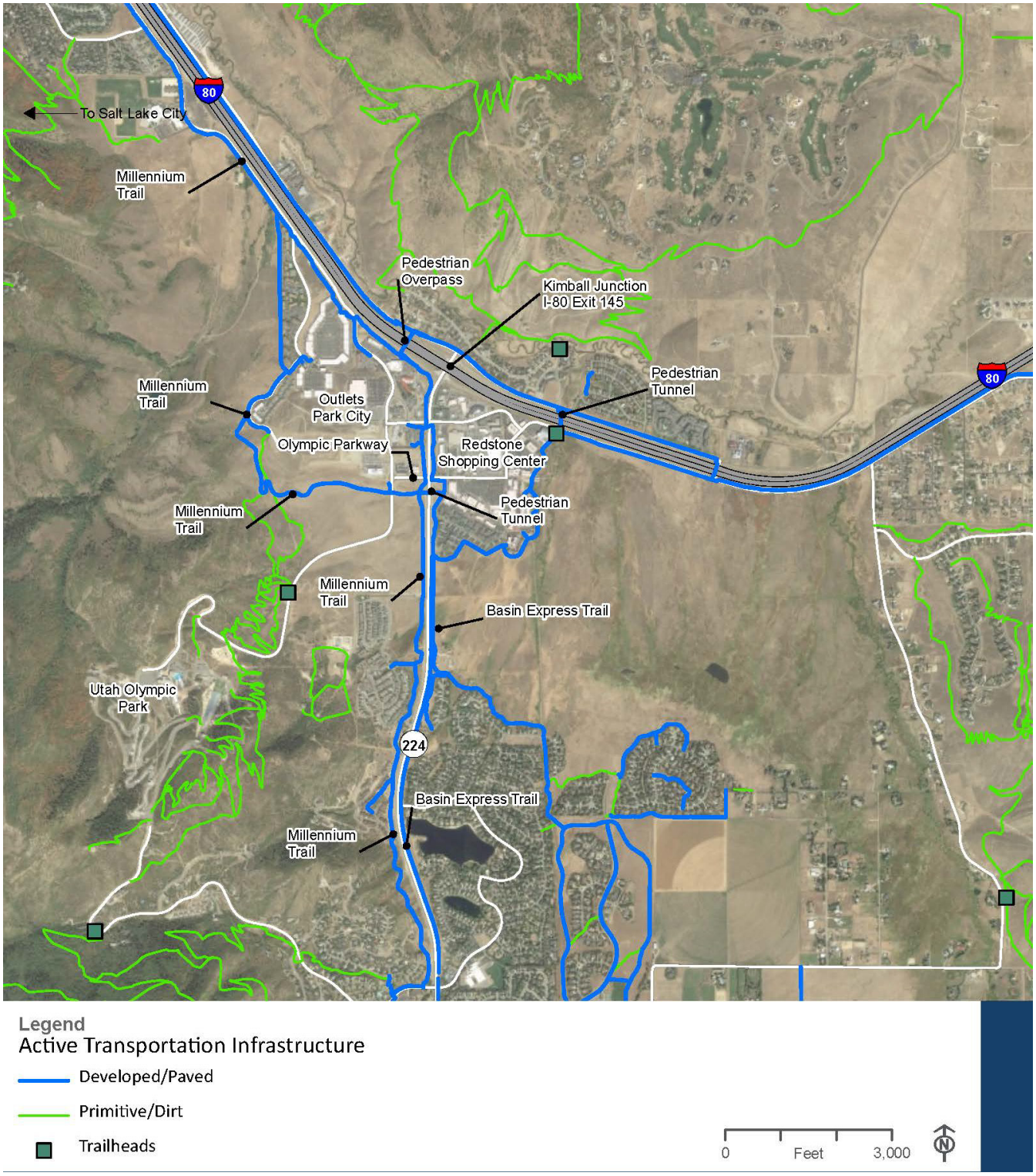
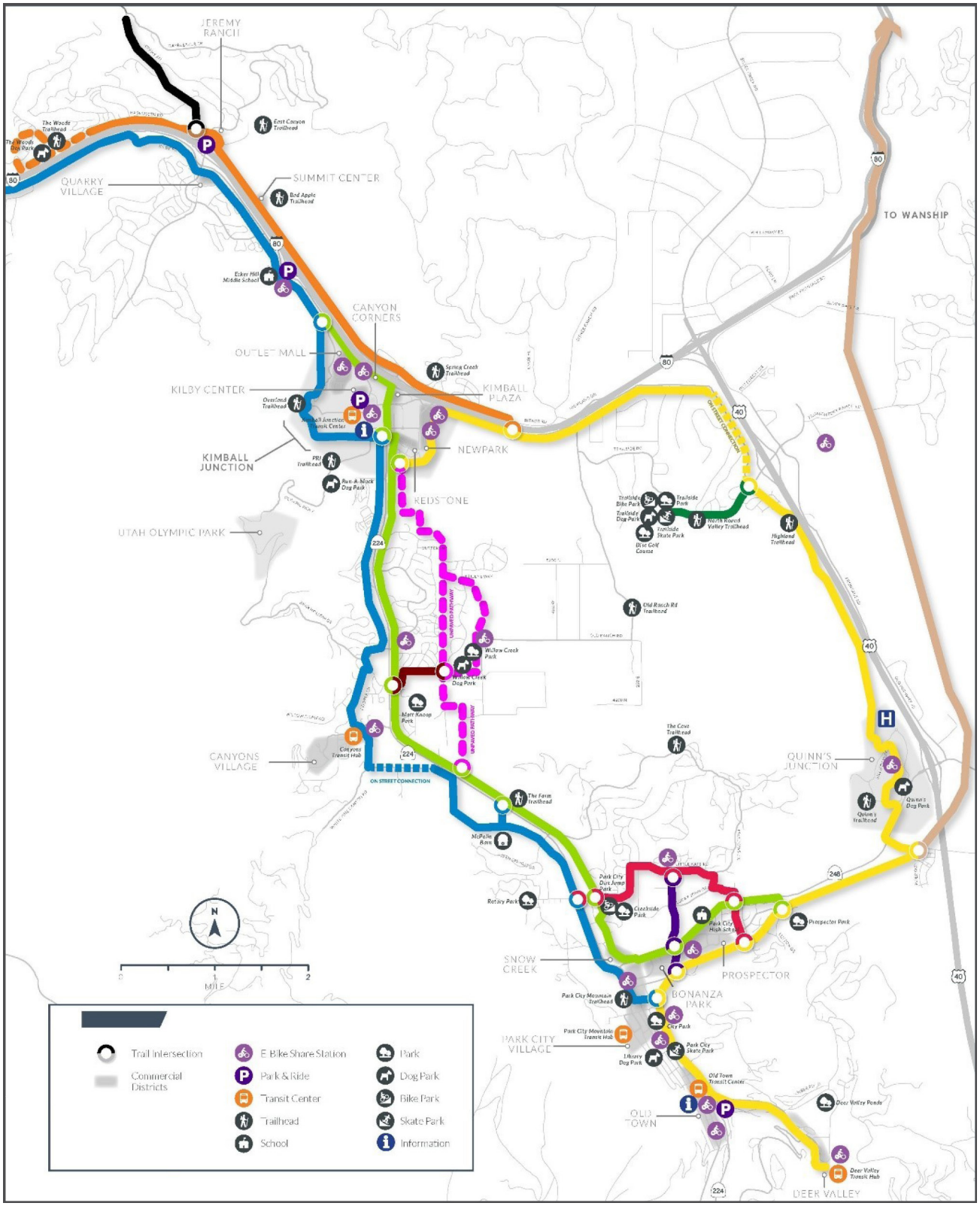


Figure 1.4-8. Regional Trails in the Needs Assessment Evaluation Area



Three grade-separated crossings in the needs assessment evaluation area help facilitate safe movements for people who are walking or bicycling across the major highways.

- A pedestrian bridge crosses I-80 about 800 feet west of the I-80 and SR-224 interchange. This bridge connects the retail and commercial space on the south side of I-80 to the neighborhoods on the north side of I-80 and Rasmussen Road.
- An undercrossing passes under I-80 about 0.5 mile east of the I-80 and SR-224 interchange.
- An undercrossing passes under SR-224 about 200 feet south of the Olympic Parkway intersection. This undercrossing connects to trails along Bitner Road to Highland Road adjacent to the Swaner Preserve and EcoCenter. This undercrossing also connects the retail and residential uses on the south side of the Redstone Center to the trails and open space on the west side of SR-224. This undercrossing tunnel is highly used; use of the tunnel has increased from 245 daily pedestrians and cyclists in 2016 (Parametrix 2022b) to 580 in 2022, a 137% increase (Parametrix 2022a).

1.4.3.2 Active Transportation Conditions

Pedestrian and bicyclist crossing data for the Ute Boulevard and Olympic Parkway intersections and the SR-224 undercrossing south of Olympic Parkway were collected and synthesized. The data came from the following sources:

- AM and PM peak-hour pedestrian crossing data from the January 2021 intersection turning movement volume counts
- Pedestrian push-button data from UDOT's Automated Traffic Signal Performance Measure (ATSPM) online database
- Daytime pedestrian and bicyclist counts at both signals and the undercrossing from October 2022
- A 7-month count summary of the SR-224 undercrossing from 2016 provided by Basin Recreation

By comparing the daytime and peak-hour count data to corresponding daily ATSPM push-button data at Ute Boulevard and Olympic Parkway, an estimate of the number of summer daily pedestrian crossings was developed. Then, the daytime October 2022 pedestrian and bicyclist counts at the undercrossing were factored to determine a summer daily crossing count using the 7-month count data from 2016.

Table 1.4-5 summarizes the daily crossing estimate for each location.

Table 1.4-5. Estimated Summer Crossings at Key SR-224 Intersections and Undercrossing in 2022

Location	Metric	Estimated Summer Crossings	East-west Crossings	Crossings That Are East-west Crossings (%)
Ute Boulevard intersection	Daily pedestrian crossings (all directions)[a]	250	200	80%
Olympic Parkway intersection	Daily pedestrian crossings (all directions)[a]	50	15	25%
SR-224 undercrossing south of Olympic Parkway	Daily pedestrian and bicyclist crossings (east-west)	580	580	100%

[a] Cyclists riding on the sidewalk and crosswalk are counted as pedestrians.

As shown above in Table 1.4-5, the SR-224 undercrossing south of Olympic Parkway experiences the highest estimated daily use at nearly 600 crossings per day. The Ute Boulevard intersection has consistent use, whereas the Olympic Parkway intersection has the fewest crossings. Additionally, east-west crossings are 80% of the total at-grade crossings at the Ute Boulevard intersection (20% are north-south) and 25% of the total crossings at the Olympic Parkway intersection (75% are north-south). Both of these patterns are likely due to each intersection's proximity to the SR-224 undercrossing to Olympic Parkway and there being fewer developed destinations on the west side of SR-224 accessed by Olympic Parkway.

As envisioned in various local planning documents including the *Snyderville Basin General Plan* (Summit County 2015) and the *Summit County Long-range Transportation Plan 2022–2050* (Summit County 2022), as the Kimball Junction area continues to develop and densify, and as upgrades are made to transit in the evaluation area, it is likely that walking and bicycling to different destinations will become a more attractive transportation option. There will likely be more crossings of SR-224 by pedestrians and bicyclists at both the undercrossing and the signalized intersections.

1.5 Public and Agency Involvement in Developing the Purpose and Need Statement

A public outreach effort was conducted during the Area Plan process. This outreach was structured to ensure that all relevant factors were considered, including the community's concerns and issues related to mobility in the needs assessment evaluation area. Partner and public outreach included six project partner meetings or workshops, updates to the Summit County Council, and two public surveys. This public process helped UDOT develop guiding themes and goals and problems and opportunities in the needs assessment evaluation area, all of which informed the eventual purpose and need of the project.

The Federal Register notice for this EIS was posted on December 21, 2022. On December 15, 2022, UDOT published a *Draft Purpose and Need Technical Report* (UDOT 2022) for review by the agencies and the public. The draft purpose and need was also discussed at the agency scoping meeting held on January 9, 2023.

A scoping comment period was held from December 27, 2022, through January 27, 2023. During the comment period, UDOT sought input on the draft purpose and need. UDOT received a scoping letter from EPA, which included one general comment about the draft purpose and need. The comment stated that the purpose and need should be a clear, objective statement of the rationale for the proposed project because it provides the basis for identifying alternatives

During the scoping period, UDOT received over 170 individual comment submissions from the public. UDOT received very few unique comments related to the project purpose and need. Comments addressed a variety of topics including concerns about congestion, noise impacts, wildlife crossings and general wildlife protection, the source of possible funding, pedestrian options and safety, public transit options, how alternatives might affect development and existing businesses, and the cost of the alternatives. Copies of the comments received during the scoping comment period are included in the *Scoping Summary Report* (UDOT 2023).

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Chapter 2: Alternatives

2.1 Introduction

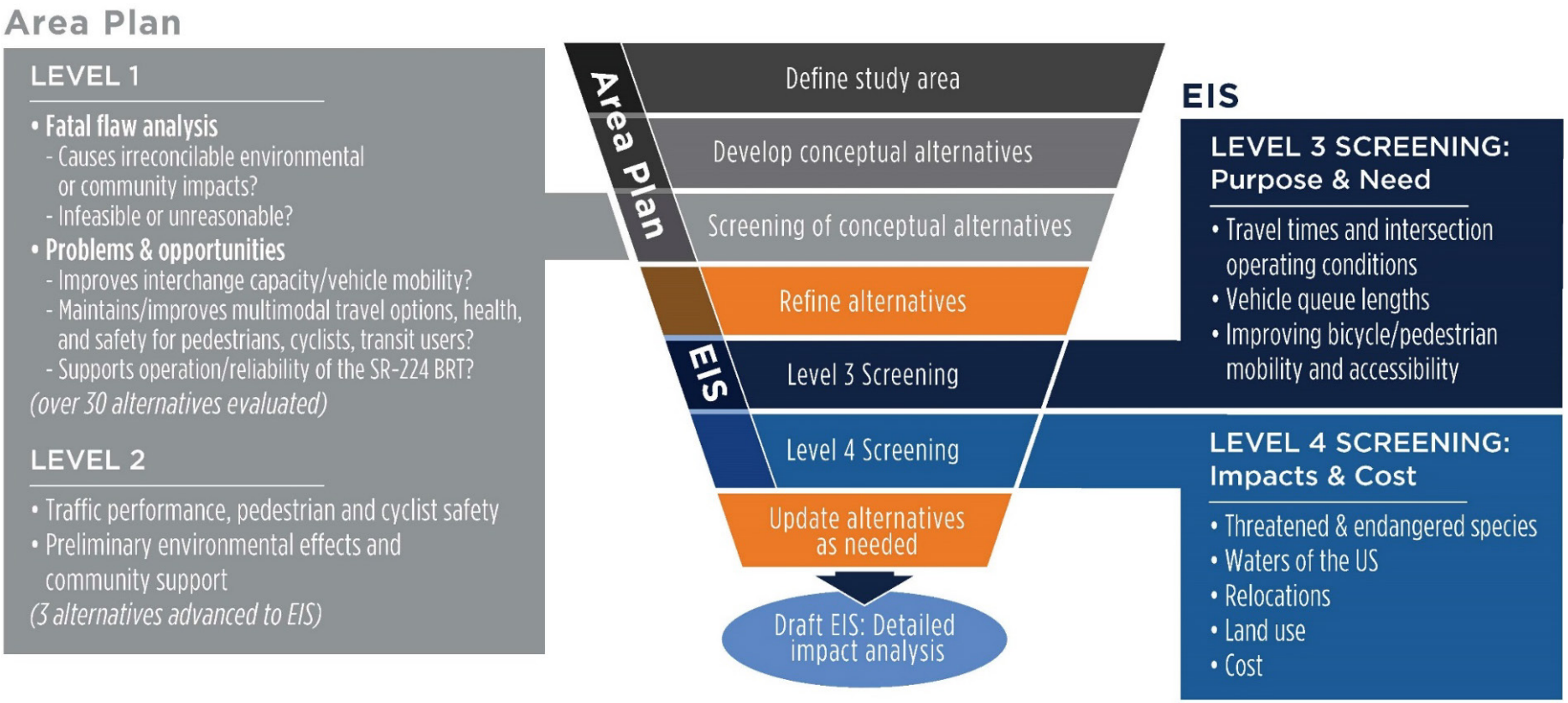
This chapter describes the alternatives that were considered for meeting the purpose of the Kimball Junction Project as described in Section 1.2.2, *Purpose of the Project*, of Chapter 1, *Purpose and Need*. This chapter summarizes the alternatives that were initially developed during the *Kimball Junction and SR-224 Area Plan* (Area Plan; UDOT 2021a) process, describes the alternatives that were further refined during the scoping process, reviews the alternatives that were eliminated from further study through the alternatives screening process (UDOT 2024a), describes the No-Action Alternative and the action alternatives that were carried forward for further study in this environmental impact statement (EIS), and summarizes the advantages and disadvantages of the No-Action and action alternatives.

2.2 Alternatives Development and Screening Process

The Utah Department of Transportation (UDOT) conducted a four-level screening evaluation of alternatives that spanned the Area Plan and EIS processes. UDOT conducted Level 1 and Level 2 screening during the 2021 Area Plan process and conducted Level 3 and Level 4 screening during the EIS process (Figure 2.2-1). The preliminary alternatives were developed based on previous planning studies and through the EIS agency and public scoping process. These alternatives were developed with input from existing land use and transportation plans, the public, and local municipal government personnel.

Public and agency input was gathered during the Level 1 and Level 2 screening conducted during the Area Plan process. During the EIS process, agency and public input was gathered during the formal scoping phase before Level 3 screening. Further input was gathered after UDOT developed its alternative screening criteria and methodology and again when UDOT released the *Draft Alternatives Development and Screening Results Report* (UDOT 2024b). The alternatives development and screening process is designed to be dynamic throughout the EIS process. If a new alternative or refinement of an alternative is developed or arises later in the process, it will be subject to the same screening process, as described in this chapter, as all of the other alternatives.

Figure 2.2-1. Overview of the Kimball Junction EIS Alternatives Development and Screening Process



Review of the Alternatives Development and Screening Methodology Report. On April 28, 2023, UDOT published the *Alternatives Development and Screening Methodology Report* (UDOT 2023a) on the project website and sent the report to cooperating and participating agency representatives for a 30-day public comment period that ended on May 28, 2023. This report described the screening process that would be used in this EIS. The report identified criteria and measures for alternatives evaluation and guided which alternatives were carried forward for detailed evaluation in this EIS.

During the 30-day comment period on the *Alternatives Development and Screening Methodology Report*, UDOT received 77 public comments. Most comments did not pertain to the proposed alternatives screening methodology, criteria, or measures; instead, they referred to preferences for one or more of the conceptual alternatives presented at the January 2023 scoping meetings, or invoked environmental issues that will be studied in this EIS as part of any alternative moving forward for detailed study rather than used as criteria for screening. Many comments were related to concerns about congestion, concerns about noise impacts, pedestrian options and safety, public transit options, how alternatives might affect existing businesses, and the cost of the alternatives.

No commenters disagreed with the proposed screening methodology, criteria, or measures presented in the *Alternatives Development and Screening Methodology Report*, and a few public commenters reiterated using the screening criteria that UDOT proposed in the report.

See Appendix 2A, *Final Alternatives Development and Screening Results Report*, for more details about the alternatives development and screening process.

2.2.1 Conceptual Alternatives Development

An objective of the Area Plan process was to work with the study partners, including Summit County and Park City, to analyze and develop a range of highway, intersection, and pedestrian and bicyclist improvements to improve capacity and multimodal transportation options in the Kimball Junction area and address the existing and long-term mobility needs of residents, commuters, and visitors between the Interstate 80 (I-80) interchange and the two at-grade traffic signals at Ute Boulevard and Olympic Parkway on State Route 224 (SR-224).

What is the Universe of Alternatives?

For the Kimball Junction Project, the Universe of Alternatives was developed during an alternatives development workshop with the study partners.

The Universe of Alternatives included 30 conceptual alternatives ranging from stand-alone surface street improvements to new interchange configurations.

Developing the Universe of Alternatives was the first step of the alternatives development and screening process and was completed as part of the Area Plan process. Alternative ideas were initiated by the study team in concert with the study partners and were based primarily on previous planning studies and through previous public and stakeholder input. Together with the study partners, the study team developed a wide range of over 30 conceptual alternatives that could be implemented to address the study goals and identified problems and opportunities.

The conceptual alternatives included a wide range of potential solutions, such as bypass lanes, new interchange locations and configurations, intersection improvements, and intersection and access point changes in the study area. Several solutions included transit/high-occupancy vehicle (HOV)-only travel

lanes. Similar suggestions were combined; then the improvement ideas were grouped into four general improvement categories:

- I-80/SR-224 interchange alternatives with improvements focused on I-80 and the I-80 frontage road
- Alternatives focused on improvements along SR-224
- Alternatives that combine improvements on I-80 and along SR-224
- Stand-alone surface street improvement alternatives

For more information regarding the Universe of Alternatives, see the Area Plan, which is available on the Kimball Junction EIS website (https://kimballjunctioneis.udot.utah.gov), and Appendix 2A, *Final Alternatives Development and Screening Results Report*.

2.2.1.1 Considerations of Transit, Travel Demand Management, and Transportation System Management Alternatives

No standalone transit, travel demand management (TDM), or transportation system management (TSM) alternatives were identified for the Kimball Junction Project. Standalone transit, TDM, or TSM alternatives would not meet the purpose of the project because they would not address the capacity, mobility, safety, and operational needs of the project.

The alternatives considered by UDOT would accommodate all current and proposed transit operations, including the planned SR-224 bus rapid transit (BRT) service that has been identified in local and regional transportation plans. SR-224 has an annual average daily traffic (AADT) of 33,000 vehicles per day. The planned BRT service is predicted to attract only about 5,400 riders a day (High Valley Transit 2023), which is not enough to sufficiently reduce traffic on SR-224 as a standalone alternative.

Transit service, whether as a standalone alternative or when combined with other alternatives, would not solve the entirety of the traffic problems on SR-224. The future BRT service, combined with other local transit routes such as High Valley Transit's 101 Spiro, would reduce some traffic in the Kimball Junction area, but not enough to address the transportation needs for this project. For this reason, a standalone transit service alternative does not satisfy the project's purpose.

What are TDM and TSM?

Travel demand management (TDM) is a set of strategies aimed at maximizing traveler choices, while transportation system management (TSM) is a set of techniques used to increase the capacity of transportation infrastructure without increasing its physical size.

Nonetheless, the Area Plan acknowledged that a variety of strategies, when used in combination, can effectively improve congestion and mobility. Strategies such as TDM and additional operational improvements, such as advanced signal systems, signal retiming and optimization, and signal priority for buses, can help manage travel demand in concert with capacity improvements and additional multimodal measures. The Kimball Junction Project would not prohibit additional transit, TDM, or TSM strategies from being implemented by local jurisdictions in the future.

2.2.2 Level 1 Screening

The conceptual alternatives developed during the Area Plan were assessed using a two-step screening process to determine which alternatives were reasonable and feasible and should be considered for further study.

- **Level 1A Screening.** After UDOT developed the conceptual alternatives that were based primarily on previous planning studies and through previous public and stakeholder input, it began the screening process with a preliminary (Level 1A) evaluation of conceptual alternatives to determine whether they had fatal flaws. Any alternative that did not pass Level 1A screening was dismissed from continued study.
- **Level 1B Screening.** Alternatives that were not screened out during the Level 1A screening were progressed to Level 1B screening. UDOT developed the Level 1B screening criteria in the following areas: capacity, accessibility, mobility, safety and comfort, community health and environment, multimodal connections, consistency with adopted plans, public acceptance, and innovative operational and maintenance techniques. These areas align with goals developed by the study partners during the early phases of the Area Plan process and which formed the foundation of the evaluation criteria.

2.2.2.1 Fatal-flaw Screening Questions for Level 1A Screening

Alternatives with fatal flaws—for example, alternatives that are not technically feasible—were determined to not be reasonable.

The following yes-or-no, fatal-flaw questions were used in Level 1A screening:

- Does the alternative cause irreconcilable environmental impacts?
- Does the alternative cause irreconcilable community impacts?
- Is the alternative infeasible or unreasonable because of engineering or cost issues?

Any alternative with a “yes” answer to a screening question was dismissed from continued study. If an alternative did not have fatal flaws, it was further developed so that UDOT could conduct Level 1B screening.

2.2.2.2 Problems, Opportunities, and Goals Screening Questions for Level 1B Screening

The study’s problems, opportunities, and goals were the basis for the remaining yes-or-no questions that were used in Level 1B screening. These questions consisted of the following:

- Does the alternative improve interchange area capacity and vehicle mobility to/from I-80 and to/from SR-224 through the Kimball Junction area?
- Does the alternative maintain or improve multimodal travel options, health, and safety for pedestrians, cyclists, and transit users in the Kimball Junction area?
- Does the alternative support operation and reliability of the *Valley to Mountain (SR-224) Transit Project Alternatives Analysis* preferred alternative (side-running BRT) on both sides of SR-224?

Any alternative with a “no” answer to a screening question was dismissed from continued study.

2.2.2.3 Level 1 Screening Results

Level 1 Screening began with 30 alternatives; 11 alternatives were dismissed during Level 1A screening, and an additional 8 alternatives were eliminated during Level 1B screening. The 11 remaining alternatives were bundled into 4 alternatives that progressed to Level 2 screening as described below.

- **Alternative 1:** Construct a half-diamond interchange and tight-diamond interchange with through movements, Texas U-turns, and a pedestrian tunnel at Ute Boulevard.
- **Alternative 2:** Construct a transit/HOV-only bypass road with an adjacent trail and extend Olympic Parkway with a new connection to SR-224 at Bear Cub Drive.
- **Alternative 3:** Construct grade-separated intersections with enhanced pedestrian crossing facilities at Ute Boulevard and Olympic Parkway and add alternate connections to the I-80 interchange.
    - Note that Alternative 3 combines features from two other alternatives that were both eliminated during Level 1 screening. The grade-separated intersections at Ute Boulevard and Olympic Parkway were combined with braided ramp concepts. Combining these features solved issues that caused the individual alternatives to be eliminated during Level 1 screening. In addition, a braided ramp concept was added to this alternative to further resolve issues associated with the standalone alternatives.
- **Alternative 4:** Construct a combination of standalone surface street improvements (combined remaining alternatives from this category).

For more information regarding Level 1 screening criteria, measurements, and results, see Appendix 2A, *Final Alternatives Development and Screening Results Report*.

2.2.3 Level 2 Screening

At the start of Level 2 screening, UDOT held an online public meeting and survey to present the Level 1 screening results and to request feedback on the four alternative bundles that progressed to Level 2 screening. Community support for an alternative was one evaluation measure considered during Level 2 screening to evaluate whether an alternative would fit the character and scale of the community.

During Level 2 screening, UDOT evaluated the four conceptual alternatives that passed Level 1 screening against criteria that focused on how well each alternative meets the problems and opportunities for the study from a traffic perspective, the alternative's impacts to the natural and built environment, public sentiment, estimated project costs, logistical considerations, and overall feasibility.

As shown above in Figure 2.2-1, *Overview of the Kimball Junction EIS Alternatives Development and Screening Process*, the Level 2 screening process entailed a more detailed evaluation of the alternatives that passed Level 1 screening. The Level 2 screening either added additional measures or expanded measures for each of the criteria from Level 1 screening and provided a method for comparing alternatives. Alternatives carried forward from Level 1 screening were reviewed and refined to add more definition to the proposed improvements, to better understand their operational benefits and costs, and to provide information so that the study team could further assess the alternatives in Level 2 screening.

2.2.3.1 Level 2 Screening Results

Based on the initial Level 2 screening traffic evaluation, Alternative 2, a transit/HOV-only bypass road through the interchange area's southwest quadrant, was removed from further study because it would not relieve the existing or forecasted future traffic problems in the study area. Travel demand modeling conducted as part of Level 2 screening showed that Alternative 2 would not relieve the existing or forecasted future traffic problems in the study area. Modeling showed that even if Alternative 2 were constructed, vehicles would still likely back onto the I-80 mainline, travel time through the Kimball Junction area would remain unreliable, and vehicle mobility through the Kimball Junction area would remain at level of service (LOS) F.

In addition to Alternative 2 failing Level 2 screening from a traffic perspective, the alternative did not have public support. Among the four alternatives, Alternative 2 received the lowest overall rating during the online public meeting and survey. There was almost universal community rejection for the alternative running through the edge of the Hi-Ute conservation easement. In addition, survey respondents did not think that Alternative 2 would solve congestion or traffic build-up, felt that there were potential safety risks near Ecker Middle School, and felt that the alternative would reduce recreation options instead of expanding them by replacing trails with an HOV lane.

Alternatives 1, 3, and 4 passed Level 2 screening and were recommended by the study partners for further evaluation in this EIS.

For more information regarding Level 2 screening criteria, measurements, and results, see Appendix 2A, *Final Alternatives Development and Screening Results Report*.

2.3 Alternatives Refinement and Screening during the EIS Process

Building on the results of the Area Plan process, the alternatives development and screening process for the Kimball Junction EIS consisted of the following phases:

- **Refine Alternatives.** As part of the alternatives refinement process, the conceptual alternatives resulting from the Area Plan and introduced to the public during the EIS scoping phases were further developed based on additional topographic information and traffic analysis performed during the Level 3 and Level 4 screening processes.
- **Level 3 Screening.** Screening criteria were applied to eliminate alternatives that do not meet the project's purpose and need. The alternative options that passed this screening were refined for further evaluation.
- **Level 4 Screening.** Screening criteria were applied to eliminate alternatives that meet the purpose of and need for the project but would be unreasonable for other reasons—for example, an alternative that would have unreasonable impacts to the natural and human environment, would not meet regulatory requirements, or duplicates the benefits of a less costly alternative with similar impacts to the natural and human environment.

2.3.1 New Names for Alternatives during the EIS Process

Moving forward in the EIS process, UDOT simplified the names of the three conceptual alternatives that were recommended by the study partners in the Area Plan for further study in the EIS (Table 2.3-1). The conceptual alternatives are shown in Attachment A, *Conceptual Alternatives Resulting from the Area Plan and Refinements Made to Those Alternatives*, of Appendix 2A, *Final Alternatives Development and Screening Results Report*.

Table 2.3-1. New Names for EIS Alternatives

Area Plan Name	EIS Name
Alternative 1: Half-diamond interchange and tight-diamond interchange with through movements, Texas U-turns, and a pedestrian tunnel at Ute Boulevard (Alternative A-1+D-10 with possibility to incrementally add D-7, D-11, and D-12)	**Alternative A:** Split Diamond Interchange with Intersection Improvements
Alternative 3: Grade-separated intersections with enhanced pedestrian crossing facilities at Ute Boulevard and Olympic Parkway and alternate connections to the I-80 interchange (Alternative C-7+C-1/C-2 plus braided ramp)	**Alternative B:** Grade-separated Intersections with One-way Frontage Roads to the I-80 Interchange
Alternative 4: Combination of stand-alone surface street improvements (combined remaining D alternatives)	**Alternative C:** Intersection Improvements with Pedestrian Enhancements

2.3.2 Refined Alternatives for Level 3 Screening

UDOT conducted an initial traffic evaluation on the conceptual alternatives resulting from the Area Plan process to determine whether they met applicable design criteria and the purpose of the project by screening for initial traffic measures for Level 3 screening. Based on initial traffic results, UDOT refined the conceptual alternative designs to establish an adequate number of lanes, median spacing, lane widths, and safe curve geometry for the proposed travel speeds and estimated travel demand (Table 2.3-2).

What is a travel demand model?

A travel demand model is a computer model that predicts the number of transportation trips (travel demand) in an area at a given time. This prediction is based on the expected population, employment, household, and land use conditions in the area. The travel demand model used for the Kimball Junction Project is maintained by the Mountainland Association of Governments.

The alternatives were developed in enough detail to allow UDOT to use Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14 to forecast future traffic in 2050 for the roadway alternatives. Engineers also performed additional design work for horizontal and vertical alignments, right-of-way needs, intersection design, pedestrian and bicyclist accommodations, access design, and potential drainage designs including stormwater management. Access design included road, driveway, or parking lot revisions for properties that would be intersected by an alternative.

Table 2.3-2. Refined Alternatives for Level 3 Screening

Alt.	Description
No-Action Alternative	With this alternative, no improvements would be made to the Kimball Junction interchange with I-80 or on SR-224 between the interchange and Olympic Parkway except for routine maintenance and the programmed improvement by UDOT to add dual northbound and southbound left-turn lanes at the Ute Boulevard/SR-224 intersection as well as SR-224 BRT improvements as identified in the SR-224 BRT Categorical Exclusion that was approved by the Federal Transit Administration in January 2023. Projects identified in the Mountainland Association of Governments' 2019–2050 regional transportation plan, except for the Kimball Junction Project, are assumed to have been constructed as part of the No-Action Alternative.
Refined Alternative A	This alternative includes the following concepts: • A split diamond interchange with bridge crossings over I-80 • One-way frontage roads north and south of I-80 • Intersection improvements at the intersections of Ute Boulevard and Olympic Parkway with SR-224 • A pedestrian tunnel just south of Ute Boulevard • Widened northbound and southbound lanes on SR-224 between Ute Boulevard and Olympic Parkway • Dual left-turn lanes on SR-224 at both Ute Boulevard and Olympic Parkway • Signalized intersection at Ute Boulevard/Landmark Drive to replace the existing roundabout • An additional lane eastbound on Newpark Boulevard from SR-224 to the Uinta Way roundabout (ends in right turn only)
Refined Alternative B	This alternative includes the following concepts: • Interchange improvements • An additional lane added on I-80 eastbound off-ramp • An additional northbound right-turn lane at the SR-224 and I-80 interchange • A third lane added on the eastbound I-80 on-ramp from the single-point urban interchange (SPUI) • SR-224 depressed from just north of Bear Cub Drive to the SR-224 and I-80 interchange • Grade-separated signalized intersections, including turn lanes, at Ute Boulevard and Olympic Parkway with bridges • One-way frontage roads east and west of depressed SR-224 • An existing grade-separated pedestrian crossing near Olympic Parkway relocated to the south • An additional lane on the northbound approach at the Ute Boulevard/Landmark Drive roundabout
Refined Alternative C	This alternative includes the following concepts: • An additional lane on I-80 eastbound off-ramp • A right-turn lane added from the eastbound I-80 off-ramp to Ute Boulevard • An additional northbound right-turn lane at the SR-224 and I-80 interchange • An additional westbound through lane at the intersection of SR-224 and Ute Boulevard • Dual left-turn lanes on SR-224 at both Ute Boulevard and Olympic Parkway • An additional lane on the northbound approach at the Ute Boulevard/Landmark Drive roundabout • An additional lane eastbound on Newpark Boulevard from SR-224 to the Uinta Way roundabout (ends in right turn only) • An extended left-turn lane on westbound Ute Boulevard • A pedestrian tunnel added just south of Ute Boulevard and east-west crosswalks across SR-224 removed at Ute Boulevard and Olympic Parkway • An extended right-turn lane added on westbound Newpark Boulevard • An additional northbound and southbound lane on SR-224 between Olympic Parkway and Ute Boulevard

2.3.2.1 Roadway Design Standards

Based on the additional engineering refinements, cut-and-fill lines (that is, the additional excavation and embankment area needed for construction) were also generated to estimate the footprint required to construct each alternative (a 15-foot buffer was added to account for potential construction impacts and equipment access), and right-of-way lines were estimated. The footprint and right-of-way area were used to calculate impact values for Level 4 screening.

When developing projects through the National Environmental Policy Act (NEPA) process, UDOT follows established design standards. UDOT's standards are in place to ensure the safety of the traveling public by providing curvature, grade, and dimensional standards; separation from roadside obstructions; space for vehicles to pull out of traffic in an emergency; adequate distance to see intersections; and a safe place for bicyclists and pedestrians. Standards are also important for roadway operations, such as providing an area for storing plowed snow and conducting routine maintenance safely.

As part of the engineering refinements, engineers ensured that the alternatives were designed following the UDOT adopted standards described in Table 2.3-3 through Table 2.3-5. The right-of-way dimensions used for the design of both action alternatives are based on the roadway geometric standards in *A Policy on Geometric Design of Highways and Streets*, 7th Edition (AASHTO 2018); in the *Roadside Design Guide*, 4th Edition (AASHTO 2011); and on UDOT's standards, including UDOT's *Roadway Design Manual* (UDOT 2021b) and UDOT's 2024 Standard Specifications and Standard Drawing Books. UDOT uses these standards in planning roadway projects to ensure that safety standards are met.

Table 2.3-3. Cross-section Components and Dimensions for I-80

Component	Width (feet)	Notes
Clear zone	30[a]	• The clear zone is measured from the edge of travel lane. • Based on design speed and average daily traffic.
Inside shoulder	12[b]	• The inside shoulder includes a 2-foot shy distance to the concrete barrier.
Outside shoulder	12[b]	• The outside shoulder includes a 2-foot shy distance to the concrete barrier.
Travel lane	12[b]	• The travel lane width is for general purpose lanes.

[a] Source: AASHTO 2011
[b] Source: UDOT 2021b

Table 2.3-4. Cross-section Components and Dimensions for Ramps

Component	Width (feet)	Notes
Clear zone	16 to 22[a]	• The clear zone is measured from the edge of travel lane. • Based on design speed and average daily traffic.
Inside shoulder	4[b]	• Where a barrier is present, a 2-foot shy distance would be added.
Outside shoulder	8[b]	• Where a barrier is present, a 2-foot shy distance would be added.
Travel lane	12[b]	• The travel lane width is for through and turn lanes on-ramps.

[a] Source: AASHTO 2011
[b] Source: UDOT 2021b

Table 2.3-5. Cross-section Components and Dimensions for Cross-Streets

Component	Width (feet)	Notes
Clear zone	10 to 22[a]	• The clear zone is measured from the edge of travel lane. • The clear zone is based on design speed and average daily traffic. • The clear zone can include park strip and sidewalk.
Shoulder	4 to 10[b]	• A 4-foot-wide bike lane can be included in the shoulder. • The width is based on road classification, amount of truck traffic, and number of lanes.
Travel lane	11 to 12[b]	• The travel lane width is for general purpose lanes. • The width is based on road classification, amount of truck traffic, and number of lanes.
Median/center turn lane	11 to 14[b]	• The width is based on road classification and design speed.
Curb and gutter	2.5[c]	• Standard UDOT curb and gutter type B1 would be used for design speeds equal to or less than 50 miles per hour (mph). • Standard UDOT curb and gutter type M1 would be used for design speeds greater than 50 mph.
Park strip	4[c]	• None.
Sidewalk	5[c]	• A 5-foot minimum would be used when a park strip is present. • A 6-foot minimum would be used when a park strip is eliminated and a sidewalk is adjacent to the curb and gutter.

[a] Source: AASHTO 2011
[b] Source: UDOT 2021b
[c] Source: UDOT 2024a

2.3.3 Level 3 Screening

The Level 3 screening process is based on the project's purpose and need. The project's purpose is to address transportation-related safety and mobility for all users of the Kimball Junction area. Alternatives that were determined to not meet the overall purpose of the project were considered unreasonable for NEPA purposes and not practicable under the Clean Water Act and were not carried forward for further analysis in Level 4 screening.

During Level 3 screening, the alternatives were screened against criteria pertaining to travel time, intersection level of service, percent served, length of vehicle queues, level of traffic stress, and walking and transit travel times (Table 2.3-6). Attachment D, *Kimball Junction Alternatives and Traffic Modeling Data Report*, of Appendix 2A, *Final Alternatives Development and Screening Results Report*, includes the traffic and active transportation modeling methodology, data, and figures used for Level 3 screening.

Note that no single Level 3 screening criterion is more important than another. In Level 3 screening, criteria and measures used for vehicle traffic are equally as important as criteria and measures used for active transportation. An alternative must pass each measure to pass Level 3 screening. The 2050 no-action condition is used as the basis of comparison; that is, the resulting measure needs to be better than the transportation conditions in 2050 without the proposed improvements to the Kimball Junction interchange.

Table 2.3-6. Level 3 Screening Criteria – Purpose and Need

Criterion	Measure	Data Used
Improving operations and travel times on SR-224 from the I-80 interchange through Olympic Parkway	Does the alternative provide reliable through-traffic travel time on SR-224 during the AM and PM peak hours? (yes/no)	Travel time (look at average speeds on SR-224 to equate to arterial LOS) [a]
	Meets a level of service of LOS D for as many intersections as possible.	Intersection LOS (overall LOS and turning LOS) [b]
	Is the percent served improved during the AM and PM peak hours? (yes/no)	Percent served [c]
Improving safety by eliminating vehicle queues on I-80 off-ramps	Are the off-ramp vehicle queue lengths eliminated on I-80 mainline through lanes? (yes/no)	Length of vehicle queue (feet)
Improving pedestrian and bicyclist mobility and accessibility throughout the evaluation area	Does the level of traffic stress improve in the vicinity of SR-224? (yes/no) [d]	Level of traffic stress [d]
	Do the walk times improve for key origin-destination pairs? (yes/no) [e]	Walk times
Maintaining or improving transit travel times through the evaluation area	Does the alternative maintain or improve the SR-224 BRT transit travel times through the evaluation area? (yes/no)	Travel times

Definitions: AM = morning; BRT = bus rapid transit; LOS = level of service; LTS = level of traffic stress; O-D = origin-destination; PM = afternoon

[a] For Alternative B, travel times are measured for only the section of SR-224 with the proposed grade-separated depressed thoroughfare; the travel times don't include travel time on the frontage roads.

[b] Level of service is a measure of the operating conditions on a road or at an intersection. Level of service is represented by a letter "grade" ranging from A (free-flowing traffic and little delay) to F (extremely congested, stop-and-go traffic and excessive delay). LOS B through LOS E represent progressively worse operating conditions.

[c] Percent served is the percent of traffic demand that can move through the transportation network during the analysis period as measured by a traffic analysis model.

[d] Level of traffic stress (LTS) is a 1-to-4 rating for the amount of traffic stress imposed on bicyclists or pedestrians on a transportation facility. LTS 1 represents the least stress, and LTS 4 represents the most stress.

[e] An origin-destination pair (also referred to as a travel time pair) is a selected beginning and ending point for a trip on the transportation network.

2.3.3.1 Level 3 Screening Results

Table 2.3-7 shows the final Level 3 screening results. Traffic modeling data and figures for these refined alternatives are included in Attachment D, *Kimball Junction Alternatives and Traffic Modeling Data Report*, of Appendix 2A, *Final Alternatives Development and Screening Results Report.*

Table 2.3-7 shows limited results for the conceptual Alternative B resulting from the Area Plan process (before engineering refinements) because it failed initial traffic screening measures. Because it failed these screening measures, it was therefore not evaluated further during the alternatives screening process. Initial traffic results showed that the conceptual Alternative B would not meet the Level 3 screening traffic criteria because multiple intersections would fail and vehicle queues would back onto the I-80 mainline. The design of Alternative B was then refined to determine whether Alternative B could operate with better traffic metrics and thereby pass Level 3 screening. The concept of the depressed roadway with frontage roads is consistent with both the conceptual and Refined Alternative B, although Refined Alternative B has a wider footprint.

As shown in Table 2.3-7, although Refined Alternative B meets traffic criteria, it does not improve pedestrian and bicyclist mobility and accessibility throughout the evaluation area compared to the No-Action Alternative, and therefore it does not meet the overall purpose of the project. Alternatives that are determined to not meet the purpose of the project are typically considered unreasonable for NEPA purposes. Refined Alternatives A and C both met the purpose of the project and passed all Level 3 screening measures.

Table 2.3-7. Level 3 Screening Results

Criterion	Level 3 Screening: Purpose and Need						
	Improve operations and travel times on SR-224 from I-80 interchange through Olympic Parkway			Improve safety by eliminating vehicle queues on I-80 off-ramps	Maintain or improve transit travel times through the evaluation area	Improve pedestrian and bicyclist mobility and accessibility throughout the evaluation area	
Measure	**Provides reliable through-traffic travel time on SR-224 during the AM and PM peak hours? (yes/no) [a]**	**Meets a level of service of LOS D for as many intersections as possible [b]**	**Is the percent served improved during the AM and PM peak hours? (yes/no) [c]**	**Are the off-ramp vehicle queue lengths eliminated on I-80 mainline through lanes? (yes/no)**	**Does the alternative maintain or improve the SR-224 BRT transit travel times through the evaluation area? (yes/no)**	**Does the level of traffic stress improve in the vicinity of SR-224? (yes/no) [d]**	**Do the walk times improve for key origin-destination pairs? (yes/no) [e]**
What does this mean for me?	I'm not stuck in slow-moving traffic	I'm not sitting through multiple light cycles all the time	I'm able to travel through the area	Traffic isn't backed up on the I-80 mainline	Public transportation will work more efficiently	Pedestrians and bicyclists have higher level of comfort	Pedestrians and bicyclists can travel better in the area
Measure	Travel time (average speed in mph)	Number of intersections at LOS E or F	Percent served	Length of vehicle queue	Total BRT travel time (NB+SB, AM+PM) savings from no-action (min:sec)	Level of traffic stress	Total walk time savings from no-action for 4 O-D pairs (min:sec)
Existing Conditions (2022)	AM SB – 6:15 (17) PM NB – 7:45 (13)	AM – 1 PM – 2	99% (AM and PM)	2,600 feet	Not applicable	SR-224 trail – LTS1 SR-224 intersections – LTS3	53:30
2050 No-Action Alternative	AM SB – 11:30 (9) PM NB – 9:30 (11)	AM – 1 PM – 5	86% (AM and PM)	>5,000 feet	16:30	SR-224 trail – LTS1 SR-224 intersections – LTS3	54:00
Alternative A (Refined) Split Diamond Interchange with Intersection Improvements	**Yes**: AM SB – 4:30 (25) PM NB – 4:15 (23)	AM – 1 PM – 0	**Yes**: 100%	**Yes**: 600 feet	14:00 **Yes** (–2:30)	**Yes**: SR-224 pedestrian tunnel improves Ute Boulevard crossing to LTS1	52:30 **Yes** (–1:30)
Alternative B (Conceptual) resulting from the Area Plan (*not fully evaluated because intersections fail*)	Not evaluated	AM – 2 PM – 8	**No**: 92% AM, 79% PM	**No**: >5,000 feet	Not evaluated	Not evaluated	Not evaluated
Alternative B (Refined) Grade-separated Intersections with One-way Frontage Roads to the I-80 Interchange	**Yes**: AM SB – 3:15 (33) PM NB – 2:45 (37)	AM – 0 PM – 0	**Yes**: 100%	**Yes**: 900 feet	14:15 **Yes** (–2:15)	**No** (**Same as No-Action**): SR-224 trail – LTS1 SR-224 intersections – LTS3	57:45 **No** (+3:45)
Alternative C (Refined) Intersection Improvements with Pedestrian Enhancements	**Yes**: AM SB – 3:15 (33) PM NB – 3:45 (26)	AM – 0 PM – 0	**Yes**: 100%	**Yes**: 400 feet	14:30 **Yes** (–2:00)	**Yes**: SR-224 pedestrian tunnel improves Ute Boulevard crossing to LTS1	53:45 **Yes** (–0:15)

Definitions: AM = morning; BRT = bus rapid transit; LOS = level of service; LTS = level of traffic stress; min:sec = minutes:seconds; mph = miles per hour; NB = northbound; O-D = origin-destination; PM = afternoon; SB = southbound

[a] The AM and PM peak hours are the 1-hour periods of the morning and afternoon, respectively, during which there is the greatest number of vehicles on the roadway system. The peak hours that were modeled in the analysis were 8:00 to 9:00 AM and 4:00 to 5:00 PM. For Alternative B, travel times are measured for only the section of SR-224 with the proposed grade-separated depressed thoroughfare; the travel times don't include travel time on the frontage roads.

[b] Level of service (LOS) is a measure of the operating conditions on a road or at an intersection. Level of service is represented by a letter "grade" ranging from A (free-flowing traffic and little delay) to F (extremely congested, stop-and-go traffic and excessive delay). LOS B through LOS E represent progressively worse operating conditions.

[c] Percent served is the percent of traffic demand that can move through the transportation network during the analysis period as measured by a traffic analysis model.

[d] Level of traffic stress (LTS) is a 1-to-4 rating for the amount of traffic stress imposed on bicyclists or pedestrians on a transportation facility. LTS 1 represents the least stress, and LTS 4 represents the most stress. Note that LTS was measured for the entire Kimball Junction area active transportation network. Most of the network stays the same under all scenarios; that is, there would be no change from existing conditions and the No-Action Alternative. This table reports only those network measures that are different from existing conditions and the No-Action Alternative.

[e] An origin-destination (O-D) pair (also referred to as a travel time pair) is a selected beginning and ending point for a trip on the transportation network.

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2.3.4 Level 4 Screening

As a result of Level 3 screening, two refined alternatives (Alternatives A and C) were determined to meet the purpose of the project and therefore were advanced to Level 4 screening. Refined Alternative B was determined not to meet the project purpose because (1) compared to the No-Action Alternative, it would increase pedestrian and bicycle travel time, and (2) pedestrian and bicyclist comfort would be the same as with the No-Action Alternative but would not be improved. However, because Refined Alternative B had the best performance of the three alternatives with regard to vehicle travel times and speeds, UDOT still evaluated Refined Alternative B in Level 4 screening. The purpose of Level 4 screening was to eliminate alternatives that perform similarly in meeting the purpose of the project compared to other alternatives but would result in greater impacts to natural, built, and socioeconomic resources—including having a higher cost. During Level 4 screening, UDOT collectively evaluated the refined alternatives against criteria that focus on the alternative's impacts to the natural and built environment, including property acquisitions and relocations and estimated project costs. Table 2.3-8 lists the Level 4 screening criteria.

Table 2.3-8. Level 4 Screening Criteria and Measures

Criterion	Measure
Threatened and endangered species	• Acres and types of habitat
Waters of the United States	• Acres and types of aquatic resources • Linear feet of creeks affected
Section 4(f) resources	• Number and type of Section 4(f) uses
Relocations	• Number of potential residential or business relocations
Land use	• Compatibility with current land use plans (yes/no)
Cost	• Estimated project cost

The criteria listed above in Table 2.3-8 were selected based on applicable federal laws, such as Section 4(f) of the Department of Transportation Act of 1966 and Section 404 of the Clean Water Act, and comments received during agency and public outreach. Waters of the United States and Section 4(f) properties were given special consideration during screening because federal laws require UDOT to consider and analyze alternatives that avoid or minimize impacts to these resources. See Section 3.2, *Reasons Why a Concept Might Be Eliminated during the EIS Screening Process*, in Appendix 2A, *Final Alternatives Development and Screening Results Report*, for more information regarding Section 4(f) of the Department of Transportation Act and Section 404 of the Clean Water Act.

The Level 4 screening process evaluated:

- The estimated impacts to key resources from each refined alternative
- Estimates of the alternatives' costs
- Additional logistical considerations and overall feasibility

Based on these findings, UDOT determined whether any of the alternatives would have substantially greater impacts or costs without having substantially greater benefits in meeting the purpose of the project.

Estimate Impacts to Key Resources and Private Property. Using geographic information systems (GIS) software, UDOT estimated how each refined alternative that passed Level 3 screening might affect key resources such as threatened and endangered species, wetlands and other potential waters of the United States, and Section 4(f) resources. The expected impacts were determined by overlaying the estimated right-of-way for each alternative over the GIS datasets for these resources. An additional 15-foot screening buffer was added to account for any future alternative refinement as the design progresses. UDOT used the same approach to identify the potential property acquisitions and relocations.

Compare Impacts and Costs to Benefits. UDOT used the screening results to determine whether any of the refined alternatives would have substantially greater impacts to key resources or costs without having substantially greater benefits in meeting the purpose of the project. Alternatives that would have the same or similar benefits as other alternatives but would have substantially greater impacts or costs were eliminated and considered unreasonable for NEPA purposes.

2.3.4.1 Level 4 Screening Results

The Level 4 screening results are summarized in Table 2.3-9. Because Refined Alternatives A and C would have similar levels of impacts, the Level 4 screening analysis did not give UDOT a reason to eliminate either alternative. Therefore, UDOT decided that both Refined Alternatives A and C would advance for detailed evaluation in the Draft EIS. Because Refined Alternative B does not meet the purpose of the project (it failed Level 3 screening for pedestrian and bicyclist mobility and comfort) and would have the most impacts to waters of the United States, the most relocations, and the highest cost, UDOT eliminated Refined Alternative B.

Table 2.3-9. Level 4 Screening Results

Criterion or Alternative	Level 4 Screening: Cost and Impacts to the Built and Natural Environment					
	Threatened and Endangered Species	Wetlands and Waters of the United States	Section 4(f) Resources	Land Use	Relocations	Cost
What does this mean for me?	How would this impact protected plant and animal species in the area?	How would this impact federally protected wetlands and waters?	Would lands from a historic site or protected public resources be affected?	Would it meet the community's land use goals?	Would there be potential property impacts to community members?	How much would it cost to build?
Measure	Acres	Acres and types of aquatic resources (ditches, open water, wetlands, and perennial streams with a 15-foot screening buffer)	Number and type of Section 4(f) uses	Compatibility with current land use plans	Number of potential residential or business relocations	Construction cost estimate ($2023)
Existing Conditions (2022)	—	—	—	—	—	—
No-Action Alternative	—	—	—	—	—	—
Alternative A (Refined) Split Diamond Interchange with Intersection Improvements	0	Ditch – 0.010 Open Water – 0.060 Wetland – 0.061 Perennial Stream – 0 **Total impacts – 0.131**	0	Yes	0	$108M
Alternative B (Refined) Grade-separated Intersections with One-way Frontage Roads to the I-80 Interchange	0.001	Ditch – 0.102 Open Water – 0.015 Wetland – 0.065 Perennial Stream – 0.004 **Total impacts – 0.186**	0	No	3 business 0 residential	$201M
Alternative C (Refined) Intersection Improvements with Pedestrian Enhancements	0.001	Ditch – 0.009 Open Water – 0 Wetland – 0.001 Perennial Stream – 0.002 **Total impacts – 0.012**	0	Yes	0	$41M

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2.3.5 Summary of the Public and Agency Involvement During the Alternatives Development and Screening

Public and agency input on the three conceptual alternatives resulting from the Area Plan process was gathered during the formal NEPA scoping period, which occurred in December 2022 and January 2023. Additional public and agency comment was sought in April and May 2023, when UDOT released the *Alternatives Development and Screening Methodology Report*, which described the screening criteria and measures that would be used to determine which alternatives would move forward for detailed evaluation in this EIS.

On February 26, 2024, UDOT published the *Draft Alternatives Development and Screening Results Report* and initiated a 30-day public comment period. Subsequently, UDOT completed additional engineering design work per ideas identified by the public and agencies on the alternatives identified as moving forward for detailed evaluation.

2.3.5.1 Summary of Public Comments on Alternatives Screening

During the public comment period for the draft screening report, UDOT received about 135 individual comment submissions from the public and agencies. Comments addressed a variety of issues including concerns about congestion, wildlife impacts, pedestrian options and safety, and public transit options, as well as how alternatives might affect communities. Several comments requested that the project be included in the Statewide Transportation Improvement Program (STIP) or suggested considerable changes to the existing alternatives.

As noted above, UDOT completed additional engineering design work per public and agency comments on the alternatives moving forward for detailed evaluation. Additionally, since publication of the Draft EIS, the *Utah Long-range Transportation Plan 2023–2050* identifies the selected alternative for construction in Phase 1 (2023–2032) with Unique ID No. U2023032. The selected alternative is also identified on UDOT's 2025–2030 STIP under Project Identification Number (PIN) 16388 with $50 million in funding for right-of-way, final design, and construction identified.

While UDOT did not respond to each individual comment received from the public, a Frequently Asked Questions document was posted on the project website, and all comments were included in Appendix 2A, *Final Alternatives Development and Screening Results Report*. Formal comments were submitted by two participating agencies (Summit County and Utah Division of Wildlife Resources) and UDOT responded to both agencies' comments. Those comments and responses are included in Appendix 2A.

For more information regarding public and agency engagement during the scoping and screening phases of this EIS process, see Chapter 4, *Coordination*.

2.4 Alternatives Development and Screening Conducted after the Comment Period for the Draft Screening Report

In response to the comments received on the draft screening report, UDOT evaluated two new alternatives: Summit County's Alternative B+ and a pedestrian overpass in place of the proposed pedestrian underpass included with Refined Alternatives A and C. In addition, UDOT made improvements to the existing Alternatives A and C; these improved alternatives are described in more detail below. UDOT evaluated these improved alternatives based on ideas submitted by Summit County and similar ideas proposed by the public.

Summit County also provided UDOT with schematic drawings of their proposed changes to the alternatives as part of the formal comments the County submitted during the public and agency comment period for the draft screening report. UDOT used the schematic drawings as guidance, then created conceptual designs following UDOT's engineering standards. During the comment period for the draft screening report, several commenters suggested additional alternatives or variations to the existing alternatives. UDOT considered each new alternative or variation as summarized in Appendix 2A, *Final Alternatives Development and Screening Results Report*.

2.4.1 Alternative A: Combine Elements of Alternative C into Alternative A and Include Bike Lanes on SR-224

Summit County and some members of the public suggested combining elements of the refined versions of Alternatives A and C presented in the draft screening report. Summit County specifically requested that the improvements on SR-224 included with Alternative C also be included in Alternative A. Several members of the public requested that bike lanes be included in Alternative A.

With the refined version of Alternative A presented in the draft screening report, there would be three through lanes in each direction (northbound and southbound) on SR-224 between Olympic Parkway and Ute Boulevard. At three intersection locations (northbound SR-224 and Olympic Parkway, northbound SR-224 and Ute Boulevard, and southbound SR-224 and Ute Boulevard), the outermost through lane transitions to a through-right lane (a combined through lane and right-turn lane), and vehicles turning right onto the side streets would turn from the through-right lane. This shared configuration of through lanes and right-turn lanes narrowed the footprint for Alternative A.

In response to Summit County's request to combine elements of Alternative C with Alternative A, UDOT revised the design of Alternative A on SR-224 to match the design of Alternative C. With this change, the three through lanes in each direction were maintained from the previous Alternative A, and a new right-turn lane was added in the northbound direction at the SR-224/Olympic Parkway intersection and in both the northbound and southbound directions at the SR-224/Ute Boulevard intersection, thereby separating the through and right-turning traffic for those movements.

This design improvement also allowed striped and buffered bike lanes to be added between the through lane and the right-turn lane. The buffered bike lanes provide a striped buffer between the bike lane and the vehicle travel lane, thereby providing more formal separation from vehicle travel lanes and greater safety at the two intersections.

Buffered bike lanes would be striped into the shoulders of SR-224 in both the northbound and southbound directions, and the shoulders were widened from 8 feet to 10 feet wide to accommodate them. The buffered bike lanes were designed to meet UDOT's design standards and provide a minimum of a 3-foot-wide striped gap area between the bike lanes and the travel lanes outside the intersections to increase the separation of bicycles and vehicles. Bike lanes were also added at all intersections on SR-224 between the turning lanes and through lanes. The bike lanes run from the south end of the project area at Olympic Parkway, cross Ute Boulevard and the I-80 single-point urban interchange (SPUI), and end at Rasmussen Road on the north end of the project area. In addition, the existing parallel multi-use trail system along SR-224 functions as an alternative route for bicycle traffic for cyclists who are uncomfortable riding on the roadway surface.

Level 3 Screening. The new Level 3 screening results for Alternative A with the Alternative C lane configuration on SR-224, and the addition of buffered bike, did not change the screening results when they were aggregated for the Level 3 screening summary table. Some minor differences in traffic measures were produced; these are recorded in the traffic report included in Attachment D, *Kimball Junction Alternatives and Traffic Modeling Data Report*, of Appendix 2A, *Final Alternatives Development and Screening Results Report*. For example, intersection average delay changed in some locations, but not enough to change the overall intersection level of service. Additionally, as shown in Attachment D, although the improvements to Alternative A added buffered bike lanes on SR-224, this still results in Level 4 bicycle level of traffic stress (BLTS) on SR-224 itself because of the high vehicle speeds and number of travel lanes.

Level 4 Screening. The Level 4 screening results for the waters of the United States screening measure changed slightly as a result of the changes to Alternative A. As shown in Table 2.4-1, the total impact to waters of the United States decreased slightly. To reduce additional impacts from adding the additional vehicle and buffered bike lanes on SR-224, UDOT was able to shrink a new drainage pond (required in the design for storm drainage purposes) that was originally encroaching on an open-water feature with Alternative A. As shown in Table 2.4-1 and in Table 2.3-9, *Level 4 Screening Results*, above on page 2-19, the impact to waters of the United States from Alternative A (including the 15-foot screening buffer) decreased from 0.131 acre to 0.065 acre. In addition, the cost for the improved Alternative A increased from $107.9 million to $123.0 million (in 2026 dollars), mostly because of costs associated with the additional widening of SR-224 for the vehicle and buffered bike lanes and additional engineering enhancements made to the design between the draft and final screening reports (UDOT 2024a, 2024b).

No other Level 4 screening results changed because of the design improvements made to Alternative A between the draft and final screening reports.

Table 2.4-1. New Level 4 Screening Results for Improved Alternatives A and C

Impacts in acres

Wetlands and Type of Waters of the United States	Impacts for Alternatives Analyzed in the Draft Screening Report (Including 15-foot Screening Buffer) (shown in Table 2.3-9)		Impacts for Improved Alternatives after the Draft Screening Report (Including 15-foot Screening Buffer)	
	Alt A	Alt C	Alt A	Alt C
Ditch	0.010	0.009	0.011	0.010
Open water	0.060	0.000	0.000	0.000
Wetland	0.061	0.001	0.054	0.001
Perennial stream	0.000	0.002	0.000	0.004
Total impacts	**0.131**	**0.012**	**0.065**	**0.015**

Note: The alternatives in this table are the refined alternatives presented in the draft screening report, and impacts were calculated with a 15-foot screening buffer.

2.4.2 Alternative C: Include Bike Lanes in the Alternative

During the public comment period on the draft screening report, several public commenters asked for bike lanes to be included in the alternatives moving forward for evaluation in the Draft EIS. Alternative C has been further improved to include buffered bike lanes. Buffered bike lanes would be striped into the shoulders of SR-224 in both northbound and southbound directions, and the shoulders were widened from 8 feet to 10 feet wide to accommodate them. Bike lanes were also added at all intersections on SR-224 between the turning lanes and through lanes. The bike lanes run from the south end of the project area at Olympic Parkway, cross Ute Boulevard and the I-80 SPUI, and end at Rasmussen Road on the north end of the project area. The buffered bike lanes were designed to meet UDOT's design standards and provide a minimum of a 3-foot-wide striped gap area between the bike lanes and the travel lanes outside the intersections to increase the separation of bicyclists and vehicles.

Level 3 Screening. The Level 3 screening measures for the improved Alternative C did not change. As shown in Attachment D, *Kimball Junction Alternatives and Traffic Modeling Data Report*, of Appendix 2A, *Final Alternatives Development and Screening Results Report*, although the improvements to Alternative C added buffered bike lanes on SR-224, this still results in Level 4 BLTS on SR-224 itself because of the high vehicle speeds and increased number of travel lanes.

Level 4 Screening. The Level 4 screening results for the waters of the United States screening measure changed slightly as a result of the changes to Alternative C. As shown above in Table 2.4-1, the total impact to waters of the United States (including the 15-foot screening buffer) increased slightly, from 0.012 acre to 0.015 acre. Although UDOT was mostly able to fit the buffered bike lanes into the existing right-of-way, the addition of the bike lanes did slightly widen the footprint of Alternative C. In addition, the cost for the improved Alternative C increased from $40.6 million to $46.4 million (in 2026 dollars), mostly because of costs associated with adding the buffered bike lanes and additional engineering enhancements made to the design between the draft and final screening reports.

No other Level 4 screening results changed due to the design improvements made to Alternative C between the draft and final screening reports.

2.4.3 Other Alternatives Proposed after the Draft Screening Report and Eliminated from Detailed Study in this EIS

2.4.3.1 Summit County's Alternative B+

In their comments on the draft screening report, Summit County proposed Alternative "B+," a new alternative similar to the original conceptual Alternative B (shown in Attachment A, *Conceptual Alternatives Resulting from the Area Plan and Refinements Made to Those Alternatives*, of Appendix 2A, *Final Alternatives Development and Screening Results Report*) but with the connection of Ute Boulevard crossing SR-224 eliminated to narrow the intersection's footprint and provide a grade-separated public plaza over the depressed portion of SR-224. Summit County's alternative also changed the one-way frontage roads proposed with previous iterations of Alternative B to two-way frontage roads.

Because Alternative B+ proposed many fundamental changes to both the original and the refined Alternative B that was evaluated and eliminated from further study in the draft screening report, it was treated as a new alternative, and therefore screening started with Level 1 screening as described in Section 2.2.2, *Level 1 Screening*. Recall that Level 1 screening was used to determine whether each conceptual alternative developed during the Area Plan process had a "fatal flaw" or whether it did not meet the problems and opportunities of the Area Plan study. Alternatives that had a fatal flaw or that did not meet the problems and opportunities were dismissed from further consideration.

UDOT traffic and safety personnel reviewed Alternative B+ and determined that, from a safety perspective, one-way frontage roads are considerably safer than two-way frontage roads. On average, converting from a two-way frontage road system to a one-way frontage road system reduces crashes by 57%. Other states, most notably Texas, which has an extensive frontage road system on its highways, are currently converting their existing two-way frontage roads to one-way frontage roads. UDOT traffic and safety personnel stated that it is neither prudent nor feasible to consider a design if there is a safer alternative design. UDOT's traffic and safety personnel also considered the large number of conflict points (90 total) in the Alternative B+ design, which is more than double that in refined Alternative B. The traffic and safety personnel said that UDOT standards require a reduction in the number of conflict points whenever feasible. The extra conflict points are introduced by adding the two-way north-south frontage roads, which introduce additional turning and crossing movements compared to the one-way frontage roads.

Alternative B+ could become functionally complex because the design configuration includes two separate intersections spaced close to each other, so they would need to be operated like one intersection. This would require that one cycle of a traffic signal be split in many different phases to serve multiple traffic movements.

Summary. Alternative B+ was eliminated from further consideration in Level 1 screening because UDOT determined that it had several fatal flaws from a traffic and safety perspective. For more information regarding the development and screening of Alternative B+, see Section 5.3, *Summit County's Alternative B+*, of Appendix 2A, *Final Alternatives Development and Screening Results Report*.

2.4.3.2 Pedestrian Overpass Options with Alternatives A and C

In their comments on the draft screening report, Summit County stated a preference for a pedestrian overpass as a means to grade-separate the crossing at Ute Boulevard instead of the underpass currently proposed with Alternatives A and C. Because of slope issues and the proximity of businesses to SR-224 on the east side of the road, UDOT considered three different ramp configurations for a pedestrian overpass including straight ramps, an oval ramp, and a spiral ramp. UDOT developed the three conceptual design overpass options to best site an overpass in a location to serve the Ute Boulevard intersection in place of the currently proposed pedestrian underpass.

Because a grade-separated crossing was determined feasible and passed Levels 1 and 2 screening during the Area Plan process, UDOT started the screening process for the three different pedestrian overpass configurations with Level 3 screening. Only the Level 3 screening measures relevant to improving pedestrian and bicyclist mobility and accessibility throughout the evaluation area were used to screen the pedestrian overpass options, including measuring the level of traffic stress in the vicinity of SR-224 and measuring walk times for four origin/destination pairs in the Kimball Junction area.

Each overpass option was assumed to be included with both Alternative A and Alternative C in place of the pedestrian underpass currently included with either alternative. All three pedestrian overpass options passed the level of traffic stress (LTS) measure; all three would perform better than the 2050 No-Action Alternative and would equally improve the LTS, similar to an underpass. However, all three pedestrian overpass options failed the walk time screening measure because none of the alternatives achieved a total walk time savings better than the 2050 No-Action Alternative for the four origin-destination pairs used for the measure; therefore, none of the pedestrian overpass options meet the overall purpose of the project. All overpass options also resulted in longer walk times than the underpass options. Therefore, all pedestrian overpass options were eliminated from further consideration in this EIS. For more information regarding the development and screening of the three pedestrian overpass concepts, see Appendix 2A, *Final Alternatives Development and Screening Results Report*.

UDOT understands that Summit County is considering land use changes and development options in the Kimball Junction area. None of the alternatives considered for detailed study in this EIS would preclude Summit County from developing a pedestrian overpass that connects the development on each side of SR-224.

2.5 Alternatives Considered for Detailed Study

Based on the results of the alternatives development and screening process, the alternatives carried forward for detailed study in this EIS are the No-Action Alternative and the improved Alternatives A and C described in Section 2.4, *Alternatives Development and Screening Conducted after the Comment Period for the Draft Screening Report*. This section provides a detailed description of each alternative.

Appendix 2B, *Action Alternatives Design Figure Series*, includes figures that show the roadway plans for Alternative A and Alternative C. The roadway plans are at a closer scale and show how the improvements for each alternative would be located relative to the existing roadways. Appendix 2C, *Action Alternatives Typical Sections,* shows the typical sections for both of the action alternatives' mainline and ramps.

2.5.1 No-Action Alternative

NEPA requires an analysis of the No-Action Alternative. This alternative serves as a baseline so that decision-makers can compare the environmental effects of the action alternatives.

With the No-Action Alternative, no improvements would be made to the Kimball Junction interchange with I-80 or on SR-224 between the interchange and Olympic Parkway except for routine maintenance and the programmed improvement by UDOT to add dual northbound and southbound left-turn lanes at the Ute Boulevard/SR-224 intersection as well as SR-224 BRT improvements as identified in the SR-224 BRT Categorical Exclusion that was approved by the Federal Transit Administration in January 2023. Projects identified in UDOT's *Utah Long-range Transportation Plan 2023–2050* (UDOT 2023b) except for the Kimball Junction Project, are assumed to have been constructed as part of the No-Action Alternative. Overall, with the No-Action Alternative, the basic design of the I-80 interchange at Kimball Junction would not change.

2.5.2 Alternative A

Figure 2.5-1, *Alternative A: Split Diamond Interchange with Intersection Improvements*, on page 2-31 shows the termini, alignment, interchanges, and pedestrian and bicyclist facilities included with Alternative A. The alternative consists of a split-diamond interchange configuration on I-80 with intersection and pedestrian improvements on SR-224. The existing SPUI at Kimball Junction would be converted into a tight-diamond configuration (traffic signals at each off-ramp), and the interchange traffic would be split between the existing location at SR-224 and a new intersection with a bridge crossing I-80 to the west of SR-224.

The split-diamond interchange would disperse traffic between the new access and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area. One-way frontage roads for both eastbound and westbound directions would connect the two intersections and tie into the on- and off-ramps for I-80. The shared-use path on the south side of I-80 and the existing pedestrian bridge over I-80 would remain in place for pedestrian comfort. A pedestrian undercrossing at Ute Boulevard, intersection improvements, and a buffered bike lane along SR-224 are proposed to move all users more efficiently through the area. Intersection improvements include adding northbound and southbound through lanes on SR-224 between Olympic Parkway and I-80.

Alternative A includes the following improvements. For Alternative A roadway plans and typical sections, see Appendix 2B, *Action Alternatives Design Figure Series,* and Appendix 2C, *Action Alternatives Typical Sections*.

- Construct a split diamond interchange with bridge crossings over I-80 (uses the existing SPUI bridge deck).
- Construct one-way frontage roads north and south of I-80.
- Implement intersection improvements at the intersections of Ute Boulevard and Olympic Parkway with SR-224.
  - Construct dual left-turn lanes on SR-224 at both Ute Boulevard and Olympic Parkway.
  - Construct an extended eastbound-to-northbound left-turn lane from Ute Boulevard to SR-224, thereby closing the existing left-turn access to Landmark Loop and the Sheldon Richins Building.
  - Construct an extended westbound-to-northbound right-turn lane from Ute Boulevard to SR-224.
  - Construct an additional westbound through lane at Ute Boulevard across SR-224.
  - Construct an extended westbound-to-northbound right-turn lane from Newpark Boulevard to SR-224.
- Construct a pedestrian underpass just south of Ute Boulevard.
- Construct a raised concrete median to SR-224 between Ute Boulevard and Olympic Parkway.
- Construct widened northbound and southbound lanes on SR-224 between Ute Boulevard and Olympic Parkway.
- Construct a signalized intersection at Ute Boulevard/Landmark Drive to replace the existing roundabout.
- Construct an additional lane eastbound on Newpark Boulevard from SR-224 to the Uinta Way roundabout (ends in right turn only).
- Construct three through lanes both northbound and southbound on SR-224 between Olympic Parkway and Ute Boulevard.
- Add striped and buffered bike lanes on SR-224 between the through lane and right-turn lane to provide more formal separation from vehicle travel lanes and greater safety at the two intersections. The buffered bike lanes would be striped into the shoulders of SR-224 in both the northbound and southbound directions, and the shoulders would be widened from 8 feet to 10 feet wide to accommodate them.
  - The bike lanes would begin at the south end of the project area at the northbound SR-224 right-turn lane to Olympic Parkway, cross the Ute Boulevard, I-80 tight diamond interchange with one-way frontage roads, and end at Rasmussen Road on the north end of the project area.

Alternative A includes a new access from I-80 that ties into Landmark Drive between the development at 6622 Landmark Drive and the east side of the Junction Commons (formerly Outlets Park City). The roadway crossing over I-80 is perpendicular to Interstate 15 (ideal 90-degree angle intersections with the frontage

roads). A minimum roadway radius was designed to the south part of Landmark Drive to tie into the existing Landmark roadway tangent. The new split diamond interchange would be 1,500 feet from the I-80 and SR-224 split diamond interchange to allow for vehicle queuing and storage space, and the on- and off-ramps to I-80 would be moved west to create enough storage and/or deceleration length and acceleration and/or merge length before the new westernmost split diamond interchange.

Based on the *Summit County Long-range Transportation Plan* (LRTP; Summit County 2022), Landmark Drive is assumed to be widened to four lanes from north of Ute Boulevard to the roundabout at Junction Commons (formerly Outlets Park City) as part of the No-Action Alternative. Summit County is responsible for deciding the cross section and implementing a design for the widened roadway on Landmark Drive. Widening Landmark Drive is included as part of the 2050 No-Action Alternative because it is shown as a Phase 1 (2022–2030 completion) project in Summit County's LRTP.

Alternative A would shift traffic volumes in the study area. During the PM peak hour in 2050 (4 PM to 5 PM), traffic volumes on SR-224 between I-80 and Ute Boulevard would decrease by 1,020 vehicles (about 20%), and traffic volumes on Landmark Drive just north of Ute Boulevard would increase by 510 vehicles (about 30%) compared to the 2050 No-Action Alternative. Summit County's planned widening of Landmark Drive will accommodate the expected traffic volumes with Alternative A.

Converting the Landmark Drive/Ute Boulevard roundabout to a signalized intersection, as identified for Alternative A, would result in an acceptable level of service for the intersection. The proposed Landmark Drive/Ute Boulevard traffic signal would operate at LOS D or better. LOS D means that congestion is present but manageable, and traffic flow would infrequently experience considerable delays. Signals are often the capacity constraint on a road. UDOT expects that Summit County's planned widening of Landmark Drive will allow the road to operate adequately, even with traffic shifting from SR-224 to Landmark Drive.

The Alternative A frontage roads would allow a driver to access either Landmark Drive or SR-224 from a single I-80 off-ramp. Likewise, frontage roads would allow a driver to access an I-80 on-ramp from either Landmark Drive or SR-224. The proposed one-way frontage roads would use part of the existing on- and off-ramp alignments on the west side of the SPUI, but the roadway would be raised to tie into the new bridge across I-80 at Landmark Drive.

Alternative A would meet UDOT's design and safety standards and the requirements in its *Roadway Design Manual*. For Alternative A, UDOT developed a conceptual design that would maintain existing trail connections along and across SR-224 and I-80. The conceptual design includes shifting the location of the existing I-80 on- and off-ramps to the west, constructing a new overpass across I-80, and constructing a new pedestrian tunnel under SR-224. The improvement that would be made with Alternative A would not restrict the consideration of other reasonably foreseeable transportation improvements in the Kimball Junction area.

The improvements proposed with Alternative A would occur primarily on existing UDOT right-of-way. Just under 5 acres of new right-of-way would be required. The new right-of-way would need to be acquired in the area of the new split diamond interchange just north of Landmark Drive, in the area where the Landmark Drive and Ute Boulevard roundabout would be converted to a signalized intersection, and along I-80 and SR-224.

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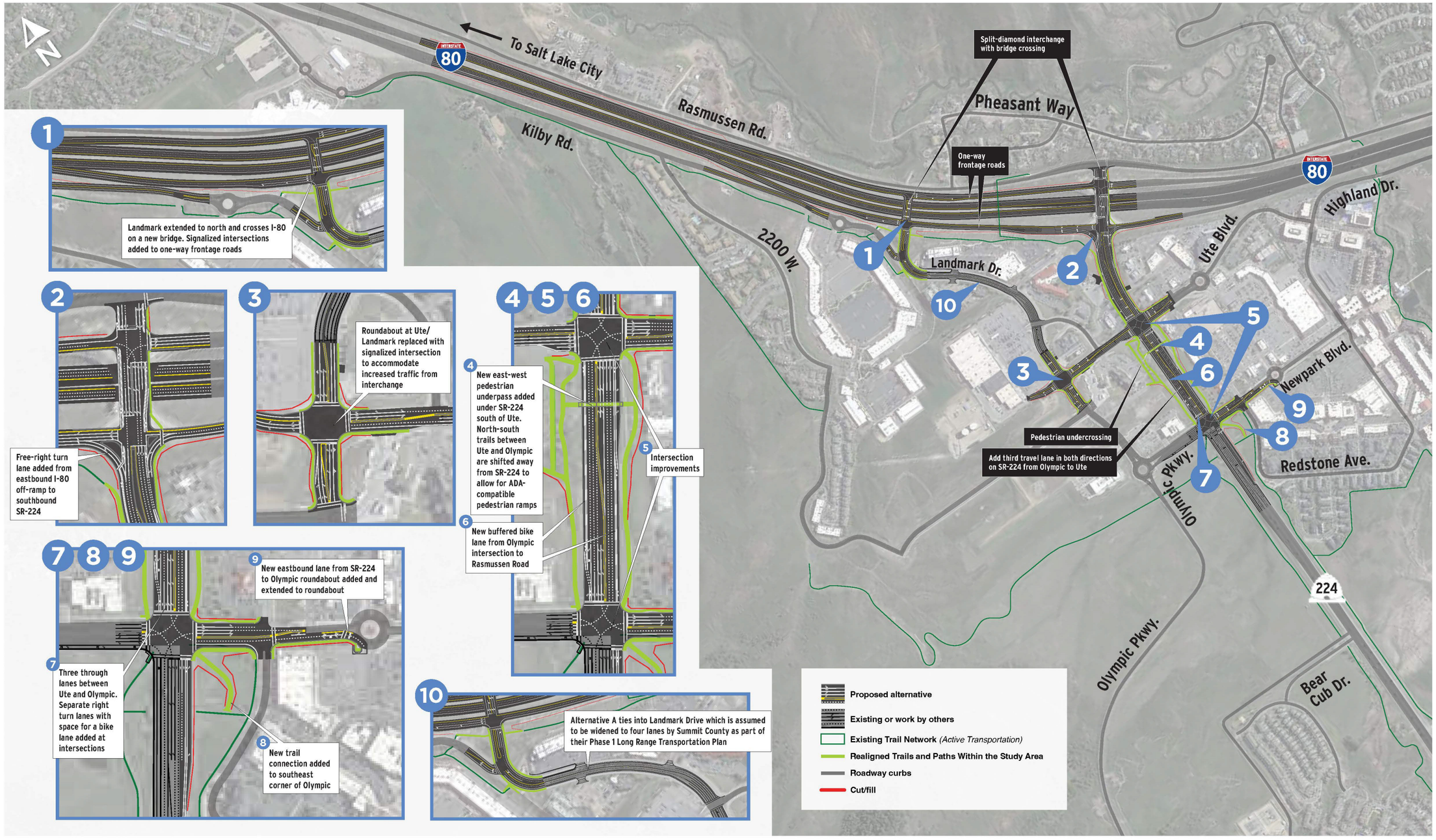
Figure 2.5-1. Alternative A: Split Diamond Interchange with Intersection Improvements



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2.5.3 Alternative C

Figure 2.5-2, *Alternative C: Intersection Improvements with Pedestrian Enhancements*, on page 2-35 shows the termini, alignment, interchanges, and pedestrian and bicyclist facilities included with Alternative C. The focus of Alternative C is implementing spot improvements and widening areas of existing pavement while keeping most of the existing Kimball Junction area layout and pavement in place, including the existing I-80 and SR-224 SPUI. This alternative consists of additional through travel lanes, additional turn lanes at the intersections to improve intersection efficiency and improvements for pedestrian and bicyclist accessibility. The main improvements would consist of adding dual left-turn lanes at Olympic Parkway for southbound-to-eastbound movement, adding dual left-turn lanes at Ute Boulevard for southbound-to-eastbound and northbound-to-westbound movement, adding striped and buffered bike lanes on SR-224 in both the northbound and southbound directions between Olympic Parkway and Rasmussen Road, and building a pedestrian undercrossing south of Ute Boulevard.

This alternative would also include adding an additional northbound and southbound lane on SR-224 from Olympic Parkway to Ute Boulevard, along with extending the westbound-to-northbound right-turn lane on Newpark Boulevard and extending the eastbound-to-northbound dual left-turn lanes on Ute Boulevard.

Alternative C includes the following improvements (for Alternative C roadway plans and typical sections, see Appendix 2B, *Action Alternatives Design Figure Series*, and Appendix 2C, *Action Alternatives Typical Sections*).

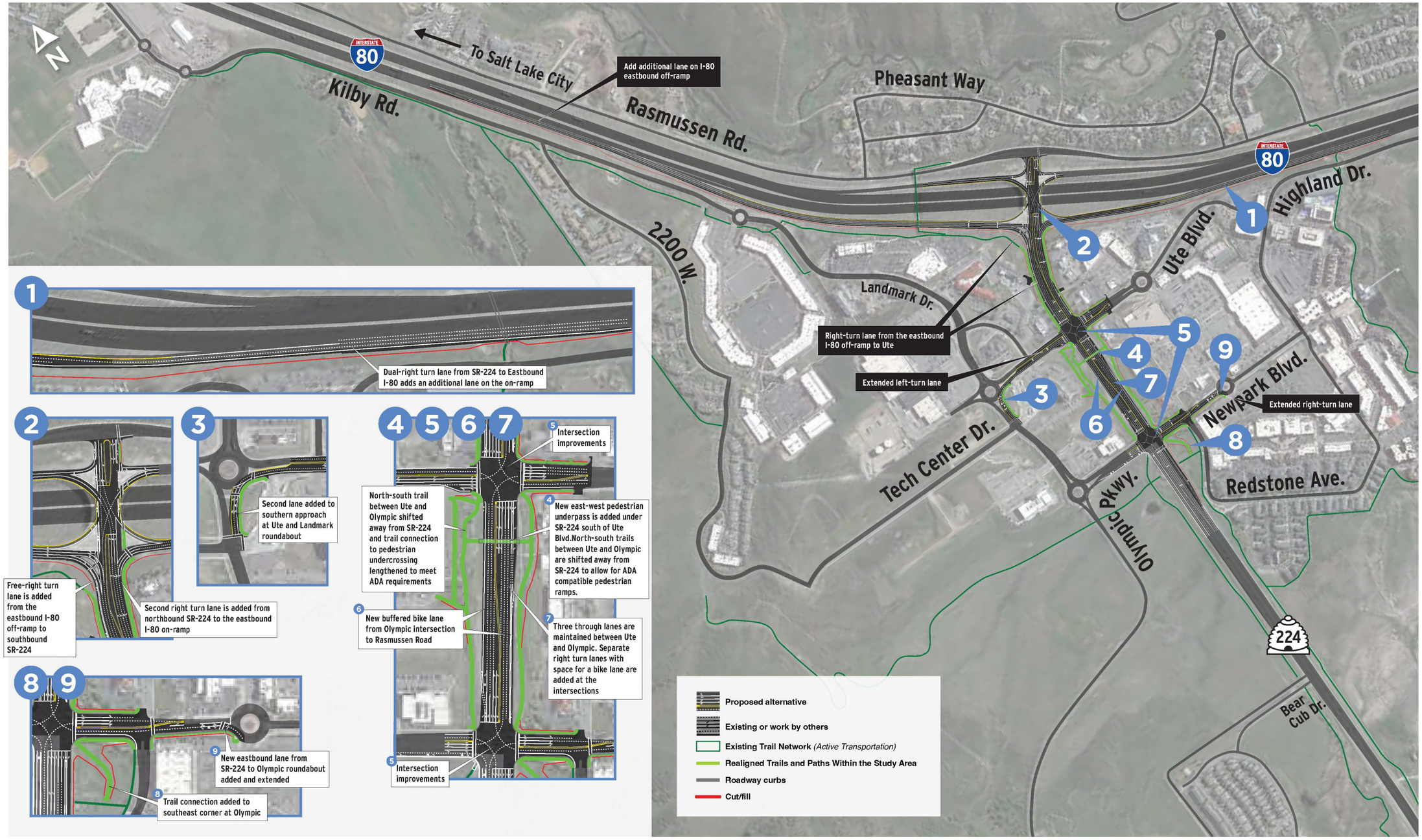
- Implement intersection improvements at the existing I-80 interchange and SPUI intersection.
  - Construct an additional lane on I-80 eastbound off-ramp.
  - Add a free-right right-turn lane from the eastbound I-80 off-ramp to SR-224.
  - Construct an additional northbound through/right-turn lane at the SR-224 and I-80 eastbound on-ramp.
- Implement intersection improvements at the intersections of Ute Boulevard and Olympic Parkway with SR-224.
  - Construct dual left-turn lanes on SR-224 at both Ute Boulevard and Olympic Parkway.
  - Construct an extended eastbound-to-northbound left-turn lane from Ute Boulevard to SR-224, thereby closing the existing left-turn access to Landmark Loop and Richins Building.
  - Construct an extended westbound-to-northbound right-turn lane from Ute Boulevard to SR-224.
  - Construct an additional westbound through lane at Ute Boulevard across SR-224.
  - Construct an extended westbound-to-northbound right-turn lane from Newpark Boulevard to SR-224.
- Construct an additional right-turn lane on the northbound approach at the Ute Boulevard/Landmark Drive roundabout.
- Construct an additional lane eastbound on Newpark Boulevard from SR-224 to the Uinta Way roundabout (ends in right turn only).

- Construct pedestrian underpass just south of Ute Boulevard and east-west crosswalks across SR-224 that would be removed at Ute Boulevard and Olympic Parkway.
- Construct a raised concrete median added to SR-224 between Ute Boulevard and Olympic Parkway.
- Construct additional northbound and southbound lanes on SR-224 between Olympic Parkway and Ute Boulevard.
- Add striped and buffered bike lanes on SR-224 between the through lane and right-turn lane to provide more formal separation from vehicle travel lanes and greater safety at the two intersections. The buffered bike lanes would be striped into the shoulders of SR-224 in both the northbound and southbound directions, and the shoulders would be widened from 8 feet to 10 feet wide to accommodate them.
    - The bike lanes would begin at the south end of the project area at the northbound SR-224 right-turn lane to Olympic Parkway, cross the Ute Boulevard and the I-80 SPUI, and end at Rasmussen Road on the north end of the project area.

Alternative C would meet UDOT's design and safety standards and the requirements in its *Roadway Design Manual*. For Alternative C, UDOT developed a conceptual design that would maintain existing trail connections along and across SR-224 and I-80. The conceptual design includes a new pedestrian tunnel under SR-224. The improvements that would be made with Alternative C would not restrict the consideration of other reasonably foreseeable transportation improvements in the Kimball Junction area.

The improvements proposed with Alternative C would occur primarily on existing UDOT right-of-way. Just over 3.5 acres of new right-of-way would be required. The new right-of-way would need to be acquired primarily along I-80 and SR-224.

Figure 2.5-2. Alternative C: Intersection Improvements with Pedestrian Enhancements



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2.5.4 Preliminary Cost Estimates and Construction Implementation

To help compare Alternatives A and C, UDOT developed preliminary cost estimates (Table 2.5-1). These estimates are based on the preliminary engineering conducted for the action alternatives and include the total project cost for construction, right-of-way acquisition, utility relocation, and design engineering. The cost estimates are based on 2026 dollars. The actual construction cost would change depending on the year of construction, but the cost is expected to change proportionally for the two alternatives.

The selected alternative would be constructed based on available funding. UDOT could construct portions of the selected alternative based on the amount of funding while considering safety and operational benefits. The *Utah Long-range Transportation Plan 2023–2050* identifies the selected alternative for construction in Phase 1 (2023–2032) with Unique ID No. U2023032. The selected alternative is also identified on UDOT's 2025–2030 STIP under PIN 16388 with $50 million in funding identified for right-of-way, final design, and construction.

Table 2.5-1. Preliminary Cost Estimates for the Action Alternatives

In 2026 dollars

Alternative Cost Category	Alternative A: Split Diamond Interchange with Intersection Improvements	Alternative C: Intersection Improvements with Pedestrian Enhancements
Right-of-way (strip takes)	$5,293,000	$3,307,000
Roadway and structures	$56,616,000	$20,224,000
Utilities	$10,711,000	$6,062,000
Drainage	$10,187,000	$4,123,000
Traffic control and maintenance of traffic	$2,862,000	$859,000
Miscellaneous (CE, PE, and contingency) [a]	$38,242,000	$13,895,000
Total cost	**$123,911,999**	**$48,580,000**

Definitions: CE = construction engineering; PE = preliminary engineering

[a] Note that this category includes a contingency of 20% for items that were not otherwise estimated to account for final design elements that have not been analyzed at this level of design.

