Little Cottonwood Canyon ENVIRONMENTAL IMPACT STATEMENT
S.R. 210 | Wasatch Blvd. to Alta

REVISED DRAFT

Section 4(f)/6(f) Evaluation

Little Cottonwood Canyon

S.R. 210 | Wasatch Boulevard to Alta

in Cottonwood Heights, Sandy, the Town of Alta, and Salt Lake County, Utah

Utah Department of Transportation

UDOT Project No. S-R299(281)

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 dated January 17, 2017 and executed by FHWA and UDOT.

UDOT Keeping Utah Moving

December 2021

Chapter 26: Revised Draft Section 4(f) and Section 6(f) Evaluation

26.1 Introduction

26.1.1 Revised Draft Section 4(f) and Section 6(f) Evaluation and Public Review

To keep a consistent format between Chapter 26 in the Draft Environmental Impact Statement (EIS) and this revised Chapter 26, the outline of this chapter follows the same format and chapter number as the Chapter 26 in the Little Cottonwood Canyon Draft EIS released for public review on June 25, 2021.

26.1.1.1 Revised Draft Section 4(f) and Section 6(f) Evaluation

The Utah Department of Transportation (UDOT) published the Little Cottonwood Canyon Draft EIS on June 25, 2021, followed by a 70-day public comment period that concluded on September 3, 2021. Following the comment period and based on public comments, UDOT and the U.S. Department of Agriculture (USDA) Forest Service determined that it would be appropriate to combine two recreation resources that had been evaluated separately into a single Section 4(f) recreation resource and to further delineate and characterize the resulting Section 4(f) property and related impact analysis. In light of this development, UDOT decided to prepare a revised version of Draft EIS Chapter 26, Section 4(f) and Section 6(f) Evaluation.

The primary differences between this chapter and the one published on June 25, 2021, are that the Alpenbock Loop Trail, the Grit Mill Trailhead, and the area between the two are evaluated as a single Section 4(f) property and recreation resource referred to as Alpenbock Loop and Grit Mill Climbing Opportunities, and that further refinements have been made regarding the significance of features in that area.

26.1.1.2 Public Review and Comment

The regulation at 23 Code of Federal Regulations (CFR) Section 774.5, Coordination, requires that, before making a final *de minimis* impact determination for a Section 4(f) recreation area, the lead agency (in this case, UDOT) must issue a public notice and provide an opportunity for public review and comment concerning the effects of the proposed action (in this case, the State Route [S.R.] 210 Project) on the protected activities, features, or attributes of the property. The release of this chapter serves as the start of the 30-day public review period for the Revised Draft EIS Chapter 26, Section 4(f) and Section 6(f) Evaluation. During the 30-day public review, UDOT is requesting and accepting only comments specific to the revisions to this chapter, and UDOT will respond to these comments in the Final EIS. Because the public had the opportunity to comment on the Draft EIS Chapter 26, comments unrelated to the revisions to this chapter will not be considered or responded to in the Final EIS.

26.1.2 Introduction to Section 4(f) and Section 6(f)

This chapter addresses the requirements of Section 4(f) of the Department of Transportation Act of 1966 and Section 6(f) of the Land and Water Conservation Fund Act of 1965 for the State Route (S.R.) 210 Project. Section 4(f) applies to significant publicly owned parks, recreation areas, and wildlife and waterfowl refuges, and to significant publicly or privately owned historic properties. Section 6(f) applies to properties that received financial assistance from the Land and Water Conservation Fund State Assistance Program.

This chapter identifies Section 4(f) resources, determines impacts to those resources, identifies measures to minimize harm where necessary, analyzes the alternative with the least overall harm, and describes the coordination efforts made to address Section 4(f) issues and concerns. This chapter also discusses efforts and coordination to identify Section 6(f) resources.

Section 4(f)/Section 6(f) Study Area. The Section 4(f)/Section 6(f) study area is the same as the cultural resources impact analysis area described in Chapter 15, Cultural Resources. It is generally based on a 100-foot-wide buffer on either side of S.R. 210, from north of the intersection with Big Cottonwood Canyon Road (milepost [MP] 0.0) and extending southeast to the end of S.R. 210 in the town of Alta (MP 12.5), including the Alta Bypass Road (MP 12.5 to MP 13.6). The study area shifts or widens in some locations to accommodate the topography of Little Cottonwood Canyon and the project alternatives.

The study area also includes the area around the gravel pit adjacent to Wasatch Boulevard north of Fort Union Boulevard and the existing Utah Transit Authority park-and-ride lot at 9400 South and Highland Drive. The study area includes land that could be affected through right-of-way acquisition, easement, or permit.

What is the Section 4(f)/ Section 6(f) study area?

The Section 4(f)/Section 6(f) study area is generally based on a 100-foot-wide buffer on either side of S.R. 210, from north of the intersection with Big Cottonwood Canyon Road and extending southeast to the end of S.R. 210 in the town of Alta, including the Alta Bypass Road.

26.2 Regulatory Setting

26.2.1 Section 4(f)

26.2.1.1 Section 4(f) Regulations

Section 4(f) of the Department of Transportation Act of 1966 is codified at 49 United States Code (USC) Section 303, *Policy on Lands, Wildlife and Waterfowl Refuges, and Historic Sites*. It governs the use of land from publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public or private historic sites.

The requirements of Section 4(f) apply only to agencies within the U.S. Department of Transportation: the Federal Highway Administration (FHWA), the Federal Transit Administration, the Federal Railroad Administration, and the Federal Aviation Administration. FHWA's Section 4(f) regulations, entitled *Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites*, are codified at 23 CFR Part 774.

What is Section 4(f)?

Section 4(f) is an element of law and FHWA regulations that requires a project to avoid the use of protected historic properties and park and recreation areas unless there is no feasible and prudent alternative to such use or unless the lead agency determines that the impacts would be *de minimis*. If the project would use protected properties, all possible planning must be undertaken to minimize harm to these properties.

NEPA Assignment. Pursuant to 23 USC Section 327, UDOT has assumed FHWA's responsibilities under the National Environmental Policy Act of 1969 (NEPA) and all or part of the responsibilities of the Secretary of the U.S. Department of Transportation for environmental review, consultation, or other actions required or arising under federal environmental laws, including Section 4(f) and Section 6(f) with respect to the review or approval of highway projects in the state. Therefore, where the law and regulations refer to FHWA or the Secretary of Transportation, UDOT has assumed those responsibilities. FHWA has also developed guidance in the form of the *Section 4(f) Policy Paper* (FHWA 2012).

26.2.1.2 Definition of Section 4(f) Properties

A Section 4(f) property is defined as any of the following:

- Parks and recreation areas of national, state, or local significance that are both publicly owned and open to the public
- Publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public to the extent that public access does not interfere with the primary purpose of the refuge
- Historic sites of national, state, or local significance in public or private ownership regardless of whether they are open to the public

Parks and Recreation Areas. Section 4(f) applies to significant publicly owned parks and recreation areas that are open to the public. The land must be officially designated as a park or recreation area, and the officials with jurisdiction of the land must determine that its primary purpose is as a park or recreation area. The term *significant* means that, in comparing the availability and function of the property with the recreation objectives of the agency or community authority, the property in question plays an important role in meeting those objectives. Park and recreation areas that are on privately owned land are not Section 4(f) properties, even if they are open to the public. However, if a governmental body has a permanent easement, or in some cases a long-term lease, UDOT will determine on a case-by-case basis whether Section 4(f) applies.

Section 4(f) can apply to planned parks and recreation areas. Section 4(f) applies when the land is publicly owned and the public agency that owns the property has formally designated and determined it to be significant for park or recreation purposes. The key is whether the planned facility is presently publicly owned, presently formally designated for Section 4(f) purposes, and presently significant.

Section 4(f) applicability for multiple-use public land holdings such as the Uinta-Wasatch-Cache National Forest is defined in 23 CFR Section 774.11(d). Section 4(f) applies only to those portions of lands that function for or are designated in USDA Forest Service plans as being for significant park, recreation, or wildlife and waterfowl refuge purposes. The determination regarding which lands so function or are so designated, and the significance of those lands, is made by the USDA Forest Service as the official(s) with jurisdiction. Unofficial paths or trails that are not formally designated or maintained by a public agency are not considered Section 4(f) resources.

Historic Sites. Historic sites include any prehistoric or historic district, site, building, structure, or object. Section 4(f) applies to historic sites that are listed in or eligible for listing in the National Register of Historic Places (NRHP), unless UDOT determines that an exception under 23 CFR Section 774.13 applies. An exception would apply if UDOT concludes that a site eligible for inclusion in the NRHP "is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place" [23 CFR Section 774.13(b)(1)].

26.2.1.3 Determination of Use

Use in the context of Section 4(f) is defined in 23 CFR Section 774.17.

Use. The most common form of use is when land is permanently incorporated into a transportation facility. This occurs either when land from a Section 4(f) property is purchased outright as transportation right of way or when permanent access onto the property such as a permanent easement for maintenance or other transportation-related purpose is granted.

Temporary Occupancy (Use or Exception). A second type of use of Section 4(f) property or resources is a *temporary occupancy*. This results when a Section 4(f) property, in whole or in part, is required for activities related to project construction. With temporary occupancy, the Section 4(f) property is not permanently incorporated into a transportation facility, but the activity is considered to be adverse in terms of the preservation purpose of Section 4(f) law and is therefore considered a Section 4(f) use.

The regulation at 23 CFR Section 774.13(d) excepts from the requirements of Section 4(f) temporary occupancies of land that are so minimal as to not constitute a use within the meaning of Section 4(f). The following conditions must be satisfied:

1. Duration must be temporary, and there should be no change in ownership of the land;
2. The scope of the work must be minor;
3. There are no anticipated permanent adverse physical impacts, nor would there be interference with the protected activities, features, or attributes of the property;
4. The land being used must be fully restored; and
5. There must be documented agreement of the officials with jurisdiction over the Section 4(f) resource regarding the above conditions.

Temporary occupancies of this kind can occur during the construction process and, if they truly cause no interference, are excepted from the requirement for Section 4(f) approval. As stated in the regulations, temporary occupancy also requires written concurrence from the officials with jurisdiction if the exception criteria listed above are applied. If all of the conditions in Section 774.13(d) are met, the temporary occupancy does not constitute a use. However, if one or more of the conditions for the exception cannot be met, then the temporary occupancy of the Section 4(f) property is considered a "use" by the project even though the duration of on-site activities would be temporary and the ownership of the property would not change.

Constructive Use. In addition to actual, physical use of Section 4(f) property or resources (whether through direct use or temporary occupancy), case law and the FHWA regulations at 23 CFR Section 774.15 recognize that an impact to Section 4(f) resources can occur based on a project's proximity, if the project substantially impairs the value of the Section 4(f) resource. This can also be a "use" and is called *constructive use*. It is defined in the FHWA regulations as occurring

> … when the transportation project does not incorporate land from a Section 4(f) resource, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify a property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes are substantially diminished. [23 CFR Section 774.15(a)]

A constructive use determination is rare. It is unusual for proximity impacts to be so great that the purpose of the property that qualifies the resource for protection would be substantially diminished. Although UDOT has assumed most of FHWA's responsibilities for environmental review, consultation, and other actions under Section 4(f), UDOT cannot make a constructive use determination without first consulting with FHWA and obtaining FHWA's views on such a determination. Per the Memorandum of Understanding between FHWA and UDOT regarding NEPA assignment (FHWA 2017), if FHWA raises an objection, then UDOT agrees not to proceed with a constructive-use determination.

26.2.1.4 Approval Options

Once UDOT determines that a project might use a Section 4(f) property, there are three methods available for UDOT to approve the use:

1. Make a *de minimis* impact determination;
2. Conclude that specific conditions in an approved programmatic Section 4(f) evaluation are met; or
3. Prepare an individual Section 4(f) evaluation and conclude that there is no feasible and prudent alternative that completely avoids the use of the Section 4(f) property, that the project includes all possible planning to minimize harm, and that, if there are multiple alternatives with use(s) that have greater–than–*de minimis* impacts, the alternative with least overall harm is selected.

UDOT has determined that both a *de minimis* impact determination and an individual Section 4(f) evaluation would be applicable for this project. Requirements for making a *de minimis* impact determination and the requirements for making an individual Section 4(f) evaluation are described below. A programmatic Section 4(f) evaluation is not applicable for this project and is not discussed further.

Requirements for Making a Finding of *De Minimis* Impact.
A *de minimis* impact determination is made for the net impact on the Section 4(f) property after considering any measures (such as avoidance, minimization, mitigation, or enhancement measures) to minimize harm to the property.

For historic properties, a *de minimis* impact finding may be made only if there is a finding under the National Historic Preservation Act that a transportation project will have "no adverse effect" or there will be "no historic properties affected" and the State Historic Preservation Officer (SHPO) has concurred with the finding in writing [49 USC Section 303(d)(2) and 23 CFR Section 774.5(b)].

For parks, recreation areas, and wildlife refuges, the Secretary of Transportation may make a finding of *de minimis* impact only if:

> **What is a *de minimis* impact?**
>
> For historic sites, a *de minimis* impact means that the historic property would not be affected by the project or that the project would have "no adverse effect" on the historic property.
>
> For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the activities, features, or attributes of a property that is eligible for protection under Section 4(f).

(A) the Secretary has determined, after public notice and opportunity for public review and comment, that the transportation program or project will not adversely affect the activities, features, and attributes of the park, recreation area, or wildlife or waterfowl refuge eligible for protection under this section; and

(B) the finding of the Secretary has received concurrence from the officials with jurisdiction over the park, recreation area, or wildlife or waterfowl refuge. [49 USC Section 303(d)(3)]

Requirements for Individual Section 4(f) Evaluations. An individual Section 4(f) evaluation must be completed when approving a project that requires the use of a Section 4(f) property if the use would result in a greater–than–*de minimis* impact and a programmatic Section 4(f) evaluation cannot be applied to the situation. The individual Section 4(f) evaluation requires two findings to approve the use with greater–than–*de minimis* impact [23 CFR Section 774.3(a)]:

1. That there is no feasible and prudent alternative that completely avoids the use of the Section 4(f) property; and
2. That the project includes all possible planning to minimize harm to the Section 4(f) property resulting from the transportation use.

UDOT has determined that an individual Section 4(f) evaluation is required for this project and has documented the evaluation in this chapter. One Section 4(f) property would have a use with greater–than–*de minimis* impact from the avalanche mitigation alternatives as described in Section 26.5, Use of Section 4(f) Resources. More information regarding feasible and prudent avoidance alternatives is provided in Section 26.6, Avoidance Alternatives. More information regarding all possible planning to minimize harm is provided in Section 26.7, Least Overall Harm Analysis, and Section 26.8, Measures to Minimize Harm.

Pursuant to FHWA guidance, an individual Section 4(f) evaluation contained in a Draft EIS is also considered draft, and the conclusions and determinations of the evaluation are considered preliminary (FHWA 2012, Sections 3.3.3.2 and 4.0). UDOT will consider any comments on this draft evaluation and will include the final Section 4(f) evaluation in the Final EIS.

26.2.2 Section 6(f)

The Land and Water Conservation Fund (LWCF) Act of 1965, as amended, is codified at 16 USC Section 4601-4 and subsequent sections. The purpose of the act is to assist in preserving, developing, and ensuring accessibility to outdoor recreation resources for present and future generations. Section 6(f) of this act applies to properties that receive funding from the LWCF State Assistance Program. Section 6(f) includes provisions to protect the federal investment and quality of the resources developed with LWCF assistance. Conversion of a Section 6(f) property to uses other than outdoor recreation (such as transportation uses) requires a replacement property of equal value and approval from the National Park Service. Section 6(f) does not apply to the LWCF Federal Acquisition Program.

26.3 Proposed Action

This section briefly summarizes the project purpose and need and the alternatives under consideration. A detailed discussion of the purpose and need is provided in Chapter 1, Purpose and Need. A detailed discussion of the alternative development and screening process is provided in Chapter 2, Alternatives.

26.3.1 Summary of the Project Purpose and Need

26.3.1.1 Project Purpose

UDOT's purpose for the S.R. 210 Project is reflected in one primary objective for S.R. 210: to substantially improve roadway safety, reliability, and mobility on S.R. 210 from Fort Union Boulevard through the town of Alta for all users on S.R. 210.

26.3.1.2 Need for the Project

The transportation needs in the study area are related primarily to traffic during peak periods, avalanche risk and avalanche mitigation in Little Cottonwood Canyon, multiple on-road users in constrained areas, and anticipated future increases in visitation to Little Cottonwood Canyon as a result of population growth in Utah. The following deficiencies occur on S.R. 210:

- Decreased mobility in winter during the morning (AM) and afternoon (PM) peak travel periods related to visits to ski areas, with the greatest traffic volumes on weekends and holidays and during and after snowstorms.
- Decreased mobility on Wasatch Boulevard resulting from weekday commuter traffic.
- Safety concerns associated with avalanche hazard and traffic delays caused by the current avalanche-mitigation program in Little Cottonwood Canyon. Periodic road closures for avalanche mitigation can cause 2-to-4-hour travel delays or longer, which can cause traffic to back up in the neighborhoods at the entrance of the canyon.