2.5.5 Comparison of Alternatives

Table 2.5-2 below lists the major advantages and disadvantages of Alternatives A and C, both of which were evaluated in detail in this EIS.

Table 2.5-3, *Resource Impacts from Each Project Alternative*, on page 2-41 summarizes the main resource impacts of each project alternative based on the environmental evaluations described in Chapter 3, *Affected Environment, Environmental Consequences, and Mitigation Measures*.

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Table 2.5-2. Primary Advantages and Disadvantages of the No-Action and Action Alternatives

Alternative	Primary Advantages	Primary Disadvantages
No-Action Alternative	• With the No-Action Alternative, there would be few environmental impacts because no major improvements would be made in the Kimball Junction area.	• The No-Action Alternative would not meet the purpose of the project. • The No-Action Alternative would not be consistent with regional transportation plans. • With the No-Action Alternative, operations and safety would not be improved on the I-80 and SR-224 interchange through Olympic Parkway. • With the No-Action Alternative, BRT travel times would not be improved through the evaluation area. • With the No-Action Alternative, new bicyclist and pedestrian improvements that would improve safety, connectivity, comfort, and mobility would not be made. • With the No-Action Alternative, both eastbound and westbound vehicle queue lengths at the I-80 off-ramps would exceed 5,000 feet during both the AM and PM peak periods, which would decrease safety. • With the No-Action Alternative, several intersections would operate at LOS E or F, most notably during the PM peak period. • With the No-Action Alternative, traffic congestion would increase in the evaluation area, which would result in poor local and regional mobility.
Alternative A	• With Alternative A, all but one intersection in the evaluation area would operate at acceptable levels of service, which would result in improved regional mobility in the Kimball Junction area. • With Alternative A, AM southbound and PM northbound through-traffic travel times and speeds would substantially improve compared to no-action conditions. • With Alternative A, 100% of vehicles would be served during the AM and PM peak hours. • With Alternative A, off-ramp vehicle queue lengths would be reduced on the I-80 mainline through lanes, which would reduce vehicle backing and potentially reduce rear-end accidents. • With Alternative A, BRT travel times in the evaluation area would be improved by over 2 minutes. • With Alternative A, level of traffic stress would be reduced at Ute Boulevard because of adding a pedestrian underpass. • With Alternative A, buffered bicycles lanes would be added to SR-224 in the evaluation area. • With Alternative A, walk times would be improved between key destinations in the evaluation area. • Alternative A would be consistent with regional transportation plans. • Alternative A would be consistent with current land uses and zoning and generally consistent with adopted land use plans. • Alternative A would disperse traffic between the new access at Landmark Drive and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area and by providing more direct access from I-80 to any new mixed-use development that is constructed on the west side of SR-224 in the future. • Alternative A would provide direct access from I-80 to the Kimball Junction Transit Center, which could increase accessibility to transit. • Alternative A would reduce traffic congestion and travel times to businesses adjacent to the Kimball Junction area, thereby providing an economic benefit. • With Alternative A, stormwater runoff would be conveyed into a treatment system before being conveyed to adjacent waters, which would potentially improve water quality.	• With Alternative A, one intersection in the evaluation area (SR-224 and Rasmussen Road) would continue to operate at LOS E in the AM peak period. • With Alternative A, off-ramp vehicle queue lengths would be about 200 feet longer than with Alternative C, but at least 4,400 feet shorter than the No-Action Alternative. • Alternative A could potentially result in indirect impacts to land use by increasing the timing of development on the west side of Kimball Junction. • Alternative A would increase traffic in the west side of Kimball Junction and on Landmark Drive. • With Alternative A, travel times through the evaluation area would be longer than with Alternative C by about 1:15 min in the AM southbound and by about 30 seconds in the PM northbound. • Alternative A would have the highest project cost because of constructing a new split diamond interchange and structure, utilities, and drainage. • Alternative A would have a slightly greater visual impact because of a new split diamond interchange and new bridge over I-80. • With Alternative A, one noise receptor would have an increase of more than 3 dBA in noise levels compared to the existing conditions and the no-action conditions. • Alternative A would have slightly greater utility impacts than would Alternative C. • Alternative A would have a greater construction complexity, including ramp closures and lane closures on I-80, compared to Alternative C.
Alternative C	The primary advantages of Alternative C are generally the same as those of Alternative A with the following additional benefits: • Alternative C would result in a greater reduction in travel delay and faster travel speeds through the evaluation area during both the AM and PM peak periods than with Alternative A. • With Alternative C, all intersections would operate at acceptable levels of service. • Alternative C would result in off-ramp vehicle queue lengths that are 200 feet shorter. • With Alternative C, less right-of-way would be required. • Alternative C would cost about 60% less than Alternative A. • Alternative C would result in less traffic on Landmark Drive. • Alternative C would have a slightly less visual impact than Alternative C because it does not include a new interchange and bridge over I-80. • Alternative C would have a lower construction complexity than Alternative A.	• With Alternative C, SR-224 BRT travel time savings is 30 seconds longer than with Alternative A. • With Alternative C, walk times between key destinations in the evaluation area is over 1 minute longer than Alternative A. • Alternative C would result in less direct access to residential and commercial locations on the west side of Kimball Junction than with Alternative A. • Alternative C would result in less direct access from I-80 to the Kimball Junction Transit Center than with Alternative A. • Alternative C would have one more noise impact than Alternative A.

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Table 2.5-3. Resource Impacts from Each Project Alternative

Impact Category	Unit	No-Action Alternative	Alternative A	Alternative C
Impacts to local roadway network	None	• Congestion levels at the interchange and the rest of the study area would continue to increase from the existing conditions in 2022 and would reach severe congestion by 2050. • The operational deficiencies described in Chapter 1, *Purpose and Need*, would not be corrected.	• Improves operations, vehicle and BRT travel times, and safety. • Offers direct access between I-80 and the west side of Kimball Junction. • Increases traffic on Landmark Drive.	• Improves operations, vehicle and BRT travel times, and safety.
Pedestrian and bicyclist improvements	None	None	• Adds striped and buffered bike lanes to SR-224 in the pedestrian and bicyclist issues evaluation area and adds one pedestrian underpass at Ute Boulevard.	• Adds striped and buffered bike lanes to SR-224 in the pedestrian and bicyclist issues evaluation area and adds one pedestrian underpass at Ute Boulevard.
Land converted to roadway use	Acres	0	4.86	3.5
Consistent with local land use plans	Yes/no	No	Yes	Yes
Potential residential relocations	Number	0	0	0
Potential business relocations	Number	0	0	0
Utility impacts	Level	Low	Highest	High
Recreation areas/trails affected	Number	0	0	0
Community facilities affected	Number	0	0	0
Air quality impacts above regulations	Yes/no	No	No	No
Receptors with modeled noise levels above criteria	Number	139	138	139
Water quality improvements	Yes/no	No	Yes	Yes
Impacts to aquatic resources	Acres	0	0.044	0.004

(*Continued on next page*)

Table 2.5-3. Resource Impacts from Each Project Alternative

Impact Category	Unit	No-Action Alternative	Alternative A	Alternative C
Direct impacts to threatened, endangered, and sensitive species	Acres	0	0	0
Adverse impacts to cultural resources	Number	0	0	0
Hazardous waste sites affected (high, moderate, and low risk sites combined)	Number	0	2	2
Floodplain impacts	Acres	0	0.79	0
Visual changes	Category	Neutral	Neutral	Neutral
Section 4(f) uses	Number	0	0	0

2.5.6 Basis for Identifying the Selected Alternative

This section identifies and provides UDOT's basis for identifying the selected alternative. The final selection of an alternative is identified in UDOT's Record of Decision for the Kimball Junction Project.

What is UDOT's selected alternative?

UDOT's selected alternative in this Final EIS is Alternative C: Intersection Improvements with Pedestrian Enhancements.

When identifying its selected alternative, UDOT considered transportation performance, impacts to the natural and human environment, and cost. After evaluating the information in this EIS, the project file, and public and agency input to date, UDOT has identified **Alternative C: Intersection Improvements with Pedestrian Enhancements** as the selected alternative.

Alternatives A and C would similarly improve operations and travel times on SR-224 from the I-80 interchange through Olympic Parkway; would similarly improve level of service and percent served at intersections in the needs assessment evaluation area described in Section 1.1.1.1, *Needs Assessment Evaluation Area;* would similarly improve BRT travel times through the evaluation area; and would similarly improve pedestrian and bicyclist mobility and accessibility throughout the evaluation area.

However, Alternative C results in a greater reduction in travel delay and faster travel speeds through the needs assessment evaluation area during both the AM and PM peak periods than Alternative A, provides acceptable level of service at *all* intersections in the needs assessment evaluation area, and results in off-ramp vehicle queue lengths that are 200 feet shorter than with Alternative A. Alternative C is a more reasonable expenditure of funds for the anticipated operational benefits compared to Alternative A. The "No-action" Alternative would not meet the purpose of this project.

2.6 References

[AASHTO] American Association of State Highway and Transportation Officials

2011 Roadside Design Guide, 4th Edition. American Association of State Highway and Transportation Officials, Technical Committee for Roadside Safety.

2018 A Policy on Geometric Design of Highways and Streets, 7th Edition. American Association of State Highway and Transportation Officials, Washington DC.

High Valley Transit

2023 FTA Region 8 Categorical Exclusion Worksheet for the SR-224 Bus Rapid Transit Project. https://drive.google.com/file/d/1eUMlcTBrpvGofNF1kHvhX2TWtkq2VEms/view. January 27.

[MAG] Mountainland Association of Governments

2023 TransPlan50: Regional Transportation Plan for Urban Utah County. https://mountainland.org/rtp.

Summit County

2022 Summit County Long-range Transportation Plan 2022–2050. https://www.summitcountyutah.gov/DocumentCenter/View/23097/LRTP-2022-2050-Final-Report.

[UDOT] Utah Department of Transportation

2021a Kimball Junction and SR-224 Area Plan. Available at https://kimballjunctioneis.udot.utah.gov/resources.

2021b Roadway Design Manual. https://drive.google.com/file/d/1tz6gCuriPX0mfr6FeTZ6k7AmbNu3Iikh/view.

2023a Alternatives Development and Screening Methodology Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2023/04/UDOT_KJEIS-Screening-Methodology-Report-4.28.23.pdf. April 17.

2023b Utah Long-range Transportation Plan 2023–2050. https://sites.google.com/utah.gov/lrp-2023.

2024a Final Alternatives Development and Screening Results Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2024/09/KJ-EIS-Final-Alternatives-Development-and-Screening-Report-2024-09-03.pdf. August 28.

2024b Draft Alternatives Development and Screening Results Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2024/02/UDOT_KJEIS_Alternatives_Development_and_Screening_Report_2024-02-26.pdf. February 26.

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

This chapter describes the existing social, economic, and environmental conditions in the Kimball Junction Environmental Impact Statement (EIS) study area, which serve as a baseline for evaluating the impacts of the action alternatives. This chapter also addresses the expected beneficial and adverse social, economic, and environmental impacts of the action alternatives. Impacts to resources and the measures to mitigate the impacts are presented in this chapter by alternative. If no mitigation measures are listed for a resource in this chapter, then no mitigation measures are proposed. Potential indirect and cumulative impacts for applicable resources are described in Section 3.16, *Indirect and Cumulative Effects*.

The Kimball Junction Project includes two action alternatives:

- Alternative A: Split Diamond Interchange with Intersection Improvements
- Alternative C: Intersection Improvements with Pedestrian Enhancements

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

Resources Not Analyzed in Detail in This EIS. Farmland, paleontological resources, soils and geology, wild and scenic rivers, joint development, and Section 4(f) resources are not analyzed in detail in this EIS.

- **Farmland.** The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural usages, and to ensure that federal programs are administered in a manner that, to the extent practicable, will be compatible with state, local units of government, and private programs and policies to protect farmland (7 *Code of Federal Regulations* [CFR] Section 658.3).

  For linear development, per the Utah Department of Transportation's (UDOT) *Environmental Process Manual of Instruction*, land that has already been converted for industrial, commercial, residential, or recreational activity does not meet the FPPA's definition of farmland (UDOT 2023d: Chapter 5, *Project Impact Analyses*). The minor amount of FPPA soils in the study area (about 0.7 acre) all occur on land either in or immediately adjacent to the State Route 224 (SR-224) right-of-way, which is zoned for residential or commercial use or is already under existing pavement. For this reason, the FPPA does not apply.

- **Paleontological Resources.** No paleontological resources are known to be present in the project study area. According to the Utah Geological Survey, the potential for encountering fossil resources is low due to the nature of the geology in the area (UGS 2023).

- **Soils and Geology.** The main issue concerning soils and geology is shallow groundwater. For more information, see Section 3.8, *Water Quality and Water Resources*.
- **Wild and Scenic Rivers.** There are no wild and scenic rivers in the project area.
- **Joint Development.** *Joint development* refers to opportunities to develop other public works projects jointly with the Kimball Junction Project. At the time of publication of this EIS, no additional facilities are planned to be developed jointly with the Kimball Junction Project.
- **Section 4(f) Resources.** Section 4(f) of the Department of Transportation Act of 1966 (49 *United States Code* [USC] Section 303) applies to significant publicly owned parks, recreation areas, and wildlife and waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places. Neither action alternative would use properties that are protected by Section 4(f).

3.1 Land Use and Planning

3.1.1 Introduction

This section describes the existing land uses and zoning, adopted general and neighborhood plans, and current state of future land use planning in the land use and planning evaluation area as well as the expected impacts of the project alternatives.

Land Use and Planning Evaluation Area. The land use and planning evaluation area is where direct impacts from the proposed improvements and indirect traffic-related impacts could occur. The evaluation area includes the Interstate 80 (I-80) and SR-224 interchange at Kimball Junction, including I-80 between mileposts (MPs) 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. The evaluation area mostly follows the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*; however, in the Kimball Junction neighborhood south of I-80, the evaluation area is focused on an area within a 0.5-mile radius of the centerline of SR-224. The entirety of the land use and planning evaluation area is in unincorporated Summit County; therefore, land use and planning in the evaluation area are regulated by Summit County.

Land use and transportation directly affect one another; the locations and density of development affect travel demand, and the number and locations of access points influence land development patterns and growth. Changes in land use patterns can alter travel demand and, therefore, transportation infrastructure needs. For this reason, UDOT reviewed information about travel demand from Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14 to select this evaluation area and to determine where changes in the traffic patterns from the action alternatives could influence land use patterns.

The land use and planning evaluation area is shown in Figure 3.1-1, *Current Zoning in the Land Use and Planning Evaluation Area*, on page 3-5.

3.1.2 Regulatory Setting

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

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

Land use planning and zoning in the evaluation area are regulated by Summit County. Summit County includes the unincorporated community of Snyderville, which stretches throughout much of the west side of the county and includes the residential and commercial districts along SR-224 in the Kimball Junction area. Although Snyderville is officially outside the Park City limits, Snyderville addresses carry the name Park City.

3.1.3 Affected Environment

This section describes the existing land use in the land use and planning evaluation area as well as the applicable local and regional land use plans and policies. Zoning is the legal framework for regulating land uses, and it enforces the comprehensive plans. Zoning designations specify the types of land uses that are permitted in a given area; these designations include open space, residential, agricultural, commercial, and industrial. Land use must be consistent with the zoning designation, and both might change over time as an area develops or redevelops.

The land use and zoning patterns described below are the product of interdependent decisions by numerous parties, including local elected officials, local planning staff, developers, citizens, regional planning authorities, and other public and private entities.

Transportation decisions might not be determinative to developers as they make development decisions about individual projects because their timeframes and planning horizons are much shorter than the public sector's timeframes and planning horizons. Variables other than transportation, such as market demand, site suitability, capital availability, economic feasibility, and regulatory environment, play a substantial role in influencing a developer's process of determining the viability of a development (FHWA 2004).

However, transportation has an important, although indirect, effect on land use decisions. Transportation can influence, but does not always control, the outcome. In the Kimball Junction area, resorts are expanding, special events are becoming more frequent and larger, and residential and commercial development is continuing to expand. All of these activities bring more and constant traffic to the area. Because Park City and Snyderville are interconnected through the resort industry and related sectors, the two areas face similar challenges regarding growth.

3.1.3.1 Current Land Use and Zoning

The land use and planning evaluation area includes primarily developed, mixed-use urban land uses, but it also includes some open space. According to the *Snyderville Basin General Plan* (Summit County 2015), the Kimball Junction neighborhood is the designated town center and is the primary retail-commercial shopping district in the region. According to the general plan, development in the Kimball Junction neighborhood includes residential, workforce housing, lodging, entertainment, and social uses beyond the regional commercial business uses originally intended for this area. The stated goal of the Land Use chapter in the general plan is to "promote sustainable Land Use Planning Principles that preserve Critical Lands, maintain neighborhood character, protect the economic base, prevent sprawl, and provide efficient delivery of services." These guiding principles are implemented through zoning designations, which help guide where development can occur, what type of development can take place, and where open space should be preserved.

Current zoning in the evaluation area is shown in Figure 3.1-1 and summarized in Table 3.1-1. In the evaluation area, the largest percentage of land is zoned for Town Center use, followed by Transportation/Right-of-way and Rural Residential uses. There are also Community Commercial and Hillside Stewardship zones in the evaluation area.

Summit County is the local land use authority for all adjacent land in the land use and planning evaluation area. UDOT obtained the land use and zoning information, including future planned development, discussed in this section from aerial images from Google Earth (2023), field surveys, and local land use plans. Current land use and zoning categories were assigned to be consistent with those used in the County's and City's zoning and general plans. A copy of the Summit County parcel dataset was used to calculate acreages.

To evaluate the impacts of each project alternative, UDOT input the existing zoning data into electronic geographic information systems (GIS) files. The data layer in the GIS file included the zoning designations in the evaluation area that are used to support the desired land use guidelines and goals.

For this analysis, UDOT assumed that any land in the existing right-of-way is already dedicated to transportation use, even if it is not currently a paved part of the existing SR-224, I-80 interchange and mainline, or other adjacent roadways in the evaluation area. Therefore, to accurately calculate the amount of land that would be converted to transportation use, impacts to land use were calculated only for land outside the existing highway and adjacent roadways' rights-of-way.

Note that the current land use and zoning, as described in Section 3.1, *Land Use and Planning*, does not necessarily match future land use plans because these plans are continually being amended, and the future planned land use might differ from existing uses. Summit County is currently updating the *Snyderville Basin General Plan*, which will include future land use maps to direct growth and changes to the built environment. The updated plan is anticipated to be adopted by December 2025 (Summit County 2024a).

Figure 3.1-1. Current Zoning in the Land Use and Planning Evaluation Area

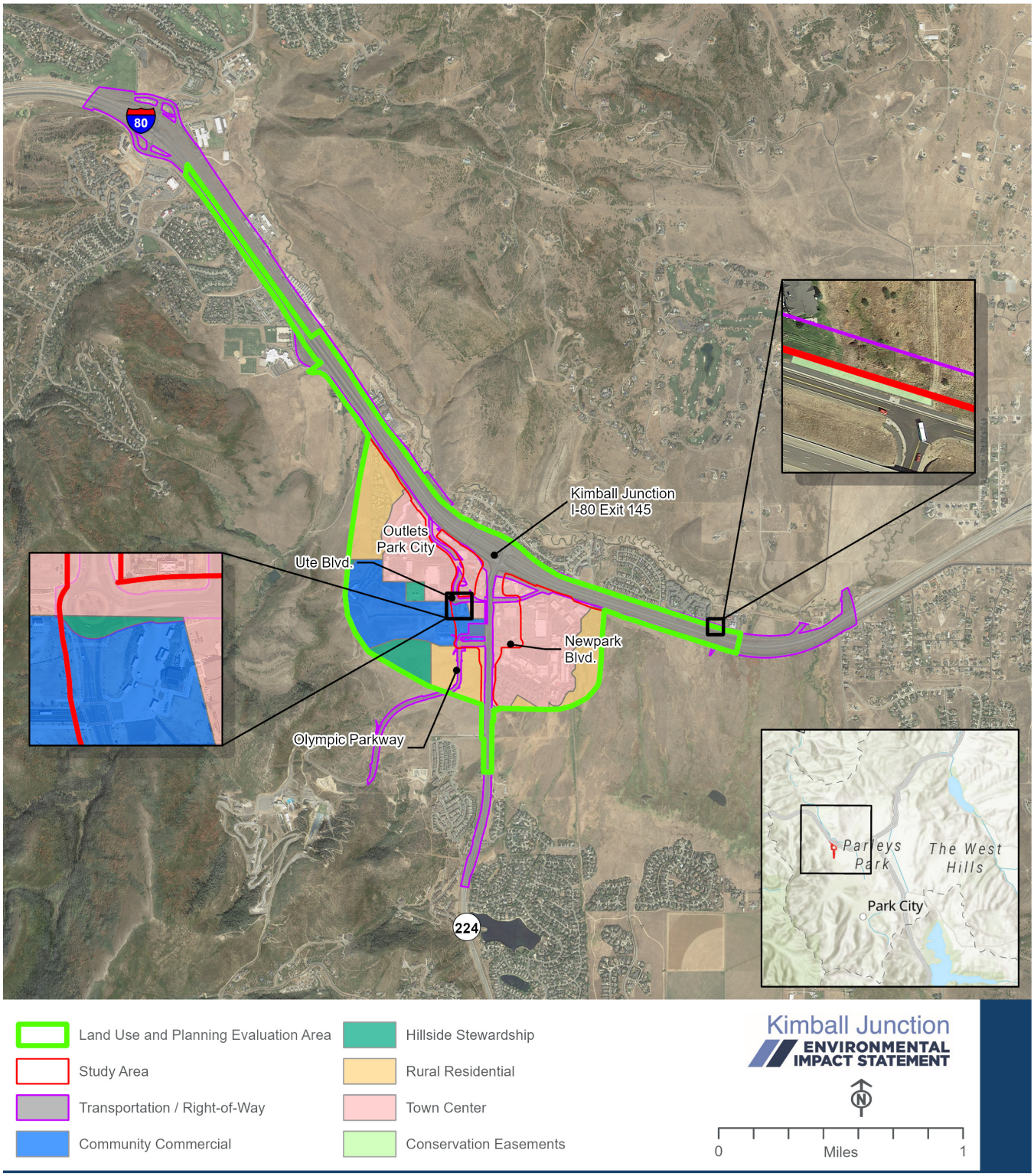


Table 3.1-1. Current Land Use and Zoning in the Land Use and Planning Evaluation Area

Zoning Type	Acreage in the Evaluation Area	Percent of the Evaluation Area	Purpose and Description
Town Center (TC)	209.2	34.3	The purpose of the Town Center zone district is to allow, at the discretion of Summit County, the flexibility of land use, densities, site layout, and project design. The Town Center designation in Kimball Junction represents the primary retail-commercial shopping district in the region.
Rural Residential (RR)	115.5	18.9	The purpose of the Rural Residential zone district is to allow existing residential uses to remain, allow for new single-family dwelling units to be constructed on legally platted lots, allow for expanding such uses in accordance with limitations and regulations defined in the low-impact permit process, and permit residential uses to be developed in accordance with the specific provisions of such previously approved agreements.
Community Commercial (CC)	83.3	13.7	The purpose of the Community Commercial zone district is to allow existing commercial uses to remain, allow for expanding such uses, and allow new, specialty retail and office uses that can be used by the Snyderville Basin residential and resort community. General retail and office uses are more appropriately located in a town center.
Hillside Stewardship (HS)	26.8	4.4	The purpose of the Hillside Stewardship zone district is to identify lands in reasonable proximity to community infrastructure and services and that contain slopes that are generally between 15% and 25%. These areas are more susceptible to erosion, and development in these areas might negatively affect water quality. They are also areas that might be subject to increased wildland fire hazards because of their location and physical characteristics. The areas might also be identified and considered important viewsheds where development should be limited to minimize visual impact.
Conservation Easement	0.13	NA[a]	Summit County acquires property and secures conservation easements for the purposes of open space, agriculture preservation, and resource protection.
Transportation/ Right-of-way	175.4	28.7	This land use consists of I-80, SR-224, and the local collector and arterial roads.
Total	**610.2**	**100%**	

Definitions: NA = not applicable

[a] The portion of this conservation easement that is in the evaluation area is on land with a designated transportation right-of-way use, so it was not included as a percentage of the evaluation area.

3.1.3.2 Planning

The land use and planning evaluation area intersects the unincorporated community of Snyderville and parts of incorporated Summit County. UDOT reviewed the general plans and neighborhood master plans for the Snyderville Basin to better understand past, present, and future planning efforts in the evaluation area. Although many facets of land use planning goals and objectives are outside UDOT's purview and reside with the local authority, the purpose of and need for a project should be consistent with pedestrian, bicyclist, transit, and vehicle transportation-related elements of adopted local land use plans.

General plans typically include guidelines for regulating growth and future development. They are developed with public input and adopted by each area's respective planning commission.

Snyderville Basin General Plan. The *Snyderville Basin General Plan*, adopted June 17, 2015, is the guiding planning document for the Kimball Junction EIS land use and planning evaluation area. Summit County's intent in creating the *Snyderville Basin General Plan* is "to preserve natural open space and vistas, prevent suburban sprawl, and promote our mountain resort community" through well-managed growth that clusters density into designated mixed-use areas, protects the natural environment, and supports recreation.

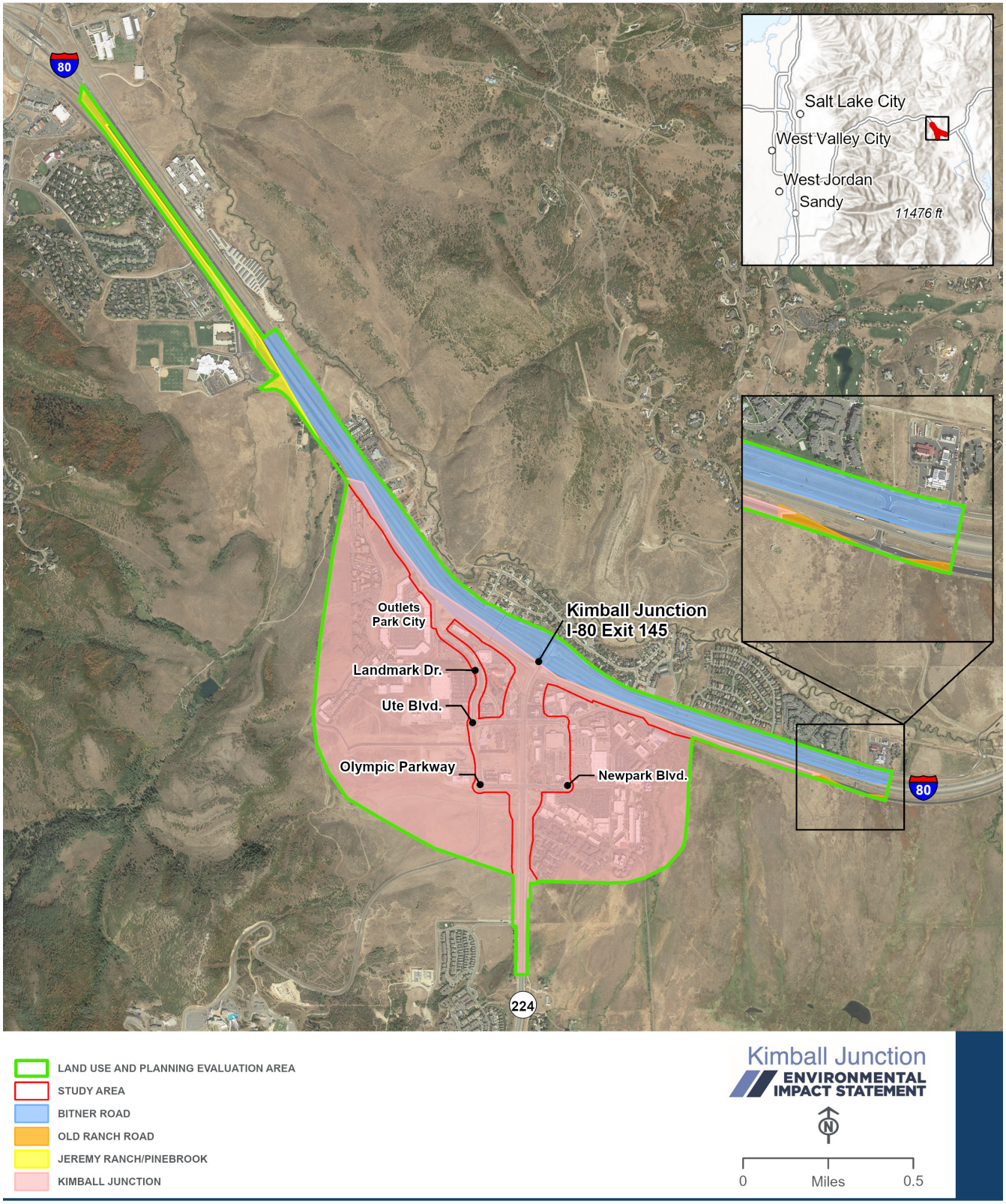
Growth management for the Snyderville Basin consists of the *Snyderville Basin General Plan* and the Snyderville Basin Development Code. The purpose of the general plan is "to set forth the vision, mission, character, goals, objectives, and policies for the Snyderville Basin," and the Code is "the regulatory document that contains the rules and regulations for development that implements the Plan."

The general plan includes goals and objectives for several elements, including land use, open space, recreation and trails, sustainability, housing, public services and facilities, and transportation—the plan element that most informs the Kimball Junction EIS. The goal of the transportation, circulation, and connectivity element is to promote a variety of transportation alternatives that provide convenient, reliable, and efficient services that meet the travel requirements of users.

To protect existing neighborhood characteristics and to promote cohesive planning in the future, 16 neighborhood planning areas were identified in the *Snyderville Basin General Plan*, and four of these planning areas are in (or partially in) the Kimball Junction EIS study area; the Kimball Junction, Bitner Road, Old Ranch Road, and Jeremy Ranch/Pinebrook Neighborhood Planning Areas (as shown in Figure 3.1-2). Each neighborhood plan includes future land use maps that are meant to "convey a general intent as to preferred future land uses and are expected to evolve over time." The general plan notes that the future land use maps for each neighborhood planning area are not zoning maps.

As noted above in Section 3.1.3.1, *Current Land Use and Zoning*, Summit County is currently updating the general plan, and the updated plan is expected to be adopted by December 2025.

Figure 3.1-2. Neighborhood Planning Areas in the Land Use and Planning Evaluation Area



Kimball Junction Neighborhood Plan. The Kimball Junction neighborhood is the designated town center in the Snyderville Basin. It is the neighborhood in the center of the land use and planning evaluation area, and its neighborhood plan is the only neighborhood plan (of the four neighborhoods in the evaluation area) that includes a discussion of multimodal transportation in the evaluation area. The Kimball Junction neighborhood is the primary retail-commercial shopping district in the region. Although this neighborhood is surrounded by preserved open space, its current zoning is a combination of Rural Residential, Community Commercial, and Town Center. Zoning is the tool that municipalities use to implement the land use goals in the neighborhood and general plans. As shown on the future land use map included in the adopted neighborhood plan and shown in Figure 3.1-3, two future land uses are proposed in the Kimball Junction neighborhood: mixed use and subdivision open space.

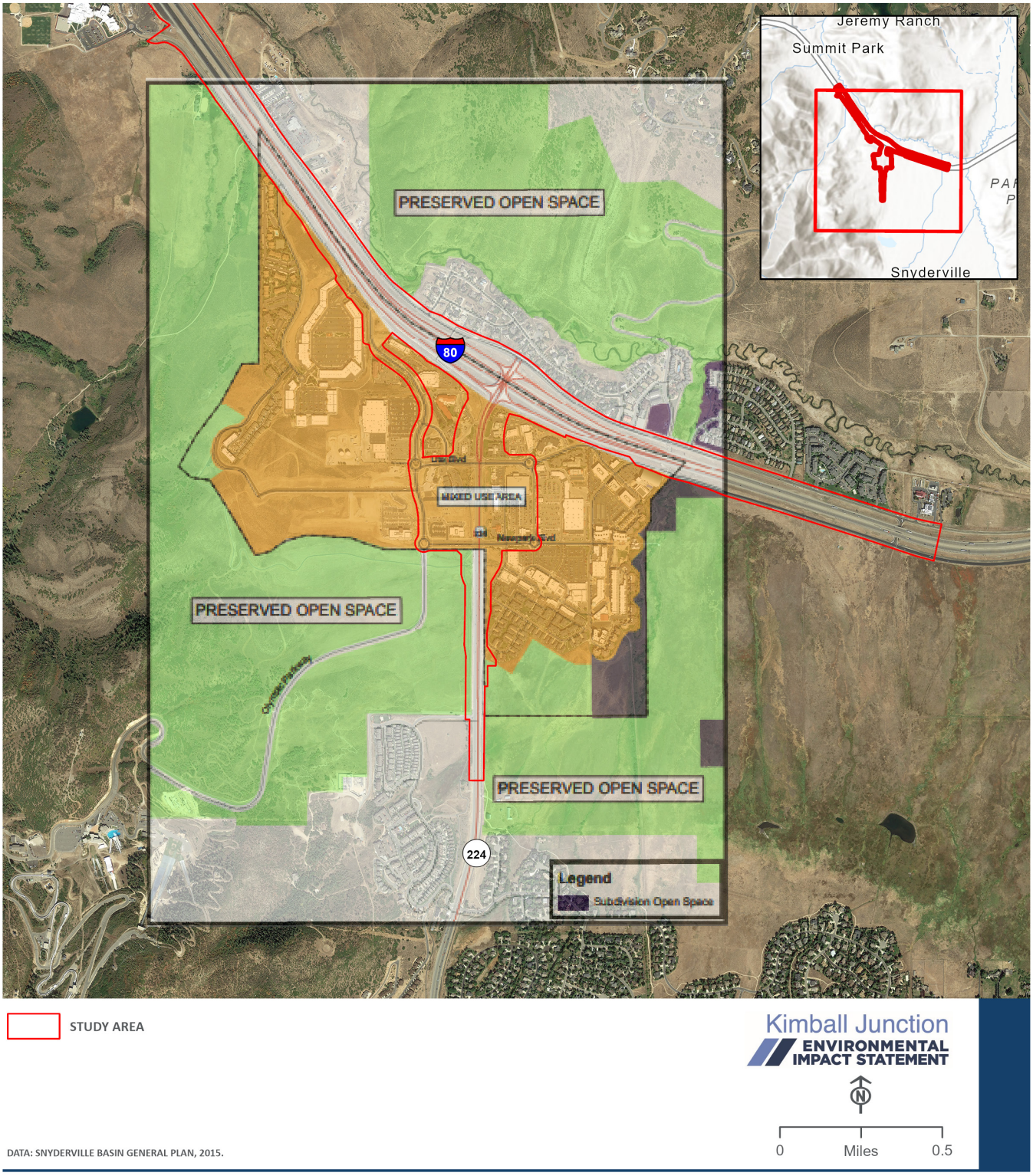
Recent developments have introduced new residential, workforce housing, lodging, entertainment, and social uses into the Kimball Junction neighborhood beyond the original regional commercial businesses. Kimball Junction is the arrival point for the greater Snyderville Basin–Park City region. Among the neighborhood's strengths are its proximity to several primary transportation corridors, its economic vitality, and the nearby open space and recreation amenities. The Kimball Junction neighborhood contains property on both the east and west sides of SR-224. The east side is bordered on the north by I-80, on the east and south by the Swaner Preserve and EcoCenter, and on the west by SR-224. The west side is bordered on the north by I-80, on the east by SR-224, on the south by Summit County open space, and on the west by the Hi-Ute Ranch. The Utah Olympic Park is a separate neighborhood planning area that is not part of the land use and planning evaluation area, but it is recognized in the Kimball Junction neighborhood plan because of its critical connection to the Kimball Junction neighborhood.

As stated in the Kimball Junction neighborhood plan:

> [F]our decades of zoning administration, land use litigation, and site-specific Development Agreements (which establish project-specific development standards that are unique and supersede underlying base zoning requirements) have resulted in some significant challenges. These challenges include a marginal sense of arrival, poor neighborhood interconnectivity, a hostile pedestrian environment, and a weak public realm. One of the most prominent challenges is traffic congestion.

Although the Kimball Junction neighborhood plan does not predict the alternative design of SR-224 or the I-80 interchange in the land use and planning evaluation area, a key objective of the Kimball Junction neighborhood plan—and a purpose element of this Kimball Junction EIS—is to improve the flow of regional through traffic. Another key objective of the neighborhood plan—and also a purpose element of this EIS—is to enhance safe pedestrian, bicyclist, transit, and vehicle connections between the east and west sides of the Kimball Junction neighborhood.

Figure 3.1-3. Future Land Use Map for the Kimball Junction Neighborhood Planning Area



Bitner Road Neighborhood Plan. The Bitner Road neighborhood is on the north side of I-80 and is currently zoned as Rural Residential. This neighborhood is highly visible from I-80 and is made up of a mix of single-family detached, multifamily, and neighborhood commercial uses. Important community amenities in this neighborhood include East Canyon Creek and the historic Bitner Ranch. This neighborhood is bordered to the north by the Glenwild trail system, which is an important recreation resource for the area.

As shown in Figure 3.1-4, future land uses proposed for this neighborhood include a continuation of preserved open space, medium- and low-density residential, a neighborhood commercial zone, a greenbelt along the north side of the neighborhood, heritage amenity (which is meant to preserve historic amenities; in this case, the Bitner Ranch), and a mixed-use neighborhood commercial zone adjacent to Bitner Road on the easternmost end of the land use and planning evaluation area.

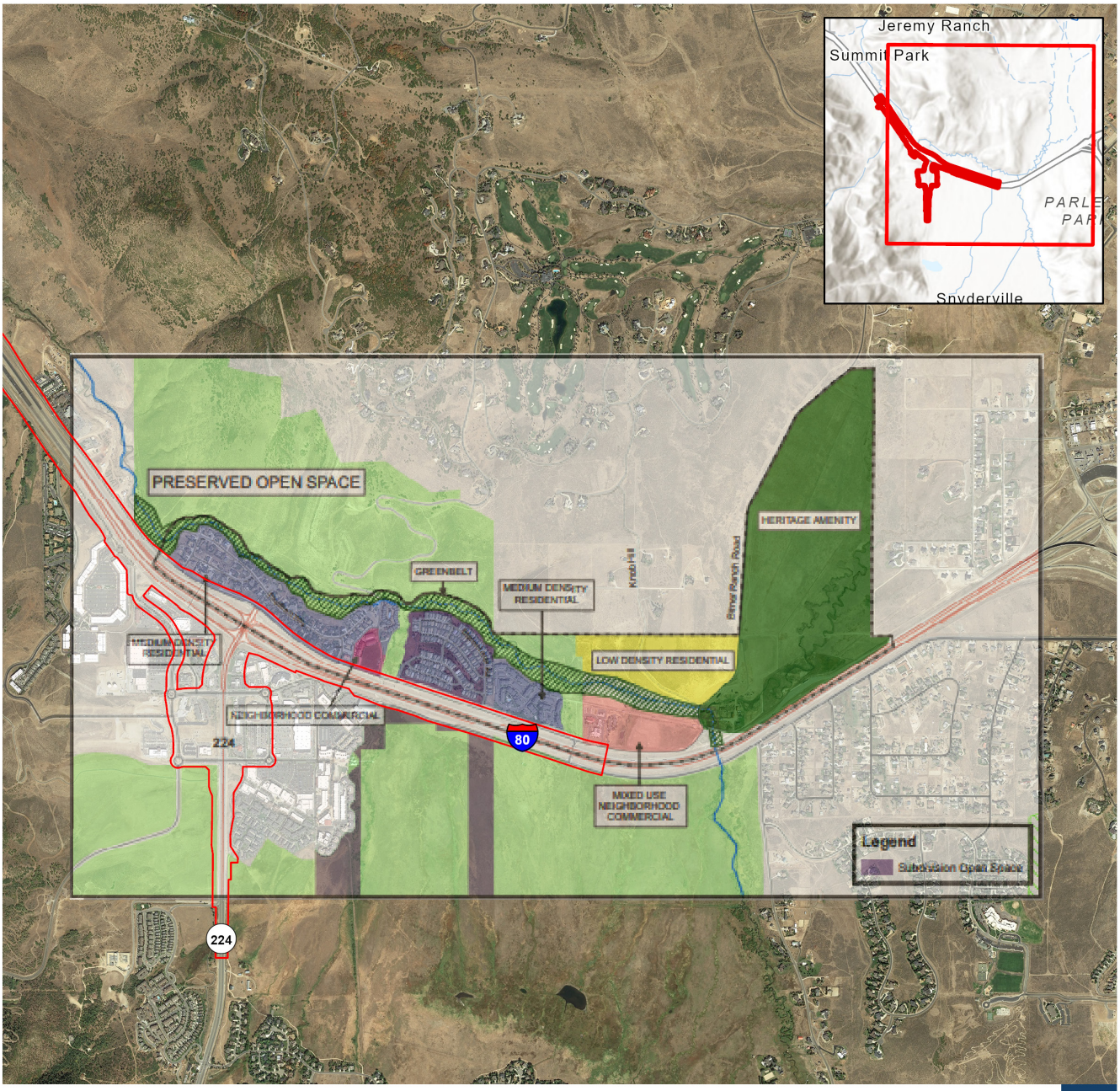
Old Ranch Road Neighborhood Plan. The Old Ranch Road neighborhood is south of I-80 on the east side of the land use and planning evaluation area. Zoning in this neighborhood is a mix of Rural Residential and Hillside Stewardship and contains mostly large lots with single-family homes. The north end of this neighborhood in the evaluation area is the Swaner Preserve and EcoCenter, which consists of wetlands, stream corridors, agricultural meadows, and hillsides.

As shown in Figure 3.1-5, future land uses planned for this neighborhood include a greenbelt along the far eastern part of the neighborhood adjacent to North Old Ranch Road, low- and medium-density residential uses, a continuation of preserved open space, and heritage amenity (which is meant to preserve historic amenities such as some historic structures in this neighborhood).

Jeremy Ranch/Pinebrook Neighborhood Plan. The Jeremy Ranch/Pinebrook neighborhood is on the north and south sides of I-80 around the Jeremy Ranch exit on I-80 near MP 142, near the far west part of the land use and planning evaluation area, and it extends south just past Ecker Hill Middle School. Current zoning in this neighborhood is Rural Residential and Hillside Stewardship. The Pinebrook neighborhood is south of I-80 and intersects the evaluation area (the Jeremy Ranch neighborhood does not). This neighborhood contains subdivisions that are mostly built out and consist primarily of single-family detached homes with some multifamily and commercial areas. This planning area is on the entry corridor to the Snyderville Basin.

As shown in Figure 3.1-6, future land uses proposed for the Jeremy Ranch/Pinebrook neighborhood include mixed-use neighborhood commercial and medium-density residential (Jeremy Ranch) on the north side of I-80 and medium-density residential (Pinebrook), mixed residential, and mixed-use neighborhood commercial on the south side of I-80. There are schools in both the Jeremy Ranch and Pinebrook neighborhoods. Summit County intends to continue to preserve open space around the Pinebrook side of the neighborhood.

Figure 3.1-4. Future Land Use Map for the Bitner Road Neighborhood Planning Area



STUDY AREA

Kimball Junction
ENVIRONMENTAL IMPACT STATEMENT

N

0 Miles 0.5

DATA: SNYDERVILLE BASIN GENERAL PLAN, 2015.

Figure 3.1-5. Future Land Use Map for the Old Ranch Road Neighborhood Planning Area

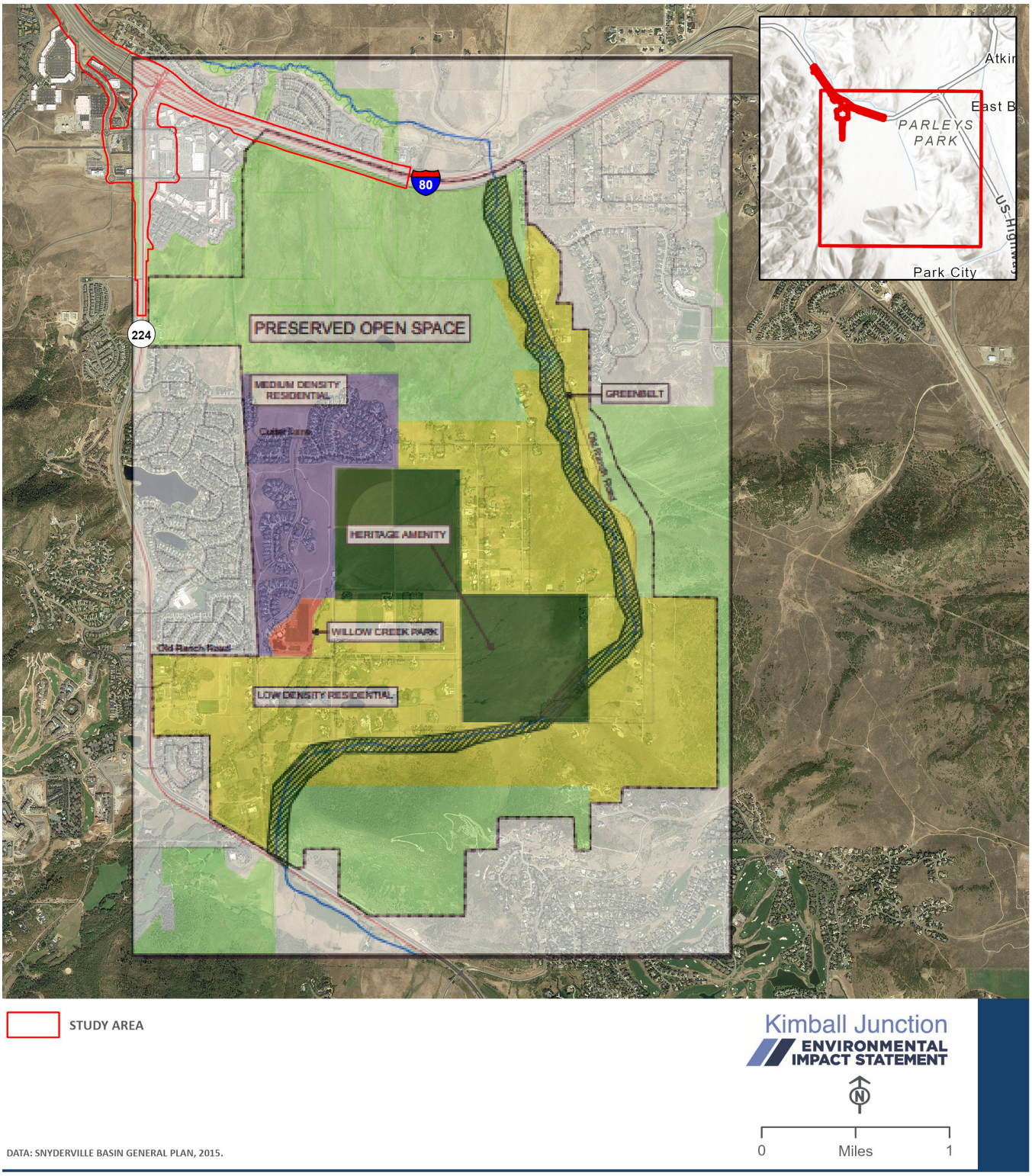
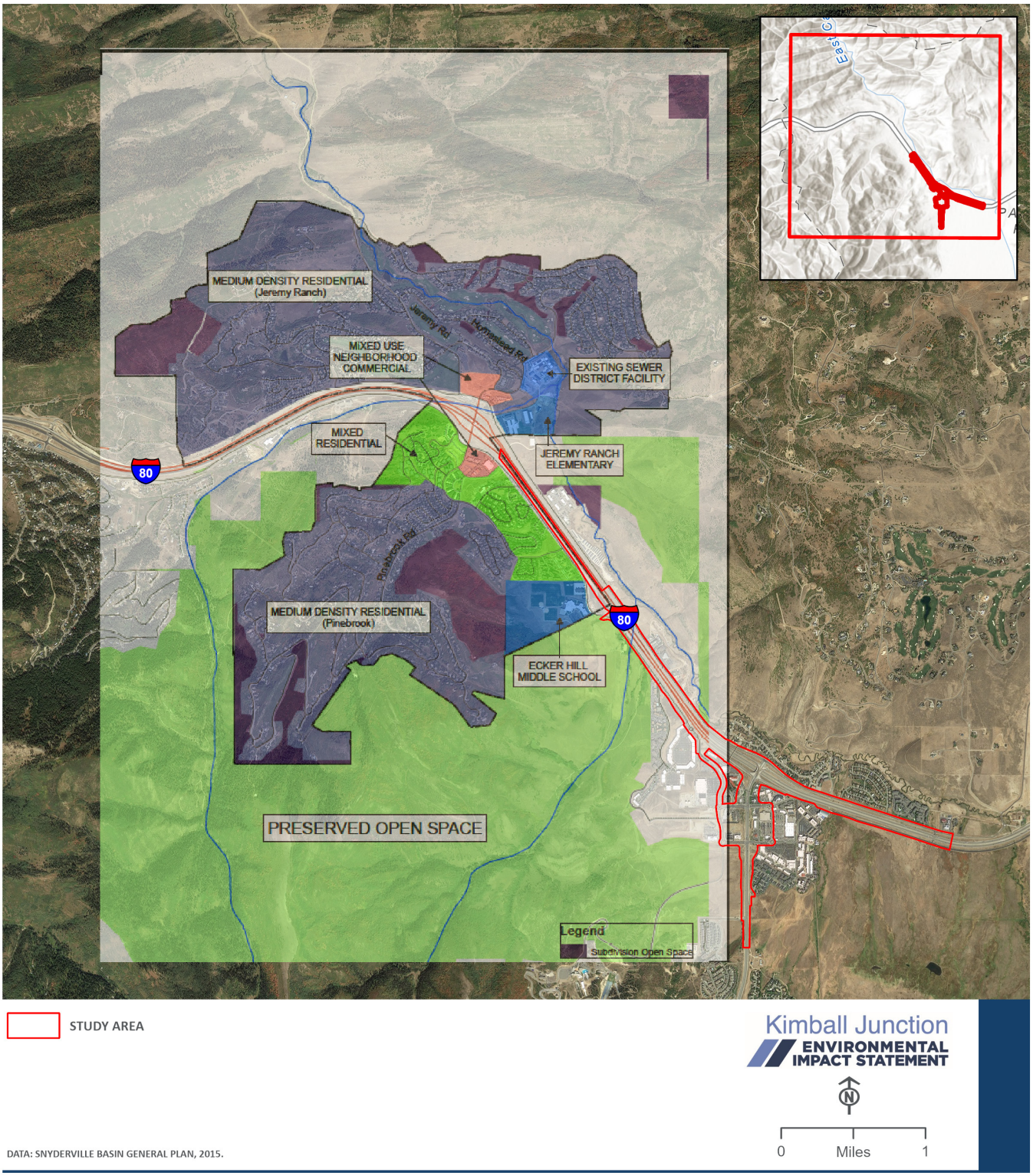


Figure 3.1-6. Future Land Use Map for the Jeremy Ranch/Pinebrook Neighborhood Planning Area



3.1.3.3 Conservation Easements

Summit County acquires property and secures conservation easements for open space, agriculture preservation, and resource protection.

As shown above in Figure 3.1-1, *Current Zoning in the Land Use and Planning Evaluation Area*, the only conservation easement that intersects the evaluation area is a small sliver (0.13 acre) of the Canyon Creek easement north of I-80 on the far eastern end of the evaluation area. The portion of this conservation easement that is in the evaluation area is on land with a designated transportation right-of-way use.

3.1.3.4 Planned Development in the Kimball Junction Neighborhood

Park City Tech Center Development. Although most of the land use and planning evaluation area is built out or preserved as open space, several proposals have been made to develop the northwest quadrant of the Kimball Junction neighborhood, which is currently undeveloped. The proposed Park City Tech Center development would be on a 51-acre parcel west of SR-224 and the Kimball Junction Transit Center and near the Skullcandy building. This area is identified as mixed-use on the future land use map for the Kimball Junction neighborhood (Figure 3.1-3, *Future Land Use Map for the Kimball Junction Neighborhood Planning Area*, above).

The initial development agreement for this parcel was approved for research, development, and technology uses and had an approved amendment that also included uses for outdoor industries and support businesses. In 2019, the current parcel owner, Dakota Pacific Real Estate, applied to Summit County to amend the initial development agreement to allow a mix of residential units as well as retail, office, and commercial space. Since 2019, several plans with varying zoning designations and proposed densities have been submitted by Dakota Pacific to Summit County for its review and approval.

On December 18, 2024, the Summit County Council approved the current development concept, which would create a mixed-use town center near the existing Richins Building and allow the construction of between 865 and 915 housing units (a portion of which would be deed-restricted affordable units), a new civic plaza, and an expanded transit center (Malatesta 2024).

The traffic analysis process used for this EIS considered the future land uses adopted in the *Summit County Long-range Transportation Plan 2022–2050* (Summit County 2022a), including local and regional growth assumptions for multiple areas in and around the needs assessment evaluation area. These growth assumptions include the planned Park City Tech Center and adequately capture the density included in the approved development plans (Parametrix 2022a).

Redevelopment of the Sheldon Richins Building and Kimball Junction Transit Center. The traffic analysis also includes the planned bus rapid transit (BRT) project that is currently planned on SR-224 between Olympic Parkway and Park City's Old Town. Current plans show the BRT accessing the Kimball Junction Transit Center via Olympic Parkway. The Kimball Junction neighborhood plan discusses developing public facilities that could complement, extend, or replace the current uses and services at the existing Sheldon Richins Building adjacent to the Park City Tech Center area (Summit County 2015). The approved Park City Tech Center development agreement described above assumes that housing units would be built in place of the current Sheldon Richins Building and Kimball Junction Transit Center, both of which would be torn down; a new transit facility and other civic amenities, such as a new library, would be built elsewhere in the development parcel.

General Mixed-use Development Strategies. General mixed-use development strategies that Summit County has identified in the *Kimball Junction Neighborhood Plan* include reviewing all large-lot surface parking areas to identify opportunities to develop workforce housing in or over existing facilities, developing new pedestrian plaza areas adjacent to ground-level retail spaces, and adding upper-level residential uses over commercial areas.

3.1.4 Environmental Consequences and Mitigation Measures

This section analyzes the expected effects on land use and zoning from the project alternatives and evaluates how consistent the project alternatives are with current and future local and regional land use plans. If impacts from one alternative would be the same as impacts from a previously discussed alternative, the text is not repeated but instead references the previous analysis.

3.1.4.1 Methodology

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

In addition, UDOT considered each alternative's consistency with several opportunities in the Kimball Junction neighborhood plan related to multimodal transportation, including improving the flow of regional through traffic and improving the neighborhood's overall connectivity and walkability.

3.1.4.2 No-Action Alternative

With the No-Action Alternative, the Kimball Junction Project would not be implemented. Therefore, local and regional land use and planning would not need to consider reconstruction of the I-80 interchange or improvements to surrounding surface streets that would be required for implementing the project. However, the No-Action Alternative would not be consistent with UDOT's rural projects list in the *Utah Long-range Transportation Plan 2023–2050* (UDOT 2023a), which identifies improvements to the I-80 interchange and increased capacity on SR-224 between I-80 and Olympic Parkway as being needed to reduce congestion and improve safety.

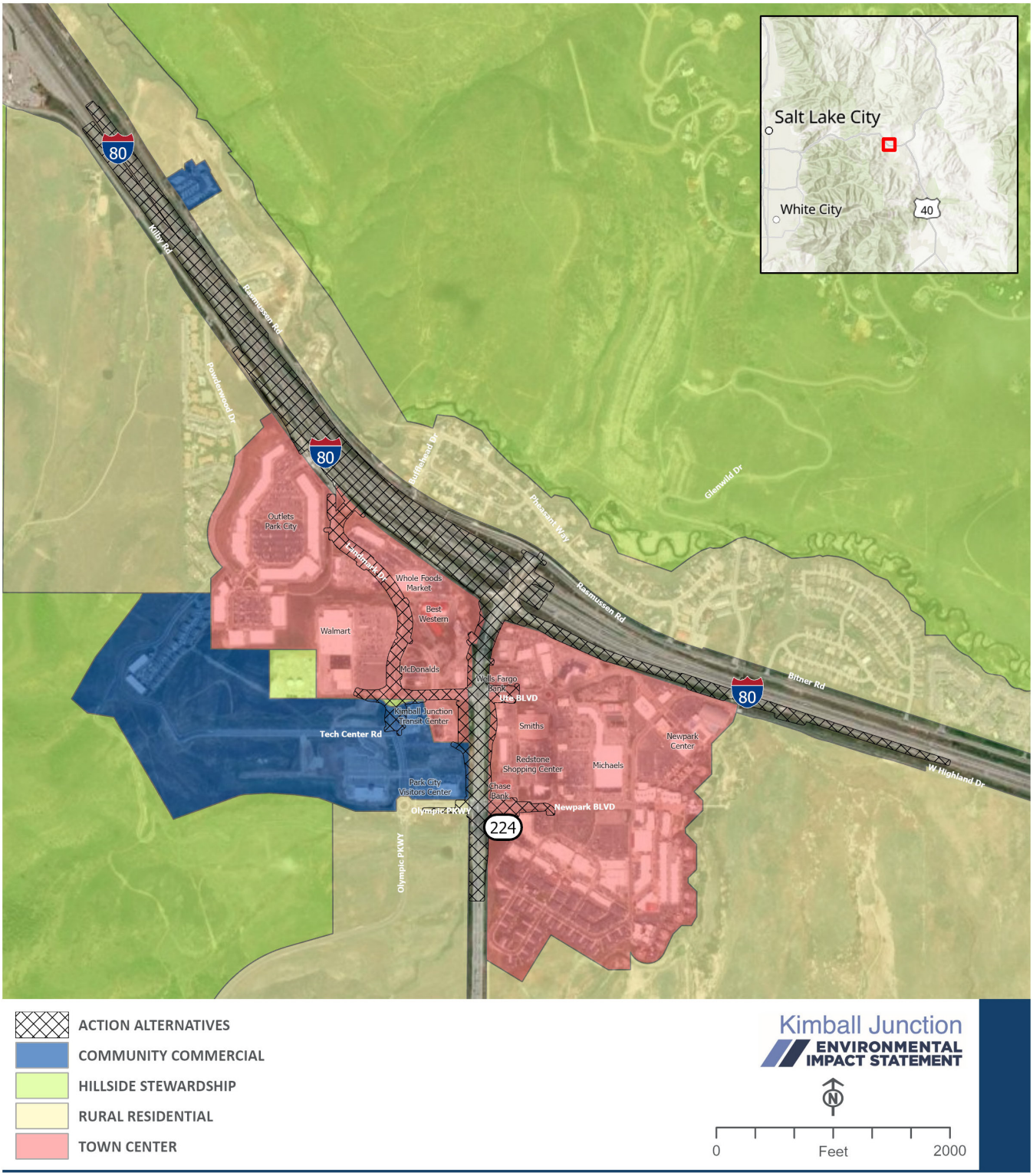
3.1.4.3 Alternative A

3.1.4.3.1 Impacts to Current Land Use and Zoning

Alternative A would be consistent with current land uses and zoning in the land use and planning evaluation area. Alternative A would convert certain existing land uses to transportation use through the purchase of property adjacent to the alternative's footprint. For more details about impacts to specific parcels and properties and mitigation for these impacts, see Section 3.2, *Community and Property Impacts*.

As shown in Figure 3.1-7, the primary zoning type that would be converted to roadway right-of-way with Alternative A would be Town Center; smaller amounts of land zoned for Community Commercial, Rural Residential, and Hillside Stewardship would also be converted.

Figure 3.1-7. Zoning Impacts from the Action Alternatives



Because I-80 is an existing freeway, and SR-224 is the existing main route that connects I-80 and Kimball Junction in the north to Park City in the south, the land uses in the evaluation area are already mostly developed (or preserved as open space) and are part of a mature transportation network. The project improvements along both I-80 and SR-224 would occur mainly in existing roadway right-of-way or immediately adjacent to the existing roadways, and the converted right-of-way would come in the form of strip takes to the edge of properties, landscaping, driveways, or parking lots that abut SR-224, Ute Boulevard, Olympic Parkway, and other roads in the evaluation area.

3.1.4.3.2 Consistency with Adopted Plans and Impacts to Planned Land Use and Zoning

Alternative A is generally consistent with the adopted area land use plans. The *Kimball Junction Neighborhood Master Plan* (Summit County 2019a) identifies several potential transportation-related opportunities for enhancing Kimball Junction's built environment. Key transportation-related components of the neighborhood master plan are to improve regional north-south vehicle flow through the Kimball Junction area as well as to enhance safe pedestrian, bicyclist, transit, and vehicle connections between the east and west sides of the neighborhood and beyond. When developing the action alternatives, UDOT considered consistency with several opportunities in the plan related to multimodal transportation, including improving the flow of the regional through traffic and improving overall neighborhood connectivity and walkability.

Alternative A would support improved movement of people and goods through the land use and planning evaluation area, which would improve both mobility through the Kimball Junction area and accessibility to all surrounding land uses in the evaluation area. The active transportation components of Alternative A would support future upgrades to transit service in the evaluation area and the community's expressed desire for improved walking and biking infrastructure. Alternative A would require replacing and realigning small sections of the existing active transportation infrastructure in the evaluation area. Any impacted infrastructure would be replaced with a similar facility in or near the current location, and additional buffered bike lanes would be included along SR-224. Constructing a new pedestrian underpass just south of Ute Boulevard would be consistent with the community's desire for additional, safe linkages across SR-224 (Summit County 2019b). Realigning and reconstructing the multi-use Millenium trail in the evaluation area would allow the trail to function as intended, consistent with the 2022–2050 *Long-range Transportation Plan* for Summit County (Summit County 2022).

The active transportation improvements included in Alternative A would align with the Basin Recreation goals of focusing on safe connections, particularly around the mixed-use area surrounding the interchange for the Kimball Junction area (Basin Recreation 2024a).

A widened Landmark Drive is included as part of the 2050 No-Action Alternative because it is shown as a Phase 1 (2022–2030 completion) project in the 2022–2050 *Long-range Transportation Plan* for Summit County (Summit County 2022). With Alternative A, a new split-diamond interchange would disperse traffic between the new access at Landmark Drive and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area and by providing more direct access from I-80 to any new mixed-use development that is constructed on the west side of SR-224 in the future.

Future land use plans on both sides of SR-224, particularly on the west side, are not well defined. However, UDOT does not expect Alternative A to disrupt future mixed-use development or zoning on either side of SR-224 or along I-80 in the evaluation area. Alternative A would offer a direct route to and from the west side of Kimball Junction while also helping to improve access to land uses on the east side of Kimball

Junction. Additionally, Alternative A would help connect the neighborhoods on each side of SR-224 with the new pedestrian tunnel near Ute Boulevard and would help meet the goal of improving regional traffic flow through the evaluation area while ensuring connectivity and walkability between any future land uses that the County is currently contemplating in the Kimball Junction area.

Alternative A could potentially result in indirect impacts to land use by increasing the timing of development on the west side of Kimball Junction. Any development that would occur in this area would be subject to Summit County zoning rules and approval. However, Alternative A is not anticipated to induce development or cause unforeseen land use changes through improving mobility and accessibility. For more information about potential indirect impacts to land use from Alternative A, see Section 3.16, *Indirect and Cumulative Effects*.

3.1.4.3.3 Impacts to Conservation Areas

No conservation areas would be directly impacted by Alternative A.

3.1.4.4 Alternative C

3.1.4.4.1 Impacts to Current Land Use and Zoning

As shown above in Figure 3.1-7, *Zoning Impacts from the Action Alternatives*, the types of land use and zoning that would be impacted by Alternative C would be the same as those with Alternative A; however, less land would be converted to a transportation use. Like Alternative A, the Alternative C improvements along SR-224 would occur mainly in the existing roadway right-of-way or immediately adjacent to the existing roadways, and the converted right-of-way would come in the form of strip takes to the edge of properties, landscaping, driveways, or parking lots that abut SR-224, Ute Boulevard, Olympic Parkway, and other roads in the land use and planning evaluation area.

3.1.4.4.2 Consistency with Adopted Plans and Impacts to Planned Land Use and Zoning

Similar to Alternative A, Alternative C is consistent with the adopted area land use plans. Alternative C would support improved movement of people and goods through the land use and planning evaluation area and improved mobility through and accessibility to all land uses in and around the evaluation area.

Although Alternative C does not provide direct access to the west side of Kimball Junction from I-80, the improved mobility through the evaluation area, along with the improved connectivity across SR-224 that would result from the new pedestrian tunnel just south of Ute Boulevard, would be consistent with the stated community desires outlined in the various local planning documents described with Alternative A.

UDOT does not expect Alternative C to disrupt future mixed-use development or zoning on either side of SR-224 or along I-80 in the evaluation area. Alternative C would help connect the neighborhoods on each side of SR-224 with the new pedestrian tunnel near Ute Boulevard and would help meet the goal of improving regional traffic flow through the evaluation area while ensuring connectivity and walkability between any future land uses that the County is currently contemplating in the Kimball Junction area.

Alternative C could potentially result in indirect impacts to land use by increasing the timing of development on the west side of Kimball Junction. Any development that would occur in this area would be subject to

Summit County zoning rules and approval. However, Alternative C is not anticipated to induce development or cause unforeseen land use changes through improving mobility and accessibility.

3.1.4.4.3 Impacts to Conservation Areas

No conservation areas would be directly impacted by Alternative C.

3.1.4.5 Mitigation Measures for Impacts to Land Use and Planning

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

3.2 Community and Property Impacts

3.2.1 Introduction

This section describes the social characteristics of the communities in the community and property impacts evaluation area, as well as the effects of the project alternatives on the social environment and community resources. The quality of life and social amenities of the communities and neighborhoods in the evaluation area are presented in Section 3.2, *Community and Property Impacts*, by the following topics:

- Neighborhood and community cohesion
- Quality of life
- Recreation resources including trails
- Community facilities
- Public safety and security
- Utilities
- Property impacts

Other information related to these topics is provided in the following sections:

- For information about travel patterns and accessibility, see Section 3.4, *Traffic and Transportation*.
- For information about facilities used for transportation (not recreation), see Section 3.5, *Pedestrian and Bicycle Facilities*.
- For information about visual impacts, see Section 3.13, *Visual and Aesthetic Resources*.

Community and Property Impacts Evaluation Area. The community and property impacts evaluation area is where direct and indirect impacts from the proposed improvements, including traffic-related impacts, could occur. The evaluation area includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. The evaluation area mostly follows the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*; however, in the Kimball Junction neighborhood south of I-80, the evaluation area is focused on an area within a 0.5-mile radius of the centerline of SR-224.

For business and residential property impacts, the impacts evaluation focuses on the area immediately adjacent to I-80 and SR-224 because any property impacts would result from UDOT acquiring the additional right-of-way needed for the action alternatives.

The utilities impacts evaluation focuses on where construction for the action alternatives could require relocating or modifying utilities.

The entirety of the community and property impacts evaluation area is in unincorporated Summit County, primarily in the Snyderville Basin Census Designated Place (CDP). However, parts of the evaluation area include the Summit Park CDP and border the Silver Summit CDP (Figure 3.2-1). A CDP is a statistical boundary that is delineated to provide census data for a recognizable place that is not legally incorporated.

3.2.2 Regulatory Setting

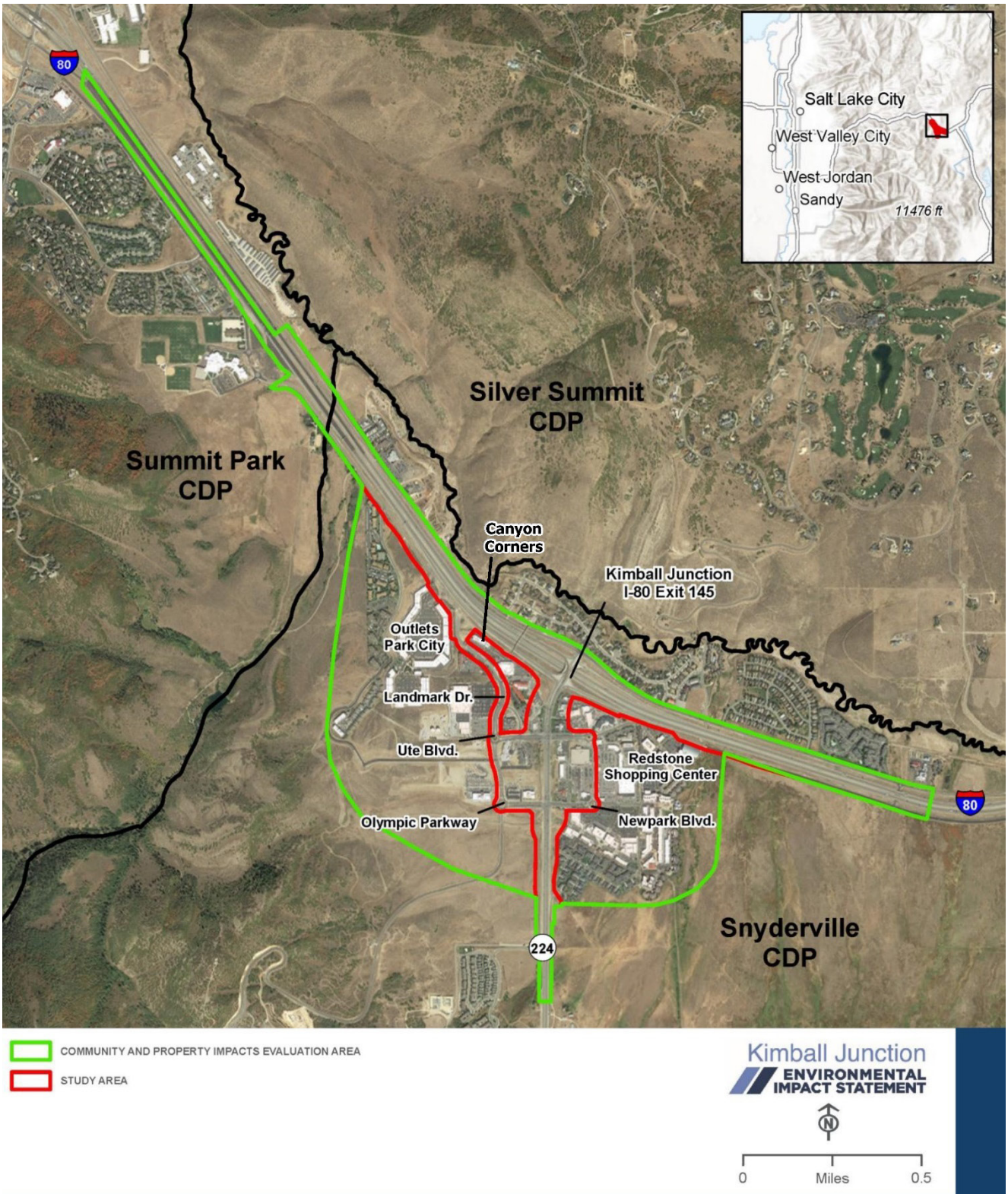
Title 23 USC Section 109(h) requires that FHWA consider the effects of a proposed project on the social environment, specifically community cohesion; the availability of public facilities and services (including utilities that provide water, sewage treatment, electricity, gas, and other services); the displacement of people, businesses, and farms; and community and regional growth.

FHWA's guidelines for preparing environmental documents for evaluating the social environment and community impacts consider several types of impacts including impacts to neighborhoods or community cohesion; changes in travel patterns and accessibility; impacts to school districts, recreation areas, churches, and businesses; effects on public facilities and services; benefits or harm to different social groups; and displacements of people, businesses, and farms (FHWA 1987). Some of these topics are covered in other sections of this chapter, as noted in Section 3.2.1, *Introduction*.

Among the community impacts analyzed in this EIS, one type is subject to specific legal requirements and obligations: the acquisition of property by UDOT as necessary to implement an action alternative. When such acquisitions are necessary, UDOT's guidelines and policies are consistent with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC Section 4601 and subsequent sections, amended 1989) and the State of Utah Relocation Program (part of the Utah Relocation Assistance Act, Utah Code, Title 57, Chapter 12). These laws provide for uniform and equitable treatment of all persons displaced from their homes, businesses, and farms without discrimination on any basis.

The guidelines used by UDOT for carrying out the provisions of these acts are included in its 2023 *Relocation Assistance Brochure*. Relocation resources are available to all residents (including renters) and businesses whose properties need to be acquired, and the process for acquiring replacement housing and other sites must be fair and open. The 2023 *Relocation Assistance Brochure* can be viewed on UDOT's website (UDOT 2023b).

Figure 3.2-1. Community and Property Impacts Evaluation Area and Census Designated Place Boundaries



3.2.3 Affected Environment

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

3.2.3.1 Neighborhood and Community Cohesion

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

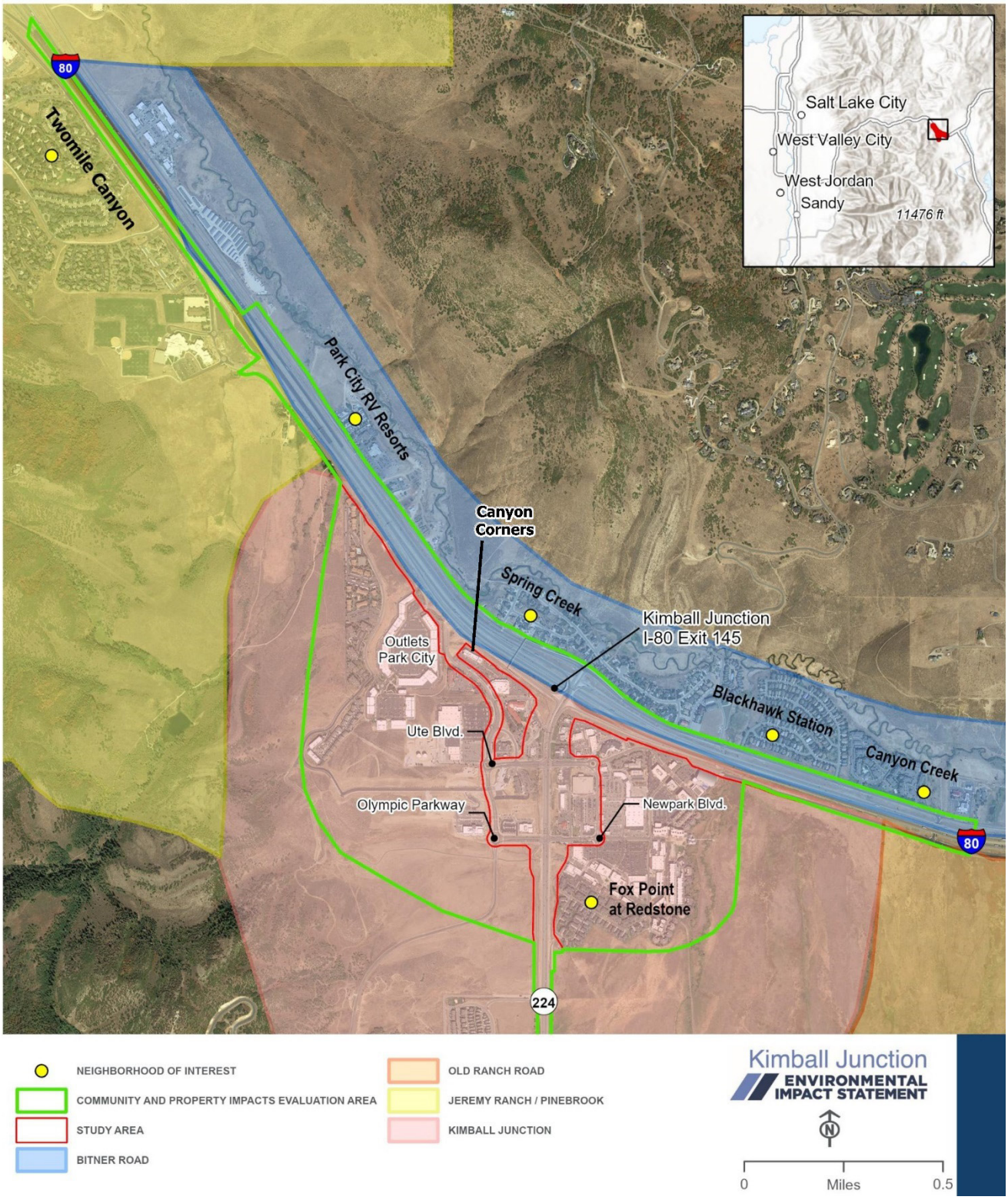
3.2.3.1.1 Communities

Most of Summit County's 42,000 residents live in Park City and the surrounding unincorporated area referred to as Snyderville Basin, where about 70% of the county's growth has occurred. More than 20,000 people reside in the Snyderville Basin area, which is composed of several distinct neighborhoods. These neighborhoods have grown as "bedroom communities" (communities where the majority of residents commute elsewhere to work) because of their proximity (about 30 miles) to Salt Lake City and the appeal to Salt Lake workers who seek a resort-town lifestyle (Park City Chamber of Commerce and Visitors Bureau 2019).

As described in Section 3.1, *Land Use and Planning*, to protect existing neighborhood characteristics and to promote cohesive planning in the future, 16 neighborhood planning areas were identified by Summit County in the *Snyderville Basin General Plan* (Summit County 2015). Four of these planning areas are in (or partially in) the community and property impacts evaluation area: the Kimball Junction, Bitner Road, Old Ranch Road, and Jeremy Ranch/Pinebrook Neighborhood Planning Areas. As shown in Figure 3.2-2, these four primary neighborhood planning area communities contain smaller neighborhoods within them that are in or adjacent to the community and property impacts evaluation area.

Unlike many freeway-adjacent communities in the country, the neighborhood planning areas and residential and commercial development in the evaluation area grew up around the I-80 interchange and SR-224, so existing development and neighborhoods were not bisected when the freeway, interchange, and state route were constructed. Although the Snyderville Basin has a small-town, rural feel, the four neighborhood planning areas contain distinct neighborhoods that are bisected by I-80, SR-224, or large swaths of open space.

Figure 3.2-2. Neighborhoods of Interest in or Adjacent to the Community and Property Impacts Evaluation Area



3.2.3.1.2 Neighborhoods

Kimball Junction Neighborhood

As shown above in Figure 3.2-2, the Kimball Junction neighborhood is the designated town center in the Snyderville Basin and is the focal point for living, working, shopping, and entertainment. According to the *Snyderville Basin General Plan*, Kimball Junction serves as a vital hub and employment center of the area. As stated in the general plan, Kimball Junction is the arrival point for the greater Snyderville Basin–Park City region (Summit County 2015). The neighborhood's strengths include its proximity to several primary transportation corridors, its economic vitality, and the nearby open space and recreation amenities.

The Kimball Junction neighborhood is relatively young—I-80 was constructed through Kimball Junction between 1969 and 1973 (Utah State University, no date), the first stoplight in Kimball Junction was installed in 1993, and the first grocery store was built in 1995 (Cates 1995).

The neighborhood has property on both the east and west sides of SR-224. The east side is bordered on the north by I-80, on the east and south by the Swaner Preserve and EcoCenter, and on the west by SR-224. The west side is bordered on the north by I-80, on the east by SR-224, on the south by Summit County open space, and on the west by the Hi-Ute Ranch. The Utah Olympic Park is considered a separate neighborhood planning area on the west side of SR-224, and connectivity between the Kimball Junction and Utah Olympic Park neighborhoods is critical.

The Kimball Junction neighborhood includes both commercial and residential land uses as well as designated open space. Both commercial and residential areas have developed on the east and west sides of SR-224 in the area south of I-80, immediately surrounding the interchange in the Kimball Junction neighborhood. Automobile and bus traffic travels between the east and west sides of SR-224 via at-grade intersections at Ute Boulevard and Olympic Parkway. Two pedestrian crossing locations (one at each at-grade intersection) have pedestrian-actuated push buttons and crosswalks. A grade-separated underpass about 230 feet south of Olympic Parkway carries a paved, multi-use trail under SR-224.

The community and property impacts evaluation area boundary south of Olympic Parkway and on the east side of SR-224 clips the edge of the Fox Point at Redstone development, which consists of condominiums and townhomes that were built in the early 2000s and includes a mix of permanent residences, long-term rentals, and short-term rentals. Other apartment complexes in the Kimball Junction neighborhood include Newpark Studios, Richer Place, and The Commons at Newpark. These residential developments are within walking distance of the commercial areas and are bordered by paved, separated multi-use paths.

Kimball Junction is the Snyderville Basin's town center, and the east side of the Kimball Junction area includes a variety of commercial developments such as "big box" stores, restaurants, grocery stores, small retail shops, and professional and hospitality services. The west side of SR-224 includes institutional resources, such as the Summit County Sheldon Richins Building, which houses the Kimball Junction branch of the Summit County Library, an auditorium that hosts Summit County council meetings, and offices for some Summit County personnel. Also, on the west side of SR-224 are the Park City Visitors' Center and the Kimball Junction Transit Center (shown in Figure 3.2-5, *Community Facilities in the Community and Property Impacts Evaluation Area*, on page 3-33).

Additional development on the west side of SR-224 that can be accessed via SR-224 and other roads in the community and property impacts evaluation area includes an office building where Skullcandy (an audio

equipment manufacturer) is headquartered and a large commercial building anchored by Walmart with other retail stores and restaurants as well as the Liberty Peak and Canyon Corners apartment complexes.

Although most of the community and property impacts evaluation area is built out or preserved as open space, several proposals have been made to develop the northwest quadrant of the Kimball Junction neighborhood, which is currently undeveloped. The proposed development would be on a 51-acre parcel west of SR-224 and the Kimball Junction Transit Center and near the Skullcandy building.

The initial development agreement for this parcel was approved for research, development, and technology uses and had an approved amendment that also included uses for outdoor industries and support businesses. In 2019, the current parcel owner, Dakota Pacific Real Estate, applied to Summit County to amend the initial development agreement to allow a mix of residential units as well as retail, office, and commercial space. Since 2019, several plans with varying zoning designations and proposed densities have been submitted by Dakota Pacific to Summit County for its review and approval.

On December 18, 2024, the Summit County Council approved the current development concept, which would create a mixed-use town center near the existing Richins Building and allow the construction of between 865 and 915 housing units (a portion of which would be deed-restricted affordable units), a new civic plaza, and an expanded transit center (Malatesta 2024).

The traffic analysis process used for this EIS considered the future land uses adopted in the *Summit County Long-range Transportation Plan 2022–2050* (Summit County 2022a), including local and regional growth assumptions for multiple areas in and around the needs assessment evaluation area. These growth assumptions include the planned Park City Tech Center and adequately capture the density included in the approved development plans (Parametrix 2022a).

The *Kimball Junction Neighborhood Plan* (Summit County 2019a) identifies challenges for the neighborhood including traffic congestion, poor neighborhood interconnectivity, a hostile pedestrian environment, and a lack of placemaking (the process that involves planning, designing, and maintaining public spaces to improve the quality of life for users). The plan identifies the goals of improving the flow of regional through traffic, re-establishing a traditional neighborhood and street pattern, and creating a more people-oriented built environment with mixed-use development, public spaces, and improved connectivity and walkability.

Because the Kimball Junction neighborhood is the town center of the Snyderville Basin, it acts as a meeting place for residents from all neighborhoods in the community and property impacts evaluation area. However, the mix of long-term and short-term rentals in this neighborhood indicates comparatively less community cohesion than in other neighborhoods in the evaluation area.

Bitner Road Neighborhood

The Bitner Road neighborhood is on the north side of I-80 along the community and property impacts evaluation area boundary. The Bitner Road neighborhood is divided into several distinct sub-neighborhoods, each of which is considered cohesive. In general, the residential areas in these sub-neighborhoods consist primarily of low-density, single-family dwelling units. There are single-family homes and townhomes in the Blackhawk Station and Spring Creek sub-neighborhoods and apartments in the Canyon Creek development. Homes in these neighborhoods were constructed in the late 1990s and early 2000s, and they are bordered to the north by the Glenwild trail network and open space. The Park City RV Resort, which is open to recreational vehicles (RVs) year-round, is also on the north side of I-80 west of Spring Creek. These sub-

neighborhoods are all accessed from the Bitner Road frontage road that parallels I-80 and is within the evaluation area boundary.

Old Ranch Road Neighborhood

The Old Ranch Road neighborhood is south of I-80 on the east side of the community and property impacts evaluation area. The north end of this neighborhood in the evaluation area is the Swaner Preserve and EcoCenter, which consists of wetlands, stream corridors, agricultural meadows, and hillsides. The neighborhood has a low population density. The people who live in this neighborhood have an open, equestrian, agricultural way of life, and preserving and enhancing existing natural resources is an important consideration for this neighborhood. Although the Old Ranch Road neighborhood has a low population density, school and religious activities likely promote community cohesion.

Jeremy Ranch/Pinebrook Neighborhood

The Jeremy Ranch/Pinebrook neighborhood is on the north and south sides of I-80 around the Jeremy Ranch exit on I-80 near MP 142, near the far west part of the community and property impacts evaluation area, and it extends south just past Ecker Hill Middle School. The Pinebrook neighborhood is south of I-80 and intersects the evaluation area (the Jeremy Ranch neighborhood does not). Along the western extent of the evaluation area in the greater Pinebrook neighborhood is the Twomile Canyon sub-neighborhood, which consists of predominantly single-family homes constructed in the 2000s as well as apartments, such as the Elk Meadows complex. This area is west of the Ecker Hill park-and-ride lot, is adjacent to the Jeremy Ranch exit, and is accessed via the Kilby Road frontage road. I-80 divides the Jeremy Ranch and Pinebrook neighborhoods, though it is important to note that the neighborhoods were established well after I-80 was built. The Pinebrook neighborhood is divided into several distinct sub-neighborhoods, each of which is considered cohesive. Jeremy Ranch has a lower population density, but school and religious activities likely promote community cohesion.

3.2.3.1.3 Summary of Neighborhood and Community Cohesion

The neighborhoods in the community and property impacts evaluation area are considered stable, safe, quiet, and friendly. Because of the distinct neighborhoods within each larger neighborhood planning community, there appear to be several cohesive sub-neighborhoods within each larger community. However, school boundaries, religious activities, the town center nature of the Kimball Junction neighborhood in particular, and the rural nature and small-town feel of the evaluation area likely promote community cohesion, and people likely have relationships that extend beyond their smaller neighborhood and into the broader community.

3.2.3.2 Quality of Life

This section provides information regarding quality-of-life considerations for the community and property impacts evaluation area. Other factors that could affect quality of life, such as air quality, noise, and changes in the surrounding viewshed, are discussed in Section 3.6, *Air Quality*; Section 3.7, *Noise*; and Section 3.13, *Visual and Aesthetic Resources*.

What is quality of life?

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

Quality of life encompasses the general sense of well-being and satisfaction that individuals or communities experience. Although the factors that affect quality of life are somewhat subjective and vary from person to person, quality-of-life considerations often include the condition of the general living environment; safety; and accessibility to work, public services and shopping, affordable housing, and cultural and recreation opportunities.

Like most communities' general plans, the *Snyderville Basin General Plan* addresses a broad range of quality-of-life issues and services. The general plan states that its mission is "to preserve natural open space and vistas, prevent suburban sprawl, and promote our mountain resort community" (Summit County 2015). Key goals of the general plan include sustainability, preserving open space and critical lands, promoting healthy lifestyles based on year-round recreation opportunities, and furthering quality growth and economic development that provides a positive contribution to the community's quality of life and the mountain resort economy.

The Kimball Junction neighborhood is the town center of the Snyderville Basin. It is identified in the general plan as a mixed-use area that should benefit the general health, safety, and welfare of the entire community. The stated Transportation, Circulation, and Connectivity goal of the general plan is to "promote a variety of transportation alternatives that provide convenient, reliable, and efficient services that meet the travel requirements of users" (Summit County 2015).

3.2.3.3 Recreation Resources Including Trails

Park City and Summit County draw visitors year-round because of exceptional recreational opportunities. Kimball Junction is the gateway to the world-famous ski resorts of Park City and Deer Valley, and Summit County's network of over 450 miles of mountain biking and hiking trails attracts users throughout the summer. Utah's Olympic Park, which continues to be a training facility for athletes and an attraction for the public, is outside the community and property impacts evaluation area but is accessed via SR-224 and Olympic Parkway in the evaluation area. The local commitment to recreation is evidenced by the initiative introduced in 2000 to implement a 0.1% recreation, arts, and parks (RAP) tax in Summit County, which supports these activities (Summit County 2000).

As shown in Figure 3.2-3, *Recreation Resources in the Community and Property Impacts Evaluation Area*, on page 3-31, the evaluation area includes the Snyderville Basin Special Recreation District's (Basin Recreation) Fieldhouse, which is located at 1388 Center Drive on the east side of SR-224. The fieldhouse is an 87,000-square-foot athletic center that serves over 265,000 visitors a year and is operated by Basin Recreation (Basin Recreation 2024b). The fieldhouse includes an indoor turf field, a multipurpose gymnasium, cardio machines and weight rooms, batting cages with pitching machines, a running track, a splash pad, a lap pool, and a hot tub. There is also a large area in the fieldhouse that can be rented for special events.