- Limited parking at trailheads and ski areas that leads to roadside parking. The consequences of roadside parking include:
  - Reduced mobility on S.R. 210 near trailheads and at ski areas
  - Loss of shoulder area for cyclists and pedestrians, which forces them into the roadway travel lane and creates a safety concern
  - Creation of informal trailheads that contribute to erosion, mineral soil loss, the spread of invasive weeds, degradation of the watershed, and loss of native vegetation in the canyon
  - Damage to the pavement along the roadway edge, which causes increased soil erosion, runoff into nearby streams, and degradation of the watershed

26.3.2 Alternatives Considered

The evaluation of environmental impacts in this EIS is organized by primary action alternative and sub-alternative.

26.3.2.1 Primary Action Alternatives

Based on the results of the screening processes, five primary action alternatives were determined to meet the project's purpose and were advanced for detailed evaluation in this EIS. The five primary action alternatives under consideration are summarized below.

The **Enhanced Bus Service Alternative** includes frequent bus service from two mobility hubs, improvements to Wasatch Boulevard, avalanche mitigation alternatives, trailhead parking alternatives, and no winter parking on S.R. 210 near the Snowbird and Alta ski resorts.

The **Enhanced Bus Service in Peak-period Shoulder Lane Alternative** is similar to the Enhanced Bus Service Alternative but also widens S.R. 210 in Little Cottonwood Canyon for an upgraded roadway shoulder that functions as a bus-only travel lane during periods of peak congestion.

Gondola Alternative A (Starting at Canyon Entrance) includes a gondola alignment from the intersection of S.R. 209/S.R. 210 to both the Snowbird and Alta ski resorts. The alternative would include frequent bus service from two mobility hubs to the gondola base station, improvements to Wasatch Boulevard, avalanche mitigation alternatives, trailhead parking alternatives, and no winter parking.

Gondola Alternative B (Starting at La Caille) would be similar to Gondola Alternative A, but an additional segment starting at a base station would be located at a proposed development west of North Little Cottonwood Road, about 0.75 mile northwest of the intersection of S.R. 209 and S.R. 210.

The **Cog Rail Alternative (Starting at La Caille)** would start at a base station located at a proposed development south of North Little Cottonwood Road, about 0.75 mile northwest of the intersection of S.R. 209 and S.R. 210, and would travel on the north side of S.R. 210 to both the Snowbird and Alta ski resorts. The alternative would include frequent bus service from two mobility hubs to the cog rail base station, improvements to Wasatch Boulevard, avalanche mitigation alternatives, trailhead parking alternatives, and no winter parking.

26.3.2.2 Sub-alternatives

In addition, sub-alternatives, or options, would be included in each primary action alternative or could be implemented as a stand-alone improvement. The sub-alternatives under consideration are summarized below.

The **Wasatch Boulevard sub-alternatives** would improve mobility on Wasatch Boulevard from Fort Union Boulevard to North Little Cottonwood Road.

- The Imbalanced-lane Alternative includes one northbound travel lane, two southbound travel lanes, and a center two-way left-turn lane.
- The Five-lane Alternative includes two travel lanes in each direction and a center two-way left-turn lane.

The **Mobility Hubs Alternative** would provide personal vehicle parking to support transit alternatives.

- One mobility hub would be located at the gravel pit on the east side of Wasatch Boulevard between 6200 South and Fort Union Boulevard.
- A second mobility hub would be located at the existing park-and-ride lot at 9400 South and Highland Drive.

The **avalanche mitigation sub-alternatives** would improve reliability by reducing road closures for avalanche control and would improve safety by reducing the avalanche risk to the traveling public. Two avalanche mitigation alternatives are under evaluation, both of which include snow sheds at three main avalanche paths.

What is a snow shed?

A snow shed is a rigid concrete and/or steel structure that protects a road by diverting avalanche flows over the top of the structure.

- The Snow Sheds with Berms Alternative includes 300-foot-long, 20-foot-tall guiding berms to direct avalanche flows over the snow sheds to reduce snow shed length.
- The Snow Sheds with Realigned Road Alternative includes realignment of S.R. 210 to the north to reduce fill, improve the ability to tie snow sheds into the mountain, and improve curves and vehicle sight distances.

The **trailhead parking sub-alternatives** would improve mobility and safety on S.R. 210 in Little Cottonwood Canyon. The differences between the trailhead parking alternatives are (1) whether trailheads are improved at four trailhead parking areas: the Gate Buttress, Bridge, Lisa Falls, and White Pine Trailheads; and (2) the locations where parking is allowed on the roadside.

- Trailhead Improvements and No S.R. 210 Roadside Parking within ¼ Mile of Trailheads Alternative
- Trailhead Improvements and No Roadside Parking from S.R. 209/S.R. 210 Intersection to Snowbird Entry 1 Alternative
- No Trailhead Improvements and No Roadside Parking from S.R. 209/S.R. 210 Intersection to Snowbird Entry 1 Alternative

The **No Winter Parking Alternative** would eliminate roadside parking on S.R. 210 during the winter near the Snowbird and Alta ski resorts.

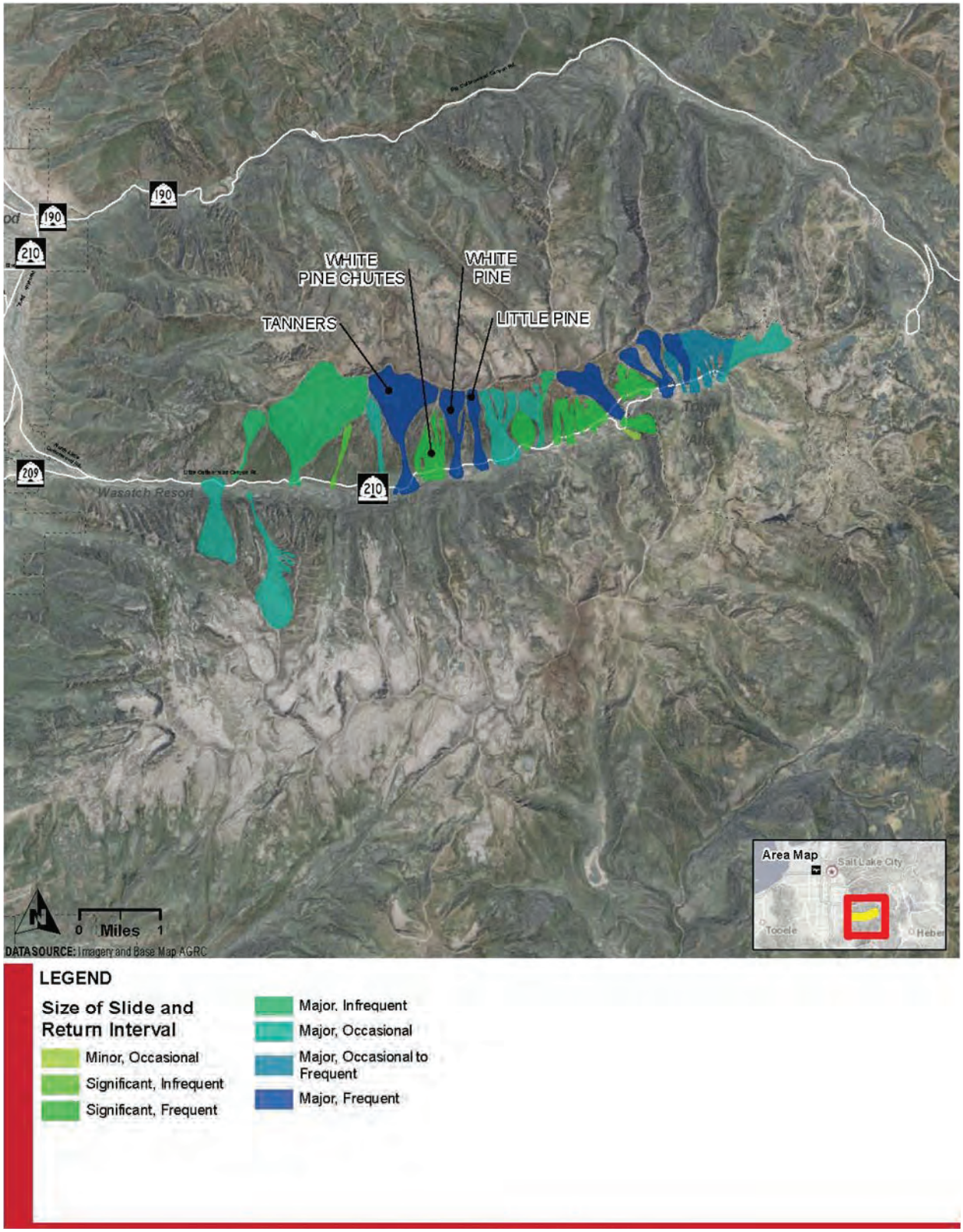
26.3.2.2.1 Avalanche Mitigation Sub-alternatives

This section describes the avalanche mitigation alternatives in greater detail because they would result in the use of a Section 4(f) property with greater–than–*de minimis* impact. This detailed information provides context for the discussion of avoidance alternatives in Section 26.6, Avoidance Alternatives.

Three avalanche paths were identified as the most critical with respect to risk to S.R. 210. These paths, shown in Figure 26.3-1, are the highest priority for avalanche mitigation (Dynamic Avalanche Consulting 2018a).

Two avalanche mitigation alternatives are being evaluated: the Snow Sheds with Berms Alternative and the Snow Sheds with Realigned Road Alternative. Both alternatives include snow sheds for three main avalanche paths (White Pine Chutes, White Pine, and Little Pine). Of all the avalanche mitigation measures evaluated by UDOT, snow sheds offer the most reduction in avalanche risk and would help keep S.R. 210 open more often.

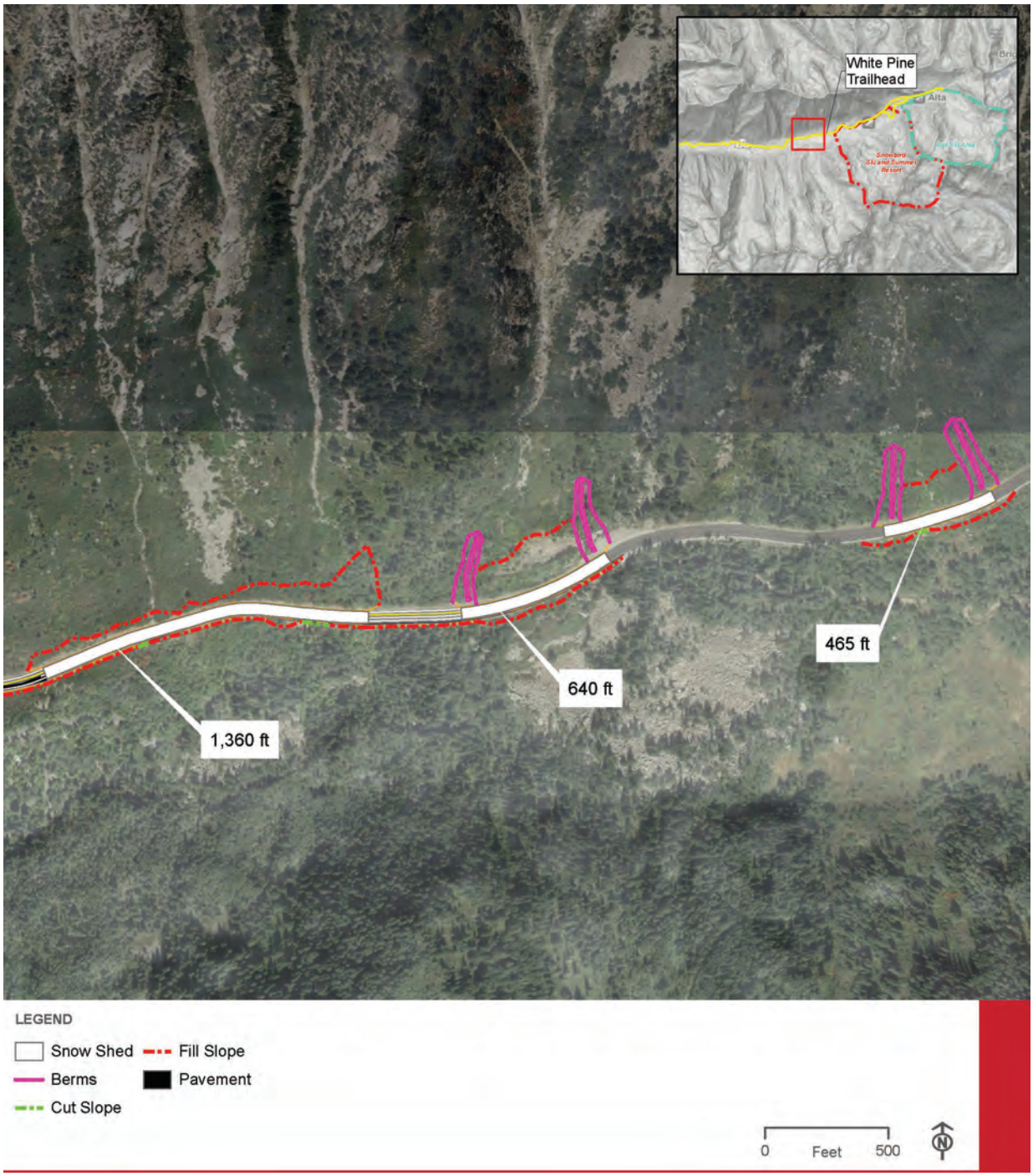
Figure 26.3-1. Avalanche Path Size and Return Interval



Snow Sheds with Berms Sub-alternative

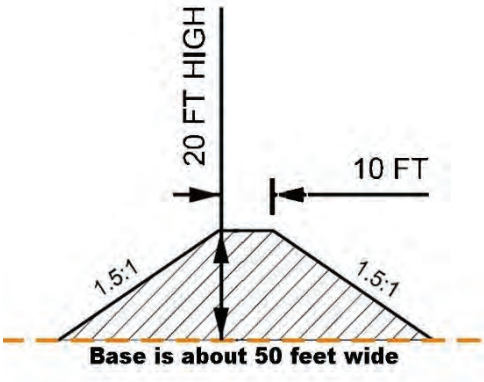
The Snow Sheds with Berms Alternative includes three separate snow sheds as shown in Figure 26.3-2. The White Pine Chutes 1–4 snow shed would be about 1,360 feet long, the White Pine snow shed would be about 640 feet long; and the Little Pine snow shed would be about 465 feet long.

Figure 26.3-2. Avalanche Mitigation Alternatives – Snow Sheds with Berms Alternative



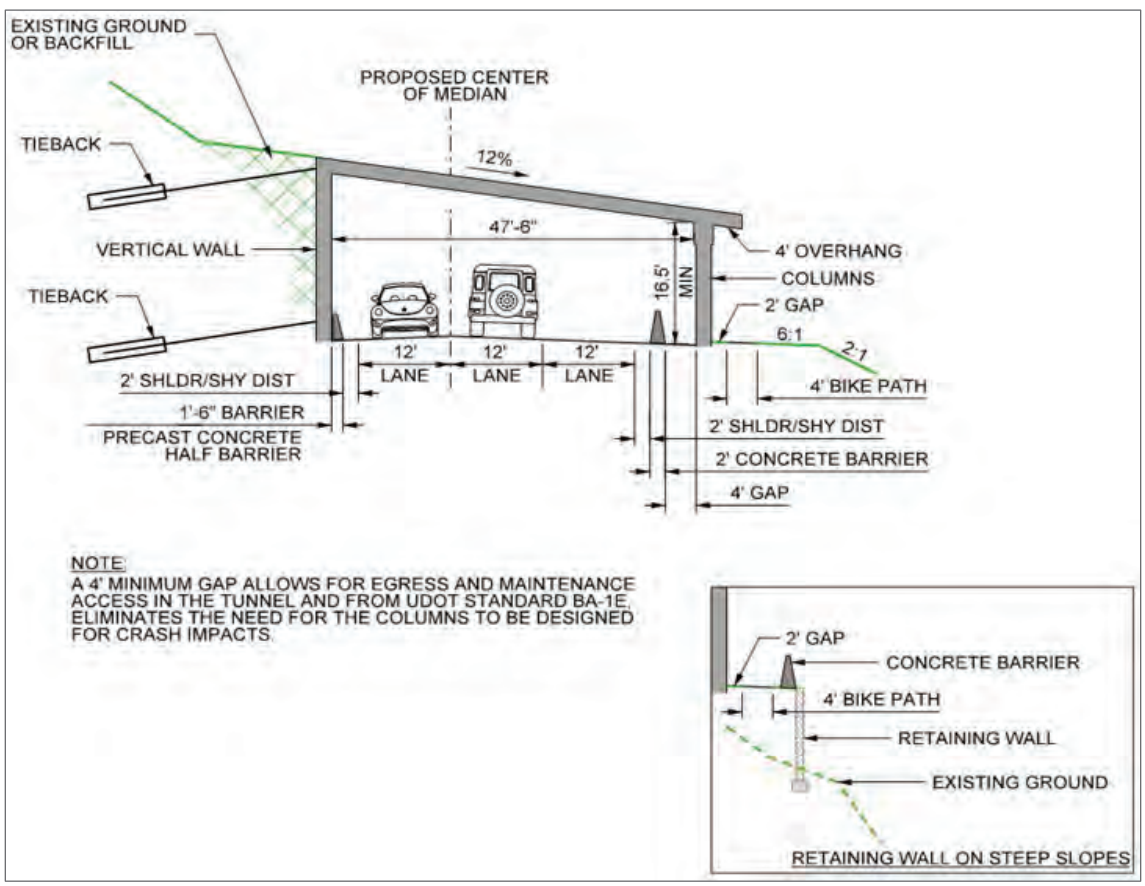
This alternative includes the use of earthen guiding berms at the two eastern snow sheds to direct avalanche flows over the shed and shorten the required length of the snow shed structure, which would reduce costs. The guiding berms would be about 300 feet long and 10 feet wide. The berms would be constructed up the mountain side from the tops of the shed portals and would extend along the avalanche paths to help direct avalanche flows across the tops of the sheds. The berm geometry was assumed to be 20 feet high and 10 feet wide at the top, with 1.5:1 (horizontal:vertical) side slopes. Figure 26.3-3 shows a typical cross-section of the earthen guiding berm.

Figure 26.3-3. Earthen Berm Cross-section



As shown in Figure 26.3-4, the snow shed design would accommodate a bicycle path on the outside of the snow shed; cyclists would also be allowed in the snow sheds. The tie-backs shown in Figure 26.3-4 would be used where the snow shed is close to the mountain. When the snow shed is not close to the mountain, engineered fill would be placed behind the snow shed to allow the avalanche flow to run over the top of the snow shed. The snow shed tie-backs would be placed in the engineered fill.

Figure 26.3-4. Snow Shed Design

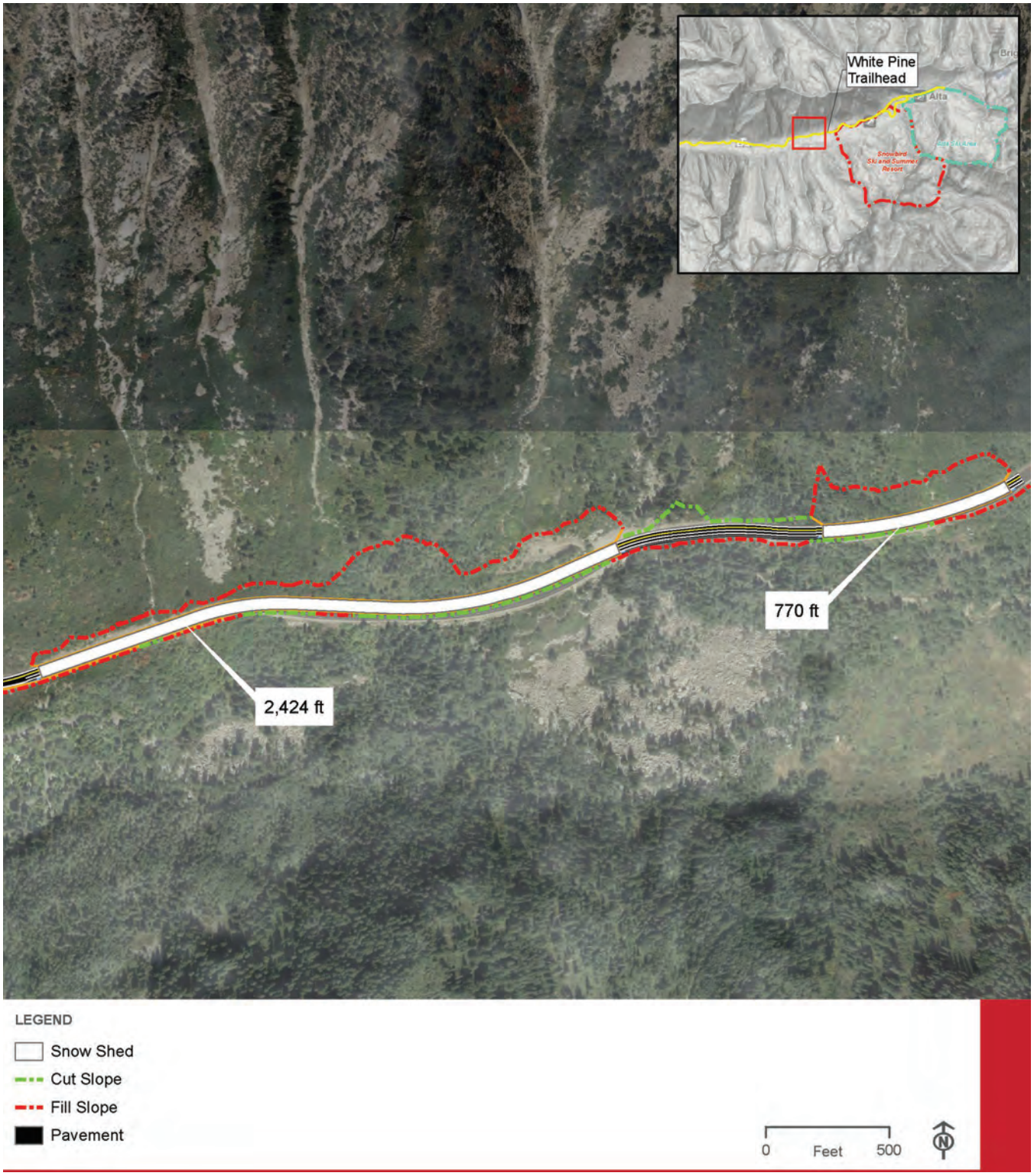


Snow Sheds with Realigned Road Alternative

The Snow Sheds with Realigned Road Alternative includes two snow sheds. The White Pine Chutes and White Pine snow shed would be combined in a single shed about 2,424 feet long, and the Little Pine snow shed would be about 770 feet long to help ensure that avalanche flows pass over the top of the shed. The existing road would be realigned to be closer to the mountain side in order to reduce the amounts of fill needed behind the snow sheds as well as to improve curve radii and sight distances inside the snow sheds.

The sight distances on the existing alignment inside the sheds would be suitable for a design speed of 30 miles per hour (mph). The realigned road with snow sheds would be suitable for a 35-mph design speed. However, the Snow Sheds with Realigned Road Alternative would require UDOT to fully reconstruct the roadway cross-section and potentially relocate all utilities in the project area, including between the sheds and along the roadway leading up to the snow shed zone. Figure 26.3-5 shows this layout.

Figure 26.3-5. Avalanche Mitigation Alternatives – Snow Sheds with Realigned Road Alternative



26.4 Affected Environment

26.4.1 Identification of Section 4(f) Resources

This section discusses the Section 4(f) resources that could be affected by the project alternatives. These resources include historic properties as well as public parks and recreation areas. There are no wildlife or waterfowl refuges in the study area. This section also includes a discussion regarding the resources that were evaluated for Section 4(f) eligibility that ultimately were determined to not be Section 4(f) resources.

26.4.1.1 Identification of Section 4(f) Historic Properties

Section 4(f) applies to historic properties that are included in, or eligible for inclusion in, the NRHP unless UDOT determines that an exception under 23 CFR Section 774.13 applies.

26.4.1.1.1 Section 4(f) Historic Buildings

A field survey and architectural assessment of the study area identified 84 historic buildings that are included in or eligible for inclusion in the NRHP. During the survey, 5 additional properties with potentially eligible historic buildings could not be evaluated because they were not visible from the public right of way. These 5 properties are considered eligible for the purpose of this evaluation. All 89 historic buildings are considered Section 4(f) properties and are shown in Figure 26.4-1 through Figure 26.4-11.

For a detailed description of these historic buildings and the process used under Section 106 of the National Historic Preservation Act to determine a resource's eligibility for the NRHP, see Chapter 15, Cultural Resources. The Utah SHPO concurred with the eligibility and effects determinations made by UDOT in the Determinations of Eligibility and Findings of Effect (DOE/FOE) on May 14, 2021. A copy of the concurrence letter is included in Appendix 15B, Determinations of Eligibility and Findings of Effect.

Figure 26.4-1. Section 4(f) Resources (1 of 11)

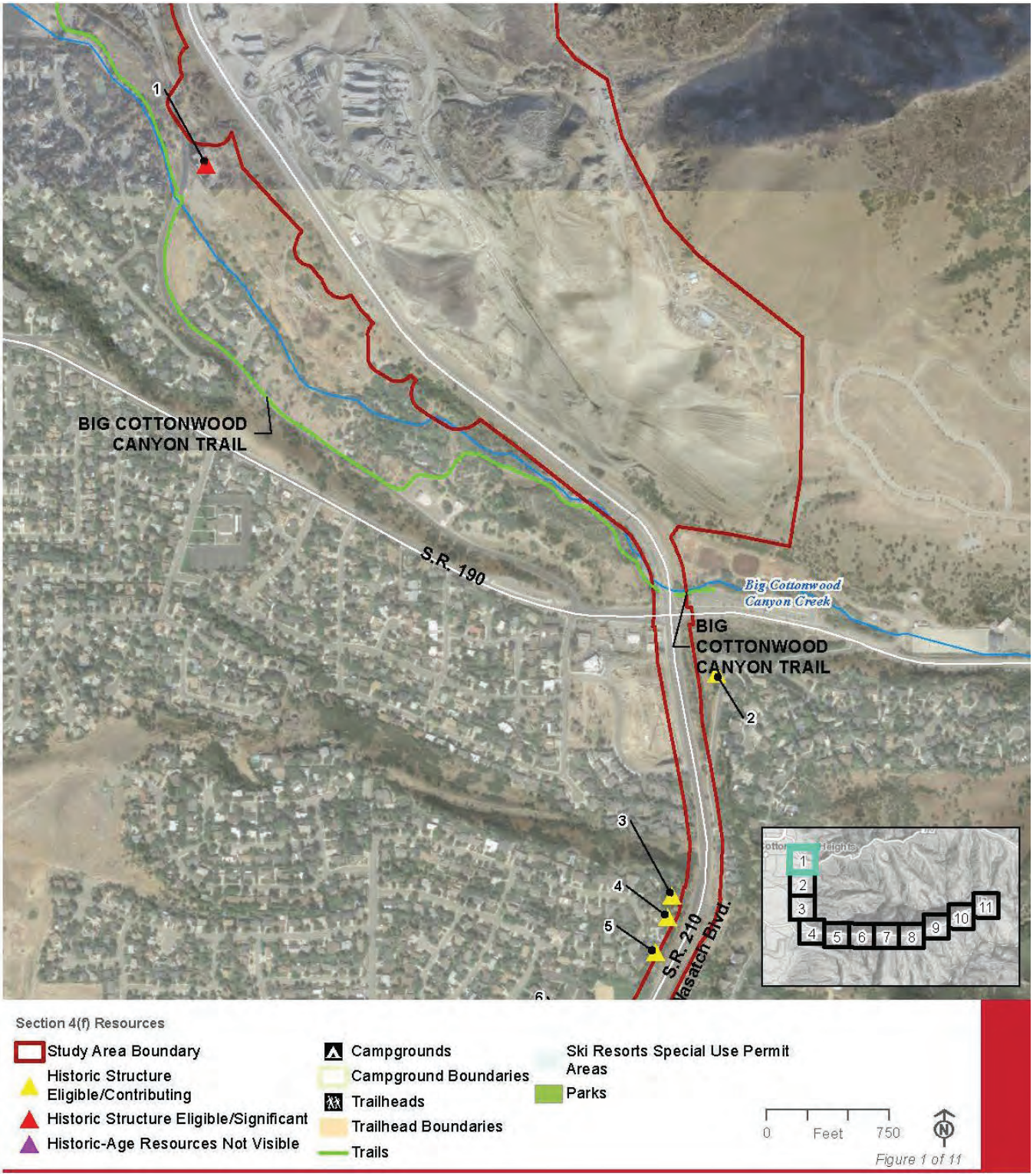


Figure 26.4-2. Section 4(f) Resources (2 of 11)

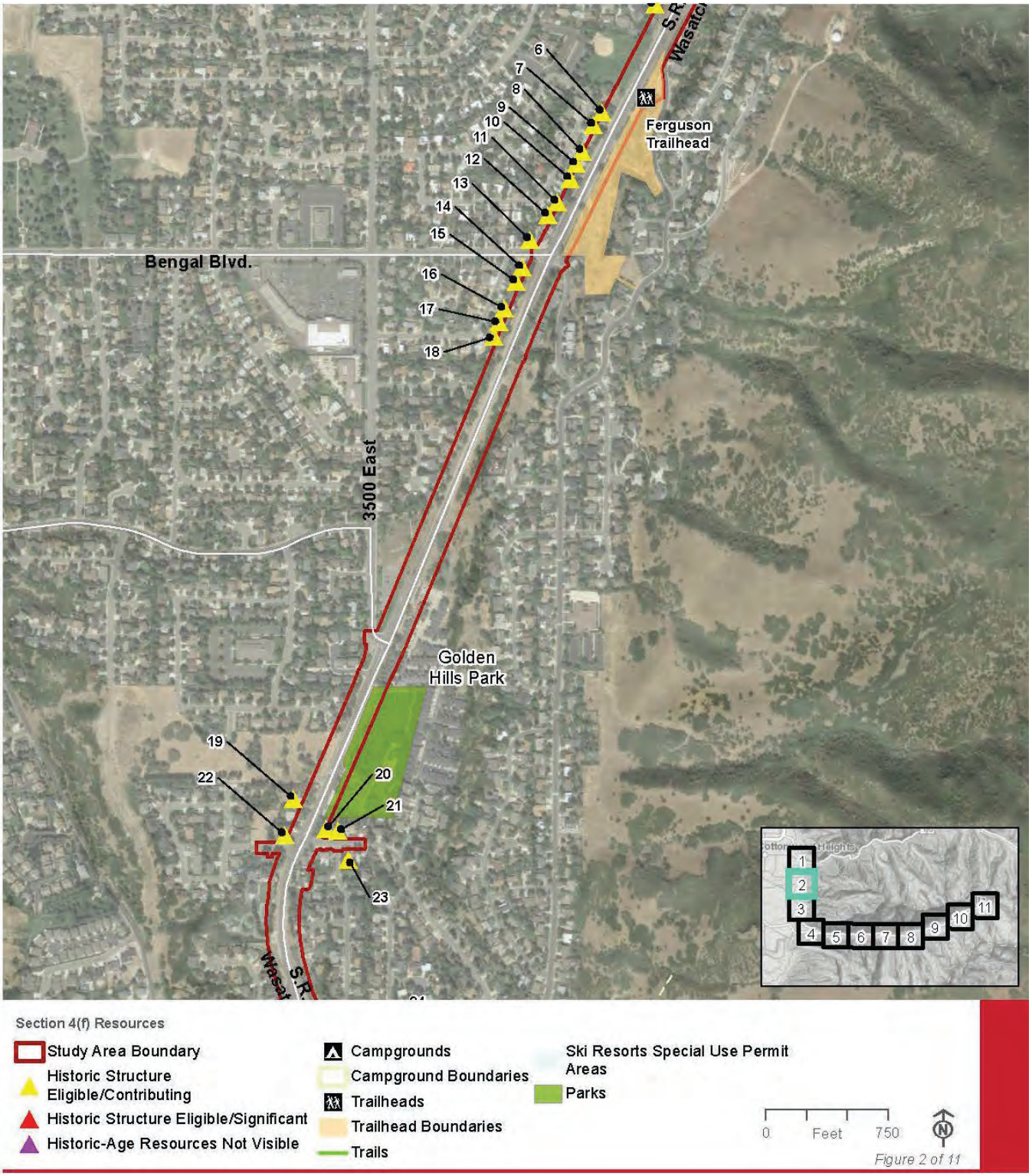


Figure 26.4-3. Section 4(f) Resources (3 of 11)