In addition to the Basin Recreation Fieldhouse, Basin Recreation has built and/or maintains 170 miles of trails in the Snyderville Basin (Basin Recreation 2024c). The evaluation area contains about 9 miles of paved and unpaved trails, two e-bike share stations, a trailhead, and three grade-separated crossings (one overpass and two underpasses). In addition, many improved and unimproved trails are just outside the evaluation area. These trails and crossings in the evaluation area are used for both transportation and recreation, and they provide a critical connection between the neighborhoods north of I-80 and the shopping and retail in Kimball Junction. According to the *Snyderville Basin Special Recreation District Trails Master*

Plan (Alta Planning and Design 2019), "Trails help the community explore the District, enjoy outdoor recreation, and facilitate transportation." In addition, Basin Recreation transportation trails offer both commuters and recreationists access to many opportunities throughout the Snyderville Basin, including backcountry trails, civic centers, and schools.

In 2019, Summit County completed its first *Active Transportation Plan* (Summit County 2019b) to provide direction for establishing or improving bicycling and walking conditions throughout the county in order for the bicycling and walking system to serve as a viable transportation option for people living in, working in, or visiting Summit County. The Summit Bike Share was launched in 2017 as the first fully electric bike share in the nation and currently includes 20 stations and 190 bikes in Kimball Junction, Park City, Jeremy Ranch, and Round Valley (Summit Bike Share 2023).

Although there are several paved trails in the evaluation area (Table 3.2-1 below and Figure 3.2-4, *Trails in and around the Community and Property Impacts Evaluation Area*, on page 3-32), the main trail in the evaluation area is the paved Millenium Trail. This urban-path trail runs parallel to SR-224 on the west side from the south end of the evaluation area to the I-80 interchange. The trail then turns westbound parallel to the south side of I-80 and crosses Landmark Drive east of Factory Outlet Mall Access, then parallels Landmark Drive to Factory Outlet Mall Access. The Millenium Trail continues west in the evaluation area on the south side of I-80 to the Pinebrook neighborhood and beyond. Basin Recreation considers the Millennium Trail a transportation trail.

Access to the Sheldon Richins Building and the Kimball Junction branch of the Summit County Library and commercial areas of Kimball Junction is provided by a series of local trails in addition to the Tech Center Trail, Transit Link Trail, and Newpark Trail, all of which connect to the Millenium Trail on either end. Table 3.2-1 below includes the local trails (found in Basin Recreation's interactive trails maps) that connect to the Millenium Trail network.

This trail system has two grade-separated crossings: one underpass on SR-224 just south of the Olympic Parkway stoplight and a pedestrian overpass across I-80 just west of the freeway interchange. The paved Redstone Trail circumnavigates the Fox Point townhomes and provides a way for people to cross I-80 at the underpass just east of the freeway interchange. These two grade-separated freeway crossings are connected on the north side of I-80 by the paved Rasmussen Trail.

As of the publication of the *Snyderville Basin Special Recreation District Trails Master Plan* in April 2019 (Alta Planning and Design 2019), no additional trails are planned in the evaluation area.

The Swaner Preserve and EcoCenter, a 1,200-acre nature preserve and education center, is adjacent to the evaluation area and is accessed via SR-224 through the Redstone development. The Swaner Preserve and EcoCenter includes 10 miles of trails for hiking, biking, and snowshoeing, and some trails connect to the larger Summit County trail system.

3.2.3.4 Community Facilities

Community facilities provide opportunities for the public to interact; help define a city, community, or neighborhood; and contribute to community cohesion, social well-being, safety, education, wellness, and quality of life. Community facilities generally include (but are not limited to) schools, parks, places of worship, and libraries.

As shown in Figure 3.2-5, *Community Facilities in the Community and Property Impacts Evaluation Area*, on page 3-33, community resources in the community and property impacts evaluation area include the Kimball Junction branch of the Summit County Library, which is located at 1885 W. Ute Boulevard in the Summit County Sheldon Richins Building. In addition, the Park City Visitors Center, which is located at 1794 Olympic Parkway, is a gathering place where residents and visitors can meet with local area experts to plan activities. The Kimball Junction Transit Center, which is located at 6506 N. Landmark Drive, includes a transit building with a 50-seat waiting area and a green space plaza with walking and bicycling paths and space for community gatherings. Ecker Hill Middle School is just outside the evaluation area on the south side of I-80 at 2465 Kilby Road, and there is a meeting house of the Church of Jesus Christ of Latter-day Saints immediately next door at 2555 Kilby Road.

Table 3.2-1. Trails in the Community and Property Impacts Evaluation Area

Recreation Resource	Miles in Evaluation Area	Description	Location
Millenium Trail network and grade-separated crossings and other connected local trails east of SR-224	4.5 miles	The Millenium Trail, and other connected local trails, provide the primary active transportation connection between the Snyderville Basin neighborhood of Bear Hollow and the Kimball Junction area. The Millenium Trail continues along the south side of I-80 west to the Jeremy Ranch area. It also provides access to the north side of I-80 and the Rasmussen Trail via a grade-separated overpass and provides connectivity in the Kimball Junction area with a grade-separated underpass just south of the Olympic Parkway traffic signal. A series of local trails, including the Transit Link Trail, Tech Center Trail, and Newpark Trail, provide access to the Sheldon Richins Building and the Kimball Junction branch of the Summit County Library and other commercial areas in Kimball Junction. Basin Recreation considers the Millenium Trail an urban path/ transportation trail.	East side of SR-224 and south side of I-80; grade-separated crossings on I-80 and SR-224
Rasmussen Road, Bitner Road, Highland Drive, and Park City Parkway Trail and Crossing	3.0 miles	The Rasmussen and Bitner Road trails are on the north side of I-80 east of the Kimball Junction interchange and run along the Bitner Road frontage road. These trails connect to the Park City Parkway and Highland Trails on the south side of I-80 via the grade-separated underpass. Basin Recreation considers these trails to be transportation trails.	North side of I-80; grade-separated crossing that connects to the south side of I-80
SR-224 East, Basin Express, and Redstone Trails	1.6 miles	The SR-224 East Trail runs along the east side of SR-224 and provides connectivity to the Redstone Trail. The Redstone Trail provides a short connection to the west side of the Redstone development but primarily runs along the east side of the development along the Swaner Preserve and EcoCenter and connects to the trails and grade-separated crossing on the south side of I-80. Basin Recreation considers the SR-2224 East, Basin Express, and Redstone Trails to be urban paths/transportation trails.	East and west sides of SR-224

Source: Basin Recreation 2024c

Figure 3.2-3. Recreation Resources in the Community and Property Impacts Evaluation Area

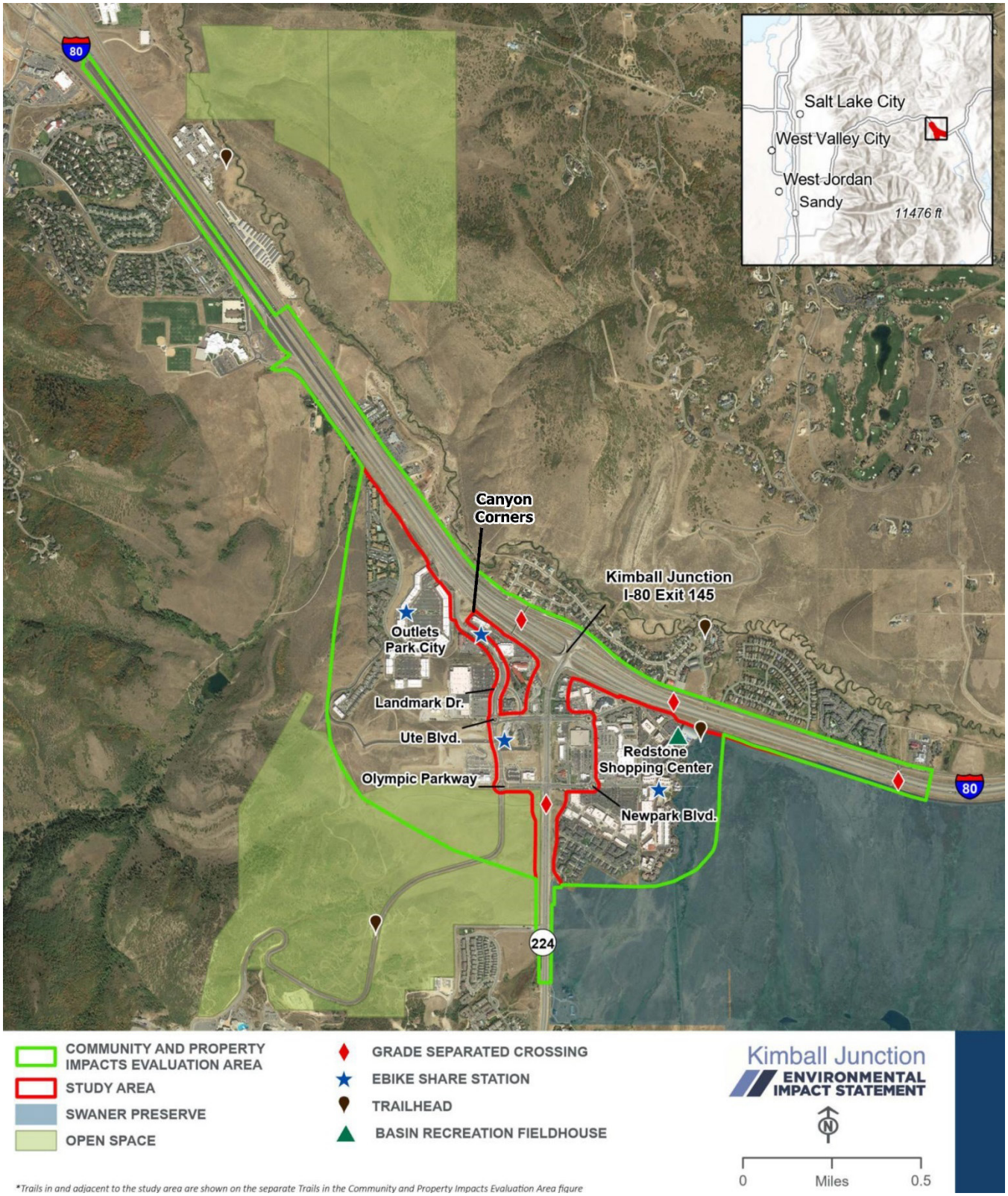


Figure 3.2-4. Trails in and around the Community and Property Impacts Evaluation Area

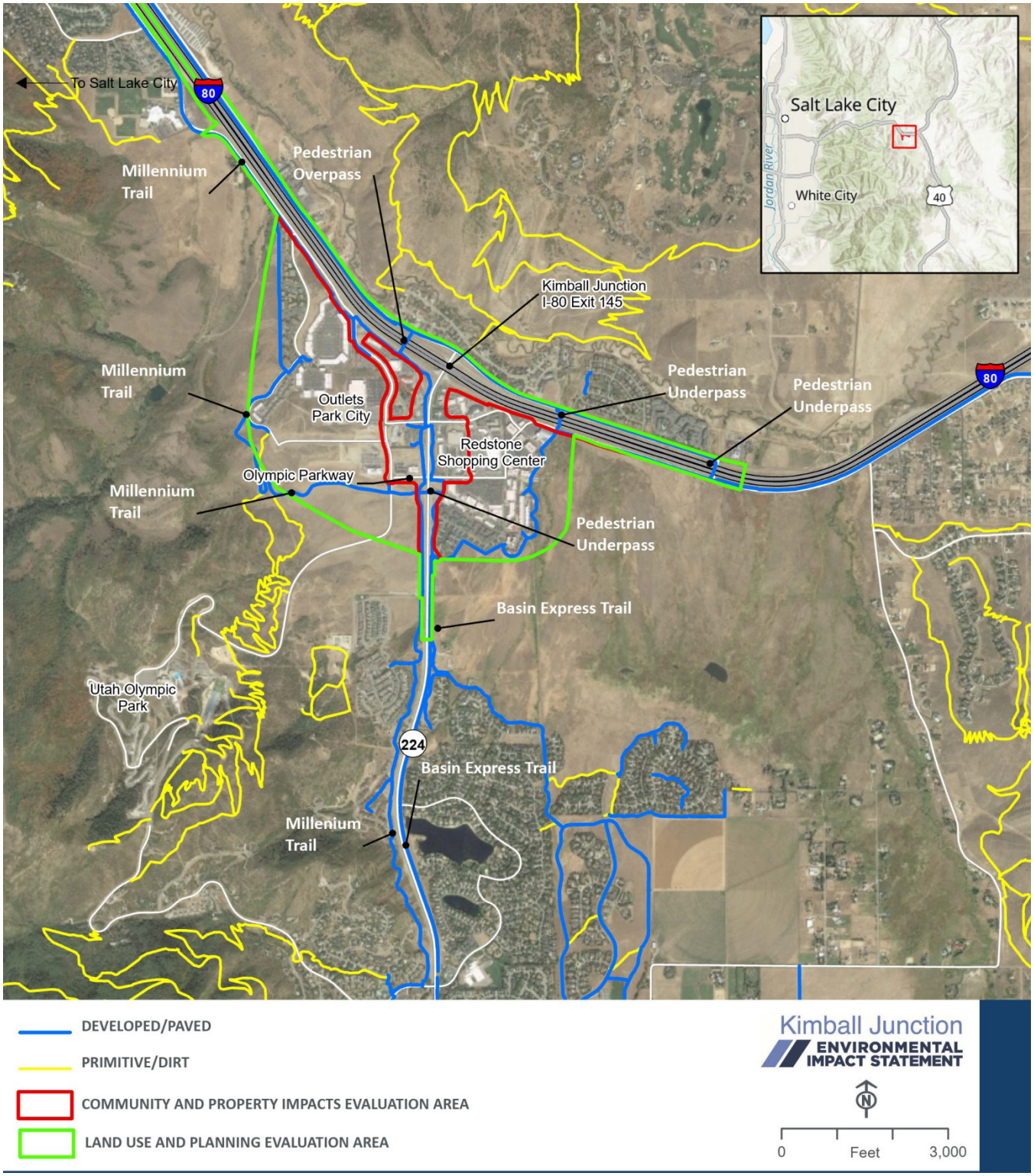
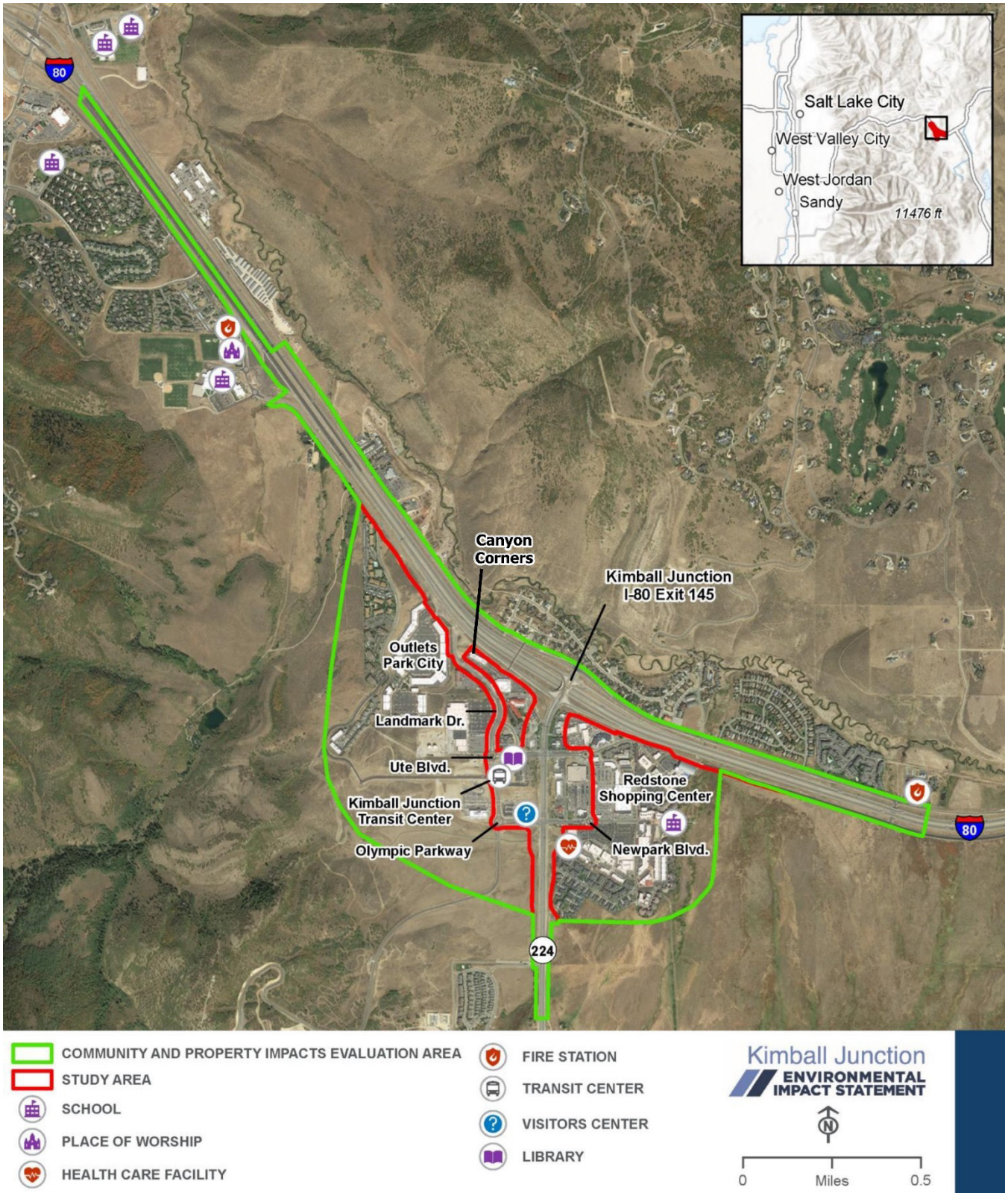


Figure 3.2-5. Community Facilities in the Community and Property Impacts Evaluation Area



3.2.3.5 Public Safety and Security

Emergency Services. The topic of public safety and security addresses how various emergency services, including fire protection, ambulance services, and law enforcement, satisfy the public safety needs of the community. An effective public safety presence, safe streets, and safe homes also contribute to community cohesion, social interaction, and quality of life.

There are no law enforcement, fire, or other public safety facilities in the community and property impacts evaluation area, but, as shown above in Figure 3.2-5, Park City Fire Department Station 35 is immediately adjacent to the evaluation area on the south side of I-80 off Kilby Road, and Station 33 is on the north side of I-80 off Bitner Road. The Summit County Sheriff's Office provides emergency response for the area. The University of Utah Redstone Healthcare Center, which offers both urgent and nonemergency care, is immediately adjacent to the evaluation area near the Fox Point townhomes.

Driver and Road Safety. The topic of public safety also addresses driver and road safety. During the Area Plan and EIS scoping and alternatives screening phases of the Kimball Junction Project, UDOT received comments regarding wildlife–vehicle collisions and driver safety in the community and property impacts evaluation area. In 2022, UDOT reduced the speed limit on SR-224 from 55 miles per hour (mph) to 45 mph. Data indicate that lower speeds have contributed to reducing the number of wildlife–vehicle collisions (UDOT 2022).

In addition, to reduce the number of wildlife–vehicle collisions, in 2023 UDOT installed wildlife exclusionary fencing on both the eastbound and westbound sides of I-80 from about MP 145.45 westward to the east side of Kimball Junction. Wildlife fencing has also been installed on both the eastbound and westbound sides of I-80 from just west of the Kimball Junction interchange to the wildlife bridge at MP 139.17. In anticipation of potential configuration changes associated with this EIS, the Kimball Junction interchange area has not yet been fenced.

As described in Section 3.9, *Ecosystem Resources*, and shown in Table 3.9-3, *Wildlife–vehicle Collisions in the Ecosystem Resources Evaluation Area between January 2018 and November 2024*, on page 3-149, wildlife–vehicle collisions on I-80 in the community and property impacts evaluation area were generally lower in 2023 and 2024 than in previous years; this difference indicates that the fencing is likely successfully keeping wildlife from attempting to cross I-80 in the evaluation area. Moreover, wildlife–vehicle collision numbers on I-80 and SR-224 in the evaluation area from recent years are low compared to both statewide data and data for the surrounding area. For this reason, this area does not constitute a hot spot for wildlife–vehicle collisions.

3.2.3.6 Utilities

UDOT contacted local municipalities and public and private utility providers that operate utility infrastructure in and adjacent to the utilities impacts evaluation area. Table 3.2-2 lists these utility providers and the approximate locations of their utility infrastructure. During the scoping period for this EIS, Mountain Regional Water stated that the evaluation area includes a critical transmission water line for its system and that two of its groundwater sources (wells) have source protection zones in the evaluation area.

Table 3.2-2. Utilities in the Utilities Impacts Evaluation Area

Utility Provider	Utility Type	Utility Location
Allwest Communications	Fiber	Buried fiber lines run under the east side of SR-224, the south side of Ute Boulevard, the north side of Newpark Boulevard, the north side of Olympic Parkway, the east side of N. Landmark Drive, and the south side of W. Ute Boulevard.
AT&T	Fiber	Buried fiber lines run under the north side of Rasmussen Road.
Beehive Broadband	Fiber	Buried fiber lines run under the east side of SR-224 south of Ute Boulevard, the west side of SR-224 north of Ute Boulevard, the north side of Newpark Boulevard, the north side of Olympic Parkway, and the west side of N. Landmark Drive.
First Digital Telecom	Fiber	Buried fiber lines run under the east side of SR-224 south of Ute Boulevard, the west side of SR-224 north of Ute Boulevard, the north side of Olympic Parkway, and the south side of Bear Cub Drive.
Lumen/CenturyLink	Fiber	Buried fiber lines run under both sides of SR-224 south of Ute Boulevard, the east side of SR-224 north of Ute Boulevard, the south side of W. Ute Boulevard, the south side of the eastbound I-80 ramps, and the north side of the westbound I-80 on- and off-ramps.
Rocky Mountain Power	Electric	Overhead electricity lines run above the north and south sides of I-80, the east side of SR-224 to Ute Boulevard north of Ute Boulevard, down the eastbound I-80 on-ramp, and across I-80 and Rasmussen Road. Buried electricity lines run under the east side of SR-224, Ute Boulevard, the west side of SR-224 to the south side of the eastbound I-80 off-ramp, the south side of the eastbound I-80 off-ramp, the north side of Olympic Parkway, the east side of N. Landmark Drive, and both sides of W. Ute Boulevard.
Syringa	Fiber	Buried fiber lines run under the east side of SR-224 south of Ute Boulevard, the north side of Newpark Boulevard, and the north side of W. Ute Boulevard.
UDOT	Fiber	Buried fiber lines run under the east side of SR-224 south of Ute Boulevard, the west side of SR-224 north of Ute Boulevard, the south side of I-80, and the north side of the westbound I-80 on-ramp.
Utopia Fiber	Fiber	Buried fiber lines run under the south side of W. Ute Boulevard and the west side of SR-224 north of Ute Boulevard.
Lumen/CenturyLink	Fiber and/or telephone	Buried fiber and/or telephone lines run under both sides of SR-224 south of Ute Boulevard, the north side of Olympic Parkway, both sides of Newpark Boulevard, the south side of W. Ute Boulevard, and the east side of N. Landmark Drive north of Ute Boulevard and south of Olympic Parkway.
Xfinity (Comcast)	Fiber and/or community antenna television (CATV)	Overhead fiber and/or CATV lines run over the north side of I-80 and the east side of SR-224, down the south side of the eastbound I-80 off-ramp, across I-80 north-south, and the north side of Rasmussen Road. Buried fiber and/or CATV lines run under the south side of I-80, both sides of SR-224, the north side of Olympic Parkway, the west side of N. Landmark Drive, the north side of W. Ute Boulevard, the west side of Sagewood Drive, and the south side of Rasmussen Road.
Enbridge (formerly Dominion Energy)	Gas	Buried gas lines run under both sides of SR-224, the west side of N. Landmark Drive, both sides of Ute Boulevard, the south side of Newpark Boulevard, and the south side of the eastbound I-80 on- and off-ramps.
Chevron	Oil and/or energy	Buried oil and/or energy lines run under the northwest-to-southeast crossing of SR-224 south of Olympic Parkway and cross under SR-224 south of the Newpark Boulevard and SR-224 intersection.

(*Continued on next page*)

Table 3.2-2. Utilities in the Utilities Impacts Evaluation Area

Utility Provider	Utility Type	Utility Location
Holly Energy	Oil and/or energy	Buried oil and/or energy lines run under the south side of Ute Boulevard and the Ute Boulevard and Landmark Drive intersection.
UDOT	Traffic signals and fiber	Overhead traffic signals are located above both sides of SR-224, N. Landmark Drive, W. Ute Boulevard, Olympic Parkway, and all four I-80 on- and off-ramps. Buried fiber lines run under the east side of SR-224 south of Ute Boulevard, the west side of SR-224 north of Ute Boulevard, the south side of I-80, and the north side of the westbound I-80 on-ramp.
Snyderville Basin Water Reclamation District	Wastewater treatment and/or sewer	Buried wastewater treatment and/or sewer lines run under both sides of SR-224, both sides of N. Landmark Drive, and the southwest corner of the I-80 and SR-224 single-point urban interchange (SPUI).
Mountain Regional Water Special Service District	Water	Buried water lines run under the north side of Rasmussen Road.
Summit Water Distribution Co.	Water	Buried water lines run under both sides of SR-224, both sides of N. Landmark Drive, the north side of I-80, the north side of Olympic Parkway, both sides of W. Ute Boulevard, the south side of Rasmussen Road, the crossing for I-80 north-south on the eastern ramps, and the southwest corner of the SPUI of I-80 and SR-224. A pump house building is located on the southwest side of the Ute Boulevard and Landmark Drive roundabout.

Definitions: CATV = community antenna television; SPUI = single-point urban interchange
Note: The utility locations in this table are for each provider's major facilities in the evaluation area.

3.2.4 Environmental Consequences and Mitigation Measures

This section describes the effects of the project alternatives on the community and property impacts evaluation area and the utilities impacts evaluation area. The action alternatives were evaluated equally in this section. However, to reduce repetitive discussions, if impacts from one alternative would be the same as impacts from a previously discussed alternative, the text is not repeated but instead references the previous analysis.

3.2.4.1 Methodology

NEPA does not prescribe a methodology for evaluating social and community impacts. The community impacts analysis ensures that impacts to the social environment are considered with other environmental impacts. However, there are no standard or uniform impact criteria or thresholds for a community impacts assessment as there are for other resources for which impacts can be quantified. The major areas in the community impacts assessment in which UDOT used quantitative techniques were analyses of population and housing characteristics.

UDOT obtained census data from the U.S. Census website and used GIS software to plot the demographic data spatially. UDOT examined trends in population growth and demographics and obtained population projections from the Governor's Office of Planning and Budget. Finally, UDOT conducted a field review of the project area and located any community facilities, land use concentrations, and parklands. UDOT used this baseline data to analyze the impacts of the project on the community. In general, the analysis addressed the following issues:

- How would the project affect interactions among individuals and groups?
- How would the project change social relationships?
- Would the project isolate and/or separate certain segments of the community from other parts of the community? Would the project reduce community cohesion?
- Is the design of the project compatible with community goals?
- What is the project's perceived impact on the quality of life?
- How would the project affect safety for motorists, nonmotorized vehicles, and pedestrians?
- Would travel patterns be changed?
- Would residents or community services be displaced?
- Would recreation facilities be affected?
- How would the project affect emergency response times?
- How would utilities be affected?

As described in Section 3.2.1, *Introduction*, some of these issues are evaluated in other sections of this EIS.

With both action alternatives, permanent acquisition of property would be needed, and temporary construction easements would be required for grading and access. Because property impacts are based on preliminary engineering and because the locations of temporary construction easements are not yet known,

the acquisitions could change. They would be verified during the final design of the selected alternative and during the property acquisition process.

For this analysis, the numbers of full acquisitions, partial acquisitions, and relocations were calculated from Summit County records of property data as of October 18, 2024, and are evaluated using each alternative's proposed right-of-way limits. Preliminary acquisition types were determined for each parcel using satellite images, county parcel data, and the project's proposed right-of-way limits. UDOT assumed that any land in the existing roadway right-of-way is already dedicated to transportation use, even if it is not currently a paved part of the existing SR-224, I-80 interchange and mainline, or other adjacent roads in the evaluation area. Therefore, to accurately calculate the amount of land that would be required for the action alternatives, impacts to rights-of-way were calculated only for land outside the existing rights-of-way of the highway and adjacent roads.

Property impacts are defined as follows:

- **Full Acquisition:** A full acquisition is when UDOT would need to purchase an entire parcel to construct the project. For this project specifically, full acquisitions would occur only for properties that do not have buildings. A full acquisition is assumed when the remaining land outside the proposed right-of-way would be unusable for its intended purpose because it would be too small or because access would be cut off.
- **Partial Acquisition:** A partial acquisition would occur when UDOT would need to purchase only a portion of a parcel, and the property owner would retain ownership outside the proposed right-of-way. For this analysis, a partial acquisition is assumed when an existing building is at least 15 feet from the proposed right-of-way. For properties without buildings, a partial acquisition is assumed when the remaining land would be large enough to function for its intended purpose and would still have access.
- **Relocation:** A relocation is when an existing building is within the proposed right-of-way and the current residents or business would need to be relocated to a new property.

3.2.4.2 No-Action Alternative

With the No-Action Alternative, the improvements associated with the Kimball Junction Project would not be implemented, so there would be no changes to quality of life, recreation resources, community facilities, public safety and security, right-of-way, or utilities from the project. However, the demand on these resources would increase with the forecasted regional population and employment growth.

Although the overall quality of life would not likely change, the forecasted population and employment growth would also result in increased congestion and delay throughout the community and property impacts evaluation area, and this increased congestion and delay would increase travel times for the traveling public and public transit vehicles and increase the response times for emergency vehicles. Longer vehicle-queue lengths on SR-224 could also impede access to and from commercial and residential locations in the project area if turn lanes are full and motorists are unable to execute their planned trips.

Nonmotorized mobility would also be negatively impacted; a second grade-separated underpass near Ute Boulevard would not be constructed, on-street bike lanes on SR-224 would not be added, and increased traffic volumes and congestion on SR-224 would make east-west crossings more difficult. Because of the increased traffic volumes and congestion on SR-224, active transportation users in the evaluation area

would experience decreased mobility and safety. Additionally, with the No-Action Alternative, improved Americans with Disabilities Act (ADA) access for the trails in the community and property impacts evaluation area would not be implemented, which would negatively impact accessibility for a portion of the population.

The No-Action Alternative would not appreciably change neighborhood and community cohesion. However, increased traffic on SR-224 could make travel across this road more difficult, thereby decreasing connectivity in the evaluation area.

3.2.4.3 Alternative A

3.2.4.3.1 Impacts to Neighborhood and Community Cohesion

UDOT is aware that Summit County is currently updating the *Snyderville Basin General Plan* (Summit County 2015) in concert with recently approving the 51-acre Park City Tech Center development plan on the west side of SR-224. Alternative A assumes that Summit County will have widened Landmark Drive to four lanes by 2050 because this widening is a phase 1 (2022–2030) project in the County's 2022–2050 *Long-range Transportation Plan* (Summit County 2022a).

With Alternative A, a new split-diamond interchange would disperse traffic between the new access at Landmark Drive and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area and by providing direct access from I-80 to the west side of SR-224.

Because this alternative would provide direct access to Landmark Drive, it would increase traffic on Landmark Drive, though the planned widening of Landmark Drive by Summit County would accommodate the expected traffic volumes. As described in Chapter 2, *Alternatives*, Alternative A would shift traffic in the community and property impacts evaluation area. During the 2050 PM peak hour (4 PM to 5 PM), traffic on Landmark Drive just north of Ute Boulevard would increase by 510 vehicles (about 30%) compared to the No-Action Alternative in 2050.

Converting the Landmark Drive/Ute Boulevard roundabout to a signalized intersection, as proposed with Alternative A, would result in an acceptable level of service for the intersection. The proposed Landmark Drive/Ute Boulevard traffic signal would operate at level of service (LOS) of D or better. LOS D means that congestion is present but manageable, with traffic flow experiencing significant delays only infrequently. Signals are often the capacity constraint on a road, and UDOT expects that Summit County's planned widening of Landmark Drive will allow the road to operate adequately with traffic shifting from SR-224 to Landmark Drive.

Although the split diamond interchange would provide direct access to existing and proposed development on the west side of Kimball Junction, the increased traffic on Landmark Drive could deter pedestrian movement in this area, which could reduce neighborhood cohesion, connectivity, and walkability.

The improvements identified for SR-224 would improve circulation and connectivity in the Kimball Junction area for all motorized users and would also improve travel times, comfort, and safety for active transportation users. The improvements on SR-224 would not create new or additional divisions in the Kimball Junction neighborhood because the improvements would be implemented on existing roadway alignments, and the new proposed pedestrian underpass south of Ute Boulevard would improve connectivity for active transportation users, thereby increasing cohesion between the two developed sides of Kimball Junction.

3.2.4.3.2 Impacts to Quality of Life

As discussed in Section 3.2.3.1.2, *Neighborhoods*, quality of life encompasses many different components. Reducing congestion and travel times through the community and property impacts evaluation area would improve access to community resources such as jobs, schools, medical care, grocery stores, and open space for both residents and visitors alike. Reducing congestion and travel times would also improve commute times for every mode of travel in an area that depends on a daily inflow of the workforce. The new pedestrian underpass south of Ute Boulevard would help improve active transportation safety and mobility in the evaluation area, and realigning the multi-use trails would allow for ADA-compliant ramps to be constructed, which would improve accessibility for all users.

An important quality of life component that is identified in area planning documents is supporting healthy lifestyles and year-round recreation, and the active transportation improvements with Alternative A would help support those goals. Reducing congestion through the Kimball Junction area would also help support growth and economic development by improving access to area businesses.

3.2.4.3.3 Impacts to Recreation Resources Including Trails

With Alternative A, a new grade-separated, east-west pedestrian underpass would be constructed just south of Ute Boulevard, and the existing trails that parallel SR-224 would be shifted away from the roadway to allow additional ADA-compatible pedestrian ramps to be constructed. A new trail connection would be added on the southeast quadrant of the Olympic Parkway intersection to improve connectivity to the regional trail network. Trails would be realigned on either side of the Landmark Drive extension at the west end of the new split-diamond interchange. New buffered bike lanes would also be constructed on both sides of SR-224, which would offer additional options for bicyclists to choose their preference for which type of facility to use. All of these improvements would improve the accessibility, mobility, comfort, and safety of nonmotorized users in the community and property impacts evaluation area for both recreational and transportation trips, and they would be compatible with the existing regional trail network.

3.2.4.3.4 Impacts to Community Facilities

With Alternative A, the roundabout at Landmark Drive and Ute Boulevard would be converted to a signalized intersection. As a result of this conversion, a partial acquisition of landscaping at the Kimball Junction Transit Center could be required. The split diamond interchange connecting into Landmark Drive would create direct access from I-80 to the Kimball Junction Transit Center, and this direct access could increase accessibility to transit.

A partial acquisition of landscaping on the east side of the Kimball Junction Branch of the Summit County Library would be required to accommodate the proposed intersection improvements at SR-224 and Ute Boulevard, and a new trail alignment on the west side of SR-224 would be needed in conjunction with the proposed pedestrian underpass south of Ute Boulevard. These right-of-way impacts would not affect access to or the viability of these community facilities; the resulting improved roadway operations would enhance accessibility to the facilities.

3.2.4.3.5 Impacts to Public Safety and Security

Emergency Services. Alternative A would improve emergency service response times in Kimball Junction by reducing congestion and improving travel times through the community and property impacts evaluation area. Additionally, the new bridge crossing over I-80 at the Landmark Drive extension would improve response times from Fire Station 35 (located on Kilby Road on the west end of the evaluation area) to incidents on westbound I-80 toward the Jeremy Ranch exit because the new bridge would provide the emergency response vehicles with direct access from Fire Station 35 to westbound I-80. With the existing interchange, emergency vehicles must travel farther east.

Driver and Road Safety. Adding turn lanes and increased ramp storage capacity would shorten vehicle-queue lengths and backups in the evaluation area, which would reduce the likelihood of rear-end collisions. Adding the pedestrian underpass at Ute Boulevard would improve safety for pedestrians and cyclists who otherwise would use the at-grade intersection.

The cross streets and business and residential accesses along SR-224 in the evaluation area are obstacles for adding wildlife fencing to protect against wildlife–vehicle collisions. It would not be reasonable to install wildlife fencing along SR-224 in the community and property impacts evaluation area because of the short length of SR-224 in the evaluation area (about 1 mile) and because there are cross streets and business and residential accesses, pedestrian and cycling trails, and extensive commercial and residential development on both sides of SR-224 through the evaluation area. Wildlife fencing in this area would need to have many gaps to accommodate these accesses, and wildlife would be able to pass through the fencing at the gaps. Each access point along SR-224 in and around Kimball Junction would need a double cattle guard installed to maintain a barrier against wildlife. The cost and maintenance issues associated with these double cattle guards are not justified by the low wildlife–vehicle conflict numbers in the evaluation area, as described in Section 3.2.3.5, *Public Safety and Security*.

During the final design of the selected alternative, UDOT will evaluate the feasibility of adding exclusionary cattle guards at the interchange on- and off-ramps. Adding exclusionary cattle guards would connect the wildlife fencing along both sides of I-80, which would help prevent wildlife from entering the freeway.

3.2.4.3.6 Utility Impacts

UDOT defined impacts to public services and utilities as high, medium, or low. Each of these terms is defined below along with standard procedures to address the impact.

- **High:** The utility would be directly in conflict with the proposed construction and would need to be removed and relocated outside the conflict area.
- **Medium:** The utility could be affected by construction or would be affected by construction and would require a utility treatment such as temporarily casing the utility line or installing a plate to protect it, permanently adjusting the height of the utility line, or permanently adjusting the grading around the utility line.
- **Low:** The utility would be minimally affected or unaffected by construction. The utility might need to be protected during construction, but no additional measures would be required.

Table 3.2-3 summarizes the level of impact to each provider's utilities from Alternative A. As shown in Table 3.2-3, 11 utility providers would experience a high level of impact, and some of their utilities would need to be relocated. Several other utilities adjacent to or within the community and property impacts evaluation area might be affected. UDOT would determine the detailed effects on these utilities by working with local jurisdictions and utility providers during the final design or design-build process for Alternative A. UDOT would continue to communicate with local jurisdictions and the utility providers throughout the Kimball Junction Project.

During the scoping period for the project, Mountain Regional Water personnel said that the evaluation area includes a critical water transmission line in their system. That water line runs adjacent to Rasmussen Road but outside the impact footprint for Alternative A, and it would not be affected. Snyderville Basin Water Reclamation District personnel also said that the District is responsible for the wastewater system in the Park City area, and it has several main lines in the evaluation area. A District sewer line runs along the west side of SR-224 and might be affected during construction. Utility accesses associated with this line would be affected and would need to be reconstructed.

As described in Section 3.2.4.3.7, *Property Impacts*, a pump house building owned by Summit Water Distribution Company would need to be relocated to convert the existing Ute Boulevard and Landmark Drive roundabout to a signalized intersection. Summit Water serves the Kimball Junction area.

Note that most providers have utilities in more than one location in the evaluation area that might or might not be affected by construction. Table 3.2-3 shows the highest level of impact that a provider might experience for at least one of its utilities in the evaluation area.

Table 3.2-3. Levels of Impact from the Action Alternatives to Specific Utility Providers

Utility Provider	Utility Impacts	
	Alternative A	Alternative C
Beehive Broadband	High	High
Enbridge (formerly Dominion Energy)	High	High
First Digital Telecom	High	High
Lumen/CenturyLink (fiber)	High	High
Lumen/CenturyLink (fiber and/or telephone)	High	High
Rocky Mountain Power	High	High
Syringa	High	High
UDOT	High	High
Utopia Fiber	High	High
Xfinity (Comcast)	High	High
Summit Water Distribution Co.	High	Medium
Snyderville Basin Water Reclamation District	High	Low
Allwest Communications	Medium	Medium
Chevron	Medium	Medium
Holly Energy	Medium	Medium
AT&T	Low	Low
Mountain Regional Water Special Service District	Low	Low

3.2.4.3.7 Property Impacts

With Alternative A, improvements would be made mainly within the existing UDOT right-of-way; however, as shown in Table 3.2-4 and in Appendix 3A, *Property Impact Maps*, about 4.86 acres of additional property would be acquired to construct this alternative. The required right-of-way acquisitions would be mostly in the form of partial property acquisitions, but two parcels immediately adjacent to SR-224 or Ute Boulevard would require full acquisition to accommodate sidewalk improvements at the SR-224 and Ute Boulevard intersection and to accommodate improvements to the multi-use path adjacent to SR-224.

With Alternative A, adding sidewalks, adding curb and gutter, and reconfiguring the roadway would encroach into the adjacent business parking lots, which could require UDOT to acquire some business parking spaces. In addition, a pump house building on the southwest side of the existing Ute Boulevard and Landmark Drive roundabout would need to be relocated. The roundabout would be reconfigured into a signalized intersection, the west leg of the intersection would be shifted south about 38 feet, and additional lanes would be added compared to the current footprint. With these changes, the right-of-way for the intersection would encompass part of the pump house building.

The pump house building is owned by the Summit Water Distribution Company, which has an easement (PCTC-404-AM) with Park City Junction LLC (Utah Division of Water Rights 2024). UDOT coordinated with Summit Water Distribution Company personnel regarding relocating the pump house building if Alternative A

is selected. Summit Water personnel said that the building houses the electrical and plumbing components of a well and that the building, components, and pipes could be moved (Folkman 2024). The well itself would not be affected.

Existing roads in the community and property impacts evaluation area cross property that is currently shown in the Summit County parcel viewer (Summit County 2024b) as owned by Summit County or other entities. These situations typically involve prescriptive right-of-way, in which a road crossing private property becomes public right-of-way if it is used by the public continuously for at least 10 years (Utah Code Section 72-5-104). These parcels are not shown in Table 3.2-4 or in Appendix 3A, *Property Impact Maps*. Any outstanding issues regarding the prescriptive use of such parcels would be rectified by UDOT during the final design and right-of-way acquisition process for the selected alternative.

Table 3.2-4. Right-of-way Parcel Impacts for Alternative A

Parcel ID	Owner	Parcel Address[a]	Impacted Acres	Acquisition Status
CANCOR-1	Canyon Corners Centercal LLC	6622 N. Landmark Drive	0.71	Partial acquisition
FSE-1	SRE Ontario LLC	6699 N. Landmark Drive	0.01	Partial acquisition
KJS-1-A-1AM-X	Summit County	NA	0.03	Partial acquisition
PCMP-1	Knapp Holdings LLC	6525 N. Highway 224	0.11	Partial acquisition
PCMP-2	Realty Income Properties 5 LLC	6515 N. Highway 224	0.08	Partial acquisition
PCTC-404-AM	Park City Junction LLC	NA	0.07	Relocation
PCTC-5B-AM	Park City Junction LLC	6300 N. Landmark Drive	0.14	Partial acquisition
PCTC-6-X	High Valley Transit District	6490 N. Landmark Drive	0.39	Partial acquisition
PP-62-1-A	High Bluff Center LLC	6541 N. Landmark Drive	0.14	Partial acquisition
PP-62-1-A-1	Golden Spike Restaurants LLC	6542 N. Landmark Drive	0.003	Partial acquisition
PP-62-1-A-1-X	Summit County	NA	0.09	Partial acquisition
PP-62-1-A-2	Golden Spike Restaurants LLC	NA	0.04	Partial acquisition
PP-62-1-A-3	Kilby Center LLC	6546 N. Landmark Drive	0.005	Partial acquisition
PP-62-1-A-X	Summit County	NA	0.09	Partial acquisition
PP-62-1-B	Wal-Mart Real Estate Business Trust	6545 N. Landmark Drive	0.06	Partial acquisition
PP-81-D	SKM Peterson LLC	6500 N. Highway 224	0.004	Partial acquisition
PP-81-D-1	SKM Peterson LLC	6520 N. Highway 224	0.007	Partial acquisition
PP-81-G-2	High Bluff Center LLC	NA	0.01	Full acquisition
PP-81-G-X	High Valley Transit District	6490 N. Landmark Drive	0.67	Partial acquisition
PP-81-H-1	Wells Fargo Bank Northwest NA	6480 N. Highway 224	0.11	Partial acquisition
PP-81-J-K-2	McDonalds Corp (43-056)	1832 W. Ute Boulevard	0.20	Partial acquisition
PP-81-J-K-X	Summit County	NA	0.124	Partial acquisition
PP-82-X	State Road Commission	NA	0.17	Partial acquisition
RS-10-1AM	Boyer Spring Creek LC	6146 Market Street	0.60	Partial acquisition
RS-10-A-1AM-X	Summit County	NA	0.02	Partial acquisition

(*Continued on next page*)

Table 3.2-4. Right-of-way Parcel Impacts for Alternative A

Parcel ID	Owner	Parcel Address[a]	Impacted Acres	Acquisition Status
RS-21-X	Summit County	NA	0.25	Partial acquisition
RS-8-1AM	Boyer Spring Creek LC	1748 W. Redstone Center Drive	0.03	Partial acquisition
SS-36	Sarah Park LC	6585 N. Landmark Drive	0.008	Partial acquisition
SS-36-A	Summit Hospitality LLC	6609 Landmark Drive	0.004	Partial acquisition
VKJ-3-A	JPMorgan Chase Bank National Association	6250 N. Sagewood Drive	0.02	Partial acquisition
VKJ-A	O'Brien-Kiernan Investment Co Inc	NA	0.61	Full acquisition
VKJ-SPA-4A	Utah Del Inc	1723 Ute Boulevard	0.05	Partial acquisition

[a] Parcel addresses not available in the Summit County parcel database are labeled NA (not available).

3.2.4.4 Alternative C

3.2.4.4.1 Impacts to Neighborhood and Community Cohesion

Alternative C would not appreciably change the character of the Kimball Junction neighborhood, but it would improve mobility for all users throughout the community and property impacts evaluation area. Improved mobility would help improve connectivity across SR-224 as well as improve access to jobs, schools, and other community resources.

Because the improvements associated with this alternative would be implemented along existing roads, there would be no new divisions or barriers to movement in the evaluation area. Alternative C would not offer a direct route from I-80 to the west side of Kimball Junction, nor would it increase traffic on Landmark Drive; however, the improved mobility and reduced congestion would make access to either side of Kimball Junction easier. Removing crosswalks for the east-west crossing of SR-224 at Ute Boulevard and Olympic Parkway would require active transportation users to use the two grade-separated underpasses just to the south of each of those intersections. These underpasses would maintain the same access but would provide improved safety and comfort.

3.2.4.4.2 Impacts to Quality of Life

With Alternative C, the impacts to quality of life would be similar to those with Alternative A; however, there would not be direct access to the west side of the Kimball Junction area via I-80 or increased traffic on Landmark Drive near the Canyon Corners commercial area.

3.2.4.4.3 Impacts to Recreation Resources Including Trails

With Alternative C, the impacts to recreation resources would be similar to those with Alternative A; however, with Alternative C, trails would not be realigned on either side of Landmark Drive.

3.2.4.4.4 Impacts to Community Facilities

With Alternative C, the impacts to community facilities would be similar to those with Alternative A; however, there would not be direct access to community facilities on the west side of Kimball Junction via an interchange. Community facilities on the west side of SR-224 would be accessed via SR-224 and Ute Boulevard or Olympic Parkway.

3.2.4.4.5 Impacts to Public Safety and Security

With Alternative C, the impacts to public safety and security would be similar to those with Alternative A. In contrast to Alternative A, emergency vehicles from Fire Station 35 would not have the convenience of choosing between two access points to I-80. As with Alternative A, during the final design of the selected alternative, UDOT will evaluate the feasibility of adding exclusionary cattle guards at the interchange on- and off-ramps to connect the wildlife fencing along both sides of I-80.

3.2.4.4.6 Utility Impacts

With Alternative C, the impacts to utilities would be similar to those with Alternative A, although Alternative C would not impact the Snyderville Basin Water Reclamation District's sewer line or the Summit Water Conservancy District's pump house building (as shown above in Table 3.2-3, *Levels of Impact from the Action Alternatives to Specific Utility Providers*).

3.2.4.4.7 Property Impacts

The smaller footprint of Alternative C would result in fewer property impacts than would Alternative A. With Alternative C, most impacts would be partial acquisitions of landscaping for the expanded footprint of SR-224 and the subsequent shift in the alignment of the parallel multi-use trails. As shown in Table 3.2-5 and in Appendix 3A, *Property Impact Maps*, just over 3.5 acres of property would need to be acquired to construct this alternative. As with Alternative A, two parcels immediately adjacent to SR-224 or Ute Boulevard would require full acquisition to accommodate sidewalk improvements at the SR-224/Ute Boulevard intersection and to accommodate pedestrian walkway improvements adjacent to SR-224.

Similar to Alternative A, some existing roads in the community and property impacts evaluation area cross property that is currently shown in the Summit County parcel viewer (Summit County 2024b) as owned by Summit County or other entities. Any outstanding issues regarding the prescriptive use of such parcels would be rectified by UDOT during the final design and right-of-way acquisition process for the selected alternative.

Table 3.2-5. Right-of-way Parcel Impacts for Alternative C

Parcel ID	Owner	Parcel Address[a]	Impacted Acres	Acquisition Status
KJS-1-A-1AM-X	Summit County	NA	0.07	Partial acquisition
PCMP-1	Knapp Holdings LLC	6525 N. Highway 224	0.10	Partial acquisition
PCMP-2	Realty Income Properties 5 LLC	6515 N. Highway 224	0.09	Partial acquisition
PCTC-5B-AM	Park City Junction LLC	6300 N. Landmark Drive	0.14	Partial acquisition
PCTC-6-X	High Valley Transit District	6490 N. Landmark Drive	0.40	Partial acquisition
PP-81-D	SKM Peterson LLC	6500 N. Highway 224	0.02	Partial acquisition
PP-81-G-2	High Bluff Center LLC	NA	0.01	Full acquisition
PP-81-G-X	High Valley Transit District	6490 N. Landmark Drive	0.66	Partial acquisition
PP-81-H-1	Wells Fargo Bank Northwest NA	6480 N. Highway 224	0.10	Partial acquisition
PP-81-J-K-2	McDonalds Corp (43-056)	1832 W. Ute Boulevard	0.20	Partial acquisition
PP-82-X	State Road Commission	NA	0.17	Partial acquisition
RS-10-1AM	Boyer Spring Creek LC	6146 Market Street	0.59	Partial acquisition
RS-10-A-1AM-X	Summit County	NA	0.02	Partial acquisition
RS-21-X	Summitt County	NA	0.25	Partial acquisition
RS-8-1AM	Boyer Spring Creek LC	1748 W. Redstone Center Drive	0.03	Partial acquisition
VKJ-3-A	JPMorgan Chase Bank National Association	6250 N. Sagewood Drive	0.02	Partial acquisition
VKJ-A	O'Brien-Kiernan Investment Co Inc	NA	0.61	Full acquisition
VKJ-SPA-4A	Utah Del Inc	1723 Ute Boulevard	0.07	Partial acquisition

[a] Parcel addresses not available in the Summit County parcel database are labeled NA (not available).

3.2.4.5 Mitigation Measures for Community and Property Impacts

The community and property impacts from either action alternative would be generally beneficial or would be temporary during construction.

Neighborhood and Community Cohesion. Overall, both action alternatives would benefit the communities and neighborhoods in the community and property impacts evaluation area. No mitigation is proposed.

Quality of Life. Both action alternatives would benefit the communities and neighborhoods in the community and property impacts evaluation area. No mitigation is proposed.

Recreation Resources Including Trails. Mitigation for impacts to recreation resources typically includes replacing or relocating impacted amenities, including trails, or providing other items that can enhance the recreation use of the recreation resource. With Alternative C, removing east-west crosswalks across SR-224 will be compensated for by adding a grade-separated pedestrian underpass south of Ute Boulevard. Reconstructing the multi-use paths that parallel SR-224 between Olympic Parkway and Ute Boulevard would have temporary impacts to active transportation users, and these impacts will be managed through public outreach and signed detours for nonmotorized users.

During the final design of the selected alternative, UDOT will work with Summit County and Basin Recreation to evaluate opportunities to further mitigate temporary impacts to trails.

Community Facilities. There would be no impacts to community facilities from either action alternative. No mitigation is proposed.

Public Safety and Security. During the final design of the selected alternative, UDOT will evaluate the feasibility of adding exclusionary cattle guards at the interchange on- and off-ramps to connect the wildlife fencing along both sides of I-80.

Utilities. UDOT's *Accommodation of Utilities and the Control and Protection of State Highway Rights-of-Way* (Utah Administrative Code Rule 930-6) will be followed. If any loss of utility service is required during construction, the construction contractor will contact local businesses and residences. If utilities need to be relocated, UDOT will work with the utility companies during the final design phase for the selected alternative.

UDOT will also identify and obtain all appropriate permits from the State Engineer's Office, the Summit County Health Department, and Summit County and Park City related to relocating and modifying utilities.

Transportation elements will be designed and constructed with the intent to maintain a minimum 10-foot clear space between the element and water or sewer infrastructure.

With Alternative A, UDOT will work with Summit Water Conservancy District to relocate its pump house building near the building's current location.

Property Impacts. No mitigation for property impacts is proposed beyond the requirements of federal and state relocation assistance acts.

During the final design process for the selected alternative, UDOT will look at measures that avoid or minimize property acquisition. Where property acquisition is necessary, UDOT will acquire all property according to the federal Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (as amended July 2008) and the Utah Relocation Assistance Act. These regulations require fair compensation for property owners to offset or eliminate any financial hardship that private individuals or entities could experience as a result of acquiring property for public purposes.

3.3 Economic Conditions

3.3.1 Introduction

This section examines the economic characteristics in the economic conditions evaluation area and examines how these characteristics would be affected by the project alternatives. The economic analysis considers the economic conditions in Summit County, Snyderville Basin, and Kimball Junction.

Economic Conditions Evaluation Area. The economic conditions evaluation area is in Summit County in the Snyderville Basin and Summit Park CDPs. It is about 600 acres and includes the businesses that could be directly impacted by the project alternatives or indirectly affected by changes in traffic patterns caused by the project alternatives.

The evaluation area includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. The evaluation area mostly follows the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*; however, in the Kimball Junction neighborhood south of I-80, the evaluation area is focused on an area within a 0.5-mile radius of the centerline of SR-224.

The commercial areas are south of I-80 and on both the east and west sides of SR-224. The economic conditions are provided for both Summit County and the Snyderville Basin CDP as context for regional economic activity.

3.3.2 Regulatory Setting

No regulations guide the evaluation of the economic conditions in a NEPA document, and the range of economic impact issues can vary greatly from project to project. However, FHWA's Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987), recommends that an economic analysis, if applicable, should discuss the following impacts:

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

3.3.3 Affected Environment

3.3.3.1 Regional Economic Conditions

3.3.3.1.1 Summit County Economic Conditions

Most of Summit County's 42,000 residents live in Park City and the surrounding unincorporated area of Snyderville Basin. Park City, the most prominent town along the Wasatch Back, is 32 miles southeast of Salt Lake City. It has fewer than 8,000 permanent residents but a tourist population that is many times that number.

More than 20,000 people reside in the Snyderville Basin area, which is consists of many distinct neighborhoods. These neighborhoods have grown into bedroom communities (areas where most of the residents commute elsewhere to work) because of their proximity (about 30 miles) to Salt Lake City as well as their appeal to Salt Lake City workers seeking a resort-town lifestyle.

Nonfarm employment in Summit County centers around the leisure and hospitality industry, including resorts, hotels, and restaurants that are needed to support tourism. According to the Kem C. Gardner Policy Institute, Summit County is one of the most economically specialized counties in Utah (Kem C. Gardner Policy Institute 2022a). About 13,500 jobs in the county (out of approximately 33,400 total) are in the tourism, hospitality, and leisure services sector and represent roughly 40% of the total employment share. The next-largest sectors are trade, transportation, and utilities at 15% and professional and business services at 9%.

The two largest employers in Summit County are Deer Valley Resort and Park City Mountain Resort (roughly 2,000 employees each), both of which are accessed via SR-224 or SR-248. The Canyons Base Area of Park City Mountain Resort is just south of the economic conditions evaluation area and is served by SR-224 only. Summit County experiences a net daily gain of workers because more workers commute into the county than commute out of the county (Utah Department of Workforce Services 2022a).

Summit County has had steady economic growth since 2010, except for a dip in 2020 during the Covid-19 pandemic. However, there has been a sharp rise post-pandemic, and the economy has since returned to pre-pandemic levels and growth rates (Utah Department of Workforce Services 2023). As of March 2023, Summit County's year-over-year percent change in nonfarm jobs was an 8.7% increase, which is higher than the statewide average of 2.4% and the national average of 2.7%. The seasonally adjusted unemployment rate in Summit County as of June 2023 was 2.3%, which is lower than the statewide rate of 2.4% and the national average of 3.6% for that month.

Summit County's long-term projections forecast that the population will increase by 41% from 2020 to 2060. The growth is expected to be driven primarily by net migration, and employment is projected to increase by 54% during that same time (Kem C. Gardner Policy Institute 2022a). Leading growth industries include accommodation and food services, arts, entertainment and recreation, construction, and technical services.

3.3.3.1.2 Freight Link

Utah is the crossroads for freight traffic that travels to and from the West Coast ports, and I-80 is a locally, regionally, and nationally important component of the primary freight network. Section 3.4, *Traffic and Transportation*, describes the importance of I-80 to freight travel and SR-224's link to I-80 freight traffic.

3.3.3.1.3 Employment Link

Utah's economy is functionally organized into six economic areas. The Greater Salt Lake Economic Region, comprising 12 of Utah's 29 counties—including Salt Lake and Summit Counties, casts a long economic reach in the state (Kem C. Gardner Policy Institute 2020a). This multicounty economic region functions largely as a single consumer and labor market (Kem C. Gardner Policy Institute 2022a).

SR-224 is one of two access routes for the major employment centers at the ski resorts and in Park City's Old Town as well as the attendant traffic from visitors. Park City, Snyderville, and the surrounding areas have experienced considerable population and economic growth in recent years, and this growth is expected to continue. Both communities are expanding resorts, holding more frequent and larger events, and expanding residential and commercial development. Because these communities are major tourism destinations, travel patterns, traffic volumes, and population numbers fluctuate throughout the year.

According to the *Housing Affordability Assessment: Snyderville Basin and East Summit County*, which was prepared for the Summit County Planning Office in October 2017, housing supply conditions in the area indicated a serious shortage of affordable housing, and this was before the Covid-related increases in population and housing supply pressures (Summit County Planning Office 2017).

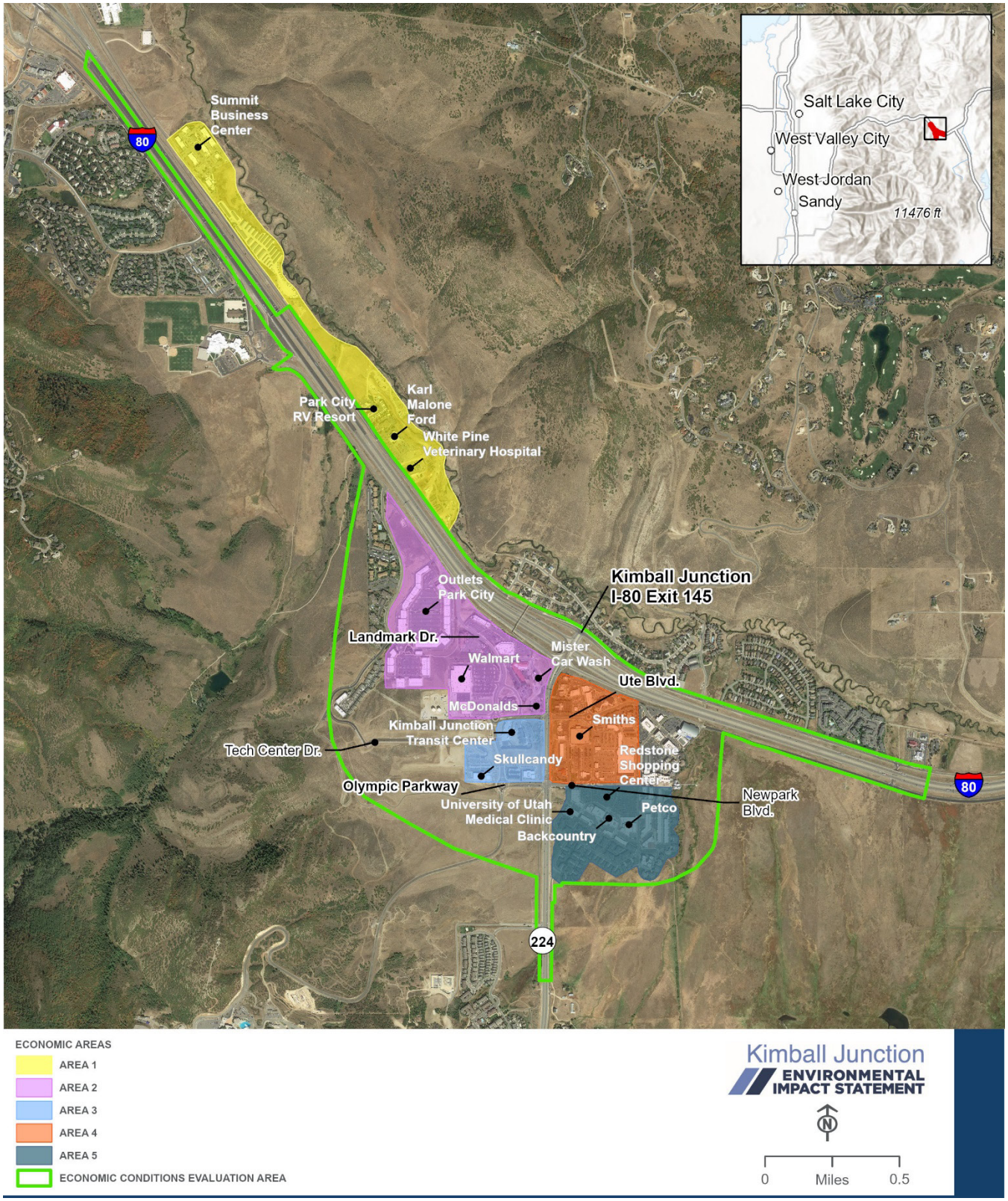
Summit County also conducted a compensation survey in October 2021 and found that the cost of living in Summit County is about 38% higher than the average cost of living in other counties in Utah and just over 23% higher than the average cost of living in Salt Lake County (Warnock 2021). As a result of this imbalance of jobs and housing, many seasonal workers commute to their jobs from outside Park City proper. Low rental inventory, a lack of availability of affordable housing, and an economy that consists predominantly of lower-paying service sector and tourism jobs create a situation in which there is a consistent daily influx of commuter-related traffic in addition to visitor traffic.

Of the nearly 20,000 year-round jobs in the Park City area, 79% are held by employees who do not live in the community and must commute daily (Summit County 2022b). Many of these workers include employees of Canyons Resort properties, which employs 1,500 people and is the largest employer in the Snyderville CDP. Other large employers in the Snyderville CDP in the economic conditions evaluation area that are also accessed via SR-224 include Smith's, Walmart, and Whole Foods Market, each of which has 250 to 500 employees (Utah Department of Workforce Services 2022b). These workers (along with visitors and residents) contribute to the delay and unreliable travel times the transportation network through the evaluation area that links jobs to employers, especially given that SR-224 is the only corridor that serves the region's top employers as described above, as well as other large employers in the county that require access via SR-224, such as Park City Mountain Resort and the Park City School District.

3.3.3.2 Local Economic Conditions

To determine the current economic conditions in the economic conditions evaluation area, UDOT discussed pending and future developments with local officials, reviewed general plans and zoning documents, and conducted a field review of the commercial areas and businesses in the evaluation area. In summary, the evaluation area has a variety of commercial areas and businesses that support both local and regional customers. As shown in Figure 3.3-1, the commercial areas are generally south of I-80 and on both the east and west sides of SR-224. The economic areas highlighted in Figure 3.3-1 are discussed further in Table 3.3-1, *Key Destination Businesses, Convenience Businesses, and Major Employers in the Economic Conditions Evaluation Area*, on page 3-54, which includes a general description of how these areas are accessed and the major businesses in each area. Some of these businesses are also shown in Figure 3.3-1.

Figure 3.3-1. Economic Areas and Some Key Businesses in the Economic Conditions Evaluation Area



3.3.3.2.1 Road Network and Active Transportation Network

In the economic conditions evaluation area, traffic conditions often create backups that hinder access to the existing commercial developments. As discussed in Chapter 1, *Purpose and Need*, in the future, the intersections of SR-224 and I-80, Ute Boulevard, and Olympic Parkway are projected to fail and create even worse delays and unreliable travel times compared to today. These failures will reduce mobility and access to the commercial areas. Additionally, many pedestrians and cyclists access the commercial developments, and there is a growing demand for active transportation (walking and biking) in the east-west direction across SR-224 in the evaluation area. Nonetheless, pedestrians and cyclists currently experience a low level of comfort at the at-grade intersections.

3.3.3.2.2 Commercial Areas and Businesses

On both sides of SR-224 south of I-80, the economic conditions evaluation area is zoned primarily as Town Center, which has a mix of “big-box” stores, restaurants, financial institutions, and small retail shops. The Community Commercial zone on the west side of SR-224 is where the community resources, such as the Kimball Junction branch of the Summit County Library, the Sheldon Richins Building (which houses several government offices), the Kimball Junction Transit Center, and the Park City Visitors Center are located.

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

- **Destination Businesses.** Destination businesses are those that customers plan to visit in advance of their trip. Examples in the evaluation area include specialty stores and retailers, doctor’s or dentist’s offices, major retailers and big box stores, banks, grocery stores, hotels, and sit-down restaurants. Destination businesses are located on both the east and west sides of SR-224, and there are also a few destination businesses on the north side of I-80.
- **Convenience Businesses.** Convenience businesses are those that customers visit on impulse or when passing by, such as convenience stores, gas stations, and fast-food restaurants. Convenience businesses are also referred to as “drive-by” businesses. All convenience businesses in the evaluation area (1 gas station and 19 fast-food restaurants) are located south of I-80.

Table 3.3-1 below summarizes the types of businesses in the evaluation area by the corresponding economic area in Figure 3.3-1 above. Major business destinations in each economic area are also shown in Figure 3.3-1.

Table 3.3-1. Key Destination Businesses, Convenience Businesses, and Major Employers in the Economic Conditions Evaluation Area

Area on Map	Description			Key Businesses	
	Area	Access	Economic	Destination	Convenience
1	North of I-80[a]	Rasmussen and Bitner frontage roads	Primarily residential and destination businesses	Summit Center business center, Park City RV Resort, White Pine Veterinary Hospital, Karl Malone Ford, Karl Malone Chevrolet, and Summit Self Storage	—
2	South of I-80, west of SR-224, and north of Ute Boulevard and Tech Center Drive	SR-224 and Ute Boulevard, Kilby Road, and Landmark Drive	Primarily commercial with a mix of convenience and destination businesses	Junction Commons (formerly Park City Outlets), Whole Foods Market, Walmart Supercenter, Best Western Plus Landmark Inn, and AC Hotel by Marriott Park City	McDonald's, Mister Car Wash, Slapfish, MOD Pizza, Arby's, and Taco Bell
3	West of SR-224 and south of Ute Boulevard and Tech Center Drive	SR-224 and either Ute Boulevard or Olympic Parkway	Primarily destination businesses and government buildings	Skullcandy, Kimball Junction Transit Center, Park City Visitors Center, Sheldon Richins Building, Summit County Library, and MountainTop Physical Therapy	Hugo Coffee Shop
4	East of SR-224, south of I-80, and north of Newpark Boulevard	SR-224 and either Ute Boulevard or Newpark Boulevard	Primarily commercial with a mix of convenience and destination businesses	Smith's, Holiday Inn Express, T.J. Maxx, Wells Fargo Bank, Utah State Liquor Store, Sparkling Dry Cleaning, and Mattress Firm	Del Taco, Wendy's, Chevron, and Loco Lizard Cantina
5	East of SR-224 and south of Newpark Boulevard	SR-224 and Newpark Boulevard	Mix of residential and commercial	Redstone Shopping Center, University of Utah Medical Clinic at Redstone, Best Buy, World Market, Backcountry, Petco, and Mountain America Credit Union	Panda Express, Five Guys, and Starbucks

[a] This area is not in the economic conditions evaluation area, but the area is directly adjacent to it.

3.3.3.3 Additional Economic Development Considerations

Historically, economic development in the economic conditions evaluation area has centered around the leisure and hospitality industry, including the resorts, hotels, and restaurants needed to support tourism. The Park City Visitors Center opened in the evaluation area in 2012. Then, Skullcandy opened its headquarters in the area in 2017 to help diversify the local economy. Summit County adopted its *Kimball Junction Neighborhood Master Plan* in 2019 to guide development in the area, and the plan proposes a vision for how

to manage growth and development throughout the Snyderville Basin. The plan integrates mixed-use neighborhoods with increased residential density that also supports commercial uses in the area.

Although most of the economic conditions evaluation area is built out or preserved as open space, several proposals have been made to develop the northwest quadrant of the Kimball Junction neighborhood, which is currently undeveloped. The proposed Park City Tech Center development would be on a 51-acre parcel west of SR-224 and the Kimball Junction Transit Center and near the Skullcandy building. This area is identified as mixed-use on the future land use map for the Kimball Junction neighborhood.

The initial development agreement for this parcel was approved for research, development, and technology uses and had an approved amendment that also included uses for outdoor industries and support businesses. In 2019, the current parcel owner, Dakota Pacific Real Estate, applied to Summit County to amend the initial development agreement to allow a mix of residential units as well as retail, office, and commercial space. Since 2019, several plans with varying zoning designations and proposed densities have been submitted by Dakota Pacific to Summit County for its review and approval.

On December 18, 2024, the Summit County Council approved the current development concept, which would create a mixed-use town center near the existing Richins Building and allow the construction of between 865 and 915 housing units (a portion of which would be deed-restricted affordable units) a new civic plaza, and an expanded transit center (Malatesta 2024).

The traffic analysis process used for this EIS considered the future land uses adopted in the *Summit County Long-range Transportation Plan 2022–2050* (Summit County 2022), including local and regional growth assumptions for multiple areas in and around the needs assessment evaluation area. These growth assumptions include the planned Park City Tech Center and adequately capture the density included in the approved development plans (Parametrix 2022a).

3.3.3.4 Government Revenues and Tax Rates

3.3.3.4.1 Government Revenues

Revenues for all local governments in Utah are a combination of tax revenues, intergovernmental transfers, and fees. The tax revenue for Summit County in fiscal year 2022 was about $35.1 million in property tax (23% of total revenue) and $70.9 million in sales tax (46% of total revenue) (Summit County 2022c).

3.3.3.4.2 Tax Rates

The combined sales tax rate can include state, county, city, and district tax rates. The Utah state sales tax rate is currently 4.85% in 2023, and the minimum combined 2023 sales and use tax rate is 7.15% for Summit County and 7.45% for the Snyderville Basin Trail District (State of Utah 2023). The effective property tax rate for Summit County is 0.60% (Utah State Tax Commission 2022).

3.3.4 Environmental Consequences and Mitigation Measures

This section describes the effects of the project alternatives on the economic conditions in the economic conditions evaluation area. The action alternatives were evaluated equally in this section. However, to reduce repetitive discussions, if impacts from one alternative would be the same as impacts from a previously discussed alternative, the text is not repeated but instead references the previous analysis.

3.3.4.1 Methodology

For the economic evaluation of each action alternative, UDOT considered how the alternative's operation and construction would change both local and regional economic activity. The economic indicators that were evaluated were direct property impacts to businesses and potential indirect economic impacts because of changes in traffic patterns from each alternative. Potential indirect economic impacts from construction-related congestion and delay are evaluated in Section 3.15, *Construction Impacts*.

3.3.4.2 No-Action Alternative

With the No-Action Alternative, the improvements associated with the Kimball Junction Project would not be implemented, and congestion and delays in the economic conditions evaluation area would worsen with the forecasted regional growth. Travel demand modeling indicates that, in 2050 with the No-Action Alternative, several intersections in the evaluation area will operate at LOS E or F. These delays would impact residents commuting to work (across all modes), tourists, consumers shopping in the area, and the movement of goods and freight.

In particular, the worsened congestion would likely impact convenience businesses, such as gas stations, fast food restaurants, and convenience stores, in the evaluation area because long vehicle queues that exceed turn lane capacity could dissuade people from turning into or out of businesses on both sides of SR-224. The increased congestion could also deter future businesses from locating in Kimball Junction because higher congestion levels and increased travel time result in increased costs to businesses. Conversely, the congestion would also result in more travelers going past these businesses, which could result in more customers.

Overall, at a regional scale, economic growth in Summit County, and the Kimball Junction area specifically, would continue and would not substantially change with the No-Action Alternative. Destination businesses—such as grocery stores, sit-down restaurants, and major retailers (such as Walmart or Big 5 Sporting Goods, gyms, and other service or retail businesses)—would not likely be as affected by the increased congestion in the evaluation area because patrons plan to visit these businesses for specific needs and would be less deterred by heavy congestion.

However, increased congestion with the No-Action Alternative could translate into increased labor and fuel costs associated with longer travel times, thereby making these businesses less competitive. Similarly, increased congestion with the No-Action Alternative could make retail businesses and restaurants less attractive destinations for customers.

3.3.4.3 Alternative A

3.3.4.3.1 Regional Economic Impacts

The Kimball Junction interchange is an important transportation link that connects I-80 and SR-224 to Park City's Old Town. The interchange links people to major economic employers and centers in Park City and points in between on SR-224. The connection to I-80 at the Kimball Junction interchange also links Summit County with Salt Lake County.

With Alternative A, the less-congested conditions through the Kimball Junction interchange area (compared to the conditions with the No-Action Alternative) could translate into reduced labor and fuel costs associated

with shorter travel times, thereby making businesses more competitive with companies outside the area. In general, the improved mobility and access that would result from either of the action alternatives' capacity and safety improvements would benefit the regional economy, although the benefits would be minor. The improved mobility would benefit local and regional freight trips and businesses.

Improved mobility throughout the economic conditions evaluation area would also benefit commuters. As discussed previously, a significant proportion of Park City's workforce commutes into the area daily because of a lack of affordable housing in the area. Better travel times—including reduced travel time of the future SR-224 BRT—and easier commutes could help businesses retain employees and make the area attractive for new employees because of the easier commute. With Alternative A, local and regional freight traffic would also benefit from reduced travel time during the morning and evening commutes. Reduced travel time during peak travel periods would provide more flexibility with regard to scheduling deliveries and would decrease travel times if freight traffic passes through or accesses businesses in the Kimball Junction area during these periods.

In general, the improved mobility resulting from Alternative A would benefit the regional economy.

3.3.4.3.2 Local Economic Impacts

With Alternative A, overall congestion levels at the Kimball Junction interchange and on I-80 would decrease compared to the No-Action Alternative. With a new split diamond interchange, Alternative A would bring more traffic to the west side of Kimball Junction and provide more direct access to Junction Commons (formerly Park City Outlets), existing nearby businesses, the Kimball Junction Transit Center, and future land uses and development that Summit County is contemplating. Summit County's neighborhood and land use planning for the west side of Kimball Junction is currently being updated to reflect new development plans for the area, and increased accessibility to this area could support the long-term vision for the businesses and mixed-use development that comes from the current visioning and planning processes.

More direct access would benefit both convenience and destination businesses on the west side of Kimball Junction, such as Whole Foods Market, Walmart, and Great Harvest Bread Company, and this new travel pattern might make it more efficient and convenient for those travelers to patronize businesses on the west side of Kimball Junction or in the Pinebrook or Jeremy Ranch areas (or farther south on SR-224 in Park City) instead of the east side of Kimball Junction. Constructing a new freeway interchange at Landmark Drive could also encourage development of new convenience businesses near the interchange, potentially in the Canyon Corners mixed-use development.

Decreasing congestion levels at the Kimball Junction interchange and providing more direct access to businesses on the west side of Kimball Junction could affect businesses, particularly convenience businesses, on the east side of the interchange because they would have less drive-by traffic, which could result in fewer people patronizing the businesses. However, reduced congestion would improve access to convenience businesses, which could offset some of the impacts from reduced traffic volumes.

As discussed in Section 3.2, *Community and Property Impacts,* Alternative A would impact property and right-of-way. Impacts to businesses would primarily be limited to the partial acquisition of landscaped areas, although some businesses could lose some parking spaces. Two or three parking spaces could be acquired directly west and behind Taco Bell, where Alternative A would tie into Summit County's planned widening of Landmark Drive. Based on existing topography, it is reasonable to assume that design modifications during final design could reduce the needed right-of-way in this location and mitigate any parking impacts. There is

also potential for more business parking impacts along Landmark Drive when Summit County widens Landmark Drive; the nature and extent of those impacts are not known at this time.

In addition, with Alternative A, two parking spaces at the northeast end of the Home Goods parking lot could be acquired when a second eastbound lane is constructed on Newpark Boulevard. Reconfiguring curbs, gutters, and sidewalks could also result in shifting the locations of roadway entrances to businesses throughout the economic conditions evaluation area. UDOT does not anticipate that these potential parking impacts, entrance reconstructions, or property impacts would affect the viability of or access to any of the businesses in the evaluation area; therefore, the impacts would not reduce local government property tax or sales tax revenue.

Overall, Alternative A would likely provide economic benefits to businesses in the Kimball Junction area because of reduced congestion and improved access.

3.3.4.3.3 Impacts to Government Revenues and Tax Rates

Overall, local government revenues would not be substantially affected by Alternative A. With Alternative A, the area would be more accessible to business patrons because congestion would be reduced, particularly during the morning (AM) and afternoon (PM) peak hours; however, the increase in revenues would be small compared to the total government revenues in Summit County. Overall, local government revenues would continue to increase at a pace about equal to the community's population and job growth. Property tax and sales tax revenues would continue to be an important source of funds for the community.

3.3.4.4 Alternative C

3.3.4.4.1 Regional Economic Impacts

Impacts to the regional economy would be the same with Alternative C as with Alternative A. Alternative C would not provide a new access route into the west side of Kimball Junction and would maintain the existing I-80 interchange and SR-224 as the primary access point into Kimball Junction. Maintaining this access point would provide the businesses on both sides of Kimball Junction with similar exposure to travelers throughout the area. Reduced congestion and improved traffic flow through the economic conditions evaluation area would improve access to businesses on both sides of Kimball Junction.

3.3.4.4.2 Local Economic Impacts

Impacts to the local economy would be the same with Alternative C as with Alternative A. The convenience businesses on the east side of Kimball Junction that might experience reduced business with Alternative A could experience increased business with Alternative C with improved access and less congestion.

Reduced congestion and improved mobility would improve access to both convenience and destination businesses in the economic conditions evaluation area. Reconfiguring curbs, gutters, and sidewalks could result in shifting the locations of roadway entrances to businesses, as well as parking impacts. Two parking spaces at the northeast end of the Home Goods parking lot could be acquired with Alternative C; these are the same two spaces that could also be acquired with Alternative A.

With Alternative C, the landscaped area between the McDonald's parking lot and SR-224 would be partially impacted because the multi-use trail would be shifted west to accommodate constructing turn and through

lanes on southbound SR-224; however, enough room would remain between the parking lot and the back of the proposed new sidewalk so that no parking spaces would be acquired. None of the minor property or parking effects or reconstructed business accesses would affect the viability of businesses in the evaluation area.

3.3.4.4.3 Impacts to Government Revenues and Tax Rates

Impacts to government revenues and tax rates would be the same with Alternative C as with Alternative A.

3.3.4.5 Mitigation Measures for Economic Impacts

For impacts related to business strip takes, this impacts analysis assumes that any businesses that experience property impacts as a result of the Kimball Junction Project will receive assistance in accordance with UDOT's right-of-way acquisition practices. Property acquisitions will be completed according to the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Utah Relocation Assistance Act, Utah Code, Title 57, Chapter 12.

For mitigation for short-term construction impacts to businesses, see Section 3.15, *Construction Impacts*.

3.4 Traffic and Transportation

3.4.1 Introduction

This section discusses the existing travel patterns on freeways and arterial roads that are adjacent to the Kimball Junction interchange and considers the expected effects of the project alternatives on these travel patterns. The effects would be experienced by both motorists and bus transit users. Local government projects will address congestion that remains on the transportation network independent of the Kimball Junction Project.

Travel patterns were analyzed for vehicles only. Information about bicyclist and pedestrian facilities and accessibility is provided in Section 3.5, *Pedestrian and Bicycle Facilities*.

Traffic and Transportation Evaluation Area. The traffic and transportation evaluation area includes the roads that could be beneficially or adversely affected by the action alternatives. The evaluation area includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. The evaluation area mostly follows the EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area.*

The traffic and transportation evaluation area also includes the roads that connect to SR-224 including the three signalized intersections along SR-224 (I-80 single-point urban interchange [SPUI], Ute Boulevard, and Olympic Parkway), the stop-controlled intersection of SR-224 and Rasmussen Road, and four roundabouts immediately east and west of SR-224 (at Ute Boulevard/Landmark Drive, Olympic Parkway/Landmark Drive, Ute Boulevard/Uinta Way, and Newpark Boulevard/Uinta Way).

3.4.2 Regulatory Setting

As part of the social impacts assessment, FHWA's Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987), recommends analyzing impacts to travel patterns and accessibility resulting from each of the alternatives identified in an EIS.

3.4.3 Affected Environment

3.4.3.1 Roadway System

The interchange at Kimball Junction is an important transportation link that connects I-80 and SR-224 in Summit County.

- **I-80.** I-80 is the major east-west interstate highway that goes through Utah, and it is a locally, regionally, and nationally important component of the primary freight network. According to the 2017 *Utah Freight Plan*, truck traffic is 23% of the total traffic on Utah's roads, which is the highest percentage in the nation (UDOT 2023c). The segment of I-80 in the traffic and transportation evaluation area is even higher; about 36% of the daily traffic on this segment consists of single- and combination-unit trucks (UDOT 2021b).
- **SR-224.** SR-224 is a major north-south state highway. This four-lane arterial road connects I-80 and Kimball Junction in the north to Park City in the south. Local truck traffic through the evaluation area is primarily for freight deliveries to supermarkets, businesses, and restaurants in both Kimball Junction and Park City. According to the 2021 average annual daily traffic data from UDOT, 23% of the traffic on SR-224 is single- or combination-unit trucks.

What are peak periods?

Peak periods are the periods of the day with the greatest amounts of traffic. Peak periods are looked at by transportation officials when examining the need for a project. For this project, the AM (morning) peak period is from 7 to 10 AM, and the PM (afternoon) peak period is from 3 to 7 PM.

The link that the Kimball Junction interchange provides between I-80 and SR-224 is important for tourism, recreation, and both local and regional access. The interchange provides access from a major interstate highway to recreation, tourist, employment, and shopping destinations in Snyderville and Park City via SR-224. These destinations include Kimball Junction, Canyons Village at Park City, Park City's Main Street, Deer Valley Resort, and Park City Mountain Resort. Additionally, SR-224 is one of only three routes into or out of Park City (one of which is closed during the winter), and the Kimball Junction interchange provides the most direct route to or from Salt Lake City and other locations along the Wasatch Front.

Key surface streets in the evaluation area include Ute Boulevard, Olympic Parkway, Landmark Drive, Rasmussen Road, Uinta Way, and Newpark Boulevard. These roads connect SR-224 both north and south of the I-80 interchange to the commercial, residential, and recreation areas in the Kimball Junction area. Additionally, multiple transit services operate on the roads in the evaluation area.

To analyze how well each action alternative would meet the project purpose, UDOT used Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14. This travel demand model accounts for the growth in traffic that is attributed to changes in both regional land uses as well as local land uses. Approved development in Summit County includes the Slopeside Village employee housing complex at Canyons Village, which will support more than 1,000 employees and will be about 2 miles south of the evaluation area.

In addition, the Park City Tech Center is proposed for a 51-acre parcel west of SR-224 and the Kimball Junction Transit Center near the Skullcandy building. On December 18, 2024, the Summit County Council approved the current development concept, which would create a mixed-use town center near the existing Richins Building and allow the construction of between 865 and 915 housing units (a portion of which would be deed-restricted affordable units), a new civic plaza, and an expanded transit center (Malatesta 2024).

The traffic analysis process used for this EIS considered the future land uses adopted in the *Summit County Long-range Transportation Plan 2022–2050* (Summit County 2022a), including local and regional growth assumptions for multiple areas in and around the needs assessment evaluation area. These growth assumptions include the planned Park City Tech Center and adequately capture the density included in the approved development plans (Parametrix 2022a). Growth assumptions in the County's long-range plan include both the Canyons Village and Park City Tech Center developments (Parametrix 2022a).

3.4.3.2 Congestion Levels

Outputs from Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14 were used as an input in the VISSIM micro-simulation traffic model, which analyzed traffic conditions for peak hours.

What are peak hours?

Peak hours are the hours of the day with the greatest amounts of traffic. For this project, the AM peak hour is 8 to 9 AM, and the PM peak hour is 4 to 5 PM.

Existing Congestion Levels. Table 3.4-1 shows the current traffic congestion at intersections in the traffic and transportation evaluation area. This analysis is presented in terms of delay, which is the amount of time spent waiting at an intersection measured in seconds per vehicle, and the associated level of service to quantify how the intersections are functioning. An intersection's level of service is the measure of the overall operating conditions of an intersection. As defined by the *Highway Capacity Manual* (HCM; TRB 2022), level of service is described on an A-through-F scale; LOS A indicates conditions with minimal delay, and LOS F indicates intersection failure. UDOT seeks to achieve LOS D or better in most settings.

Using the average vehicle delay, the level of service was determined from the HCM thresholds for unsignalized and signal-controlled intersections. As shown in Table 3.4-1, during the AM peak hour, the SR-224/I-80 interchange currently operates at LOS F. During the PM peak hour, the SR-224/Olympic Parkway signal and the Ute Boulevard/Landmark Drive roundabout operate at LOS F. Other intersections range from little delay (<5 seconds) and LOS A to moderate delay (53 seconds) and LOS D.

In addition, Table 1.4-2, *Level of Service at Key SR-224 Intersections during the Weekday AM and PM Peak Hours (Existing [2022] and No-action [2050] Conditions)*, in Chapter 1, *Purpose and Need*, shows that three intersections in the evaluation area currently have poor operating conditions (LOS F) during either the AM or PM peak hour.

Table 3.4-1. Existing AM and PM Peak-hour Delay and Level of Service at Key Intersections in the Traffic and Transportation Evaluation Area

Peak Hour	Intersection Location	Control Type	Vehicle Delay (seconds/vehicle)	LOS (worst approach)[a]
AM peak hour	SR-224/Rasmussen Road	Stop-controlled	11	B (WB)
	SR-224/I-80 interchange	Traffic signal	>100	F
	SR-224/Ute Boulevard	Traffic signal	29	C
	SR-224/Olympic Parkway	Traffic signal	30	C
	Ute Boulevard/Landmark Drive	Roundabout	3	A (NB)
	Olympic Parkway/Landmark Drive	Roundabout	2	A (SB)
	Ute Boulevard/Uinta Way	Roundabout	3	A (EB)
	Newpark Boulevard/Uinta Way	Roundabout	4	A (EB)
PM peak hour	SR-224/Rasmussen Road	Stop-controlled	12	B (WB)
	SR-224/I-80 interchange	Traffic signal	25	C
	SR-224/Ute Boulevard	Traffic signal	53	D
	SR-224/Olympic Parkway	Traffic signal	>100	F
	Ute Boulevard/Landmark Drive	Roundabout	56	F (NB)
	Olympic Parkway/Landmark Drive	Roundabout	2	A (WB)
	Ute Boulevard/Uinta Way	Roundabout	5	A (EB)
	Newpark Boulevard/Uinta Way	Roundabout	19	C (SB)

Source: VISSIM microsimulations

[a] Definitions: EB = eastbound; LOS = level of service; NB = northbound; SB = southbound; WB = westbound

Future Congestion Levels. Table 1.4-2, *Level of Service at Key SR-224 Intersections during the Weekday AM and PM Peak Hours (Existing [2022] and No-action [2050] Conditions)*, in Chapter 1, *Purpose and Need*, shows that, by 2050, three intersections are expected to have poor operating conditions (LOS F) with the No-Action Alternative, which will result in greater congestion levels in the traffic and transportation evaluation area in 2050.

Travel Times. Table 3.4-2 lists the vehicle travel times for the two routes in the evaluation area, one northbound and one southbound, that have congestion during the AM or PM peak hours. The southbound route measures travel time from the eastbound I-80 off-ramp gore (the space between a through road and an on- or off-ramp) to southbound SR-224, about 4,500 feet south of Olympic Parkway. Data gathered along this route capture the congestion experienced during the AM peak hour. The northbound route begins on northbound SR-224, about 4,500 feet south of Olympic Parkway, and continues north to the westbound I-80 on-ramp. Data gathered along this route capture the congestion experienced during the PM peak hour. The analysis shows that the vehicle travel time for the southbound route during the AM peak hour is more than 6 minutes, and the travel time for the northbound route during the PM peak hour is just under 8 minutes. These travel times are both more than double the respective travel time for the same route during the opposite peak hour.