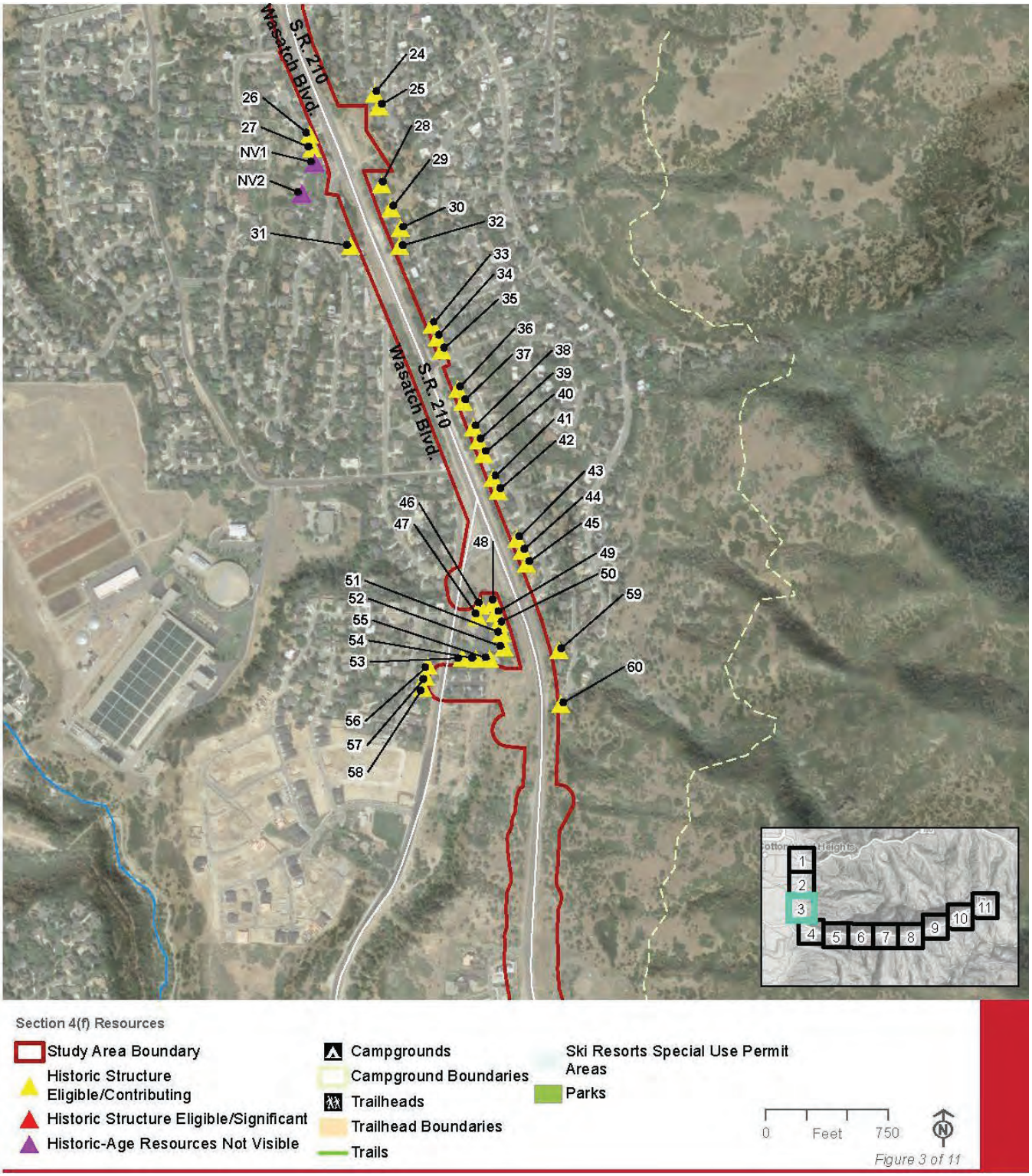
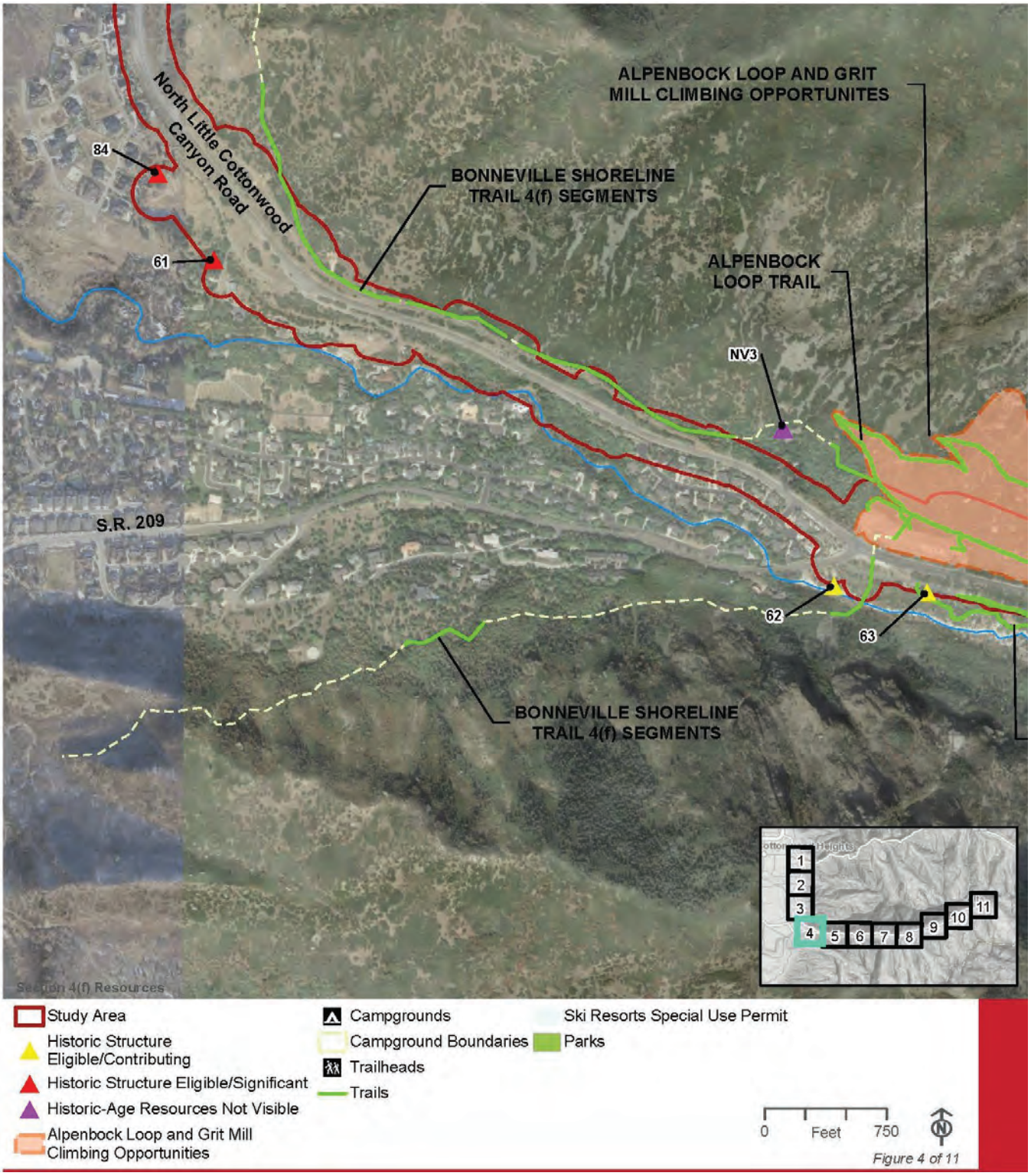


Figure 26.4-4. Section 4(f) Resources (4 of 11)



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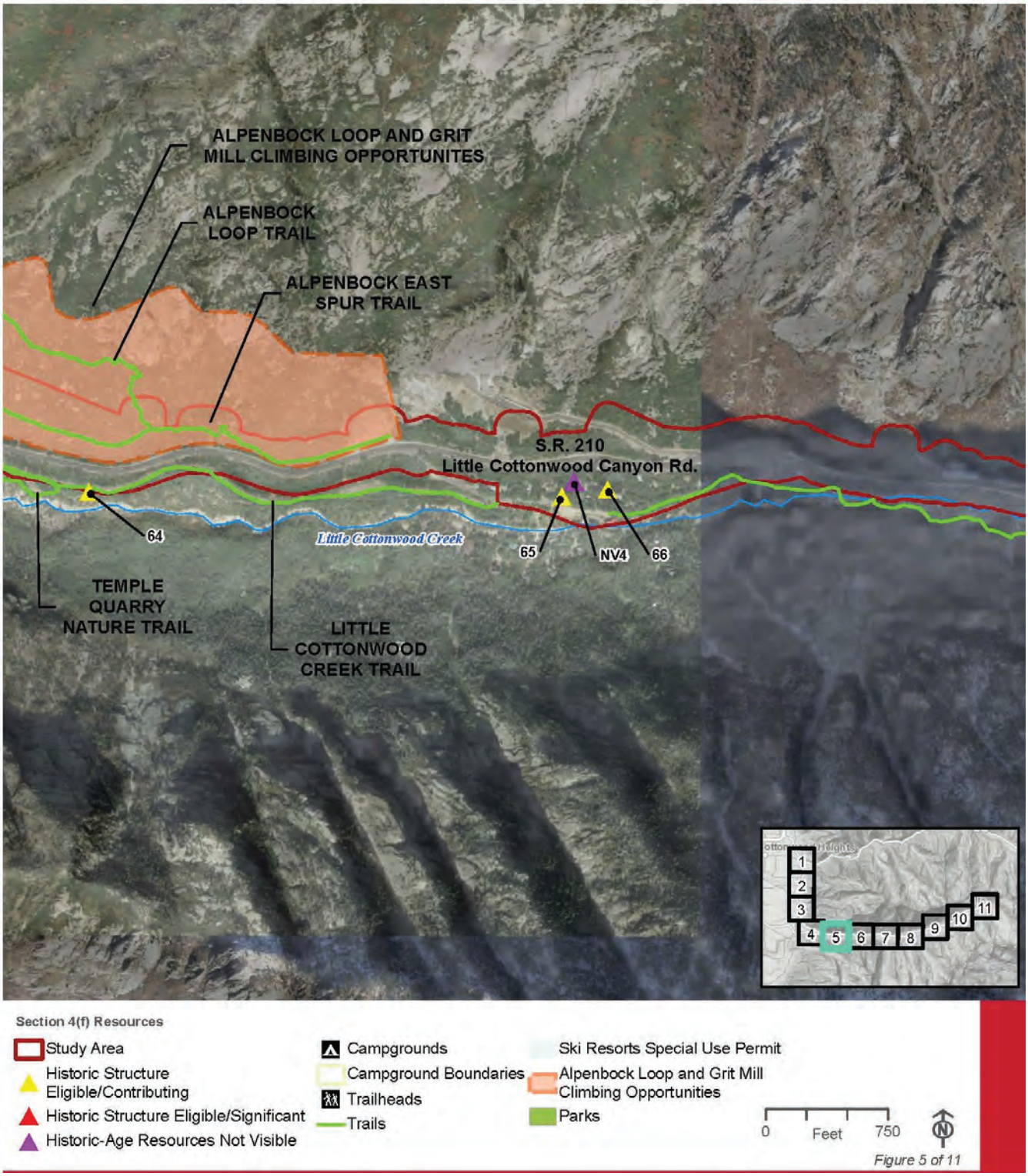


Figure 26.4-6. Section 4(f) Resources (6 of 11)

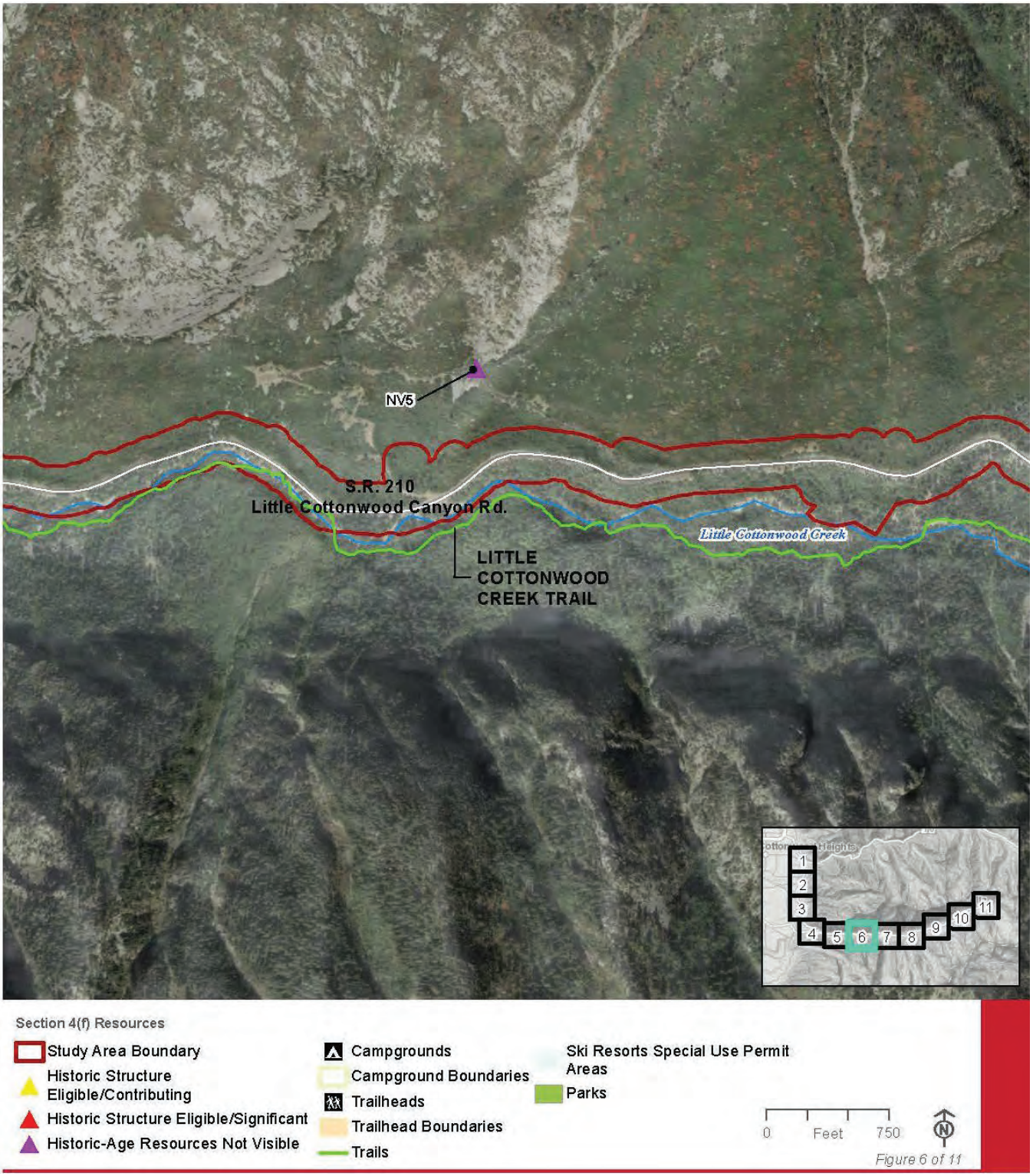


Figure 26.4-7. Section 4(f) Resources (7 of 11)

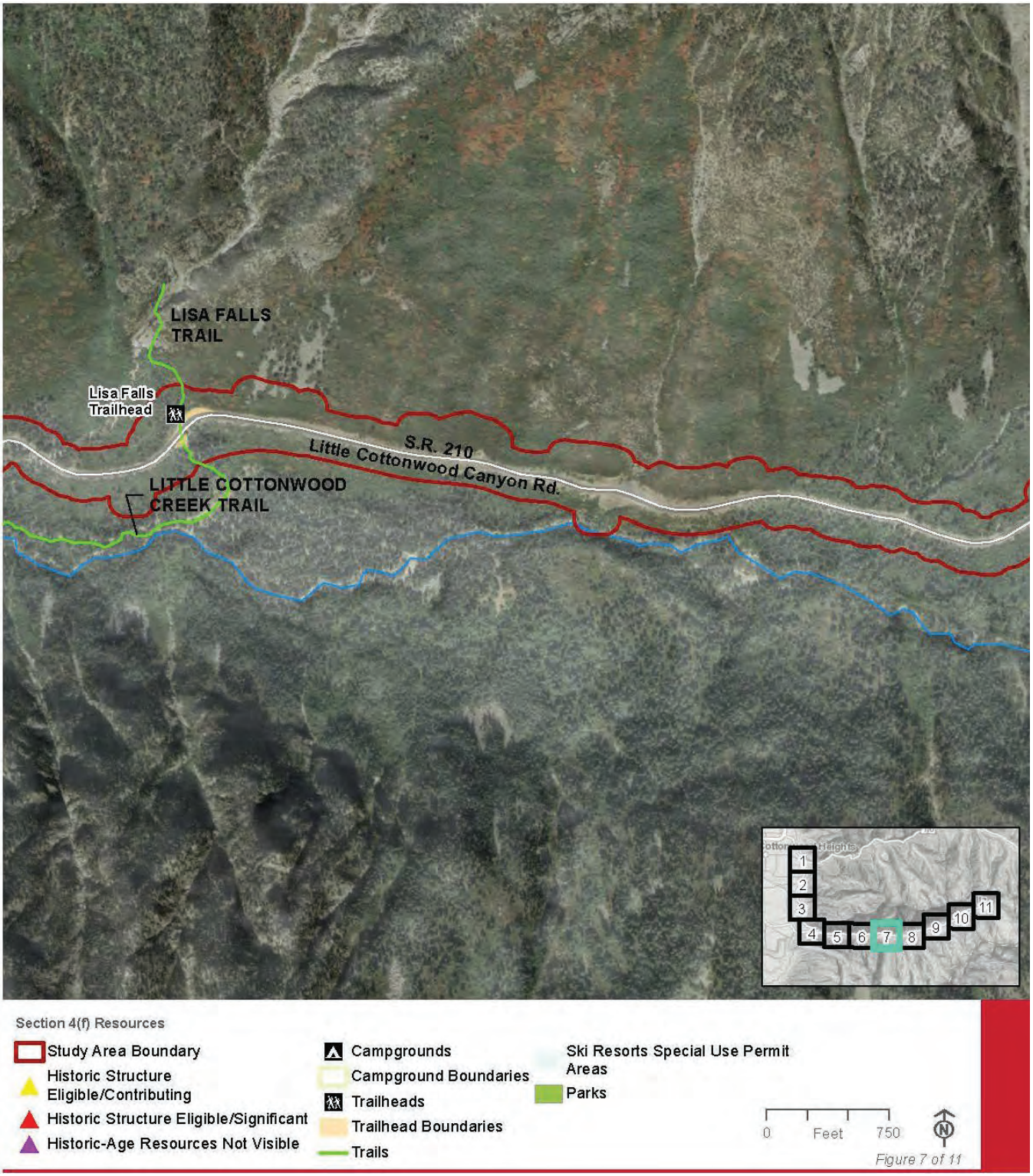


Figure 26.4-8. Section 4(f) Resources (8 of 11)