Table 3.4-2. Existing AM and PM Peak-hour Vehicle Travel Time

In minutes:seconds

Travel Time Segment	AM Peak-hour Travel Time	PM Peak-hour Travel Time
Travel time southbound	6:15	3:00
Travel time northbound	2:30	7:45

Source: VISSIM microsimulations

Vehicle-queue Length. Table 3.4-3 lists the vehicle-queue lengths at the eastbound I-80 off-ramp and westbound I-80 off-ramp during the AM and PM peak hours because these vehicle queues can result in traffic backing onto the I-80 mainline. The vehicle-queue length data for the AM and PM peak hours were calculated for the 95th-percentile vehicle queue lengths. The 95th-percentile vehicle-queue length represents the vehicle-queue length with a 5% probability of being exceeded during the peak hour.

What is the 95th percentile?

The 95th percentile is a value at which 95% of the numbers in a data set are less than the reported value.

During the AM peak hour, the 95th-percentile vehicle-queue length at the eastbound I-80 off-ramp is 2,600 feet (0.5 mile). This length approaches the end of the off-ramp and results in slow speeds and some vehicles backing up onto the I-80 mainline.

Table 3.4-3. 95th-Percentile Vehicle-queue Lengths during the AM and PM Peak Hours

In feet

Condition or Alternative	AM		PM		Worst EB	Worst WB
	EB 95th	WB 95th	EB 95th	WB 95th		
Existing	2,600	800	200	300	2,600	800

Definitions: EB = eastbound; WB = westbound

3.4.3.3 Transit System

As shown in Table 3.4-4 and Figure 3.4-1, transit service in the traffic and transportation evaluation area is provided by both High Valley Transit and Park City Transit.

Table 3.4-4. Fixed Bus Routes and Frequencies in the Traffic and Transportation Evaluation Area

Transit Agency	Route	Frequency
High Valley Transit	101 Spiro/224 Local	15 minutes
	103 Kimball Junction Shuttle	15 to 25 minutes
	104 Bitner Shuttle	15 minutes
	107 Park City–Salt Lake City Connect	Two AM trips, one midday trip, and two PM trips
Park City Transit	10 White Express (Electric Express)	15 to 30 minutes

Sources: High Valley Transit 2024; Park City Transit 2024

High Valley Transit operates four fixed bus routes. Two routes (103 Kimball Junction Shuttle and 104 Bitner Shuttle) provide service to destinations in and near Kimball Junction. The 101 Spiro/224 Local route provides service to areas in and near Kimball Junction but also links to the Park City area. High Valley Transit's route 107, Park City–Salt Lake City Connect, is a regional route that links Salt Lake City and the Kimball Junction area. All four of the fixed bus routes stop at the Kimball Junction Transit Center.

The local routes operate every 15 to 25 minutes. Route 107, Park City–Salt Lake City Connect, provides two AM buses, one midday bus, and two PM buses. Bus schedules are subject to change from season to season due to fluctuations in demand associated with summer and winter recreation.

High Valley Transit also provides an on-demand microtransit service. The service area covers an approximate 2-mile radius around Kimball Junction. Riders can request pick-up and drop-off at custom locations in the service coverage area daily between 5 AM and 1 AM.

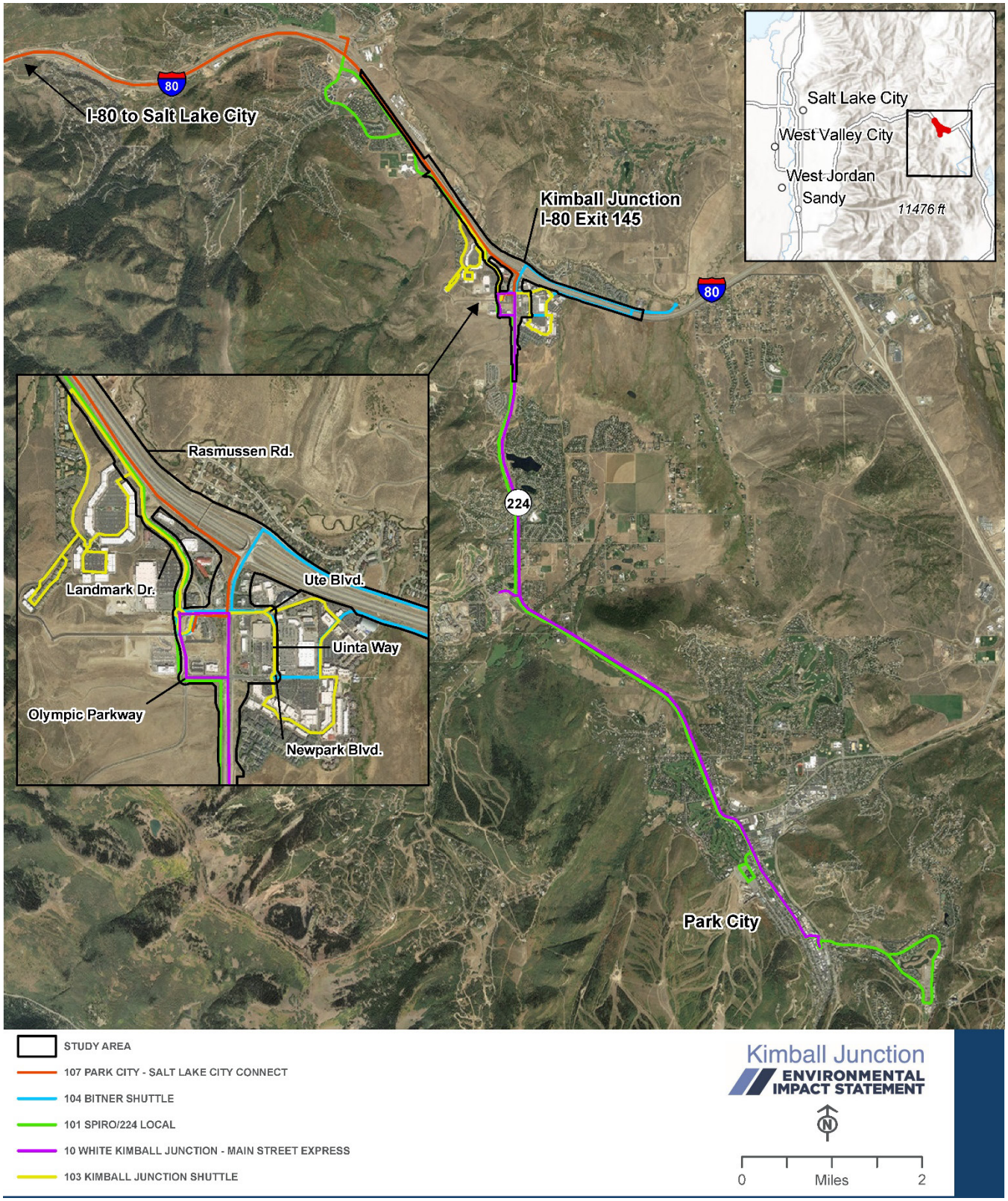
Although Park City Transit operates primarily within Park City boundaries, it also operates one of its busiest routes, the 10 White Express (also known as the Electric Xpress), in partnership with High Valley Transit. The 10 White Express is an express route that operates every 15 to 30 minutes. This route connects the Kimball Junction Transit Center (which is within the evaluation area) and the Old Town Transit Center in Park City's Old Town.

A future BRT project will enable the existing 10 White Express route to operate as a true BRT system by providing frequent, fast, and reliable transit service along SR-224. The future BRT project is included in the traffic analysis conducted for this project. The future dedicated transit lanes along both sides of SR-224 would start south of Olympic Parkway and would also be used by the 101 Spiro/224 Local route. In addition, about 25 school buses would use the dedicated transit lanes during both the AM and PM hours. The BRT service is preliminarily designed to access the existing Kimball Junction Transit Center from SR-224 via Olympic Parkway and Landmark Drive. The BRT service is not currently expected to operate on SR-224 between Olympic Parkway and Ute Boulevard. A key element of the Kimball Junction Project's purpose is to maintain or improve transit travel times, specifically for the future BRT, in the evaluation area. The future BRT project is assumed in the traffic analysis and potential impacts to BRT operating times are evaluated in Section 3.4.4 below.

3.4.4 Environmental Consequences and Mitigation Measures

With the action alternatives, improvements would be made at the Kimball Junction interchange, on the mainlines of I-80 and SR-224, and at the intersections and cross streets in the traffic and transportation evaluation area. For a full description of the action alternatives, see Section 2.5, *Alternatives Considered for Detailed Study*, in Chapter 2, *Alternatives*. The action alternatives are projected to improve delay, vehicle and BRT travel times, pedestrian and bicyclist comfort and travel times, and traffic operation characteristics, such as vehicle queuing, on the I-80 off-ramps. Construction-related transportation impacts are addressed in Section 3.15, *Construction Impacts*.

Figure 3.4-1. Transit Service in the Traffic and Transportation Evaluation Area



3.4.4.1 Methodology

Traffic operations in the traffic and transportation evaluation area (that is, SR-224 and adjacent areas) were evaluated for existing no-action conditions in 2050 and compared with the action alternatives in 2050 using Summit County's Summit-Wasatch travel demand model forecasts as an input in the VISSIM microsimulation traffic model.

3.4.4.2 No-Action Alternative

With the No-Action Alternative, the changes associated with the Kimball Junction Project would not be made. Congestion levels at the interchange and the rest of the traffic and transportation evaluation area will continue to increase from the existing conditions in 2022 and will reach severe congestion by 2050. In addition, the operational deficiencies described in Chapter 1, *Purpose and Need*, would not be corrected.

Table 3.4-5 shows the delay and level of service at key intersections in the evaluation area for the existing conditions and the No-Action Alternative. Three intersections are expected to operate at failing conditions (LOS F), and two intersections are expected to operate at LOS E in 2050 during the PM peak hour. The Kimball Junction interchange is projected to operate at a failing level of service (LOS F) in 2050 during the AM and PM peak hours.

Table 3.4-5. Level of Service and Delay for Intersections in the Traffic and Transportation Evaluation Area

Intersection	Level of Service / Average Delay (seconds/vehicle)			
	Existing		2050 No-Action	
	AM	PM	AM	PM
SR-224 / Rasmussen[b]	B / 11	B / 12	B / 13	B / 12
SR-224 / I-80	F / > 100	C / 25	F / >100	F / >100
SR-224 / Ute	C / 29	D / 54	D / 37	E / 63
SR-224 / Olympic	C / 31	F / >100	D / 36	F / >100
Ute / Landmark[a]	A / 3	F / 56	A / 5	F / >100
Ute / Uinta[a]	A / 3	A / 5	A / 5	C / 16
Olympic / Landmark[a]	A / 2	A / 2	A / 6	A / 8
Newpark / Uinta[a]	A / 4	C / 19	A / 3	E / 38

[a] Level of service and delay for unsignalized intersections (including roundabouts) are reported for the worst approach.

Table 3.4-6 shows vehicle travel times on SR-224 for existing and no-action conditions. As shown in Table 3.4-6, travel times would increase with the No-Action Alternative in 2050 compared to the existing conditions in 2022 as a result of the growth of traffic in the traffic and transportation evaluation area by 2050.

Table 3.4-6. Existing and No-Action Vehicle Travel Times on SR-224 during the AM and PM Peak Hours

In minutes:seconds

Direction	Existing		2050 No-Action	
	AM	PM	AM	PM
Travel time southbound[a]	6:15	3:00	11:30	7:30
Travel time northbound[b]	2:30	7:45	2:30	9:30

[a] Southbound travel time is between the eastbound I-80 off-ramp connection with southbound SR-224 and 4,500 feet south of Olympic Parkway on SR-224.

[b] Northbound travel time is between northbound SR-224 about 4,500 feet south of Olympic Parkway and the westbound I-80 on-ramp connection with SR-224.

Table 3.4-7 summarizes the 95th-percentile vehicle-queue lengths at the eastbound I-80 off-ramp and westbound I-80 off-ramp during the AM and PM peak hours for the existing conditions and no-action conditions in 2050. The vehicle-queue length results show that the eastbound off-ramp currently experiences a long queue of vehicles (about 2,600 feet long) that approaches the eastbound I-80 mainline during the AM peak hour. This vehicle-queue length worsens with the no-action conditions in 2050 (to more than 5,000 feet). Furthermore, vehicle-queue lengths on the I-80 westbound off-ramp would also increase with the no-action conditions in 2050 and extend onto mainline I-80 during the AM peak hour.

Table 3.4-7. 95th-Percentile Vehicle-queue Lengths during the AM and PM Peak Hours

In feet

Condition or Alternative	AM		PM		Worst EB	Worst WB
	EB 95th	WB 95th	EB 95th	WB 95th		
Existing	2,600	800	200	300	2,600	800
2050 No-Action	>5,000	>5,000	2,200	1,400	>5,000	>5,000

Definitions: EB = eastbound; WB = westbound

As shown above in Table 3.4-5, Table 3.4-6, and Table 3.4-7, severe congestion is anticipated with the no-action conditions in 2050. In particular, severe congestion is anticipated on the I-80 eastbound off-ramp during the AM peak hour and the northbound direction of SR-224 during the weekday PM peak hour. Average vehicle delay, vehicle travel times, and vehicle-queue lengths are all anticipated to increase from the existing conditions in 2022 to the no-action conditions in 2050. Travel times during peak hours for key movements are anticipated to nearly double from existing conditions for vehicles traveling southbound on I-80 to SR-224.

Transit service in the evaluation area is not expected to change with the no-action conditions in 2050, except for the future BRT project. The new BRT project is expected to be implemented within the next 5 years. The new BRT project will enable the existing 10 White Express route to operate as a true BRT system.
Table 3.4-8 shows the expected BRT travel times in the evaluation area as measured in the VISSIM traffic model.

Table 3.4-8. No Action BRT Travel Times in the Traffic and Transportation Evaluation Area

Condition or Alternative	AM Travel Time (m:ss)	PM Travel Time (m:ss)
2050 No-Action	7:30	9:00

Definitions: m:ss = minutes:seconds

3.4.4.3 Action Alternatives

Alternative A consists of a split-diamond interchange configuration on I-80 with intersection improvements on SR-224. The existing SPUI at Kimball Junction would be converted into a tight-diamond configuration (traffic signals at each off-ramp), and the interchange traffic would be split between the existing location at SR-224 and a new intersection with a bridge crossing I-80 to the west of SR-224.

The split-diamond interchange would disperse traffic between the new access and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area. One-way frontage roads for both eastbound and westbound directions would connect the two intersections and tie into the on- and off-ramps for I-80.

The number of vehicles that would use the new interchange connection at Landmark Drive (west of Kimball Junction) would shift. For this reason, Alternative A would convert the Ute Boulevard/Landmark Drive intersection to a signalized intersection. Additionally, with Alternative A, UDOT assumes that Summit County would widen Landmark Drive to four lanes from north of Ute Boulevard to the roundabout at Junction Commons (formerly Outlets Park City), which is consistent with Summit County's long-range transportation plan (Summit County 2022a). This anticipated widening is also taken into account with the No-Action Alternative.

Table 3.4-9 summarizes the intersection level of service results. With interchange volume distributed between the split diamond interchange connections, Alternative A would allow most intersections within the Kimball Junction area to operate at LOS D or better, which would meet UDOT's current design and safety standards and address the operational deficiencies described in Chapter 1, *Purpose and Need*.

Only the SR-224/Rasmussen Road intersection would operate at LOS E during the AM peak hour. Some intersections show an increase in delay compared to the no-action conditions. This increase in delay is primarily because the congestion in the VISSIM traffic model for the no-action conditions prevent the model from fully measuring all travel delay in the road network. UDOT expects that many of these intersections would show more delay if the traffic model could fully represent the entire input volume.

Table 3.4-9 also shows the delay and level of service at key intersections for Alternative C. With Alternative C, all intersections would operate at an acceptable LOS D or better during all peak hours. The interchange at Kimball Junction shows a reduction in delay and improved level of service compared to the no-action conditions in 2050 and conditions with Alternative A during both peak hours.

Table 3.4-9. Future (2050) Delay and Level of Service at Key Intersections with the Action Alternatives

Intersection	Level of Service / Average Delay (seconds per vehicle)					
	2050 No-Action		Alternative A		Alternative C	
	AM	PM	AM	PM	AM	PM
SR-224 / Rasmussen[a]	B / 13	B / 12	E / 38	D / 31	C / 15	B / 12
SR-224 / I-80	F / >100	F / >100	D / 52	C / 34	B / 29	C / 24
SR-224 / Ute	D / 37	E / 63	D / 47	D / 46	D / 36	D / 46
SR-224 / Olympic	D / 36	F / >100	D / 42	D / 46	C / 30	D / 49
Ute / Landmark[a/b]	A / 5	F / >100	C / 26[c]	D / 42[c]	A / 4[b]	B / 14[b]
Ute / Uinta[a]	A / 5	C / 16	A / 4	A / 9	A / 3	A / 9
Olympic / Landmark[a]	A / 6	A / 8	C / 16	D / 26	A / 7	A / 9
Newpark / Uinta[a]	A / 3	E / 38	A / 3	B / 12	A / 5	C / 20
I-80 WB frontage	NA	NA	A / 5	B / 13	NA	NA
I-80 EB frontage	NA	NA	C / 24	D / 35	NA	NA

Definitions: EB = eastbound; NA = not applicable; WB = westbound

[a] LOS and delay for unsignalized intersections (including roundabouts) are reported for the worst approach.

[b] Ute Boulevard/Landmark Drive intersection is signalized with Alternative A.

Table 3.4-10 summarizes travel times on SR-224 in the traffic and transportation evaluation area during the AM and PM peak hours from the VISSIM simulation model. With Alternative A, travel times would generally decrease compared to the no-action conditions. Southbound traffic on SR-224 in the evaluation area would save 7 minutes of travel time during the AM peak hour and 4 minutes of travel time during the PM peak hour compared to the no-action conditions in 2050. Northbound traffic on SR-224 in the evaluation area would experience 1.5 minutes more travel time during the AM peak hour, but this is the nondominant direction of travel during the AM peak hour. During the PM peak hour in the northbound direction, traffic on SR-224 in the evaluation area would decrease by over 5 minutes compared to no-action conditions.

Similar to Alternative A, with Alternative C, travel times would generally decrease compared to the no-action conditions. Southbound traffic on SR-224 in the evaluation area would save more than 8 minutes of travel time during the AM peak hour and more than 4 minutes of travel time during the PM peak hour compared to the no-action conditions in 2050.

Table 3.4-10. Future (2050) Travel Times on SR-224 in the Traffic and Transportation Evaluation Area during the AM and PM Peak Hours

In minutes:seconds

Direction	2050					
	No-Action		Alternative A		Alternative C	
	AM	PM	AM	PM	AM	PM
Travel time SB	11:30	7:30	4:30	3:30	3:15	3:15
Travel time NB	2:30	9:30	4:00	4:15	2:30	3:45
SB difference from no-action conditions	NA	NA	–7:00	–4:00	–8:15	–4:15
NB difference from no-action conditions	NA	NA	+1:30	–5:15	0:00	–5:45

Definitions: NA = not applicable; NB = northbound; SB = southbound

With both action alternatives, vehicle-queue lengths would be shorter at both ramps during the AM and PM peak hours (Table 3.4-11). Both action alternatives would eliminate the vehicle queuing onto the I-80 mainline that is projected to occur with the no-action conditions.

Alternative C would have the shortest vehicle queue length at the eastbound I-80 off-ramp during the AM and PM peak hours, and Alternative A would have the shortest vehicle queue length at the westbound I-80 off-ramp during the PM peak hour.

Table 3.4-11. Future (2050) 95th-Percentile Vehicle-queue Lengths during the AM and PM Peak Hours

In feet

Alternative	AM		PM		Worst EB	Worst WB
	EB 95th	WB 95th	EB 95th	WB 95th		
No-Action	> 5,000	> 5,000	2,200	1,400	> 5,000	> 5,000
Alternative A	600	550	300	400	600	550
Alternative C	400	500	300	500	400	500

Definitions: EB = eastbound; WB = westbound

Alternatives A and C show improved vehicle traffic metrics compared to no-action conditions in 2050. Both action alternatives also show better overall traffic operations in terms of intersection level of service, travel times, and vehicle-queue lengths.

Alternatives A and C include dedicated transit lanes that would start south of Olympic Parkway and run along both sides of SR-224. Adding these transit lanes is part of the planned improvements for the BRT project, which is part of the no-action conditions for the Kimball Junction Project and would be incorporated into either action alternative. Overall, either action alternative is expected to improve the BRT system's performance on SR-224 because either action alternative would improve traffic congestion. Table 3.4-12 compares the BRT travel times for the No-Action and action alternatives as measured in the VISSIM traffic model.

Table 3.4-12. Comparison of BRT Travel Times for the No-Action and Action Alternatives

Condition or Alternative	AM		PM		Total Savings (m:ss)
	Travel Time (m:ss)	Savings from No-Action (m:ss)	Travel Time (m:ss)	Savings from No-Action (m:ss)	
2050 No-Action	7:30	NA	9:00	NA	NA
Alternative A	6:45	0:45	7:15	1:45	2:30
Alternative C	6:45	0:45	7:45	1:15	2:00

Definitions: m:ss = minutes:seconds

3.4.4.4 Mitigation Measures for Traffic and Transportation Impacts

Alternatives A and C show overall improved traffic metrics compared to the no-action conditions in 2050. No mitigation for traffic and transportation impacts is proposed.

3.5 Pedestrian and Bicycle Facilities

3.5.1 Introduction

This section describes the existing and planned pedestrian and bicycle facilities in the pedestrian and bicycle facilities evaluation area and the effects of the action alternatives on pedestrian and bicycle facilities and movement in the evaluation area.

The analysis focuses on existing and planned active transportation facilities used primarily for transportation purposes and does not evaluate the vast recreation trail network in and around the Kimball Junction EIS study area. Recreation trails are described in Section 3.2, *Community and Property Impacts*.

Pedestrian and Bicycle Facilities Evaluation Area. The pedestrian and bicycle facilities evaluation area includes the existing and planned pedestrian and bicycle facilities that cross over, cross under, or are parallel to roads in the Kimball Junction study area (see Figure 3.5-1, *Existing On-street Pedestrian and Bicycle Facilities and Trails in the Pedestrian and Bicycle Facilities Evaluation Area*, on page 3-76). The evaluation area includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. The evaluation area mostly follows the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*; however, in the Kimball Junction neighborhood south of I-80, the evaluation area is focused on an area within a 0.5-mile radius of the centerline of SR-224.

3.5.2 Regulatory Setting

When UDOT develops a project, it considers the economic, social, and environmental effects of the project, including disruption or destruction of human-made facilities and services. Under 23 USC Section 109(m), if a proposed project would serve an existing major route for nonmotorized traffic, the project must provide a reasonable alternate route for the nonmotorized traffic, or UDOT must show that a reasonable route exists (FHWA 2015b).

In addition, UDOT encourages people to use bicycles on and connecting with its facilities. Bicycle facilities or improvements for bicycle transportation are included in UDOT's project development and highway programming processes. Although UDOT does not allow bicycle travel on most interstate freeways, bicycle travel is not restricted on I-80 through the pedestrian and bicycle facilities evaluation area.

3.5.3 Affected Environment

This section describes the existing pedestrian and bicycle facilities in the pedestrian and bicycle facilities evaluation area and the future pedestrian and bicycle facilities proposed by Summit County and UDOT.

For this analysis, UDOT used a measurement called *level of traffic stress* (LTS), which quantifies the amount of discomfort that people feel when they walk or cycle near vehicles. This metric identifies pedestrians' and bicyclists' comfort based on street characteristics such as the number of lanes, traffic volume, traffic speed, and ease of crossing an intersection. LTS is a 1-to-4 rating; LTS 1 represents the least stress, and LTS 4 represents the most stress.

UDOT evaluated LTS separately for pedestrians and bicyclists except in two situations described further below. Specifically, UDOT measured LTS as either pedestrian level of traffic stress (PLTS) or bicycle level of traffic stress (BLTS).

- **PLTS** considers sidewalk presence (complete on both sides, complete on one side, or incomplete on both sides), the number of travel lanes, and the posted speed limit.
- **BLTS with mixed traffic** (no bicycle facilities) considers the number of travel lanes, average daily traffic, and the posted speed limit.
- **BLTS with dedicated bicycle facilities** considers the number of travel lanes, bicycle facility reaches (width + buffer), and the posted speed limit (Parametrix 2024).

UDOT measured LTS for two facility types: on road segments and at intersections.

- **Road Segments.** On most segments of roads in the pedestrian and bicycle facilities evaluation area that do not have sidewalks, adjacent trails are available. If trails have enough separation from roads to function as a separate facility, they are categorized in this analysis as LTS 1 for both pedestrians and bicyclists.
- **Intersections.** For intersections, LTS was evaluated as one rating for both pedestrians and bicyclists.

3.5.3.1 Existing Facilities

Park City and Summit County draw visitors year-round for exceptional recreation opportunities. Summit County's network of over 450 miles of mountain biking and hiking trails provides many recreational hiking and mountain biking opportunities. In Utah, bicycles are considered vehicles and are allowed on roads and road shoulders except where prohibited by state or local ordinances, such as on I-80 in urban Salt Lake County outside the pedestrian and bicycle facilities evaluation area.

No ordinances in Summit County restrict bicyclists from riding on existing roads or road shoulders. Cycling is allowed on I-80 east of the Parley's interchange because it is the only route in Parley's Canyon that connects to Park City and locations to the east.

Cycling is also allowed on SR-224; however, it is a high-stress environment because of high vehicle speeds and because there are striped shoulders only and no dedicated bicycle facilities, such as bike lanes.

Except on the east side of SR-224 north of Ute Boulevard, there are no sidewalks on SR-224. However, the Millenium and Basin Express Trails provide low-stress multi-use facilities parallel to other segments of SR-224 on the east and west sides. The sidewalk network is mostly complete for other surface streets in the area, and several parallel trails offer facilities for pedestrians and bicyclists. Still, aside from these trails, there are no on-street bicycle facilities. These existing on-street facilities are listed in Table 3.5-1 and shown in Figure 3.5-1, *Existing On-street Pedestrian and Bicycle Facilities and Trails in the Pedestrian and Bicycle Facilities Evaluation Area*, on page 3-76.

Table 3.5-1. Existing On-street Pedestrian and Bicycle Facilities in the Pedestrian and Bicycle Facilities Evaluation Area

Route	Bicycle		Pedestrian		Description
	Facility	Level of Traffic Stress[a]	Facility	Level of Traffic Stress[a]	
Landmark Drive	None	3	Sidewalks	2	Landmark Drive from Factory Outlet Mall Access to Olympic Parkway. West-side-only sidewalks south of Ute Boulevard.
Ute Boulevard	None	3	Sidewalks	1	Ute Boulevard from Landmark Drive across SR-224 to Uinta Way.
Olympic Parkway	None	3	Sidewalks	1	Olympic Parkway from Landmark Drive across SR-224 to Uinta Way. North-side-only sidewalks west of SR-224.
SR-224	None	4	Partial sidewalks[b]	2	Sidewalk available only on east side of SR-224 from Ute Boulevard to Rasmussen Road.
Sagewood Drive	None	2	None	2	Sagewood Drive from Ute Boulevard to Olympic Parkway.
Uinta Way	None	3	Sidewalks	2	Uinta Way from Ute Boulevard to Olympic Parkway. East-side-only sidewalks.
I-80	None	4	None	NA[c]	Although no accommodations are provided, bicyclists are not restricted from I-80.[d]
I-80 interchange at SR-224	None	4	Sidewalks	4	I-80 interchange at SR-224. East-side-only sidewalks.

Sources: Road centerlines from the Utah Geospatial Resource Center; Parametrix 2024

[a] The LTS for the worst condition on each route is reported.

LTS 1: No traffic stress; acceptable for all users

LTS 2: Low traffic stress

LTS 3: Reduced traffic stress, but unacceptable to most users

LTS 4: Highest traffic stress

[b] On most segments on SR-224 that do not have sidewalks, adjacent trails are available.

[c] Not applicable; pedestrians may not walk along or on a no-access freeway facility, such as I-80, except during an emergency.

[d] Note that bicycles are typically prohibited on interstates except for where there are no alternative roads.

In addition to the on-street facilities, pedestrians and bicyclists can use several paved trails in the pedestrian and bicycle facilities evaluation area. These trails are listed in Table 3.5-2 and shown in Figure 3.5-1.

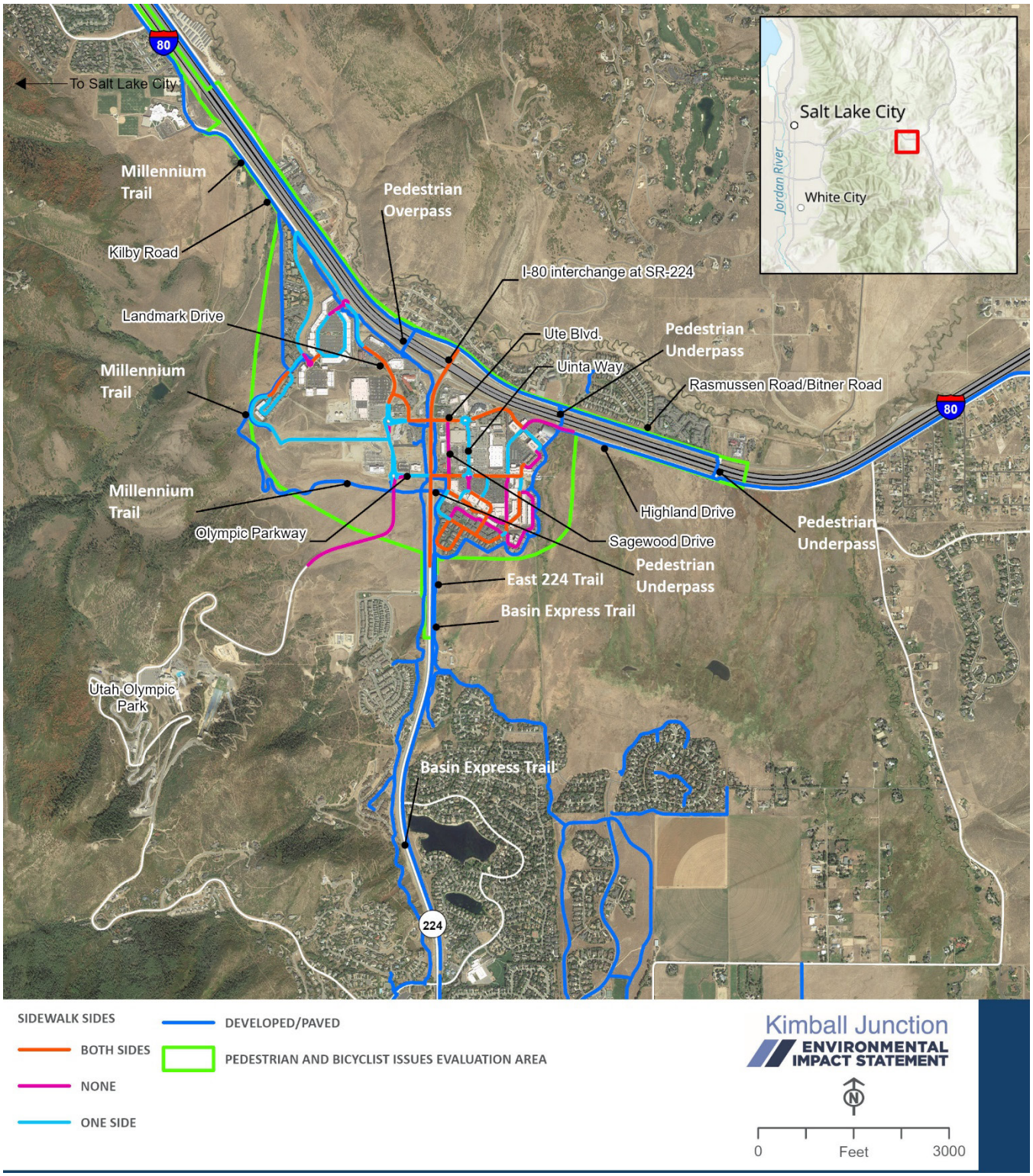
Table 3.5-2. Existing Trail Facilities in the Pedestrian and Bicycle Facilities Evaluation Area

Route	Type of Facility	Level of Traffic Stress[a]	Description
Millennium Trail	Trail	1	The Millennium Trail runs parallel to SR-224 on the west side from the south end of the north to the I-80 interchange. The trail then turns westbound parallel to the south side of I-80, crosses Landmark Drive east of Factory Outlet Mall Access, and then parallels Landmark Drive to Factory Outlet Mall Access. Basin Recreation considers the Millennium Trail an urban path and transportation trail.
Kilby Road	Parallel trail	1	This trail parallels the southwest side of Kilby Road from Factory Outlet Mall Access northwest to the evaluation area boundary.
Basin Express Trail	Trail	1	The Basin Express Trail runs parallel to SR-224 on the east side from the south end of the evaluation area north to Ute Boulevard.
Rasmussen Road/ Bitner Road	Parallel trail	1	This trail parallels the north side of Rasmussen Road/Bitner Road from northwest evaluation area boundary to the eastern evaluation area boundary. Basin Recreation considers both the Rasmussen Trail and the Bitner Road Trail urban paths and transportation trails.
Highland Drive	Parallel trail	1	This trail parallels the south side of Highland Drive from the I-80 trail tunnel east to the I-80 underpass. At that location, the trail crosses Highland Drive, then it continues east out of the evaluation area on the north side of the road.
East 224 Trail	Gravel trail	1	This gravel trail parallels the south end of SR-224 on the east side. It starts at the south end of the evaluation area and terminates near the Redstone Village development, where it joins the Basin Express Trail. Even though this is a gravel trail, Basin Recreation considers this an urban path and transportation trail.
SR-224 tunnel	Tunnel	1	A tunnel under SR-224 connects the Millennium and Basin Express Trails about 200 feet south of Olympic Parkway.
I-80 overpass	Overpass	1	This overpass connects the Millennium Trail on the south side of I-80 to the Rasmussen Road side path to the north about 800 feet west of the SR-224 interchange.
I-80 tunnel	Tunnel	1	A tunnel connects the Swaner Preserve Trail on the south side of I-80 across to the Rasmussen Road side path of the north side of I-80, about 2,200 feet east of the SR-224 interchange.
I-80 underpass	Parallel trail	1	This trail parallels the I-80 underpass on the west side and connects the Bitner Road and Highland Drive parallel trails.

Sources: Road centerlines from the Utah Geospatial Resource Center; Basin Recreation 2024c; Parametrix 2024

[a] **LTS 1**: No traffic stress; acceptable for all users

Figure 3.5-1. Existing On-street Pedestrian and Bicycle Facilities and Trails in the Pedestrian and Bicycle Facilities Evaluation Area



3.5.3.2 SR-224 Pedestrian and Bicyclist Crossing Activity

Traveling between the east and west sides of the pedestrian and bicycle facilities evaluation area using active transportation requires crossing SR-224. As shown in Figure 3.5-2, pedestrian and bicyclist crossings are supported by at-grade crosswalks at the Ute Boulevard and Olympic Parkway traffic signals. Additionally, there is an existing pedestrian and bicyclist tunnel undercrossing of SR-224 just south of Olympic Parkway.

Figure 3.5-2 also shows the estimated number of daily combined pedestrian and bicyclist crossings in the evaluation area. The crossing numbers show typical activity on a summer day. The Olympic Parkway tunnel has just under 600 crossings per day, the Ute Boulevard crosswalk has about 200 crossings per day, and the Olympic Parkway crosswalk has about 15 crossings per day.

As shown on the inset in Figure 3.5-2, the number of crossings at the Olympic Parkway tunnel has more than doubled over the 6-year period between 2016 (245 crossings; Parametrix 2022a) and 2022 (580 crossings; Parametrix 2022b). Because of this growing east-west active transportation demand across SR-224, a key element of the Kimball Junction Project's purpose is to improve pedestrian and bicyclist mobility and accessibility throughout the evaluation area.

Figure 3.5-2. Daily Summer East-west Pedestrian and Bicycle Crossings of SR-224

3.5.3.3 Future Facilities

Currently adopted plans include three pedestrian and bicyclist improvement projects that would improve pedestrian and bicycle facilities and connectivity in the pedestrian and bicycle facilities evaluation area. These proposed improvements are listed in Table 3.5-3.

Table 3.5-3. Proposed Pedestrian and Bicyclist Improvement Projects in the Pedestrian and Bicycle Facilities Evaluation Area

Route	Project	Source	Description
Kimball Junction	Kimball Junction Complete Streets Improvement Zone	*Summit County Active Transportation Plan*	UDOT will coordinate with Summit County to improve active transportation connections through development processes and targeted infrastructure improvements. Per the Plan, the County should consider requiring pedestrian-friendly block lengths, enhanced street design standards, revised parking standards, mobility hubs, and wayfinding.
SR-224 Trail	SR-224 Trail (Eastside) Reconstruction	*Summit County Active Transportation Plan*	Resurface and widen (if possible) the paved trail on the east side of SR-224 between Ute Boulevard and Olympic Parkway.
SR-224 (Ute Boulevard)[a]	Grade-separated Crossing	UDOT Legacy Projects Workshop *Summit County Long Range Transportation Plan*	UDOT plans to construct a grade-separated crossing of SR-224 at approximately Ute Boulevard.

Sources: Summit County 2019b, 2022a; UDOT 2024a

[a] The grade-separated crossing of SR-224 near Ute Boulevard is a separately planned project from the Kimball Junction Project, but an underpass under SR-224 is also included in Alternatives A and C for the Kimball Junction Project.

3.5.4 Environmental Consequences and Mitigation Measures

3.5.4.1 Methodology

The following performance measures were used in the analysis.

Facility Impacts. To assess the expected impacts to pedestrian and bicycle facilities from the action alternatives, the project team used GIS data and the *Summit County Active Transportation Plan* (Summit County 2019b) to identify the pedestrian and bicycle facilities intersected by the action alternatives.

Pedestrian Walk Time. UDOT calculated pedestrian walk times for four origin/destination pairs in the pedestrian and bicycle facilities evaluation area. The origin/destination pairs were selected to test travel times across major roads (SR-224, Ute Boulevard, and Olympic Parkway) and between significant destinations (grocery stores, the Kimball Junction Transit Center, and residential areas). All four origin/destination pairs straddle SR-224. Two pairs are near Ute Boulevard, and the other two pairs are near

Olympic Parkway. Walk times consider distance, grades, and traffic signal delay for pedestrian crossings at signalized intersections. The four origin/destination pairs are as follows:

- Pair 1: Between the Whole Foods Market and the Newpark residential units
- Pair 2: Between the Kimball Junction Transit Center and Smith's grocery store
- Pair 3: Between the Skullcandy offices and Chase Bank
- Pair 4: Between the Skullcandy offices and the Redstone residential units

Level of Traffic Stress. LTS is a system of measurement that quantifies the amount of discomfort that people feel when they cycle or walk near vehicles. This metric identifies pedestrians' and bicyclists' comfort based on street characteristics such as the number of lanes, traffic volume, traffic speed, and ease of crossing an intersection. LTS is a 1-to-4 rating; LTS 1 represents the least stress, and LTS 4 represents the most stress.

3.5.4.2 No-Action Alternative

Aside from the proposed pedestrian and bicyclist improvement projects described above in Table 3.5-3, *Proposed Pedestrian and Bicyclist Improvement Projects in the Pedestrian and Bicycle Facilities Evaluation Area*, with the No-Action Alternative, the SR-224 corridor and interchange would not be reconstructed, and the existing pedestrian and bicycle facilities would continue to operate similar to the existing conditions. With the projected growth in the area and growing east-west active transportation demand across SR-224 described in Chapter 1, *Purpose and Need*, the existing pedestrian and bicyclist levels of traffic stress would likely remain similar to the levels shown above in Table 3.5-1, *Existing On-street Pedestrian and Bicycle Facilities in the Pedestrian and Bicycle Facilities Evaluation Area*.

3.5.4.3 Alternative A

3.5.4.3.1 Facility Impacts and Improvements

With Alternative A, improvements would affect several existing on-street pedestrian and bicycle facilities (Table 3.5-4). Alternative A would replace each affected facility with a similar facility near its current location. Additional sections of existing sidewalk in the pedestrian and bicycle facilities evaluation area would be removed and reconstructed during construction as described in Section 3.15, *Construction Impacts*.

Table 3.5-4. Impacts from Alternative A to Existing On-street Pedestrian and Bicycle Facilities and Proposed Pedestrian and Bicycle Facilities Improvements

Route	Description of Impact	Description of Proposed Improvement
Landmark Drive and Ute Boulevard	• Convert the Ute Boulevard and Landmark Drive roundabout to a signalized intersection.	• Convert the roundabout to a signalized intersection to create protected crossings for pedestrians who currently use uncontrolled crossings on the roundabout legs.
SR-224	• Add lanes on SR-224.	• Widen the shoulder from the Olympic Parkway intersection to Rasmussen Road and add striped buffered bike lanes from the south end of the project area to Rasmussen Road. These improvements would provide more formal separation for bicyclists who use the shoulder from vehicle travel lanes and greater safety on SR-224.

Sources: Road centerlines from the Utah Geospatial Resource Center; Parametrix 2024

Alternative A would affect two existing trail facilities (Table 3.5-5). Alternative A would replace each affected facility with a similar facility near its current location.

Table 3.5-5. Impacts from Alternative A to Existing Trail Facilities and Proposed Trail Improvements

Route	Description of Impact	Description of Proposed Improvement
Millennium Trail	• Extending Landmark Drive to the north to tie into the new northwest interchange would remove connection to the Millennium Trail. • Reconstructing SR-224 would remove connection to the Millennium Trail from I-80 to Olympic Parkway.	• Construct a new trail crossing of the realigned Landmark Drive at the new northeast interchange. • Reconstruct and realign the trail from the southwest corner of I-80 and SR-224 to the northwest corner of the Olympic Parkway intersection.
Basin Express Trail	• Reconstructing SR-224 would remove the connection to the Basin Express Trail from Ute Boulevard to Olympic Parkway.	• Reconstruct and realign the Basin Express Trail between Ute Boulevard and Olympic Parkway. • Reconstruct and realign the Basin Express Trail from the Olympic Parkway intersection's southeast corner.

Alternative A also includes a new proposed pedestrian underpass south of Ute Boulevard, which requires new connections to the Millennium and Basin Express Trails (Table 3.5-6).

Table 3.5-6. Impacts from Alternative A to Proposed Trail Facilities Resulting from New Pedestrian Underpass and Proposed Trail Improvements

Route	Description of Impact	Description of Proposed Improvements
Proposed pedestrian underpass	Alternative A includes introducing a new pedestrian underpass south of the Ute Boulevard intersection and connecting to the Millennium and Basin Express Trails.	Shift the north-south trails between Ute Boulevard and Olympic Parkway away from SR-224 to allow for Americans with ADA-compatible pedestrian ramps.

Definitions: ADA = Americans with Disabilities Act

3.5.4.3.2 Pedestrian Walk Time

Alternative A would improve overall travel time and result in a combined travel-time savings of 1 minute and 30 seconds for the four analyzed origin/destination pairs (Table 3.5-7).

Table 3.5-7. Impacts to Pedestrian Walk Time with Alternative A

Cumulative Walk Time for all Four Origin/Destination Paris		Travel Time Impact (m:ss)	Description of Impact	Proposed Mitigation
No-Action Alternative	Alternative A			
54:00	52:30	–1:30	Cumulative walk time improves	None

Definitions: m:ss = minutes:seconds

3.5.4.3.3 Level of Traffic Stress

Alternative A would not change the intersection, bicycle, or pedestrian LTS of the existing facilities in the pedestrian and bicycle facilities evaluation area. However, Alternative A would introduce a new, low-stress, LTS 1 opportunity to cross SR-224 via the new pedestrian underpass south of Ute Boulevard.

Additionally, with Alternative A, buffered bike lanes would be striped into the shoulders of SR-224 in both the northbound and southbound directions, and the shoulders would be widened from 8 feet to 10 feet to accommodate the bike lanes. The buffered bike lanes would be designed to meet UDOT's design standards and provide a minimum of a 3-foot-wide striped gap area between the bike lanes and the travel lanes outside the intersections to increase the amount of separation between bicyclists and vehicles. The bike lanes would run from the south end of the project area at Olympic Parkway, cross Ute Boulevard and the I-80 SPUI, and end at Rasmussen Road on the north end of the project area.

Although the existing parallel multi-use trail system along SR-224 offers a more comfortable BLTS for cyclists who are uncomfortable riding on the road, adding the buffered bike lanes would offer an increased buffer between vehicles and cyclists riding in the shoulder of the roadway.

3.5.4.4 Alternative C

3.5.4.4.1 Facility Impacts and Improvements

Alternative C would affect several existing on-street pedestrian and bicycle facilities (Table 3.5-8). Alternative C would replace each affected facility with a similar facility near its current location. Additional sections of existing sidewalk in the pedestrian and bicycle facilities evaluation area would be removed and reconstructed during construction as described in Section 3.15, *Construction Impacts*.

Table 3.5-8. Impacts from Alternative C to Existing On-street Pedestrian and Bicycle Facilities and Proposed Pedestrian and Bicycle Facilities Improvements

Route	Description of Impact	Description of Proposed Improvement
Ute Boulevard	• Eliminating the at-grade east-west pedestrian crossing at SR-224 and Ute Boulevard would restrict east-west pedestrian and bicyclist movements across SR-224.	• Construct a new underpass south of the Ute Boulevard intersection to accommodate east-west pedestrian and bicyclist movement.
Olympic Parkway	• Eliminating at-grade east-west pedestrian crossing at SR-224 and Olympic Parkway would restrict east-west pedestrian and bicyclist movements across SR-224.	• The existing pedestrian underpass of SR-224 south of Olympic Parkway allows for east-west movements across SR-224.
SR-224	• Adding lanes on SR-224 would create a wider roadway, which would increase discomfort for bicyclist who use the shoulder.	• Widen the shoulder from the Olympic Parkway intersection to Rasmussen Road and add striped buffered bike lanes from the south end of the project area to Rasmussen Road. These improvements would provide a more formal separation from vehicle travel lanes and greater safety on SR-224.

Alternative C would affect two existing trail facilities (Table 3.5-9). Alternative C would replace each affected facility with a similar facility near its current location.

Table 3.5-9. Impacts from Alternative C to Existing Trail Facilities and Proposed Trail Improvements

Route	Description of Impact	Description of Proposed Improvement
Millennium Trail	• Reconstructing SR-224 would remove the connection to the Millennium Trail from I-80 to Olympic Parkway.	• Reconstruct and realign the trail from the southwest corner of I-80 and SR-224 to the northwest corner of the Olympic Parkway intersection.
Basin Express Trail	• Reconstructing SR-224 would remove the Basin Express Trail from Ute Boulevard to Olympic Parkway.	• Reconstruct and realign the trail from Ute Boulevard to Olympic Parkway. • Reconstruct and realign the trail from the Olympic Parkway intersection's southeast corner.

Alternative C also includes a new proposed pedestrian underpass south of Ute Boulevard, which requires new connections to the Millennium and Basin Express Trails (Table 3.5-10).

Table 3.5-10. Impacts from Alternative C to Proposed Trail Facilities Resulting from New Pedestrian Underpass and Proposed Trail Improvements

Route	Description of Impact	Description of Proposed Improvements
Proposed pedestrian underpass	• Alternative C includes constructing a pedestrian underpass south of the Ute Boulevard intersection to connect to the Millennium and Basin Express Trails.	• Shift north-south trails between Ute Boulevard and Olympic Parkway away from SR-224 to allow for ADA-compatible pedestrian ramps.

Definitions: ADA = Americans with Disabilities Act

3.5.4.4.2 Pedestrian Walk Time

Alternative C would improve overall travel time and result in a combined travel-time savings of 15 seconds for the four analyzed origin/destination pairs (Table 3.5-11).

Table 3.5-11. Impacts to Pedestrian Walk Time with Alternative C

Cumulative Walk Time for all Four Origin/Destination Paris		Travel Time Impact (m:ss)	Description of Impact	Proposed Mitigation
No-Action Alternative	Alternative A			
54:00	53:45	–0:15	Cumulative walk time improves	None

Definitions: m:ss = minutes:seconds

3.5.4.4.3 Level of Traffic Stress

Alternative C would not change the intersection, pedestrian, or bicyclist LTS of the existing facilities in the pedestrian and bicycle facilities evaluation area. However, Alternative C would introduce a new, low-stress LTS 1 opportunity to cross SR-224 via the new pedestrian underpass south of Ute Boulevard.

Additionally, with Alternative C, buffered bike lanes would be striped into the shoulders of SR-224 in both the northbound and southbound directions, and the shoulders would be widened from 8 feet to 10 feet to accommodate the bike lanes. The buffered bike lanes would be designed to meet UDOT's design standards and provide a minimum of a 3-foot-wide striped gap area between the bike lanes and the travel lanes outside the intersections to increase the amount of separation between bicyclists and vehicles. The bike lanes would run from the south end of the project area at Olympic Parkway, cross Ute Boulevard and the I-80 SPUI, and end at Rasmussen Road on the north end of the project area.

Although the existing parallel multi-use trail system along SR-224 offers a more comfortable BLTS for cyclists who are uncomfortable riding on the road, adding the buffered bike lanes would offer an increased buffer between vehicles and cyclists riding in the shoulder of the roadway.

3.5.5 Mitigation Measures for Impacts to Pedestrian and Bicycle Facilities

Alternatives A and C show overall improved travel times and level of traffic stress compared to the no-action conditions. No mitigation for pedestrian and bicyclist impacts is proposed. Construction-related impacts and mitigation to pedestrian and bicycle facilities is described in Section 3.15, *Construction Impacts*.

3.6 Air Quality

3.6.1 Introduction

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

Air Quality Evaluation Area. The air quality evaluation area includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway in Summit County. The evaluation area includes the EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*.

The evaluation area includes Rasmussen Road and Kilby Road (both of which run parallel to I-80 west of Kimball Junction) and Bitner Road and Highland Drive (both of which run parallel to I-80 east of Kimball Junction). The evaluation area also includes Landmark Drive and the area between Landmark Drive to the west, Uinta Way to the east, Ute Boulevard to the north, and Olympic Parkway to the south.

3.6.2 Regulatory Setting

3.6.2.1 National Ambient Air Quality Standards

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

EPA has set NAAQS for six principal pollutants known as *criteria pollutants*. The current NAAQS are listed in Table 3.6-1. According to EPA, transportation sources currently contribute to four of the six criteria pollutants: carbon monoxide (CO), particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), and nitrogen dioxide (NO_2).

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

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

Table 3.6-1. National Ambient Air Quality Standards for Criteria Pollutants and Attainment Status for Summit County

Pollutant	Primary/Secondary Standard	Averaging Time	Level	Form	Attainment Status for Summit County
Carbon monoxide (CO)	Primary	8 hours	9 ppm	Not be exceeded more than once per year	Attainment area
		1 hour	35 ppm	Not be exceeded more than once per year	
Ozone (O_3)	Primary and secondary	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years	Attainment area
Particulate matter ($PM_{2.5}$)	Primary	1 year	9.0 µg/m^3	Annual mean, averaged over 3 years	Attainment area
	Secondary	1 year	15.0 µg/m^3	Annual mean, averaged over 3 years	
	Primary and secondary	24 hours	35 µg/m^3	98th percentile, averaged over 3 years	
Particulate matter (PM_{10})	Primary and secondary	24 hours	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years	Attainment area
Nitrogen dioxide (NO_2)	Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years	Attainment area
	Primary and secondary	1 year	53 ppb	Annual mean	Attainment area
Sulfur dioxide (SO_2)	Primary	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years	Attainment area
	Secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year	Attainment area
Lead (Pb)	Primary and secondary	Rolling 3-month average	0.15 µg/m^3	Not to be exceeded	Attainment area

Sources: 49 CFR Part 50 (NAAQS) and EPA 2024a (attainment status)

Definitions: µg/m^3 = micrograms per cubic meter; CO = carbon monoxide; NO_2 = nitrogen dioxide; O_3 = ozone; Pb = lead; ppm = parts per million; ppb = parts per billion; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less; PM_{10} = particulate matter 10 microns in diameter or less; SO_2 = sulfur dioxide

3.6.2.2 Transportation Conformity Requirements

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

The air quality evaluation area is an attainment area for all criteria pollutants, so transportation conformity requirements do not apply to the Kimball Junction Project.

3.6.2.3 Hazardous Air Pollutants

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

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

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

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

The Kimball Junction Project is a Tier 2 project. The types of projects included in the Tier 2 category are those that improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. Examples of these types of projects include minor widening projects, new interchanges, replacing a signalized intersection on a surface street, and projects for which design-year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

Traffic in the air quality evaluation area during the design year for this project (2050) is expected to be about 68,000 to 86,000 AADT on I-80 and about 40,000 to 43,000 on SR-224 (MAG 2024), which would not exceed the threshold for quantitative analysis in FHWA's guidance (a threshold of 140,000 to 150,000 AADT). All other roads in the evaluation area are projected to have traffic volumes far below these levels.

In addition, both action alternatives would improve operations and travel times on SR-224 from the I-80 interchange through Olympic Parkway, improve safety by reducing vehicle queues on the I-80 off-ramps, improve pedestrian and bicycle mobility and accessibility through the evaluation area, and maintain or improve transit travel times through the evaluation area.

3.6.2.4 Greenhouse Gases

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

CO_2, CH_4, and N_2O concentrations are now more abundant in the earth's atmosphere than during any time in the last 800,000 years (National Academy of Sciences 2020). The average temperature of the Earth's surface between 2011 and 2020 was 2 degrees Fahrenheit warmer than the average temperature during the late 19th century and warmer than at any time during the last 100,000 years (IPCC 2021). Rising GHG levels are causing corresponding increases in average global temperatures and in the frequency and severity of natural disasters including storms, flooding, and wildfires.

The effects of climate change observed to date and projected to occur in the future include more frequent and intense heat waves, longer fire seasons and more severe wildfires, degraded air quality, increased drought, greater sea-level rise, an increase in the intensity and frequency of extreme weather events, harm to water resources, harm to agriculture, ocean acidification, and harm to wildlife and ecosystems. Weather and climate extremes are also causing economic and societal impacts across national boundaries through supply chains, markets, and natural resource flows. Climate change is a particularly complex challenge because of its global nature and the inherent interrelationships among its sources and effects. From a quantitative perspective, GHG emissions can contribute to global climate change through the cumulative result of numerous and varied emissions sources (in terms of both absolute numbers and types), each of which makes a relatively small addition to global atmospheric GHG concentrations.

In contrast to broad-scale actions, such as those involving an entire industry sector or very large geographic areas, it is difficult to isolate and understand the impacts of GHG emissions for a particular transportation project. Furthermore, there is currently no scientific methodology for attributing specific climatological changes to a particular transportation project's emissions.

3.6.2.4.1 State and Local Government Greenhouse Gas Reduction Goals

The State of Utah does not have a formal climate change policy or GHG emission-reduction goals. In 2020, the University of Utah's Kem C. Gardner Policy Institute and associated Technical Advisor Committee prepared a Utah Roadmap that recommended Utah reduce CO_2 emissions statewide by 25% below 2005 levels by 2025, 50% below 2005 levels by 2030, and 80% below 2005 levels by 2050 (Kem C. Gardner Policy Institute 2020b). To date, these recommendations have not been formally adopted by the State of Utah. The Utah Roadmap does not make any specific recommendations or GHG-reduction goals related to the transportation sector or specific projects.

In addition, EPA has selected the Utah Department of Environmental Quality to receive a Climate Pollution Reduction Grant to support the Beehive Emissions Reduction Plan in implementing locally driven solutions that reduce emissions, support communities, and advance clean energy.

3.6.3 Affected Environment

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

As of January 2025, there are no Utah Division of Air Quality air quality monitoring stations in Summit County. The nearest stations are in Salt Lake and Utah Counties, which are nonattainment and/or maintenance areas for several criteria pollutants. Because those stations are in a nonattainment area, the air quality monitoring data from those stations are not applicable to the evaluation area.

3.6.4 Environmental Consequences and Mitigation Measures

This section describes the effects of the project alternatives on MSAT and GHG emissions. The impacts of construction would be temporary and are discussed in Section 3.15.2.3.6, *Impacts to Air Quality from Construction*, in Section 3.15, *Construction Impacts*. The operational MSAT and GHG impacts of the project alternatives would be long term and would be directly due to highway traffic.

3.6.4.1 Methodology

The traffic operations data presented below in Section 3.6.4.2, *No-Action Alternative*; Section 3.6.4.3, *Alternative A*; and Section 3.6.4.4, *Alternative C*, were obtained using the methodology described in Section 3.4.4.1, *Methodology*, of Section 3.4, *Traffic and Transportation*.

UDOT used EPA's MOVES4 model to generate a daily emissions factor for each GHG, which was then multiplied by the average daily vehicle-miles traveled (VMT) and days per year to calculate the tons per year for each GHG (EPA 2016).

3.6.4.2 No-Action Alternative

With the No-Action Alternative, the changes associated with the Kimball Junction Project would not be made. Congestion levels in the air quality evaluation area will continue to increase from the existing conditions and will reach severe congestion by 2050.

Table 3.6-2 shows the delay and level of service at key intersections in the evaluation area for the existing conditions and the No-Action Alternative. Three intersections are expected to operate at failing conditions (LOS F), and two intersections are expected to operate at LOS E in 2050 during the PM peak hour. The Kimball Junction interchange is projected to operate at a failing level of service (LOS F) in 2050 during the AM peak hour.

What is level of service?

Level of service (LOS) is a measure of the operating conditions on a road or at an intersection. Level of service is represented by a letter "grade" ranging from A (free-flowing traffic and little delay) to F (extremely congested, stop-and-go traffic and excessive delay).

Table 3.6-2. Level of Service and Delay for Intersections in the Air Quality Evaluation Area

Intersection	Level of Service / Average Delay (seconds per vehicle)			
	Existing Conditions		No-Action Alternative	
	AM	PM	AM	PM
SR-224 / Rasmussen Road[b]	B / 11	B / 12	B / 13	B / 12
SR-224 / I-80	F / > 100	C / 25	F / >100	F / >100
SR-224 / Ute Boulevard	C / 29	D / 54	D / 37	E / 63
SR-224 / Olympic Parkway	C / 31	F / >100	D / 36	F / >100
Ute Boulevard / Landmark Drive[a]	A / 3	F / 56	A / 5	F / >100
Ute Boulevard / Uinta Way[a]	A / 3	A / 5	A / 5	C / 16
Olympic Parkway / Landmark Drive[a]	A / 2	A / 2	A / 6	A / 8
Newpark Boulevard / Uinta Way[a]	A / 4	C / 19	A / 3	E / 38

[a] LOS and delay for unsignalized intersections (including roundabouts) are reported for the worst approach.

Table 3.6-3 shows vehicle travel times on SR-224 with the existing conditions and the project alternatives. As shown in Table 3.6-3, travel times would increase with the No-Action Alternative compared to the existing conditions as a result of the growth in traffic in the air quality evaluation area by 2050.

Table 3.6-3. Existing and Projected Vehicle Travel Times on SR-224 during the AM and PM Peak Hours

In minutes:seconds

Direction	Existing Conditions		No-Action Alternative		Alternative A		Alternative C	
	AM	PM	AM	PM	AM	PM	AM	PM
Travel time SB	6:15	3:00	11:30	7:30	4:30	3:30	3:15	3:15
Travel time NB	2:30	7:45	2:30	9:30	4:00	4:15	2:30	3:45

Definitions: NB = northbound; SB = southbound

[a] Southbound travel time is between the eastbound I-80 off-ramp connection with southbound SR-224 and 4,500 feet south of Olympic Parkway on SR-224.

[b] Northbound travel time is between northbound SR-224 about 4,500 feet south of Olympic Parkway and the westbound I-80 on-ramp connection with SR-224

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

3.6.4.3 Alternative A

Alternative A consists of a split-diamond interchange configuration on I-80 with intersection improvements on SR-224. The existing SPUI at Kimball Junction would be converted into a tight-diamond configuration (traffic signals at each off-ramp), and the interchange traffic would be split between the existing location at SR-224 and a new intersection with a bridge crossing I-80 to the west of SR-224.

The split-diamond interchange would disperse traffic between the new access and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area. One-way frontage roads for both eastbound and westbound directions would connect the two intersections and tie into the on- and off-ramps for I-80.

The number of vehicles that would use the new interchange connection at Landmark Drive (west of Kimball Junction) would shift. For this reason, Alternative A would convert the Ute Boulevard/Landmark Drive intersection to a signalized intersection. Additionally, with Alternative A, UDOT assumes that Summit County would widen Landmark Drive to four lanes from north of Ute Boulevard to the roundabout at Junction Commons (formerly Outlets Park City), which is consistent with Summit County's long-range transportation plan (Summit County 2022a). This anticipated widening is also taken into account with the No-Action Alternative.

Compared to vehicle emissions with the existing conditions and with the No-Action Alternative, vehicle emissions with Alternative A would likely be reduced as a result of decreased traffic congestion and reduced travel times. As shown above in Table 3.6-3, with Alternative A, travel times would generally decrease compared to the No-Action Alternative. Southbound traffic on SR-224 in the air quality evaluation area would save 7 minutes of travel time during the AM peak hour and 4 minutes of travel time during the PM peak hour compared to the No-Action Alternative. Northbound traffic on SR-224 in the evaluation area would experience 1.5 minutes more travel time during the AM peak hour and would save more than 5 minutes of travel time during the PM peak hour compared to the No-Action Alternative.

Table 3.6-4 summarizes the intersection level of service results. With traffic at the interchange distributed between the split diamond interchange connections, Alternative A would allow most intersections in the Kimball Junction area to operate at LOS D or better, which would meet UDOT's current design and safety standards and address the operational deficiencies described in Chapter 1, *Purpose and Need*.

With Alternative A, only the SR-224/Rasmussen Road intersection would operate at LOS E during the AM peak hour. Delay at some intersections would increase compared to the No-Action Alternative. This increase in delay would occur primarily because the congestion in the VISSIM traffic model for the No-Action Alternative prevents the model from fully measuring all travel delay in the road network. UDOT expects that many of these intersections would show more delays if the traffic model could fully represent the entire input volume.

Table 3.6-4. Future (2050) Delay and Level of Service at Key Intersections with the Project Alternatives

Intersection	Level of Service / Average Delay (seconds per vehicle)					
	No-Action Alternative		Alternative A		Alternative C	
	AM	PM	AM	PM	AM	PM
SR-224 / Rasmussen Road[a]	B / 13	B / 12	E / 38	D / 31	C / 15	B / 12
SR-224 / I-80	F / >100	F / >100	D / 52	C / 34	B / 29	C / 24
SR-224 / Ute Boulevard	D / 37	E / 63	D / 47	D / 46	D / 36	D / 46
SR-224 / Olympic Parkway	D / 36	F / >100	D / 42	D / 46	C / 30	D / 49
Ute Boulevard / Landmark Drive[a,b]	A / 5	F / >100	C / 26[c]	D / 42[c]	A / 4[b]	B / 14[b]
Ute Boulevard / Uinta Way[a]	A / 5	C / 16	A / 4	A / 9	A / 3	A / 9
Olympic Parkway / Landmark Drive[a]	A / 6	A / 8	C / 16	D / 26	A / 7	A / 9
Newpark Boulevard / Uinta Way[a]	A / 3	E / 38	A / 3	B / 12	A / 5	C / 20
I-80 WB frontage	NA	NA	A / 5	B / 13	NA	NA
I-80 EB frontage	NA	NA	C / 24	D / 35	NA	NA

Definitions: EB = eastbound; NA = not applicable; WB = westbound

[a] Level of service and delay for unsignalized intersections (including roundabouts) are reported for the worst approach.

[b] Ute Boulevard/Landmark Drive intersection is signalized with Alternative A.

3.6.4.4 Alternative C

Compared to vehicle emissions with the existing conditions and with the No-Action Alternative, vehicle emissions with Alternative C would likely be reduced as a result of decreased traffic congestion and reduced travel times. As shown above in Table 3.6-3, *Existing and Projected Vehicle Travel Times on SR-224 during the AM* and PM Peak Hours, with Alternative C, travel times would generally decrease compared to the No-Action Alternative. Southbound traffic on SR-224 in the air quality evaluation area would save more than 8 minutes of travel time during the AM peak hour and more than 4 minutes of travel time during the PM peak hour compared to the No-Action Alternative. Northbound traffic on SR-224 in the evaluation area would experience the same travel time as with the No-Action Alternative during the AM peak hour and would save just under 6 minutes of travel time during the PM peak hour compared to the No-Action Alternative.

Table 3.6-4 above shows the delay and level of service at key intersections for Alternative C. With Alternative C, all key intersections would operate at an acceptable LOS D or better during all peak hours. In addition, the interchange at Kimball Junction would have less delay and an improved level of service compared to the conditions with the No-Action Alternative and conditions with Alternative A during both the AM and PM peak hours.

3.6.4.5 MSAT Emissions

For each alternative evaluated in this EIS, the amount of MSATs emitted would be proportional to the VMT, assuming that other variables, such as fleet mix, are the same for each alternative. As shown in Table 3.6-5, the average daily VMT with the No-Action Alternative is projected to increase by 323,371 (62%) compared to the existing conditions. The average daily VMT for Alternatives A and C are expected to increase by 331,860 and 331,130 (63.6% and 63.4%), respectively compared to the existing conditions, primarily as a result of the projected increase in population and consequently the number of vehicles traveling through the air quality evaluation area.

The average daily VMT for Alternative A is projected to increase by 8,489 (about 1%) compared to the No-Action Alternative. The VMT for Alternative B is projected to increase by 7,759 (about 0.9%) compared to the No-Action Alternative. Because the estimated VMT with the action alternatives is similar to the estimated VMT with the No-Action Alternative (varying by 1% or less), UDOT expects that there would be no appreciable difference in overall MSAT emissions between the No-Action Alternative and the action alternatives.

Table 3.6-5. Average Daily VMT for Existing Conditions and Forecasts for 2050

Conditions or Alternative	Average Daily VMT[a]	Percent Change from Existing Conditions	Percent Change from No-Action Alternative
Existing conditions (2024)	521,901	NA	NA
Estimates for the Project Alternatives in 2050			
No-Action Alternative	845,272	62.0%	NA
Alternative A	853,761	63.6%	1.0%
Alternative C	853,031	63.4%	0.9%

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

[a] Average daily VMT information was obtained from Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14.

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

3.6.4.5.1 Incomplete or Unavailable Information for Analyzing Project-specific MSAT Health Impacts

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

> In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in mobile source air toxic (MSAT) emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.
>
> The Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, https://www.epa.gov/iris). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.
>
> Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). A number of HEI studies are summarized in Appendix D of FHWA's Updated Interim Guidance on Mobile Source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-and-health-effects) or in the future as vehicle emissions substantially decrease.
>
> The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts—each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.
>
> It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.
>
> There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (Special Report 16, https://www.healtheffects.org/publication/mobile-source-air-toxics-critical-review-literature-exposure-

and-health-effects). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA states that with respect to diesel engine exhaust, "[t]he absence of adequate data to develop a sufficiently confident dose response relationship from the epidemiologic studies has prevented the estimation of inhalation carcinogenic risk" (EPA IRIS database, Diesel Engine Exhaust, Section II.C, https://iris.epa.gov/static/pdfs/0642_summary.pdf).

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable (https://www.cadc.uscourts.gov/internet/opinions.nsf/284E23FFE079CD59852578000050C9DA/$file/07-1053-1120274.pdf).

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

3.6.4.6 Greenhouse Gas Emissions

As shown in Table 3.6-6, between 2024 and 2050, CO_2, CH_4, and N_2O emissions with the No-Action Alternative are expected to increase by about 4%, 10%, and 46%, respectively, compared to the existing conditions, even with a 62% increase in VMT during this period. The overall increases in GHG emissions would be a result of the projected increase in VMT. Although fuel economy and engine technology are improving, they are not improving enough to offset the increase in VMT.

Compared to emissions with the No-Action Alternative, CO_2, CH_4, and N_2O emissions with Alternatives A and C would increase slightly (by about 1% each). However, it is important to note that using VMT as a GHG factor does not consider the additional fuel consumption and higher emissions rates at lower speeds that would result from congestion; both action alternatives would reduce congestion.

Table 3.6-6. Average Daily VMT and On-road GHG Emissions for the Project Alternatives

Conditions or Alternative	Average Daily VMT[a]	Greenhouse Gases (tons/year)[b]		
		Carbon Dioxide (CO_2)	Methane (CH_4)	Nitrous Oxide (N_2O)
Existing conditions (2024)	521,901	184,509	9.86	6.39
Estimates for the Project Alternatives in 2050				
No-Action Alternative	845,272	192,614	10.88	9.31
Alternative A	853,761	194,549	10.99	9.40
Alternative C	853,031	194,382	10.98	9.40

Definitions: VMT = vehicle-miles traveled

[a] Average daily VMT information was obtained from Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14.

[b] EPA's MOVES4 model was used to generate a daily emissions factor for each GHG, which was then multiplied by the average daily VMT and days per year to calculate the tons per year for each GHG (EPA 2016).

3.6.4.7 Mitigation Measures for Impacts to Air Quality

Atmospheric GHG emissions are projected to increase in 2050 because of the higher number of vehicles and increased VMT in the air quality evaluation area in 2050. This increase would occur with or without the Kimball Junction Project and would be slightly higher with the action alternatives than with the No-Action Alternative, although the difference would be negligible. The amounts of all other pollutants are projected to decrease in future years because of improved fuel and emissions standards. For this reason, no mitigation for air quality impacts from implementing either action alternative is proposed. See Section 3.15.2.4.6, *Mitigation Measures for Impacts to Air Quality from Construction*, for the proposed air quality mitigation related to construction.

3.7 Noise

3.7.1 Introduction

This section describes existing noise conditions in the noise evaluation area and the expected noise impacts of the project alternatives. Traffic noise impacts are evaluated using noise models and methodologies approved by FHWA and UDOT (FHWA 2011; UDOT 2020). Where appropriate, noise barriers are evaluated to mitigate noise impacts, and recommendations are made for noise-abatement measures consistent with UDOT's noise-abatement policy. For more information about the UDOT noise analysis described in this section, see Appendix 3B, *Noise Technical Report*.

Noise Evaluation Area. The noise evaluation area (Figure 3.7-1) includes areas where UDOT is proposing improvements as part of the Kimball Junction Project. For both action alternatives, the limits of the evaluation area are as follows:

- **Eastern limit:** Extends to the I-80/W. Highland Drive intersection
- **Western limit:** Extends to just east of the I-80/Homestead Road intersection
- **Northern limit:** Extends to I-80
- **Southern limit:** Extends south on SR-224 to south of Bear Cub Drive

Noise levels were measured and modeled at noise-sensitive locations in the evaluation area. Land uses that are classified as noise-sensitive in the evaluation area consist of residences, businesses, trails, churches, recreational vehicle (RV) parks, and hotels.

Characteristics of Noise. Sound travels through the air as waves of minute air-pressure fluctuations caused by vibration. In general, sound waves travel away from the noise source as an expanding spherical surface. As a result, the energy contained in a sound wave is spread over an increasing area as it travels away from the source. This increase in area results in a decrease in loudness at greater distances from the noise source.

Sound-level meters measure the actual pressure fluctuations caused by sound waves and record separate measurements for different sound frequency ranges. The decibel (dB) scale used to describe sound is a logarithmic scale that accounts for the large range of sound-pressure levels in the environment. Most sounds consist of a broad range of sound frequencies. Several frequency-weighting schemes have been used to develop composite decibel scales that approximate how the human ear responds to sound levels. The A-weighted decibel (dBA) scale most closely approximates how the human ear hears sounds and is the most widely used scale in assessing traffic-related noise impacts. Typical A-weighted noise levels for various types of sound sources are summarized in Table 3.7-1.

Varying noise levels are often described in terms of the equivalent noise level (L_{eq}). Equivalent noise levels are used to develop single-value descriptions of average noise exposure over specific periods (for example, 1 hour), and they are generally based on A-weighted sound-level measurements.

The logarithmic nature of decibel scales is such that individual decibel ratings for different noise sources cannot be added directly to give the noise level for the combined noise source. For example, two noise sources that produce equal decibel ratings at a given location will produce a combined noise level that is 3 dBA greater than either sound alone. When two noise sources differ by 10 dBA, the combined noise level will be 0.4 dBA greater than the louder source alone.

People generally perceive a 10 dBA increase in a noise source as a doubling of loudness. For example, an average person will perceive a 70 dBA sound as twice as loud as a 60 dBA sound. People generally cannot detect a 1-to-2 dBA increase in noise levels. Under ideal listening conditions, differences of 2 or 3 dBA can be detected by some people. Under normal listening conditions, a 5 dBA change would probably be perceived by most people.

When distance is the only factor considered, sound levels from isolated point sources of noise typically decrease by about 6 dBA for every doubling of distance from the noise source. When the noise source is a continuous line (for example, vehicle traffic on a highway), noise levels decrease by about 3 dBA for every doubling of distance away from the source.

Figure 3.7-1. Noise Evaluation Area and Noise-monitoring Locations

Table 3.7-1. Weighted Noise Levels and Human Response

Sound Source	dBA[a]	Response Descriptor
Carrier deck jet operation	140	Limit of amplified speech
—	130	Painfully loud
Jet takeoff (200 feet) Auto horn (3 feet)	120	Threshold of feeling and pain
Riveting machine Jet takeoff (2,000 feet)	110	—
Shout (0.5 foot) New York subway station	100	Very annoying
Heavy truck (50 feet) Pneumatic drill (50 feet)	90	Hearing damage (8-hour exposure)
Passenger train (100 feet) Helicopter (in-flight, 500 feet) Freight train (50 feet)	80	Annoying
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet) Light auto traffic (50 feet)	60	—
Normal speech (15 feet)	50	Quiet
Living room, bedroom, library	40	—
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	—
—	10	Just audible
—	0	Threshold of hearing

Source: FHWA 2018
Definitions: dBA = decibels on the A-weighted scale
[a] Typical A-weighted noise levels taken with a sound-level meter and expressed as decibels on the "A" scale. The "A" scale approximates the frequency response of the human ear.

Noise levels at different distances can also be affected by factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can increase or decrease noise levels. Atmospheric conditions (wind speed and direction, humidity levels, and temperatures) can also affect the degree to which sound is attenuated over distance.

Reflections off topographical features or buildings can sometimes result in higher noise levels (lower sound-attenuation rates) than would be expected. Temperature inversions and wind conditions can also diffract and focus a sound wave to a location that is far from the noise source. Focusing effects are usually noticeable only for very intense noise sources, such as blasting operations. As a result of these factors, the existing noise environment can be highly variable depending on the local conditions.

3.7.2 Regulatory Setting

The federal regulation that FHWA uses to assess noise impacts is 23 CFR Part 772, *Procedures for Abatement of Highway Traffic Noise and Construction Noise*. This regulation was updated on July 13, 2010. Utah Administrative Code Rule R930-3, *Highway Noise Abatement*, and UDOT Policy 08A2-01, *Noise Abatement* (revised May 28, 2020), establish UDOT's noise impact and abatement policies and procedures, which are compliant with 23 CFR Part 772.

3.7.2.1 Noise Policy Applicability

Per UDOT's noise-abatement policy, UDOT considers noise abatement for all Type I projects where noise impacts are identified. The action alternatives evaluated in this EIS would alter the horizontal and vertical alignments of I-80 and SR-224. Therefore, this project is a Type I project that requires considering noise-abatement measures.

What is a Type I project?

According to UDOT's noise-abatement policy, a Type I project is a project that alters the horizontal or vertical alignment of a road or increases the number of through-traffic lanes.

3.7.2.2 Noise-abatement Criteria

Noise-abatement criteria (NAC) are used to define the noise levels that are considered an impact (in hourly A-weighted sound-level decibels) for each land use activity category. UDOT's noise-abatement policy states that a traffic noise impact occurs when either (1) the future worst-case noise level is equal to or greater than the UDOT NAC for specified land use activity 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 UDOT NAC are summarized in Table 3.7-2.

Table 3.7-2. UDOT's Noise-abatement Criteria

Activity Category	L_{eq} Noise Levels (dBA)	Description of Activity Category
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 room, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	71 (exterior)	Hotels, motels, offices, restaurants/bars, and other undeveloped lands, properties, or activities not included in categories A–D or F.
F	—	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	—	Undeveloped lands that are not permitted.

Source: UDOT 2020
Definitions: dBA = decibels on the A-weighted scale; L_{eq} = equivalent noise level

3.7.3 Affected Environment

3.7.3.1 Existing Noise Receptors and Sensitive Land Uses

The noise evaluation area that was used to determine the existing noise levels is described at the beginning of Section 3.7 and is shown in Figure 3.7-1, *Noise Evaluation Area and Noise-monitoring Locations*, above. The evaluation area includes only areas where UDOT is proposing improvements as part of the Kimball Junction Project.

The evaluation area is a mix of residential developments, trails, commercial properties, and undeveloped land. The properties in the evaluation area are in locations where the land use activity category is B, C, E, F, or G. The predominant source of noise in the evaluation area is automobile and truck traffic on the existing I-80 and SR-224 alignments.

3.7.3.2 Noise Monitoring

Existing noise levels in the noise evaluation area for existing conditions were determined by taking short-term (20-minute) sound-level measurements at seven locations throughout the evaluation area with a Larson-Davis model 824 sound-level meter. Noise measurements were taken on October 18, 2023. Noise-monitoring locations were selected to represent existing residential developments or outdoor areas where people could be exposed to traffic noise for extended periods. Noise-monitoring locations are shown in Figure 3.7-1, *Noise Evaluation Area and Noise-monitoring Locations*, above, and the associated measured noise levels are listed in Table 3.7-3.

Table 3.7-3. Measured versus Modeled Noise Levels in the Noise Evaluation Area

Monitoring Location[a]	Address	Activity Category[b]	Land Use	Measured Noise Level (dBA L_{eq})	Modeled Noise Level (dBA L_{eq})	Difference (dBA L_{eq})
ML-1	Park City RV Resort	C	Recreational	70	71	+1
ML-2	PowderWood by All Seasons Resort	E	Hotels/lodging	70	68	–2
ML-3	Creekside Park City Church	C	Church	72	72	0
ML-4	Canyon Creek Club Homes	E	Hotels/lodging	60	62	+2
ML-5	6078 N. Fox Pointe Circle	B	Residential	61	61	0
ML-6	AC Hotel by Marriott	E	Hotels	61	61	0
ML-7	Del Taco	E	Restaurant	59	56	–3

Definitions: dBA = decibels on the A-weighted scale; L_{eq} = equivalent noise level; ML = monitoring location

[a] Monitoring locations are shown in Figure 3.7-1, *Noise Evaluation Area and Noise-monitoring Locations*, above.

[b] For descriptions of the activity categories, see Table 3.7-2, *UDOT's Noise-abatement Criteria*, above.

UDOT used the measured noise levels to characterize the existing noise environment and to validate the use of FHWA's Traffic Noise Model (TNM) for this project. As shown above in Table 3.7-3, measured noise levels in the evaluation area ranged from about 59 to 72 dBA depending on the proximity of the monitoring location to I-80, SR-224, and other noise sources such as local traffic on nearby arterial streets. As a

comparison, typical noise levels generally range from 35 to 50 dBA in rural and agricultural areas, from 50 to 65 dBA in suburban to urban areas, and from 65 to 75 dBA in downtown urban areas (Harris 1979).

Measured noise levels that are within 3 dBA of the modeled noise are considered accurate for the purpose of validating the model (Table 3.7-3 above). As shown in Table 3.7-3, the measured noise levels were within 3 dBA of the modeled noise levels, so FHWA's TNM is considered valid for use on this project.

In addition to measuring noise levels, UDOT counted traffic volumes at each of the monitoring locations listed above in Table 3.7-3. The traffic volumes were used to determine the vehicle mix (the percentage of cars, medium trucks, and heavy trucks) during each measurement period and the directional flow of traffic on the roads.

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

3.7.3.3 Existing Noise Levels in the Noise Evaluation Area

The predominant source of noise in the noise evaluation area is automobile and truck traffic on the existing I-80 and SR-224 alignments.

3.7.3.3.1 Methodology for Existing Traffic Model

UDOT evaluated existing noise levels using noise models and methodologies approved by FHWA (2011) and UDOT (2020).

UDOT reviewed the areas within 500 feet of the edge of the proposed rights-of-way for the action alternatives to identify UDOT land use activity categories (primarily residential, schools, and recreation sites) and to select receptors for the existing conditions and conditions with each action alternative. The 500-foot buffer encompasses all the locations that could be affected by the action alternatives. More details about the methodology and data used for the noise model for the existing conditions analysis are provided in Appendix 3B, *Noise Technical Report*.

3.7.3.3.2 Summary of Existing Noise Model Results

The noise model developed for the existing conditions included 321 receptors, consisting of 263 residential receptors (land use activity category B), 47 receptors where the land use activity category is C, 1 receptor where the land use activity category is D, and 10 receptors where the land use activity category is E. With the existing conditions, 139 receptors experience a noise level above the NAC threshold. The noise levels for the existing conditions and locations of the receptors are shown in Appendix 3B, *Noise Technical Report*.

Overall, noise levels with the existing conditions range from 46 to 75 dBA.

3.7.4 Environmental Consequences and Mitigation Measures

3.7.4.1 Methodology

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

- The future-year worst-case noise level is equal to or greater than the UDOT NAC listed above in Table 3.7-2, *UDOT's Noise-abatement Criteria*, for each corresponding land-use category, or
- The future-year worst-case noise level is equal to or greater than an increase of 10 dBA over the existing noise level (a substantial increase). This second impact criterion applies regardless of existing noise levels.

UDOT estimated the traffic-related noise impacts from the action alternatives with FHWA's TNM (version 2.5) based on the roadway design for the action alternatives.

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

The noise models for the action alternatives used traffic volumes at LOS C to represent the worst-case noise conditions while traffic is operating at uncongested, free-flow speeds for the proposed project noise analyses. The TNM inputs include traffic volume and speed for the following vehicle classifications: automobiles, medium trucks, heavy trucks, and buses. More details about the traffic volumes and speeds are provided in Appendix 3B, *Noise Technical Report*.

What is level of service?

Level of service (LOS) is a measure of the operating conditions on a road or at an intersection. Level of service is represented by a letter "grade" ranging from A (free-flowing traffic and little delay) to F (extremely congested traffic and excessive delay).

For detailed summary tables of noise levels with the existing conditions and conditions and with the action alternative as well as maps of the receptor locations, see Attachment B, *Noise Levels and Noise Receptor Maps for Alternative A*, and Attachment C, *Noise Levels and Noise Receptor Maps for Alternative C*, of Appendix 3B, *Noise Technical Report*.

For more information about noise during construction, see Section 3.15.2.3.7, *Impacts to Noise from Construction*.

3.7.4.2 No-Action Alternative

Noise levels with the No-Action Alternative would be the same as those modeled for the existing conditions.

The noise model developed for the existing conditions included 321 receptors, consisting of 263 residential receptors (land use activity category B), 47 receptors where the land use activity category is C, 1 receptor where the land use activity category is D, and 10 receptors where the land use activity category is E. Under the existing conditions, 139 receptors experience a noise level above the NAC threshold. The noise levels

for the existing conditions and locations of the receptors are shown in Attachment A, *Noise Monitoring Data Sheets and Existing Noise Receptor Maps,* of Appendix 3B, *Noise Technical Report*.

Overall, noise levels with the existing conditions range from 46 to 75 dBA.

3.7.4.3 Alternative A

Overall, with Alternative A, noise levels would range from 46 to 75 dBA, which is the same range as the existing conditions and with the No-Action Alternative.

With Alternative A, 138 of the 321 receptors would have traffic noise impacts; that is, they would exceed the NAC as defined in Section 3.7.2, *Regulatory Setting*. None of the 138 impacted receptors would a have future worst-case noise level greater than or equal to an increase of 10 dBA over the existing noise level. The locations of the receptors that would exceed the NAC are shown in Attachment B, *Noise Levels and Noise Receptor Maps for Alternative A,* of Appendix 3B, *Noise Technical Report*.

Alternative A would cause a net decrease of one noise impact compared to the existing conditions and the No-Action Alternative. With Alternative A, only one receptor would have an increase of more than 3 dBA in noise levels compared to the existing conditions and the No-Action Alternative.

3.7.4.4 Alternative C

Overall, with Alternative C, noise levels would range from 46 to 75 dBA, which is the same range as the existing conditions and with the No-Action Alternative.

With Alternative C, 139 of the 321 receptors would have traffic noise impacts; that is, they would exceed the NAC as defined in Section 3.7.2, *Regulatory Setting*. None of the 139 impacted receptors would have a future worst-case noise levels greater than or equal to an increase of 10 dBA over the existing noise level. The locations of the receptors that would exceed the NAC are shown in Attachment C, *Noise Levels and Noise Receptor Maps for Alternative C,* of Appendix 3B, *Noise Technical Report*.

Alternative C would cause no change to the number of noise impacts compared to the existing conditions and the No-Action Alternative.

The noise impacts with Alternative C would not be substantially different from Alternative A. Alternative C would have one more noise impact than Alternative A.

3.7.4.5 Mitigation Measures for Noise Impacts

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

3.7.4.5.1 Noise-abatement Feasibility and Reasonableness

UDOT considers the following factors when determining whether abatement is feasible:

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

UDOT considers the following factors when determining whether abatement is reasonable:

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

  The cost-effectiveness calculation also takes into account the cost of any items associated with the abatement measure that is critical to safety, such as snow storage and safety barriers, where applicable. Costs for additional items are not currently needed for the abatement measures evaluated in this Final EIS. The cost of constructing items necessary for snow storage and safety

barriers will be considered as part of the cost-effectiveness calculation during final design, if applicable.

- **Viewpoints of Property Owners and Residents.** As part of the final design phase for the selected alternative, balloting would be conducted if noise-abatement measures meet the feasible criteria, reasonable noise-abatement design goal, and cost-effectiveness criteria (listed above) in UDOT's noise-abatement policy.

  Section C.2(c)(1) of UDOT's noise-abatement policy requires balloting for all benefited receptors (property owners or tenants that would receive a 5-dBA or greater reduction in noise from the noise-abatement measure) or receptors whose property would abut the proposed noise-abatement measures. Balloting approval is contingent on at least 75% of the total ballots being returned and 75% of the returned ballots being in favor of the proposed noise-abatement measure.

The EIS noise analysis includes the preliminary results based on evaluating all three feasibility factors, the reasonable noise-abatement design goal, and the reasonable cost-effectiveness factors. The reasonable factor for the "viewpoints of property owners and residents" will be evaluated as part of the final design phase for the selected alternative.

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

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

UDOT calculated the anticipated cost of each barrier by multiplying the barrier area and the barrier cost per square foot ($20). The allowable cost was calculated using two variables: (1) activity category B allowable cost and (2) activity category C allowable cost. The category B allowable cost was calculated by multiplying the allowable cost per benefited receptor ($30,000) by the number of receptors benefited by the barrier. The category C allowable cost was calculated by multiplying the length of the barrier associated with category C land use by the allowable cost for category C land ($360 per linear foot). These two variables, activity category B allowable cost and activity category C allowable cost, were combined to produce the allowable cost for each barrier. For detailed barrier analyses, see Attachment E, *Noise Barrier Analysis,* of Appendix 3B, *Noise Technical Report*.

To provide an objective analysis of traffic noise reduction at impacted receptors, UDOT considered a variety of noise barrier heights in areas with noise impacts that do not have an existing noise barrier. If multiple barrier heights would meet noise-abatement requirements, UDOT considered the number of benefitted receptors and the cost per benefitted receptor to identify the noise barrier height recommended for balloting.

3.7.4.5.2 Noise-abatement Evaluations for the Action Alternatives

UDOT evaluated three noise barriers for Alternative A and six noise barriers for Alternative C at locations where noise impacts would occur with these alternatives. With Alternative A, one of the three noise barriers met UDOT's feasibility and reasonableness acoustic and cost criteria. With Alternative C, two of the six noise barriers met UDOT's feasibility and reasonableness acoustic and cost criteria. Maps showing the locations of the noise barriers evaluated for Alternatives A and C and more detailed information are available for each barrier that was evaluated in Attachment D, *Noise Barrier Maps for Alternative A and Alternative C,* of Appendix 3B, *Noise Technical Report*.

Table 3.7-4 summarizes the analyzed noise barriers and the results of the noise barrier analysis for Alternatives A and C. The locations of the noise barriers are shown in Figure 3.7-2 through Figure 3.7-4 and in Attachment D, *Noise Barrier Maps for Alternative A and Alternative C*, of Appendix 3B, *Noise Technical Report*.

The one noise barrier recommended in this analysis for Alternative A would benefit (reduce noise levels by at least a 5-dBA reduction) 15 receptors. The two noise barriers recommended in this analysis for Alternative C would benefit (reduce noise levels by at least a 5-dBA reduction) 32 receptors.