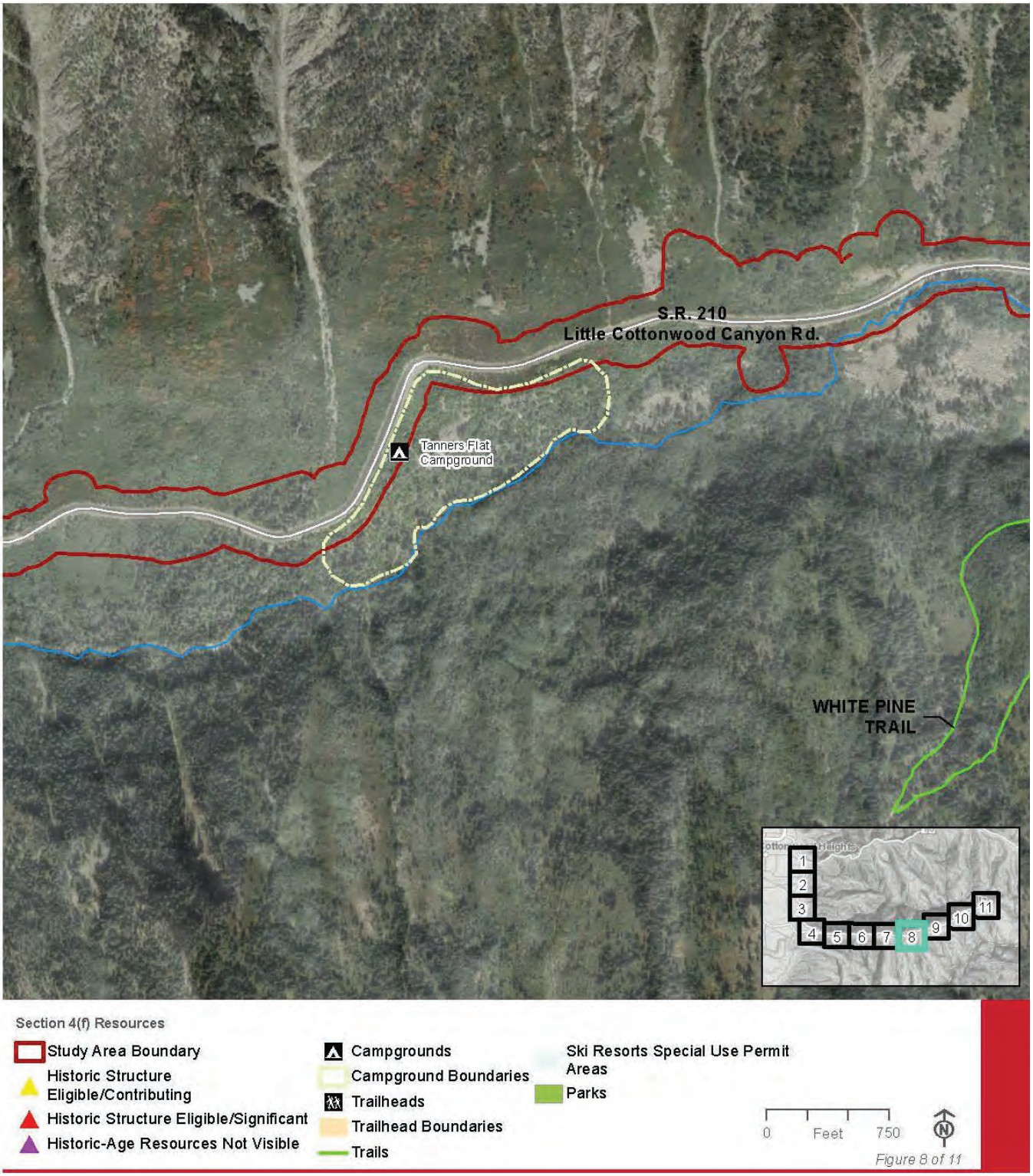


Figure 26.4-9. Section 4(f) Resources (9 of 11)

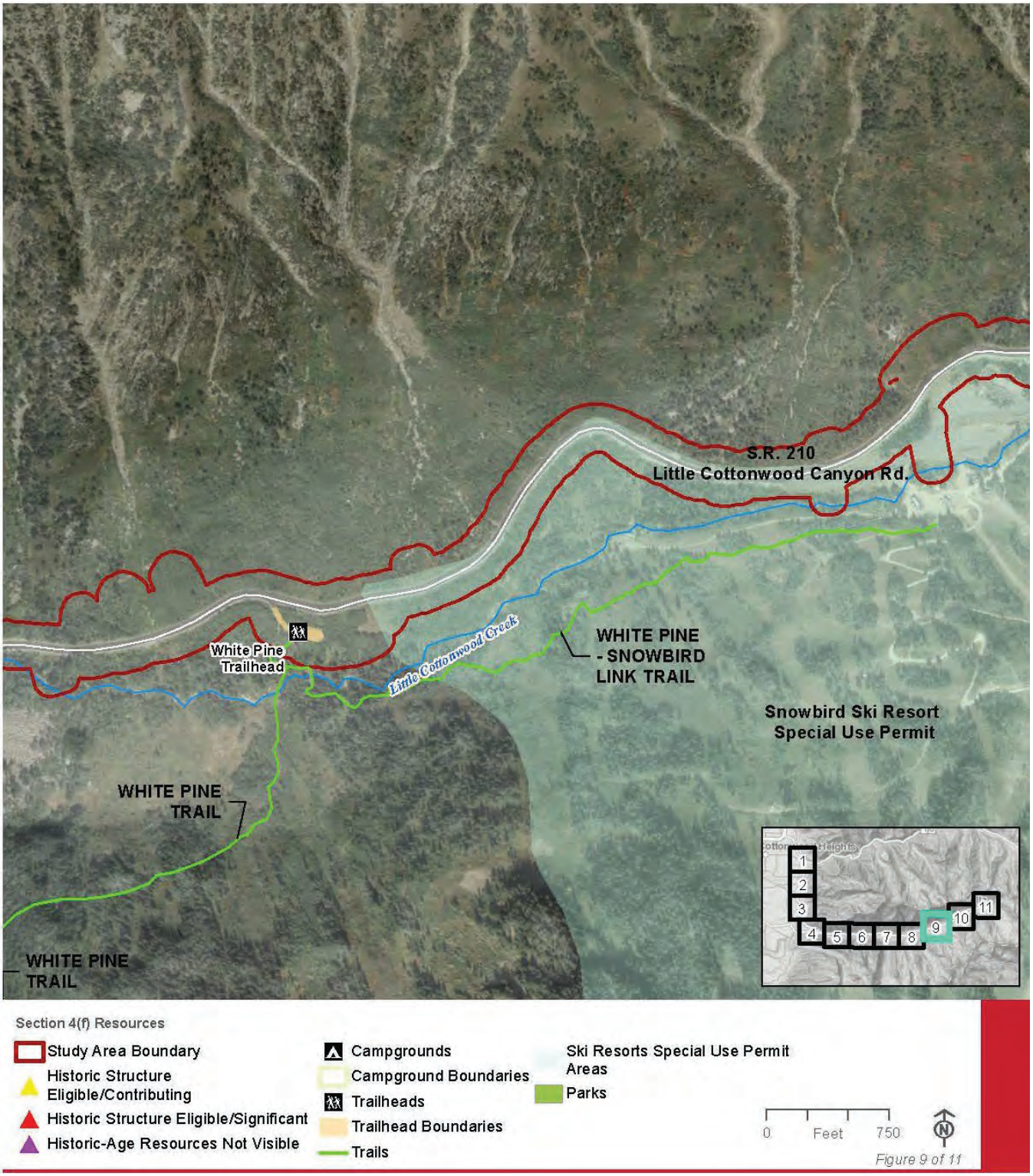


Figure 26.4-10. Section 4(f) Resources (10 of 11)

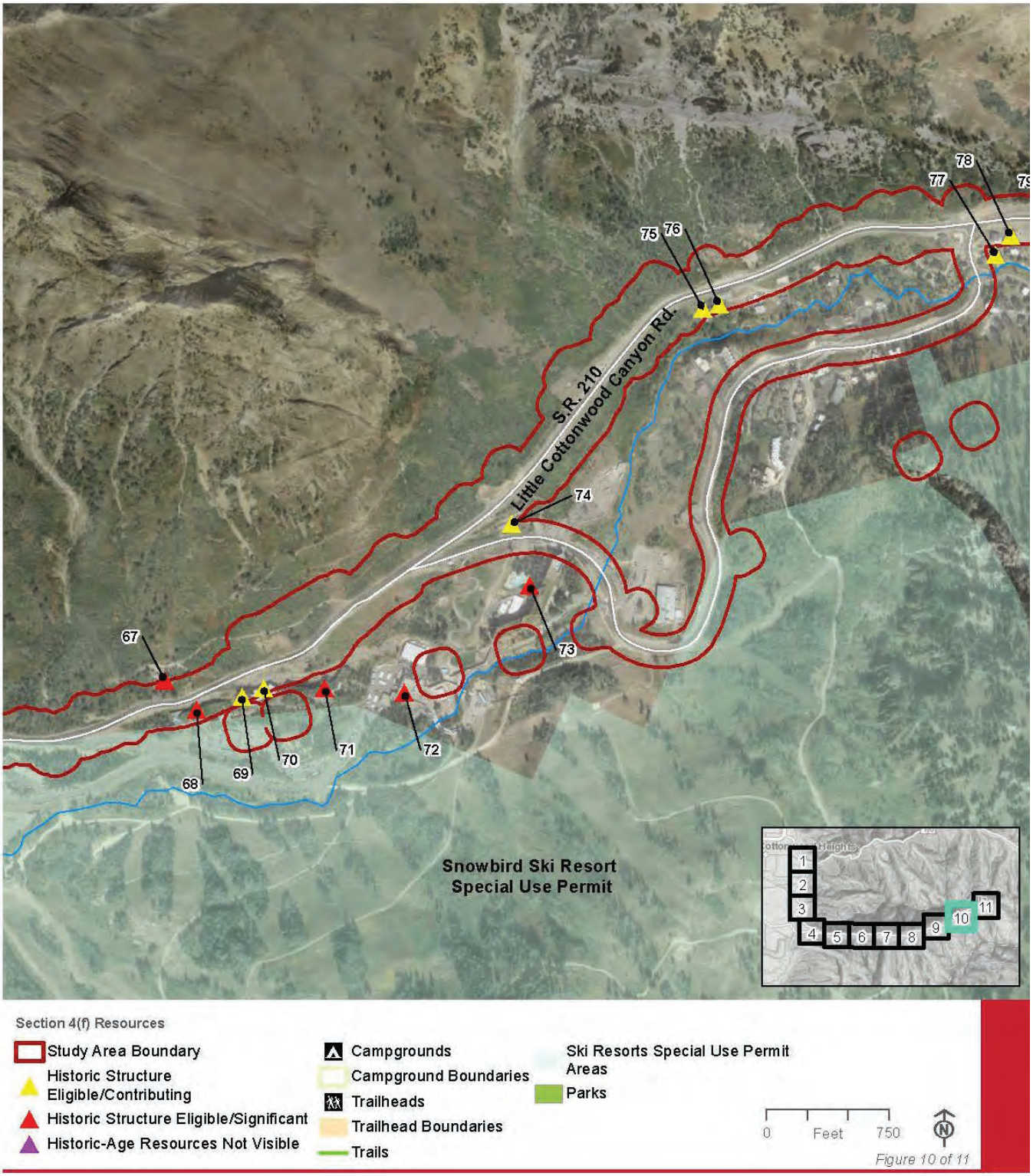
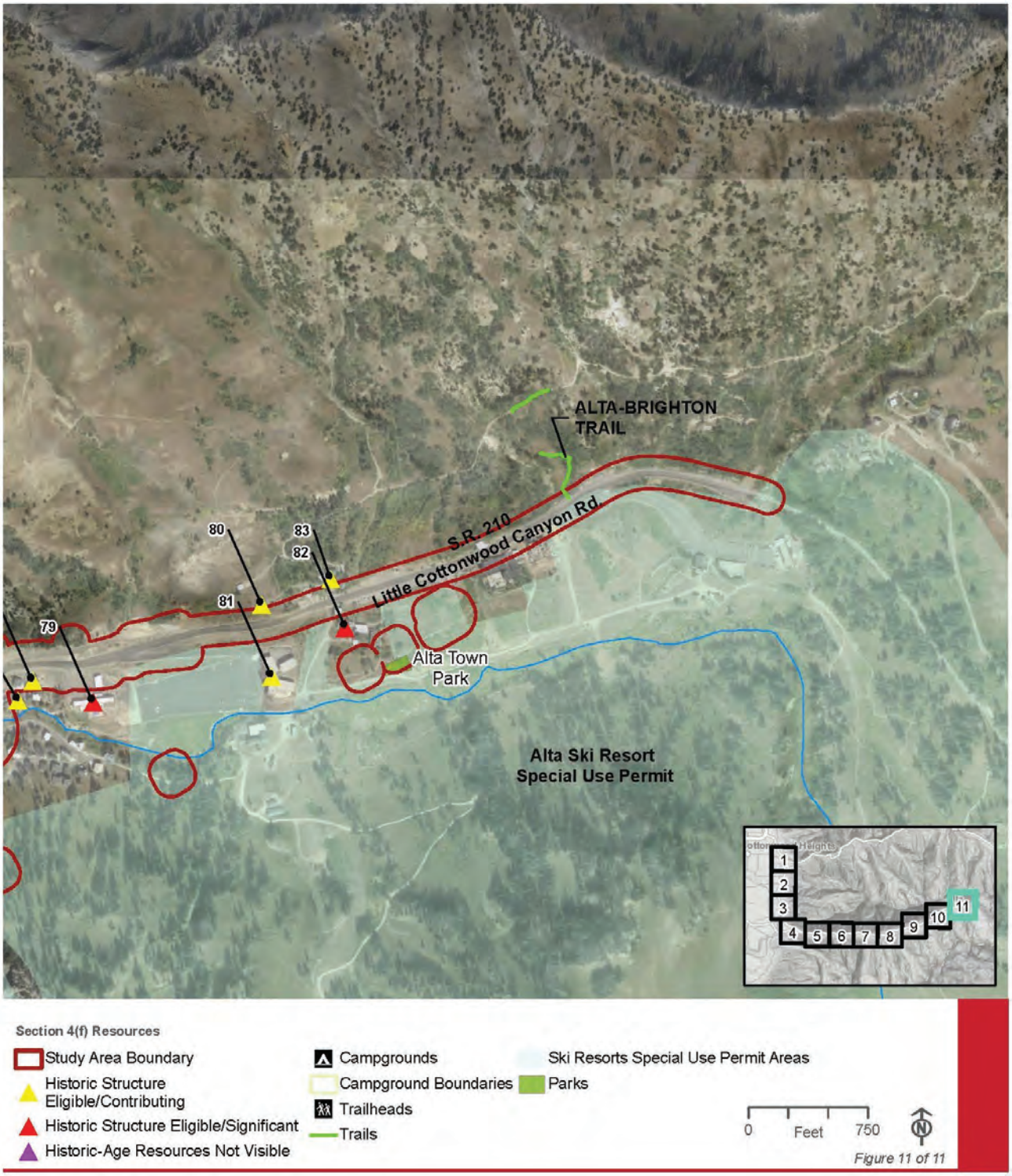


Figure 26.4-11. Section 4(f) Resources (11 of 11)



26.4.1.1.2 Archaeological Sites

Eight eligible archaeological sites located in the study area could be impacted by the action alternatives as listed in Table 26.4-1. The regulation at 23 CFR Section 774.13(b)(1) states that Section 4(f) does not apply if UDOT determines, after consultation with the SHPO, that "… the archeological resource is important chiefly because of what can be learned by data recovery and has minimal value for preservation in place."

UDOT determined that an exception under 23 CFR Section 774.13 applies to seven of the archaeological sites, as described in Table 26.4-1. UDOT notified the Utah SHPO in the DOE/FOE of its proposed findings that these archaeological sites do not warrant preservation in place. The Utah SHPO concurred on May 14, 2021 (Appendix 15B, Determinations of Eligibility and Findings of Effect).