Table 3.7-4. Noise Barrier Analysis Summary

Alternative and Evaluated Barrier	Is Barrier Feasible, Reasonable, and Recommended for Balloting?	Recommended Barrier Height, Length
Alternative A		
Noise Barrier 1 (NW01)	Yes	16 feet tall, 800 feet long
Noise Barrier 2 (NW02)	No	NA
Noise Barrier 3 (NW03)	No	NA
Alternative C		
Noise Barrier 1 (NW01)	Yes	17 feet tall, 1,300 feet long
Noise Barrier 2 (NW02)	Yes	14 feet tall, 600 feet long
Noise Barrier 3 (NW03)	No	NA
Noise Barrier 4 (NW04)	No	NA
Noise Barrier 5 (NW05)	No	NA
Noise Barrier 6 (NW06)	No	NA

Definitions: NA = not applicable

Figure 3.7-2. Alternative A Noise Barrier Evaluation

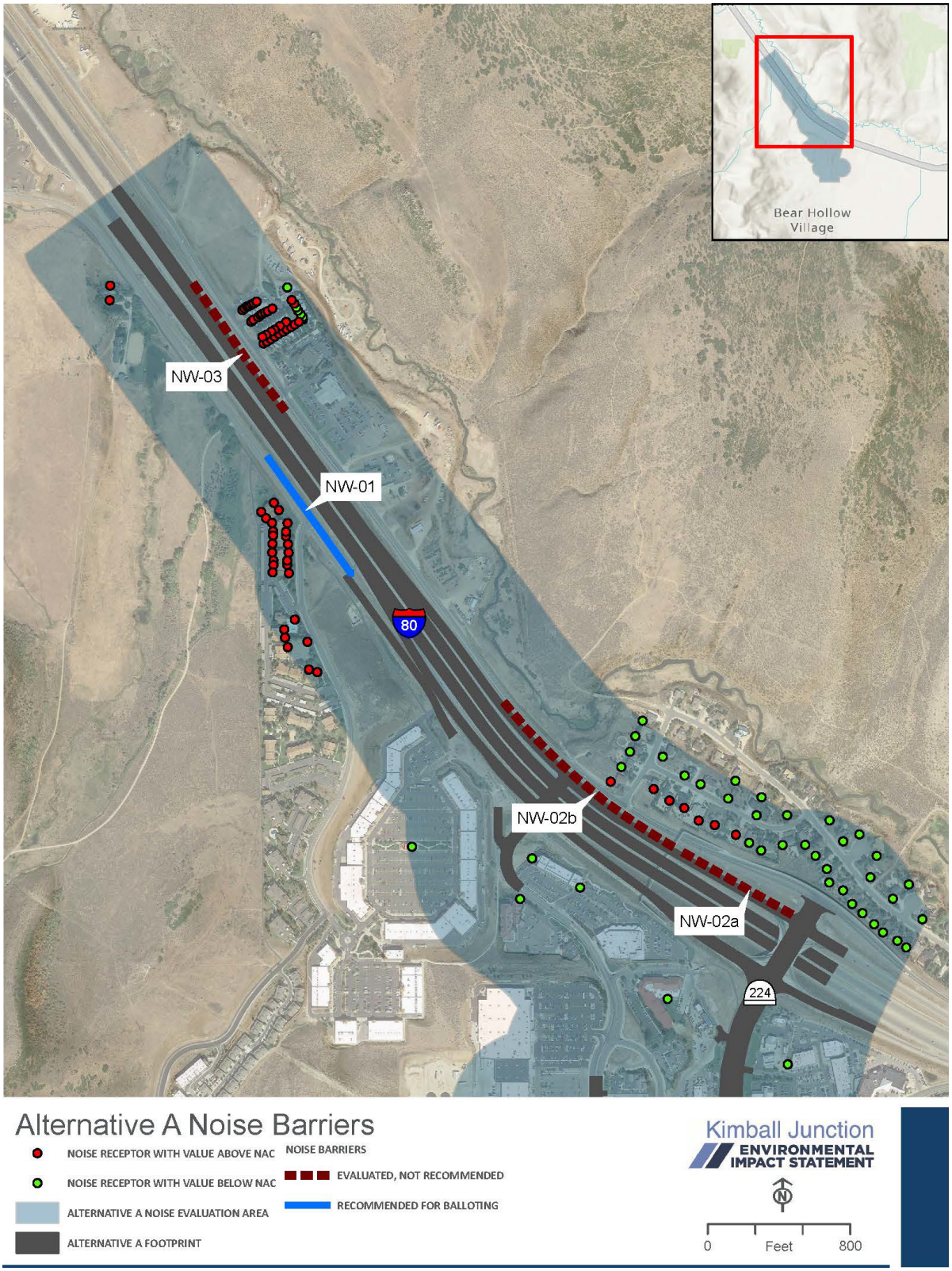


Figure 3.7-3. Alternative C Noise Barrier Evaluation (1 of 2)

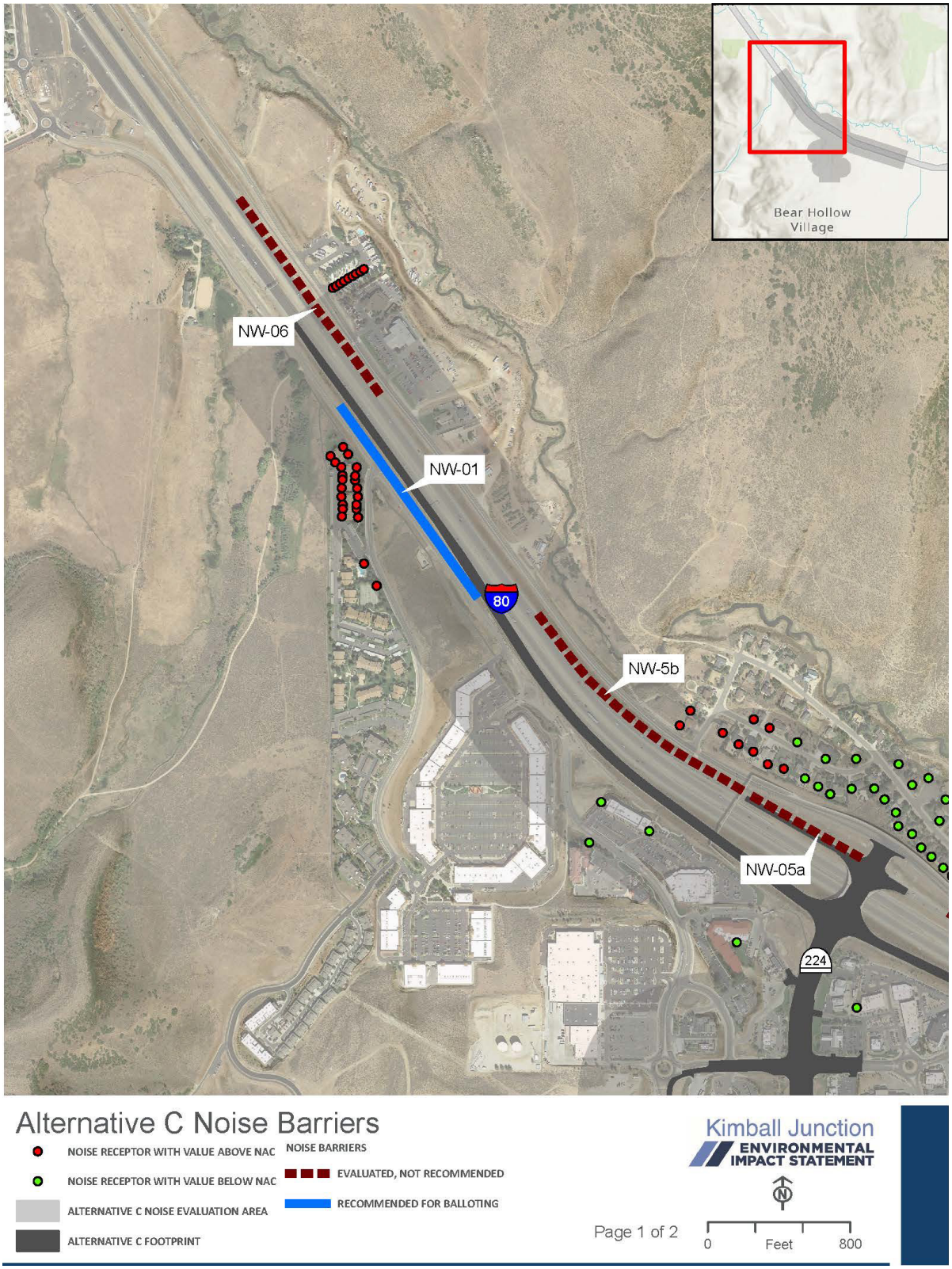
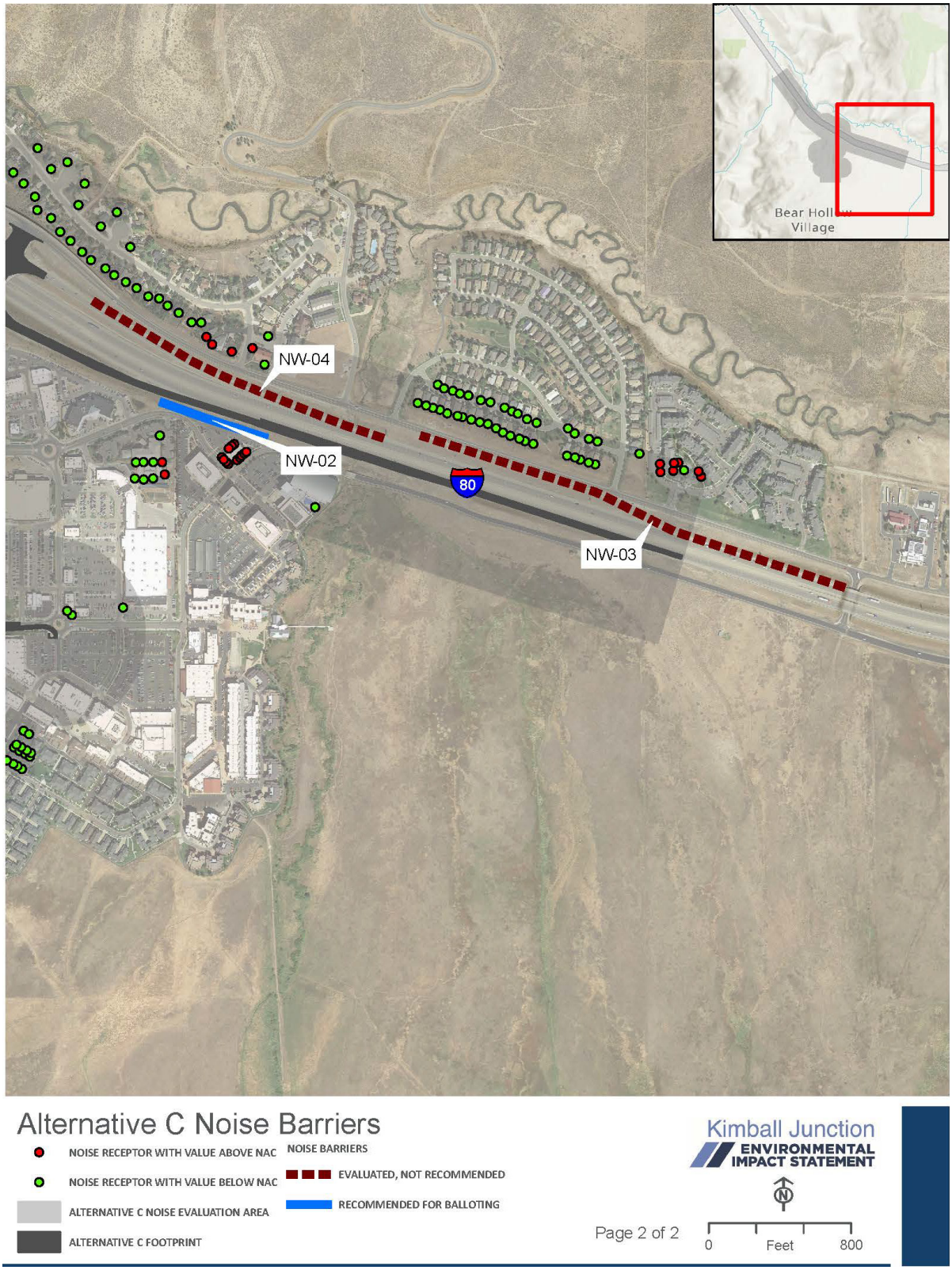


Figure 3.7-4. Alternative C Noise Barrier Evaluation (2 of 2)



Noise-abatement Consideration during Final Design. Recommended noise barriers in the noise evaluation area that meet the requirements of UDOT's noise-abatement policy are summarized in Table 3.7-4, *Noise Barrier Analysis Summary*, above. A barrier identified as recommended for balloting is a barrier that has been shown to meet the feasible criteria, the reasonable design goal, and the reasonable cost-effectiveness criteria as defined in UDOT's noise-abatement policy. However, that finding is not a commitment by UDOT to build a barrier.

The final lengths and heights for any of the noise barriers identified in the environmental study phase are still subject to final design and the feasibility criteria and reasonable design goal as defined in UDOT's noise-abatement policy (and summarized in Section 3.7.4.5, *Mitigation Measures for Noise Impacts*). UDOT would not decide whether to construct the proposed noise barrier until the final design is completed and refined utility relocation and right-of-way costs are available. Reasonableness would be evaluated using updated costs based on the final design.

UDOT will conduct balloting for the proposed noise-abatement measures with the final design engineering considerations and costs that meet the feasibility criteria, the reasonable design goal, and the reasonable cost-effectiveness criteria as defined in UDOT's noise-abatement policy. As described in Section 3.7.4.5.1, *Noise-abatement Feasibility and Reasonableness*, Section C.2(c)(1) of UDOT's noise-abatement policy requires balloting for all benefited receptors (property owners or tenants that would receive a 5-dBA or greater reduction in noise from the noise-abatement measure) or receptors whose property would abut the proposed noise-abatement measures. Balloting approval is contingent on at least 75% of the total ballots being returned and 75% of the returned ballots being in favor of the proposed noise-abatement measure.

3.8 Water Quality and Water Resources

3.8.1 Introduction

This section discusses the existing conditions of surface water and groundwater in the water quality and water resources evaluation area. This section also discusses the expected effects of the project alternatives on surface water and groundwater after construction. Water quality impacts during construction are addressed in Section 3.15, *Construction Impacts*.

The main recurring impact to water quality from highway projects is from highway stormwater runoff that flows off impervious areas of the highway surface during precipitation. This runoff could pick up pollutants and, in the absence of complete retention, carry them to receiving water bodies.

Water Quality and Water Resources Evaluation Area. The water quality and water resources evaluation area is the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*. The project is in the East Canyon Creek watershed or "assessment unit." The East Canyon Creek watershed from a point upstream of the East Canyon Water Reclamation Facility is included in the evaluation area because this area was used in the water quality modeling to establish a baseline surface water quality. It was also included to help assess the expected impacts of the project alternatives on surface water quality.

3.8.2 Regulatory Setting

The Utah Divisions of Water Quality (UDWQ) and Drinking Water (UDDW), which are part of the Utah Department of Environmental Quality (UDEQ), act pursuant to state laws, regulations, and authority delegated by EPA to enforce the federal Clean Water Act (CWA) and the federal Safe Drinking Water Act. The Utah Division of Water Rights (UDWRi), which is part of the Utah Department of Natural Resources, acts pursuant to state laws and regulations pertaining to water rights. The laws and regulations that apply to the Kimball Junction Project are summarized in Table 3.8-1 and are discussed in the following sections.

Table 3.8-1. Laws and Regulations Related to Water Quality and Water Resources

Regulation	Regulating Agency and Requirement	Applicability
CWA Section 401 Utah Water Quality Certification (Utah Administrative Code [UAC] Rule [R] 317-15, *Water Quality Certification*)	If a CWA Section 404 permit is needed for the Kimball Junction Project, the Section 404 permit would require UDEQ to certify that the project would not cause Utah water quality standards (narrative and numeric) to be exceeded. This certification is a Section 401 Water Quality Certification.	**Water Quality Certification** UDEQ provides this certification to the U.S. Army Corps of Engineers (USACE) if a Section 404 permit is required.
CWA Section 402 (UAC R317-8, *Utah Pollutant Discharge Elimination System [UPDES]*)	EPA has delegated authority for the National Pollutant Discharge Elimination System (NPDES) program in Utah to UDEQ. Construction projects that discharge stormwater to surface water and construction projects that disturb 1 or more acres of land must obtain a UPDES permit to minimize impacts to water quality associated with construction activities. Operators of municipal separate storm sewer systems (MS4), such as UDOT, must comply with their UPDES permit to minimize water quality impacts associated with discharges from the project site. A UPDES Construction Dewatering or Hydrostatic Testing General Permit must be obtained if dewatering activities discharge project water to surface waters during construction.	**UPDES Permits** Permits are required for roadway construction and stormwater discharges to surface water, such as dewatering activities that discharge project water to surface waters. Compliance with UDOT's MS4 UPDES permit for ongoing operations is also required for all facilities.
UAC R317-2-7-2, *Narrative Water Quality Standards* (limits discharges)	This regulation states that it is unlawful to discharge substances that could cause undesirable effects on human health or aquatic life into surface waters.	**Narrative Standards** Surface water discharges must comply with narrative standards.
UAC R317-2-14, *Numeric Criteria* (in-stream standards)	Numeric standards for water quality are based on the water's designated beneficial uses, such as providing drinking water, supporting game fish, or supporting swimming. For surface waters exceeding water quality standards for pollutants identified on the state 303(d) list (of impaired waters), this regulation requires UDEQ to develop a total maximum daily load (TMDL) study to restore water quality standards and beneficial uses.	**Numeric Standards** Surface water discharges are permitted as long as beneficial uses are protected. Discharges to surface waters with approved TMDL studies must comply with pollutant load allocations defined in the TMDL studies.
UAC R317-2-3, *Antidegradation Policy*	UDEQ assigns protection categories to manage the allowable level of degradation of water bodies in the state. Antidegradation procedures are applied to each protection category on a parameter-by-parameter basis. Antidegradation reviews are required for any action that requires a Section 401 Water Quality Certification or UPDES permit or any action that has the potential for major impacts to water quality.	**Antidegradation Review** Reviews might be required to support the Section 401 Water Quality Certification required by USACE's Section 404 permit.
UAC R309-605, *Drinking Water Source Protection for Surface Waters* (regulates activities near drinking water sources)	Owners of public water systems are responsible for protecting sources of drinking water and for submitting a drinking water source protection plan to UDDW. The protection plans must identify drinking water source protection zones around each drinking water source (such as a lake or river), existing sources of contamination, and the types of new construction projects that are restricted within each zone.	**Source Protection** Land uses and potential sources of contamination should be managed in compliance with the drinking water source protection plans.

(Continued on next page)

Table 3.8-1. Laws and Regulations Related to Water Quality and Water Resources

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

Definitions: CWA = Clean Water Act; EPA = U.S. Environmental Protection Agency; MS4 = municipal separate storm sewer system; NPDES = National Pollutant Discharge Elimination System; R = Rule; TMDL = total maximum daily load; UAC = Utah Administrative Code; UDEQ = Utah Department of Environmental Quality; UDWQ = Utah Department of Water Quality; UDWRi = Utah Division of Water Rights; UPDES = Utah Pollutant Discharge Elimination System; USACE = U.S. Army Corps of Engineers

3.8.2.1 Surface Waters and Beneficial-use Classifications

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

What are beneficial uses?

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

3.8.2.1.1 Antidegradation Policy and Reviews

Utah's antidegradation policy states that waters that have an existing quality that is better than established standards for their designated beneficial uses should be maintained at a high quality (Utah Administrative Code [UAC] Rule [R] 317-2-3.1). Discharges that could lower or degrade water quality are allowable if UDEQ determines that these discharges are necessary for important economic or social development. However, discharges must not impair the existing in-stream beneficial uses of these high-quality waters.

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

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

- **Category 1 Waters.** With Category 1 waters, new point discharges are not allowed; however, new discharges from nonpoint sources are allowed if best management practices (BMPs) are used to the extent feasible to address the effects of pollution. Point-source discharges may be allowed in these waters if the discharges are determined to be either temporary and limited or temporary and related only to sediment or turbidity and if fish spawning would not be impaired. BMPs are discussed further in Section 3.8.2.1.3, *Stormwater Discharges*.

- **Category 2 Waters.** Category 2 waters have the same requirements as Category 1 waters, except that point-source discharges may be allowed if the discharge does not degrade existing water quality.
- **Category 3 Waters.** With Category 3 waters, point-source discharges are allowed, and degradation of water quality may occur as long as an antidegradation review is completed and approved to ensure that existing beneficial uses will be maintained and protected.

What is a best management practice (BMP)?

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

Section 3.8.3.1, *Surface Waters and Beneficial-use Classifications*, discusses the designated beneficial uses and antidegradation categories of the surface waters in the water quality and water resources evaluation area.

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

UDEQ designates all surface water bodies in Utah according to how the water is used. Table 3.8-2 lists the possible beneficial-use classifications for surface waters in the state.

Table 3.8-2. Possible Beneficial-use Designations for Surface Waters in Utah

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

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

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

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

When a lake, river, or stream fails to meet the water quality standards for its beneficial uses, the State places the water body on a list of "impaired" waters—also known as a 303(d) list—and prepares a study called a total maximum daily load (TMDL). A TMDL study aims to determine the allowable load of a given pollutant for an impaired water body and to allocate that load among different pollutant sources. The TMDL process is crucial for improving water quality because it links water quality standards with implementing control actions designed to attain those standards.

What is a 303(d) list?

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

3.8.2.1.3 Stormwater Discharges

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

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

3.8.2.2 Groundwater Quality and Discharges

The Utah Water Quality Board classifies aquifers according to their quality and use. UDWQ publishes numeric standards for each class of aquifer (UAC R317-6-3). Aquifers in Utah are classified as shown in Table 3.8-3.

Table 3.8-3. Aquifer Classifications in Utah

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

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

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

3.8.2.3 Drinking Water Source Protection Plans and Zones

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

For both groundwater and surface water sources, UDDW requires that a drinking water source protection plan be prepared to identify four distinct drinking water source protection zones for each well or surface water source. Table 3.8-4 describes these four zones.

Table 3.8-4. Drinking Water Source Protection Plan Zone Descriptions

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

In addition to the surface water source protection zones, watershed management plans, antidegradation reviews, and standards for surface water, beneficial-use designations provide many mechanisms for protecting drinking water sources. Land managers are responsible for protecting drinking water sources from contamination in coordination with the public water system owners. Through zoning and land use, cities control which forms of development are allowable within each of the various drinking water source protection zones.

In general, if transportation development within source protection Zone 1 is determined by the owner to harm the function of a well or surface water intake, methods to reduce and/or eliminate the harm might be proposed. See Section 3.8.2.4, *Water Rights*, below for a description of surface water and groundwater drinking water source protection zones in the water quality and water resources evaluation area.

3.8.2.4 Water Rights

All waters in Utah are public property. UDWRi regulates the appropriation and distribution of water in Utah. A water right is a right to divert (remove from its natural source) and beneficially use water (UDWRi 2011). The defining elements of a typical water right include the following elements:

- A defined nature and extent of beneficial use
- A priority date
- A defined quantity of water allowed for diversion by flow rate (cubic feet per second) and/or volume (acre-feet)
- A specified point of diversion and source of water
- A specified place of beneficial use

UDWRi oversees water right points of diversion. Water right points of diversion are locations from which a water right owner can legally divert water from a source and beneficially use it. Knowing the location of and protecting existing points of diversion is important to ensure that a project does not affect the physical point of diversion, the water quality, or the beneficial use of the existing points of diversion. For administrative purposes, water rights are classified into the following categories based on their status:

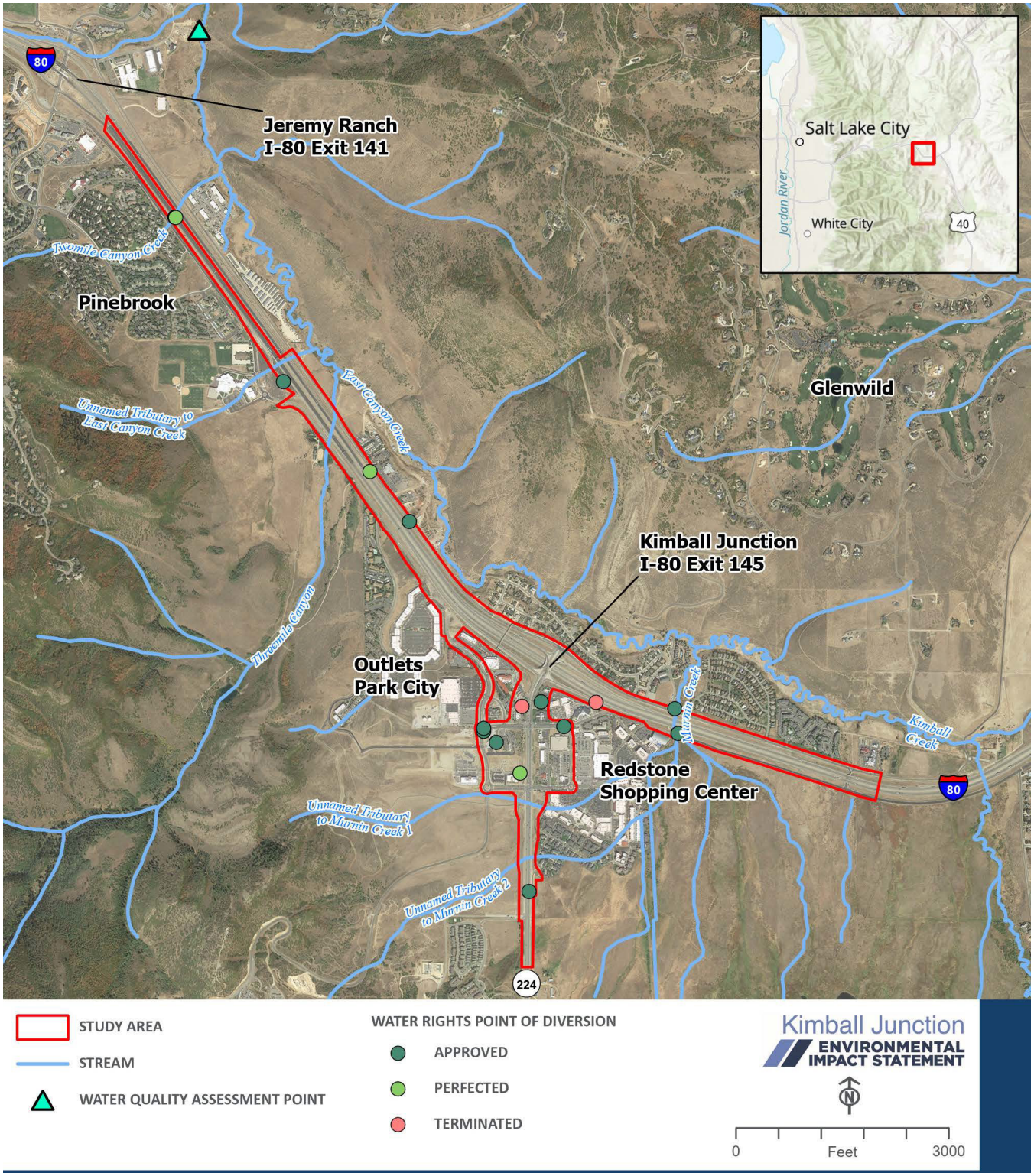
- **Perfected.** Perfected water rights are fully developed and have been certificated by the State Engineer, decreed by a court of law, or certificated legislatively. These rights are considered real property (UDWRi 2023a).
    - Unperfected water rights are classified as either **Approved** or **Unapproved**.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

3.8.3 Affected Environment

There are several surface water bodies (streams) in the water quality and water resources evaluation area. Near the evaluation area, these streams are conveyed in open channels except when they are conveyed in culverts under existing roadways. These surface waters have assigned beneficial uses, antidegradation categories, and water quality impairments. This section also discusses the groundwater quality and resources, drinking water source protection zones, and water right points of diversion in the evaluation area.

Figure 3.8-1 shows the evaluation area, water quality assessment point, surface water bodies, and water right points of diversion by current status in the evaluation area.

Figure 3.8-1. Water Resources in the Water Quality and Water Resources Evaluation Area



3.8.3.1 Surface Waters and Beneficial-use Classifications

All surface water bodies in the water quality and water resources evaluation area originate in the Wasatch Mountains and foothills to the west and south of the evaluation area, flow generally from south to north and west to east through the evaluation area into East Canyon Creek, and have similar beneficial uses and antidegradation requirements. The creeks in the evaluation area are all located in the same assessment unit (AU). An AU is an area that the State has defined to determine whether the beneficial uses of the surface waters are supported.

Table 3.8-5 summarizes the beneficial-use classifications and antidegradation categories of the surface waters in the evaluation area.

Table 3.8-5. Beneficial Uses and Antidegradation Categories of Surface Waters in the Water Quality and Water Resources Evaluation Area

Water Body	Assessment Unit / Reach	Reach Description	Beneficial Uses	Antidegradation Category
East Canyon Creek	East Canyon Creek-2	East Canyon Creek and tributaries from East Canyon Reservoir to headwaters	• 1C – Domestic/drinking water with prior treatment • 2B – Infrequent primary contact recreation • 3A – Cold water fishery/aquatic life • 4 – Agricultural uses including irrigation of crops and stock watering	Category 3
Twomile Canyon Creek				
Unnamed Tributary to East Canyon Creek				
Threemile Canyon Creek				
Unnamed Tributary to Murnin Creek 1				
Unnamed Tributary to Murnin Creek 2				
Murnin Creek				
Willow Draw				

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

3.8.3.2 Impaired Water Bodies

The East Canyon Creek-2 AU is impaired for one or more constituents and, therefore, does not meet the water quality standards for some of its beneficial uses. These surface waters have been added to the State's 303(d) list, and the State will need to complete the required TMDL studies to determine the sources of pollutants in these waters and approaches for reducing the pollutants' concentrations.

Table 3.8-6 lists the impairments of the surface waters in the water quality and water resources evaluation area and the TMDL development status for each of these surface waters. The approved TMDLs and their conclusions are also discussed below.

Table 3.8-6. Impaired Surface Waters in the Water Quality and Water Resources Evaluation Area

Water Body	Assessment Unit / Reach	Constituents or Measurements	Description of Impairment	TMDL Development Status
East Canyon Creek	East Canyon Creek-2	• Water temperature • Total phosphorus • Dissolved oxygen	• Does not meet water quality standards for beneficial use 3A (cold-water fishery and aquatic life) because of elevated water temperature, decreased dissolved oxygen, and total phosphorus.	• Approved for dissolved oxygen and total phosphorus. • Not developed for water temperature; low priority for development.
Twomile Canyon Creek				
Unnamed Tributary to East Canyon Creek				
Threemile Canyon Creek				
Unnamed Tributary to Murnin Creek 1				
Unnamed Tributary to Murnin Creek 2				
Murnin Creek				
Willow Draw				

Source: UDWQ 2024
Definitions: TDS = total dissolved solids

The approved TMDL for total phosphorus and dissolved oxygen (UDWQ 2010) lists the sources of total phosphorus in East Canyon Creek and East Canyon Reservoir. The watershed's nonpoint sources of phosphorus include spring melt runoff from ski resorts and urban areas, stormwater runoff from Park City and construction sites, streambank erosion, agricultural land uses, and natural background sources, including phosphatic shales in the watershed. The only regulated point source is the East Canyon Water Reclamation Facility.

The water quality modeling that has been conducted uses water quality data from a point upstream of the East Canyon Water Reclamation Facility (shown as the assessment point in Figure 3.8-1, *Water Resources in the Water Quality and Water Resources Evaluation Area*, above) to capture the effects of the nonpoint sources of phosphorus.

The main factors that cause low dissolved oxygen are listed in the TMDL as solar radiation due to the lack of shade to the stream, channel widening resulting in shallow reaches, and low stream velocity and flow during the summer months, which contribute to a higher in-stream water temperature. Waters with higher in-stream water temperatures have a lower capacity to dissolve oxygen. Other factors that could contribute to low dissolved oxygen are sediment, organic matter, and nutrients.

3.8.3.3 Groundwater Resources and Quality

The groundwater resources (aquifers) in the water quality and water resources evaluation area have not been classified by UDWQ or as sole-source aquifers (aquifers that are the only source of drinking water for a community) by EPA (EPA 2023).

3.8.3.4 Drinking Water Source Protection Zones

This section discusses the drinking water source protection zones in the water quality and water resources evaluation area that could be impacted by the action alternatives because they are partially located in the

project right-of-way. These drinking water source protection zones are associated with groundwater, surface water, and transient, non-community drinking water sources and have protection plans in place, which include allowable activities, types of development, and measures to protect water quality from potential pollution sources in different zones. UDOT determined which drinking water source protection zones are in the evaluation area by overlaying GIS files of the drinking water source protection zones that were acquired from UDDW onto the evaluation area, excluding the East Canyon Creek upstream watershed (UDDW 2023a). Table 3.8-7 shows the public water systems and zone types that have drinking water source protection zones in the evaluation area.

Table 3.8-7. Drinking Water Source Protection Zones in the Water Quality and Water Resources Evaluation Area

Public Water System	Number of Impacted Designations			
	Zone 1	Zone 2	Zone 3	Zone 4
Groundwater Drinking Water Source Protection Zones				
Gorgoza Mutual Water Company	0	2	2	4
Mountain Regional Water Special Service District	0	1	2	3
Summit Water Distribution Company	4	8	8	8
Surface Water Drinking Water Source Protection Zones				
Weber Basin Water Conservancy District – Central	0	1	0	1
Weber Basin Water Conservancy District – South	0	1	0	1
Transient, Non-community Drinking Water Source Protection Zones				
Park City RV Park (formerly Hidden Haven Campground)[a]	0	1	0	1

Source: UDDW 2023a

[a] According to a source water assessment (UDDW 2023b), this system has moderate to high susceptibility to impacts from roads, commercial and residential development, fuel tanks, and pesticides.

3.8.3.5 Water Rights

This section identifies water right points of diversion in the water quality and water resources evaluation area that could be impacted by the action alternatives. For groundwater points (underground or abandoned wells), the point of diversion is typically the area around the wellhead. For surface waters, the point of diversion could be a diversion structure in a stream or a collection system around a spring.

UDWRi tracks water rights according to an inventoried water right number. Each water right number can represent one or more actual groundwater wells, springs, surface water sources, or a combination of these sources.

Table 3.8-8 summarizes the number of water rights by type in the right-of-way for the action alternatives. The approximate locations of points of diversion or clusters of water rights (shown as one point) are shown above in Figure 3.8-1, *Water Resources in the Water Quality and Water Resources Evaluation Area*, above.

Table 3.8-8. Water Right Points of Diversion by Type and Status in the Rights-of-way for the Action Alternatives

Type of Diversion	Number of Sources	Status	Owners
Surface	27	• A – Approved (4) • P – Perfected (4) • T – Terminated (19)	• Mountain Regional Water Special Service District (P, T) • Snyderville Basin Sewer Improvement District (P) • Glenwild Golf Club, LLC (T) • Grayhawk / DMB Park City, LLC (T) • private owners (A, P, and T)
Underground	34	• A – Approved (18) • P – Perfected (3) • T – Terminated (13)	• Chevron Resources Company (A) • UDOT (A, P, T), Summit County (A) • Summit Water Distribution Company (A and T) • Kmam Real Estate, LLC (P) • Gorgoza Pines Ranch, Inc. (T) • Saunders Land Investment Corporation (T) • Summit County Service Area #3 (T) • Private owners (A, P, and T)
Abandoned Well	6	• A – Approved (6)	• Summit Water Distribution Company (A)

Source: UDWRi 2023b

Note that a single point of diversion in Figure 3.8-1, *Water Resources in the Water Quality and Water Resources Evaluation Area*, above can represent more than one water right.

3.8.4 Environmental Consequences and Mitigation Measures

This section discusses the expected water quality impacts to surface water quality, groundwater quality, drinking water, and water rights from the project alternatives.

3.8.4.1 Methodology

UDOT used the Stochastic Empirical Loading and Dilution Model (SELDM), which was developed by FHWA and the U.S. Geological Survey (USGS), to estimate the effects of the Kimball Junction Project on water quality. UDOT assessed the impacts of solids, nutrients, and metals, which are common pollutants in highway stormwater runoff.

Total phosphorus, for which East Canyon Creek is impaired, is included in this list of common pollutants in highway stormwater runoff. East Canyon Creek is also impaired for water temperature and dissolved oxygen; however, UDOT did not quantitatively analyze these water quality parameters. Water temperature has seasonality effects, which are difficult to correct in a stochastic analysis, and low dissolved oxygen is tied to elevated water temperature as described in the TMDL study (UDWQ 2010). Sediment, organic matter, and nutrients (all of which have been analyzed quantitatively) in the stream might also affect dissolved oxygen concentrations. The BMPs that are planned as a part of the Kimball Junction Project should be effective in reducing sediment and nutrients loads from highway stormwater runoff that are discharged to East Canyon Creek. There is no current TMDL for water temperature in East Canyon Creek; however, as discussed in Section 3.8.3.2, *Impaired Water Bodies*, many of the factors that are listed as causes of low dissolved oxygen could also contribute to higher water temperatures. UDOT would participate in developing a future TMDL for water temperature if UDWQ later determines that UDOT's facilities are a major contributor to the impairment. It is generally understood that large increases in impervious area can

contribute to higher water temperatures; however, compared to the existing impervious area in the upstream watershed, the action alternatives would add a *de minimis* amount of new impervious area (less than 1% of the existing impervious area in the upstream watershed). UDOT does not expect that this small increase in impervious area would substantially increase East Canyon Creek's water temperature.

UDOT has prepared a supplemental technical report (Appendix 3C, *Water Quality Technical Report*) to document the methodology that was used to determine the expected environmental consequences of the action alternatives, specifically the expected impacts to surface water resources.

The environmental consequences were determined by comparing the modeling results for Alternatives A and C to the modeling results for the No-Action Alternative to understand the changes that could occur from implementing either of the action alternatives. The modeling results were compared in two ways:

- Determining the percentage of simulated storms for the project alternatives that produced an in-stream concentration greater than or equal to the surface water quality standards for East Canyon Creek.
- Determining the modeled central range of in-stream concentrations (the range of concentrations that would be expected for between 80% [low end] and 20% [high end] of storms) for the project alternatives. The central range of in-stream concentrations is typically used in stochastic analysis to understand the impacts of an action while excluding the events that would statistically almost never or almost always occur.

UDOT intends to continue using any existing water quality control facilities (or BMPs) and to design and construct any new facilities that are needed to address the additional impervious areas that would be added with the selected alternative. To be conservative in the analysis, UDOT assumed that no existing BMPs were in place and ran the SELDM model with no BMP influence for the No-Action Alternative. For the action alternatives, UDOT applied detention basin BMPs to the SELDM model to the extent that any stormwater runoff from the additional impervious area would be treated before being discharged into East Canyon Creek.

For the Kimball Junction Project, UDOT analyzed the potential detention basin locations near or inside the existing UDOT right-of-way for the storage volume needed to manage the additional stormwater runoff from the new impervious areas. This analysis aimed to identify locations with enough storage volume to treat the runoff from the additional impervious area for the 100-year, 24-hour storm (a precipitation event that lasts 24 hours and statistically occurs every 100 years). The potential detention basin locations also needed to have minimal impacts to the existing built environment and other environmental resources.

Because of the project site's existing topography and drainage patterns, the locations that had enough storage volume and would have minimal impacts to the existing built environment do not always allow the stormwater runoff to be captured and treated from the new impervious areas.

To accommodate the existing built environment, UDOT assumed a volumetric approach where a volume of stormwater runoff that is equal to or greater than the respective net increase of stormwater runoff from Alternatives A and C would be captured from a different location along the roadway corridor in the East Canyon Creek watershed and would be treated before being discharged as if that stormwater runoff came from the new impervious areas associated with Alternatives A and C.

In addition to the surface water quality modeling (see Appendix 3C, *Water Quality Technical Report*), UDOT assessed impacts to water right points of diversion and drinking water source protection zones using GIS shapefiles of these resources (UDDW 2023a; UDWRi 2023b). These shapefiles were overlaid on the preliminary design for the action alternatives to determine the expected impacts of the action alternatives to drinking water source protection zones and water right points of diversion.

There are a few existing stream crossings in the water quality and water resources evaluation area. The physical condition of these crossings will be evaluated during the final design stage of the project, and the appropriate action for each location will be taken. These actions might include replacing, lining, extending, or repairing conveyance structures, as well as a number of other methods or techniques that might be pursued to limit the impacts of the work. Mitigation measures for these actions are discussed in Section 3.8.4.5, *Mitigation Measures for Impacts to Water Quality and Water Resources*.

3.8.4.2 No-Action Alternative

This section describes the impacts to water quality and water resources in the water quality and water resources evaluation area from stormwater runoff from the No-Action Alternative. With this alternative, the roadways in Kimball Junction would remain mostly as they are now, so there would be no additional impervious areas added and no change to the current effects of highway stormwater runoff on water quality and water resources. Stormwater would be treated as it is currently being treated because vehicles would continue to use the existing roads in the evaluation area.

Other projects might be completed independently of the Kimball Junction Project; however, the impacts to water quality and water resources from these projects would be addressed through individual UPDES permits (construction and/or community MS4 permits) and other regulatory processes that are in place to protect water quality.

3.8.4.2.1 Surface Waters and Beneficial-use Classifications with the No-Action Alternative

With the No-Action Alternative, there would be no change to any impacts from existing highway stormwater runoff to surface waters because the Kimball Junction Project would not be implemented. The completed TMDLs do not specify highway stormwater runoff as a main contributor to the existing exceedance of water quality standards.

UDOT prepared a version of the water quality model for the No-Action Alternative to establish a baseline to compare the modeled water quality of the action alternatives to this baseline (conditions in 2050); see Section 2.3.1, *Alternative A*, and Section 2.3.2, *Alternative C*, in Appendix 3C, *Water Quality Technical Report*, for a description of the baseline model results for East Canyon Creek. A summary of these results for the No-Action Alternative is provided in Table 3.8-9, *Impacts to East Canyon Creek with the No-Action Alternative and Alternative A and Numeric Water Quality Exceedances*, and Table 3.8-11, *Impacts to East Canyon Creek with the No-Action Alternative and Alternative C and Numeric Water Quality Exceedances*, below.

3.8.4.2.2 Impacts to Groundwater Quality and Resources with the No-Action Alternative

The No-Action Alternative would not additionally affect any groundwater resources or quality.

3.8.4.2.3 Impacts to Drinking Water Source Protection Plans and Protection Zones with the No-Action Alternative

The No-Action Alternative would not additionally affect drinking water source protection zones.

3.8.4.2.4 Impacts to Water Rights with the No-Action Alternative

The No-Action Alternative would not additionally affect any water right points of diversion.

3.8.4.2.5 Impacts to Stream Crossings with the No-Action Alternative

The No-Action Alternative would not include actions that would additionally impact any existing stream crossings of the roads associated with the Kimball Junction Project.

3.8.4.3 Alternative A

This section describes the impacts to water quality and water resources from Alternative A. With Alternative A, UDOT would construct about 6.6 acres of additional impervious area, which would result in a net increase of impervious area that would contribute runoff to surface waters. Stormwater runoff would be managed through detention basins and other potential BMPs in accordance with UDOT's *Stormwater Quality Design Manual* (UDOT 2021c).

Figure 3.8-2 shows the project footprint for Alternative A in relation to the water quality monitoring point at which the surface water quality was modeled using SELDM and the water right points of diversion that would be impacted by Alternative A. The impacted water right points of diversion are discussed in Section 3.8.4.3.4, *Impacts to Water Rights with Alternative A*.

Figure 3.8-2. Water Resources Impacted by Alternative A

3.8.4.3.1 Impacts to Surface Waters and Beneficial-use Classifications with Alternative A

UDOT analyzed the highway stormwater runoff and its potential impacts to surface waters; the results are provided in Section 2.3.1, *Alternative A*, of Appendix 3C, *Water Quality Technical Report*. The results of a modeling analysis of East Canyon Creek upstream of the East Canyon wastewater treatment plant (WWTP) including comparisons between the No-Action Alternative and the expected conditions with the project (represented by Alternative A).

Table 3.8-9 summarizes the results of comparing the No-Action Alternative and Alternative A for the main contaminants of concern, which are contaminants with existing impairments or impacts that exceed the water quality standards for East Canyon Creek's beneficial uses.

Table 3.8-9. Impacts to East Canyon Creek with the No-Action Alternative and Alternative A and Numeric Water Quality Exceedances

Pollutant	Most Stringent Surface Water Quality Standard (Beneficial Use)	% of Simulated Storms Equaling or Exceeding the Most Stringent Water Quality Standard Downstream of the Kimball Junction Project Area		"Central Concentration Range" – Downstream Concentration Equaled or Exceeded during _____ of Simulated Storms			
		No-Action Alternative	Alternative A	No-Action Alternative		Alternative A	
				80%	20%	80%	20%
Total phosphorus	0.05 mg/L (1C and 3A[a,b])	11.88	14.15	0.0135	0.0382	0.0140	0.0398

Definitions: mg/L = milligrams per liter

Note: This table includes only the constituents for which a stream is impaired and/or where the modeled central range of expected concentrations (between 20% and 80% of storms) exceeds the water quality standard. For full model results, see Section 2.3.1, *Alternative A*, of Appendix 3C, *Water Quality Technical Report*. Water temperature and dissolved oxygen were not quantitatively analyzed using the water quality model.

[a] The 1-hour criterion was chosen because impacts from stormwater runoff typically move downstream and dissipate quickly.

[b] Pollution indicator.

The modeling shows that the expected surface water concentration ranges for most of the pollutants analyzed in East Canyon Creek downstream of the project area would not materially change between the No-Action Alternative and Alternative A. Furthermore, the concentrations would not exceed the surface water quality standards associated with East Canyon Creek (for beneficial uses 1C, 2B, 3A, and 4) with most storms.

East Canyon Creek is currently impaired for total phosphorus, water temperature, and dissolved oxygen. Water temperature and dissolved oxygen were not modeled by SELDM; therefore, no quantitative results are presented for changes in water temperature or dissolved oxygen.

The model results for the No-Action Alternative and Alternative A show that East Canyon Creek could exceed the total phosphorus concentration standard (pollution indicator) for beneficial uses 1C and 3A of 0.05 milligrams per liter (mg/L) for 11.88% and 14.15% of storms, respectively (Table 3.8-9 above). This difference between the No-Action Alternative and Alternative A represents an increase of about 2.25% of storms that are expected to exceed the water quality standard for Alternative A compared to the No-Action Alternative. The central concentration range (between 80% and 20% of storms) for total phosphorus for both

Alternative A and the No-Action Alternative is below the water quality standard for total phosphorus and shows minor increases (about 4%) in both ends of the range for Alternative A compared to the No-Action Alternative (Table 3.8-9 above).

3.8.4.3.2 Impacts to Groundwater Quality and Resources with Alternative A

Alternative A would not additionally impact groundwater resources or groundwater quality.

3.8.4.3.3 Impacts Drinking Water Source Protection Plans and Protection Zones with Alternative A

The project footprint for Alternative A intersects drinking water source protection zones for groundwater, surface water, and transient, non-community public water systems. Table 3.8-10 lists the public water systems with drinking water source protection zones that are intersected by Alternative A. To protect the security of drinking water source intakes, the drinking water source protection zones are not shown in a figure.

Table 3.8-10. Impacts to Drinking Water Source Protection Zones in the Water Resources and Water Quality Resources Evaluation Area with Alternative A

Public Water System	Number of Impacted Designations			
	Zone 1	Zone 2	Zone 3	Zone 4
Groundwater Drinking Water Source Protection Zones				
Gorgoza Mutual Water Company	0	2	2	2
Mountain Regional Water Special Service District	0	0	1	2
Summit Water Distribution Company	1	6	6	6
Surface Water Drinking Water Source Protection Zones				
Weber Basin Water Conservancy District - Central	0	1	0	1
Weber Basin Water Conservancy District - South	0	1	0	1
Transient, Non-community Drinking Water Source Protection Zones				
Park City RV Park	0	1	0	1

Source: UDDW 2023a

The Zone 2 through Zone 4 drinking water source protection zones currently have existing transportation infrastructure inside their zone boundaries; for this reason, UDOT anticipates that no additional mitigation measures would be necessary beyond replacing the existing protection measures if necessary. The additional impervious area associated with Alternative A would not materially change the character of the existing transportation land uses.

For the one Zone 1 drinking water source protection zone associated with Summit Water Distribution Company, additional investigation, coordination with the system owner, and the design of specific mitigation measures (additional stormwater BMPs, routing stormwater out of the zone, or relocating the groundwater well) might be necessary during the final design phase of the project.

3.8.4.3.4 Impacts to Water Rights with Alternative A

Alternative A would impact 14 water right points of diversion. Of these 14 points of diversion, there are 6 abandoned wells with approved status. The other 8 impacted points of diversion have underground sources; 6 of them have approved status, 1 has perfected status, and 1 has been terminated. These points of diversion could include points that are already impacted by existing roadway infrastructure. Figure 3.8-2, *Water Resources Impacted by Alternative A*, above shows the locations of the impacted water right points of diversion. Note that one point in the figure could represent a diversion for several individual water rights.

3.8.4.3.5 Impacts to Stream Crossings with Alternative A

With Alternative A, UDOT would inspect the existing condition of all stream crossings that would be affected and decide the proper course of action (replace, extend, or maintain the crossing) during the final design phase of the project. If UDOT determines that an action needs to be taken for a stream crossing, UDOT will follow the procedures and requirements in UDOT's *Drainage Manual of Instruction* (UDOT 2024b). For more information, see Section 3.9, *Ecosystem Resources*, and Section 3.10, *Floodplains*.

3.8.4.4 Alternative C

This section describes the impacts to water quality and water resources from Alternative C. With Alternative C, UDOT would construct about 5.9 acres of additional impervious area, which would result in a net increase of impervious area that would contribute runoff to surface waters. Stormwater runoff would be managed through detention basins and other potential BMPs in accordance with UDOT's *Stormwater Quality Design Manual* (UDOT 2021c).

Figure 3.8-3 shows the project footprint for Alternative C in relation to the water quality monitoring point at which the surface water quality was modeled using SELDM and the water right points of diversion that would be impacted by Alternative C. The impacted water right points of diversion are discussed in Section 3.8.4.4.4, *Impacts to Water Rights with Alternative C*.

Figure 3.8-3. Water Resources Impacted by Alternative C

3.8.4.4.1 Impacts to Surface Waters and Beneficial-use Classifications with Alternative C

UDOT analyzed the highway stormwater runoff and its impacts to surface waters; the results are provided in Section 2.3.2, *Alternative C*, of Appendix 3C, *Water Quality Technical Report*. The results of a modeling analysis of East Canyon Creek upstream of the East Canyon WWTP including comparisons between the No-Action Alternative and expected conditions with the project (represented by Alternative C).

Table 3.8-11 summarizes the results of comparing the No-Action Alternative and Alternative C for the main contaminants of concern, which are contaminants with existing impairments or impacts that exceed the water quality standards for East Canyon Creek's beneficial uses.

Table 3.8-11. Impacts to East Canyon Creek with the No-Action Alternative and Alternative C and Numeric Water Quality Exceedances

Pollutant	Most Stringent Surface Water Quality Standard (Beneficial Use)	% of Simulated Storms Equaling or Exceeding the Most Stringent Water Quality Standard Downstream of the Kimball Junction Project Area		"Central Concentration Range" – Downstream Concentration Equaled or Exceeded during _____ of Simulated Storms			
		No-Action Alternative	Alternative C	No-Action Alternative		Alternative C	
				80%	20%	80%	20%
Total phosphorus	0.05 mg/L (1C, 3A[a,b])	11.88	13.70	0.0135	0.0382	0.0133	0.0421

Definitions: mg/L = milligrams per liter

Note: This table includes only the constituents for which a stream is impaired and/or where the modeled central range of expected concentrations (between 20% and 80% of storms) exceeds the water quality standard. For full model results, see Section 2.3.2, *Alternative C*, of Appendix 3C, *Water Quality Technical Report*. Water temperature and dissolved oxygen were not quantitatively analyzed using the water quality model.

[a] The 1-hour criterion was chosen because impacts from stormwater runoff typically move downstream and dissipate quickly.

[b] Pollution indicator.

The modeling shows that the expected surface water concentration ranges for most of the pollutants analyzed in East Canyon Creek downstream of the project area would not materially change between the No-Action Alternative and Alternative C. Furthermore, the concentrations would not frequently exceed the surface water quality standards associated with East Canyon Creek (for beneficial uses 1C, 2B, 3A, and 4).

East Canyon Creek is currently impaired for total phosphorus, water temperature, and dissolved oxygen. Water temperature and dissolved oxygen were not modeled by SELDM; therefore, no quantitative results are presented for changes in water temperature or dissolved oxygen.

The model results for No-Action Alternative and Alternative C show that East Canyon Creek could exceed the total phosphorus concentration standard (pollution indicator) for beneficial uses 1C and 3A of 0.05 mg/L for 11.88% and 13.70% of storms, respectively (Table 3.8-11 above). This difference between the No-Action Alternative and Alternative C represents an increase of less than 2% of storms that are expected to exceed the water quality standard for Alternative C compared to the No-Action Alternative. For most storms, the total phosphorus concentration for both Alternative C and the No-Action Alternative is below the water quality standard for total phosphorus and shows minor changes in both ends of the range for Alternative C compared to the No-Action Alternative (Table 3.8-11 above). At the low end of the range, Alternative C

represents a decrease of about 1.4% compared to the No-Action Alternative. At the high end of the range, Alternative C represents an increase of about 9.2% compared to the No-Action Alternative.

3.8.4.4.2 Impacts to Groundwater Quality and Resources with Alternative C

The impacts to groundwater quality and groundwater resources would be the same for Alternative C as they would be for Alternative A.

3.8.4.4.3 Impacts to Drinking Water Source Protection Plans and Protection Zones

The project footprint for Alternative C intersects drinking water source protection zones for groundwater, surface water, and transient, non-community public water systems. Table 3.8-12 lists the public water systems with drinking water source protection zones that are intersected by Alternative C. To protect the security of drinking water source intakes, the drinking water source protection zones are not shown in a figure.

Table 3.8-12. Impacts to Drinking Water Source Protection Zone in the Water Resources and Water Quality Resources Evaluation Area with Alternative C

Public Water System	Number of Impacted Designations			
	Zone 1	Zone 2	Zone 3	Zone 4
Groundwater Drinking Water Source Protection Zones				
Gorgoza Mutual Water Company	0	2	2	2
Mountain Regional Water Special Service District	0	0	1	2
Summit Water Distribution Company	0	6	6	6
Surface Water Drinking Water Source Protection Zones				
Weber Basin Water Conservancy District - Central	0	1	0	1
Weber Basin Water Conservancy District - South	0	1	0	1
Transient, Non-community Drinking Water Source Protection Zones				
Park City RV Park	0	1	0	1

Source: UDDW 2023a

The Zone 2 through Zone 4 drinking water source protection zones currently have existing transportation infrastructure inside their zone boundaries; for this reason, UDOT anticipates that no additional mitigation measures would be necessary beyond replacing the existing protection measures if necessary. The additional impervious area associated with Alternative C would not materially change the character of the existing transportation land uses.

3.8.4.4.4 Impacts to Water Rights with Alternative C

Alternative C would impact seven underground water right points of diversion. Six of these points of diversion have an approved status and one has been terminated. These points of diversion could include points that are already impacted by existing roadway infrastructure. Figure 3.8-3, *Water Resources Impacted by Alternative C*, above shows the locations of the impacted water right points of diversion. Note that one point on the figure could represent a diversion for several individual water rights.

3.8.4.4.5 Impacts to Stream Crossings with Alternative C

The impacts to stream crossings would be the same for Alternative C as they would be for Alternative A.

3.8.4.5 Mitigation Measures for Impacts to Water Quality and Water Resources

UDOT proposes the following mitigation measures to help ensure that the water quality and water resources are maintained:

- UDOT or its design consultants will follow all applicable requirements of UDOT's *Stormwater Quality Design Manual* (UDOT 2021c) to design BMPs that meet MS4 permit and groundwater permit-by-rule requirements.
- UDOT or its design consultants will follow UDOT's *Drainage Manual of Instruction* (UDOT 2024b) to design stream crossings and culverts.
- UDOT will visually inspect and maintain stormwater quality BMPs to ensure that they are functioning properly. These BMPs would likely include detention basins; however, other BMPs from UDOT's *Stormwater Quality Design Manual* might be chosen during the final design phase of the project.
    - During construction, inspectors for the project will certify that the BMPs are installed according to contract documents and UDOT standards.
    - After construction, UDOT will document and maintain records of inspections, any deficiencies identified during inspections, and the repairs performed on the BMPs.
- UDOT will comply with the CWA Section 404 permit, including any required Section 401 Water Quality Certifications and applicable Stream Alteration Permits for activities that place fill into waters of the United States and alter natural stream beds and banks.
- UDOT will maintain wetland hydrology and existing surface water conveyance patterns by installing culverts or other engineering alternatives through the roadway embankment.

- UDOT will collaborate with the public water system owners that have drinking water source protection zones in place that might be impacted by the project during final design and construction to mitigate any impacts to water distribution infrastructure.
- UDOT will coordinate with the owners of any impacted water right points of diversion during final design and construction to protect or replace the impacted points of diversion as necessary.
- UDOT will design and implement countermeasures to mitigate potential impacts to a stream's natural flow pattern, velocity, profile, channel stability, aquatic habitats, streambank vegetation, and riparian habitats that could result from replacing, lining, extending, or repairing conveyance structures for the project.

3.9 Ecosystem Resources

3.9.1 Introduction

This section describes the ecosystem resources, including the plant species, wildlife species, habitat types, and aquatic resources, in the ecosystem resources evaluation area and how these resources would be directly and indirectly affected by the project alternatives.

Ecosystem Resources Evaluation Area. The ecosystem resources evaluation area is about 230 acres and is located along both sides of I-80 between MPs 142.2 and 145.6 and along both sides of SR-224 between MPs 10.65 and 11.65 in Summit County, Utah. The evaluation area includes the EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*.

The evaluation area includes Rasmussen Road and Kilby Road, both of which run parallel to I-80 west of Kimball Junction, and Bitner Road and Highland Drive, both of which run parallel to I-80 east of Kimball Junction. The evaluation area also includes Landmark Drive, and the area between Landmark Drive to the west, Uinta Way to the east, Ute Boulevard to the north, and Olympic Parkway to the south. The width of the evaluation area varies to accommodate the proposed project elements. The evaluation area encompasses the right-of way-that would be needed for each of the action alternatives plus a buffer to allow design refinements to the alternatives (Figure 3.9-1).

Figure 3.9-1. Ecosystem Resources Evaluation Area

3.9.2 Regulatory Setting

3.9.2.1 Threatened and Endangered Species

The Endangered Species Act (ESA; 16 USC Sections 1531–1544) establishes a framework to protect and conserve species listed as threatened or endangered and their habitats. The ESA prohibits the "take" of endangered species except when the take is incidental to, and not the purpose of, carrying out an otherwise lawful activity, or when take is for scientific purposes, or to enhance the propagation or survival of the species.

Under Section 7 of the ESA, federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) before taking any action that will likely affect a federally listed threatened or endangered species or designated critical habitat for an endangered species. In addition, federal agencies must ensure that their actions are not likely to jeopardize the continued existence of any listed species or to destroy or adversely modify any designated critical habitat.

Under the Memorandum of Understanding described in Section 1.1, *Introduction*, in Chapter 1, *Purpose and Need*, UDOT has been assigned FHWA's responsibilities for compliance with Section 7 requirements as part of the environmental review process for highway projects in Utah. A federal action agency (in this case, UDOT acting in the role of FHWA) makes an effect determination for a proposed action on each listed species in the ecosystem resources evaluation area.

- **"No Effect" Determination.** A "no effect" determination means that the proposed action would not impact listed species or their designated critical habitats and does not require consultation or concurrence from USFWS.
- **"May Affect, but Not Likely to Adversely Affect" Determination.** A "may affect, but not likely to adversely affect" determination means that any effects on listed resources would be beneficial, insignificant, or discountable. If a federal agency makes this determination, it can satisfy its Section 7 consultation responsibilities by obtaining concurrence with its determination from USFWS.
- **"May Affect, Likely to Adversely Affect" Determination.** When listed resources are likely to be exposed to a proposed project's actions and are likely to respond negatively to the exposure, a "may affect, and is likely to adversely affect" determination is made by the federal action agency. This determination requires the federal agency to formally consult with USFWS on the impacts of the proposed action. After formal consultation is completed, USFWS prepares its Biological Opinion on whether the proposed action will jeopardize the continued existence of the species or adversely modify its designated critical habitat.

3.9.2.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 USC Sections 703–712) makes it unlawful to pursue, hunt, take, capture, kill, possess, sell, barter, purchase, transport, export, or import any migratory bird, or any part, nest, or egg of any such bird, with the exception of taking game birds during established hunting seasons. Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds* (January 10, 2001), directs federal agencies taking actions likely to affect migratory birds to support the implementation of the Migratory Bird Treaty Act.

3.9.2.3 Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (16 USC Sections 668–668d) makes it unlawful to take, import, export, sell, purchase, transport, or barter any bald or golden eagle or their parts, products, nests, or eggs. "Take" includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing eagles.

3.9.2.4 Candidate Conservation Agreements

USFWS considers candidate species to be those plants and animals that are candidates for listing under the ESA. These are species for which there is enough information regarding their biological status and threats to propose them as threatened or endangered, but listing is currently precluded by higher-priority listing activities. Candidate species are not subject to the legal protections of the ESA.

A Candidate Conservation Agreement (CCA) is a formal, voluntary agreement among USFWS and one or more parties to address the conservation needs of candidate species or species that could become candidates in the near future. Participants voluntarily commit to implement specific actions designed to remove or reduce threats to the covered species. The development of a CCA is one of the primary ways of identifying appropriate conservation efforts. Proactive conservation efforts for candidate species can, in some cases, eliminate the need to list them under the ESA.

3.9.2.5 Clean Water Act

The 1972 Clean Water Act (CWA; 33 USC Sections 1251–1387) provides authority for EPA and the U.S. Army Corps of Engineers (USACE) to define waters of the United States. *Waters of the United States* are jurisdictional waters, currently defined in 40 CFR Section 120.2 and 33 CFR Section 328.3.

Section 404 of the CWA requires authorization from USACE to discharge dredged or fill material into any waters of the United States. Any person, firm, or agency planning to alter or work in waters of the United States, including the discharge of dredged or fill material, must first obtain authorization from USACE under CWA Section 404 and, if applicable, Section 10 of the Rivers and Harbors Act of 1899 (33 USC Section 403) for work within navigable waters of the United States. Additionally, Executive Order 11990, *Protection of Wetlands*, directs federal agencies to take actions to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out agency responsibilities.

USACE issues permits to allow discharges into waters of the United States pursuant to the CWA Section 404(b)(1) Guidelines established by EPA and defined in 40 CFR Section 230. One of the key requirements in the guidelines is that a Section 404 permit cannot be issued for an alternative if there is another practicable alternative that would cause less adverse impact to aquatic resources. This requirement is commonly known as the requirement to select the "least environmentally damaging practicable alternative." In addition, Executive Order 11990 states that agencies are directed to avoid new construction in wetlands unless an agency determines that there are no practicable alternatives to such construction.

What are aquatic resources?

Aquatic resources include rivers, lakes, streams, creeks, natural ponds, and wetlands.

3.9.3 Affected Environment

3.9.3.1 Methodology

3.9.3.1.1 Data Collection

UDOT used several methods to collect data regarding the ecosystem resources in the ecosystem resources evaluation area that could be affected by the action alternatives. These methods included conducting literature reviews, consulting with resource agency personnel, and interpreting aerial photographs. UDOT also conducted field surveys for wildlife; vegetation; rare, threatened, and endangered species; and aquatic resources on August 7 and 8 and September 1, 2023, and September 4 and 6, 2024).

UDOT obtained a species list from the USFWS Information, Planning, and Conservation System (IPaC) website for federally threatened, endangered, or candidate species that might occur in the evaluation area and/or might be affected by the action alternatives (USFWS 2025a). UDOT also consulted the USFWS Environmental Conservation Online System (ECOS) for a list of species under conservation agreement that are known to occur in Summit County (USFWS 2025b). Additionally, UDOT obtained a species list from the Utah Division of Wildlife Resources' (UDWRe) Wildlife Habitat Analysis Tool to determine whether there are records of occurrence for any of the federally listed threatened, endangered, and candidate species or species under conservation agreement in the vicinity of the evaluation area (UDWRe 2025a). Reports from IPaC and the Wildlife Habitat Analysis Tool are provided in Appendix 3D, *Species Lists*.

The Utah Species Field Guide (UDWRe, no date), NatureServe (no date), Audubon (no date), and Cornell Lab's All About Birds website (Cornell Lab of Ornithology 2019) were referenced for species habitat descriptions.

UDOT identified, mapped, and delineated wetlands and other aquatic resources in the evaluation area using the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987), *the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Mountains, Valleys, and Coasts Region (Version 2.0)* (USACE 2010), and the *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams* (USACE 2022). Aquatic resource boundaries were mapped through a combination of global positioning system (GPS)-based field mapping (using ArcGIS Field Maps, a sub-meter GPS receiver, and a tablet or mobile phone) and desktop digitization referencing aerial images. These data were also used to calculate the area, lengths, and widths of aquatic resources in the evaluation area (see the *Aquatic Resources Delineation Report* [UDOT 2024c]). This report and UDOT's environmental review for aquatic resources are provided as Appendix 3E, *Aquatic Resources Delineation Report and UDOT Environmental Review for Aquatic Resources*.

3.9.3.1.2 Ute Ladies'-tresses Surveys

Habitat suitability surveys were initially conducted in the ecosystem resources evaluation area in summer 2023. Later, after the project alternatives were identified, the action area for each alternative was developed.

The ESA regulations define the action area as all areas that would be affected directly or indirectly by the federal action (50 CFR Section 402.02). The *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* (USFWS 2011) stipulate that a 300-foot buffer be applied to a project footprint to account for potential indirect impacts. Therefore, the action area for each alternative consists of the

alternative's footprint plus a 300-foot buffer. Habitat suitability surveys were conducted in the action areas for Alternative A and Alternative C in summer 2024.

GIS software was used to develop potentially suitable habitat polygons for Ute ladies'-tresses (*Spiranthes diluvialis*) in the ecosystem resources evaluation area and the action areas for each alternative. All areas where the USFWS Ute ladies'-tresses range map and the survey area overlap were visually inspected to confirm whether these areas displayed characteristics consistent with the Ute ladies'-tresses suitable habitat criteria described in the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a).

After identifying and mapping the potentially suitable habitat, UDOT performed clearance surveys to determine whether Ute ladies'-tresses were present or absent in the potentially suitable habitat polygons in the evaluation area and the action areas for each alternative. The surveys were conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)* (USFWS 2017a). This survey is further described in Appendix 3F, *Biological Assessment and USFWS Concurrence*.

In addition, Ute ladies'-tresses might not flower every year. Therefore, in drainages where Ute ladies'-tresses are known to occur, USFWS recommends that surveys be conducted annually for 3 consecutive years (USFWS 2017a). UDOT conducted a first-year clearance survey in the potentially suitable habitat identified in the action areas on September 4 and 6, 2024. Additional surveys are planned for 2025 and 2026.

The habitat suitability and clearance surveys are further described in Appendix 3F, *Biological Assessment and USFWS Concurrence*.

3.9.3.2 General Overview of the Ecosystem Resources Evaluation Area

The ecosystem resources evaluation area is located in the Wasatch and Uinta Mountains ecoregion in the Mountain Valleys subregion (Woods and others 2001). The Mountain Valleys ecoregion is generally characterized by low terraces, floodplains, alluvial fans, and hills, and it has a short growing season.

The evaluation area is located in the Lower Weber River watershed (hydrologic unit code 16020102) (USGS 2023). The hydrology of the watershed is characterized by the Weber River, which flows from the Uinta Mountains to the Great Salt Lake. Water in the evaluation area generally flows north into East Canyon Creek, which continues northwest beyond the evaluation area, where water is impounded in East Canyon Reservoir. Water released from East Canyon Reservoir is returned to East Canyon Creek, where it flows into the Weber River, eventually terminating into the Great Salt Lake, which is a traditional navigable water (TNW).

The evaluation area consists primarily of roads and road shoulders, urban land developed for residential and commercial uses, upland grass communities adjacent to roads, and some wetland areas. Common upland grass species include crested wheatgrass (*Agropyron cristatum*), western wheatgrass (*Pascopyrum smithii*), and basin wildrye (*Leymus cinereus*). The wetland areas consist primarily of broadleaf cattail (*Typha latifolia*), mountain rush (*Juncus arcticus* ssp. *littoralis*), sedges (*Carex* spp.), reed canarygrass (*Phalaris arundinacea*), and meadow foxtail (*Alopecurus pratensis*).

The Swaner Preserve and EcoCenter is partially within the evaluation area to the east of SR-224 about one-third of a mile south of Newpark Boulevard. The preserve protects 1,200 acres of open space that includes 800 acres of wetlands, streams, and other valuable wildlife habitat. Wetlands and streams in the Swaner Preserve flow into Kimball Creek to the north. Kimball Creek joins an unnamed creek from the north to eventually become East Canyon Creek north of I-80.

3.9.3.3 Threatened, Endangered, and Candidate Species

The IPaC report identified several federally listed species that might occur in the ecosystem resources evaluation area and/or might be affected by the action alternatives: one bird species, yellow-billed cuckoo (*Coccyzus americanus*); two mammal species, Canada lynx (*Lynx canadensis*) and North American wolverine (*Gulo gulo luscus*); and one plant species, Ute ladies'-tresses (*Spiranthes diluvialis*). The IPaC report also identified two insect species that are proposed to be listed under the ESA: monarch butterfly (*Danaus plexippus*) and Suckley's cuckoo bumble bee (*Bombus suckleyi*). The evaluation area does not include designated or proposed critical habitat for any of these species.

Table 3.9-1 describes the preferred habitat for each species. There is no suitable habitat in the evaluation area for yellow-billed cuckoo, Canada lynx, or North American wolverine. Potentially suitable habitat could exist in the evaluation area for the monarch butterfly and Suckley's cuckoo bumble bee. Potentially suitable habitat exists in the evaluation area and alternative action areas for Ute ladies'-tresses, but no individuals were identified during the clearance surveys.

Table 3.9-1. Federally Listed Species That Might Occur in the Ecosystem Resources Evaluation Area and/or Might Be Affected by the Action Alternatives

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat[c] Present?	Potentially Suitable Habitat Present?
Birds				
Yellow-billed cuckoo (*Coccyzus americanus*)	Threatened	Yellow-billed cuckoos prefer to nest in tall cottonwood and willow riparian woodland with dense understory foliage. They prefer patches of at least 25 acres of dense riparian forest with a canopy cover of at least 50% in both the understory and overstory. USFWS's suitable habitat guidelines for this species for Utah require patches of multilayered vegetation that are at least 12 acres in extent and at least 100 meters (328 feet) wide by 100 meters long (USFWS 2017b).	Final critical habitat has been designated for this species. The evaluation area is outside the critical habitat.	There is no suitable habitat in the evaluation area or within a ½-mile radius. The existing riparian vegetation does not meet habitat size requirements.
Insects[c]				
Monarch butterfly (*Danaus plexippus*)	Proposed[d] endangered	In the spring, summer, and early fall, monarch butterflies can be found wherever there are milkweeds in fields, meadows, and parks. They overwinter in the cool, high mountains of central Mexico and woodlands in central and southern California. Milkweed (*Asclepias* spp.) is an essential feature of quality monarch habitat. Female monarch butterflies lay their eggs on the underside of young leaves or flower buds of milkweed. Common places milkweed occurs include short- and tall-grass prairies, livestock pastures, agricultural margins, roadsides, wetland and riparian areas, sandy areas, and gardens. In addition to milkweed, other nectar sources, trees for roosting, and close proximity to water are key components of monarch habitat (Western Association of Fish and Wildlife Agencies 2019).	There is proposed critical habitat for this species. The evaluation area is outside the critical habitat.	Potentially suitable habitat exists in the evaluation area. Milkweed plants were observed during the field survey. There are records of individuals within ½-mile and 2-mile radii of the evaluation area (UDWRe 2025a).

(*Continued on next page*)

Table 3.9-1. Federally Listed Species That Might Occur in the Ecosystem Resources Evaluation Area and/or Might Be Affected by the Action Alternatives

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat[c] Present?	Potentially Suitable Habitat Present?
Suckley's cuckoo bumble bee (*Bombus suckleyi)*	Proposed[d] endangered	Suckley's cuckoo bumble bee is an obligate parasitic species that is entirely dependent on the workers of host colonies to raise their young. Suckley's cuckoo bumble bee has two confirmed hosts, the western bumble bee (*Bombus occidentalis*) and the Nevada bumble bee (*Bombus nevadensis*); the western bumble bee is the most widely known host. Western bumble bees are known to nest primarily in underground cavities and abandoned animal burrows more often than they do in aboveground structures. Suckley's cuckoo bumble bee has a broad distribution across North America, primarily in the western half of the United States and the Yukon of Canada. It and has been found between 6 and 10,500 feet in elevation in various habitat types including prairies, grasslands, meadows, woodlands, forests, croplands, and urban areas from 6 to 10,500 feet in elevation. Suckley's cuckoo bumble bees require diverse pollen and nectar resources for nutrition (USFWS 2024).	Critical habitat has not been designated for this species.	Potentially suitable habitat exists in evaluation area. The area offers potential nesting sites and diverse pollen and nectar sources for foraging. In addition, there are records of western bumble bees, the most widely known host for Suckley's bumble bees, within a 2-mile radius of the evaluation area (UDWRe 2025a).
Mammals				
Canada lynx (*Lynx canadensis*)	Threatened	The preferred habitat of Canada lynxes is boreal and montane regions dominated by coniferous or mixed forest with thick undergrowth, but lynxes also enter open forest, rocky areas, and tundra to forage for abundant prey. The major limiting factor is the abundance of snowshoe hares.	Final critical habitat has been designated for this species. The evaluation area is outside the critical habitat.	There is no suitable habitat in the evaluation area. The evaluation area is located in a developed area and lacks extensive coniferous or mixed forest vegetation.
North American wolverine (*Gulo gulo luscus*)	Threatened	Wolverines prefer alpine tundra and mountain forest habitats in areas where snow cover persists late into the spring. Wolverines prefer areas that are not frequented by humans. Wolverines are not common in Utah.	Critical habitat has not been designated for this species.	There is no suitable habitat in the evaluation area. The evaluation area consists primarily of roads and road shoulders and urban land developed for residential and commercial uses and lacks the characteristics of quality North American wolverine habitat.

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Table 3.9-1. Federally Listed Species That Might Occur in the Ecosystem Resources Evaluation Area and/or Might Be Affected by the Action Alternatives

Common Name[a] (Scientific Name)	Federal Status	Preferred Habitat[b]	Critical Habitat[c] Present?	Potentially Suitable Habitat Present?
Plants				
Ute ladies'-tresses (*Spiranthes diluvialis*)	Threatened	This white-flowered orchid is found below 7,000 feet in elevation in moist to very wet meadows, along streams, in abandoned stream meanders, and near springs, seeps, and lake shores where competition for light, space, water, and other resources is normally kept low by periodic or recent disturbance. Ute ladies'-tresses are also known to occur in seasonally flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, and lake shores. Populations have also been observed along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands (Fertig and others 2005).	Critical habitat has not been designated for this species.	A total of 0.334 acre of potentially suitable Ute ladies'-tresses habitat was identified in wet meadow wetlands in the Alternative A action area, and a total of 0.546 acre of potentially suitable Ute ladies'-tresses habitat was identified in wet meadow wetlands in the Alternative C action area. UDOT has conducted a first-year clearance survey in the potentially suitable habitat identified in the action areas. No plants were found during the survey. Additional surveys are planned for 2025 and 2026.[e] There are records of individuals within a 2-mile radius of the evaluation area (UDWRe 2025a).

[a] Source: Species list from USFWS 2025a

[b] Sources: Audubon, no date; Cornell Lab of Ornithology 2019; NatureServe, no date; UDWRe, no date; Utah Native Plant Society, no date; and recovery plans found in USFWS ECOS (USFWS 2025c)

[c] "Critical habitat" is a term defined in the ESA (Section 3(5)(A)); it refers to specific areas that contain physical or biological features that are essential to the conservation of a species and that might need special management or protection.

[d] A "proposed" species is any species that USFWS has determined is likely to become endangered within the foreseeable future throughout all or a significant portion of its range or is in danger of extinction throughout all or a significant portion of its range, and USFWS has proposed a draft rule to list the species as threatened or endangered. Proposed species are not protected by the take prohibitions of Section 9 of the ESA until the rule to list is finalized. Under Section 7(a)(4) of the ESA, "Federal agencies must confer with the [USFWS] if their action will jeopardize the continued existence of a proposed species" (USFWS 2025d).

[e] Ute ladies'-tresses might not flower every year. Therefore, in drainages where Ute ladies'-tresses are known to occur, USFWS recommends that surveys be conducted annually for 3 consecutive years (USFWS 2017a).

3.9.3.4 Species under Conservation Agreement

The USFWS ECOS identified four species under conservation agreement that are known to occur in Summit County. One amphibian species, Columbia spotted frog (*Rana luteiventris*); one bird species, greater sage-grouse (*Centrocercus urophasianus*); and two fish species, Bonneville cutthroat trout (*Oncorynchus clarkii utah*) and Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*), were identified. Table 3.9-2 describes the preferred habitat for each species. There is no suitable habitat in the ecosystem resources evaluation area for greater sage-grouse or Colorado River cutthroat trout. Potentially suitable habitat exists in the evaluation area for Columbia spotted frog and Bonneville cutthroat trout.

Table 3.9-2. Species under Conservation Agreement That Are Known to Occur in Summit County

Common Name[a] (Scientific Name)	Preferred Habitat[b]	Potentially Suitable Habitat Present?
Amphibians		
Columbia spotted frog (*Rana luteiventris*)	Columbia spotted frogs are highly aquatic and are rarely found far from permanent quiet water. They usually live at the grassy/sedgy margins of streams, lakes, ponds, springs, and marshes and use stream-side small-mammal burrows as shelter. Breeding typically occurs in small pools or ponds with little or no current surrounded by dense aquatic vegetation.	Potentially suitable habitat exists in the open-water ponds in the evaluation area. There are records of individuals within a 2-mile radius of the evaluation area (UDWRe 2025a).
Birds		
Greater sage-grouse (*Centrocercus urophasianus*)	Greater sage-grouse are found throughout Utah in sagebrush steppe communities. Sagebrush is an essential part of sage-grouse habitat with associated wet meadow areas and a good understory of grasses and forbs signifying quality habitat.	There is no suitable habitat in the evaluation area, and the evaluation area is not located in a sage-grouse management area.
Fish		
Bonneville cutthroat trout (*Oncorhynchus clarkii utah*)	Habitat for Bonneville cutthroat trout ranges from high-elevation streams with coniferous and deciduous riparian trees, to low-elevation streams in sage-steppe grasslands containing herbaceous riparian zones, to lakes.	Potentially suitable habitat exists in the evaluation area. This species is known to occur in Threemile Canyon Creek, which is a tributary to OW-2, an open-water pond that was delineated in the evaluation area (UDOT 2024c). There are records of individuals within ½-mile and 2-mile radii of the evaluation area (UDWRe 2025a).
Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*)	Colorado River cutthroat trout require cool, well oxygenated water and vegetated streambanks for cover and bank stability. Deep pools, boulders, and logs are also important for cover. Colorado River cutthroat trout are native to the Colorado River basin and are currently limited to a few small headwater streams of the Green and upper Colorado Rivers in Colorado, Utah, and Wyoming.	There is no suitable habitat in the evaluation area. This species is not found in any of the streams in the evaluation area.

[a] Source: Species list from USFWS ECOS (USFWS 2025b)
[b] Sources: Audubon, no date; Cornell Lab of Ornithology 2019; NatureServe, no date; UDWRe, no date; species-specific recovery plans in USFWS ECOS (USFWS 2025b)

3.9.3.5 Big-game Species

Several areas identified as big-game range are situated on the periphery of the ecosystem resources evaluation area. UDOT obtained information regarding big-game ranges in Utah from UDWRe habitat range maps (UDWRe 2025b). Big-game habitat is described in terms of seasonal use (year-long, winter, spring, or summer) and habitat value. Habitat value is described as either crucial or substantial.

- **Crucial-value habitat** is defined by UDWRe as "habitat on which the local population of a wildlife species depends for survival because there are no alternate ranges or habitats available. Crucial habitat is essential to the life history requirements of a wildlife species."
- **Substantial-value habitat** is defined by UDWRe as "habitat that is used by a wildlife species but is not considered crucial for population survival."

The entire evaluation area is located in crucial summer habitat for mule deer. Elk and moose habitat ranges do not cross the evaluation area, but crucial year-long calving habitat for moose is mapped within 1 mile west of the evaluation area, and spring/fall substantial and crucial habitat for elk is mapped within 2 miles west of the evaluation area. Figure 3.9-2 provides an overview of UDWRe mapped big-game habitat in relation to the evaluation area.

Based on maps provided by UDWRe, no known wildlife migration corridors cross the evaluation area (UDWRe 2025c, 2025d). The nearest migration corridors, which are for mule deer, are located roughly 6 miles to the west and east of the evaluation area.

3.9.3.5.1 Wildlife–vehicle Collisions

UDOT consulted with UDWRe to obtain data for wildlife–vehicle collisions in the ecosystem resources evaluation area. The data represent points where contractors or UDWRe staff have picked up a carcass. UDWRe has records for 64 wildlife–vehicle collisions in the evaluation area between January 2018 and November 2024 (Ehrhart 2024), 89% of which occurred on I-80. Table 3.9-3 lists these collisions by year, species, and road segment.

Figure 3.9-2. Big-game Habitat in and near the Ecosystem Resources Evaluation Area

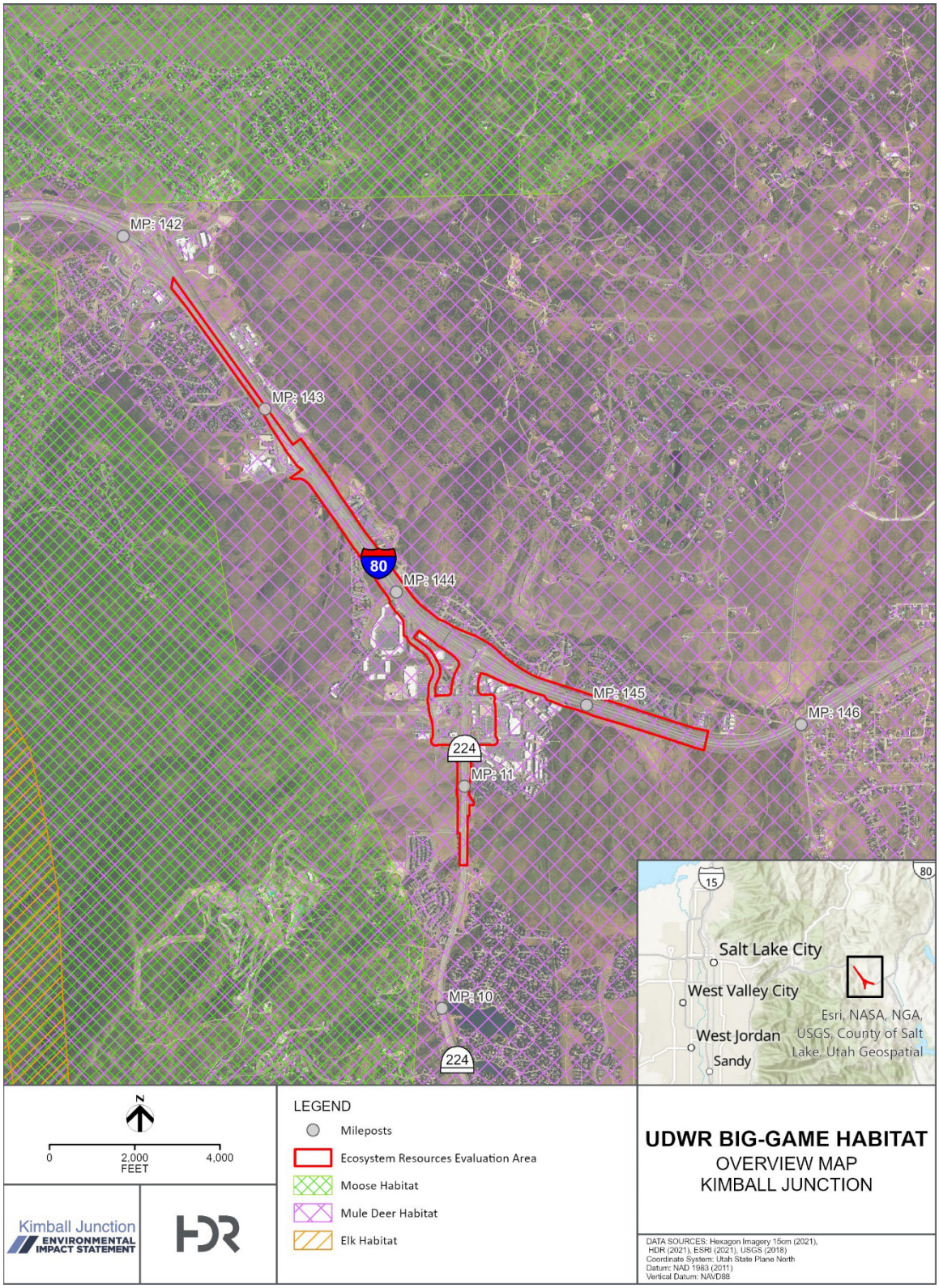


Table 3.9-3. Wildlife–vehicle Collisions in the Ecosystem Resources Evaluation Area between January 2018 and November 2024

Common Name (Scientific Name)	Year	Road Segment in the Ecosystem Resources Evaluation Area		
		I-80 East of Kimball Junction (MP 142.30–144.46)	I-80 West of Kimball Junction (MP 144.46–145.50)	SR-224 (MP 10.65–11.65)
Mule deer (*Odocoileus hemionus*)	2018	8	7	2
	2019	7	5	2
	2020	5	2	0
	2021	4	3	2
	2022	2	4	0
	2023	0	1	0
	2024	1	3	0
Elk (*Cervus canadensis*)	2018	0	0	1
	2019	2	0	0
	2020	1	0	0
	2021	0	0	0
	2022	0	1	0
	2023	0	0	0
	2024	0	0	0
Moose (*Alces alces*)	2018	0	0	0
	2019	0	0	0
	2020	0	1	0
	2021	0	0	0
	2022	0	0	0
	2023	0	0	0
	2024	0	0	0
Total Wildlife–vehicle Collisions by Year	2018	**8**	**7**	**3**
	2019	**9**	**5**	**2**
	2020	**6**	**3**	**0**
	2021	**4**	**3**	**2**
	2022	**2**	**5**	**0**
	2023	**0**	**1**	**0**
	2024	**1**	**3**	**0**

Definitions: MP = milepost

In 2022, UDOT reduced the speed limit on SR-224 from 55 mph to 45 mph. The data presented in Table 3.9-3 above show that there were seven wildlife–vehicle collisions between 2018 and 2021 and there were zero between 2022 and 2024; this difference indicates that lower speeds have likely contributed to reducing the number of wildlife–vehicle collisions on this segment of SR-224 compared to the years before 2022. These are low numbers compared to both statewide data and data for the surrounding area. For this reason, this segment of SR-224 does not constitute a hot spot for wildlife–vehicle collisions.

In addition, to reduce the number of wildlife–vehicle collisions, in 2023 UDOT installed wildlife exclusionary fencing on both the eastbound and westbound sides of I-80 from about MP 145.45 westward to the east side of Kimball Junction. In addition, wildlife fencing has been installed on both the eastbound and westbound sides of I-80 from just west of the Kimball Junction interchange to the wildlife bridge at MP 139.17. In anticipation of potential configuration changes associated with this EIS, the Kimball Junction interchange area has not yet been fenced. As shown in Table 3.9-3 above, wildlife–vehicle collisions on I-80 in the ecosystem resources evaluation area were generally lower in 2023 and 2024 than in previous years; this difference indicates that the fencing is likely successfully keeping wildlife from attempting to cross I-80 in the evaluation area.

3.9.3.6 Migratory Birds

The ecosystem resources evaluation area consists mainly of roads and road shoulders and urban land developed for residential and commercial uses. Upland grass communities are present adjacent to roads, some of which are connected to larger expanses of upland grass communities, located primarily in sections south of Kilby Road and west of SR-224. Other roadside upland grass communities along with some wetlands are connected to the Swaner Preserve and EcoCenter, located south of Highland Drive and east of SR-224. There are also some stands of upland trees in the open space south of Kilby Road.

The upland grass communities, wetlands, and upland tree cover could provide suitable foraging and/or potential nesting habitat for migratory birds, especially those locations that are connected to larger, undisturbed spaces such as the Swaner Preserve and the upland grass communities west of SR-224. However, the habitat would be considered poor given its location adjacent to highly trafficked roads.

3.9.3.7 Aquatic Resources

A total of 1.08 acres of aquatic resources were delineated in the ecosystem resources evaluation area. These resources consist of 0.71 acre of palustrine emergent wetlands, 0.04 acre (199 linear feet) of perennial streams, 0.18 acre of open-water ponds, 0.01 acre of seeps, and 0.14 acre (1,842 linear feet) of ditches. Characteristics of delineated aquatic resources are summarized in the aquatic resources delineation report for the Kimball Junction EIS (UDOT 2024c).

The jurisdictional status of delineated aquatic resources is subject to determination by USACE. Aquatic resources in the evaluation area do not have an identifiable connection to interstate or foreign commerce, and they do not include any interstate waters or a TNW. Relatively permanent waters in the evaluation area eventually drain into the Great Salt Lake, a TNW.

3.9.3.7.1 Wetlands

Wetlands were delineated in the ecosystem resources evaluation area as 17 separate polygons totaling 0.71 acre (UDOT 2024c). Wetlands in the evaluation area are hydrologically supported by perennial streams, stormwater runoff, and shallow groundwater. Based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin and others 1979), all of these polygons were identified as palustrine emergent wetlands.

Wetlands in the evaluation area perform physical, chemical, and biological functions.

- **Physical Functions.** Most wetlands in the evaluation area store surface and subsurface water, and wetlands along surface waters also retain particulates and dissipate energy.
- **Chemical Functions.** All wetlands in the evaluation area cycle nutrients and export organic carbon.
- **Biological Functions.** All wetlands in the evaluation area support wetland vegetation communities and animal communities that use wetland environments to complete life cycle requirements.

The extent to which each wetland provides these functions varies depending on characteristics such as condition, plant community composition, hydrogeomorphology, size, and land use.

3.9.3.7.2 Perennial Streams

A total of 0.04 acre (199 linear feet) of perennial stream channels were delineated in the ecosystem resources evaluation area. All stream channels in the evaluation area flow north and drain into either Kimball Creek or East Canyon Creek. Kimball Creek joins an unnamed creek from the north to eventually become East Canyon Creek north of I-80. East Canyon Creek flows west and north from this confluence and eventually flows into East Canyon Reservoir. Water released from East Canyon Reservoir is returned to East Canyon Creek, where it flows into the Weber River, eventually terminating into the Great Salt Lake.

3.9.3.7.3 Open-water Ponds

Four open-water ponds that total 0.18 acre were delineated in the ecosystem resources evaluation area, three of which are stormwater detention basins and one of which is an ornamental feature located on a residential property.

3.9.3.7.4 Seeps

One seep that totals 0.01 acre was delineated in the ecosystem resources evaluation area. This seep appeared to be hydrologically supported by an ornamental water feature.

3.9.3.7.5 Ditches

Eleven ditch segments totaling 0.14 acre (1,842 linear feet) were delineated in the ecosystem resources evaluation area. All of the ditches in the evaluation area appear to be entirely human-made to provide drainage.

3.9.4 Environmental Consequences and Mitigation Measures

This section discusses the direct impacts and indirect effects of the project alternatives on the ecosystem resources in the ecosystem resources evaluation area. Vegetation, wildlife, special-status species, and waters of the United States would continue to be affected by current and future use.

3.9.4.1 Methodology

Impacts to Ute ladies'-tresses potential habitat and aquatic resources were calculated using GIS software.

3.9.4.2 No-Action Alternative

Because the Kimball Junction Project would not be implemented with this alternative, there would be no new impacts to resources in the ecosystem resources evaluation area resulting from project development. Vegetation, terrestrial and aquatic wildlife, special-status wildlife species, and waters of the United States would continue to be affected by current and future development.

3.9.4.3 Alternative A

3.9.4.3.1 Impacts to Threatened and Endangered Species

A total of 0.334 acre of potentially suitable Ute ladies'-tresses habitat was identified in wet meadow wetlands in the Alternative A action area but outside the project footprint for Alternative A. Construction activities would be contained to the footprint of Alternative A; therefore, construction and operation of this alternative would not result in the clearing, excavating, filling, or alteration of any potentially suitable Ute ladies'-tresses habitat. UDOT conducted a first-year clearance survey (on September 4 and 6, 2024) in the potentially suitable habitat identified in the Alternative A action area. No Ute ladies'-tresses individuals were found.

In addition, UDOT identified potentially suitable habitat in the project footprint for Alternative A for the two insect species proposed for ESA listing: monarch butterfly and Suckley's cuckoo bumble bee.

Indirect Effects. Construction could affect Ute ladies'-tresses plants or potentially suitable habitat within the Alternative A action area but beyond the project footprint as a result of fugitive dust emissions and the introduction and/or spread of noxious and invasive weeds.

The operation of construction equipment would generate fugitive dust from loose soil. Accumulation of fugitive dust on Ute ladies'-tresses plants or potentially suitable habitat near the project footprint could affect plant growth by inhibiting photosynthesis. However, any potential for dust-induced effects would be temporary and would be minimized with the implementation of fugitive-dust-control measures during construction as specified in Section 3.15.2.4.6, *Mitigation Measures for Impacts to Air Quality from Construction*.

Construction would remove vegetation and could introduce noxious and invasive weeds into the surrounding areas. Noxious and invasive weeds introduced or spread during construction activities would compete with native vegetation, including Ute ladies'-tresses plants, resulting in altered vegetation structure, a reduction in plant species richness, and overall decline in potentially suitable habitat. The potential for introduction or spread of invasive species would be minimized during construction by implementing the mitigation measures in Section 3.9.4.5.1, *Mitigation Measures for Vegetation Impacts*.

3.9.4.3.2 Impacts to Species under Conservation Agreement

Potentially suitable habitat exists in the open-water ponds in the ecosystem resources evaluation area for Columbia spotted frog; however, no ponds would be impacted as a result of constructing Alternative A.

Potentially suitable habitat exists in the evaluation area for Bonneville cutthroat trout. This species is known to occur in Threemile Canyon Creek, which is a tributary to OW-2, an open-water pond that was delineated in the evaluation area (UDOT 2024c). However, this creek and OW-2 would not be impacted as a result of constructing Alternative A.

3.9.4.3.3 Impacts to Big-game Species

Based on maps provided by UDWRe, no known wildlife migration corridors cross the ecosystem resources evaluation area (UDWRe 2025c, 2025d); therefore, Alternative A would not impact any known migration corridors.

The project footprint for Alternative A is situated primarily within the existing roadway and disturbed road shoulders, and wildlife fencing has been installed on both the eastbound and westbound sides of I-80 from about MP 145.45 westward to the east side of Kimball Junction and on both the eastbound and westbound sides of I-80 from just west of the Kimball Junction interchange to the wildlife bridge at MP 139.17. For this reason, UDOT does not anticipate that this alternative would increase the number of wildlife–vehicle collisions in the area. In anticipation of potential configuration changes associated with this EIS, the Kimball Junction interchange area has not been fenced but will be evaluated for fencing after the Kimball Junction Project is completed. Also, during the final design for Alternative A (if it is selected), UDOT will evaluate the feasibility of adding exclusionary cattle guards at the interchange on- and off-ramps to connect the wildlife fencing along both sides of I-80.

In addition, the cross streets and business and residential accesses along SR-224 in the evaluation area present obstacles for adding wildlife fencing to protect against wildlife–vehicle collisions. It would not be reasonable to install wildlife fencing in the EIS study area along SR-224 because of the short length of SR-224 in the study area (about 1 mile) and because there are cross streets and business and residential accesses, pedestrian and cycling trails, and extensive commercial and residential development on both sides of SR-224 through the evaluation area. Wildlife fencing in this area would need to have many gaps to accommodate these accesses, and wildlife would be able to pass through the fencing at the gaps. Each access point along SR-224 in and around Kimball Junction would need a double cattle guard installed to maintain a barrier against wildlife. The cost and maintenance issues associated with these double cattle guards are not justified by the low wildlife–vehicle conflict numbers on SR-224 in the evaluation area.

3.9.4.3.4 Impacts to Migratory Birds

The project footprint for Alternative A is situated primarily within the exiting roadway and disturbed road shoulders, and construction within this footprint would not impact any of the areas that could provide suitable foraging and/or potential nesting habitat for migratory birds.

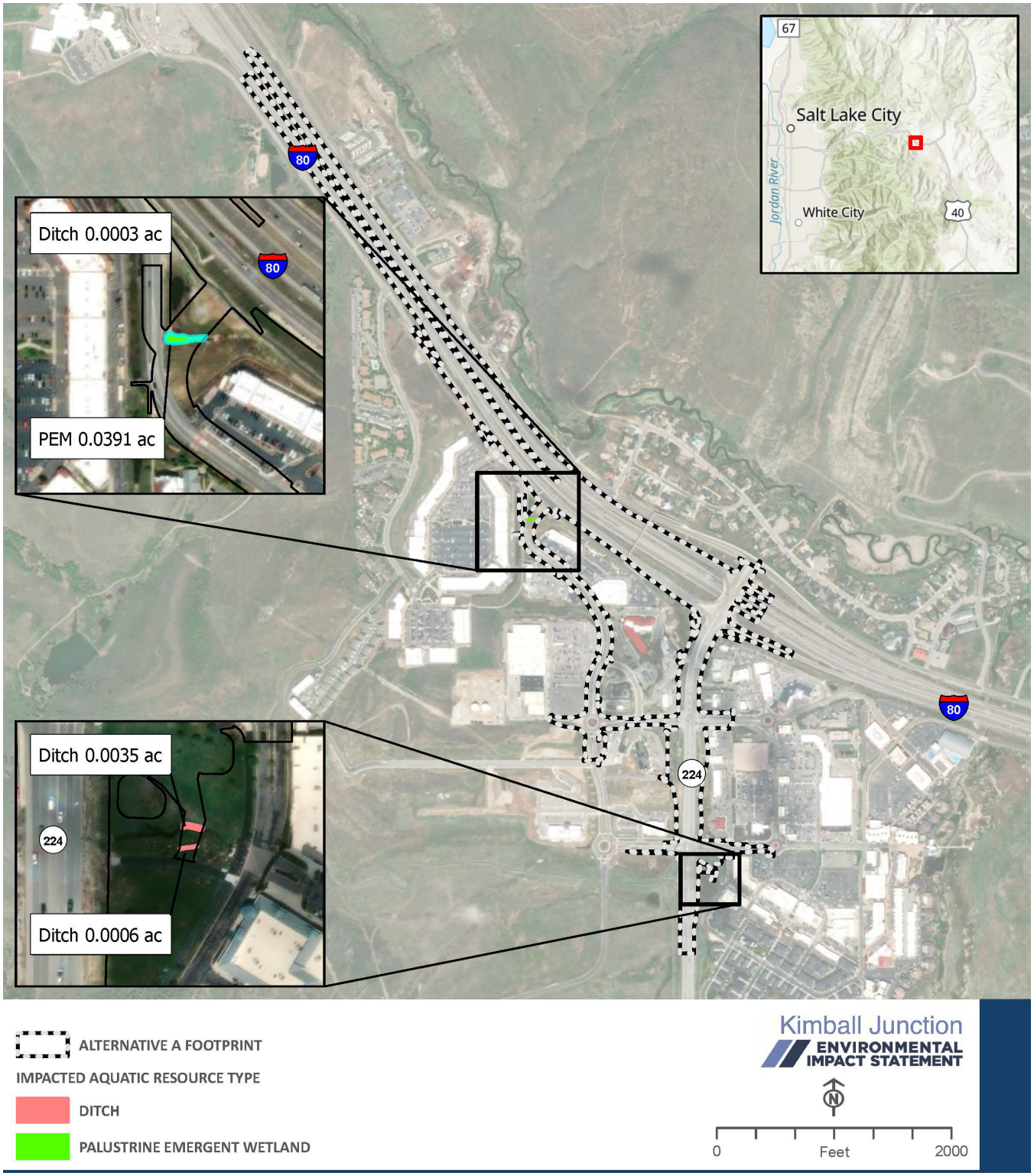
Construction activities could take migratory birds and displace them from habitat near construction areas. If construction occurs during the nesting season for migratory birds and raptors (April 1 through July 15), disturbance by construction workers and equipment might be substantial enough to cause stress to nesting birds and cause birds to abandon their nests and their young to be killed by predators. To mitigate these potential impacts to birds, including those protected by the Migratory Bird Treaty Act and in accordance with Executive Order 13186, UDOT will implement the mitigation measures in Section 3.9.4.5.2, *Mitigation Measures for Terrestrial and Aquatic Wildlife Impacts*.

3.9.4.3.5 Impacts to Aquatic Resources

Alternative A would convert about 0.044 acre of aquatic resources to transportation use. Aquatic resource impacts would consist of 0.039 acre of palustrine emergent wetland and 0.005 acre of ditches. Figure 3.9-3 shows the locations of these impacts.

Indirect Effects. Indirect effects on aquatic resources could occur from sediment discharges associated with stormwater, erosion, hydrologic modifications, and the establishment of noxious weeds. Most of these indirect effects could be reduced or eliminated through the mitigation measures listed in Section 3.9.4.5.3, *Mitigation Measures for Aquatic Resources Impacts*.

Figure 3.9-3. Aquatic Resource Impacts Associated with Alternative A



3.9.4.4 Alternative C

3.9.4.4.1 Impacts to Threatened and Endangered Species

A total of 0.546 acre of potentially suitable Ute ladies'-tresses habitat was identified in wet meadow wetlands in the Alternative C action area but outside the project footprint for Alternative C. Construction activities would be contained to the footprint of Alternative C; therefore, construction and operation of this alternative would not result in the clearing, excavating, filling, or alteration of any potentially suitable Ute ladies'-tresses habitat. UDOT conducted a first-year clearance survey (on September 4 and 6, 2024) in the potentially suitable habitat identified in the Alternative C action area. No Ute ladies'-tresses individuals were found.

In addition, UDOT identified potentially suitable habitat in the project footprint for Alternative C for the two insect species proposed for ESA listing: monarch butterfly and Suckley's cuckoo bumble bee.

Indirect Effects. Indirect effects on threatened and endangered species from Alternative C would be the same as those from Alternative A.

Determination of Effects Finding. UDOT prepared a biological assessment and determined that Alternative C, the selected alternative "may affect, but is not likely to adversely affect" Ute ladies'-tresses (for additional details, see Appendix 3F, *Biological Assessment and USFWS Concurrence*). UDOT requested USFWS concurrence with this determination in a letter sent on March 11, 2025. USFWS concurred with this determination on March 27, 2025, via a time/date stamp. The USFWS concurrence letter is provided with the biological assessment in Appendix 3F.

UDOT plans to complete additional clearance surveys for Ute ladies'-tresses during the 2025 and 2026 growing seasons. If no plants are found, UDOT will confirm the "may affect, but not likely to adversely affect" determination. If plants are found before constructing either of the action alternatives, UDOT will contact USFWS to determine the next course of action for ESA Section 7 compliance.

3.9.4.4.2 Impacts to Species under Conservation Agreement

The impacts to species under conservation agreement from Alternative C would be the same as those from Alternative A.

3.9.4.4.3 Impacts to Big-game Species

The impacts to big-game species from Alternative C would be the same as those from Alternative A.

3.9.4.4.4 Impacts to Migratory Birds

The impacts to migratory birds from Alternative C would be the same as those from Alternative A.

3.9.4.4.5 Impacts to Aquatic Resources

Alternative C would convert about 0.004 acre of ditch to transportation use. Figure 3.9-4 shows the location of this impact.

Indirect Effects. Indirect effects on aquatic resources could occur from sediment discharges associated with stormwater, erosion, hydrologic modifications, and the establishment of noxious weeds. Most of these indirect effects could be reduced or eliminated through the mitigation measures listed in Section 3.9.4.5.3, *Mitigation Measures for Aquatic Resources Impacts*.

Figure 3.9-4. Aquatic Resource Impacts Associated with Alternative C

3.9.4.5 Mitigation Measures for Ecosystem Impacts

UDOT's best practices for project development will include the following mitigation measures for impacts to ecosystem resources.

3.9.4.5.1 Mitigation Measures for Vegetation Impacts

All of the action alternatives would remove vegetation and could introduce noxious species into the surrounding areas. To prevent further, permanent effects, UDOT will mitigate temporary impacts to vegetation once construction is complete and no further disturbance is anticipated. Mitigation will include the following measures:

- All fill materials brought onto the construction site will be required to be clean of any chemical contamination per UDOT's Standard Specifications, Section 02056, Embankment, Borrow, and Backfill. Topsoil for landscaping must also be free of weed seeds per UDOT's Standard Specifications, Section 02912, Topsoil.
- Compacted soils will be ripped, stabilized, and reseeded.
- The contractor will be required to follow noxious weed mitigation and control measures identified in the most recent version of UDOT's Standard Specifications Section 02924, Noxious Weed Control.
- Disturbed areas will be reseeded.

3.9.4.5.2 Mitigation Measures for Terrestrial and Aquatic Wildlife Impacts

UDOT will implement the following mitigation measures to conserve and minimize impacts to migratory birds and in furtherance of Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*:

- Trees and shrubs will be removed during the non-nesting season (July 16 to March 31). If removing trees and shrubs during this time is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys of the area that would be disturbed. The preconstruction surveys will be conducted by a qualified wildlife biologist no more than 14 days before ground-disturbing activities. The surveys will determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to minimize or avoid impacts to migratory birds.

3.9.4.5.3 Mitigation Measures for Aquatic Resources Impacts

To fill jurisdictional wetlands and other jurisdictional aquatic resources, the Kimball Junction Project must be authorized by USACE as part of a CWA Section 404 permit before construction. Nationwide permits are a type of CWA Section 404 permit that authorize impacts to jurisdictional aquatic resources that are considered no more than minimal. Both of the action alternatives would qualify for authorization under a nationwide permit because permanent impacts to jurisdictional aquatic resources would be less than the nationwide permit threshold of 0.50 acre. This permit authorization would not likely require compensatory mitigation because permanent wetland impacts would be less than 1/10th of an acre and no streams would be impacted.

Potential temporary construction impacts to aquatic resources would be minimized through considering construction methods and using BMPs such as silt fences and other erosion-control features in areas adjacent to wetlands and streams. Any necessary temporary construction impacts to aquatic resources that are authorized by a CWA Section 404 permit will be restored through regrading to natural contours and through revegetation measures.

Because more than 1 acre of ground would be disturbed, a UPDES General Storm Water Discharge Permit and an SWPPP, consistent with UDOT's Standard Specifications, Section 01355, will be required. The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. Restoration efforts will also be monitored to ensure successful revegetation as typically required by an SWPPP.

3.9.4.5.4 Mitigation Measures for Threatened and Endangered Species

UDOT will conduct two more years of clearance surveys for Ute ladies'-tresses (one more year of surveys will be conducted in 2025 in the potentially suitable habitat identified in the ecosystem resources evaluation area and two more years of surveys will be conducted in 2025 and 2026 in the potentially suitable habitat identified in the action areas). All surveys will be conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid (Spiranthes diluvialis)*.

Potentially suitable Ute ladies'-tresses habitat identified adjacent to the roadway and project footprint will be flagged and protected. Construction crews will be provided information about the importance of containing all work activities to the project footprint and existing roadway and instructed that no disturbance can occur outside of that when adjacent to potentially suitable Ute ladies'-tresses habitat, nor in areas flagged for protection.

On January 7, 2025, USFWS issued a proposed rule (90 *Federal Register* 1054) to remove Ute ladies'-tresses from the Federal List of Endangered and Threatened Plants. If the species is delisted, the future planned surveys will not be required nor conducted, and the mitigation measures would not apply.

3.10 Floodplains

3.10.1 Introduction

This section discusses the floodplains in the floodplains evaluation area and the effects of the project alternatives on these floodplains. For a discussion of aquatic resources associated with floodplains, see Section 3.9, *Ecosystem Resources*.

Floodplains Evaluation Area. The floodplains evaluation area is the combined project right-of-way or footprint for both action alternatives. This area is located completely inside the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*.

3.10.2 Regulatory Setting

The terms *100-year floodplain* and *100-year flood* are key regulatory concepts in federal guidance, which is summarized in Section 3.10.2.1, *Federal Emergency Management*, and Section 3.10.2.2, *Executive Order 11988, Floodplain Management*.

Floods are usually described in terms of their statistical frequency. A 100-year floodplain is the area that would be flooded by a body of water during a 100-year flood. A 100-year flood (also referred to as a *base flood*) is a level of flood water that has a 1% chance of occurring in a given location in any given year.

This concept does not mean that such a flood will occur only once in 100 years. If a 100-year flood occurs during a given year, there would still be a 1% chance of a similar flood occurring in the same location the following year.

3.10.2.1 Federal Emergency Management

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA). Through the NFIP, the federal government makes flood insurance available in communities that practice sound floodplain management. To participate, state and local governments are required to develop and implement floodplain-management programs. FEMA requirements for land management and use, and for identifying and mapping special flood hazard areas, are described in 44 CFR Parts 60 and 65, respectively.

A *special flood hazard area* (SFHA) is the area in and around a surface water resource, such as a river or lake, that would be inundated by a 100-year flood. These areas are established by FEMA, and NFIP regulations are based on these SFHAs. SFHAs are given a zone designation based on the level of detail of the FEMA study and the anticipated type of flooding.

FEMA publishes flood insurance rate maps (FIRMs) for many communities that contain SFHAs. The FIRMs might also show other zones that represent greater or lesser flood risk if these zones are defined.

The following SFHA zones are located in the floodplains evaluation area (FEMA 2023a):

- **Zone A** is an area that would be flooded by a 100-year flood. Detailed analyses have not been performed for these areas. For this reason, no depths or base flood elevations have been established.
- **Zone X** is an area of minimal or moderate flood hazard. Areas of minimal flood hazard are not shaded on FIRMs, which indicates that the area is outside the risk area for flooding during a 500-year flood. Areas of moderate flood hazard are shaded, which indicates that the area is at risk for flooding between a 100-year and 500-year flood. Zone X areas are present in the evaluation area, but the areas are not pertinent to the impact analysis; for this reason, impacts have not been quantified.

Other SFHA zones are located near the floodplains evaluation area, but these areas are not discussed further in Section 3.10 because they would not be impacted by either action alternative.

3.10.2.2 Executive Order 11988, Floodplain Management

Executive Order 11988, *Floodplain Management* (May 24, 1977), established federal policy "to avoid to the extent possible the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative." This floodplain evaluation relies on the regulations that FHWA adopted based on Executive Order 11988, which govern the development of projects that could affect floodplains (23 CFR Part 650, Subpart A).

These regulations clearly state that a project must conform to 44 CFR Parts 60 and 65 as well as the floodplain management ordinance of the affected community and require the project proponent (in this case, UDOT) to not approve a project that involves a "significant encroachment" on a floodplain unless the significant encroachment is the "only practicable alternative" (23 CFR Section 650.113).

What constitutes a "significant encroachment" is determined on a case-by-case basis by considering adjacent development. FEMA has set a 1-foot increase in the 100-year flood elevation as the upper limit of the allowable encroachment caused by the cumulative (past and future) encroachments from development. If the project impacts exceed the standards defined in the regulations, the project could be subject to conditional approval from FEMA in accordance with 44 CFR Section 65.12.

Under FHWA's regulations, a significant encroachment can arise from any of the following situations:

- A significant potential for interfering with a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route
- A significant risk of upstream flooding
- A significant adverse impact to natural and beneficial floodplain values including flood conveyance, storage, and control; groundwater recharge; water quality function; and wildlife habitat and diversity

In addition, FHWA's regulations require that a hydraulic report be prepared during final design of the selected alternative to demonstrate that the requirements of 44 CFR Parts 60 and 65 have been met by a project. This hydraulic report should include the results of a detailed hydraulic analysis for each impacted drainage facility to confirm that the proposed bridges and culverts, with the roadway embankments and

other features in place, would adequately convey flood waters. Additionally, UDOT would compare the elevations of the designed roadways to the elevations of the surrounding floodplains to determine the potential for floodplains to interfere with the transportation facility. These detailed analyses, together with roadway and drainage plans and profiles, would demonstrate compliance with various regulations, permitting requirements, and design criteria. Overall impacts to the floodplains and beneficial floodplain values would be measured against the impacts and requirements documented in the EIS.

3.10.3 Affected Environment

Twomile Canyon Creek, an unnamed tributary to East Canyon Creek, Threemile Canyon Creek, Murnin Creek, two unnamed tributaries to Murnin Creek, and Willow Draw cross the floodplains evaluation area and flow into East Canyon Creek north and northeast of the evaluation area.

What is a stream?

In Section 3.10, *stream* is used as a general term to describe waterways such as rivers, creeks, canals, and washes.

Information about the floodplains in the evaluation area was gathered from a variety of sources including FEMA's Community Status Book (FEMA 2023b), the Summit County flood insurance study (FEMA 2021), National Flood Hazard Layer (NFHL) data (FEMA 2023c), the USGS Park City West 7.5-minute topographic quadrangle (USGS 2020), and the Utah Geographic Information Systems Portal.

3.10.3.1 Communities Participating in FEMA's National Flood Insurance Program

The floodplains evaluation area is located entirely in unincorporated areas of Summit County. Summit County participates in FEMA's NFIP under Community Identification Number 490134 (FEMA 2023b), which requires communities to enact ordinances to protect natural floodplains, prevent property damage, and protect the public's safety.

3.10.3.2 Floodplains in the Floodplains Evaluation Area

Streams and floodplains in the floodplains evaluation area are described below and include named waterways and isolated areas for which regulatory floodplains are defined. All streams originate in the Wasatch Mountains and foothills to the south and west of the evaluation area and flow into Kimball Creek and East Canyon Creek just north and northeast of the evaluation area. Effective floodplain maps for the evaluation area are based on the latest flood insurance studies performed for Summit County (FEMA 2021). No modifications have been made (Letter of Map Revision or Letter of Map Amendment) to the effective floodplain map since the last physical map revision process took place in 2006. Stream names are based on the FEMA data and are consistent with the names found on the USGS Park City West 7.5-minute topographic quadrangle (USGS 2020).

What is a regulatory floodplain?

A water body has a regulatory floodplain if the floodplain has been identified and mapped by FEMA.

In the following floodplain descriptions (from west to east in the evaluation area), references to Summit County refer to unincorporated parts of the county, while incorporated areas are referred to by the community name. Streams and floodplains in the evaluation area are shown in Figure 3.10-1.

Twomile Canyon Creek. Twomile Canyon Creek originates in Twomile Canyon in Summit County and flows in an open channel. No regulatory floodplains have been established for Twomile Canyon Creek.

Unnamed Tributary to East Canyon Creek. The unnamed tributary to East Canyon Creek flows in an open channel through Summit County. No regulatory floodplains have been established for this unnamed tributary.

Threemile Canyon Creek. Threemile Canyon Creek originates in Threemile Canyon in Summit County and flows in an open channel. In the evaluation area, Threemile Canyon Creek has Zone A floodplains. No information is available regarding the hydraulic structure (culvert) that conveys Threemile Canyon Creek under I-80 and the adjacent frontage roads (Kilby Road and Rasmussen Road).

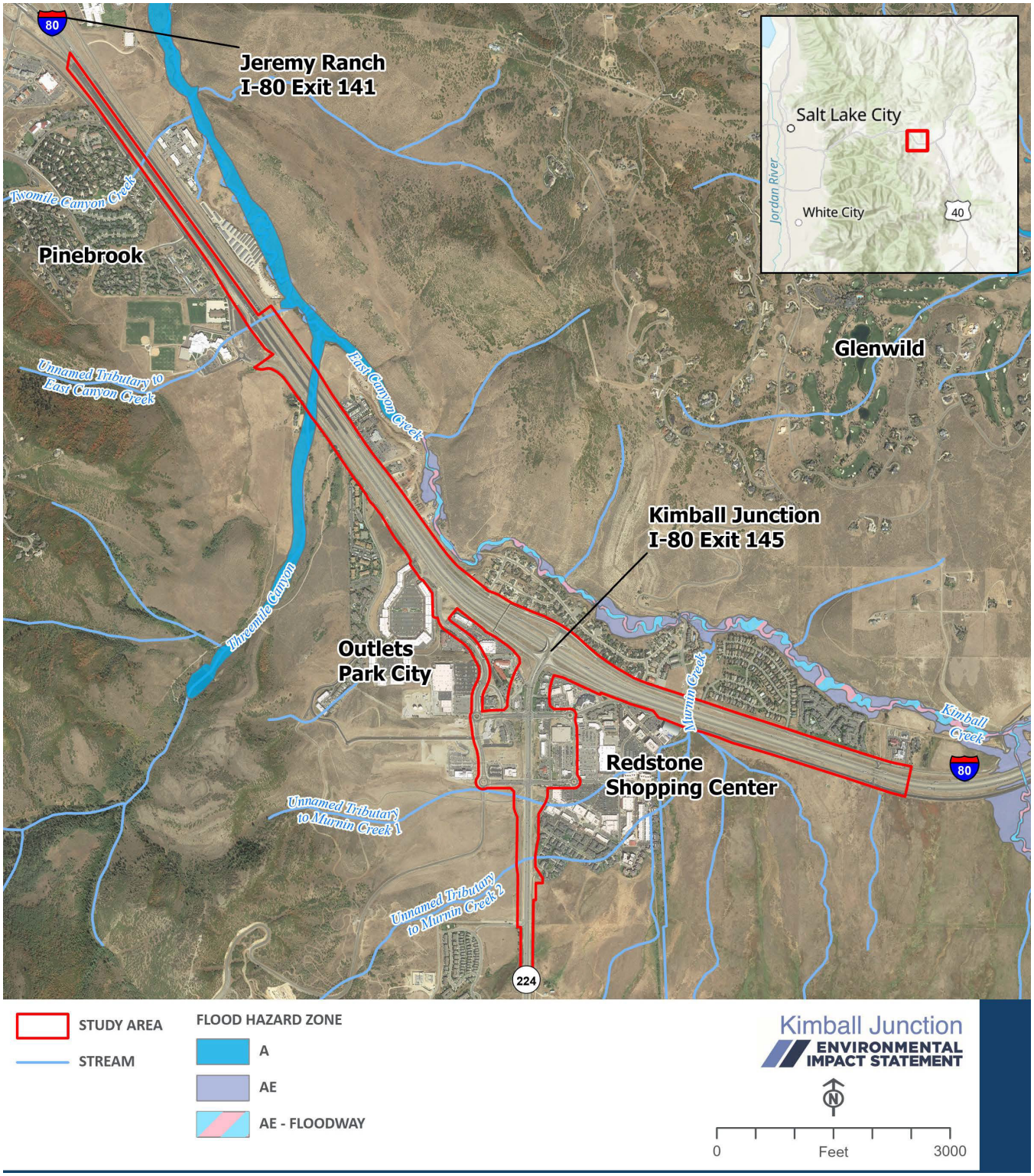
Unnamed Tributary to Murnin Creek 1. The first unnamed tributary to Murnin Creek originates in the foothills southwest of the evaluation area and generally flows east across SR-224 and into Murnin Creek outside the evaluation area. No regulatory floodplains have been established for this unnamed tributary.

Unnamed Tributary to Murnin Creek 2. The second unnamed tributary to Murnin Creek also originates in the foothills to the southwest of the evaluation area and generally flows northeast across SR-224 and into Murnin Creek outside the evaluation area. No regulatory floodplains have been established for this unnamed tributary.

Murnin Creek. Murnin Creek originates in the Wasatch Mountains southwest of the evaluation area and flows through Summit County in both an open channel and in an underground pipe system. Immediately south of the evaluation area near I-80, Murnin Creek has many tributaries, including Spring Creek. In the evaluation area, Murnin Creek is associated with Shaded Zone X floodplains; however, they are not shown in Figure 3.10-1 because Shaded Zone X is not an official FEMA SFHA.

Willow Draw. Willow Draw flows in an open channel through Summit County. In the evaluation area, Willow Draw has Shaded Zone X floodplains, but they are not shown in Figure 3.10-1 because Shaded Zone X is not an official FEMA SFHA.

Figure 3.10-1. Floodplains in the Floodplains Evaluation Area



3.10.4 Environmental Consequences and Mitigation Measures

This section discusses the floodplain impacts from the action alternatives based on the footprint for each action alternative, which includes the roadway surface and embankment limits. In most cases, this area has been approximated as the proposed right-of-way line for the action alternatives.

3.10.4.1 Methodology

UDOT determined the floodplain impacts from the action alternatives using a GIS approach by comparing the FEMA NFHL data obtained for Summit County (FEMA 2023c) to the right-of-way footprint of the action alternatives to identify the locations of regulatory floodplain crossings and to quantify the impacted area. The regulatory analysis is based on current FEMA floodplain maps.

The following factors should be considered when reviewing the floodplain impacts described in Sections 3.10.4.2 through 3.10.4.4.

- The analysis presented covers only the impacts to the regulatory floodplains. Stream impacts are covered in Section 3.8, *Water Quality and Water Resources,* and Section 3.9, *Ecosystem Resources*.
- The hydraulic design described in this EIS is based on a preliminary roadway design with a sufficient level of detail to conduct the floodplain analysis. During the final design process for the selected alternative, more-detailed hydraulic studies would be conducted to ensure that the roadway and hydraulic design would meet FEMA's and FHWA's regulatory requirements.

3.10.4.2 No-Action Alternative

With the No-Action Alternative, the Kimball Junction Project would not be implemented, and no floodplains would be affected by the action alternatives. The local floodplain administrator for Summit County would continue to manage regulatory floodplains according to local ordinance and NFIP requirements.

3.10.4.3 Alternative A

Table 3.10-1 shows the floodplain impacts that would result from Alternative A.

Table 3.10-1. Floodplain Impacts That Would Result from Alternative A

Stream or Flooding Source	FEMA Zone	Type of Impact	Acres of Impact
Threemile Canyon Creek	A	Transverse	0.79

Source: FEMA 2023c
Definitions: FEMA = Federal Emergency Management Agency

As shown above in Table 3.10-1, Alternative A would have a transverse crossing (a crossing that is perpendicular or nearly perpendicular to the direction of flow) of Threemile Canyon Creek. This crossing would encroach on 0.79 acre of the Zone A floodplain associated with Threemile Canyon Creek, as shown in Figure 3.10-2.

Figure 3.10-2. Floodplain Impacts from Alternative A

3.10.4.4 Alternative C

Alternative C would not impact any regulatory floodplains.

3.10.4.5 Mitigation Measures for Floodplain Impacts

UDOT and/or its construction contractor would take measures to reduce floodplain impacts and to ensure that the selected alternative would comply with all applicable regulations (see Section 3.10.2.2, *Executive Order 11988, Floodplain Management*). These mitigation measures would include the following:

- Where new or rehabilitated bridges or culverts are included in the final design of the selected alternative, the design would follow FEMA's requirements and the requirements of UDOT's *Drainage Manual of Instruction*, where applicable. Where no Special Flood Hazard Area is defined, culverts and bridges would be designed to accommodate a 50-year (2%-annual-chance) or greater-magnitude flood. Where regulatory floodplains are defined, hydraulic structures would be designed to accommodate at least a 100-year (1%-annual-chance) flood.
- If Alternative A is the selected alternative, floodplain development permits would be obtained from the Summit County Public Works Engineering Department for all locations where the proposed roadway embankment or structural elements would encroach on a regulatory floodplain. FEMA Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) processes would be executed in compliance with 44 CFR Sections 60.3 and 65.12 as necessary. The LOMR process takes place after construction impacts have occurred to modify and update an effective floodplain map. The CLOMR process (if required) must be completed before construction impacts take place to receive FEMA's concurrence that, if the selected alternative is constructed as designed, a LOMR could be issued after construction has been completed. For the Kimball Junction Project, the effective FEMA floodplain mapping for the impacted areas does not include published base flood elevations; for this reason, UDOT must complete the hydrologic and hydraulic analyses consistent with FEMA standards to confirm or refine the effective floodplain mapping. These analyses could increase or decrease the estimate of impacted areas and the nature of anticipated changes in base flood elevation and/or floodplain limits.

3.11 Historic and Archaeological Resources

3.11.1 Introduction

This section describes the historic architectural properties and archaeological resources in the area of potential effects (APE) and the effects of the project alternatives on these properties and resources.

To be considered historic, architectural properties and archaeological resources generally must be at least 50 years old. To account for the time that would likely elapse between identifying historic architectural properties and archaeological resources as part of this EIS and implementing any project decision, UDOT decreased the age criterion for historic architectural and archaeological resources to 45 years.

For the Kimball Junction EIS Project, historic architectural properties are buildings that were at least 45 years old during the 2023 field surveys (that is, constructed in or before 1978). In Section 3.11, historic architectural properties are also referred to as architectural resources or historic buildings. Archaeological resources are sites, features, and structures that are at least 45 years old and are composed primarily of nonarchitectural elements. These archaeological resources include everything from prehistoric campsites to historic railroad corridors and canals.

Historic and Archaeological Resources Evaluation Area (Area of Potential Effects [APE]). The APE includes the proposed footprint of both action alternatives as well as all adjoining parcels. This area includes about 250 acres and extends one parcel deep from the roadway centerlines. The APE was determined by UDOT in consultation with the Utah State Historic Preservation Officer (SHPO). Copies of the APE correspondence are provided in Appendix 3G, *Cultural Resources Correspondence.*

3.11.2 Regulatory Setting

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

UDOT has assumed FHWA’s responsibilities for complying with the NHPA for certain federal-aid highway projects under a 2022 Memorandum of Understanding (MOU) per 23 USC Section 327, which applies to the Kimball Junction EIS Project. UDOT’s Section 106 responsibilities are further defined in the *Third Amended Programmatic Agreement among the Federal Highway Administration, the Utah State Historic Preservation Officer, the Advisory Council on Historic Preservation, the United States Army Corps of Engineers, Sacramento District, and the Utah Department of Transportation Regarding Section 106 Implementation for Federal-Aid Transportation Projects in the State of Utah* (UDOT 2017). The Archaeological Resources Protection Act of 1979, as amended (16 USC Sections 470aa–470mm; Public Law 96-95), protects archeological sites located on public lands and provides federal officials increased authority to manage and protect archeological sites on public land.

The term *eligible for listing in the NRHP* includes both properties formally determined eligible and all other properties that meet the NRHP criteria, which are listed in Table 3.11-1.

Table 3.11-1. Criteria Used to Evaluate Eligibility for Listing in the NRHP

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

Source: NPS 1997
Definitions: NRHP = National Register of Historic Places

The Section 106 review process requires historic properties be evaluated for eligibility for and listing in the NRHP based on whether "the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association" and whether the properties meet one or more of the criteria listed above in Table 3.11-1.

The Utah SHPO developed a rating system (Table 3.11-2) to qualify buildings in a reconnaissance-level survey. This rating system should be used in conjunction with the criteria used to evaluate eligibility for the NRHP.

What is a reconnaissance-level survey?

A reconnaissance-level survey is the most basic approach for systematically documenting and evaluating historic buildings in Utah. A reconnaissance-level survey involves only visually evaluating properties. It does not include assessing associated historical events or individuals.

Table 3.11-2. Utah SHPO Rating System for Historic Structures

SHPO Criterion	Characteristic
Eligible/Contributing (EC)	Built within the historic period and retains integrity; good example of a style or type, but not as well-preserved or well-executed as "ES" buildings; more substantial alterations or additions than "ES" buildings, though overall integrity is retained; eligible for the NRHP as part of a potential historic district or primarily for historical, rather than architectural, reasons.
Ineligible/Non-contributing (NC)	Built during the historic period but has had major alterations or additions; no longer retains integrity.
Ineligible/Out-of-period (OP)	Constructed outside the historic period.

Definitions: NRHP = National Register of Historic Place; SHPO = State Historic Preservation Officer

3.11.3 Affected Environment

Portions of the APE have been previously surveyed for cultural resources, and most of the APE has been disturbed by modern commercial development. Only one previously documented archeological site and few historic buildings remain in the APE.

3.11.3.1 Consultation

As part of UDOT's effort to identify historic architectural properties and archaeological resources in the APE, UDOT consulted with several agencies and individuals. This section provides more information about specific consultation that was conducted.

3.11.3.1.1 State Agencies

While preparing this EIS, and as part of UDOT's effort to identify and evaluate historic architectural and archaeological resources that could be affected by either of the action alternatives, UDOT consulted with the Utah SHPO.

On August 2, 2023, UDOT initiated Section 106 consultation with the Utah SHPO. On August 3, 2023, the SHPO concurred with the APE.

Copies of the correspondence between UDOT and the Utah SHPO are provided in Appendix 3G, *Cultural Resources Correspondence*.

3.11.3.1.2 Local Governments and Historical Societies

UDOT consulted with several other entities with direct interest in historic architectural properties and/or archaeological resources. These entities included certified local governments (CLGs), historical societies, and organizations.

UDOT contacted the following groups by letter. In the letter, UDOT invited them to become consulting parties in the Section 106 process for the Kimball Junction EIS and provided information about architectural and archaeological resources that are important to their communities or organizations:

- Summit County CLG
- Summit County Historical Society
- Park City CLG
- Park City Historic Preservation Board

The Park City CLG responded to this invitation and is participating as a consulting party.

3.11.3.1.3 Native American Tribes

In addition to the agencies and organizations mentioned above, the following Native American tribes with traditional ties to the general project area were also notified:

- Eastern Shoshone Tribe of the Wind River Reservation
- Northwestern Band of the Shoshone Nation
- Shoshone-Bannock Tribes of the Fort Hall Reservation
- Skull Valley Band of Goshutes
- Ute Indian Tribe of the Uintah and Ouray Reservation

UDOT provided an invitation to the tribes to be a consulting party. To date, no tribes have responded.

3.11.3.2 Cultural Resource Identification

3.11.3.2.1 Archaeological Resources

Certus conducted an archaeological survey of the APE in 2023 (Certus 2023a). The archaeological survey focused on undeveloped areas in the APE and excluded areas that had been previously affected by roadway construction and businesses or residential areas with landscaped areas and parking lots.

One archaeological site was identified in the survey area. This site, 42SM268, is a historic-period burial site that was previously reported and determined ineligible for listing in the NRHP under all criteria (in 1999, 2007, and 2021). Upon their discovery in 1999, the remains at this site were removed and relocated to a nearby parcel that is also within the project APE. The site was previously determined ineligible each time because it is not associated with important events or persons in history; does not have architectural, engineering, construction, or artistic merit; and has a presumed lack of potential to yield information important to improving the understanding of history. UDOT has determined that this site remains not eligible for the NRHP.

3.11.3.2.2 Architectural Resources

A selective reconnaissance-level survey was conducted to evaluate architectural resources in the APE. Construction dates of all buildings in the APE were identified before the survey, and only buildings that were constructed in or before 1978 were surveyed. Two properties with historical structures in the APE were identified as meeting the historic-age criterion. The details of the survey were recorded in *A Selective Reconnaissance-level Historic Structures Inventory in Support of the Kimball Junction Environmental Impact Statement (EIS), Summit County, Utah* (Certus 2023b). These structures are the Hi-Ute Ranch property at 2201 N. Kilby Road and a culvert on Bitner Road.

The Hi-Ute Ranch property contains numerous structures, including two dwellings and several agricultural and other outbuildings. Only the barn and a small shed are recommended as eligible for listing in the NRHP. Each has a SHPO rating of eligible/contributing (EC).

The culvert on Bitner Road appears to be a reinforced concrete box culvert. However, neither UDOT nor Summit County (the owner of the road) could provide any information about the specific culvert design or type. Concrete box culverts are a common structure type and one of the structure types eligible for the Advisory Council on Historic Preservation's *Program Comment Issued for Streamlining Section 106 Review for Actions Affecting Post-1945 Concrete and Steel Bridges* (77 *Federal Register* 68790). For this reason, UDOT will address this culvert through the program comment process, and it is not discussed further in this EIS.

3.11.4 Environmental Consequences and Mitigation Measures

3.11.4.1 Methodology

This section describes the methods used to assess the impacts to historic architectural and archaeological resources from the No-Action and action alternatives. The architectural and archaeological resources that are eligible for listing in the NRHP (described in Section 3.11.3, *Affected Environment*) were assessed to determine whether the action alternatives would impact any portion of the resource.

If an alternative would alter the important characteristics of a historic property such that the property's eligibility would be affected, an **adverse effect** was determined likely. If the alternative would not significantly alter important characteristics of a historic site or property, the alternative was considered to have **no adverse effect** on the site or property. If the alternative would not affect any portion of the resource, the alternative was considered to have **no historic properties affected**.

UDOT's conclusions from this analysis represent its findings of effect under the Section 106 process.

The following sections summarize the effects on known historic architectural resources and archaeological resources from each proposed alternative. Appendix 3G, *Cultural Resources Correspondence*, includes the determinations of eligibility and findings of effect for the Kimball Junction Project. The SHPO concurred with all determinations of eligibility and findings of effect for architectural and archaeological resources via written correspondence on October 28, 2024.

3.11.4.2 No-Action Alternative

With the No-Action Alternative, the improvements associated with the Kimball Junction EIS Project would not be made. No new impacts to historic or archaeological resources would occur with this alternative as a result of the project.

3.11.4.3 Action Alternatives

As described in Section 3.11.3.2.1, *Archaeological Resources*, there are no eligible archaeological resources in the APE. Neither action alternative would physically impact eligible architectural structures or would come within 15 feet of those structures. Neither action alternative would require right-of-way from eligible architectural properties; therefore, there would be **no historic properties affected** under the Section 106 process from either action alternative.

3.11.4.4 Mitigation Measures for Impacts to Historic and Archaeological Resources

Because no adverse effects would occur to historic properties (that is, resources included in or eligible for inclusion in the NRHP), no mitigation measures are necessary under the National Historic Preservation Act.

3.12 Hazardous Materials and Waste Sites

3.12.1 Introduction

This section describes sites near the Kimball Junction interchange that could contain hazardous materials and hazardous waste and the potential effects of the project alternatives on these sites. Hazardous materials include any solid, liquid, or gaseous materials that, if improperly managed or disposed of, could pose hazards to human health and the environment. A material is considered hazardous if it exhibits one or more of the following characteristics: ignitability, corrosivity, reactivity, or toxicity.

Hazardous Materials and Waste Sites Evaluation Area. The hazardous materials and waste sites evaluation area includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. The evaluation area is focused on an area within 0.5 mile of the Kimball

Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*. This area is shown in Figure 3.12-1 and Figure 3.12-2, *Hazardous Material Facilities in the Hazardous Materials and Waste Sites Evaluation Area*, beginning on page 3-176.

3.12.2 Regulatory Setting

Hazardous materials are regulated by the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and Utah Administrative Code Title 19, *Environmental Quality Code*.

The following concerns are raised when a transportation project could affect sites with hazardous materials:

- The spread of existing soil or groundwater contamination through construction activities
- The potential for increased construction expenses
- 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

3.12.3 Affected Environment

3.12.3.1 Resource Identification Methods

Potentially hazardous sites were evaluated by reviewing records from UDEQ. These sites included Brownfields sites; Comprehensive Environmental, Response, Compensation, and Liability Information System (CERCLIS) sites; Environmental Incidents; Enforceable Written Assurances (EWA) sites; Formerly Used Defense (FUD) sites; leaking underground storage tank (LUST) sites; National Priorities List (NPL) sites; Solid Waste Sites; Tier II sites; Toxic Release Inventory (TRI) sites; Used Oil Facilities; and underground storage tank (UST) sites (UDEQ 2024).

Sites were reviewed for their potential to be affected by both action alternatives based on the search areas shown in Table 3.12-1. For example, NPL sites are sites with known contamination. For this reason, a wide search area (1 mile) was used to identify these sites. Conversely, USTs are regulated sites that store petroleum products, but they often do not have spills or leaks that have been reported or investigated; therefore, these sites were identified using a narrower search radius (within the footprints of the action alternatives and adjacent properties).

To determine the sites of greatest concern, UDOT assessed the identified hazardous material–related sites, areas, and facilities to identify those that have a higher probability of containing contaminated soil or groundwater and those that are located closer to the construction areas for both action alternatives using criteria established in UDOT's *Environmental Process Manual of Instruction* (UDOT 2023d). The site type determined the search areas (Table 3.12-1).

Table 3.12-1. Descriptions of Hazardous Materials Sites and Associated Search Areas

Site Type	Search Area	Description
Brownfields	0.5 mile	Brownfields are former industrial areas.
CERCLIS	0.5 mile	CERCLIS sites contain listed chemicals under CERCLA but have not been categorized as NPL sites.
Environmental incident	Alternative footprints or adjacent properties	Environmental incidents are locations where a spill or other incident regarding hazardous materials has been reported.
EWA	0.5 mile	EWA sites are properties where the owner has come to an agreement with UDEQ regarding obligations associated with hazardous materials or waste on the site.
FUD	0.5 mile	FUD sites were once under the jurisdiction of the U.S. Department of Defense and could contain hazardous, toxic, or radioactive wastes in the soil, water, or containers on the site.
LUST	0.5 mile	LUST sites are UST sites where a leak has been detected.
NPL	1 mile	NPL sites are sites that contain chemicals listed under CERCLA and that have been identified as priorities for cleanup.
Solid Waste	0.5 mile	Solid waste sites include landfills and transfer stations.
Tier II	0.5 mile	Tier II sites are sites with documented hazardous chemicals stored on site. No chemical spills or release is implied by the database listing.
TRI	Alternative footprints or adjacent properties	TRI sites are sites, such as manufacturing or mining facilities, that manufacture or process chemicals and are required to report on the management of toxic chemicals under the TRI program.
Used oil facility	Alternative footprints or adjacent properties	Used oil facilities are sites that store, transport, or recycle used oil.
UST	Alternative footprints or adjacent properties	USTs are sites where underground storage tanks are currently being used or have been used to store petroleum products, such as gasoline or diesel fuel.

Definitions: CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; CERCLIS = Comprehensive Environmental, Response, Compensation, and Liability Information System; EWA = Enforceable Written Assurances; FUD = Formerly Used Defense; LUST = leaking underground storage tank; NPL = National Priorities List; TRI = Toxics Release Inventory; UDEQ = Utah Department of Environmental Quality; UST = underground storage tank

3.12.3.2 Facilities with Hazardous Materials in the Hazardous Materials and Waste Sites Evaluation Area

The screening-level evaluation identified seven sites in the hazardous materials and waste sites evaluation area that are known or suspected to contain, or have previously contained, hazardous materials and are near the project area. These sites are shown in Figure 3.12-1 and Figure 3.12-2 and listed in Table 3.12-2.

As described in Table 3.12-2, these sites present a low, moderate, or high risk that any construction in the area would encounter contamination based on site type and location. Of the sites near the project area, the probability (high, moderate, and low) that a site type contains contamination are defined per UDOT's *Environmental Process Manual of Instruction* (UDOT 2023d) as follows:

What methodology was used for evaluating hazardous materials and waste sites?

The screening-level evaluation was limited to reviewing environmental databases from the Utah Geospatial Resource Center and from UDEQ. This initial screening process provides a general risk assessment and can guide further investigations.

High Probability Sites. The following sites have a high probability of existing soil or groundwater contamination:

- Open LUST sites
- Dry cleaners

Moderate Probability Sites. The following sites have a moderate probability that construction would encounter contamination:

- Closed LUST sites
- Active UST sites

Low Probability Sites. The following sites have a low probability that construction would encounter contamination:

- Removed and closed UST sites
- Environmental incidents[1]

The map number and site name columns in Table 3.12-2 correlate with the information in Figure 3.12-1 and Figure 3.12-2.

[1] Ten environmental incidents were found in the hazardous materials and waste sites evaluation area. These site types are typically locations of minor spills that were contained, reported, and promptly cleaned up. Based on UDOT's review of records in UDEQ's database, UDOT determined that it is unlikely any residual contamination is present based on the environmental incident. For this reason, these sites do not present a risk that construction would encounter any contamination at these sites, and these sites are not evaluated further in this EIS.

Figure 3.12-1. Hazardous Material Facilities in the Hazardous Materials and Waste Sites Evaluation Area (1 of 2)

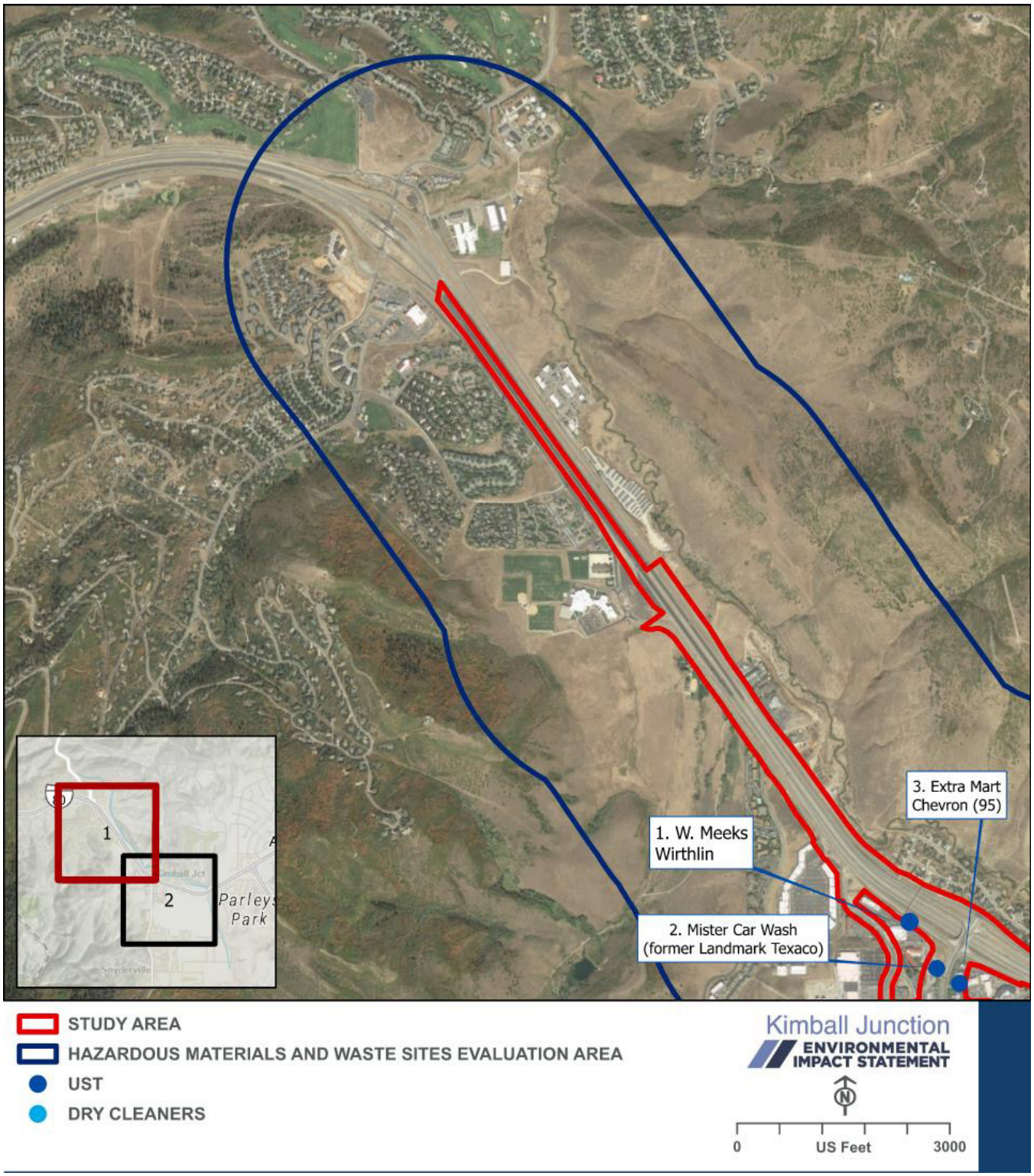


Figure 3.12-2. Hazardous Material Facilities in the Hazardous Materials and Waste Sites Evaluation Area (2 of 2)

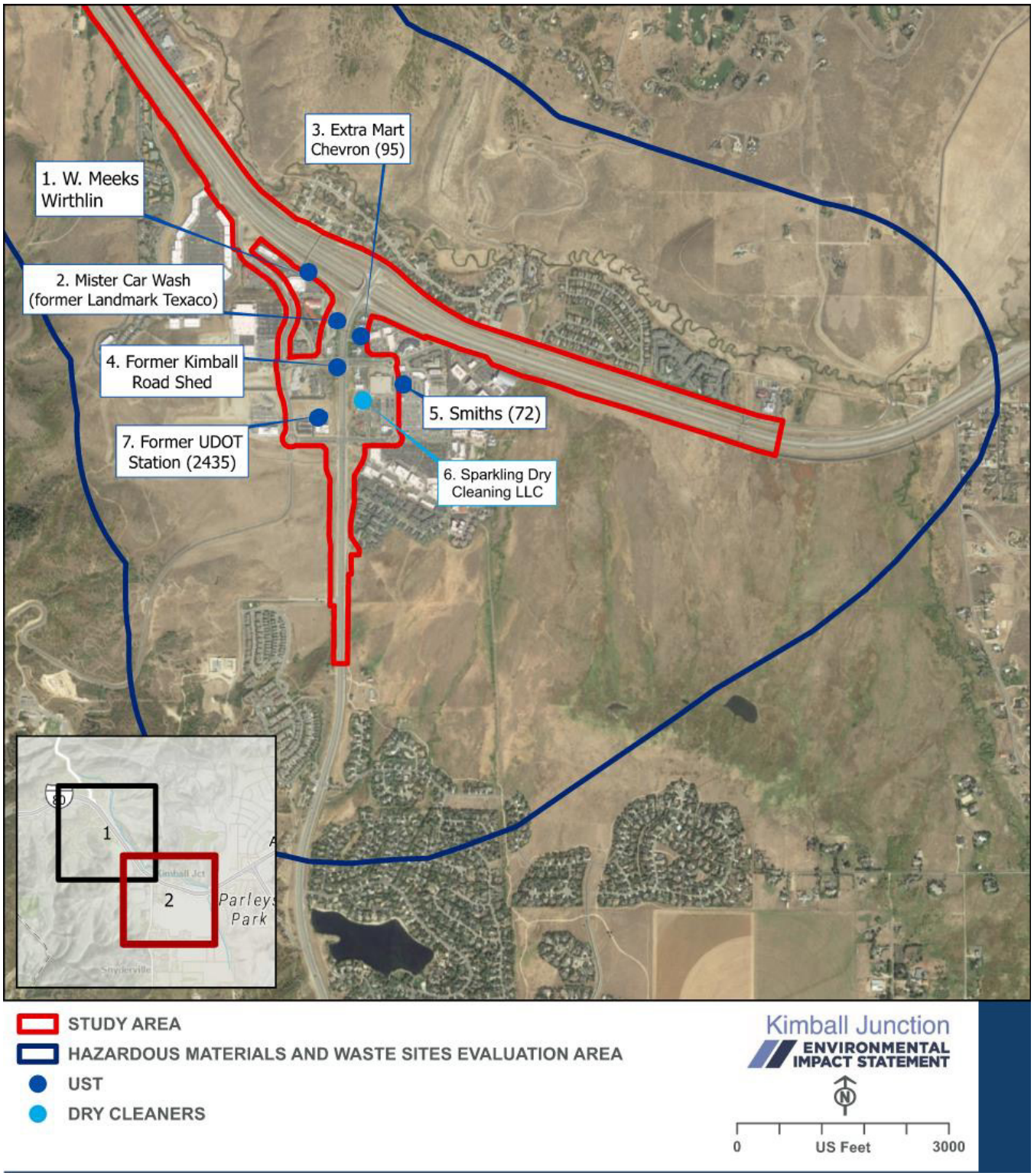


Table 3.12-2. Risks to Construction from Sites in the Hazardous Materials and Waste Sites Evaluation Area by Site Type

Map No.[a]	Site Name	Address	Database / ID	Information from Database Records
1	W. Meeks Wirthlin	Kimball Junction, 84060	LUST / UST Facility ID: 7000135	Two petroleum USTs that are permanently out of use are recorded at this site. One tank was removed from the ground, and the other tank was closed in place. Information from UDEQ in 2010 indicates that petroleum contamination of soil remains from the LUST release. The contamination is at depths and locations that were not considered a threat to human health or the environment. There is a *low risk* that construction in the area would encounter contamination.
2	Mister Car Wash (former Landmark Texaco)	6515 N. Highway 224	LUST Facility ID: 7000003	The most recent inspection (in 2010) found that precautions had been taken for a LUST release. The Utah Division of Environmental Response and Remediation's (DERR) project manager recommended that no further action be taken because the contamination is at depths and locations that were not considered a threat to human health or the environment according to Utah Administrative Code R311-211. However, it was documented at the time that petroleum contamination of soil remained. There is a *moderate risk* that construction in the area would encounter contamination. The exact location of the contaminated soil on this site is unknown.
3	Extra Mart Chevron (95)	6500 N. Highway 224	UST Facility ID: 7000015	Eight USTs are documented at this site. Four USTs are permanently out of use, and four are currently in use. The most recent inspection (2015) states that the location had been tested, the on-site pipeline leak-detection system meets all National Fire Protection Association 329-87 and 40 CFR Part 280 requirements, and the system has received third-party certification. There is a *low risk* that construction in the area would encounter contamination.
4	Former Kimball Road Shed	6415 N. Highway 224	LUST Facility ID: 7000046	In 1996, a UST breach was recorded at this former UDOT site; however, the site was never tracked as an active LUST site. According to UDEQ's records, after a diesel tank on the site was closed, closure samples indicated a release of diesel fuel. Closure soil sample levels were considered insignificant, and DERR recommended that no LUST case file be created because no significant petroleum contamination existed or remained on site. Additionally, the site did not appear to constitute a current or potential threat to human health or the environment. However, UDEQ recommended that future evidence could trigger further action. There is a *moderate risk* that construction in the area would encounter contamination.
5	Smith's (72)	1725 Uinta Way	UST Facility ID: 7000158	This site has three USTs and is about 0.1 mile east of SR-224. A review of records in UDEQ's database did not identify any noncompliance issues or LUST occurrences. There is a *low risk* that construction in the area would encounter contamination.

(*Continued on next page*)

Table 3.12-2. Risks to Construction from Sites in the Hazardous Materials and Waste Sites Evaluation Area by Site Type

Map No.[a]	Site Name	Address	Database / ID	Information from Database Records
6	Sparkling Dry Cleaning LLC	6300 N. Sagewood Drive, Suite G	Dry Cleaners EPA ID: UTR000008474	Site investigations found concentrations of tetrachloroethylene. According to Utah Administrative Code R315-101, as of 2017, the location met the criteria for industrial land use. For this reason, no further corrective action is necessary at the site. However, documents in UDEQ's database suggest that site soils might still be contaminated. The location is considered high-risk, and soil testing around the site is advised before construction. There is a *high risk* that construction in the area would encounter contamination.
7	Former UDOT Station (2435)	6201 N. Highway 224	LUST Facility ID: 700061	In 1990, one diesel tank and one gasoline tank were removed from this former UDOT site. Petroleum-contaminated soil and groundwater were left in place on the site; however, according to reports dating back to 1995, the contamination did not represent a risk to human health or the environment based on then-current land use and then-current risk characteristics at the site. The 1995 report went on to state that future land use changes could alter the risk characteristics of the site. There is a *moderate risk* that construction in the area would encounter contamination.

Source: Database searches using UDEQ's Interactive Map (UDEQ 2024)

Definitions: EPA = U.S. Environmental Protection Agency; DERR = Utah Division of Environmental Response and Remediation; ID = identifier; LUST = leaking underground storage tank; UDEQ = Utah Department of Environmental Quality; UST = underground storage tank

[a] Map numbers correlate with the information in Figure 3.12-1 and Figure 3.12-2 above.

3.12.4 Environmental Consequences and Mitigation Measures

3.12.4.1 Methodology

To assess the expected environmental risks to and from the Kimball Junction Project, UDOT determined the likelihood that either action alternative would encounter the contaminants listed in Table 3.12-2 above. UDOT also considered reported contamination, reported remedial actions, and the locations of facilities that contain hazardous materials in relation to the construction locations for both action alternatives.

For this analysis, the footprints for both action alternatives are the right-of-way and temporary construction easement requirements, as described in Section 3.2, *Community and Property Impacts*.

The criteria for classifying the risk (high, moderate, or low) of encountering contaminated soil and/or groundwater at each hazardous material site for both action alternatives were defined according to UDOT's *Environmental Process Manual of Instruction* (UDOT 2023d). UDOT also considered each site's location relative to the footprints for Alternatives A and C to determine the sites of greatest concern.

Sites of greatest concern are generally sites with a high probability of contamination whose property boundaries are in the proposed right-of-way for the action alternatives. No sites of greatest concern apply to the Kimball Junction Project because no sites with a high probability of contamination are in the proposed right-of-way of either action alternative.

To identify sites of primary concern, UDOT considered the site's expected risk level and each site's location relative to the anticipated footprint for the action alternatives. For the Kimball Junction Project, sites of primary concern are moderate-risk sites that would be directly impacted by either of the action alternative footprints.

Two types of sites are sites of secondary concern. One type is sites with a high-to-moderate probability of contamination that are outside, but near (within 1,000 feet to 0.5 mile depending on the site type), the right-of-way for the action alternatives. A second type is sites with a low probability of contamination whose property boundaries are in the right-of-way for the action alternatives. The inferred direction of groundwater flow is also considered when classifying risk.

3.12.4.2 No-Action Alternative

With the No-Action Alternative, the improvements associated with the Kimball Junction Project would not be made. As a result, no impacts to or disturbances of hazardous materials sites would occur. Existing sites would continue to be managed in accordance with state and federal regulations.

3.12.4.3 Action Alternatives

As shown in Table 3.12-2, *Risks to Construction from Sites in the Hazardous Materials and Waste Sites Evaluation Area by Site Type*, above, one dry cleaner, three LUST sites, and three UST sites have been identified in the hazardous materials and waste sites evaluation area.

3.12.4.3.1 Sites of Primary Concern

As shown in Figure 3.12-3, *Hazardous Materials and Waste Sites in the Design Footprint for Both Action Alternatives*, below, of the seven hazardous materials and waste sites in the hazardous materials and waste sites evaluation area, two sites would be in the proposed right-of-way for both action alternatives and are retained as sites of moderate concern: the Former Kimball Road Shed (6415 N. Highway 224) and the access to the Mister Car Wash (6515 N. Highway 224, formerly the Landmark Texaco).

Former Kimball Road Shed (6415 N. Highway 224). The site of the former Kimball Road Shed on the southwest corner of SR-224 and Ute Boulevard would be wholly affected by the construction of either action alternative. The site is in the location of the proposed widening of SR-224 and in or near the location of the proposed pedestrian underpass, the exact location of which would be finalized during final design of the selected alternative.

As described in Table 3.12-2, *Risks to Construction from Sites in the Hazardous Materials and Waste Sites Evaluation Area by Site Type*, above, the contaminant levels measured in soil sample levels that were taken when the site was closed were considered insignificant. UDEQ recommended that no LUST case file be created for this site because no significant petroleum contamination existed or remained on site. Additionally, the site did not appear to constitute a current or potential threat to human health or the environment. There is a **moderate risk** that construction of either action alternative would encounter contamination. Based on UDEQ records, no significant petroleum contamination existed or remained on site, though future evidence could trigger further action.

Mister Car Wash (6515 N. Highway 224, formerly the Landmark Texaco). The Mister Car Wash is an active car wash and the site of the former Landmark Texaco. A LUST release is recorded at this site. Constructing either action alternative would require reconstructing the Mister Car Wash driveway access from SR-224 to tie into the proposed widened SR-224 cross-section. As shown in Figure 3.12-4, *Mister Car Wash Driveway Impacts*, below, about 1,405 square feet of driveway access that is immediately adjacent to SR-224 would be removed with both alternatives because SR-224 would be widened to the west in that location. A remaining 3,120 square feet of driveway access would remain, but it would be regraded to tie into the proposed new edge of pavement and realigned Millenium trail.

As described in Table 3.12-2, *Risks to Construction from Sites in the Hazardous Materials and Waste Sites Evaluation Area by Site Type*, above, an inspection conducted in 2010 found that precautions had previously been taken for a LUST release. The Utah Division of Environmental Response and Remediation (DERR) recommended that no further action be taken because the contamination is at depths and locations that are not currently considered a threat to human health or the environment according to Utah Administrative Code R311-211. However, it was documented that petroleum contaminated soil remains. Based on UDEQ records, there is a **moderate risk** that construction of either action alternative would encounter contamination because the exact location of contaminated soil on this site is unknown.

Figure 3.12-3. Hazardous Materials and Waste Sites in the Design Footprint for Both Action Alternatives

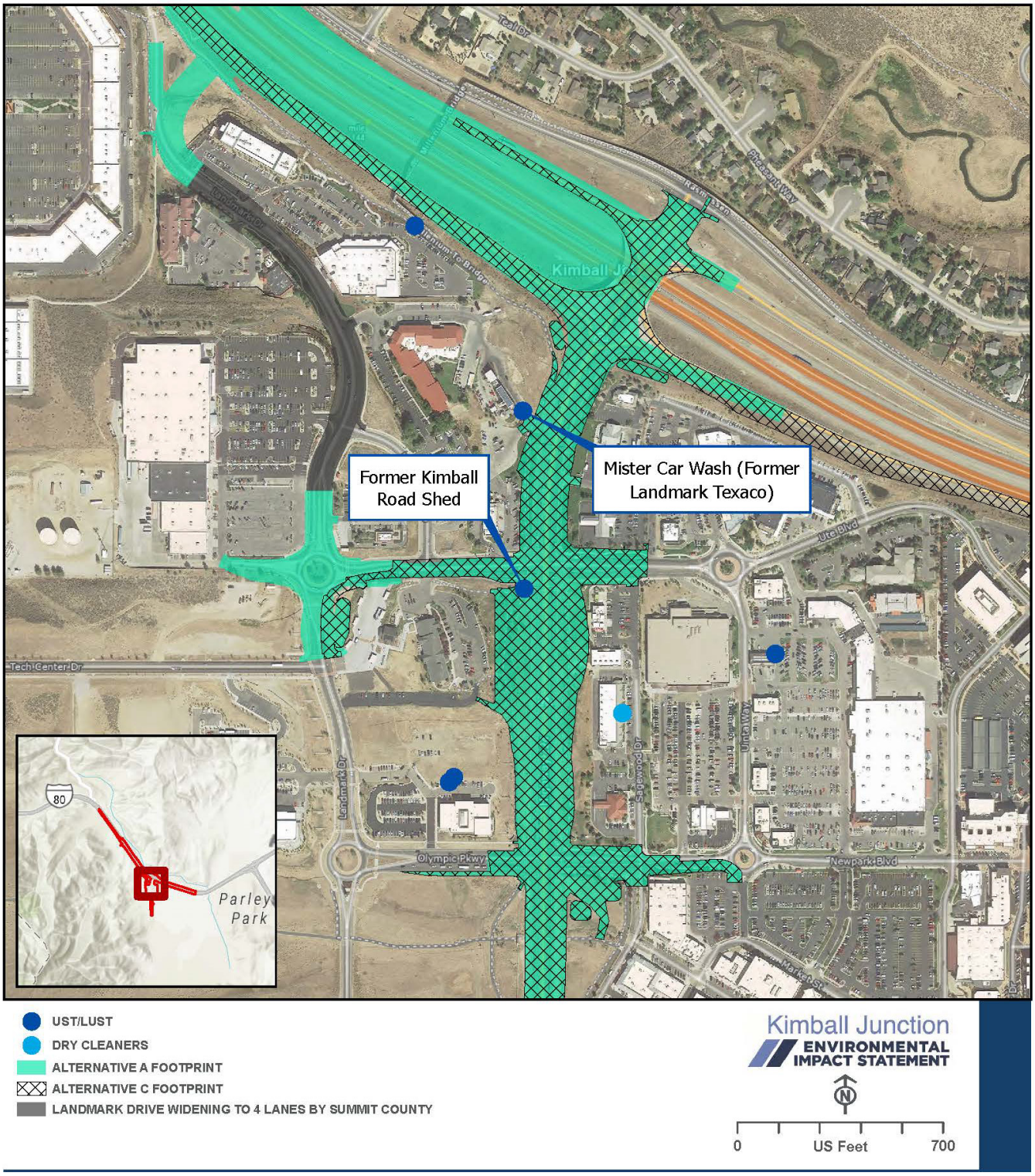
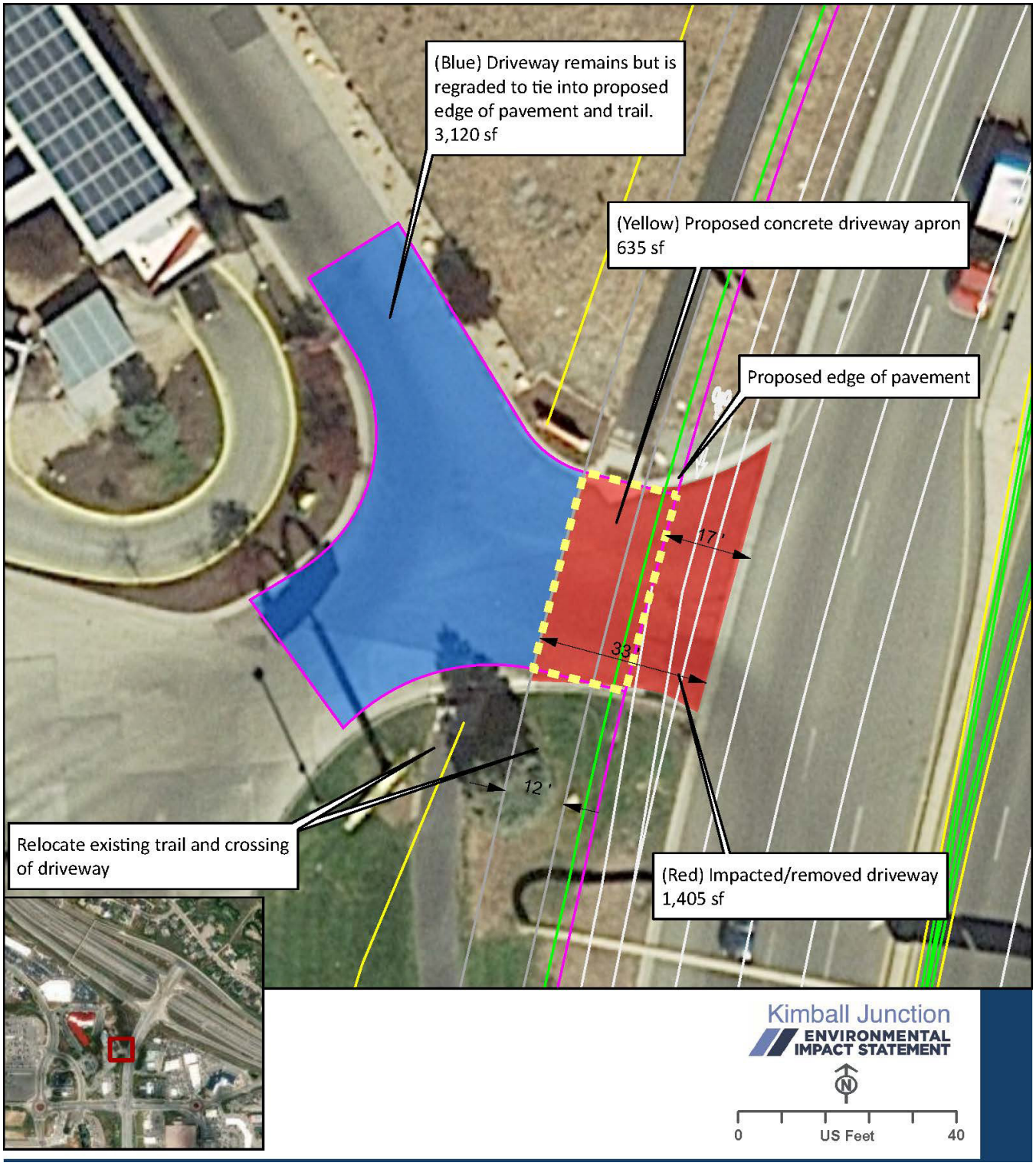


Figure 3.12-4. Mister Car Wash Driveway Impacts



3.12.4.3.2 Sites of Secondary Concern

There is one site of secondary concern in the hazardous materials and waste sites evaluation area.

Sparkling Dry Cleaning (6300 N. Sagewood Drive, Suite G). UDEQ records indicate that residual contamination from Sparkling Dry Cleaning might still remain on site. As shown in Figure 3.12-3, *Hazardous Materials and Waste Sites in the Design Footprint for Both Action Alternatives*, above, this facility is about 60 feet to the east of the design footprint along SR-224 for both action alternatives. The dry cleaning building parcel is downslope of SR-224 and about 20 feet lower than the existing and proposed roadway elevation. Based on the nature of the site, the Sparkling Dry Cleaning site is considered a site of secondary concern because it has a high probability of contamination and is near, but not in, the impact footprint for both action alternatives. Additionally, the site is considerably downslope from SR-224.

3.12.4.3.3 Remaining Sites

The remaining four sites (W. Meeks Wirthlin, Extra Mart Chevron, Smith's, and the former UDOT station) identified in Table 3.12-2, *Risks to Construction from Sites in the Hazardous Materials and Waste Sites Evaluation Area by Site Type*, on page 3-178, range from 52 to more than 100 feet outside the design footprints of both action alternatives. Based on the low risk of contamination at these four sites and the distance from the design footprint for both action alternatives, there is low risk that construction in the area would encounter contamination at these four sites.

3.12.4.4 Mitigation Measures for Impacts to and from Hazardous Materials and Waste Sites

During construction, UDOT will coordinate with DERR, the construction contractor, and the appropriate property owners. This coordination will involve determining the status of the sites of concern, identifying newly created sites, and minimizing the risk to all parties involved. Environmental site assessments might be conducted at the sites of concern to further evaluate the nature and extent of contamination (if any) and to better identify the potential risks of encountering hazardous materials when constructing the selected alternative.

Previously unidentified sites or contamination could be encountered during construction. In such a case, all work will stop in the contamination area according to UDOT Standard Specifications, and the contractor will consult with UDOT and DERR to determine the appropriate remedial measures. Hazardous materials will be handled according to UDOT Standard Specifications and DERR's requirements and regulations. The construction contractor will implement measures to prevent spreading contamination and limit worker exposure. Engineering controls (such as dust mitigation, temporary soil covers, and groundwater extraction) and personal protective equipment for construction workers will be used to reduce the potential for public or worker exposure to hazardous materials, as determined necessary by UDOT.

3.13 Visual and Aesthetic Resources

3.13.1 Introduction

UDOT considers aesthetic values, such as visual resources, during project development. Visual resources are the components of the natural, cultural, or project environments that can be seen. The visual and aesthetic resources of a community or area include the physical features, such as land, water, vegetation, and topography, that make up the visible landscape and vistas, human-made features, such as buildings, roads, utilities, and structures, as well as viewer sensitivity to the area. Visual character is the visible attributes of a scene or object. Viewer sensitivity is a combination of viewer exposure and viewer awareness. Viewer exposure is a function of the number of viewers, the number of views seen, the distance of the viewers, and the viewing duration. Viewer awareness relates to the extent of the public's attention, focus, and concern for a particular viewshed.

This section describes the existing visual character (or physical features) of the visual resources evaluation area, the typical viewer groups that would view those features, and the effects, or viewer response, of the action alternatives on those features.

Visual Resources Evaluation Area. The visual resources evaluation area is defined as all areas where physical changes associated with the action alternatives could be seen. The views include both looking outward from the location of the action alternatives and looking toward the locations of the action alternatives from key views.

3.13.2 Regulatory Setting

To consider the aesthetic effects of both action alternatives, UDOT performed a visual analysis for the EIS. FHWA's Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987), suggests conducting an analysis of visual impacts. In addition, FHWA document FHWA-HEP-15-029, *Guidelines for the Visual Impact Assessment of Highway Projects* (FHWA 2015a), provides a basis for conducting a visual impact assessment (VIA).

3.13.3 Affected Environment

The visual resources evaluation area consists primarily of commercial development, residential development, and existing roadway. I-80 is the dominant transportation corridor in the evaluation area. I-80 is intersected by SR-224 to create the Kimball Junction interchange. Although I-80 is not a scenic byway, there are scenic views from and across I-80. The most prominent scenic feature of the evaluation area is the Wasatch Mountains to the north and west. There are no scenic overlooks in the evaluation area dedicated to this view.

3.13.3.1 Geographic Setting

The Kimball Junction interchange viewshed is in the Middle Rocky Mountains topographic region, which is characterized by high mountains carved by streams and glaciers, sharp ridgelines, U-shaped valleys, glacial lakes, and piles of debris (moraines). Directly to the west, the Wasatch Range extends in a north-south direction and consists of uplifted, fault-block mountains that form the western edge of the Rocky Mountains and the Wasatch Back, which rises over 4,000 feet above the western edge of the valley floor. The Wasatch

Range is the most distinct visual element in the region and dominates the western horizon. Farther to the east, the Uinta Mountains extend in an east-west direction and rise to elevations above 13,000 feet.

3.13.3.2 Overview of the Viewshed

The dominant natural features in the viewshed are the Wasatch Range to the west, the Uinta Range to the east, and the Swaner Preserve and EcoCenter to the south. The Swaner Preserve and EcoCenter is southeast of the Kimball Junction interchange and protects 1,200 acres of open space, including 800 acres of wetlands, streams, and other valuable wildlife habitat. The Kimball Junction interchange and associated roads, residential and commercial development, and Utah Olympic Park are the dominant human-made features in the viewshed.

3.13.3.2.1 Visual Character

The visual character of the visual resources evaluation area is a mix of rural interstate, residential and commercial development, and open space. The I-80 corridor west of the Kimball Junction interchange is moderately developed with a mix of single and multifamily homes, commercial businesses, and some vacant land. The area east of the Kimball Junction interchange is largely undeveloped, but there are some single-family homes to the north and the Swaner Preserve and EcoCenter to the south.

For residents in the evaluation area, the mountains can be the dominant view, contribute to the background for middle and foreground views, or be noncontributing to the overall visual experience. The visual significance of vegetation, urban development, and other human-made elements (including the current interchange overpasses, signs, sign structures, lights, and other infrastructure in the evaluation area) is directly related to the dominance of the mountains. That is, as the presence of human-made elements increases, the visual dominance of the mountains decreases.

3.13.3.2.2 Affected Viewers

A VIA considers effects to two basic user groups, “travelers” (people using the road) and “neighbors” (people looking at the road). Travelers and neighbors can see some of the same views. However, a traveler’s view is called a dynamic viewshed because it changes as the traveler moves along the highway. The visual sensitivity of neighbors and travelers depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also affected by viewer activity, awareness, and visual expectations regarding the views.

Neighbors

Neighbors are a viewer group that consists of owners and renters of single-family homes, multifamily homes, apartments, condominiums, and other dwelling units used primarily by permanent residents. Residential neighbors are the most sensitive viewers to visual change. Along I-80 and SR-224, residential areas are directly adjacent to the interstate and the location where both action alternatives would be implemented. This viewer group also includes recreational users on the surrounding trails and parks.

Travelers

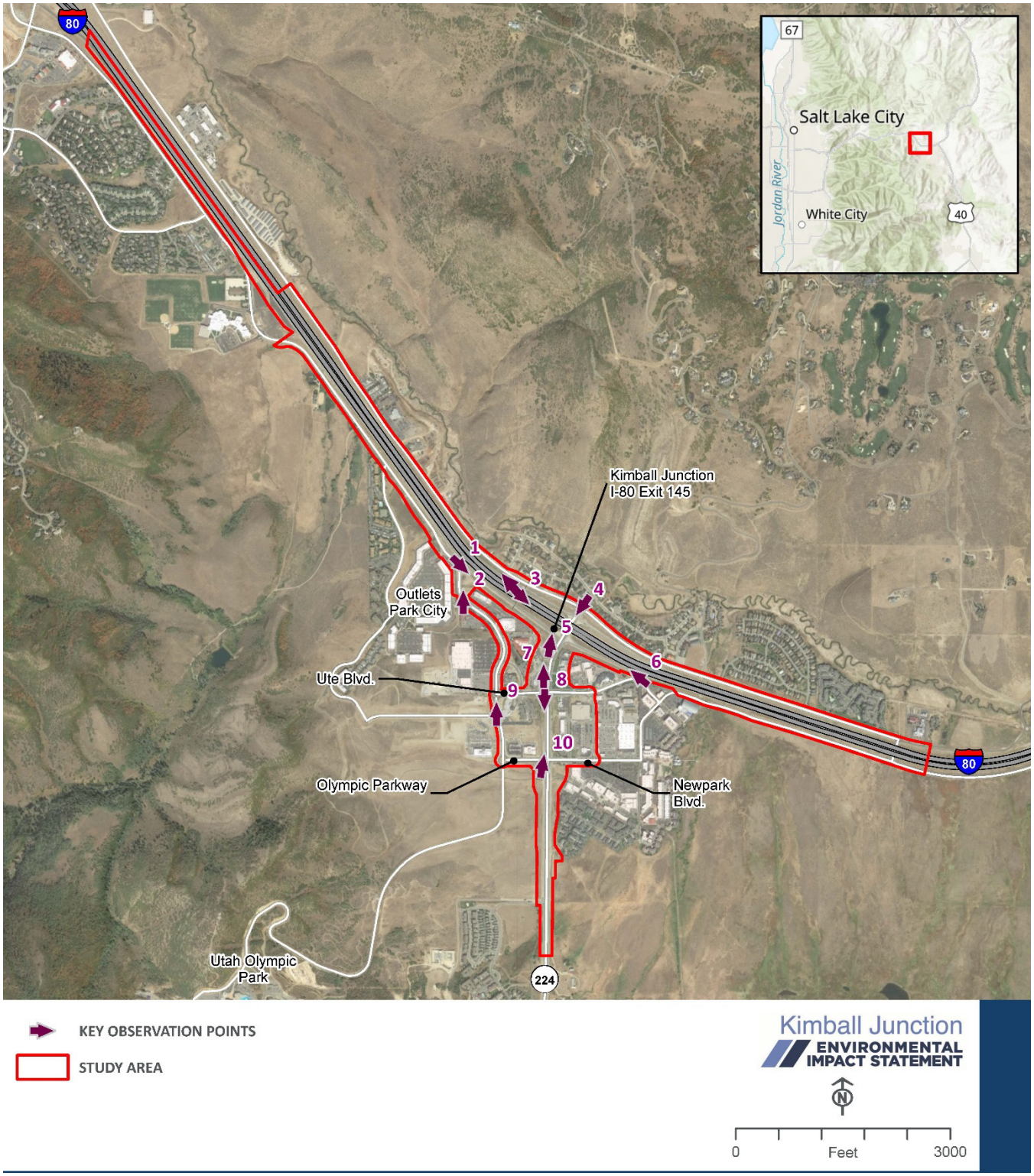
Travelers are a viewer group that consists of people who are traveling on and across I-80 and SR-224 and have views of the road in the visual resources evaluation area. Because of the nature of dynamic viewsheds, travelers are typically not as sensitive as neighbors to visual change.

3.13.3.3 Existing Visual Quality at Key Views

UDOT selected the key observation points (KOP) listed below to represent the visual quality of the visual resources evaluation area. Key observation points were selected to cover areas where proposed project elements would occur. The specific number of key observation points was not predetermined. The KOPs emphasize the views from the surrounding area toward the Kimball Junction interchange (Figure 3.13-1). Visual quality serves as the baseline for determining the degree of visual impacts—that is, whether visual impacts are adverse, beneficial, or neutral. Visual quality is determined by assessing the composition, including what viewers like and dislike, of the character-defining features of the landscape and its aesthetics.

- **KOP 1:** South of I-80 northeast of North Landmark Drive facing east toward Kimball Junction
- **KOP 2:** South of I-80 southwest of North Landmark Drive facing northwest toward I-80
- **KOP 3:** Pedestrian crossing west of Kimball Junction facing east toward Kimball Junction and west toward the Wasatch Range
- **KOP 4:** North of Kimball Junction interchange and Rasmussen Road facing south toward Kimball Junction
- **KOP 5:** West of SR-224 north of Ute Boulevard facing north toward Kimball Junction
- **KOP 6:** South of I-80 north of Ute Boulevard facing west toward Kimball Junction
- **KOP 7:** West of SR-224 north of Ute Boulevard facing north toward Kimball Junction
- **KOP 8:** West of SR-224 south of Ute Boulevard facing south toward Olympic Parkway
- **KOP 9:** Along North Landmark Drive north of Tech Center Drive facing north toward the roundabout with Ute Boulevard
- **KOP 10:** West of SR-224 south of Olympic Parkway facing north toward Kimball Junction

Figure 3.13-1. Key Observation Points



3.13.3.3.1 Key Observation Point 1

The view from KOP 1 is what travelers see as they travel east on I-80 and east on North Landmark Drive. As shown in Figure 3.13-2, which looks east toward Kimball Junction from the pedestrian crossing on North Landmark Drive, the pedestrian bridge over I-80 and the Kimball Junction interchange are visible. The foreground view is limited to shrublands adjacent to I-80 and the pedestrian trail. The middle-ground view is of the elevated pedestrian bridge over I-80 and signs in the I-80 right-of-way. The background view is of the Kimball Junction interchange, residential development north of I-80, and commercial development south of I-80. The visual character of KOP 1 is a combination of rural interstate corridor and suburban development. The foreground and middle-ground views are compatible and expected for the views in a fully developed city. The views of the pedestrian bridge and development near the Kimball Junction interchange are inharmonious and disorderly—that is, the views do not leave the viewer with a vivid, memorable view. The background view is mostly obscured by the pedestrian bridge.

Figure 3.13-2. Key Observation Point 1 (south of I-80 northeast of North Landmark Drive facing east toward Kimball Junction)

3.13.3.3.2 Key Observation Point 2

The view from KOP 2 is what travelers see as they travel west on North Landmark Drive. As shown in Figure 3.13-3, which looks northwest toward the Tanger Outlets from the sidewalk on North Landmark Drive, the roadway and outlet mall are visible. The foreground view is limited to the pavement and landscaping adjacent to North Landmark Drive. The middle-ground view is of the outlet mall, and the background view is of the mountains. The foreground and middle-ground views of North Landmark Drive and commercial development contrast in form, texture, and color with the background visual qualities. The foreground and middle-ground views are inharmonious and disorderly. The background view is scenic.

Figure 3.13-3. Key Observation Point 2 (south of I-80 southwest of North Landmark Drive facing north toward I-80)

3.13.3.3.3 Key Observation Point 3

The view from KOP 3 is what travelers see as they travel east and west on I-80 and what pedestrians see as they cross over I-80 using the existing pedestrian bridge. As shown in Figure 3.13-4, which looks east toward Kimball Junction from the pedestrian bridge over I-80, the Kimball Junction interchange is visible. The foreground view is of the interstate and the vegetation within the right-of-way. The middle-ground view is of the Kimball Junction interchange, residential development to the north, and commercial development to the south. The background view is of the mountains. KOP 3 represents the visual character of the visual resources evaluation area: rural interstate, suburban development, and scenic mountains in the background. The foreground and middle-ground views are compatible and expected for the views in a fully developed city. The rural interstate corridor is orderly and coherent. The background view of the mountains is scenic.