Table 26.4-1. Section 4(f) Applicability for NRHP-eligible Archaeological Sites

Site No.	Site Name	NRHP Evaluation	Considerations	Section 4(f) Resource?
42SL52	Town Site of Alta	Eligible (Criteria A and D)	Eligible under Criterion A for its association with early mining, exploration, and settlement patterns of the Wasatch Mountains and the Salt Lake Valley. Eligible under Criterion D for the information that can be learned from intact buried deposits at the site. However, the site does not warrant preservation in place due to heavy impacts from erosion and modern construction. The integrity of feeling, workmanship, materials, and setting are not retained. Therefore, site qualifies for the exception under 23 CFR Section 774.13.	No
42SL109	Little Cottonwood Grit Mill Property	Eligible (Criteria A and D)	Eligible under Criterion A for its association with early mining, exploration, and settlement patterns in the Salt Lake Valley. Eligible under Criterion D for the information that can be learned from remaining evidence of quarry activity and from potential features in areas that were not accessible during the survey. However, the site does not warrant preservation in place due to extensive modern impacts and continual, heavy recreational public use. The integrity of feeling, design, and setting are not retained. Therefore, site qualifies for the exception under 23 CFR Section 774.13.	No
42SL419	D&RGW Railroad/Wasatch & Jordan Valley Railroad/Salt Lake & Alta	Eligible (Criterion A)	Eligible under Criterion A for its association with early mining, exploration, and settlement patterns in the Wasatch Mountains and the Salt Lake Valley. The majority of the site's contents have likely been destroyed by the construction of S.R. 210. However, two disconnected segments of retaining wall remain intact: an eastern segment (known colloquially as the "China Wall") and a western segment near White Pine Fork. These remaining segments retain their integrity of location, materials, workmanship, and design. The site warrants preservation in place.	Yes

(*continued on next page*)

Table 26.4-1. Section 4(f) Applicability for NRHP-eligible Archaeological Sites

Site No.	Site Name	NRHP Evaluation	Considerations	Section 4(f) Resource?
42SL549	Whitmore Temple Granite Power Plant	Eligible (Criterion A)	Eligible under Criterion A for its association with early mining, exploration, resource use, and settlement patterns in the Wasatch Mountains and the Salt Lake Valley. However, the site does not warrant preservation in place due to partial demolition and heavy public use. The integrity of design, workmanship, and setting are not retained.	No
42SL740	Alta Prince of Wales Road	Eligible (Criteria A, C, and D)	Eligible under Criterion A for its association with early mining, exploration, and settlement patterns in the Wasatch Mountains and the Salt Lake Valley. Eligible under Criterion C because it is characteristic of historic mining roads and is unique because it links Big and Little Cottonwood Canyons at their east ends. Eligible under Criterion D for the information that can be learned from historical research. However, the site does not warrant preservation in place due to modern developments. The integrity of feeling and setting are not retained. Therefore, site qualifies for the exception under 23 CFR Section 774.13.	No
42SL830	Salt Lake to Alta Road/S.R. 210	Eligible (Criterion A)	Eligible under Criterion A for its association with early mining, exploration, and settlement patterns in the Wasatch Mountains and the Salt Lake Valley. However, the site does not warrant preservation in place. No aspects of integrity (other than location) are present due to complete and ongoing modernization.	No
42SL860	Emma Mine–Bay City Tunnel	Eligible (Criteria A and C)	Eligible under Criterion A for its association with early mining, development, and trade at the local, national, and international levels. Eligible under Criterion C because it still embodies the characteristics of an intact hard-rock mine of its period. However, the only aspect of the site that is located within the study area, the entrance building, was built in the modern period and does not contribute to the eligibility of the overall site.	No
42SL916	Little Cottonwood Quarry Trail	Eligible (Criterion A)	Eligible under Criterion A for its association with early mining, exploration, and settlement patterns in the Wasatch Mountains and the Salt Lake Valley. However, the site does not warrant preservation in place. Trail improvement has destroyed the fabric of the original road along with integrity of design, materials, and workmanship.	No

26.4.1.2 Identification of Section 4(f) Public Parks and Recreation Resources

Section 4(f) applicability for parks and recreation resources is described in Section 26.2.1.2, Definition of Section 4(f) Properties.

26.4.1.2.1 Properties Not Evaluated for Section 4(f) Eligibility

In 2020, Utah Open Lands, a nonprofit land trust, purchased a 25.21-acre property on the northeast side of North Little Cottonwood Road. The property is referred to as the Cottonwood Heights Bonneville Shoreline Trail property and is located at about MP 3, or about 1 mile northwest of the intersection with S.R. 209. The proposed Bonneville Shoreline Trail is planned to cross this property, and a trailhead is planned to be built on the property. UDOT did not make a determination regarding the Section 4(f) eligibility of this property because the action alternatives would avoid it entirely.

26.4.1.2.2 Properties Evaluated but Determined Not To Be Section 4(f) Properties

The following properties were evaluated but were determined not to be Section 4(f) properties.

Ball Field at 6325 E. Dover Hills Drive. The ball field located north of Golden Hills Park and west of the existing S.R. 210 is owned by the Church of Jesus Christ of Latter-day Saints as part of its adjacent property at 6325 E. Dover Hills Drive. Since this recreation area is not publicly owned, it is not a Section 4(f) property and is therefore not discussed further in this chapter.

Scenic Byways. The study area includes two scenic byways: S.R. 210 and S.R. 190. Little Cottonwood Canyon Road (S.R. 210) from S.R. 209 to the eastern project terminus in the town of Alta is designated as a scenic byway recognized for its views of dramatic mountain peaks and steep canyon walls. S.R. 190 is a scenic byway through Big Cottonwood Canyon; its western terminus is at the northern terminus of the S.R. 210 Project at the intersection of Wasatch Boulevard and Fort Union Boulevard. In accordance with Question 22 of FHWA's *Section 4(f) Policy Paper* (FHWA 2012), designating a road as a scenic byway does not create a park or recreation area as defined under Section 4(f); therefore, neither scenic byway is considered a Section 4(f) property.

Bicycle Lanes. S.R. 210 is signed and striped for bicycle lanes from Fort Union Boulevard to S.R. 209. The bicycle lanes are designated as Category 2 bicycle lanes in the Cottonwood Heights *Bicycle and Trails Master Plan* (Cottonwood Heights City, no date). Category 2 bicycle lanes are separate, exclusive bicycle on-street facilities. Because the primary function of Category 2 bicycle lanes is for transportation, not recreation, they are not a considered Section 4(f) resource.

Proposed Bonneville Shoreline Trail. This trail is planned to ultimately run 280 miles from Nephi, Utah, to the Utah–Idaho border along the shoreline of ancient Lake Bonneville. Several segments have been constructed, but the trail has not been constructed in its entirety. In the study area, the trail is proposed to run parallel to and east of Wasatch Boulevard from S.R. 190 to North Little Cottonwood Road, then east and north of North Little Cottonwood Road to the entrance to Little Cottonwood Canyon, where it would cross S.R. 210. Section 4(f) does not apply to segments of the trail that are not currently publicly owned. Table 26.4-2 on page 26-33 lists segments of the trail in the study area that quality for protection under Section 4(f) because they either are publicly owned or have a publicly owned easement that allows public access.

Snowbird Resort. Snowbird Resort is a year-round resort at the top of Little Cottonwood Canyon. The 2,630-acre resort is privately owned and is located on a combination of private and National Forest System (NFS) land that is open to the public. It operates under a special-use permit from the USDA Forest Service. Facilities include ski lifts and a tram, four lodges, shops, restaurants, a conference center, ski areas and avalanche-control facilities, hiking trails, and other recreation facilities such as an alpine slide. Portions of the resort located on NFS land are considered part of a multiple-use land holding. Section 4(f) applies only to portions of the resort that are on NFS land and are identified on the resort's USDA Forest Service special-use permit as being used primarily for public parks or recreation. Section 4(f) does not apply to portions of the resort that are on privately owned land, undeveloped portions of the resort that are on NFS land, or resort facilities on NFS land that are not used primarily for recreation. Facilities in the study area that are not used primarily for recreation and are therefore not Section 4(f) resources include ski area maintenance and storage buildings, the fire station, restaurants, and lodges. Table 26.4-2 on page 26-33 lists facilities in the study area that are identified on Snowbird's special-use permit and are used primarily for recreation.

Alta Ski Area. Alta Ski Area is a year-round resort at the top of Little Cottonwood Canyon. The 2,130-acre area is privately owned and is located on a combination of private and NFS land that is open to the public. It operates under a special-use permit from the USDA Forest Service. Facilities include ski lifts and tows, restaurants, ski area and avalanche-control facilities, and hiking trails. Portions of the resort located on NFS land are considered part of a multiple-use land holding. Section 4(f) applies only to portions of the resort that are on NFS land and are identified on the resort's USDA Forest Service special-use permit as being used primarily for public parks or recreation. Section 4(f) does not apply to portions of the resort that are on privately owned land, undeveloped portions of the resort that are on NFS land, or resort facilities on NFS land that are not used primarily for recreation. Facilities in the study area that are not used primarily for recreation and are therefore not Section 4(f) resources include administration and office buildings and employee housing. Table 26.4-2 on page 26-33 lists facilities in the study area that are identified on Alta's special-use permit and are used primarily for recreation.

Dispersed Climbing Resources. Section 4(f) applies only to portions of multiple-use public lands that are designated as or function for significant park or recreation purposes. The USDA Forest Service initially determined that the climbing boulders or groups of boulders identified as Parking Lot West, Bathroom Boulder, Secret Garden, Cabbage Patch, Syringe, 5-Mile, and All Thumbs did not meet the applicability requirements of 23 CFR Section 774.11(d). For this reason, these boulders were not considered Section 4(f) resources in the Draft EIS released for public review and comment in June 2021 [USDA Forest Service 2020; see the correspondence in Appendix 26A, USDA Forest Service Letter Regarding Section 4(f) Determination for Climbing Boulders, dated September 15, 2020].

After the Draft EIS was released, and based on public comments and further consideration of the facts and circumstances, the USDA Forest Service determined that it would be appropriate to evaluate the Alpenbock Loop Trail and Grit Mill Trailhead as a combined recreation property, including the trailheads, trails, and climbing resources (boulders and vertical routes) that are accessed from either trailhead. This area is considered a Section 4(f) resource and is described in Table 26.4-2 on page 26-33. Although there are multiple recreation uses in this area, climbing and bouldering are the predominant uses. Individual cliffs, boulders, groups of boulders, bouldering problems, and/or vertical climbing routes are contributing elements to the overall significance of the recreational climbing opportunities in the area, but they do not have a corresponding level of significance and are not essential features when assessed individually (see Appendix A, U.S. Department of Agriculture Letter Regarding Section 4(f) Determination for Climbing Boulders).

Climbing boulders and vertical routes located outside this area on general forest land (for example, Syringe and 5-Mile) do not meet the applicability requirements in 23 CFR Section 774.11(d) and are not considered Section 4(f) resources. The Gate Buttress climbing area is located on private land and thus is not a Section 4(f) resource.

Bridge Trailhead. The Bridge Trailhead is a trailhead improvement proposed as part of this project. It is not considered a Section 4(f) resource because there is no existing trailhead, and the trail connecting to the Little Cottonwood Creek Trail is not formally identified on USDA Forest Service maps. Additionally, no trailhead is planned for this area except the trailhead proposed in this Environmental Impact Statement (EIS).

26.4.1.2.3 Parks or Recreation Resources Determined To Be Section 4(f) Resources

The study area includes several park or recreation resources that were determined to be Section 4(f) resources. Section 4(f) recreation resources in the urban portion of the study area include a park and two trails. Trailheads for Section 4(f) trails are necessary to support the recreation use and are also protected under Section 4(f) as long as they are on publicly owned land and are open to the public.

The Uinta-Wasatch-Cache National Forest is a multiple-use public land holding. Areas on USDA Forest Service land that function for or are identified in an official plan as being used primarily for recreation, and are significant for such purposes, are Section 4(f) resources. Section 4(f) resources were identified on the *Tri-Canyon Trails Map* (USDA Forest Service 2017), in the *Grit Mill Decision Notice and Climbing Master Plan* (USDA Forest Service 2014), and through coordination with the USDA Forest Service. These resources include trails, trailheads, certain climbing opportunities, and a campground.

Section 4(f) also applies to portions of the Snowbird and Alta resorts and the Alta Town Park that are on NFS land and are identified on the USDA Forest Service special-use permits as being used primarily for public parks or recreation. For the ski resorts in the study area, these elements consist of parking areas (which are needed to support recreation use), a tennis court near Snowbird's Iron Blosam Lodge, and Alta's transfer tow (a rope tow that runs between the Sunnyside and Collins lifts). Other ski lifts, rope tows, and recreation facilities such as Snowbird's alpine slide are either outside the study area or on private land, so they are not listed as Section 4(f) recreation resources in the study area in Table 26.4-2. The Section 4(f) recreation resources in the study area are shown in Figure 26.4-1 through Figure 26.4-11, Section 4(f) Resources, above and described in Table 26.4-2 below.

Table 26.4-2. Section 4(f) Recreation Resources in the Study Area

Recreation Resource	Description and/or Location	Ownership and/or Management	Activities, Features, and Attributes
S.R. 210 – Wasatch Boulevard			
Big Cottonwood Canyon Trail	Existing urban trail/shared-use pathway extending from Holladay to the park-and-ride lot at the entrance to Big Cottonwood Canyon	Land ownership is a combination of private and municipally owned land managed by Cottonwood Heights City.	Paved multi-use trail designed for use by cyclists, joggers, etc. Interpretive signs provide the history of the area.
Ferguson Trailhead off Prospector Drive	Supplemental trailhead for Ferguson Canyon Trail with access off Prospector Drive at about 7650 South	Land is owned by Salt Lake County and managed by Cottonwood Heights City.	Trailhead is currently a 0.14-acre unpaved parking lot on a 3.10-acre parcel. Cottonwood Heights City plans to expand and improve the trailhead and make it the primary trailhead for Ferguson Canyon. Planned improvements span 6.45 acres and include a formal paved parking lot, a restroom, walking paths, and a multi-use path on the east side of Wasatch Boulevard.
Golden Hills Park	5.3-acre park at 8303 S. Wasatch Boulevard (S.R. 210 approximate MP 1.3)	Park is owned and managed by Cottonwood Heights City.	Pavilion for 30 people, a playground, walking path, restrooms, and a tennis court.
S.R. 210 – North Little Cottonwood Road to Alta			
Tanners Flat Campground	Existing USDA Forest Service campground south of S.R. 210 about 4 miles up Little Cottonwood Canyon near MP 8.1	Campground is on federal land managed by the USDA Forest Service.	Campground is set among pine, aspen, oak, and maple trees with Little Cottonwood Creek running along the edge. There are 31 single sites, 3 double sites, 4 group sites, bathroom facilities, a volleyball court, and an amphitheater. Campground is open from late May through late September and is closed during the winter.
Bonneville Shoreline Trail	Planned trail that follows the shoreline of ancient Lake Bonneville	Segments in the study area that qualify for Section 4(f) include: • Segments on USDA Forest Service land at the entrance to Little Cottonwood Canyon, crossing S.R. 210 near the intersection with S.R. 209 • Segment on land recently purchased by Utah Open Lands on the east side of North Little Cottonwood Road (parcel ownership will be transferred to Cottonwood Heights City with a conservation easement held by Utah Open Lands)	Mixed-use (biking/hiking) recreation trail. Connections are planned at two existing trailheads in the study area: the Little Cottonwood Canyon park-and-ride lot and the Temple Quarry Trailhead. A new trailhead is planned to be located somewhere on the land recently purchased by Utah Open Lands.

(*continued on next page*)

Table 26.4-2. Section 4(f) Recreation Resources in the Study Area

Recreation Resource	Description and/or Location	Ownership and/or Management	Activities, Features, and Attributes
Alpenbock Loop and Grit Mill Climbing Opportunities	Area between the Alpenbock Loop Trail and Grit Mill Trailhead on the north side of S.R. 210 at the entrance to Little Cottonwood Canyon, roughly from milepost (MP) 3.8 to MP 4.5. The combined area is consistent with the *Decision Notice and Finding of No Significant Impact (FONSI) for the Grit Mill and Climbing Master Plan Project* issued in 2014 (USDA Forest Service 2014).	The area is on federal land managed by the USDA Forest Service. The Forest Service manages the trails and trailhead areas. There is not currently a climbing management plan for this area.	The Alpenbock Loop Trail (USDA Forest Service #1020) is an existing 1.0-mile unpaved loop trail providing access to rock-climbing routes and bouldering areas at the base of Little Cottonwood Canyon. The park-and-ride lot serves as the trailhead for the Alpenbock Loop Trail and includes a restroom. The Alpenbock East Spur Trail connects Alpenbock Loop Trail to the Grit Mill Trailhead and provides formal access to climbing routes and bouldering areas. The Grit Mill Trailhead is a parking area with a restroom and interpretive sign, and it provides access to rock-climbing opportunities with a connection to the Alpenbock trails. The Alpenbock Loop and Grit Mill Climbing Opportunities area is about 58 acres and includes about 143 climbing boulders and at least 13 vertical climbing routes.
Temple Quarry Nature Trail (USDA Forest Service #1000)	Existing 0.3-mile loop trail on the south side of S.R. 210 at the entrance to Little Cottonwood Canyon near MP 3.9	Trail is on federal land managed by the USDA Forest Service.	Existing amphitheater and paved interpretive trail beginning at the Temple Quarry Trailhead on the south side of S.R. 210 at the intersection with S.R. 209.
Little Cottonwood Creek Trail (USDA Forest Service #1001)	Existing 3.3-mile trail parallel to Little Cottonwood Creek starting at the entrance to Little Cottonwood Canyon near MP 3.9	Trail crosses or abuts private land for short sections but is mainly on federal land. The USDA Forest Service manages the trail.	Existing unpaved hiking and mountain biking trail beginning at the Temple Quarry Trailhead on the south side of S.R. 210 at the intersection with S.R. 209. The trail runs along Little Cottonwood Creek parallel to and south of S.R. 210.
Lisa Falls Trail (USDA Forest Service #1012)	Existing 1.1-mile trail on the north side of S.R. 210 starting near MP 6.7	Trail is on federal land managed by the USDA Forest Service.	Existing unpaved hiking trail beginning at the Lisa Falls Trailhead near MP 6.7 and ending at the Lisa Falls waterfall.
White Pine Trail (USDA Forest Service #1002)	Existing 5.0-mile trail on the south side of S.R. 210 starting near MP 9.2	Trail is on federal land managed by the USDA Forest Service.	Existing unpaved hiking and mountain biking trail extending 5.0 miles from the White Pine trailhead near MP 9.2 to White Pine Lake. The White Pine Trailhead also serves Red Pine (USDA Forest Service #1003), Maybird (USDA Forest Service #1004), and White Pine–Snowbird Link (USDA Forest Service #1014). This is a major area for backcountry skiing in winter.