Figure 3.13-4. Key Observation Point 3 Looking East (I-80 eastbound and pedestrian crossing west of Kimball Junction facing east toward Kimball Junction)

As shown in Figure 3.13-5, which looks west toward the Wasatch Range from the pedestrian bridge over I-80, the Tanger outlet mall is visible. The foreground view is of I-80 and the vegetation in the right-of-way. The middle-ground views are of the outlet mall, residential development to the north, and commercial development to the north. The background view is of the mountains. KOP 3 represents the visual character of the evaluation area: rural interstate, suburban development, and scenic mountains in the background. The foreground and middle-ground views are compatible and expected for the views in a fully developed city. The rural interstate corridor is orderly and coherent. The background view of the mountains is scenic.

Figure 3.13-5. Key Observation Point 3 Looking West (I-80 westbound and pedestrian crossing west of Kimball Junction facing west toward the Wasatch Range)

3.13.3.3.4 Key Observation Point 4

The view from KOP 4 is what travelers see as they exit I-80 and head south on SR-224 and what pedestrians see along SR-224. As shown in Figure 3.13-6, which looks south toward Utah Olympic Park, SR-224 and adjacent commercial development is visible. SR-224 is the primary road used by residents and visitors to reach Park City. The foreground and middle-ground views are dominated by asphalt, traffic, traffic signals, and businesses. The background view is of the mountains, and Utah Olympic Park is visible. The foreground and middle-ground views of SR-224 and urban development contrast in form, texture, and color with the background visual qualities. The background view of the mountains is scenic.

Figure 3.13-6. Key Observation Point 4 (north of Kimball Junction interchange and Rasmussen Road facing south toward Kimball Junction)

3.13.3.3.5 Key Observation Point 5

The view from KOP 5 is what travelers see as they head north on SR-224 toward Kimball Junction and what pedestrians see along SR-224. As shown in Figure 3.13-7, which looks north toward Kimball Junction, SR-224 and adjacent commercial development is visible. The foreground and middle-ground views are dominated by asphalt, traffic, traffic signals, and businesses. The background view of the mountains is slightly obscured by traffic signals and signs. The foreground and middle-ground views of SR-224 and urban development contrast in form, texture, and color with the background visual qualities of the mountains. The views are generally inharmonious and disorderly. The background view is also inharmonious and disorderly because of the interrupting features of the intersection signals, signs, and other features in the middle ground.

Figure 3.13-7. Key Observation Point 5 (west of SR-224 north of Ute Boulevard facing north toward Kimball Junction)

3.13.3.3.6 Key Observation Point 6

The view from KOP 6 is what travelers see as they head west on I-80 toward Kimball Junction, what travelers see as they head northwest on Ute Boulevard, and what pedestrians see from sidewalks along the north side of Ute Boulevard. As shown in Figure 3.13-8, which looks west toward Kimball Junction, I-80 and Kimball Junction are visible. The foreground view is of the roadway and vegetation in the right-of-way. The middle-ground view is of the commercial development south of I-80 and Kimball Junction interchange. The background view is of the mountains. KOP 6 represents the visual character of the visual resources evaluation area: rural interstate, suburban development, and scenic mountains in the background. The foreground and middle-ground views are compatible and expected for the views in a fully developed city. The rural interstate corridor is orderly and coherent. The background view of the mountains is scenic.

Figure 3.13-8. Key Observation Point 6 (south of I-80 north of Ute Boulevard facing west toward Kimball Junction)

3.13.3.3.7 Key Observation Point 7

The view from KOP 7 is what travelers see as they head north on SR-224 toward Kimball Junction and what pedestrians see along SR-224. As shown in Figure 3.13-9, which looks north toward Kimball Junction, SR-224 and adjacent commercial development is visible. The foreground and middle-ground views are dominated by asphalt, traffic, traffic signals, and businesses. The foreground and middle-ground views of SR-224 and urban development contrast in form, texture, and color with the background visual qualities. The background views of the mountains are obscured by traffic signals and signs. The views are generally inharmonious and disorderly.

Figure 3.13-9. Key Observation Point 7 (west of SR-224 north of Ute Boulevard facing north toward Kimball Junction)

3.13.3.3.8 Key Observation Point 8

The view from KOP 8 is what travelers see as they head south on SR-224 toward Park City and what pedestrians see along SR-224. As shown in Figure 3.13-10, which looks south toward Park City, SR-224 and adjacent commercial development is visible. The foreground and middle-ground views are dominated by asphalt, traffic, transmission lines, and businesses. The foreground and middle-ground views of SR-224 and urban development contrast in form, texture, and color with the background visual qualities of the mountains. The background view of the mountains is slightly obscured by the power lines.

Figure 3.13-10. Key Observation Point 8 (west of SR-224 south of Ute Boulevard facing south toward Olympic Parkway)

3.13.3.3.9 Key Observation Point 9

The view from KOP 9 is what travelers see as they head north on North Landmark Drive toward Ute Boulevard and what pedestrians see along North Landmark Drive. As shown in Figure 3.13-11, which looks north, the roundabout from North Landmark Drive and Ute Boulevard is visible. The foreground and middle-ground views are dominated by traffic and businesses. The foreground and middle-ground views of the Ute Boulevard and Landmark Drive roundabout and urban development contrast in form, texture, and color with the background visual qualities of the mountains. The background view of the mountains is obscured by the businesses and landscaping.

Figure 3.13-11. Key Observation Point 9 (along North Landmark Drive north of Tech Center Drive facing north toward the Roundabout with Ute Boulevard)

3.13.3.3.10 Key Observation Point 10

The view from KOP 10 is what travelers see as they head north on SR-224 from just south of Olympic Parkway toward Kimball Junction and what pedestrians see along SR-224. As shown in Figure 3.13-12, which looks north toward Kimball Junction, SR-224 and adjacent commercial development is visible. The foreground and middle-ground views are dominated by asphalt, traffic, traffic signals, and businesses. The foreground and middle-ground views of SR-224 and urban development contrast in form, texture, and color with the background visual qualities of the mountains. The background view of the mountains is slightly obscured by traffic signals and signs.

Figure 3.13-12. Key Observation Point 10 (west of SR-224 south of Olympic Parkway facing north toward Kimball Junction)

3.13.4 Environmental Consequences and Mitigation Measures

3.13.4.1 Methodology

Based on FHWA's *Guidelines for the Visual Impact Assessment for Highway Projects* (FHWA 2015a), UDOT conducted a VIA. This assessment considers visual resources and character in the area of visual effects and potential effects of the action alternatives. The VIA was conducted in four phases, which are described below.

- **Establishment Phase**
  - The establishment phase identifies the regulatory context, identifies sensitive visual resources from local plans, defines the area of visual effect, identifies static and dynamic viewsheds, identifies key views, and describes the existing visual landscape.
  - This phase includes both a desktop and field review of visual resources.
- **Inventory Phase**
  - The inventory phase includes assessing the visual quality of the existing visual resources in the affected environment and summarizing the existing visual resources by key views.
    - A component of visual quality is visual character. Visual character is the visible attributes of a scene or object and is typically described using artistic terms such as form, line, color, and texture.
    - Visual quality is what visual viewers like or dislike seeing. Visual quality is determined by assessing the composition of the character-defining features of the landscape and its aesthetics. Under FHWA's VIA guidelines, visual quality is determined by evaluating the viewed landscape's characteristics in terms of natural harmony, cultural order, and project coherence (FHWA 2015a).
    - Information gathered in this phase provides the baseline for analyzing the action alternatives in the analysis phase and is summarized by the key views identified in the establishment phase.
  - This phase also identifies the locations of the two main user groups associated with a transportation network in the visual resources evaluation area: *those using the network* (who have views from the road, also known as "travelers") and *those looking at the transportation network* (who have views of the road, also known as "neighbors").

What is a key view?

A key view is a topographic position that encompasses views both of and from the highway and represents the range of views that could be affected by the project. Key views represent the visual character of either the environment or the project.

- **Analysis Phase**
  - The analysis phase includes assessing the visual impacts of the changes associated with both action alternatives in the area of visual effect.
    - The degree of visual impact of both action alternatives is determined by assessing both how well the alternative would blend in with the existing environment (visual compatibility) and how much viewers would see and care about the visual impact of both action alternatives (viewer sensitivity) at each key view. Impacts to visual quality can be adverse, beneficial, or neutral.
- **Mitigation Phase**
  - The mitigation phase describes the visual resource mitigation measures that could be implemented to lessen any adverse effects of both action alternatives.

3.13.4.2 No-Action Alternative

With the No-Action Alternative, Kimball Junction would remain in its current configuration. The current types of land use and development would continue in the area with or without the Kimball Junction Project. The views in the visual resources evaluation area would be similar to the existing conditions, and visual change would be the result of the current development and projected growth of development that is consistent with adopted land use plans.

3.13.4.3 Alternative A

With Alternative A, the overall long-term visual changes to visual quality would be neutral compared to the existing conditions. Alternative A would maintain a similar level of natural harmony, cultural order, and landscape composition compared to the existing conditions. An assessment of the visual changes by key view is provided in *Visual Impacts of Alternative A by Key View* below.

What is cultural order?

Cultural order is how people interpret the visual resources of the cultural environment as either orderly or disorderly.

Main Elements of Alternative A That Would Have Visual Impacts

As shown in Figure 2.5-1, *Alternative A: Split Diamond Interchange with Intersection Improvements*, in Chapter 2, *Alternatives*, Alternative A would consist of a split-diamond interchange configuration on I-80 with intersection and pedestrian improvements on SR-224. The existing SPUI at Kimball Junction would be converted into a tight-diamond configuration (traffic signals at each off-ramp), and the interchange traffic would be split between the existing location at SR-224 and a new intersection with a bridge crossing I-80 to the west of SR-224. The split-diamond interchange would disperse traffic between the new access and SR-224 by providing easier access to residential and commercial locations in the Kimball Junction area. The split-diamond interchange would be constructed using concrete girders with a minimum clearance of 16.5 to 17 feet over I-80 and a depth of 5 to 6 feet.

Bridge ramps would rise to the proposed bridge elevation using fill slope or retaining walls where space is limited. One-way roads for both eastbound and westbound directions would connect the two intersections and tie into the on- and off-ramps for I-80. Buffered bike lanes would be added on SR-224, a pedestrian

undercrossing would be added at Ute Boulevard, and intersection improvements would be made along SR-224 to move all users more efficiently through the area. The pedestrian undercrossing would be of similar aesthetics to the existing pedestrian undercrossing south of Olympic Parkway. Intersection improvements include adding northbound and southbound through lanes on SR-224 between Olympic Parkway and I-80. Final aesthetics and betterments would be determined during the final design phase.

Visual Impacts of Alternative A by Key View

Key Observation Point 1. KOP 1 is close to the existing I-80 and has views of the interstate and the Kimball Junction interchange. Because it would be difficult to differentiate between the reconfigured and existing interchange, viewers are not likely to be sensitive to reconfiguring the interchange. Viewers are more likely to be sensitive to realigning the frontage road to the north on a new bridge over I-80. The realigned frontage road and new bridge would be in the line of sight of residents in the Spring Creek neighborhood closest to I-80. Realigning the frontage road would also contribute to an increase in urban pattern elements (linear and concrete forms, more dominant highway and structural lines, gray and black undertones, and concrete and pavement textures) that viewers expect to see along the existing interstate.

Key Observation Point 2. KOP 2 is adjacent to North Landmark Drive and has views of the Tanger outlet mall and the existing roadway. The new frontage road that would be included with Alternative A would be noticeable to travelers using North Landmark Drive and residents immediately adjacent to the frontage road. In addition, more traffic would use North Landmark Drive as a result of adding the new frontage road. Realigning the frontage road would not contrast in form with the existing visual character of KOP 2.

Key Observation Point 3. KOP 3 is above the existing I-80 corridor and has views of the interstate, the outlet mall to the west, and the Kimball Junction interchange. To the east, the interchange would be reconfigured to a split-diamond interchange. Because it would be difficult to differentiate between the reconfigured and existing interchange, viewers are not likely to be sensitive to reconfiguring the interchange.

To the west, the frontage roads would be raised, and a new bridge crossing would be constructed over I-80. Viewers are more likely to be sensitive to the realignment of the frontage road over I-80 that would be included with Alternative A. The realigned frontage road and new bridge would be in the line of sight of individuals using the pedestrian bridge over I-80. Realigning the frontage road and adding a new bridge over I-80 would also contribute to an increase in urban pattern elements (linear and concrete forms, more dominant highway and structural lines, gray and black undertones, and concrete and pavement textures) that viewers expect to see along the existing interstate.

Key Observation Point 4. KOP 4 is adjacent to Rasmussen Road and has views of the interstate and the Kimball Junction interchange. Because it would be difficult to differentiate between the reconfigured and existing interchange, viewers are not likely to be sensitive to reconfiguring the interchange.

Key Observation Point 5. KOP 5 is adjacent to SR-224 and has views of the Kimball Junction interchange. Minor turn lane configurations would be visible from KOP 5. Because it would be difficult to differentiate between the reconfigured and existing interchange, viewers are not likely to be sensitive to reconfiguring the interchange. The proposed project elements are consistent with the existing visual character of the Kimball Junction interchange.

Key Observation Point 6. KOP 6 is adjacent to Ute Boulevard, south of I-80, and has views of the Kimball Junction interchange. With Alternative A, no changes are proposed to the Kimball Junction interchange that would be visible from KOP 6.

Key Observation Point 7. KOP 7 is adjacent to SR-224 and has views of the Kimball Junction interchange. Minor turn lane configurations included in Alternative C would be visible from KOP 7. In addition, an additional lane in both directions on SR-224 between Olympic Parkway and Ute Boulevard and the buffered bike lane that starts at Olympic Parkway and goes through the interchange to Rasmussen Road would be visible. Viewers are not likely to be sensitive to reconfiguring SR-224 or the interchange. The proposed project elements would be consistent with the existing visual character of the Kimball Junction interchange.

Key Observation Point 8. KOP 8 is adjacent to SR-224 and has views of the existing roadway and adjacent commercial business. The proposed roadway widening would include an additional lane in both directions on SR-224 between Ute Boulevard and Olympic Parkway and would be visible from KOP 8. Viewers are not likely to be sensitive to the additional lanes along SR-224 because the additional lanes would not affect the visual character of the area.

Key Observation Point 9. KOP 9 is located along North Landmark Drive and has views of the Ute Boulevard and Landmark Drive roundabout. Because UDOT anticipates that traffic would increase on North Landmark Drive with Alternative A, the current roundabout would be replaced with a signalized intersection. The traffic signals that would be added from transitioning to a signalized intersection with Alternative A would partially obstruct views of mountains in the background. Viewers are unlikely to be sensitive to the transition to a signalized intersection because the signals would not affect the visual character of KOP 9.

Key Observation Point 10. KOP 10 is adjacent to SR-224 and has views of the existing roadway and adjacent commercial businesses. The proposed roadway widening would include an additional lane in both directions on SR-224 between Ute Boulevard and Olympic Parkway and would be visible from KOP 10. Viewers are not likely to be sensitive to the additional lanes along SR-224 because the additional lanes would not affect the visual character of the area.

3.13.4.4 Alternative C

With Alternative C, the overall long-term visual changes to visual quality would be neutral compared to the existing conditions. Alternative C would maintain a similar level of natural harmony, cultural order, and landscape composition compared to the existing conditions. An assessment of the visual changes by key view is provided in *Visual Impacts of Alternative C by Key View* below.

Main Elements of Alternative C That Would Have Visual Impacts

As shown in Figure 2.5-2, *Alternative C: Intersection Improvements with Pedestrian Enhancements*, in Chapter 2, *Alternatives*, Alternative C would consist of constructing additional through travel lanes, constructing additional turn lanes at the intersections to improve intersection efficiency, and making improvements for pedestrian and bicycle accessibility. Improvements would include adding dual left turn lanes at Olympic Parkway for southbound-to-eastbound and northbound-to-westbound movement, adding bike lanes on SR-224, and building a pedestrian undercrossing south of Ute Boulevard. The pedestrian undercrossing would be of similar aesthetics to the existing pedestrian undercrossing that is south of Olympic Parkway. This alternative would also include adding an additional northbound and southbound lane

on SR-224 from Olympic Parkway to Ute Boulevard, along with extending the westbound-to-northbound right-turn lane on Newpark Boulevard and extending the eastbound-to-northbound dual left-turn lanes on Ute Boulevard. Final aesthetics and betterments would be determined during the final design phase.

Visual Impacts of Alternative C by Key View

Key Observation Point 1. KOP 1 is close to the existing I-80 and has views of the interstate and the Kimball Junction interchange. Because it would be difficult to differentiate between the reconfigured and existing interchange, viewers are not likely to be sensitive to reconfiguring the interchange.

Key Observation Point 2. KOP 2 is adjacent to North Landmark Drive and has views of the outlet mall and the existing roadway. With Alternative C, no proposed project elements would be visible from KOP 2.

Key Observation Point 3. KOP 3 is above the existing I-80 corridor and has views of the interstate, the outlet mall to the west, and the Kimball Junction interchange. Because it would be difficult to differentiate between the reconfigured and existing interchange, viewers are not likely to be sensitive to reconfiguring the interchange.

To the west, the additional lane that would be added to the eastbound I-80 off-ramp with Alternative C would be visible from KOP 3. Viewers are not likely to be sensitive to the additional lane added to the eastbound I-80 off-ramp because the additional lane would be consistent with the existing visual character.

Key Observation Point 4. KOP 4 is adjacent to Rasmussen Road and has views of the interstate and the Kimball Junction interchange. Because it would be difficult to differentiate between the reconfigured and existing interchange, viewers are not likely to be sensitive to reconfiguring the interchange.

Key Observation Point 5. KOP 5 is adjacent to SR-224 and has views of the Kimball Junction interchange. Minor turn lane configurations included in Alternative C would be visible from KOP 5. Viewers are not likely to be sensitive to reconfiguring the interchange. The proposed project elements would be consistent with the existing visual character of the Kimball Junction interchange.

Key Observation Point 6. KOP 6 is adjacent to Ute Boulevard, south of I-80, and has views of the Kimball Junction interchange. The additional lane that would be added to the eastbound I-80 on-ramp with Alternative C would be visible from KOP 6. Viewers are not likely to be sensitive to the additional lane added to the eastbound I-80 on-ramp because the additional lane would be consistent with the existing visual character.

Key Observation Point 7. KOP 7 is adjacent to SR-224 and has views of the Kimball Junction interchange. Minor turn lane configurations included in Alternative C would be visible from KOP 7. In addition, an additional lane in both directions on SR-224 between Olympic Parkway and Ute Boulevard and the buffered bike lane that starts at Olympic Parkway and goes through the interchange to Rasmussen Road would be visible. Viewers are not likely to be sensitive to reconfiguring SR-224 or the interchange. The proposed project elements would be consistent with the existing visual character of the Kimball Junction interchange.

Key Observation Point 8. KOP 8 is adjacent to SR-224 and has views of the existing roadway and adjacent commercial businesses. The proposed roadway widening would include an additional lane in both directions on SR-224 between Ute Boulevard and Olympic Parkway and would be visible from KOP 8. Viewers are not likely to be sensitive to the additional lanes on SR-224 because additional lanes would not affect the visual character of the area.

Key Observation Point 9. KOP 9 is located along North Landmark Drive and has views of the Ute Boulevard and Landmark Drive roundabout. The additional lane added to the southern approach with Alternative C would not affect the visual character of the area.

Key Observation Point 10. KOP 10 is adjacent to SR-224 and has views of the existing roadway and adjacent commercial businesses. The proposed roadway widening would include an additional lane in both directions on SR-224 between Ute Boulevard and Olympic Parkway and would be visible from KOP 10. Viewers are not likely to be sensitive to the additional lanes along SR-224 because additional lanes would not affect the visual character of the area.

3.13.4.5 Mitigation Measures for Impacts to Visual and Aesthetic Resources

UDOT proposes to implement the following mitigation measures for impacts to visual and aesthetic resources:

- All aesthetic treatments will be installed in accordance with UDOT Policy 08A-03, *Project Aesthetics and Landscaping Plan Development and Review* (UDOT 2014a), and UDOT's *Aesthetics Guidelines* (UDOT 2014b). UDOT's policy is to set a budget for aesthetics and landscape enhancements based on the aesthetics guidelines. The aesthetic features considered during the final design phase of the selected alternative could include vegetation and plantings (such as street trees); the color of bridges, structures, and retaining walls; and other architectural features, such as railings. Aesthetic treatments are typically evaluated during the final design phase. UDOT will coordinate with Summit County to determine whether any desired aesthetics could be implemented.
- Lighting treatments are typically evaluated during the final design phase. Lighting will be designed to meet current design standards. All lighting design and construction work will follow UDOT Policy 06C-06, *Highway Lighting* (UDOT 2016). In addition, the requirements in UDOT's latest *Lighting Design Manual* (UDOT 2024e) will be followed.

3.14 Energy

3.14.1 Introduction

This section describes how energy demands would be affected in the short and long terms with the Project alternatives and examines the existing energy use in the energy evaluation area as well as the energy requirements of the project alternatives. Energy is evaluated primarily in the form of vehicle fuel consumption.

Fuel consumption varies with traffic characteristics. The primary traffic characteristics are traffic flow (average vehicle speed), driver behavior, the geometric configuration of the roadway, the vehicle mix (cars versus trucks), and climate and weather. Of all the traffic-related factors, average vehicle speed accounts for most of the variability in fuel consumption and is a good predictor of fuel economy for most travel. Fuel efficiency under steady-flow, "cruising" driving conditions peaks at 45 to 60 mph and then rapidly declines as speeds increase. At lower speeds, fuel efficiency is reduced by engine friction, underinflated tires, use of powered accessories (such as power steering and air conditioning), and repeated braking and acceleration (Davis and Diegel 2003).

Energy Evaluation Area. The energy evaluation area is shown in Figure 3.14-1 and includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. The evaluation area mostly follows the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area.*

3.14.2 Regulatory Setting

Under FHWA Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, UDOT is required to consider the energy requirements and conservation potential for each project alternative.

3.14.3 Methodology

To determine existing energy use, UDOT used Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14 to determine the average daily vehicle-miles traveled (VMT) in the energy evaluation area with and without the action alternatives.

For existing (2024) conditions, an average vehicle fuel efficiency of 25.3 miles per gallon (mpg) was used based on information from the U.S. Energy Information Administration (EIA 2024); this number includes on-the-road estimates for both cars and light trucks. The average on-the-road fuel efficiency of 25.3 mpg was divided into the average daily VMT to determine the total daily fuel consumption for the No-Action Alternative and action alternatives.

For future (2050) conditions, an average vehicle fuel efficiency of 36.1 mpg was used (EIA 2024); this number includes on-the-road estimates for both cars and light trucks. The average on-the-road fuel efficiency of 36.1 mpg was divided into the predicted daily average VMT to determine the total daily fuel consumption for each alternative.

Figure 3.14-1. Energy Evaluation Area

3.14.4 Environmental Consequences and Mitigation Measures

Table 3.14-1 summarizes existing (2024) conditions and the projected (2050) conditions for the No-Action and action alternatives in the energy evaluation area. Overall, energy requirements (that is, fuel consumption) are expected to increase in 2050 because of higher travel demand and population growth.

Table 3.14-1. Average Daily VMT and Fuel Consumption for Existing Conditions and Forecasts for 2050

Conditions or Alternative	Average Daily VMT[a]	Fuel Consumption			
		Average Fuel Consumption (gallons/day)	% Change from Existing Conditions	Change from No-Action Alternative (gallons)	% Change from No-Action Alternative
Existing conditions (2024)	521,901	20,629	NA	NA	NA
Estimates for the Project Alternatives in 2050					
No-Action Alternative	845,272	23,415	11.9%	NA	NA
Alternative A	853,761	23,650	12.8%	235	0.9%
Alternative C	853,031	23,630	12.7%	215	0.8%

[a] Average daily vehicle-miles traveled (VMT) information was obtained from a review of Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14 for roads in the Kimball Junction transportation system with and without the action alternatives.

3.14.4.1 No-Action Alternative

3.14.4.1.1 Direct Energy Impacts

With the No-Action Alternative, increased traffic and congestion because of the projected growth in the region (see Chapter 1, *Purpose and Need*) would increase overall energy requirements compared to existing conditions. With the No-Action Alternative, the average daily VMT in the energy evaluation area is projected to increase by 323,371 miles per day (62%) compared to the current conditions primarily because of the projected increase in population and, consequently, the number of vehicles traveling through the Kimball Junction interchange. With the No-Action Alternative, operational fuel consumption is projected to increase by 2,786 gallons per day (11.9%) compared to the current fuel consumption levels because the average daily VMT would increase in the evaluation area. Table 3.14-1 above summarizes the estimated direct energy impacts with the No-Action Alternative.

3.14.4.2 Action Alternatives

With either action alternative, increased traffic because of the projected growth in the region (see Chapter 1, *Purpose and Need*) would increase overall energy requirements compared to existing conditions (2024) and the No-Action Alternative (2050).

With the action alternatives, the average daily VMT in the energy evaluation area is projected to increase by 8,489 miles per day with Alternative A and by 7,759 by miles per day with Alternative C compared to the no-action conditions. Table 3.14-1 above summarizes the estimated direct energy impacts from the action alternatives.

Compared to the No-Action Alternative, the action alternatives would increase VMT and the associated fuel consumption by 0.9% with Alternative A and by 0.8% with Alternative C. These increases in VMT and fuel consumption would occur because the action alternatives would involve constructing new roadway segments (Alternative A) and/or additional lanes (both Alternatives A and C) that would increase the capacity of the Kimball Junction transportation system. With either action alternative, congestion would be reduced on SR-224, which would increase average vehicle speeds and fuel efficiency.

3.14.4.3 Mitigation Measures for Energy Impacts

No mitigation measures for energy impacts are proposed.

3.15 Construction Impacts

3.15.1 Introduction

Constructing either action alternative would cause a number of temporary construction-related impacts from disturbing the ground and operating construction equipment. Construction activities can cause temporary impacts to adjacent areas and environmental resources. The nature and timing of these impacts would be related to the project's construction methods. Most construction-related impacts to the public would be associated with travel delays during construction.

3.15.1.1 Regulatory Setting

Applicable laws, guidance, and permits for specific resources are discussed in the individual resource sections of this Final EIS.

3.15.2 Environmental Consequences and Mitigation Measures

3.15.2.1 Methodology

UDOT considered the following expected construction-related impacts, among others, and possible mitigation measures to minimize impacts:

- Construction phasing
- Community impacts including access to businesses, residences, and other properties
- Temporary impacts to pedestrian and bicycle facilities
- Utility relocation and service disruption
- Air quality
- Noise and vibration
- Erosion control, sediment control, and water quality
- Temporary wetland and wildlife impacts
- Discovery of unknown archaeological sites
- Invasive weed species
- Discovery of unknown hazardous materials and waste disposal
- Visual and light construction impacts

3.15.2.2 Construction Impacts from the No-Action Alternative

With the No-Action Alternative, the improvements associated with the Kimball Junction Project would not be made, so there would be no construction-related impacts from the project.

3.15.2.3 Construction Impacts from the Action Alternatives

Overall, construction-related impacts from either action alternative would be temporary. The following discussion of construction-related impacts applies to both Alternative A and Alternative C unless otherwise stated.

3.15.2.3.1 Construction Phasing

In general, the alternatives analysis in a NEPA study for a transportation project focuses on the impacts and benefits of the alternatives in a single future year—often called the design year—which is usually 25 to 30 years in the future. For the Kimball Junction Project, the design year is 2050. The analysis of impacts from the Kimball Junction Project assumes the construction of an entire action alternative and assumes that construction is completed before 2050.

The analysis of benefits from the Kimball Junction Project also assumes full construction by 2050. A delay in completing the project could reduce the estimated safety and travel time benefits to a shorter period. Similarly, the project's benefits are defined as the benefits that would result from the full construction of the selected alternative by the design year (2050).

The selected alternative would be constructed based on available funding. UDOT could construct portions of the selected alternative based on the amount of funding while considering safety and operational benefits. UDOT often implements a project through a series of separate contracts for individual sections of the project. Unless otherwise specified in the Record of Decision (ROD) for the project, UDOT has the flexibility to determine the appropriate construction phasing. The *Utah Long-range Transportation Plan 2023–2050* identifies the selected alternative for construction in Phase 1 (2023–2032) with Unique ID No. U2023032. The selected alternative is also identified on UDOT's 2025–2030 Statewide Transportation Improvement Program (STIP) under Project Identification Number (PIN) 16388 with $50 million in funding identified for right-of-way, final design, and construction. The selected alternative is estimated to cost about $48.5 million (in 2026 dollars).

The main impact to the traveling public from constructing the selected alternative in phases would be traffic congestion. Constructing the selected alternative in phases would likely prolong the duration of construction-related congestion, which could result in businesses losing sales over a longer period during construction. The economic impacts would likely be greatest in the business areas in and around the Kimball Junction area that are directly accessed from the I-80 and SR-224 interchange. However, businesses and ski resorts that are accessed via SR-224—such as the Utah Olympic Park and Canyons Resort—could also be affected.

Additionally, if the selected alternative is constructed in phases, air quality impacts could also increase. Constructing the selected alternative in phases would require multiple construction mobilization and demobilization periods and would delay the full amount of congestion reduction provided by the completed project.

3.15.2.3.2 Impacts to Community and Property from Construction

Impacts to Public Safety and Security from Construction

Area residents and commuters could experience temporary impacts with either action alternative, particularly at the I-80 and SR-224 interchange, along SR-224 between Ute Boulevard and Olympic Parkway, and on other roads in the Kimball Junction area. Traffic impacts would likely include temporary changes or detours to business and residential access, traffic delays, rerouting, and temporary lane closures. Although all access on affected travel routes would likely be maintained during construction, some accesses to businesses and residences could be altered during construction. For example, access to a business could be rerouted to another side of a parking lot or a business could be accessed through a side street. Lane closures, detours, increased congestion, and reduced travel speeds in construction zones could increase emergency response times.

Impacts to Utilities from Construction

During construction, residents and businesses could experience temporary disruption in utility services.

Impacts to Property and Right-of-way from Construction

Some properties outside the right-of-way might be affected by cuts or fills required during roadway construction, would be used by equipment during construction, would be necessary for utility relocations, or would be used for temporary access to properties. UDOT would temporarily acquire these properties with construction easements. These properties might be affected, but they would not be considered relocations or strip takes because the property would not be permanently used. These properties are not included in this analysis or discussed in Section 3.2, *Community and Property Impacts*.

3.15.2.3.3 Impacts to Economic Conditions from Construction

The congestion associated with construction could cause increased travel delays and lost worker productivity where the construction would affect existing roads. The areas of potential construction delay or congestion impacts are I-80, SR-224, Ute Boulevard, Olympic Parkway, Newpark Boulevard, and Landmark Drive. These construction impacts would affect both commuters and businesses that rely on these roads.

Temporary adverse impacts could also occur if business accessibility is reduced during construction. The businesses most likely to be affected are convenience businesses (those that cater to impulse shopping or “in-route” shopping), such as gas stations and convenience stores. Construction impacts would be temporary but could substantially affect individual businesses, depending on the length of construction. For example, travelers might decide to bypass the businesses in favor of businesses in less-congested areas not affected by construction. Destination businesses (those that customers plan to visit before their trip), such as grocery stores and sit-down restaurants, could experience moderate impacts.

3.15.2.3.4 Impacts to Traffic and Transportation from Construction

The following primary construction impacts could affect vehicle traffic during construction of either of the action alternatives:

- Traffic detours and some temporary road closures could change frequently throughout construction. Changes in road conditions could include rerouting traffic onto other roads, temporarily closing lanes or sections, and temporarily shifting lanes. Detours and road closures could temporarily increase vehicle commute times, fuel use, and air pollutant emissions.
- The properties and communities near the roads used as detours could experience temporary increases in traffic. Increased traffic on detour routes could increase travel times for the residents and patrons of businesses on these roads and increase noise and vehicle emissions as a result of more traffic.

3.15.2.3.5 Impacts to Pedestrian and Bicycle Facilities from Construction

Existing sidewalks and sections of the Millennium Trail (an existing pedestrian and bicycle path that parallels SR-224) would be affected in some locations with either action alternative where SR-224 is widened. Specifically, the Millenium Trail and the road shoulders in active construction zones could be temporarily closed during construction.

With Alternative A, construction would affect sidewalks in several areas, including along Landmark Drive at the northwest interchange with connections to the Millenium Trail, the SR-224 and Ute Boulevard intersection, the SR-224 and Olympic Parkway intersection, on the south side of SR-224 from Sagewood Drive to Uinta Way, and on the east side of SR-224 through the I-80 interchange. Sidewalks in these locations would be removed during construction, reconstructed, and, in some cases, realigned as part of the project.

With Alternative C, construction would affect sidewalks in several areas, including at the Ute Boulevard and Landmark Drive roundabout's southeast quadrant, at the SR-224 and Ute Boulevard intersection, at the SR-224 and Olympic Parkway intersection, on the south side of Olympic Parkway from Sagewood Drive to Unita Way, on the east side of SR-224 from Ute Boulevard to Rasmussen Road, and on the east side of SR-224 through the I-80 interchange. Sidewalks in these locations would be removed during construction, reconstructed, and, in some cases, realigned as part of the project.

3.15.2.3.6 Impacts to Air Quality from Construction

Air quality impacts during construction would be limited to short-term increases in fugitive dust, particulates, and local air pollutant emissions, including GHG emissions, from construction equipment. The short-term increase in GHG emissions would be negligible, and the specifics of this increase are not knowable without having defined construction means and methods. Construction would generate air pollutant emissions from the following activities:

- Fugitive dust from excavation and embankment cut and fill
- Mobile emissions from construction workers' vehicles as they travel to and from the project site
- Mobile emissions from delivering and hauling construction supplies and debris to and from the project site
- Stationary emissions from on-site construction equipment
- Mobile emissions from vehicles whose speeds are slowed because of increased congestion caused by construction

Because construction would be local and short-term, any impacts to individual air quality receptors would also be short-term. The most common air pollutant caused by construction would be PM_{10}.

3.15.2.3.7 Impacts to Noise from Construction

Constructing roads causes a substantial amount of temporary noise. Although temporary, noise during construction could be a nuisance to nearby residents and businesses. Both action alternatives would generate some noise that would occur sporadically in different locations throughout the construction period.

The most common noise source in construction areas would be from engine-powered machinery such as earth-moving equipment (bulldozers), material-handling equipment (cranes), and stationary equipment (generators). Mobile equipment (such as trucks and excavators) operates sporadically, while stationary equipment (generators and compressors) generates noise at fairly constant levels. The loudest and most disruptive construction activities would be pile driving (including driving sheet pile).

Typical noise levels from construction equipment range from 74 dBA to 101 dBA at 50 feet from the source; however, the most typical construction activities fall within the 75-to-85-dBA range at 50 feet. Peak noise levels from pile driving associated with constructing certain roadway structures, such as interchanges and overpasses, are about 101 dBA at 50 feet (FHWA 2006). To some people, noise at 70 dBA is intrusive, and noise at 80 dBA is annoying. For example, typical vacuum cleaners have a noise level of about 80 dBA. At 100 dBA, people must shout to be heard (FHWA 2018).

Construction noise at locations farther away than 50 feet would decrease by about 6 to 8 dBA for each doubling of the distance from the source. For example, if the noise level from a jackhammer is 89 dBA at 50 feet, it would decrease to about 83 dBA at 100 feet and about 76 dBA at 200 feet. Most of the residences and hotels would be farther than 100 feet from construction except the AC Hotel Park City, which is on the south side of Landmark Drive near where Alternative A would tie into Landmark Drive; Canyon Corners Apartments, which is on the north side of Landmark Drive near location where Alternative A would tie into Landmark Drive; and the condominiums accessed via Redstone Avenue on the east side of SR-224 just south of Olympic Parkway where residences could be about 50 to 100 feet from construction activities.

3.15.2.3.8 Impacts to Water Quality and Water Resources from Construction

Construction could temporarily reduce surface water quality. Construction activities such as clearing and grubbing, grading, stockpiling, and material staging disturb vegetation and increase the potential for erosion. Runoff from disturbed areas could temporarily increase the amount of sediment and pollutants (oil, gasoline, lubricants, cement, and so on) discharged into receiving waters. Discharges of pollutants, which would be mainly sediment, can be minimized by implementing BMPs that keep soil and water from leaving the construction site.

3.15.2.3.9 Impacts to Ecosystem Resources from Construction

Impacts to Threatened and Endangered Species, Wildlife, and Utah Sensitive Species from Construction

Construction activities could result in high noise levels, construction equipment activity, and lights, which could disrupt the feeding, nesting, and reproductive activities of wildlife in or near the right-of-way for either action alternative. These temporary construction activities are of particular concern during nesting periods for migratory birds near the right-of-way because the activities could disrupt nesting or cause birds to flee the nest. During construction, some habitat could be temporarily disturbed by movement of equipment, storage of materials, and disturbance of staging areas. For more information, see Section 3.9, *Ecosystem Resources*.

Impacts to Aquatic Resources from Construction

Section 3.9, *Ecosystem Resources*, identifies construction-related impacts to aquatic resources, such as wetlands and streams, and associated mitigation for those impacts. During construction, some erosion might occur outside the specific roadway construction zone, and this erosion might increase sediment levels in adjacent aquatic resources, thereby placing fill in the aquatic resources.

Impacts to Noxious Weeds from Construction

Construction activities would remove existing hard surfaces and established vegetation, and this removal would expose the underlying soils to the risk of being invaded by invasive weeds. Materials and equipment delivered to the job site could introduce invasive weeds into the area if seeds are present in the imported soil or on equipment that has not been properly cleaned.

3.15.2.3.10 Impacts to Historic and Archaeological Resources from Construction

During construction, ground-disturbing activities could reveal new archaeological or historical resources other than those identified during the cultural resources surveys (see Section 3.11, *Historic and Archaeological Resources*).

3.15.2.3.11 Impacts to Hazardous Materials and Waste Sites from Construction

Contaminated soil and/or groundwater could be encountered during excavation on or near properties that are known to have stored hazardous materials or that have documented releases of hazardous materials. If a discovery is made, coordination with UDEQ might be needed.

3.15.2.3.12 Impacts to Visual and Aesthetic Resources from Construction

During construction, the work zone would be cleared of vegetation, and the exposed bare ground would contrast visually with the surrounding open space as well as the recreational, commercial, and residential areas that viewers of the area are accustomed to seeing.

Construction equipment operating in the roadway, lane closures and lane shifts, construction signs, modifications to business access, and potential detours during construction could temporarily and adversely affect the visual quality of the project environment. Construction equipment (such as cranes) and dust would be visible from a distance and would modify views of the surrounding landscape. In addition, the movement of equipment and materials would be noticeable and would detract from neighboring views of the surrounding landscape. Any construction-specific impacts to visual resources would be short-term.

3.15.2.3.13 Construction Staging and Material Borrow Areas

During construction, the contractor would establish staging areas for equipment and would obtain fill material for improvements. Because a contractor has not yet been selected, the exact location of staging areas and sources of fill material is not known. Once those areas are identified, standard mitigation measures such as using existing roads and disturbed areas to the extent possible, minimizing ground disturbance, controlling dust and erosion, managing waste, and protecting vegetation will be used.

3.15.2.4 Mitigation Measures for Construction Impacts from the Action Alternatives

The following mitigation measures will be implemented during construction.

3.15.2.4.1 Mitigation Measures for Construction Phasing

No specific mitigation has been identified for construction phasing. If a phased approach is taken, the project mitigation identified in this EIS is proposed to be implemented for the specific design for each phase. Future mitigation for subsequent phases would take into account the final design for that phase, and any changes in regulations or potential improvements to BMPs would be followed and implemented with each phase.

3.15.2.4.2 Mitigation Measures for Impacts to Community and Property from Construction

Mitigation Measures for Impacts to Public Safety and Security from Construction

A thorough public information program will be implemented to inform the public and businesses about construction activities and to minimize construction-related impacts. Information will include work hours and alternate routes. Construction signs will be used to notify drivers about work activities and changes in traffic patterns. Construction sequencing and activities will be coordinated with emergency service providers to minimize delays and response times during construction.

Mitigation Measures for Impacts to Utilities from Construction

Utility agreements will be completed to coordinate utility relocations. The project specifications will require the contractor to coordinate with the utility companies to plan work so that utility disruptions to businesses occur when the businesses are closed or during off-peak times. UDOT's *Accommodation of Utilities and the*

Control and Protection of State Highway Rights-of-Way (UAC R930-6) will be followed. If any loss of service is required during construction, the construction contractor will contact affected parties.

Before beginning work, the contractor will contact Blue Stakes to identify the locations of all utilities in the work area. The contractor will use care when excavating to avoid unplanned utility disruptions. If utilities are unintentionally disrupted, UDOT will work with the contractor and the utility companies to restore service as quickly as possible.

Mitigation Measures for Impacts to Property and Right-of-way from Construction

In locations of temporary easements, UDOT will compensate the property owners for the temporary use of their property, and the restored property will be returned to the owner when UDOT no longer needs to use the property.

Fencing could be altered during project construction. The contractor will maintain fences and gate operations to protect the property owner's resources during construction.

3.15.2.4.3 Mitigation Measures for Impacts to Economic Conditions from Construction

Access to businesses will be maintained during the construction and post construction phases of this project. For each phase of the project, UDOT will coordinate with property owners and businesses to evaluate ways to maintain access while still allowing efficient construction operations. This coordination could entail sharing a temporary access among businesses or identifying acceptable timeframes when access is not needed. Adequate signs will be placed in construction areas to direct drivers to businesses. Other potential mitigation measures for construction impacts could include the following:

- A traffic access management plan developed and implemented by the construction contractor that maintains the public's access to the business during normal business hours
- Frequent notifications provided to all businesses in the construction area describing the progress of the construction and upcoming construction events
- Business access signs that identify business access points in the construction limits
- Meetings with business representatives to inform them of upcoming construction activities and to provide a forum for the representatives to express their concerns about the project

3.15.2.4.4 Mitigation Measures for Impacts to Traffic and Transportation from Construction

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 and residences must be maintained, and existing roads must be kept open to traffic unless alternate routes are provided.

Even with implementing the maintenance of traffic plan, short-term increases in traffic and congestion would increase in the construction area. Road closures will be limited to what is specified in the maintenance of traffic plan as approved by UDOT before the start of construction.

3.15.2.4.5 Mitigation Measures for Impacts to Pedestrian and Bicycle Facilities from Construction

Each existing pedestrian and bicycle facility that would be closed and removed during construction will be replaced with a similar facility near its current location. Trail closures would be limited in duration, and construction detours will accommodate pedestrians and bicyclists as well as vehicles. Detours for pedestrians and bicyclists will be as direct as possible to minimize lengthy route deviations. Project construction for pedestrian and bicycle facilities will be phased to minimize disruptions to the public to the extent feasible.

UDOT will coordinate with Summit County and Basin Recreation during the final design of the selected alternative to mitigate disruptions to trail users. Potential mitigation for disruption will include providing signed on-road detours where feasible, closing facilities during low-use seasons (winter), and providing information to the public about trail closures.

3.15.2.4.6 Mitigation Measures for Impacts to Air Quality from Construction

UDOT or its contractor will take measures to reduce fugitive dust generated by construction. Dust-suppression techniques such as watering or chemical stabilization of exposed soil, opacity observations and checks, washing vehicle tires, or other dust minimization techniques approved by the Utah Division of Air Quality will be applied by UDOT or its contractor during construction in accordance with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.10, Fugitive Dust (UDOT 2024d).

3.15.2.4.7 Mitigation Measures for Impacts to Noise from Construction

To reduce temporary noise impacts associated with construction, the contractor will comply with all state and local regulations relating to construction noise, including UDOT's Standard Specifications, Section 00555, Prosecution and Progress, for nighttime construction work to reduce the impacts of construction noise on the surrounding community (UDOT 2024d).

3.15.2.4.8 Mitigation Measures for Impacts to Water Quality and Water Resources from Construction

Because more than 1 acre of ground would be disturbed, a UPDES permit and an SWPPP, consistent with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.13, Stormwater Management Compliance, will be required (UDOT 2024d). The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. In addition, BMPs could include measures such as silt fences, erosion-control fabric, fiber mats, straw bales, silt drains, detention basins, mulching, and revegetation. Restoration efforts will also be monitored to ensure successful revegetation as typically required by an SWPPP.

If construction activities require dewatering that would discharge project water to surface waters, UDOT or its construction contractors will obtain a UPDES Construction Dewatering or Hydrostatic Testing General Permit.

3.15.2.4.9 Mitigation Measures for Impacts to Ecosystem Resources from Construction

Mitigation Measures for Impacts to Threatened and Endangered Species, Wildlife, and Utah Sensitive Species from Construction

Trees and shrubs will be removed during the non-nesting season (July 16 to March 31). If removing trees and shrubs during this time is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys of the area that would be disturbed. The preconstruction surveys will be conducted by a qualified wildlife biologist no more than 14 days before ground-disturbing activities. The surveys will determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to minimize or avoid impacts to migratory birds. Constructing either action alternative could impact habitat that is potentially suitable for Ute ladies'-tresses. UDOT prepared a biological assessment and determined that the selected alternative "may affect, but is not likely to adversely affect" Ute ladies'-tresses (for additional details, see Appendix 3F, *Biological Assessment and USFWS Concurrence*). UDOT requested USFWS concurrence with this determination in a letter sent on March 11, 2025. USFWS concurred with this determination on March 27, 2025, via a time/date stamp. The USFWS concurrence letter is provided with the biological assessment in Appendix 3F.

Potentially suitable Ute ladies'-tresses habitat identified adjacent to the roadway and project footprint will be flagged and protected. Construction crews will be provided information about the importance of containing all work activities to the project footprint and existing roadway and instructed that no disturbance can occur outside of that when adjacent to potentially suitable Ute ladies'-tresses habitat, nor in areas flagged for protection.

For more proposed mitigation measures, see Section 3.9.4.5, *Mitigation Measures for Ecosystem Impacts*.

Mitigation Measures for Impacts to Aquatic Resources from Construction

Both action alternatives would impact less than 0.1 acre of aquatic resources and might require a Stream Alteration Permit or Nationwide Permit.

In addition, BMPs such as silt fences and other erosion-control features will be used in areas adjacent to wetlands to mitigate potential temporary construction impacts to wetlands and other waters of the United States. For more information, see Section 3.9.4.5, *Mitigation Measures for Ecosystem Impacts*.

BMPs such as silt fences and other erosion-control features would be used in areas adjacent to aquatic resources. In addition, aquatic resources outside of but adjacent to the construction footprint would be fenced so that the area would be avoided.

Mitigation Measures for Impacts to Noxious Weeds from Construction

The contractor will follow UDOT's Standard Specifications 02924, Noxious Weed Control, to minimize construction impacts. To mitigate possibly introducing noxious and invasive weeds during construction, the contractor will:

- Follow the noxious weed mitigation and control measures identified in UDOT's Standard Specifications for Noxious Weed Control (UDOT 2024d).
- Follow the BMPs to reduce the potential for weed infestations.
- Reseed disturbed areas.

3.15.2.4.10 Mitigation Measures for Impacts to Historic and Archaeological Resources from Construction

In accordance with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.12, Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites or Human Remains, if cultural resources are discovered during construction, activities in the area of the discovery will immediately stop (UDOT 2024d). The construction contractor will notify UDOT of the nature and exact location of the finding and will not damage or remove the resource.

Work in the area of the discovery would be delayed until UDOT evaluates the extent and cultural significance of the site in consultation with the Utah SHPO. The course of action and the construction delay would vary depending on the nature and location of the discovery. Construction would not resume until the contractor receives written authorization from UDOT to continue.

3.15.2.4.11 Mitigation Measures for Impacts to Hazardous Materials and Waste Sites from Construction

If contamination is discovered during construction, mitigation measures will be coordinated according to UDOT Standard Specifications, Section 01355, Environmental Compliance, Part 1.7, Hazardous Waste, which directs the construction contractor to stop work and notify the construction engineer of the possible contamination (UDOT 2024d). Coordination with UDEQ might be necessary if a discovery is made. Any hazardous materials will be disposed of according to applicable state and federal guidelines.

3.15.2.4.12 Mitigation Measures for Impacts to Visual and Aesthetic Resources from Construction

After the project is completed, the contractor will prepare and implement an appropriate seeding vegetation and/or landscaping plan to restore or enhance aesthetics.

3.15.2.4.13 Mitigation Measures for Construction Staging and Material Borrow Areas

Because the exact locations of staging areas and sources of fill material are not known, no mitigation is proposed at this time for construction staging and material borrow areas. Once those areas are identified, standard mitigation measures such as using existing roads and disturbed areas to the extent possible, minimizing ground disturbance, controlling dust and erosion, managing waste, and protecting vegetation will be used.

3.16 Indirect and Cumulative Effects

3.16.1 Introduction

UDOT conducted this indirect and cumulative effects (ICE) assessment in accordance with the regulations of FHWA. The ICE analysis considers the effects of the action alternatives for the Kimball Junction Project in the context of general population, employment, and development trends in the cities in the ICE analysis area. It also considers the effects of other previous, ongoing, and anticipated future actions to determine the significance of the overall effect of the combined actions on natural and human resources.

- **Indirect Effects.** FHWA's *NEPA and Transportation Decisionmaking: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, no date) defines indirect effects as effects that are "caused by the [proposed] action and are later in time or farther removed in distance but are still reasonably foreseeable." Typically, for highway improvement projects, the primary indirect effect would be changes to land use and their consequent environmental impacts. This type of indirect effect involves changes in the rate, intensity, location, and/or density of land development. For the Kimball Junction Project, an example of an indirect effect could be urban development and redevelopment as a result of any new access or improved access provided by the project.
- **Cumulative Effects.** FHWA's *NEPA and Transportation Decisionmaking: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, no date) defines cumulative effects as "… effects on the environment that result from the incremental impact of the [proposed] action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from actions with individually minor but collectively significant effects taking place over a period of time." The effects of a proposed action can include both direct impacts and indirect effects. For the Kimball Junction Project, examples of past actions in the project study area include past transportation projects and commercial, residential, and agricultural land uses in the Kimball Junction area. For the Kimball Junction Project, examples of past actions in the Kimball Junction EIS study area, as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*, include past transportation projects and commercial and residential development. For the Kimball Junction Project, reasonably foreseeable future projects include other planned transportation projects and large commercial or residential developments.

3.16.2 Methodology

UDOT's indirect and cumulative effects methodology is based on FHWA's *NEPA and Transportation Decisionmaking: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, no date), FHWA's National Cooperative Highway Research Program (NCHRP), and UDOT's *Environmental Process Manual of Instruction* (UDOT 2023d). The ICE assessment approach

uses elements of these guidance documents. UDOT conducted the following general steps for the ICE assessment:

- Conduct background research and collect data.
- Define the geographic scope for the analysis (ICE analysis area).
- Determine the timeframe of the analysis.
- Identify potentially affected resources.
- Prepare the ICE analysis for the project.

3.16.2.1 Research and Data Collection

UDOT researched past and reasonably foreseeable trends concerning human and natural resources in the ICE analysis area. This research included the history of development in the Snyderville Basin and in western Summit County, historic information on population growth and the resulting land uses, and, where data exists, information about the past conditions and trends related to the extents or quality of the natural environment. UDOT also considered scoping comments and the analysis of the direct impacts of the action alternatives in the context of potential indirect and meaningful cumulative effects on the ICE analysis area's human and natural resources.

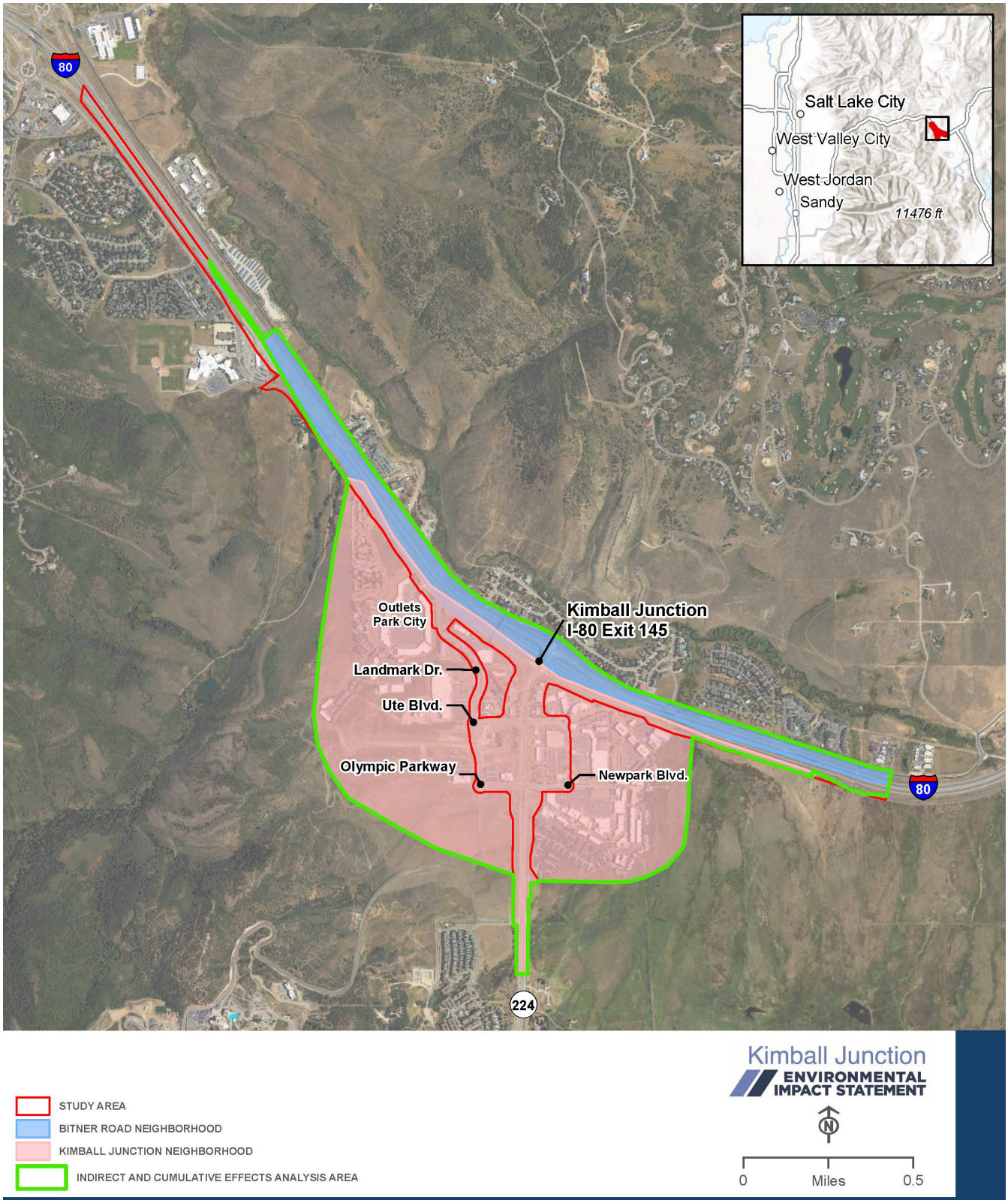
3.16.2.2 Geographic Scope for the Analysis

Figure 3.16-1 shows the geographic scope for the ICE analysis. The ICE analysis area includes the land use and planning evaluation area (shown in Section 3.1, *Land Use and Planning*), which is the area where direct and indirect land use impacts from the proposed improvements and indirect traffic-related impacts could occur. The land use and planning evaluation area includes the I-80 and SR-224 interchange at Kimball Junction, including I-80 between MPs 143.2 and 145.6, and SR-224 from Kimball Junction through the two at-grade intersections at Ute Boulevard and Olympic Parkway. This evaluation area mostly follows the Kimball Junction EIS study area as identified in Section 1.1.1.1, *Needs Assessment Evaluation Area*; however, in the Kimball Junction neighborhood south of I-80, the evaluation area is focused on an area within a 0.5-mile radius of the centerline of SR-224. The entirety of the ICE analysis area is in the Snyderville Basin in unincorporated Summit County.

The geographic scope includes the Kimball Junction and Bitner Road Neighborhood Planning Areas from the *Snyderville Basin General Plan* (Summit County 2015). These neighborhoods are described in detail in Section 3.1, *Land Use and Planning*. The action alternatives' improvements would be located in or immediately adjacent to these two neighborhoods.

Because the scope of the action alternatives is limited to the Kimball Junction area and would not change existing access or travel patterns to the other Snyderville Basin Neighborhood Planning Area locations farther west, east, or south of Kimball Junction, no indirect or cumulative impacts are anticipated to other Snyderville Basin Neighborhood Planning Areas identified in Section 3.1, *Land Use and Planning*.

Figure 3.16-1. ICE Analysis Area



3.16.2.3 Timeframe for the ICE Analysis

The timeframe for the ICE analysis includes past and future periods. For this analysis, the timeframe focuses on historical information beginning in the mid-20th century (mid-1900s), when the ICE analysis area started experiencing more rapid urban development. The period for the future potential impacts extends from the present day to the project design year of 2050. The 2050 design year is also consistent with the Mountainland Association of Governments' (MAG) *2023 Wasatch Back RPO [Rural Planning Organization] Transportation Plan* (MAG 2023) and supporting land use and economic data forecasts.

3.16.2.4 Resources for the ICE Analysis

The action alternatives could affect resources either directly or indirectly. The analyses of direct impacts, which are provided in the appropriate resource sections of this chapter, help inform the resources for the ICE analysis.

Highway improvement projects involving changes to land use often result in indirect effects and their consequent environmental impacts. This type of indirect effect involves changes in the rate, intensity, location, and/or density of land development as a result of changes in access to the highway or changes to travel patterns in the surrounding areas.

According to FHWA's *NEPA and Transportation Decisionmaking: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, no date), the cumulative effects analysis should be narrowed to focus on important issues at a national, regional, or local level. The degree to which cumulative effects need to be addressed depends on the potential for the effects to be adverse. The analysis should look at other actions that could have similar effects and whether a particular resource has been historically affected by cumulative actions.

As mentioned, UDOT also considered scoping comments and an analysis of the direct impacts of the action alternatives to identify which resources need ICE analysis. UDOT assessed land use and urban growth for indirect and cumulative effects in the ICE analysis area. The potential direct and indirect impacts to all other resources evaluated in this EIS would be inconsequential to decisions about the action alternatives and do not pertain to issues of local, regional, or national importance for the purposes of the ICE analysis.

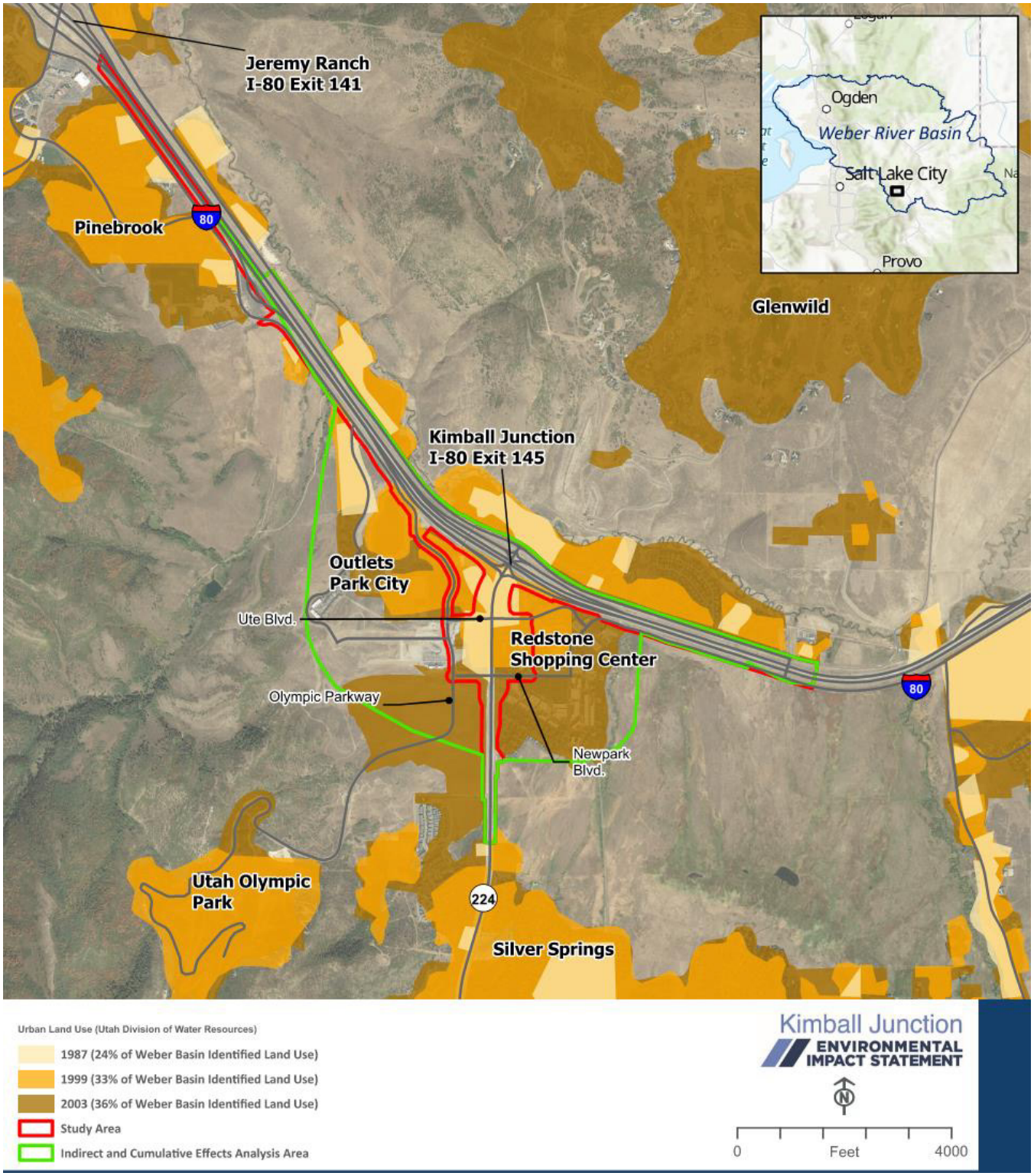
3.16.3 Affected Environment

3.16.3.1 Past Growth and Land Use

Until the mid-20th century, cattle grazing was the predominant activity in the grassy flatlands in the ICE analysis area. With the completion of I-80 in the 1950s, small pockets of development were established along I-80 and along SR-224, and development continued between the Kimball Junction area and Park City's established Old Town area to the south.

As shown in Figure 3.16-2, by the mid-1980s, urban land uses were expanding but were still primarily concentrated along I-80 and SR-224. By the late 1990s, urban land uses expanded in the Kimball Junction neighborhood, including the formerly named Tanger Outlets at Park City, which was built in 1991, southwest of the land use and planning evaluation area at the Utah Olympic Park, northwest of the evaluation area associated with the Pinebrook development, and south of the evaluation area at the Silver Springs development in the Old Ranch Road neighborhood. By the early 2000s, urban developments at the Redstone Village and Newpark Town Center created the urban land uses that exist today (UDWaR 2023).

Figure 3.16-2. Land Use Trends in and around the ICE Analysis Area



3.16.3.2 Recent Population Growth and Current Land Use

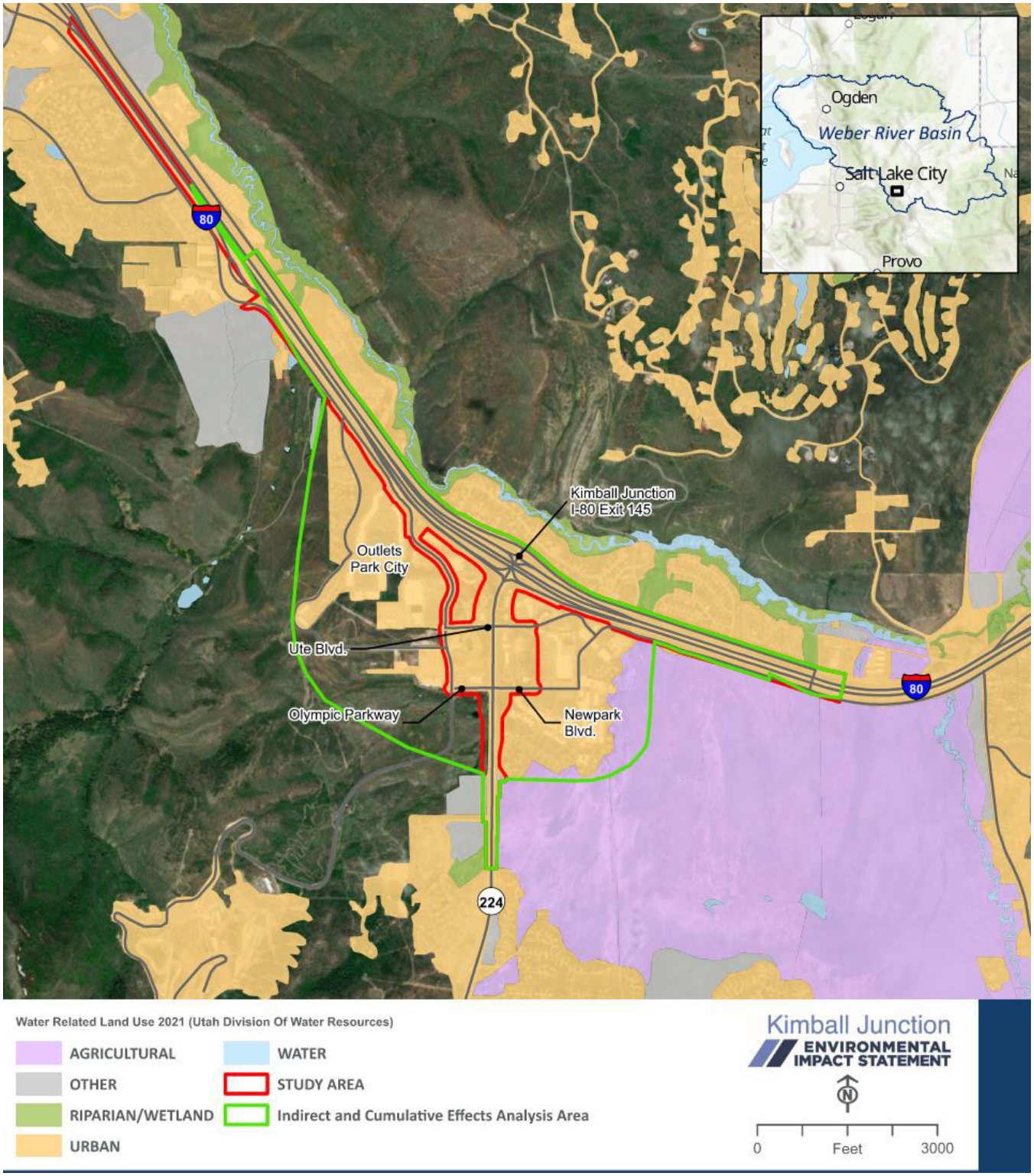
By 2010, Summit County's population was 36,573. Between 2010 and 2020, Summit County's population increased by 6,033 residents, or by 16.4%. Driven by net in-migration, this population growth resulted in a 2020 U.S. Census population of 42,357, which made Summit County the 10th largest in Utah (Kem C. Gardner Policy Institute 2022a).

In 2000, the Snyderville Basin's population was roughly 13,900. By 2009, the Snyderville Basin's population increased to 17,300, a growth rate of 24.5%. From April 1, 2000, through December 31, 2009, the Snyderville Basin's housing stock nearly doubled, from 4,645 dwelling units to about 9,045 (University of Utah 2010).

Despite a high population growth rate, the urbanized land area in the ICE analysis area did not change drastically from 2003 to 2021 (Figure 3.16-3).[2] The lack of urban expansion in the ICE analysis area indicates that most of the population and housing growth was achieved mainly by infill development. The mountainous terrain and the large areas of conservation lands and preserved open spaces (labeled as agricultural land use in Figure 3.16-3) hindered additional urban development in the ICE analysis area.

[2] Information in Figure 3.16-2 and Figure 3.16-3 was obtained from the Utah Division of Water Resources (UDWRe). UDWRe changed its data collection methods in 2015, thereby resulting in slightly different land use categories compared to those evaluated in Section 3.1, *Land Use and Planning*.

Figure 3.16-3. Current Land Use in and around the ICE Analysis Area



3.16.3.3 Growth Forecasts, Reasonably Foreseeable Projects, and Future Land Use

As described in Chapter 1, *Purpose and Need*, and shown in Table 3.16-1, Wasatch and Summit Counties are projected to experience substantial growth in population, employment, and households by 2050.

Table 3.16-1. Projected Regional Population, Employment, and Household Growth in Wasatch and Summit Counties

County	Population		Employment		Households	
	2020	2050 Projection (Percent Change from 2020)	2020	2050 Projection (Percent Change from 2020)	2020	2050 Projection (Percent Change from 2020)
Summit	42,394	56,493 (33%)	38,852	59,582 (53%)	15,688	25,379 (62%)
Wasatch	34,933	69,493 (99%)	17,609	28,752 (63%)	11,040	26,856 (143%)

Sources: Kem C. Gardner Policy Institute 2022a, 2022b

3.16.3.3.1 Reasonably Foreseeable Land Use Developments

Several ongoing and emerging land-development activities are planned in the ICE analysis area.

Park City Tech Center Development. Although most of the ICE analysis area is built out or preserved as open space, several proposals have been made to develop the northwest quadrant of the Kimball Junction neighborhood, which is currently undeveloped. The proposed Park City Tech Center development would be on a 51-acre parcel west of SR-224 and the Kimball Junction Transit Center and near the Skullcandy building. This area is identified as mixed-use on the future land use map for the Kimball Junction neighborhood.

The initial development agreement for this parcel was approved for research, development, and technology uses and had an approved amendment that also included uses for outdoor industries and support businesses. In 2019, the current parcel owner, Dakota Pacific Real Estate, applied to Summit County to amend the initial development agreement to allow a mix of residential units as well as retail, office, and commercial space. Since 2019, several plans with varying zoning designations and proposed densities have been submitted by Dakota Pacific to Summit County for its review and approval.

On December 18, 2024, the Summit County Council approved the current development concept, which would create a mixed-use town center near the existing Richins Building and allow the construction of between 865 and 915 housing units (a portion of which would be deed-restricted affordable units), a new civic plaza, and an expanded transit center (Malatesta 2024).

The traffic analysis process used for this EIS considered the future land uses adopted in the *Summit County Long-range Transportation Plan 2022–2050* (LRTP; Summit County 2022a), including local and regional growth assumptions for multiple areas in and around the needs assessment evaluation area. These growth assumptions include the planned Park City Tech Center and adequately capture the density included in the approved development plans (Parametrix 2022a).

Redevelopment of the Sheldon Richins Building and Kimball Junction Transit Center. The traffic analysis also includes the planned BRT project that is currently planned on SR-224 between Olympic Parkway and Park City's Old Town. Current plans show the BRT accessing the Kimball Junction Transit Center via Olympic Parkway. The Kimball Junction neighborhood plan discusses developing public facilities

that could complement, extend, or replace the current uses and services at the existing Sheldon Richins Building adjacent to the Park City Tech Center area (Summit County 2015). The approved Park City Tech Center development agreement described above assumes that housing units would be built in place of the current Sheldon Richins Building and Kimball Junction Transit Center, both of which would be torn down; a new transit facility and other civic amenities, such as a new library, would be built elsewhere in the development parcel.

General Mixed-use Development Strategies. General mixed-use development strategies that Summit County has identified in the *Kimball Junction Neighborhood Plan* include reviewing all large-lot surface parking areas to identify opportunities to develop workforce housing in or over existing facilities, developing new pedestrian plaza areas adjacent to ground-level retail spaces, and adding upper-level residential uses over commercial areas.

3.16.3.3.2 Reasonably Foreseeable Transportation Projects.

Table 3.16-2 lists the reasonably foreseeable transportation projects identified in MAG's 2023 *Wasatch Back RPO Transportation Plan* in the ICE analysis area. Phase 1 projects are identified for construction between 2023 and 2032.

Table 3.16-2. Reasonably Foreseeable Transportation Projects Identified in MAG's 2023 Wasatch Back RPO Transportation Plan

Name and Description	Limits	RPO Plan ID(s)	Type of Project and Phase
I-80 Add a Lane	SR-224 to the Summit County–Salt Lake County border	15 and 16	Highway, Phase 1
Landmark Drive widen to four lanes	Kilby Road roundabout to the existing four-lane section	31	Highway, Phase 1
Landmark Drive extension (two lanes)	Olympic Parkway to Bear Cub Drive	27	Highway, Phase 1
SR-224 BRT	I-80 to SR-248	T-2	Transit, Phase 1
I-80 Core Bus Route	Salt Lake City to SR-224	T-3	Transit, not phased
SR-224 Trail Reconstruct	Ute Boulevard to Newpark Boulevard	3	Active Transportation, Phase 1

Source: MAG 2023
Definitions: BRT = bus rapid transit; ID = identifier; MAG = Mountainland Association of Governments; RPO = rural planning organization

3.16.3.3.3 Future Land Use

The adopted *Summit County General Plan* identifies mixed-use land uses for the Kimball Junction Neighborhood Planning Area that are surrounded by preserved open space. For the Bitner Neighborhood Planning Area, the adopted *Summit County General Plan* identifies medium- or low-density residential and neighborhood commercial land uses that are surrounded by preserved open space. These planned future land uses are consistent with the existing land uses. With the exception of the southwest portion of the Kimball Junction Neighborhood Planning Area owned by Dakota Pacific, the rest of the Kimball Junction and Bitner Neighborhood Planning Areas are built out or preserved as open space.

Summit County is currently updating the *Snyderville Basin General Plan*. The updated plan is anticipated to be adopted by December 2025 (Summit County 2024a). Summit County is also updating the *Kimball Junction Neighborhood Plan*. This updated plan is anticipated to be adopted after the updates to the *Summit County General Plan.*

Summit County anticipates that the big-picture themes and goals in the updated general plans will remain the same, but additional details regarding policies and strategies will be added to make the plans more actionable (Summit County 2024a).

3.16.4 Environmental Consequences

3.16.4.1 Indirect Effects

3.16.4.1.1 Methodology for Indirect Effects

This section evaluates the potential indirect effects of each action alternative. Typically, for highway improvement projects, indirect effects are defined as effects that could result from a project's action alternatives beyond direct impacts to property and resources in the project's proposed right-of-way and the construction footprint.

In this analysis, indirect effects are primarily the effects of land development that could occur from improved accessibility and mobility in the ICE analysis area that is influenced by the action alternatives. Indirect effects on natural resources would typically be caused when undeveloped and partially developed land with such natural resources is converted to residential, industrial, commercial, or government land uses.

Land use patterns are the product of interdependent decisions by numerous parties including local elected officials, local planning staff, developers, citizens, regional planning authorities, transportation agencies, and many other public and private entities. Moreover, land use patterns are strongly affected by economic and demographic forces that are beyond the control of government authorities and by an area's access to utilities such as power, water, and sewer.

UDOT based the indirect effects analysis on a review of existing and proposed future development patterns, existing and future improvements to the existing transportation network, travel time improvements from the action alternatives, and future county land use plans to determine the potential indirect effects of the action alternatives.

3.16.4.1.2 Potential Indirect Effects

Because land use and transportation are connected, improvements in the transportation system can result in changes in land use near transportation improvements. The action alternatives would convert certain existing land uses to transportation use through the purchase of property adjacent to the action alternatives. However, because I-80 and SR-224 are existing roads, and because the land uses around these roads are already developed and are part of a large urban area with a mature transportation network, UDOT does not expect the action alternatives to cause any meaningful changes to local zoning or induce land use changes in the areas adjacent to the action alternatives. The following paragraphs describe the main reasons why UDOT does not expect the action alternatives evaluated in this EIS to induce development in the ICE analysis area.

Access. The existing I-80/SR-224 interchange is part of a mature regional transportation system that already has a high degree of accessibility. Research has shown that the maturity of the regional transportation system influences the extent of indirect effects. Greater effects are associated with developing new roads on new alignments compared to expanding existing roads (Haughwout and Boarnet 2000; NCHRP 2002).

Alternative A would provide a new access to Landmark Drive east of Junction Commons (formerly Outlets Park City). Although this new interchange would improve access to Landmark Drive and businesses in the southwest quadrant of the Kimball Junction interchange, it would not provide new access to any areas that do not currently have access to the regional transportation network. Alternative A could result in indirect impacts to land use by increasing the timing of the Dakota Pacific planned development on the west side of Kimball Junction.

Although Alternative C would not provide new direct access to the west side of Kimball Junction (as would Alternative A), it would reduce congestion and improve mobility and connectivity in the ICE analysis area.

On December 18, 2024, the Summit County Council approved the current Park City Tech Center development concept. As part of the amended and restated development agreement, incremental land use development steps are tied to phases of implementation of the selected alternative for the Kimball Junction Project (Malatesta 2024). Any development that would occur in this area would be subject to Summit County's zoning rules and approval. Although the Kimball Junction Project could affect the timing of development, UDOT does not expect either action alternative to induce development or cause unforeseen land use changes through improving mobility and accessibility.

Overall, both action alternatives would improve the existing access to I-80 and SR-224, improve safety, and reduce congestion. Therefore, no new access to undeveloped areas would be provided by the action alternatives.

Travel Demand. Because the ICE analysis area is mostly developed, reducing congestion through implementing either action alternative would likely not trigger meaningful changes to the existing land use patterns or shift future development from the ICE analysis area to another area.

Alternative A would provide a direct access between I-80 and the land uses on the west side of SR-224 and place more demand on Landmark Drive. Based on Summit County's 2022–2050 LRTP, Landmark Drive is assumed to be widened to four lanes from north of Ute Boulevard to the roundabout at Junction Commons (formerly Outlets Park City) as part of the No-Action Alternative. Summit County is responsible for deciding the cross section and implementing a design for the widened roadway on Landmark Drive. Widening Landmark Drive is included as part of the No-Action Alternative because it is shown as a Phase 1 (2022–2030 completion) project in Summit County's 2022–2050 LRTP. If Alternative A were to be selected for the Kimball Junction Project before Summit County widens Landmark Drive, it is reasonable to assume that the Kimball Junction Project could speed up Summit County's need to widen Landmark Drive.

The travel demand model used for the project (Summit County's Summit-Wasatch travel demand model version v1 – 2020-09-14) accounts for the growth in traffic that is attributed to changes in both planned regional land uses and local land uses, including the planned development in the ICE analysis area. The traffic analysis process used for this EIS considered the future land uses adopted in Summit County's 2022–2050 LRTP, including local and regional growth assumptions for multiple areas in and around the needs

assessment evaluation area, and these growth assumptions include the planned Park City Tech Center and adequately capture the density included in the approved development plans (Parametrix 2022a).

Land Use Patterns. Land use patterns and development have already established themselves in the ICE analysis area around the existing transportation network, including I-80 and SR-224. The ICE analysis area currently has a high level of transportation accessibility and is almost built out. In addition, as described in Section 3.16.3.3, *Growth Forecasts, Reasonably Foreseeable Projects, and Future Land Use*, the amount of undeveloped land in the ICE analysis area is limited. Besides the few planned, reasonably foreseeable future developments, the vacant land surrounding the ICE analysis area is generally either owned by the U.S. Forest Service or preserved as open space (such as conservation easements) that would prohibit future development.

As summarized in Section 3.1, *Land Use and Planning*, because I-80 and SR-224 already exist and the land uses around I-80 and SR-224 are already developed and part of an area with a mature transportation network, UDOT does not expect the action alternatives to change any local zoning or land use designations in the areas adjacent to the action alternatives that are not purchased for roadway use. Additionally, the action alternatives would be consistent with the planned land uses and zoning in the ICE analysis area.

3.16.4.1.3 Indirect Effects Summary

Based on the factors discussed above, the action alternatives would not induce development or growth in the ICE analysis area and thereby cause substantial indirect effects. Both action alternatives, especially Alternative A (which would provide direct access to the west side of Kimball Junction), could potentially indirectly affect land use by increasing the timing of development on the west side of Kimball Junction. Because induced land use is not expected, indirect effects from the Kimball Junction Project on the human environment (social and community facilities, residential or commercial properties, air quality, and noise levels) and natural resources (wetlands and aquatic resources, threatened and endangered species, floodplains, and water quality) are also not expected.

3.16.4.2 Cumulative Effects

FHWA's *NEPA and Transportation Decisionmaking: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, no date) states that not all potential cumulative effects issues need to be analyzed in a project's EIS. Some cumulative effects might be irrelevant or inconsequential to decisions about the project alternatives. The cumulative effects analysis should "count what counts," not produce superficial analyses of a long "laundry list" of issues that have little relevance to the effects of the project alternatives or to the eventual decision.

Based on a review of the resources that could experience direct or indirect impacts from the action alternatives, UDOT determined that land use, and associated urban growth, is the only relevant resource to be evaluated in the cumulative effects analysis.

The potential direct and indirect impacts to all other resources evaluated in this EIS would be inconsequential to decisions about the action alternatives and do not pertain to issues of local, regional, or national importance for the purpose of conducting a cumulative effects analysis. In making these determinations, UDOT considered the projects and activities listed in Table 3.16-2, *Reasonably Foreseeable*

Transportation Projects Identified in MAG's 2023 Wasatch Back RPO Transportation Plan, above and the past and present conditions of the resources near the action alternatives.

3.16.4.2.1 Methodology for Cumulative Effects

UDOT's methodology for determining the cumulative effects of the Kimball Junction Project is based on FHWA's *NEPA and Transportation Decisionmaking: Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process* (FHWA, no date) and UDOT's *Environmental Process Manual of Instruction* (UDOT 2023d). Elements of this guidance are described in more detail below.

Examples of reasonably foreseeable future actions include transportation projects in Summit County's 2022–2050 LRTP and planned commercial and residential developments in the ICE analysis area. These reasonably foreseeable future actions are independent of the proposed Kimball Junction Project but are considered as part of the cumulative effects analysis.

3.16.4.2.2 Changes in Land Use and Urban Growth

Transportation projects can stimulate changes in land use. A concentration of traffic at a new interchange or improved access to an area can make development more attractive. When combined with growth from other reasonably foreseeable development, the cumulative impact can increase demand on nearby roads and on other utility infrastructure.

UDOT does not expect the action alternatives to induce substantive land development in the land use and planning evaluation area. The reasonably foreseeable land use developments described in Section 3.16.3.3.1, *Reasonably Foreseeable Land Use Developments*, are all in various stages of planning and permitting with Summit County planning officials and would likely occur with or without the Kimball Junction Project. Because the action alternatives are not expected to induce new development, and the development in the evaluation area is planned through local processes, the capacity of the planned development to accommodate the growth in jobs and housing should not be affected by either of the action alternatives. This lack of effect suggests that major changes to development patterns would not occur due to the Kimball Junction Project. For these reasons, UDOT determined that a detailed cumulative impacts analysis is not warranted for this topic, and significant cumulative impacts are not anticipated.

3.16.4.2.3 Cumulative Effects Summary

In making these cumulative effects determinations, UDOT considered the planned projects and development listed above in Section 3.16.3.3, *Growth Forecasts, Reasonably Foreseeable Projects, and Future Land Use*, and the past and present conditions of the resources near I-80 and SR-224. UDOT determined that, because none of the resources evaluated in this EIS would experience substantial adverse direct or indirect impacts and because none of the reasonably foreseeable future actions are anticipated to have substantial impacts on resources in the ICE analysis area, there would not be substantial cumulative effects from the action alternatives.

3.17 Short-term Uses versus Long-term Productivity

3.17.1 Regulatory Setting

FHWA Technical Advisory T 6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA 1987), includes guidance for addressing the relationship between local short-term uses of the human environment and the maintenance and enhancement of long-term productivity.

FHWA's guidelines for environmental documents state that an EIS should discuss in general terms the proposed action's relationship of local short-term impacts and use of resources, and the maintenance and enhancement of long-term productivity, including recognition that transportation improvements are based on state and/or local planning that considers the need for present and future traffic requirements within the context of present and future land use development (FHWA 1987).

3.17.2 Short-term Uses versus Long-term Productivity

The short-term use of the environment versus preserving its long-term productivity is related to converting the natural productivity of the land, viewed as a long-term and renewable use, to a developed transportation use that has a relatively short economic life.

The Kimball Junction Project would be consistent with Summit County's local land use and transportation plans. Neither action alternative would disrupt current or future land uses or zoning. Both action alternatives would convert some land zoned for non-transportation uses to transportation use; however, neither action alternative would disrupt or necessarily better meet currently adopted future land use plans. Neither action alternative would measurably impact the area's preserved open space, wildlife productivity, vegetation habitat, or wetlands.

Because most of the Kimball Junction EIS study area is developed, has been previously affected by development, or is slated for development as part of the recently approved 51-acre Park City Tech Center development (Malatesta 2024), the action alternatives would not alter the long-term productivity of the area and would continue to provide a more efficient transportation network.

3.18 Irreversible and Irretrievable Commitment of Resources

3.18.1 Introduction

The term *irreversible commitment of resources* refers to the use of nonrenewable resources, including fossil fuels, historic buildings and other unique cultural resources, manufactured structural materials, and land converted to long-term business and industrial use. Irretrievable commitments of resources can also cause the lost production or use of renewable resources such as timber, rangeland, or wildlife habitat.

3.18.2 Regulatory Setting

FHWA Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*, provides guidance for evaluating irreversible and irretrievable commitments of resources.

3.18.3 No-Action Alternative

There would be no irreversible or irretrievable commitments of resources with the No-Action Alternative.

3.18.4 Action Alternatives

Implementing an action alternative would involve a commitment of a range of natural, physical, human, and fiscal resources. Land used for constructing the selected alternative would be considered an irreversible commitment of these resources during the time that the land is used for the roadway and other project elements. However, if a greater need for use of the land arises, or if the roadway or other project elements are no longer needed, the land could be converted to another use. At present, such a conversion is not reasonably foreseeable.

A considerable amount of fossil fuels, labor, and roadway construction materials, such as cement, aggregate, and bituminous material, would be expended. Additionally, large amounts of labor and natural resources would be necessary for fabricating and preparing the construction materials. These materials are generally not retrievable, but they are not in short supply, and their use would not have an adverse effect on the continued availability of these resources.

Constructing an action alternative would also require a substantial expenditure of irretrievable funds. The commitment of these resources is based on the premise that residents in the area, the state, and the region would benefit from the improved quality of the transportation system. These benefits would consist of improved accessibility, increased safety, and savings in travel time, all of which are anticipated to outweigh the commitment of these financial resources.

As discussed in Section 3.9, *Ecosystem Resources*, a small (less than 0.10-acre) amount of aquatic resources would be lost with either action alternative.

There would be no permanent loss of historic buildings or archaeological resources from constructing either action alternative.

3.19 Permits, Reviews, Clearances, and Approvals

3.19.1 Introduction

This section discusses the permits, reviews, clearances, and approvals required to construct either action alternative.

3.19.2 Federal Permits, Reviews, and Approvals

3.19.2.1 Nationwide Permit under Section 404 of the Clean Water Act (USACE)

Project applicants are required to obtain authorization from USACE to comply with CWA Section 404 if a proposed action would discharge dredged or fill materials in waters of the United States, including wetlands.

UDOT anticipates that USACE will verify authorization of construction of the selected alternative under Nationwide Permit 14 after the ROD is issued for the project. Based on available funds, UDOT could implement the project in phases. If the selected alternative is constructed in phases, UDOT would be responsible for any required changes or additions to the Section 404 permit authorization due to design changes or construction activities.

3.19.2.2 Endangered Species Act Compliance (USFWS)

Under Section 7 of the ESA, federal agencies are required to consult with USFWS if their proposed actions or approvals could affect ESA-listed species or designated critical habitat.

A total of 0.334 acre of potentially suitable Ute ladies'-tresses habitat was identified in wet meadow wetlands in the Alternative A action area, and a total of 0.546 acre of potentially suitable Ute ladies'-tresses habitat was identified in wet meadow wetlands in the Alternative C action area. UDOT conducted a first-year clearance survey for Ute ladies'-tresses on September 4 and 6, 2024. No plants were found during the survey. UDOT plans to complete additional clearance surveys for Ute ladies'-tresses during the 2025 and 2026 growing seasons.

UDOT prepared a biological assessment and determined that Alternative C, the selected alternative, "may affect, but is not likely to adversely affect" Ute ladies'-tresses (for additional details, see Appendix 3F, *Biological Assessment and USFWS Concurrence*). UDOT requested USFWS concurrence with this determination in a letter sent on March 11, 2025. USFWS concurred with this determination on March 27, 2025, via a time/date stamp. The USFWS concurrence letter is provided with the biological assessment in Appendix 3F.

On January 7, 2025, USFWS issued a proposed rule (90 *Federal Register* 1054) to remove Ute ladies'-tresses from the Federal List of Endangered and Threatened Plants. If the species is delisted, the future planned surveys will not be required nor conducted, and the mitigation measures will not apply.

3.19.2.3 Bald and Golden Eagle Protection Act (USFWS and Utah Division of Wildlife Resources)

The Bald and Golden Eagle Protection Act (16 USC Sections 668–668d) makes it unlawful to take, import, export, sell, purchase, transport, or barter any bald (*Haliaeetus leucocephalus*) or golden (*Aquila*

chrysaetos) eagles or their parts, products nests, or eggs. “Take” includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbing eagles.

The Bald and Golden Eagle Protection Act could apply to the Kimball Junction Project if any individual bald or golden eagles or their occupied nests could be affected. Golden eagles are not known to be present in the ecosystem resources evaluation area. Bald eagles are known to use trees and other available perches during the spring.

3.19.2.4 Migratory Bird Treaty Act of 1918 (USFWS and Utah Division of Wildlife Resources)

Either of the action alternatives could affect nests of migratory birds during construction by removing vegetation. If protected species are found nesting in the construction or buffer zones before or during construction, the construction contractor will coordinate with the UDOT Natural Resources Manager to minimize potential impacts to birds protected by the Migratory Bird Treaty Act. See Section 3.9, *Ecosystem Resources*, for potential mitigation measures for impacts to migratory birds.

3.19.2.5 Section 106, National Historic Preservation Act (Utah SHPO and ACHP)

For the Kimball Junction Project, UDOT is the lead agency under the Section 106 process. Section 106 of the National Historic Preservation Act requires agencies to consider the effects of their actions on historic properties and to give the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. Any property included in or eligible for listing in the NRHP is considered a historic property. For projects that could affect a historic property, the lead agency must consult with the relevant SHPO.

UDOT has consulted with the Utah SHPO, which concurred with UDOT’s Determinations of Eligibility and Findings of Effect (**no historic properties affected**) for all archaeological sites and architectural properties. UDOT has also consulted with Native American tribes. No comments were received from Native American tribes regarding the project.

3.19.2.6 Section 4(f) of the Department of Transportation Act (FHWA)

The Section 4(f) regulation (23 CFR Section 774.3) states that FHWA may not approve the use of a Section 4(f) property unless:

(a) FHWA determines that (1) there is no feasible and prudent avoidance alternative to the use of the property and (2) the action includes all possible planning to minimize harm to the property resulting from such use; or

(b) FHWA determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, would have a *de minimis* impact on the property. For historic sites, a *de minimis* impact means FHWA has determined that no historic property would be affected by the project or that the project would have no adverse effect on the historic property in question.

Neither of the action alternatives would require a use of Section 4(f) properties.

3.19.2.7 Section 6(f) of the Land and Water Conservation Funds Act (FHWA)

There are no Section 6(f) properties in the Kimball Junction EIS study area. Therefore, no properties would be converted by either of the action alternatives.

3.19.2.8 Air Conformity Requirements under the Clean Air Act (FHWA)

The air quality evaluation area is an attainment area for all criteria pollutants; therefore, transportation conformity requirements do not apply to the Kimball Junction Project.

3.19.2.9 Approval of Modification of Access Points or Addition of On- and Off-ramp Lanes (FHWA)

Changing access points to the interstate highway system requires approval from FHWA. Alternative A would require modifications to I-80 access, and Alternative C would add on- and off-ramp lanes. UDOT would need to prepare either an Interstate Access Change Request (if Alternative A is the selected alternative) or an Operations and Safety Assessment (if Alternative C is the selected alternative), either of which need to be approved by FHWA. UDOT anticipates that the required Interstate Access Change Request or Operations and Safety Assessment approval would be issued after the ROD for the Kimball Junction EIS is issued.

UDOT will coordinate with FHWA regarding the information needed for either of the above approvals prior to the ROD for the Kimball Junction EIS being issued.

3.19.3 State Permits, Reviews, and Clearances

3.19.3.1 Water Quality Certification under Section 401 of the Clean Water Act (Utah Division of Water Quality)

Before a federal agency issues a permit authorizing a discharge of fill into waters of the United States, Section 401 of the CWA requires that the agency obtain certification from the State that the discharge will not violate water quality standards.

For the Kimball Junction Project, UDOT must obtain a certification from the Utah Division of Water Quality before USACE issues a CWA Section 404 permit for the project. Both action alternatives would require a nationwide permit under Section 404 of the CWA. Therefore, both action alternatives would require a water quality certification in accordance with Section 401 of the CWA from the Division of Water Quality.

UDOT does not anticipate that the impacts to East Canyon Creek or the aquifer would adversely affect water quality. For all activities conducted in waters of the state, UDOT will implement and maintain BMPs that will fully protect the waters' assigned beneficial uses.

3.19.3.2 Utah Pollutant Discharge Elimination System Permit under Section 402 of the Clean Water Act (Utah Division of Water Quality)

Section 402 of the CWA regulates discharges of pollutants to surface waters. Construction projects that disturb 1 or more acres of land must be covered under the statewide UPDES stormwater permit. Both action alternatives would disturb 1 or more acres of land and would require coverage under the UPDES stormwater permit.

Additionally, if construction dewatering activities discharge project water to surface waters, UDOT might be required to obtain a UPDES Construction Dewatering or Hydrostatic Testing General Permit during construction. UDOT will coordinate with the Utah Division of Water Quality to obtain this permit if it is required.

As described in Section 3.8, *Water Quality and Water Resources*, UDOT will address postconstruction stormwater runoff from the selected alternative in accordance with its statewide MS4 permit. UDOT will also coordinate with the Utah Division of Water Quality to ensure that MS4 permit conditions are met. Additionally, UDOT will coordinate with local municipalities, as appropriate, to ensure that any stormwater runoff or stormwater facilities from the selected alternative would not affect any municipal MS4 permits.

3.19.3.3 Utah State Stream Alteration Permit (Utah Division of Water Rights)

If a stream crossing would alter the bed or banks of a natural stream, the Utah Division of Water Rights requires the project applicant to obtain a stream alteration permit. Constructing any new drainage structures at a stream crossing would constitute a stream alteration. UDOT anticipates that stream alteration permits would be required for either of the action alternatives.

3.19.3.4 Air Quality Approval Order (Utah Division of Air Quality)

An air quality approval order is required to build, own, or operate a facility that pollutes the air; both action alternatives would qualify as such a facility. To obtain an air quality approval order, a notice of intent must be submitted to the Utah Division of Air Quality.

The notice of intent should describe the construction activities and emissions that would be associated with operating construction equipment. The permit applicant must include provisions for controlling dust and emission sources, and the permit might require other construction approvals depending on the source and location of aggregate, asphalt, combustion, and/or fuel storage facilities. The contractor will obtain the permit before construction begins.

3.19.3.5 Certificate of Registration (Utah Division of Wildlife Resources)

The Utah Division of Wildlife Resources requires a certificate of registration if a proposed action would require salvaging eggs or young from active raptor nests or other migratory bird nests. Although UDOT does not anticipate that any raptor nests would be affected by the project, nests could be established before construction. UDOT will obtain a certificate of registration if needed based on coordination with the Division of Wildlife Resources and USFWS.

3.19.3.6 Approval of Remediation Work Plan (UDEQ and EPA)

If construction activities would occur on existing hazardous waste sites or if a hazardous site is found during construction, a remediation work plan would be submitted and approved by the regulatory agency (UDEQ or EPA). The remediation work plan would define clean-up levels and protective measures for construction workers.

3.19.4 Local Permits and Clearances

3.19.4.1 Floodplain Development Permits (Local Jurisdictions)

UDOT would need to obtain floodplain development permits from local jurisdictions if construction activities such as placing highway fill and drainage structures at stream crossings are required in the FEMA 100-year floodplain boundary.

Summit County has adopted FEMA's National Flood Insurance Program. This program includes flood insurance rate maps that show the 100-year floodplain boundaries in a community.

Alternative A would encroach on the 100-year floodplain associated with one creek (Threemile Canyon Creek), as described in Section 3.10, *Floodplains*. In accordance with Executive Order 11988, *Floodplain Management*, coordination with FEMA would be required during construction to ensure that local jurisdictions' flood design standards are met and to obtain floodplain development permits from the local jurisdictions.

3.19.4.2 Construction-related Permits and Clearances (Various Agencies)

The construction contractor would be responsible for obtaining all construction-related permits and other environmental clearances for activities occurring outside the right-of-way, such as activities in construction staging areas and batch plant sites.

3.19.5 Summary of Permits, Reviews, Clearances, and Approvals

Table 3.19-1 lists the permits and clearances that would be required for construction. These permits and clearances would apply to both action alternatives. To ensure that the contractor follows environmental commitments, UDOT will include commitments in the contract documents.

Table 3.19-1. Permits, Reviews, Clearances, and Approvals Likely To Be Required for the Kimball Junction Project

Permit	Granting Agency(ies)	Applicant	Application Time	Granting Time	Applicable Portion of Project
Federal Permits, Reviews, and Approvals					
Nationwide Permit under Section 404 of the Clean Water Act	USACE	UDOT	After the Final EIS	Before construction	Required if the selected alternative would impact aquatic resources, such as wetlands and streams.
Endangered Species Act compliance	USFWS	UDOT	During the EIS	Prior to the ROD	Required because UDOT has determined that Alternative C, the selected alternative, "may affect, but is not likely to adversely affect" Ute ladies'-tresses. UDOT requested USFWS concurrence with this determination in a letter sent on March 11, 2025. USFWS concurred with this determination on March 27, 2025, via a time/date stamp. The USFWS concurrence letter is provided with the biological assessment in Appendix 3F, *Biological Assessment and USFWS Concurrence*.
Compliance with Section 106 of the National Historic Preservation Act	Utah SHPO and ACHP	UDOT	Complete	Complete	UDOT is required to consider the impacts from the project to historic properties; this consideration includes consultation among agencies and interested parties.
Approval of Modification of Access Points or Operations and Safety Assessment	FHWA	UDOT	During the EIS	After the ROD	Required if the selected alternative would change access points to the interstate highway system or would add on- and off-ramp lanes.
State Permits, Reviews, and Clearances					
Water Quality Certification under Section 401 of the Clean Water Act	Utah Division of Water Quality	UDOT	Concurrent with Section 404 Nationwide Permit	Concurrent with Section 404 Nationwide Permit	Required if the selected alternative could discharge fill into waters of the United States.
UPDES permit under Section 402 of the Clean Water Act	Utah Division of Water Quality	Contractor	Construction phase	Before construction	Required if the selected alternative would disturb 1 or more acres of land. An SWPPP that identifies BMPs for maintaining stormwater quality during construction would also be developed.
Stream alteration permit	Utah Division of Water Rights	UDOT	Final design phase	Before construction	Required if the selected alternative would alter the bed or banks of a natural stream.
Air quality approval order	Utah Division of Air Quality	Contractor	Construction phase	Before construction	Required to build, own, or operate a facility that pollutes the air. Constructing either of the action alternatives would cause air pollutant emissions from construction equipment.

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Table 3.19-1. Permits, Reviews, Clearances, and Approvals Likely To Be Required for the Kimball Junction Project

Permit	Granting Agency(ies)	Applicant	Application Time	Granting Time	Applicable Portion of Project
Certificate of registration	Utah Division of Wildlife Resources	Contractor	Construction phase	Before construction	Required if constructing the selected alternative could impact raptor or other migratory bird nests.
Local Permits and Clearances					
Floodplain development permits	Local jurisdictions	UDOT	Final design phase	Final design phase	Required if portions of roadway or structures would be in a FEMA floodplain.
Construction-related permits and clearances	Various agencies	Contractor	Construction phase	Before construction	Required for impacts associated with off-site activities, such as activities in construction staging areas, borrow areas, batch plant sites, and so on.

Definitions: ACHP = Advisory Council on Historic Preservation; BMP = best management practice; EIS = Environmental Impact Statement; FEMA = Federal Emergency Management Agency; FHWA = Federal Highway Administration; ROD = Record of Decision; SHPO = State Historic Preservation Officer; SWPPP = stormwater pollution prevention plan; UDOT = Utah Department of Transportation; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service

3.20 Mitigation Summary

Table 3.20-1 summarizes the mitigation measures that UDOT developed to avoid, minimize, rectify, reduce, or compensate impacts for the selected alternative for the Kimball Junction Project. The mitigation measures listed in this section are the same measures that are listed in Sections 3.1 through 3.18 of this EIS. For consistency, the mitigation measures are listed in the same order as they are organized in this chapter.

The mitigation measures include standard UDOT best practices, expected permit conditions, legal requirements, and other measures specifically targeted to mitigate for unique impacts. UDOT does not typically propose mitigation for resources that are anticipated to have negligible or beneficial impacts from the selected alternative.

Funding for mitigation will be included in the cost of construction; UDOT will have the final responsibility for implementation.

UDOT or its designated contractor will implement a mitigation and monitoring tracking system to ensure that all mitigation identified in this EIS is performed and that appropriate monitoring for effectiveness takes place. If a mitigation measure is determined to not be effective, the contractor will consult with UDOT to develop other appropriate mitigation.

Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Land Use	No mitigation for impacts to land use or planning is required or proposed.
Community and Property Impacts	**Recreation Resources Including Trails.** Mitigation for impacts to recreation resources typically includes replacing or relocating impacted amenities, including trails, or providing other items that can enhance the recreation use of the recreation resource. With Alternative C, removing east-west crosswalks across SR-224 will be compensated for by adding a grade-separated pedestrian underpass south of Ute Boulevard. Reconstructing the multi-use paths that parallel SR-224 between Olympic Parkway and Ute Boulevard would have temporary impacts to active transportation users, and these impacts will be managed through public outreach and signed detours for nonmotorized users. During the final design of the selected alternative, UDOT will work with Summit County and Basin Recreation to evaluate opportunities to further mitigate temporary impacts to trails. **Public Safety and Security.** During the final design of the selected alternative, UDOT will evaluate the feasibility of adding wildlife exclusionary cattle guards at the interchange on- and off-ramps to connect the fencing along both sides of I-80. **Utilities.** UDOT's *Accommodation of Utilities and the Control and Protection of State Highway Rights-of-Way* (Utah Administrative Code R930-6) will be followed. If any loss of utility service is required during construction, the construction contractor will contact local businesses and residences. If utilities need to be relocated, UDOT will work with the utility companies during the final design phase for the selected alternative. UDOT will also identify and obtain all appropriate permits from the State Engineer's Office, the Summit County Health Department, and Summit County and Park City related to relocating and modifying utilities. Transportation elements will be designed and constructed with the intent to maintain a minimum 10-foot clear space between the element and water or sewer infrastructure. With Alternative A, UDOT will work with Summit Water Conservancy District to relocate its pump house building near the building's current location. **Property Impacts.** No mitigation for property impacts is proposed beyond the requirements of federal and state relocation assistance acts. During the final design process for the selected alternative, UDOT will look at measures that avoid or minimize property acquisition. Where property acquisition is necessary, UDOT will acquire all property according to the federal Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (as amended July 2008) and the Utah Relocation Assistance Act. These regulations require fair compensation for property owners to offset or eliminate any financial hardship that private individuals or entities could experience as a result of acquiring property for public purposes.
Economic Conditions	For impacts related to business strip takes, this impacts analysis assumes that any businesses that experience property impacts as a result of the Kimball Junction Project will receive assistance in accordance with UDOT's right-of-way acquisition practices. Property acquisitions will be completed according to the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and the Utah Relocation Assistance Act, Utah Code, Title 57, Chapter 12.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Traffic and Transportation	No mitigation for transportation impacts is proposed.
Pedestrian and Bicycle Facilities	No mitigation for pedestrian and bicyclist impacts is proposed.
Air Quality	No mitigation for air quality impacts from implementing either action alternative is proposed.
Noise	According to UDOT's noise-abatement policy, specific conditions must be met before traffic noise abatement is implemented. Noise abatement must be considered both feasible and reasonable. **Feasible.** UDOT considers the following factors when determining whether abatement is feasible: • **Engineering Considerations.** Engineering considerations such as safety, presence of cross streets, sight distance, access to adjacent properties, barrier height, topography, drainage, utilities, maintenance access, and maintenance of the abatement measure must be taken into account as part of establishing feasibility. Noise-abatement measures are not intended to serve as privacy fences or safety barriers. With the action alternatives, noise-abatement measures installed on structures would not exceed 10 feet in height measured from the top of the deck or roadway to the top of the noise barrier. Noise barriers would not be installed on structures that require retrofitting to accommodate the noise-abatement measure. Noise-abatement measures will be considered if the project meets the criteria established in UDOT's noise-abatement policy if replacing the structure is included as part of the project. Noise-abatement measures will be consistent with general design principles established by the American Association of State Highway and Transportation Officials (AASHTO). • **Safety on Urban Non-access-controlled Roads.** To avoid a damaged barrier from becoming a safety hazard, in the event of a failure, barrier height must be no greater than the distance from the back-of-curb to the face of the proposed barrier. Because the distance from the back-of-curb to the face of a proposed barrier varies, barrier heights that meet this safety requirement might also vary. • **Acoustic Feasibility.** Noise abatement must be considered acoustically feasible. Acoustically feasible is defined as achieving at least a 5-dBA highway traffic noise reduction for at least 50% of front-row receptors.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Noise (*continued*)	**Reasonable.** UDOT considers the following factors when determining whether abatement is reasonable: • **Noise-abatement Design Goal.** Every reasonable effort should be made to obtain substantial noise reductions. UDOT defines the minimum noise reduction (design goal) from proposed abatement measures to be 7 dBA or greater for at least 35% of front-row receivers. • **Cost-effectiveness.** The cost of a noise-abatement measure must be deemed reasonable for it to be included in a project. Noise-abatement costs are based on a fixed unit cost of $20 per square foot, multiplied by the height and length of the barrier, in addition to the cost of any other item associated with the abatement measure that is critical to safety. The fixed unit cost is based on the historical average cost of noise barriers installed on UDOT projects and is reviewed at regular intervals, not to exceed 5 years. The cost-effectiveness of abatement is determined by analyzing the cost of a barrier that would provide a noise reduction of 5 dBA or more for a benefited receptor. A reasonable cost is considered to be a maximum of $30,000 per benefited receptor for activity category B and $360 per linear foot for activity categories A, C, D, or E. If the anticipated cost of the noise-abatement measure is less than the allowable cost, then the abatement is deemed reasonable. The cost-effectiveness calculation also takes into account the cost of any items associated with the abatement measure that is critical to safety, such as snow storage and safety barriers, where applicable. Costs for additional items are not currently needed for the abatement measures evaluated in this Final EIS. The cost of constructing items necessary for snow storage and safety barriers will be considered as part of the cost-effectiveness calculation during final design, if applicable. • **Viewpoints of Property Owners and Residents.** As part of the final design phase for the selected alternative, balloting would be conducted if noise-abatement measures meet the feasible criteria, reasonable noise-abatement design goal, and cost-effectiveness criteria (listed above) in UDOT's noise-abatement policy. Section C.2(c)(1) of UDOT's noise-abatement policy requires balloting for all benefited receptors (property owners or tenants that would receive a 5 dBA or greater reduction in noise from the noise-abatement measure) or receptors whose property would abut the proposed noise-abatement measures. Balloting approval is contingent on at least 75% of the total ballots being returned and 75% of the returned ballots being in favor of the proposed noise-abatement measure.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Noise (*continued*)	**Noise Barrier Design Considerations.** For a noise barrier to be effective, it must be high enough and long enough to block the view of the noise source from the receptor's perspective. FHWA's *Highway Traffic Noise: Analysis and Abatement Guidance* states that a good rule of thumb is that the noise barrier should extend 4 times as far in each direction as the distance from the receptor to the barrier. For instance, if the receptor is 50 feet from the proposed noise barrier, the barrier needs to extend at least 200 feet on either side of the receptor to shield the receptor from noise traveling past the ends of the barrier. Openings in noise barriers for driveway and cross street access greatly reduce the effectiveness of noise barriers. For this reason, impacted receptors with direct access to local streets do not qualify for noise barriers. UDOT calculated the anticipated cost of each barrier by multiplying the barrier area and the barrier cost per square foot ($20). The allowable cost was calculated using two variables: (1) activity category B allowable cost and (2) activity category C allowable cost. The category B allowable cost was calculated by multiplying the allowable cost per benefited receptor ($30,000) by the number of receptors benefited by the barrier. The category C allowable cost was calculated by multiplying the length of the barrier associated with category C land use by the allowable cost for category C land ($360 per linear foot). These two variables, activity category B allowable cost and activity category C allowable cost, were combined to produce the allowable cost for each barrier. For detailed barrier analyses, see Attachment E, *Noise Barrier Analysis*, of Appendix 3B, *Noise Technical Report*. To provide an objective analysis of traffic noise reduction at impacted receptors, UDOT considered a variety of noise barrier heights in areas with noise impacts that do not have an existing noise barrier. If multiple barrier heights would meet noise-abatement requirements, UDOT considered the number of benefitted receptors and the cost per benefitted receptor to identify the noise barrier height recommended for balloting. **Noise-abatement Consideration during Final Design.** Recommended noise barriers in the noise evaluation area that meet the requirements of UDOT's noise-abatement policy are summarized in Table 3.7-4, *Noise Barrier Analysis Summary*. A barrier identified as recommended for balloting is a barrier that has been shown to meet the feasible criteria, the reasonable design goal, and the reasonable cost-effectiveness criteria as defined in UDOT's noise-abatement policy. However, that finding is not a commitment by UDOT to build a barrier. The final lengths and heights for any of the noise barriers identified in the environmental study phase are still subject to final design and the feasibility criteria and reasonable design goal as defined in UDOT's noise-abatement policy (and summarized in Section 3.7.4.5, *Mitigation Measures for Noise Impacts*). UDOT would not decide whether to construct the proposed noise barrier until the final design is completed and refined utility relocation and right-of-way costs are available. Reasonableness would be evaluated using updated costs based on the final design. UDOT will conduct balloting for the proposed noise-abatement measures with the final design engineering considerations and costs that meet the feasibility criteria, the reasonable design goal, and the reasonable cost-effectiveness criteria as defined in UDOT's noise-abatement policy. As described in Section 3.7.4.5.1, *Noise-abatement Feasibility and Reasonableness*, Section C.2(c)(1) of UDOT's noise-abatement policy requires balloting for all benefited receptors (property owners or tenants that would receive a 5-dBA or greater reduction in noise from the noise-abatement measure) or receptors whose property would abut the proposed noise-abatement measures. Balloting approval is contingent on at least 75% of the total ballots being returned and 75% of the returned ballots being in favor of the proposed noise-abatement measure. The evaluation of the reasonableness factor for the "viewpoints of property owners and residents" would take place as part of the final design phase for the selected alternative.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure

Water Quality and Water Resources	UDOT proposes the following mitigation measures to help ensure that the water quality and water resources are maintained:
	• UDOT or its design consultants will follow all applicable requirements of UDOT's *Stormwater Quality Design Manual* (UDOT 2021) to design BMPs that meet MS4 permit and groundwater permit-by-rule requirements.
	• UDOT or its design consultants will follow UDOT's *Drainage Manual of Instruction* (UDOT 2024c) to design stream crossings and culverts.
	• UDOT will visually inspect and maintain stormwater quality BMPs to ensure that they are functioning properly. These BMPs would likely include detention basins; however, other BMPs from UDOT's *Stormwater Quality Design Manual* might be chosen during the final design phase of the project.
	  ○ During construction, inspectors for the project will certify that the BMPs are installed according to contract documents and UDOT standards.
	  ○ After construction, UDOT will document and maintain records of inspections, any deficiencies identified during inspections, and the repairs performed on the BMPs.
	• UDOT will comply with the CWA Section 404 permit, including any required Section 401 Water Quality Certifications and applicable Stream Alteration Permits for activities that place fill into waters of the United States and alter natural stream beds and banks.
	• UDOT will maintain wetland hydrology and existing surface water conveyance patterns by installing culverts or other engineering alternatives through the roadway embankment.
	• UDOT will collaborate with the public water system owners that have drinking water source protection zones in place that might be impacted by the project during final design and construction to mitigate any impacts to water distribution infrastructure.
	• UDOT will coordinate with the owners of any impacted water right points of diversion during final design and construction to protect or replace the impacted points of diversion as necessary.
	• UDOT will design and implement countermeasures to mitigate potential impacts to a stream's natural flow pattern, velocity, profile, channel stability, aquatic habitats, streambank vegetation, and riparian habitats that could result from replacing, lining, extending, or repairing conveyance structures for the project.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Ecosystem Resources	UDOT's best practices for project development will include the following mitigation measures for impacts to ecosystem resources. **Mitigation Measures for Vegetation Impacts** Both of the action alternatives would remove vegetation and could introduce noxious species into the surrounding areas. To prevent further, permanent effects, UDOT will mitigate temporary impacts to vegetation once construction is complete and no further disturbance is anticipated. Mitigation will include the following measures: • All fill materials brought onto the construction site will be required to be clean of any chemical contamination per UDOT's Standard Specifications, Section 02056, Embankment, Borrow, and Backfill. Topsoil for landscaping must also be free of weed seeds per UDOT's Standard Specifications, Section 02912, Topsoil. • Compacted soils will be ripped, stabilized, and reseeded. • The contractor will be required to follow noxious weed mitigation and control measures identified in the most recent version of UDOT's Standard Specification Section 02924, Noxious Weed Control. • Disturbed areas will be reseeded. **Mitigation Measures for Terrestrial and Aquatic Wildlife Impacts** UDOT will implement the following mitigation measures to conserve and minimize impacts to migratory birds and in furtherance of Executive Order 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*: • Trees and shrubs will be removed during the non-nesting season (July 16 to March 31). If removing trees and shrubs during this time is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys of the area that would be disturbed. The preconstruction surveys will be conducted by a qualified wildlife biologist no more than 14 days before ground-disturbing activities. The surveys will determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to minimize or avoid impacts to migratory birds.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Ecosystem Resources (*continued*)	**Mitigation Measures for Aquatic Resources Impacts** To fill jurisdictional wetlands and other jurisdictional aquatic resources, the Kimball Junction Project must be authorized by USACE as part of a CWA Section 404 permit before construction. Nationwide permits are a type of CWA Section 404 permit that authorize impacts to jurisdictional aquatic resources that are considered no more than minimal. Both of the action alternatives would qualify for authorization under a nationwide permit because permanent impacts to jurisdictional aquatic resources would be less than the nationwide permit threshold of 0.50 acre. This permit authorization would not likely require compensatory mitigation because permanent wetland impacts would be less than 1/10th of an acre and no streams would be impacted. Potential temporary construction impacts to aquatic resources would be minimized through considering construction methods and using BMPs such as silt fences and other erosion-control features in areas adjacent to wetlands and streams. Any necessary temporary construction impacts to aquatic resources that are authorized by a CWA Section 404 permit will be restored through regrading to natural contours and through revegetation measures. Because more than 1 acre of ground would be disturbed, a Utah Pollutant Discharge Elimination System (UPDES) General Storm Water Discharge Permit and a stormwater pollution prevention plan (SWPPP), consistent with UDOT's Standard Specifications, Section 01355, will be required. The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. Restoration efforts will also be monitored to ensure successful revegetation as typically required by an SWPPP. **Mitigation Measures for Threatened and Endangered Species** UDOT will conduct two more years of clearance surveys for Ute ladies'-tresses (one more year of surveys will be conducted in 2025 in the potentially suitable habitat identified in evaluation area and two more years of surveys will be conducted in 2025 and 2026 in the potentially suitable habitat identified in the action areas). All surveys will be conducted according to the *U.S. Fish and Wildlife Service (USFWS) Utah Field Office Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed and Candidate Plants* and the revised version of the 1992 *Interim Survey Requirements for Ute Ladies'-tresses Orchid* (*Spiranthes diluvialis*). Potentially suitable Ute ladies'-tresses habitat identified adjacent to the roadway and project footprint will be flagged and protected. Construction crews will be provided information about the importance of containing all work activities to the project footprint and existing roadway and instructed that no disturbance can occur outside of that when adjacent to potentially suitable Ute ladies'-tresses habitat, nor in areas flagged for protection. On January 7, 2025, USFWS issued a proposed rule (90 *Federal Register* 1054) to remove Ute ladies'-tresses from the Federal List of Endangered and Threatened Plants. If the species is delisted, the future planned surveys will not be required nor conducted, and the mitigation measures will not apply.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Floodplains	UDOT and/or its construction contractor would take measures to reduce floodplain impacts and to ensure that the selected alternative would comply with all applicable regulations (see Section 3.10.2.2, *Executive Order 11988, Floodplain Management*). These mitigation measures would include the following: • Where new or rehabilitated bridges or culverts are included in the final design of the selected alternative, the design would follow FEMA's requirements and the requirements of UDOT's Drainage Manual of Instruction, where applicable. Where no Special Flood Hazard Area is defined, culverts and bridges would be designed to accommodate a 50-year (2%-annual-chance) or greater-magnitude flood. Where regulatory floodplains are defined, hydraulic structures would be designed to accommodate at least a 100-year (1%-annual-chance) flood. • If Alternative A is the selected alternative, floodplain development permits would be obtained from the Summit County Public Works Engineering Department for all locations where the proposed roadway embankment or structural elements would encroach on a regulatory floodplain. FEMA Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) processes would be executed in compliance with 44 CFR Sections 60.3 and 65.12 as necessary. The LOMR process takes place after construction impacts have occurred to modify and update an effective floodplain map. The CLOMR process (if required) must be completed before construction impacts take place to receive FEMA's concurrence that, if the selected alternative is constructed as designed, a LOMR could be issued after construction has been completed. For the Kimball Junction Project, the effective FEMA floodplain mapping for the impacted areas does not include published base flood elevations; for this reason, UDOT must complete the hydrologic and hydraulic analyses consistent with FEMA standards to confirm or refine the effective floodplain mapping. These analyses could increase or decrease the estimate of impacted areas and the nature of anticipated changes in base flood elevation and/or floodplain limits.
Historic and Archaeological Resources	Because no adverse effects would occur to historic properties (that is, resources included in or eligible for inclusion in the NRHP), no mitigation measures are necessary under the National Historic Preservation Act.
Hazardous Materials and Hazardous Waste Sites	During construction, UDOT will coordinate with DERR, the construction contractor, and the appropriate property owners. This coordination will involve determining the status of the sites of concern, identifying newly created sites, and minimizing the risk to all parties involved. Environmental site assessments might be conducted at the sites of concern to further evaluate the nature and extent of contamination (if any) and to better identify the potential risks of encountering hazardous materials when constructing the selected alternative. Previously unidentified sites or contamination could be encountered during construction. In such a case, all work will stop in the contamination area according to UDOT Standard Specifications, and the contractor will consult with UDOT and DERR to determine the appropriate remedial measures. Hazardous materials will be handled according to UDOT Standard Specifications and DERR's requirements and regulations. The construction contractor will implement measures to prevent spreading contamination and limit worker exposure. Engineering controls (such as dust mitigation, temporary soil covers, and groundwater extraction) and personal protective equipment for construction workers will be used to reduce the potential for public or worker exposure to hazardous materials, as determined necessary by UDOT.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Visual and Aesthetic Resources	UDOT proposes to implement the following mitigation measures for impacts to visual and aesthetic resources: • All aesthetic treatments will be installed in accordance with UDOT Policy 08A-03, *Project Aesthetics and Landscaping Plan Development and Review* (UDOT 2014a), and UDOT's *Aesthetics Guidelines* (UDOT 2014b). UDOT's policy is to set a budget for aesthetics and landscape enhancements based on the aesthetics guidelines. The aesthetic features considered during the final design phase of the selected alternative could include vegetation and plantings (such as street trees); the color of bridges, structures, and retaining walls; and other architectural features, such as railings. Aesthetic treatments are typically evaluated during the final design phase. UDOT will coordinate with Summit County to determine whether any desired aesthetics could be implemented. • Lighting treatments are typically evaluated during the final design phase. Lighting will be designed to meet current design standards. All lighting design and construction work will follow UDOT Policy 06C-06, *Highway Lighting* (UDOT 2016). In addition, the requirements in UDOT's latest *Lighting Design Manual* (UDOT 2024e) will be followed.
Energy	No mitigation measures for energy impacts are proposed.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Mitigation Measures for Construction Impacts	
Construction Phasing	No specific mitigation has been identified for construction phasing. If a phased approach is taken, the project mitigation identified in this EIS is proposed to be implemented for the specific design for each phase. Future mitigation for subsequent phases would take into account the final design for that phase, and any changes in regulations or potential improvements to BMPs would be followed and implemented with each phase.
Community and Property	**Mitigation Measures for Impacts to Public Safety and Security from Construction** A thorough public information program will be implemented to inform the public and businesses about construction activities and to minimize construction-related impacts. Information will include work hours and alternate routes. Construction signs will be used to notify drivers about work activities and changes in traffic patterns. Construction sequencing and activities will be coordinated with emergency service providers to minimize delays and response times during construction. **Mitigation Measures for Impacts to Utilities from Construction** Utility agreements will be completed to coordinate utility relocations. The project specifications will require the contractor to coordinate with the utility companies to plan work so that utility disruptions to businesses occur when the businesses are closed or during off-peak times. UDOT's *Accommodation of Utilities and the Control and Protection of State Highway Rights-of-Way* (UAC R930-6) will be followed. If any loss of service is required during construction, the construction contractor will contact affected parties. Before beginning work, the contractor will contact Blue Stakes to identify the locations of all utilities in the work area. The contractor will use care when excavating to avoid unplanned utility disruptions. If utilities are unintentionally disrupted, UDOT will work with the contractor and the utility companies to restore service as quickly as possible. **Mitigation Measures for Impacts to Property and Right-of-way from Construction** In locations of temporary easements, UDOT will compensate the property owners for the temporary use of their property, and the restored property will be returned to the owner when UDOT no longer needs to use the property. Fencing could be altered during project construction. The contractor will maintain fences and gate operations to protect the property owner's resources during construction.

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Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Economic Conditions	Access to businesses will be maintained during the construction and post-construction phases of this project. For each phase of the project, UDOT will coordinate with property owners and businesses to evaluate ways to maintain access while still allowing efficient construction operations. This coordination could entail sharing a temporary access among businesses or identifying acceptable timeframes when access is not needed. Adequate signs will be placed in construction areas to direct drivers to businesses. Other potential mitigation measures for construction impacts could include the following: • A traffic access management plan developed and implemented by the construction contractor that maintains the public's access to the business during normal business hours • Frequent notifications provided to all businesses in the construction area describing the progress of the construction and upcoming construction events • Business access signs that identify business access points in the construction limits • Meetings with business representatives to inform them of upcoming construction activities and to provide a forum for the representatives to express their concerns about the project
Traffic and Transportation	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 and residences must be maintained, and existing roads must be kept open to traffic unless alternate routes are provided. Even with implementing the maintenance of traffic plan, short-term increases in traffic and congestion would increase in the construction area. Road closures will be limited to what is specified in the maintenance of traffic plan as approved by UDOT before the start of construction.
Pedestrian and Bicycle Facilities	Each existing pedestrian and bicycle facility that would be closed and removed during construction will be replaced with a similar facility near its current location. Trail closures would be limited in duration, and construction detours will accommodate pedestrians and bicyclists as well as vehicles. Detours for pedestrians and bicyclists will be as direct as possible to minimize lengthy route deviations. Project construction for pedestrian and bicycle facilities will be phased to minimize disruptions to the public to the extent feasible. UDOT will coordinate with Summit County and Basin Recreation during the final design of the selected alternative to mitigate disruptions to trail users. Potential mitigation for disruption will include providing signed on-road detours where feasible, closing facilities during low-use seasons (winter), and providing information to the public about trail closures.

(*Continued on next page*)

Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Air Quality	UDOT or its contractor will take measures to reduce fugitive dust generated by construction. Dust-suppression techniques such as watering or chemical stabilization of exposed soil, opacity observations and checks, washing vehicle tires, or other dust minimization techniques approved by the Utah Division of Air Quality will be applied by UDOT or its contractor during construction in accordance with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.10, Fugitive Dust (UDOT 2024d).
Noise	To reduce temporary noise impacts associated with construction, the contractor will comply with all state and local regulations relating to construction noise, including UDOT's Standard Specifications, Section 00555, Prosecution and Progress, for nighttime construction work to reduce the impacts of construction noise on the surrounding community (UDOT 2024d).
Water Quality and Water Resources	Because more than 1 acre of ground would be disturbed, a UPDES permit and an SWPPP, consistent with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.13, Stormwater Management Compliance, will be required (UDOT 2024d). The SWPPP will identify measures to reduce impacts to receiving waters from construction activities including site grading, materials handling and storage, fueling, and equipment maintenance. In addition, BMPs could include measures such as silt fences, erosion-control fabric, fiber mats, straw bales, silt drains, detention basins, mulching, and revegetation. Restoration efforts will also be monitored to ensure successful revegetation as typically required by an SWPPP. If construction activities require dewatering that would discharge project water to surface waters, UDOT or its construction contractors will obtain a UPDES Construction Dewatering or Hydrostatic Testing General Permit.

(*Continued on next page*)

Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Ecosystem Resources	**Mitigation Measures for Impacts to Threatened and Endangered Species, Wildlife, and Utah Sensitive Species from Construction** Trees and shrubs will be removed during the non-nesting season (July 16 to March 31). If removing trees and shrubs during this time is not possible, UDOT or its contractor will arrange for preconstruction nesting surveys of the area that would be disturbed. The preconstruction surveys will be conducted by a qualified biologist no more than 14 days before ground-disturbing activities. The surveys will determine whether active bird nests are present. If active nests are found, the construction contractor will coordinate with the UDOT Natural Resources Manager to minimize or avoid impacts to migratory birds. Constructing either action alternative could impact habitat that is potentially suitable for Ute ladies'-tresses. UDOT prepared a biological assessment and determined that the selected alternative "may affect, but is not likely to adversely affect" Ute ladies'-tresses. UDOT requested USFWS concurrence with this determination in a letter sent on March 11, 2025. USFWS concurred with this determination on March 27, 2025, via a time/date stamp. Potentially suitable Ute ladies'-tresses habitat identified adjacent to the roadway and project footprint will be flagged and protected. Construction crews will be provided information about the importance of containing all work activities to the project footprint and existing roadway and instructed that no disturbance can occur outside of that when adjacent to potentially suitable Ute ladies'-tresses habitat, nor in areas flagged for protection. For more proposed mitigation measures, see Section 3.9.4.5, *Mitigation Measures for Ecosystem Impacts*. **Mitigation Measures for Impacts to Aquatic Resources from Construction** Both action alternatives would impact less than 0.1 acre of aquatic resources and might require a Stream Alteration Permit or Nationwide Permit. In addition, BMPs such as silt fences and other erosion-control features will be used in areas adjacent to wetlands to mitigate potential temporary construction impacts to wetlands and other waters of the United States. For more information, see Section 3.9.4.5, *Mitigation Measures for Ecosystem Impacts*. BMPs such as silt fences and other erosion-control features would be used in areas adjacent to aquatic resources. In addition, aquatic resources outside of but adjacent to the construction footprint would be fenced so that the area would be avoided. **Mitigation Measures for Impacts to Noxious Weeds from Construction** The contractor will follow UDOT's Standard Specifications 02924, Noxious Weed Control, to minimize construction impacts. To mitigate possibly introducing noxious and invasive weeds during construction, the contractor will: • Follow the noxious weed mitigation and control measures identified in UDOT's Standard Specifications for Noxious Weed Control (UDOT 2024d). • Follow the BMPs to reduce the potential for weed infestations. • Reseed disturbed areas.

(*Continued on next page*)

Table 3.20-1. Mitigation Measures

Resource	Mitigation Measure
Historic and Archaeological Resources	In accordance with UDOT's Standard Specifications, Section 01355, Environmental Protection, Part 1.12, Discovery of Historical, Archaeological, or Paleontological Objects, Features, Sites or Human Remains, if cultural resources are discovered during construction, activities in the area of the discovery will immediately stop (UDOT 2024d). The construction contractor will notify UDOT of the nature and exact location of the finding and will not damage or remove the resource. Work in the area of the discovery would be delayed until UDOT evaluates the extent and cultural significance of the site in consultation with the Utah SHPO. The course of action and the construction delay would vary depending on the nature and location of the discovery. Construction would not resume until the contractor receives written authorization from UDOT to continue.
Hazardous Materials and Waste Sites	If contamination is discovered during construction, mitigation measures will be coordinated according to UDOT Standard Specifications, Section 01355, Environmental Compliance, Part 1.7, Hazardous Waste, which directs the construction contractor to stop work and notify the construction engineer of the possible contamination (UDOT 2024d). Coordination with UDEQ might be necessary if a discovery is made. Any hazardous materials will be disposed of according to applicable state and federal guidelines
Visual and Aesthetic Resources	After the project is completed, the contractor will prepare and implement an appropriate seeding vegetation and/or landscaping plan to restore or enhance aesthetics.
Construction Staging and Material Borrow Areas	During construction, the contractor would establish staging areas for equipment and would obtain fill material for improvements. Because a contractor has not yet been selected, the exact location of staging areas and sources of fill material is not known. Once those areas are identified, standard mitigation measures such as using existing roads and disturbed areas to the extent possible, minimizing ground disturbance, controlling dust and erosion, managing waste, and protecting vegetation will be used.

Definitions: BMP = best management practice; CLOMR = Conditional Letter of Map Revision; CWA = Clean Water Act; dBA = A-weighted decibels; DERR = Utah Division of Environmental Response and Remediation; FEMA = Federal Emergency Management Agency; FHWA = Federal Highway Administration; LOMR = Letter of Map Revision; NRHP = National Register of Historic Places; R = Rule; SHPO = State Historic Preservation Officer; SWPPP = stormwater pollution prevention plan; UAC = Utah Administrative Code; UDEQ = Utah Department of Environmental Quality; UPDES = Utah Pollutant Discharge Elimination System; USACE = U.S. Army Corps of Engineers

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Chapter 4: Coordination

This chapter describes the public and agency coordination efforts for the Kimball Junction Environmental Impact Statement (EIS). As the lead agency, the Utah Department of Transportation (UDOT) is responsible for preparing the Kimball Junction EIS, including meeting the requirements for conducting and documenting public and agency coordination and consultation.

The Kimball Junction EIS process was initiated on December 21, 2022, when a Notice of Intent was published in the Federal Register. The Notice of Intent formally announced that UDOT was preparing an EIS for the Kimball Junction Project. The notice included a brief description of the proposed improvements and alternatives that UDOT is considering.

Because the National Environmental Policy Act (NEPA) is required only for federal actions, an EIS is typically led by a federal agency. The Federal Highway Administration (FHWA) is the lead agency for transportation projects that involve the highway system. Many of the consultation requirements described in this chapter are required of federal agencies such as FHWA when preparing an EIS.

However, UDOT has been assigned the authority to carry out FHWA's responsibility under NEPA, and UDOT is the lead agency for the Kimball Junction Project. As the lead agency, UDOT is responsible for preparing the Kimball Junction EIS. The environmental review, consultation, and other actions required by applicable federal environmental laws for this action are being, or have been, carried out by UDOT pursuant to 23 *United States Code* (USC) Section 327 and a Memorandum of Understanding dated May 26, 2022, and executed by FHWA and UDOT.

To access copies of the reports and legal documents mentioned in this chapter, see Section 4.6, *References*, of this chapter and the Alternative Screening and Resources tabs on UDOT's Kimball Junction Project website (https://kimballjunctioneis.udot.utah.gov).

4.1 Public and Agency Involvement

Public and agency involvement is important to the success of any project that could affect a community. Engaging the public from the beginning, and throughout the life of a project, can help a project progress faster and better meet the needs of a community. The planning efforts for the Kimball Junction EIS involved extensive coordination and consultation with the affected communities, agencies, and other stakeholders. The affected communities include not only the residents and businesses but also landowners, individuals, groups, tribes, and others interested in the project study area.

UDOT structured and implemented the planning process to ensure that substantive issues were considered, including the affected community's concerns related to the project's purpose and need, engineering solutions, social impacts, environmental impacts, economic effects, and other issues of concern to the community.

4.1.1 Public Outreach Activities and Information Exchange

The goal of the public outreach process under NEPA is to gather input from the local community members, tribes, and government leadership to help inform the decisions regarding the impacts and mitigation associated with the alternatives being considered. Throughout the preparation of the Kimball Junction EIS, the public and agency involvement process has been open to ensure that interested parties have an opportunity to be involved in project planning. Stakeholders have had, and will continue to have, opportunities to review and comment on the EIS analysis and results at major milestones throughout the study.

The public involvement process under NEPA is not a voting process. The information provided through comments during the NEPA process benefits the decision-makers by providing them with relevant information about how the proposed alternatives are expected to affect the natural and human environment, what kind of alternatives or mitigation measures might be appropriate, and what resources are important to the stakeholders, as well as other information. The intent of NEPA, including public comments, is to inform decision-makers about the potential impacts of the proposed action.

To ensure that everyone was reached, outreach materials were also provided in Spanish. During the scoping period, these materials included printed public notices that were left at local businesses and public libraries, paid social media ads targeted to Spanish speakers, and printed and digital factsheets. During the outreach periods for the purpose and need and screening criteria and the alternatives screening results, these materials included paid social media ads and printed and digital factsheets.

4.1.2 Outreach Compliance with Federal Laws

The public and agency involvement program for the Kimball Junction EIS was conducted consistent with NEPA and the requirements of other environmental laws (such as Section 106 of the National Historic Preservation Act). This project was also designed to be consistent with 23 USC Section 139, *Efficient Environmental Reviews for Project Decision-making*, and corresponding FHWA regulations and guidance.

While preparing this EIS, UDOT followed these laws by reaching out to the agencies, tribes, the public, and other stakeholders and by providing an opportunity for input into and collaboration on the processes of defining the project's purpose and need, identifying potential alternatives, and developing an understanding of the consequences of the proposed alternatives.

4.2 Notice of Intent

UDOT prepared a Notice of Intent (NOI) to prepare an EIS for the Kimball Junction Project. The NOI is a requirement of the FHWA regulation at 23 *Code of Federal Regulations* (CFR) Section 771.123 and the Council on Environmental Quality (CEQ) regulation at 40 CFR Section 1501.9 that initiates the mandated scoping process for all EISs. This notice provides a short description of the project, the proposed action, and preliminary alternatives. The NOI also describes the scoping process, identifies any upcoming formal public meetings that are associated with the project, and includes contact information.

UDOT's NOI for the Kimball Junction EIS was published in the Federal Register on December 21, 2022. A copy of the Federal Register NOI is included in Appendix A, *Notice of Intent*, of the *Scoping Summary Report* (UDOT 2023a).

4.3 Agency Coordination

Throughout the EIS process, UDOT coordinated with local, state, and federal agencies that oversee the management of natural resources in the project area. Because these agencies oversee impacts and issue permits regarding their resource areas, it is important to include them in the initial scoping activities and throughout the project's development. Including these agencies from the beginning helps identify issues early, which ensures that they can be properly considered and, if necessary, avoided, minimized, or mitigated as the project progresses.

The agencies were notified of the requirements of 23 USC Section 139 at the virtual agency scoping meeting on January 9, 2023. The preparation of this EIS meets the intent of this law because UDOT reached out to agencies and gave them an opportunity to provide input into and collaborate on defining the project purpose and need, the range of alternatives, and the methodologies for documenting environmental conditions and assessing impacts.

4.3.1 Coordination Plan

Section 6002 of SAFETEA-LU (Public Law 109-059), codified at 23 USC Section 139, requires that the federal lead agency develop a coordination plan for all projects for which an EIS is prepared under NEPA. The purpose of the *Kimball Junction EIS Coordination Plan* (UDOT 2024a) is to coordinate public and agency participation and comment on the NEPA environmental review process. The plan explains how the public, agencies, and local governments are given opportunities to provide input. The plan is updated throughout the EIS process. All iterations of the *Kimball Junction EIS Coordination Plan* are available to view under the Resources tab on the project website: https://kimballjunctioneis.udot.utah.gov/resources.

4.3.2 Identification of Participating and Cooperating Agencies

For the Kimball Junction Project, agencies that would have permitting or other authority for affected resources were invited to participate in the project planning process as NEPA cooperating agencies. In addition, federal and nonfederal agencies and tribes that might have an interest in the project but do not necessarily have permitting authority were invited to participate in the project planning process as NEPA participating agencies. The roles and responsibilities of cooperating and participating agencies include but are not limited to the following:

- Participating in the NEPA process starting at the earliest possible time, especially with regard to developing the project's purpose and need, range of alternatives, and methodologies, as well as reviewing or providing content used to develop the EIS.
- Identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts. Participating agencies are also allowed to participate in an issue-resolution process.
- Providing meaningful and timely input on unresolved issues.
- Participating in the scoping process.

Other agencies and organizations were also contacted as necessary to obtain information about the project area and to communicate any issues or concerns that they might have.

4.3.2.1 Cooperating Agencies

A *cooperating agency* is any federal agency, other than a lead agency, that has jurisdiction by law or special expertise concerning the action or with respect to any environmental impacts involved in a proposed project or reasonable alternative. Their selection and responsibilities are described in 23 CFR Section 771.111, 23 USC Section 139, and 40 CFR Section 1501.8. All cooperating agencies are participating agencies by definition.

UDOT sent invitation letters to three federal agencies (U.S. Army Corps of Engineers, U.S. Environmental Protection Agency [EPA], and U.S. Fish and Wildlife Service) on December 15, 2022, inviting them to be either a cooperating agency or a participating agency. EPA and the U.S. Army Corps of Engineers both accepted the invitation to be a cooperating agency.

4.3.2.2 Participating Agencies

A *participating agency* is a federal or nonfederal agency or tribe "that might have an interest in the project." The selection and responsibilities for participating agencies are also defined in 23 USC Section 139 and differ from those defined for cooperating agencies. For example, participating agencies are given an opportunity to help develop the project's purpose and need, the range of alternatives considered, the coordination plan, and the schedule for the project. Participating agencies are not necessarily also cooperating agencies.

On December 15, 2022, UDOT sent invitation letters to the 3 federal agencies listed in Section 4.3.2.1, *Cooperating Agencies*, and 17 additional state agencies, regional governments or agencies, and local governments to invite them to participate in the environmental review process as a participating agency.

Letters for the state agencies were sent through the Governor's Office of Management and Budget, Resource Development Coordinating Committee (RDCC) because UDOT's environmental process guidelines state that requests for state agencies to become participating agencies should be processed through RDCC. Of the 17 agencies invited to be participating agencies, 11 accepted the invitation. In addition, the U.S. Fish and Wildlife Service did not accept the invitation to be a cooperating agency and is therefore a participating agency.

- U.S. Fish and Wildlife Service (USFWS)
- Utah Division of Wildlife Resources (UDWR)
- Utah Department of Environmental Quality (UDEQ)
- Summit County
- Park City
- High Valley Transit
- Utah Transit Authority (UTA)
- Mountainland Association of Governments (MAG)
- Mountain Regional Water Special Service District
- Snyderville Basin Special Recreation District
- Snyderville Basin Water Reclamation District
- Central Wasatch Commission

4.3.2.3 Tribes

Because cultural resources could be present near the project study area, invitations to be participating agencies (as well as Section 106 consulting parties, as described in Section 4.3.5, *Coordination and Consultation Required by Section 106 of the National Historic Preservation Act*, were sent to the Eastern Shoshone Tribe of the Wind River Reservation, Northwest Band of the Shoshone Nation, Shoshone-Bannock Tribe of the Fort Hall Reservation, Skull Valley Band of Goshutes, and Ute Indian Tribe of the Uintah and Ouray Reservation. The tribes were given project information and invited to attend the agency scoping meeting. None of the tribes responded to the request to become a participating agency, nor did any tribal representatives attend the scoping meeting.

4.3.3 Agency Scoping

As the first step in the NEPA process, scoping uses public and agency participation to develop possible solutions and identify issues regarding a proposed project. Scoping also helps determine the needs, objectives, resources, constraints, and any additional requirements for screening criteria used to screen the preliminary alternatives.

An agency scoping meeting was held on January 9, 2023. The meeting was held virtually using the Zoom platform. Table 4.3-1 lists the agencies that participated in the meeting. At the meeting held on January 9, 2023, UDOT gave a brief presentation that included a project overview and the requirements of being a cooperating or participating agency. The materials discussed at the meeting included a summary of the *Kimball Junction and SR-224 Area Plan* (Area Plan) process, a draft purpose and need statement, potential alternatives, a draft alternatives screening process and criteria, and a project timeline. The presentation, meeting summary, and agency scoping comments are included in Appendix B, *Agency Scoping Materials*, of the *Scoping Summary Report*.

EPA was unable to send a representative to the meeting; however, UDOT followed up with EPA on January 25, 2023. EPA sent a scoping letter with comments to UDOT on February 4, 2023. Representatives for Summit County did not submit a formal scoping letter, but in their letter dated January 4, 2023, they accepted the role of participating agency and requested a modification to the study area. In addition, representatives for Mountain Regional Water Special Service District did not submit formal scoping comments, but they noted that the EIS study extent included a critical transmission water line in their system and that two of their groundwater sources (wells) have source protection zones in the study area.

Table 4.3-1. Agency Scoping Meeting Attendees

Federal Agencies	State and Local Agencies
U.S. Army Corps of Engineers (USACE)	Utah Department of Environmental Quality (UDEQ)
U.S. Fish and Wildlife Service (USFWS)	Utah Transit Authority (UTA)
	Utah Division of Waste Management and Radiation Control
	Mountainland Association of Governments (MAG)
	Utah Division of Wildlife Resources (UDWR)
	Central Wasatch Commission
	Summit County
	Park City Municipal Corporation
	Park City Engineering Department
	High Valley Transit
	Snyderville Basin Water Reclamation District
	Mountain Regional Water Special Service District
	Park City Fire District
	Park City Conservation Association
	Snyderville Basin Special Recreation District (Basin Recreation)

4.3.4 Additional Agency Coordination

UDOT used the agency comments received during the scoping period and at other key milestones during the Draft EIS development, along with other transportation and environmental data and the analysis collected during the Area Plan process, to help identify the purpose of and need for the project, refine alternatives, and make decisions regarding the methodology for the alternatives analysis and resource evaluations.

4.3.4.1 Opportunities for the Cooperating and Participating Agencies to Help Develop the Project Purpose and Need and Alternatives and Resource Evaluation Methodologies

The statute at 23 USC Section 139 requires that cooperating and participating agencies have an opportunity to help develop the project's purpose and need statement and define the range of alternatives. In addition, the lead agency must determine, in collaboration with the cooperating and participating agencies, the appropriate methodologies to be used and the level of detail required to analyze the alternatives and assess the impacts of the project.

4.3.4.1.1 Purpose and Need

On December 15, 2022, UDOT published a *Draft Purpose and Need Technical Report* (UDOT 2022) for review by the agencies and the public. The draft purpose and need was also discussed at the January 9, 2023, agency scoping meeting.

A scoping comment period was held from December 27, 2022, through January 27, 2023. During the comment period, UDOT sought input on the draft purpose and need. UDOT received a scoping letter from EPA, which included one general comment about the draft purpose and need.

4.3.4.1.2 Range of Alternatives and Alternatives Screening Methodology

On April 28, 2023, UDOT sent cooperating and participating agency representatives the *Alternatives Development and Screening Methodology Report* (UDOT 2023b) for their review and comment. A 30-day comment period was provided from April 28 to May 28, 2023. This report identified criteria and measures for evaluation and guided which alternatives were carried forward for detailed evaluation in the EIS.

UDOT did not receive any comments from agency representatives regarding the screening methodology, criteria, or measures, nor were any new alternatives proposed that had not already been considered and screened during the Level 1 and Level 2 alternatives screening processes.

4.3.4.2 Agency Meeting to Review Refined Alternatives and Preliminary Screening Results

On October 5, 2023, UDOT held an in-person meeting to review the development of the refined alternatives and to present to agency representatives the changes made to the alternatives since scoping, the reasons for the changes, and the initial draft screening results. Representatives from Summit County, Park City, and High Valley Transit attended.

4.3.4.3 Agency Notice of the Draft Alternatives Development and Screening Results Report and Associated Comment Period

On February 26, 2024, UDOT notified all cooperating and participating agencies, announcing that the *Draft Alternatives Development and Screening Results Report* (UDOT 2024b) was available. The email included fact sheets that described the alternatives and summarized the alternatives development and screening process. The email asked the participating and cooperating agencies for input during the 30-day public comment period (February 26, 2024, through March 27, 2024) for the draft screening report. No cooperating agencies submitted comments. Two participating agencies submitted comments (Summit County and the Utah Division of Wildlife Resources). Both letters and responses to both agencies' comments are provided in the *Final Alternatives Development and Screening Results Report* (UDOT 2024c).

4.3.4.4 Agency Notice of the Draft EIS Notice of Availability and Associated Comment Period

On March 14, 2025, UDOT notified all cooperating and participating agencies by email announcing that the Draft EIS was available for agency and public review and comment. The email included a formal Notice of Availability (NOA) of the Kimball Junction Draft EIS in the form of a letter containing a link to the Draft EIS on the project website and information about the two upcoming public hearings, the 45-day comment period,

and details about how to submit comments. For a copy of the NOA, see Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*.

4.3.4.5 Meetings with Summit County

4.3.4.5.1 Meetings with Transportation Planning Staff

UDOT met with Summit County transportation planning and engineering staff several times during the alternatives development and screening process and Draft EIS preparation process to answer questions, discuss refined alternative designs, explain screening methodology, review draft screening results, and discuss UDOT's preferred alternative prior to release of the Draft EIS. In addition, UDOT met with Summit County staff to understand new proposed alternatives or changes to existing alternatives that the County requested UDOT evaluate.

4.3.4.5.2 Council Meetings

Before the formal scoping process, UDOT gave presentations to the Summit County Council on October 26, 2022, and the Park City Council on November 3, 2022. The presentations for the two council meetings were the same. They provided an overview of the scoping process, the draft purpose and need statement, the draft screening criteria, and information about how to comment during the formal scoping period.

On January 25, 2024, UDOT met with the Summit County Council and presented an overview of the alternatives development and screening process, refined alternatives under consideration and the preliminary screening results.

When the draft screening report was released, UDOT presented the screening results to both the Summit County Council (on March 6, 2024) and the Park City Council (on March 7, 2024). The presentations for both the county and city council meetings were the same. The presentations provided an overview of the project's purpose and need, a review of the refined alternatives, an overview of the screening process, the results of the screening process, a summary of why Alternatives A and C were moving forward for detailed evaluation in the EIS, an explanation of why Alternative B was eliminated, and information about how to comment. UDOT encouraged the councils and the public to submit comments on the draft screening report and the remaining alternatives.

After the Draft EIS was released, UDOT also presented the preferred alternative and Draft EIS findings to both the Park City Council (March 20, 2025) and Summit County Council (March 26, 2025). The presentations for both the city and county council meetings were the same. The presentations provided an overview of the preferred alternative, including a description of additions made to the alternative based on comments and requests made during the alternatives development and screening process, a summary of why Alternative C was selected as the preferred alternative, a summary of environmental impacts from both action alternatives, and information about the upcoming Draft EIS public hearings.

4.3.4.6 Resource Assessment Methodologies

On October 17, 2024, UDOT sent cooperating and participating agency representatives the *Resource Assessment Methodologies Report* (UDOT 2024d) for their review and comment.

The report established the technical approaches used to evaluate various resources and the level of detail required to analyze the project alternatives. Agency representatives were asked to review the sections of the report that pertained to their agency's expertise and jurisdiction in the NEPA and permitting process. The agencies were given until November 1, 2024, to provide comments. UDOT received a letter from EPA, which provided "comments, information about updated [evaluation] tools, considerations, and information" that EPA recommends be used by UDOT to inform the methodology used in the Draft EIS impact analysis.

4.3.4.7 Draft EIS Partner Meeting

On March 10, 2025, UDOT held a partner meeting for the local government partners: Summit County and Park City, High Valley Transit, and the Mountainland Association of Governments, the local metropolitan planning organization. The intent of the meeting was for UDOT to present the findings and recommendations of the Draft EIS and to address any questions ahead of the Draft EIS release on March 14, 2025. A copy of the partner presentation is included in Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*.

4.3.5 Coordination and Consultation Required by Section 106 of the National Historic Preservation Act

The National Historic Preservation Act (NHPA) was enacted to assess impacts to historical and archaeological resources that could be affected by undertakings involving federal agencies. The act requires federal agencies that fund, permit, or are otherwise involved in a project (for example, as a landowner) to consider the impacts that the undertaking would have on historic and archaeological resources.

The regulations at 36 CFR Part 800, commonly referred to as the Section 106 regulations, implement the NHPA and describe the process through which the above actions are carried out. This process includes steps for consulting with state and/or tribal historic preservation officers, the Advisory Council on Historic Preservation, Native American tribes, and other interested parties.

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

On December 23, 2022, UDOT sent a letter to the aforementioned tribes (see Section 4.3.2.3, *Tribes*) inviting each tribe to become a participating agency. UDOT also invited each tribe to become a Section 106 consulting party. In addition, three local government representatives were also invited to become a Section 106 consulting party. Therefore, the parties invited to become a Section 106 consulting party are:

- Park City Historic Preservation Board
- Park City CLG
- Summit County CLG/Summit County Historical Society
- Eastern Shoshone Tribe of the Wind River Reservation
- Northwestern Band of Shoshone Nation
- Shoshone-Bannock Tribes of the Fort Hall Reservation
- Skull Valley Band of Goshute Indians
- Ute Indian Tribe of the Uintah and Ouray Reservation

No tribes accepted the invitation to be a Section 106 consulting party. The Park City CLG was the only local government representative to accept the invitation to be a Section 106 consulting party.

On March 14, 2025, UDOT notified the Park City CLG by email announcing that the Draft EIS was available for agency and public review and comment. The email included a formal NOA of the Kimball Junction Draft EIS in the form of a letter containing a link to the Draft EIS on the project website and information about the two upcoming public hearings, the 45-day comment period, and details about how to submit comments. For a copy of the NOA, see Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*.

4.3.5.1 Tribal Consultation

The NHPA and Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, require that federal agencies involved in a project that could affect resources of importance to Native American tribes consult with those tribes when the location of the federal undertaking is in an area of traditional use for the tribe and/or could affect resources of cultural, religious, or traditional importance to the tribe. This consultation is to occur at a government-to-government level in recognition of the sovereign status of the tribes.

Under the May 26, 2022, Memorandum of Understanding executed between FHWA and UDOT, FHWA has assigned most of its responsibilities in the environmental review process to UDOT, but FHWA has retained its responsibility for government-to-government consultation with Native American tribes under Section 106 of the NHPA. In accordance with the Memorandum of Understanding, UDOT is responsible for carrying out most of the responsibilities of a federal agency in the Section 106 process, including notifying Native American tribes. If a tribe requests government-to-government consultation with the federal government, FHWA would be responsible for carrying out that consultation directly with the tribe.

UDOT consulted with the Eastern Shoshone Tribe of the Wind River Reservation, Northwestern Band of the Shoshone Nation, Shoshone-Bannock Tribes of the Fort Hall Reservation, Skull Valley Band of Goshutes, and Ute Indian Tribe of the Uintah and Ouray Reservation. Consultation with tribal governments included written correspondence that invited the tribes to participate in consultation.

On March 14, 2025, UDOT notified the above tribes by email announcing that the Draft EIS was available for agency and public review and comment. The email included a formal NOA of the Kimball Junction Draft EIS in the form of a letter containing a link to the Draft EIS on the project website and information about the two

upcoming public hearings, the 45-day comment period, and details about how to submit comments. For a copy of the NOA, see Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*.

To date, none of the tribes have identified any specific sites, resources, or traditional cultural places of concern in the project's area of potential effects. To date, no tribe has requested direct government-to-government consultation with FHWA.

4.4 Public Involvement

Public participation is crucial to understanding the affected community's needs and concerns in regard to a project. UDOT's commitment at the beginning of this environmental review process was to proactively involve the public and understand the goals of those who live, work, and travel in the project study area. UDOT designed this EIS process to comply with all federal laws by reaching out to the public and giving the public an opportunity to provide input and collaborate on defining the project purpose and need, identifying potential alternatives, and developing screening criteria.

4.4.1 Coordination and Public Involvement Plan

The *Kimball Junction EIS Coordination Plan* included a public involvement element that introduced several strategies to effectively engage and inform the public and stakeholders in the Kimball Junction area about the EIS process by building on the recent, relevant transportation conversations in the community.

The objectives of this plan were to:

- Increase understanding of the Kimball Junction EIS process.
- Increase awareness of the Kimball Junction EIS purpose and need, alternatives, and environmental analysis.
- Notify, inform, and engage the public and stakeholders in the EIS process and provide opportunities for input.
- Ensure public and stakeholder input are appropriately and fairly included in the Kimball Junction EIS process.
- Anticipate, identify, and address stakeholder issues early and often.

The public involvement plan for the Kimball Junction Project is available as Attachment A of the *Kimball Junction EIS Coordination Plan* (https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2024/12/Kimball-Junction-EIS-Coordination-Plan-updated-12-09-2024.pdf).

4.4.2 Public Scoping

UDOT relies on public comments made during scoping to help identify issues and to gauge public sentiment about the proposed improvements. Because the alternatives under consideration for this project could affect owners of property in and around Kimball Junction, UDOT took a combination of measures to ensure that the public was notified about the project and invited to participate in the scoping process.

The following methods were used to notify the general public of the public scoping period, the materials available for review, and how to comment:

- Advertisements were placed in the following publications:
  - *The Salt Lake Tribune*: December 18, 2022, and January 1, 2023
  - *Park Record*: December 21 and 31, 2022, and January 4, 2023
  - *The Deseret News*: December 23 and December 30, 2022
- Notifications and reminders were posted on the Kimball Junction Project website.
- Notifications and reminders were posted on UDOT's social media sites and shared with Summit County and Park City for posting on their sites.
- Social media ads were placed on Facebook in English and Spanish. These ads ran from December 27, 2022, to January 27, 2023.
- An email notice was sent to the UDOT Kimball Junction Project mailing list on December 20 and 27, 2022, and January 3, 9, 10, 11, 18, 26, and 27, 2023.
- Printed flyers were hung at various locations throughout Kimball Junction and Park City.
- A UDOT press release was sent to local media outlets on January 3, 2023.

4.4.2.1 Public Scoping Meetings

To provide the public with an opportunity to learn more about the alternative concepts developed by UDOT, UDOT held two meetings in January 2023 that had about 100 total attendees. These meetings also gave members of the public a chance to ask the project team clarifying questions about the concepts and development process.

An in-person public open house was held on Tuesday, January 10, 2023, from 5:30 to 8:00 PM at Ecker Hill Middle School at 2465 Kilby Road, Park City. A virtual public meeting was held on Wednesday, January 11, 2023, from 6:00 to 7:30 PM using the Zoom platform. The project team documented comments received during this meeting.

The in-person meeting was held in an open-house format and included the following elements:

- The public was encouraged but not required to sign in at the registration desk. When each participant entered the meeting room, they were given a brief explanation of the meeting format, information about how to submit comments, and details about where to find additional information about the project.
- Comment sheets were made available to each participant, and participants were encouraged to leave their comments.

- A project video summarizing the NEPA process ran continuously.
- Project staff members were available to answer questions and provide information.
- About 47 people attended the public open house on January 10, 2023.

The virtual scoping meeting included the following elements:

- A participant guide for the virtual public meeting was posted on the project website in advance of the meeting. This guide explained how to use the technology, how the meeting would work, and how to ask questions from a phone, computer, or mobile device. The public was encouraged but not required to sign in to the meeting through a Google Form.
- The UDOT project manager presented project information, including project background and overview, stakeholder working group, and preliminary traffic information, as well as directions for how to submit a formal public comment.
- After the presentation, questions and comments were accepted during the meeting through the chat box and the question-and-answer function. The presenters notified participants that comments submitted during the meeting through the chat box and verbally were useful but would not be considered official public comments. The meeting was live streamed via Facebook to Summit County's Facebook page.
- The meeting was recorded and posted on the project website at https://kimballjunctioneis.udot.utah.gov/scoping.
- About 50 people attended the virtual public scoping meeting.

During the scoping period, UDOT received over 170 individual comment submissions from the public on the conceptual alternatives resulting from the *Kimball Junction and SR-224 Area Plan*. Comments addressed a variety of issues including congestion, concerns about noise impacts, wildlife crossings and general wildlife protection, the source of possible funding, pedestrian options and safety, public transit options, how alternatives might affect development and existing businesses, and the cost of the alternatives.

Comments regarding the conceptual alternatives included suggested changes to existing intersections, improvements to other existing roads, new bridges, additional pedestrian enhancements, and various new bypass roads.

4.4.2.2 Scoping Summary Report

UDOT prepared a *Scoping Summary Report* that summarized the public and agency input that was gathered during the project scoping period, which ran from December 27, 2022, through January 27, 2023. The *Scoping Summary Report* summarizes the agency and public scoping activities and comments received, and the report's appendices contain all scoping materials including the meeting notifications, sign-in sheet, fact sheet, display boards, and copies of comments received during the scoping period.

4.4.3 Alternatives Development and Screening Methodology Report

UDOT published the *Alternatives Development and Screening Methodology Report* on April 28, 2023, and held a 30-day comment period for the public and agencies from April 28 to May 28, 2023. This report identified criteria and measures for evaluation and guided which alternatives were carried forward for detailed evaluation in the EIS.

The following methods were used to notify the general public of the public comment period, the materials available for review, and how to comment:

- Legal notices were placed in the following publications:
  - *The Salt Lake Tribune*: April 30 and May 14, 2023
  - *The Deseret News*: April 28 and May 12, 2023
  - *Park Record*: April 29 and May 17, 2023
- Notifications and reminders were posted on the Kimball Junction Project website.
- Notifications and reminders were posted on UDOT's social media sites and shared with Summit County and Park City for posting on their sites.
- Social media ads were placed on Facebook in English and Spanish. These ads ran from April 28 to May 28, 2023.
- An email notice was sent to the UDOT Kimball Junction Project mailing list on April 28, May 12, and May 26, 2023.
- Printed flyers were hung at various locations throughout Kimball Junction and Park City.

During the 30-day comment period on the *Alternatives Development and Screening Methodology Report*, UDOT received 77 public comments. Most comments did not pertain to the proposed alternatives screening methodology, criteria, or measures; instead, they referred to preferences for one or more of the conceptual alternatives presented at the January 2023 scoping meetings or invoked environmental issues that will be studied in the EIS as part of any alternative moving forward for detailed study rather than used as criteria for screening. Many comments were related to concerns about congestion, concerns about noise, pedestrian options and safety, public transit options, how alternatives might affect existing businesses, and the cost of the alternatives.

No public commenter disagreed with the proposed screening methodology, criteria, or measures presented in the *Alternatives Development and Screening Methodology Report*, and a few public commenters reiterated using the screening criteria that UDOT proposed in the report. The public suggested additional issues for consideration; these are described in Table 3-2 of the *Draft Alternatives Development and Screening Results Report*. UDOT did not include these issues for consideration in either Level 3 or Level 4 screening; however, during the alternatives analysis, UDOT evaluated additional logistical considerations and the overall feasibility of the conceptual alternatives, which include several of the issues raised by the public.

All comments that were received between April 28 and May 28, 2023, are included in the *Draft Alternatives Development and Screening Results Report*. Comments received after the formal comment period and before the development of the Draft EIS were reviewed by UDOT and considered during the development of the Draft EIS.

4.4.4 Draft Alternatives Development and Screening Results

Based on the alternatives suggested by the public and agencies during the scoping period, the review of the purpose and need statement, and the review of the *Alternatives Development and Screening Methodology Report*, UDOT conducted an alternatives development and screening process. The results of this process were published in the *Draft Alternatives Development and Screening Results Report* on February 26, 2024, for agency and public review.

A public meeting was not required or provided, but UDOT posted the screening results on the project website and held a 30-day public comment period between February 26 and March 27, 2024. UDOT notified the public of the report's availability and public comment period in the following ways:

- The *Draft Alternatives Development and Screening Report* and appendices were posted on the project website.
- A 30-minute video that summarizes and explains the screening results was posted on the project website. This video is available on YouTube at https://youtu.be/6IXLxc02o2A.
- A series of three alternatives screening fact sheets were posted on the project website in both English and Spanish.

A combination of measures was taken to ensure that the public was notified about the project and invited to participate in the public comment period:

- Advertisements were placed in the following publications:
  - *The Salt Lake Tribune*: February 28 and March 13, 2024
  - *Park Record*: February 28 and March 13, 2024
  - *The Deseret News*: February 28 and March 13, 2024
- Notifications and reminders were posted on the Kimball Junction Project website.
- Notifications and reminders were posted on UDOT's social media sites on February 26 and March 26, 2024, and shared with Summit County and Park City for posting on their sites.
- An email notice was sent to the UDOT Kimball Junction mailing list on February 26 and March 26, 2024.
- Social media ads were placed on Facebook in English and Spanish. These ads ran from February 26 to March 27, 2024.
- Printed flyers were hung at various locations in Kimball Junction and Park City.
- Physical copies of all fact sheets were available at the Park City Library (1255 Park Avenue, Park City) and the Kimball Junction Branch of the Summit County Library (1885 W. Ute Boulevard, Park City).
- A UDOT press release was sent to local media outlets on February 26, 2024.

During the public comment period for the draft screening report, UDOT received about 135 individual comment submissions from the public. Comments were submitted on a variety of topics including the purpose and need, population growth, traffic growth and analysis, opinions on (or modifications to) the

alternatives, suggestions for new alternatives, environmental concerns, active transportation options and safety, public transit, and economic impacts of the project. Several comments requested that the project be included in the Statewide Transportation Improvement Program. A summary of the comments received is included in the *Final Alternatives Development and Screening Results Report*. In addition, UDOT posted a frequently asked questions document on the website.

Although UDOT considered all comments, UDOT did not necessarily make changes to the alternatives or screening evaluation measures in response to each comment. In response to the comments received, UDOT evaluated two new alternatives: Summit County's Alternative B+ and Summit County's request for a pedestrian overpass in place of the proposed pedestrian underpass included with Alternatives A and C. In addition, based on public comments, UDOT made additional changes to the existing Alternatives A and C.

4.4.5 Final Alternatives Development and Screening Results Report

UDOT published the *Final Alternatives Development and Screening Results Report* on September 6, 2024. The report includes full copies of all public and agency comments received on the draft report and explains the improvements made to the originally proposed alternatives, including updated screening results, the criteria and measures used to evaluate each alternative, and the screening results of any new alternatives that were evaluated based on public and agency comments received during the comment period on the *Draft Alternatives Development and Screening Results Report*. This report also identifies Alternatives A and C as moving forward for detailed evaluation in the Draft EIS.

After the publication of the *Draft Alternatives Development and Screening Results Report* on February 26, 2024, UDOT collected and considered comments from agencies and the public, including new alternatives and variations on the existing alternatives. Section 4.0, *Summary of the Public and Agency Comment Period* for the *Draft Alternatives Development and Screening Results Report*, of that report summarizes the public and agency input received during the formal comment period held during the draft alternatives screening phase.

The *Final Alternatives Development and Screening Results Report* includes an updated traffic report that provides additional evaluation results for the new alternatives that were screened based on public and agency comments and includes conceptual design exhibits of new alternatives that were evaluated but eliminated based on screening results. The final report also includes the conceptual design exhibits of the engineering improvements that were made to Alternatives A and C between the draft and final versions of the report and summarizes the screening results of the improved Alternatives A and C that passed Level 3 and Level 4 screening and were advanced for detailed evaluation in the Draft EIS.

UDOT used the following methods to notify the general public of the availability of the *Final Alternatives Development and Screening Results Report* on the project website:

- An email notice was sent to the UDOT Kimball Junction mailing list on September 6, 2024.
- A notification was posted on the project website.
- Notifications and reminders were shared with Summit County and Park City for posting on their sites.
- Factsheets that detailed the alternatives that were advanced for detailed evaluation and the alternatives that were eliminated based on screening results were made available on the project website.

4.4.6 Draft EIS Notice of Availability, Outreach, and Comment Period

UDOT published the Draft EIS document on March 14, 2025, on the project website. The NOA for the Draft EIS was published in the *Federal Register* on March 14, 2025. A 45-day comment period was held from March 14, 2025, to April 28, 2025. The public involvement process in support of the Draft EIS included conducting one in-person public hearing on April 8, 2025; one online public hearing on April 10, 2025; one meeting with participating agencies on March 10, 2025; and presentations to the Park City Council and Summit County Council on March 20 and March 26, 2025, respectively.

Notifications. UDOT used the following methods to notify the general public of the availability of the *Draft EIS*, public hearings, the materials available for review, and how to comment. Copies of these different forms of advertisements and notifications are included in Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*:

- Advertisements were placed in the following publications:
  - *The Salt Lake Tribune*: March 16, 23, and 30, 2025
  - *Park Record*: March 15, March 26, and April 2, 2025
  - *The Deseret News*: March 14 and 26, 2025
- Notifications and reminders were posted on the Kimball Junction project website: https://kimballjunctioneis.udot.utah.gov.
- Notifications were posted on UDOT's social media sites on March 14, April 1, April 7, April 10, and April 25, 2025, and shared with Summit County and Park City for posting on their sites.
- Social media ads were placed on Facebook in English and Spanish. These ads ran from March 14, 2025, to April 28, 2025.
- Email notices were sent to the UDOT Kimball Junction EIS mailing list on March 14, April 1, April 8, and April 25, 2025.
- Printed flyers were hung at various locations throughout Kimball Junction and Park City including at both the Park City and Summit County libraries, the Kimball Junction Transit Center, and various convenience and grocery stores and local coffee shops.
- A UDOT press release was sent to local media outlets on March 14, 2025.
- Fact sheets, display boards, and a large map that summarized the Draft EIS, alternatives screening process, the preferred alternative and expected impacts, and public engagement opportunities were made available on the project website.

Public Hearings. UDOT held two public hearings in April 2025 that had about 50 total attendees between the two meetings. Copies of the public hearing presentations are included in Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*.

- An in-person public open house and hearing was held on Tuesday, April 8, 2025, from 5:30 to 7:30 PM at Ecker Middle School at 2465 Kilby Road in Park City. Attendees had the opportunity to provide official comments using comment forms, by individually speaking to a court reporter, or by making verbal comments to a hearing panel, which were captured by a court reporter.
- A virtual public hearing was held on Thursday, April 10, 2025, from 6:00 to 7:30 PM via Zoom with a presentation and formal comments that were documented by a court reporter. The virtual public hearing was held in this format to accommodate those unable to attend the in-person hearing.

Agency and Public Comments. The agencies and public had the opportunity to comment using a variety of methods. Official comments were accepted by postal mail, email, comment form, comment postcard, verbal statements to a court reporter, or the project telephone comment line (voicemail or text message). During the Draft EIS comment period, UDOT received about 60 comments from the public and agencies, though most of the comments contained multiple comments within.

Most of the public comments addressed concerns over UDOT's selection of Alternative C as the preferred alternative and UDOT's methodology to assess congestion relief, as well as opposition to the preferred alternative because of the perception that it would not solve the transportation problems identified in the needs assessment evaluation area. Many commentors still believed that Alternative B—or another grade-separated alternative or bypass alternative—should have been selected. Other comments suggested other alternatives in addition to grade separation that were eliminated during either the Area Plan or the alternatives development and screening phases of the EIS. Some commentors also advocated for land use preservation or other transportation changes that are outside UDOT's authority or jurisdiction. UDOT also received comments in support of the preferred alternative.

Two participating agencies, the Utah Division of Wildlife Resources and the Central Wasatch Commission, submitted formal comments on the Draft EIS. The Utah Division of Wildlife Resources recommended wildlife crossing guards but primarily supported the Kimball Junction Project. The Central Wasatch Commission submitted its comment after the comment period and emphasized consideration of development, connectivity, active transportation, and wildlife. One cooperating agency, EPA, also submitted a formal comment providing recommendations on the water quality and air quality analyses in the Draft EIS.

Responses to these public and agency comments are included in Appendix 4A, *Responses to Comments on the Draft EIS*. Reproductions of the comments with attachments, along with copies of the public hearing transcripts, are included in Appendix 4B, *Reproductions of Comments on the Draft EIS with Attachments and Public Hearing Transcripts*.

UDOT released virtual content on the project website (https://kimballjunctioneis.udot.utah.gov) that included presentation slides, fact sheets, and videos and several options for providing comments. The presentation slides and fact sheets were also available in Spanish. Copies of the presentation slides and fact sheets are included in Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*.

4.4.7 Other Public Outreach

UDOT conducted additional outreach activities throughout the EIS process; some examples are provided below.

- **Social Media.** UDOT provided project updates and posted notifications of public meetings, public hearings, and comment periods on UDOT's social media channels including the main UDOT Facebook account, Region Two X (Twitter) account, and UDOT Wasatch Back Instagram account to reach members of the public who do not receive email notifications. These same notifications were made available to Park City and Summit County social media teams to share across multiple channels. Some examples of these social media posts are included in Appendix 4C, *Agency and Public Involvement Materials in Support of the Draft EIS*.
- **Non-digital Access Options.** Paper copies of the Draft EIS were made available to view at the following locations:
  - Summit County Library: 1885 W. Ute Boulevard, Park City
  - Park City Library: 1255 Park Avenue, Park City
  - Utah Department of Transportation: 4501 South 2700 West, Taylorsville
- **Frequently Asked Questions and Public Comments.** At the end of the scoping period and the comment period for the *Alternatives Development and Screening Methodology Report*, UDOT posted all public comments received. UDOT also produced a response document to frequently asked questions during each comment period. Emails were sent notifying the public when the materials were posted on the project website.
- **Podcast Appearance.** In August 2023 and again in April 2025, study team members appeared on an episode of the *Summit in Six* podcast and shared information about the project's history and next steps. This podcast is publicly available and shared throughout Summit County.

4.4.8 Project Website

The Kimball Junction Project website (https://kimballjunctioneis.udot.utah.gov) is accessible through the navigation menu on the home page of UDOT's website (https://www.udot.utah.gov/connect): click on "Projects," then "Future Projects," then "Studies," then "Current Studies," then "Kimball Junction EIS." The project website allows the public to view current Kimball Junction Project information. The website provides all project-related materials and is updated periodically as new information becomes available. Comments can be submitted to the project's public involvement coordinator through the site at any time. Both the Draft and Final EIS documents, associated appendices, and Record of Decision are posted on the website.

4.5 Conclusion

The goal of public and agency outreach processes was to gather input from local community members, tribes, regulatory agencies, and local governments to inform decisions regarding alternatives development, environmental impacts, and mitigation. Various outreach activities, including materials in Spanish, were implemented to ensure accessibility and gather diverse perspectives. The agency coordination involved local, state, and federal agencies to address resource management and permitting requirements.

UDOT has received input from city and county officials, residents, business owners and operators, and commuters in the Kimball Junction Project study area, as well as agency representatives. Most stakeholders have agreed that capacity and safety improvements are required in the Kimball Junction area. The public has identified planned development and traffic, desire for a grade-separated alternative, noise, impacts to open space and wildlife, business and economic impacts, highway congestion, and safety as their primary concerns.

Throughout the process, public and agency involvement was emphasized as crucial for project success. UDOT structured the planning process to consider substantive issues and community concerns related to the project's purpose and need; engineering solutions; and social, environmental, and economic impacts, among other factors.

4.6 References

[UDOT] Utah Department of Transportation

2022 Draft Purpose and Need Technical Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2022/12/Kimball_Jct_EIS-Draft-Purpose-and-Need_V5_12-15-2022.pdf. December 15.

2023a Scoping Summary Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2023/03/UDOT_KJEIS-Scoping-Summary-Report-3.24.23.pdf. March 23.

2023b Alternatives Development and Screening Methodology Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2023/04/UDOT_KJEIS-Screening-Methodology-Report-4.28.23.pdf. April 17.

2024a Kimball Junction EIS Coordination Plan. www.kimballjunctioneis.udot.utah.gov/resources. December 9.

2024b Draft Alternatives Development and Screening Results Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2024/02/UDOT_KJEIS_Alternatives_Development_and_Screening_Report_2024-02-26.pdf. February 26.

2024c Final Alternatives Development and Screening Results Report. https://kimballjunctioneis.udot.utah.gov/wp-content/uploads/2024/09/KJ-EIS-Final-Alternatives-Development-and-Screening-Report-2024-09-03.pdf. August 28.

2024d Resource Assessment Methodologies Report. October 17.

Chapter 5: List of Preparers

The following preparers played a significant role in the composition of this EIS. Because of the nature of this project, the list includes lead agencies, sponsoring agencies, outside consultants, and firms that were involved in and consulted regarding the EIS for the Kimball Junction Project.

Name and Title	Project Role	Education	Years of Experience
Utah Department of Transportation (UDOT)			
Rebecca Stromness, PE	Project Manager	BS, Civil Engineering	26
Carissa Watanabe, Environmental Program Manager	Environmental/NEPA Oversight	BS, Environmental Science, Chemistry	14
Brandon Weston, Environmental Services Director	Environmental Oversight	BS, Landscape Architecture	19
Rod Hess, Senior Landscape Architect	Wetlands Oversight	BA, Landscape Architecture and Environmental Planning AA, General Studies	22
Liz Robinson, Cultural Resources Program Manager	Cultural Resources Oversight	MA, Anthropology BA, Anthropology	22
Tyler Allen, Environmental Program Manager	Noise Oversight	MS, Bioregional Planning BS, Geography	12
Matt Howard, Natural Resources Manager	Biological Resources Oversight	BS, Conservation and Restoration Ecology	16
Naomi Kisen, Environmental Program Manager	Air Quality Oversight	BS, Ecology	19
HDR, Inc.			
Jeff Simmons, PE, ENV SP, UT Highways & Roads Business Class Leader	Project Manager	BS, Civil Engineering	35
Heidi Spoor, Senior NEPA Specialist/Project Manager	Environmental/NEPA Lead	BS, Civil and Environmental Engineering BA, English	25
Kelly Johnston, PE, Transportation Design Engineer	Project Engineer	BS, Civil and Environmental Engineering	11
Terry Warner, PE, Environmental Business Class Leader	Environmental Analyst—Hazardous Waste NEPA Quality Control	MS, Civil Engineering BS, Civil and Environmental Engineering	25
Amy Croft, PhD, Senior Biologist/Environmental Scientist	Environmental Analyst—Air Quality, Ecosystem Resources	PhD, Biology/Ecology MS, Plant Science BS, Biology	13
Jacob Flansberg, PE, Hydraulics Design Engineer	Environmental Analyst—Water Quality and Floodplains	BS, Civil Engineering	6
Mike Parsons, PE, Traffic Noise Analysis Manager	Noise Analyst	BS, Civil Engineering	26

(*Continued on next page*)

Name and Title	Project Role	Education	Years of Experience
HDR, Inc. (continued)			
Tyler Betz, Traffic Noise Analyst	Noise Analyst	BS, Geoenvironmental Studies	6
Kevin Kilpatrick, Senior Transportation NEPA Project Manager	Environmental Analyst—Noise NEPA Quality Control	MS, Bioregional Planning BS, Applied Mathematics	17
Joshua McMillin, Environmental Scientist	Environmental Analyst—Ecosystem Resources, Visual and Aesthetic Resources, Energy	BS, Civil and Environmental Engineering BS, Biology	5
Kaitlin Marousis, PTP, NEPA Specialist	Environmental Analyst—Land Use, Community and Property, Economics	MS, GIS BA, Environmental Science	17
Michael Perkins, Biology and Environmental Compliance Manager	Environmental Analyst—Biological Resources, Wetland Resources	MS, Environmental Science/ Studies BS, Biological, Life Science	18
Kate Wollman, Environmental Scientist	Environmental Analyst—Right-of-way	MS, Fisheries Sciences BS, Biology and Environmental Science	7
Adrian Sellars, GIS Manager	GIS Analyst	MS, GIS BS, Environmental Planning and Management	10
Travis Tzioumis, GIS Analyst	GIS Analyst	BS, Resource Conservation AA, General Studies	8
Zachary Lehmann, Senior Environmental Scientist	GIS Analyst	BS, Wildlife Conservation	18
Carrie Ulrich, Senior Technical Editor	Technical Editor	MS, English BS, Environmental Studies	26
Parametrix			
Charles Allen, PE, PTOE, Senior Transportation Engineer	Transportation Analyst	MS, Civil Engineering BS, Civil Engineering	16
Kai Tohinaka, AICP, Senior Planner	Transportation Analyst—Pedestrian and Bicyclist Issues	MS, City and Metropolitan Planning BS, Urban Planning	14
Dina Elnashar, Traffic Engineer	Transportation Analyst	MS, Transportation Engineering BS, Civil Engineering	17
Tim Peterson, Planner	Transportation Analyst	BS, Rural, Urban, and Environmental Planning	18
Penna Powers			
Brianna Binnebose, Account Planner	Mass Communications Lead	MS, Public Policy BA, Political Science and Government	13
Marisa Cooper, Project Manager	Communications and Public Outreach	BA, Communication	4
Ryan Williams, Senior Graphic Designer	Graphic Designer	BFA, Graphic Design	13
V-I-A Consulting			
Kim Clark, PE, Owner	Government Outreach and Facilitation	BS, Civil Engineering	31

Chapter 6: Distribution

The following agencies and organizations were notified that the Final EIS was available on the project website and that an electronic copy could be provided on request.

Federal Agencies

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service

Native American Tribes

Eastern Shoshone Tribe of the Wind River Reservation

Northwestern Band of the Shoshone Nation

Shoshone-Bannock Tribes of the Fort Hall Reservation

Skull Valley Band of Goshutes

Ute Indian Tribe of the Uintah and Ouray Reservation

State Agencies

Governor's Office, Resource Development Coordinating Committee

Utah Division of Wildlife Resources

Regional and Local Agencies and Special Service Districts

Utah Transit Authority

Mountainland Association of Governments

Central Wasatch Commission

Summit County

Park City

High Valley Transit

Mountain Regional Water Special Service District

Snyderville Basin Special Recreation District

Snyderville Basin Water Reclamation District

Elected Officials

Senator John D. Johnson – Utah Senate, District 3

Senator Ronald M. Winterton – Utah Senate, District 20

Representative Tiara Auxier – Utah House of Representatives, District 4

Representative Hoang Nguyen – Utah House of Representatives, District 23

Representative Mike L. Kohler – Utah House of Representatives, District 59

Tonja Hanson, Summit County Council Chair

Shayne Scott, Summit County Manager

Nann Worel, Park City Mayor

Locations with Hard Copies

Summit County Public Library, 1885 W. Ute Boulevard, Park City

Park City Library, 1255 Park Avenue, Park City

UDOT Headquarters, 4501 South 2700 West, Salt Lake City

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