(*continued on next page*)

Table 26.4-2. Section 4(f) Recreation Resources in the Study Area

Recreation Resource	Description and/or Location	Ownership and/or Management	Activities, Features, and Attributes
Alta Brighton Trail (USDA Forest Service #1007)	Existing 1.7-mile trail on the north side of S.R. 210 starting near MP 12.3	Trail crosses private and federal land. The USDA Forest Service manages the trail.	Existing hiking trail extending 1.7 miles from the Flagstaff Trailhead on the north side of S.R. 210 near MP 12.3 to Twin Lakes Reservoir in Big Cottonwood Canyon. This is a major area for backcountry skiing in winter. The Flagstaff Trailhead also serves Snakepit Trail (USDA Forest Service #1015) and Albion Meadows Trail (USDA Forest Service #1006).
Recreation facilities at Snowbird Resort	Facilities on USDA Forest Service land and identified in Snowbird's special-use permit that are used primarily for recreation	Snowbird Resort is a privately owned and managed resort on a combination of private and USDA Forest Service land and is operated under a special-use permit from the USDA Forest Service.	Ski resort parking within the special-use permit area (needed to support other recreation facilities) and tennis courts near the Iron Blosam Lodge.
Recreation facilities at Alta Ski Area	Facilities on USDA Forest Service land and identified in Alta's special-use permit that are used primarily for recreation	Alta Ski Area is privately owned and managed ski area on a combination of private and USDA Forest Service land and is operated under a special-use permit from the USDA Forest Service.	Ski resort parking within the special-use permit area (needed to support other recreation facilities) and the transfer tow (a rope tow that runs between the Sunnyside and Collins lifts).
Alta Town Park	Park on USDA Forest Service land; has a Forest Service special-use permit for recreation use.	The park is managed by the Town of Alta on USDA Forest Service land under a special-use permit.	Volleyball court and picnic area near the west end of the transfer tow. The park is open during the summer only.

26.4.2 Identification of Section 6(f) Resources

There are no Section 6(f) resources in the study area. The Utah State database of LWCF State Assistance Program locations was searched, returning no results in the study area. Two parcels adjacent to S.R. 210 at the entrance to Little Cottonwood Canyon were purchased with funds from the LWCF Federal Acquisition Program to consolidate federal ownership within the NFS boundary. Section 6(f) applies only to properties that receive assistance from the LWCF State Assistance Program, not the LWCF Federal Acquisition Program. Therefore, these parcels are not considered Section 6(f) resources (USDA Forest Service 2019). Section 6(f) resources are not discussed further in this chapter.

26.5 Use of Section 4(f) Resources

The following sections describe the impacts of the No-Action and action alternatives on Section 4(f) properties. For each Section 4(f) property, there can be one of the following findings related to use by a project alternative:

- Use with greater–than–*de minimis* impact
- Use with *de minimis* impact
- Use as a result of temporary occupancy
- Temporary occupancy with impacts so minimal as to not constitute a use
- Constructive use (proximity impact if the alternative is adjacent)
- No use
- Exception to the requirement for Section 4(f) approval

Use, *de minimis* impact, temporary occupancy, constructive use, and relevant exceptions for this project are defined in the Section 4(f) regulations and guidance cited in Section 26.2, Regulatory Setting. Both of the avalanche mitigation sub-alternatives (which would be included with all primary action alternatives) would result in a use with greater–than–*de minimis* impact of one Section 4(f) property. The other sub-alternatives and primary alternatives, except the Cog Rail Alternative, would result in either uses with *de minimis* impacts or temporary occupancy with impacts so minimal as to not constitute a use. The Cog Rail Alternative would result in one additional use with greater–than–*de minimis* impact compared to the other primary action alternatives. None of the primary action alternatives or sub-alternatives would result in constructive use.

26.5.1 No-Action Alternative

The No-Action Alternative would not require acquisition of right of way and would result in no uses of Section 4(f) properties.

26.5.2 Enhanced Bus Service Alternative

This section describes the impacts to Section 4(f) resources from the Enhanced Bus Service Alternative, which includes improvements to the Wasatch Boulevard segment of S.R. 210, two mobility hubs, avalanche mitigation alternatives, trailhead parking alternatives, and the No Winter Parking Alternative.

26.5.2.1 S.R. 210 – Wasatch Boulevard

This section describes the impacts to Section 4(f) resources from the Imbalanced-lane Alternative and the Five-lane Alternative, which would both widen the Wasatch Boulevard segment of S.R. 210.

26.5.2.1.1 Imbalanced-lane and Five-lane Alternatives

The Imbalanced-lane and Five-lane Alternatives would have similar impacts to Section 4(f) resources. However, the Five-lane Alternative would add one additional travel lane, which would require about 12 feet more pavement width than the Imbalanced-lane Alternative. As a result of the additional pavement width, the Five-lane Alternative would have slightly greater impacts to three Section 4(f) properties compared to the Imbalanced-lane Alternative.

Section 4(f) Historic Properties

The Imbalanced-lane Alternative and the Five-lane Alternative would each have six uses with *de minimis* impacts (land acquisition without adversely impacting the historic building) and three temporary occupancies with no use (temporary construction easement with minimal impact and without land acquisition) along Wasatch Boulevard. Table 26.5-1 describes the use of each Section 4(f) historic property. Unless noted in the table, the impacts for both alternatives would be the same. Figures showing impacts are available in the DOE/FOE (Appendix 15B, Determinations of Eligibility and Findings of Effect). For more information regarding how property impacts were assessed, see Chapter 4, Community and Property Impacts. For more information regarding how effects were determined under Section 106 of the National Historic Preservation Act, see Chapter 15, Cultural Resources.

Table 26.5-1. Use of Section 4(f) Historic Properties by the Wasatch Boulevard Imbalanced-lane and Five-lane Alternatives with the Enhanced Bus Service Alternative

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
3	7527 S. Brighton Point Drive	One-story contemporary-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require acquisition of ~0.17 acre from the property and a temporary construction easement of ~0.09 acre. The historic building would not be affected.	Yes / *de minimis* impact
4	7537 S. Brighton Point Drive	One-story ranch-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require acquisition of ~0.12 acre from the property and a temporary construction easement of ~0.04 acre. The historic building would not be affected.	Yes / *de minimis* impact
5	7561 S. Brighton Point Drive	One-story ranch-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require acquisition of ~0.08 acre from the property and a temporary construction easement of ~0.01 acre. The historic building would not be affected.	Yes / *de minimis* impact
19	8296 S. Wasatch Boulevard	One-story early ranch-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require acquisition of ~0.04 acre from the property for the Imbalanced-lane Alternative or ~0.06 acre for the Five-lane Alternative, and a temporary construction easement of ~0.02 acre for both alternatives. The historic building would not be affected.	Yes / *de minimis* impact
20	3461 E. Kings Hill Drive	One-and-a-half-story split-level-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require a temporary construction easement of ~0.02 acre. The historic building would not be affected.	No (temporary occupancy) / NA
21	3475 E. Kings Hill Drive	One-and-a-half-story split-level-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require a temporary construction easement of less than 0.01 acre. The historic building would not be affected.	No (temporary occupancy) / NA

(*continued on next page*)

Table 26.5-1. Use of Section 4(f) Historic Properties by the Wasatch Boulevard Imbalanced-lane and Five-lane Alternatives with the Enhanced Bus Service Alternative

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
22	8342 S. Wasatch Boulevard	One-story ranch-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require acquisition of ~0.03 acre from the property for the Imbalanced-lane Alternative or ~0.05 acre for the Five-lane Alternative, and a temporary construction easement of ~0.05 acre for the Imbalanced-lane Alternative or ~0.04 acre for the Five-lane Alternative. The historic building would not be affected.	Yes / *de minimis* impact
36	8800 S. Alpen Way	One-story ranch-style single-family dwelling	EC	No adverse effect	Widening Wasatch Boulevard would require acquisition of ~0.01 acre from the property. The historic building would not be affected.	Yes / *de minimis* impact
NV2[b]	8640 S. Russel Park Road	Potential historic-age building	Not eval-uated	No adverse effect	Widening Wasatch Boulevard would require a temporary construction easement of ~0.06 acre. The potentially historic building would not be affected.	No (temporary occupancy) / NA

~ = approximately; NA = not applicable

[a] Utah Division of State History (UDSH) rating for historic structures: EC = eligible/contributing. For more information, see Chapter 15, Cultural Resources.

[b] Salt Lake County Assessor data indicated this legal parcel as potentially having a historic-age building; however, the resource was not visible enough from the public right of way to evaluate it for Section 4(f) impacts.

Section 4(f) Recreation Resources

The Imbalanced-lane and the Five-lane Alternatives would each have two uses with *de minimis* impacts (land acquisition without adversely impacting the features, attributes, or activities of the resource) to two Section 4(f) recreation resources along Wasatch Boulevard as described in Table 26.5-2. Figures showing impacts are available in the Section 4(f) *de minimis* correspondence (Appendix 26B, *De Minimis* Correspondence).

Table 26.5-2. Use of Section 4(f) Recreation Resources by the Wasatch Boulevard Imbalanced-lane and Five-lane Alternatives with the Enhanced Bus Service Alternative

Resource	Description of Use	Section 4(f) Use / Impact
Ferguson Trailhead off Prospector Drive	If Wasatch Boulevard were to be widened before planned trailhead improvements are constructed, ~0.02 acre of the existing ~0.14-acre parking area would be acquired. UDOT would reconstruct the dirt parking area so that there would be no net loss of parking spaces. If Wasatch Boulevard were to be widened after planned trailhead improvements are constructed, ~1.05 acre of the 6.45-acre planned trailhead would be acquired to accommodate the proposed multi-use path on the east side of Wasatch Boulevard. A temporary construction easement of ~0.59 acre would be required. UDOT would coordinate with Cottonwood Heights City during the Ferguson Trailhead design process to ensure that the location of the multi-use trail proposed with the Imbalanced-lane and Five-lane Alternatives is considered during development of the park plan.	Yes / *de minimis* impact
Golden Hills Park	About 0.63 acre for the Imbalanced-lane Alternative or ~0.65 acre for the Five-lane Alternative of the 5.3-acre park would be acquired to accommodate widening Wasatch Boulevard. Most of the impact would occur as a result of constructing a multi-use trail. There would be no impact to park activities or features (parking, pavilion, path, restroom, playground, or tennis court). The proposed multi-use trail on the east side of Wasatch Boulevard would connect to park trails.	Yes / *de minimis* impact

Source: Calculated from geographic information systems (GIS)-based inventory
~ = approximately

26.5.2.2 S.R. 210 – North Little Cottonwood Road to Alta

With the Enhanced Bus Service Alternative, there would be no change to the existing S.R. 210 roadway from North Little Cottonwood Road to the town of Alta. No right of way would be acquired in Little Cottonwood Canyon, so there would be no use of Section 4(f) historic properties or Section 4(f) recreation resources.

26.5.2.3 Mobility Hubs Alternative

The Enhanced Bus Service Alternative includes two mobility hubs: a mobility hub at the gravel pit and a mobility hub at the park-and-ride lot at 9400 South and Highland Drive.

What is a mobility hub?

A mobility hub is a location where users can transfer from their personal vehicle to a bus.

26.5.2.3.1 Gravel Pit

Right of way would be required to accommodate the mobility hub at the gravel pit.

What is the gravel pit?

The gravel pit is an existing aggregate (gravel) mine located on the east side of Wasatch Boulevard between 6200 South and Fort Union Boulevard.

Section 4(f) Historic Properties

The interchange connecting the gravel pit mobility hub to Wasatch Boulevard would require right-of-way acquisition from one Section 4(f) historic property: the Old Mill. This would result in one use with a *de minimis* impact (land acquisition without impacting the historic building). Table 26.5-3 describes the use. Figures showing impacts are available in the DOE/FOE (Appendix 15B, Determinations of Eligibility and Findings of Effect).

Table 26.5-3. Use of Section 4(f) Historic Properties by the Gravel Pit Mobility Hub with the Enhanced Bus Service Alternative

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
1	6851 S. Big Cottonwood Canyon Road	Three-and-a-half-story vernacular Granite Paper Mill (Old Mill)	ES	No adverse effect	Construction of an interchange at the gravel pit would require acquisition of ~4.01 acres from the property. The historic building would not be affected.	Yes / *de minimis* impact

~ = approximately

[a] Utah Division of State History (UDSH) rating for historic structures: ES = eligible/significant. For more information, see Chapter 15, Cultural Resources.

Section 4(f) Recreation Resources

Constructing the mobility hub at the gravel pit would result in no impacts to or use of Section 4(f) recreation resources.

26.5.2.3.2 9400 South and Highland Drive

The 9400 South and Highland Drive mobility hub would not require acquisition of right of way and would result in no uses of Section 4(f) historic properties or Section 4(f) recreation resources.

26.5.2.4 Avalanche Mitigation Alternatives

The Enhanced Bus Service Alternative includes two alternatives for avalanche mitigation: the Snow Sheds with Berms Alternative and the Show Sheds with Realigned Road Alternative.

26.5.2.4.1 Snow Sheds with Berms Alternative

Section 4(f) Historic Properties

The Snow Sheds with Berms Alternative would impact one Section 4(f) historic property, site 42SL419, resulting in a use with greater–than–*de minimis* impact. Table 26.5-4 describes the use. Figures showing impacts are available in the DOE/FOE (Appendix 15B, Determinations of Eligibility and Findings of Effect).

Table 26.5-4. Use of Section 4(f) Historic Properties by Snow Sheds with Berms with the Enhanced Bus Service Alternative

Site Number	Site Name/ Description	NRHP Criteria	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
42SL419	D&RGW Railroad/ Wasatch & Jordan Valley Railroad/Salt Lake & Alta	Criterion A	Adverse effect	Impacts would include ~0.19 acre of disturbance for the snow sheds and berms. Segments of intact retaining wall (known colloquially as the "China Wall") would be removed.	Yes / Greater–than–*de minimis* impact

~ = approximately

Section 4(f) Recreation Resources

No land would be required from recreation resources for the proposed snow sheds. Therefore, there would be no use of Section 4(f) recreation resources from the Snow Sheds with Berms Alternative.

26.5.2.4.2 Snow Sheds with Realigned Road Alternative

The impact from the Snow Sheds with Realigned Road Alternative would be the same as from the Snow Sheds with Berms Alternative. There would be a use of one Section 4(f) historic property, site 42LS419, with greater–than–*de minimis* impact. There would be no use of Section 4(f) recreation resources.

26.5.2.5 Trailhead Parking Alternatives

The Enhanced Bus Service Alternative includes three alternatives to address trailhead parking:

- Trailhead Improvements and No S.R. 210 Roadside Parking within ¼ Mile of Trailheads Alternative
- Trailhead Improvements and No Roadside Parking from S.R. 209/S.R. 210 Intersection to Snowbird Entry 1 Alternative
- No Trailhead Improvements and No Roadside Parking from S.R. 209/S.R. 210 Intersection to Snowbird Entry 1 Alternative

Trailhead parking improvements are proposed at four trailhead parking areas: the Gate Buttress, Bridge, Lisa Falls, and White Pine Trailheads. Trailhead parking improvements do not include bus service to the trailheads. As described above in Table 26.4-2, Section 4(f) Recreation Resources in the Study Area, the Lisa Falls Trail and White Pine Trail are Section 4(f) resources. The Gate Buttress and Bridge Trailheads are not considered Section 4(f) resources as described in Section 26.4.1.2.2, Properties Evaluated but Determined Not To Be Section 4(f) Properties.

26.5.2.5.1 Trailhead Improvements and No S.R. 210 Roadside Parking within ¼ Mile of Trailheads Alternative

Section 4(f) Historic Properties

There are no Section 4(f) historic properties in the vicinity of the proposed trailhead improvements. There would be no use of Section 4(f) historic properties with any of the trailhead parking alternatives.

Section 4(f) Recreation Resources

The trailhead improvements proposed with this trailhead parking alternative would have a use with *de minimis* impact (land acquisition without impacting the features, attributes, or activities) to two Section 4(f) recreation resources as described in Table 26.5-5. Impacts to the Lisa Falls Trail and Trailhead are shown in Figure 26.5-1. Impacts to the White Pine Trail and Trailhead are shown in Figure 26.5-2.

Table 26.5-5. Use of Section 4(f) Recreation Resources by the Trailhead Improvements and No S.R. 210 Roadside Parking within ¼ Mile of Trailheads Alternative with the Enhanced Bus Service Alternative

Resource	Description of Use	Section 4(f) Use / Impact
Lisa Falls Trail	Existing trailhead parking in informal dirt pullouts on north and south sides of the road (17 parking spots total) would be consolidated into a larger formal parking lot on the north side of the road (41 parking spots). Roadside parking would be eliminated to reduce the safety conflicts among pedestrians, bicyclists, and vehicles. An advance warning sign would be provided for pedestrians to cross the road to reach the Little Cottonwood Creek Trailhead. Restrooms would be added. About 260 feet of trail would be impacted, and ~0.18 acre of the existing trailhead parking area would be acquired for trailhead improvements. During construction, the trailheads could be closed or access could be limited, resulting in a temporary impact. Depending on the final design and geotechnical studies, additional walls might be used to further reduce construction impacts from cut slopes.	Yes / *de minimis* impact
White Pine Trail	The existing trailhead parking lot would be expanded from 52 parking spots to 144 parking spots. Additional restrooms would be added. The single entrance to the parking lot would be replaced with a one-way-entrance and a one-way-exit. Roadside parking would be eliminated to reduce the safety conflicts among pedestrians, bicyclists, and vehicles. About 2.6 acres of USDA Forest Service land would be required for trailhead improvements. During construction, the trailheads could be closed or access could be limited, resulting in a temporary impact.	Yes / *de minimis* impact

~ = approximately

Figure 26.5-1. Use of Lisa Falls Trail and Trailhead with the Trailhead Improvement Alternatives and the Cog Rail Alternative

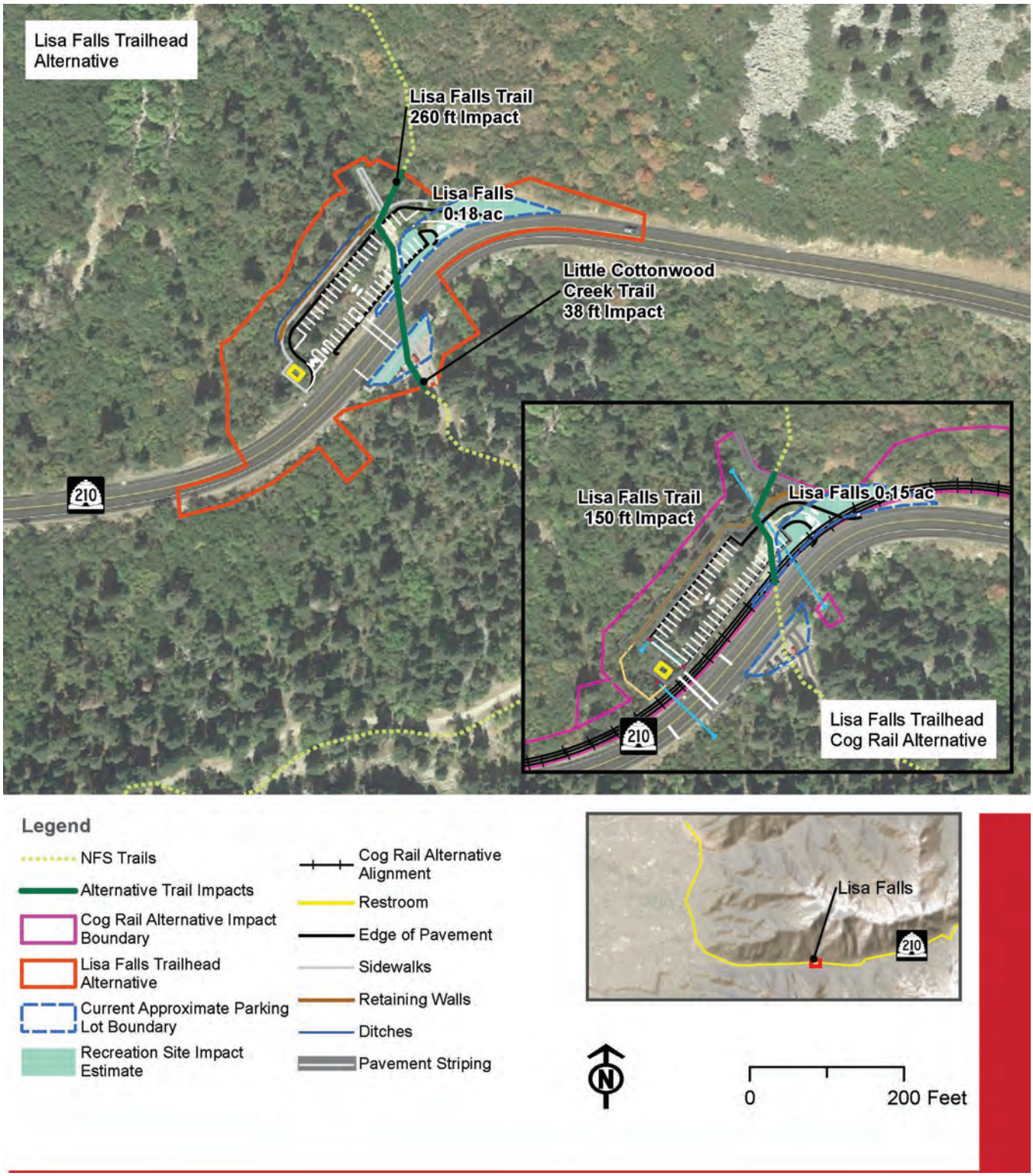
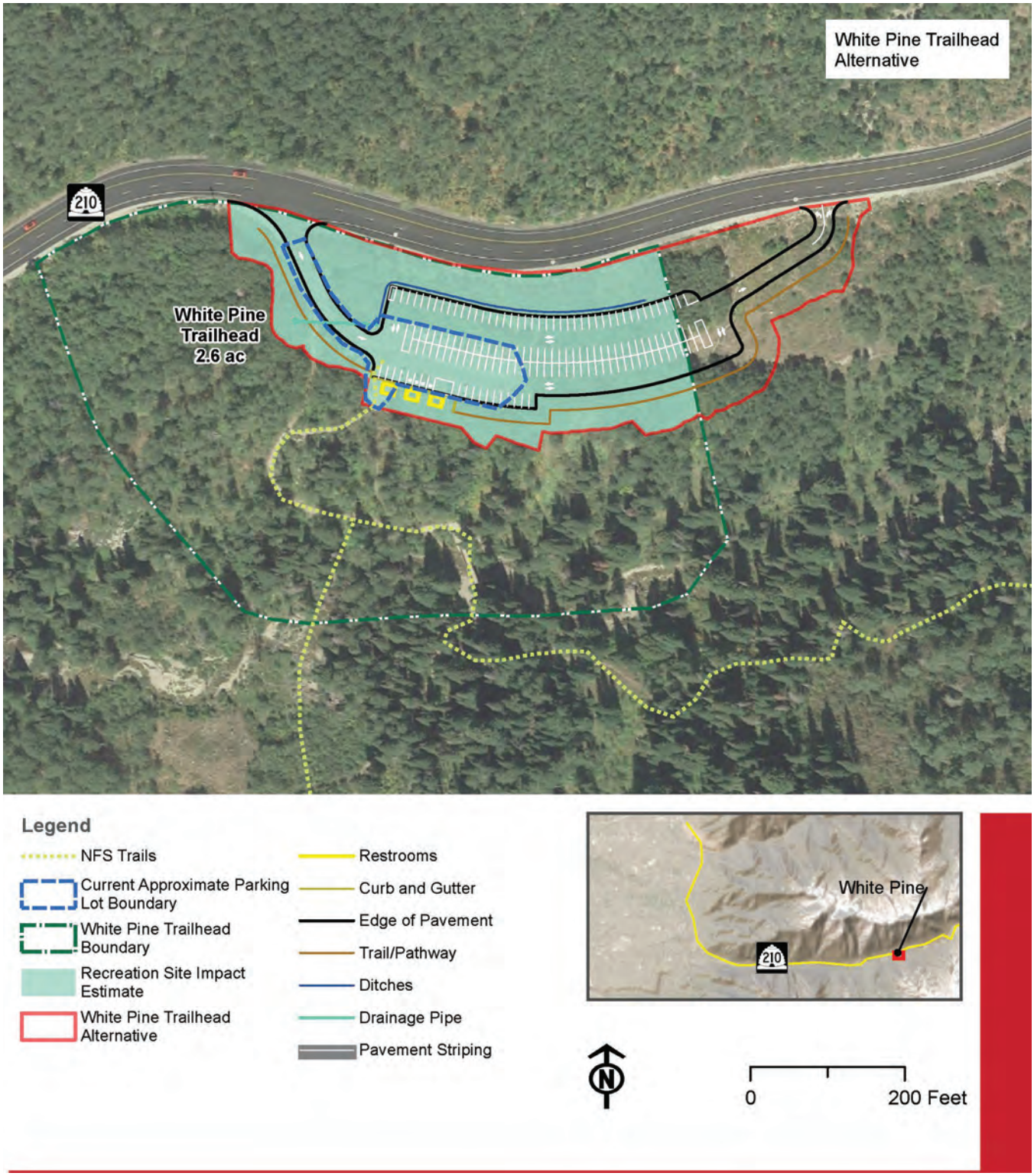


Figure 26.5-2. Use of White Pine Trail and Trailhead with the Trailhead Improvement Alternatives



26.5.2.5.2 Trailhead Improvements and No Roadside Parking from S.R. 209/S.R. 210 Intersection to Snowbird Entry 1 Alternative

The Section 4(f) uses of recreation resources by this trailhead parking alternative would be the same as from the Trailhead Improvements and No S.R. 210 Roadside Parking within ¼ Mile of Trailheads Alternative. Roadside parking for other Section 4(f) recreation resources in the canyon (for example, Tanners Flat Campground) would be eliminated. However, roadside parking is not considered a recreation resource or protected under Section 4(f).

26.5.2.5.3 No Trailhead Improvements and No Roadside Parking from S.R. 209/S.R. 210 Intersection to Snowbird Entry 1 Alternative

This trailhead parking alternative would not require acquisition of right of way and would have no uses of Section 4(f) properties.

26.5.2.6 No Winter Parking Alternative

The No Winter Parking Alternative would not require acquisition of right of way and would have no uses of Section 4(f) properties. About 230 roadside parking spots near the ski resorts would be eliminated during winter. There would be no impact to ski resort parking within the special-use permit areas. Roadside parking is not protected under Section 4(f).

26.5.3 Enhanced Bus Service in Peak-period Shoulder Lane Alternative

This section describes the impacts to Section 4(f) resources from the Enhanced Bus Service in Peak-period Shoulder Lane Alternative, which includes improvements to the Wasatch Boulevard segment of S.R. 210, improvements to the segment of S.R. 210 from North Little Cottonwood Road to the town of Alta, two mobility hubs, avalanche mitigation alternatives, trailhead parking alternatives, and the No Winter Parking Alternative.

26.5.3.1 S.R 210 – Wasatch Boulevard

The impacts to Section 4(f) resources from the Imbalanced-lane and Five-lane Alternatives with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be the same as with the Enhanced Bus Service Alternative.

26.5.3.2 S.R 210 – North Little Cottonwood Road to Alta

Implementing peak-period shoulder lanes in Little Cottonwood Canyon would require widening S.R. 210 and acquiring right of way.

26.5.3.2.1 Section 4(f) Historic Properties

Adding peak-period shoulder lanes would result in seven uses with *de minimis* impacts (land acquisition without adversely impacting the historic building) and four temporary occupancies with no use (temporary construction easement with minimal impact and without land acquisition) from North Little Cottonwood Road

to the town of Alta. Table 26.5-6 describes the use of each Section 4(f) historic property. Figures showing impacts are available in the DOE/FOE (Appendix 15B, Determinations of Eligibility and Findings of Effect).

Table 26.5-6. Use of Section 4(f) Historic Properties from North Little Cottonwood Road to Alta with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
61	3742 E. North Little Cottonwood Road	One-and-a-half-story Victorian Eclectic-style single-family dwelling	ES	No adverse effect	Widening North Little Cottonwood Road would require a temporary construction easement of ~0.19 acre. The historic building would not be affected.	No (temporary occupancy) / NA
63	4700 E. Little Cottonwood Canyon	Temple Granite Quarry Historical Marker	EC	No adverse effect	Widening Little Cottonwood Canyon Road would require a temporary construction easement of ~0.71 acre. The historical marker would not be affected.	No (temporary occupancy) / NA
64	4526 E. Little Cottonwood Canyon	One-story 20th-century other-style hydroelectric energy facility (Whitmore Power Plant)	ES	No adverse effect	Widening Little Cottonwood Canyon Road would require a temporary construction easement of ~0.01 acre. The historic building would not be affected.	No (temporary occupancy) / NA
66	5002 E. Little Cottonwood Canyon	One-and-a-half-story Tudor-style single-family dwelling	EC	No adverse effect	Widening Little Cottonwood Canyon Road would require a temporary construction easement of ~0.02 acre. The historic building would not be affected.	No (temporary occupancy) / NA
67	9111 E. Little Cottonwood Canyon	Two-story Organic-style single dwelling	ES	No adverse effect	Widening Little Cottonwood Canyon Road would require acquisition of less than 0.01 acre and a temporary construction easement of ~0.01 acre. The historic building would not be affected.	Yes / *de minimis* impact
68	9121 E. Snowbird Center Drive	Eleven-story Brutalist-style timeshare/ condominium (Iron Blosam Lodge)	ES	No adverse effect	Widening Little Cottonwood Canyon Road would require acquisition of ~0.12 acre from the property and a temporary construction easement of ~0.13 acre. The historic building would not be affected.	Yes / *de minimis* impact
69	9180 E. Lodge Drive	Two-story Brutalist-style condominium	ES	No adverse effect	Widening Little Cottonwood Canyon Road would require acquisition of ~0.05 acre from the property and a temporary construction easement of ~0.03 acre. The historic building would not be affected.	Yes / *de minimis* impact

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Table 26.5-6. Use of Section 4(f) Historic Properties from North Little Cottonwood Road to Alta with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
70	9202 E. Lodge Drive	Seven-story Brutalist-style hotel/condominium (The Inn at Snowbird)	ES	No adverse effect	Widening Little Cottonwood Canyon Road would require acquisition of less than 0.01 acre from the property and a temporary construction easement of less than 0.01 acre. The historic building would not be affected.	Yes / *de minimis* impact
71	9260 E. Lodge Drive	Seven-story Brutalist-style hotel/condominium (The Lodge at Snowbird)	ES	No adverse effect	Widening Little Cottonwood Canyon Road would require acquisition of ~0.10 acre from the property and a temporary construction easement of ~0.35 acre. The historic building would not be affected.	Yes / *de minimis* impact
72	9385 S. Snowbird Center Drive	Three-story Brutalist-style commercial and recreation/culture building (Snowbird Center)	ES	No adverse effect	Widening Little Cottonwood Canyon Road would require acquisition of ~0.05 acre from the property and a temporary construction easement of ~0.78 acre. The historic building would not be affected.	Yes / *de minimis* impact
NV5[b]	6279 E. Little Cottonwood Canyon	Potential historic-age building (Perpetual Storage)	Not eval-uated	No adverse effect	Widening Little Cottonwood Canyon Road would require acquisition of ~0.06 acre from the property and a temporary construction easement of ~0.82 acre. The potentially historic building would not be affected.	Yes / *de minimis* impact

~ = approximately; NA = not applicable

[a] Utah Division of State History (UDSH) rating for historic structures: EC = eligible/contributing; ES = eligible/significant. For more information, see Chapter 15, Cultural Resources.

[b] Salt Lake County Assessor data indicated this legal parcel as potentially having a historic-age building; however, the resource was not visible enough from the public right of way to evaluate it for Section 4(f) impacts.

26.5.3.2.2 Section 4(f) Recreation Resources

Adding peak-period shoulder lanes on S.R. 210 from North Little Cottonwood Road to the town of Alta would result in two uses with *de minimis* impacts (land acquisition without adversely impacting the activities, features, and attributes) and three temporary occupancies with no use (temporary construction easement with minimal impact and without land acquisition) to six Section 4(f) recreation resources as described in Table 26.5-7. Impacts to the Alpenbock Loop and Grit Mill Climbing Opportunities and the Temple Quarry Nature Trail are shown in Figure 26.5-3. Impacts to Tanners Flat Campground, the Lisa Falls Trail, and the White Pine Trail are shown in Figure 26.5-4. The peak-period shoulder lanes would be constructed during the summer over a 2-to-3-year construction period. During construction, trailheads could be temporarily closed, which would limit access to the trails.

Table 26.5-7. Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative

Resource	Description of Use	Section 4(f) Use / Impact
Alpenbock Loop and Grit Mill Climbing Opportunities	Widening Little Cottonwood Canyon Road would require an easement or special-use authorization from the USDA Forest Service for ~0.14 acre of land (0.2% of the total area) incorporated into the transportation facility, and a temporary construction easement of ~1.60 acre (2.8% of total area) from the USDA Forest Service. The land required is located along the north side of S.R. 210. There would be no impacts to parking spots, restrooms, or interpretive signs at either the park-and-ride lot or the Grit Mill Trailhead. Impacts to climbing opportunities would be minimized by constructing retaining walls where possible to protect some bouldering areas adjacent to S.R. 210; however, about seven climbing boulders (4.9% of the total climbing boulders in the area) would be removed. During construction, UDOT will evaluate whether any of these boulders could be relocated within the area. If the boulders could be relocated, it is likely that specific climbing routes, or "problems," would be changed by the relocation; however, there would be opportunities for new problems to be developed. None of the vertical routes would be impacted. There is one boulder within about 15 feet of the road that is currently used for climbing despite the potential for being viewed from the road and roadway noise. After widening, there would be about nine climbing boulders within 15 feet. Although some climbers might feel uncomfortable and seek out different opportunities farther from the road, these areas would continue to be available for climbing. The peak-period shoulder lanes would not be used by buses during the summer and would be used by buses only during peak morning and afternoon periods during the winter, so there would be no increase in noise levels during the late spring, summer, and fall seasons when the vast majority of climbing occurs and a minor noise increase during the winter when the lanes are in use. About 658 feet of the Alpenbock Loop Trail (4.7% of the total length of trails in the area) would be removed by widening. The removed trail segment would be relocated to maintain connectivity.	Yes / *de minimis* impact
Temple Quarry Nature Trailhead (USDA Forest Service #1000)	Widening Little Cottonwood Canyon Road would require a temporary construction easement of ~0.40 acre from the USDA Forest Service. The land required is located between the Temple Quarry Nature Trailhead and S.R. 210. There would be no impacts to parking spots, the restroom, or trails. Access to the trail would be maintained during construction.	No (temporary occupancy) / NA
Bonneville Shoreline Trail	The planned Bonneville Shoreline Trail includes connections to the park-and-ride lot (Alpenbock Loop Trailhead) and the Temple Quarry Nature Trailhead. Impacts to these trailheads are discussed above in this table. The planned Bonneville Shoreline Trail could still connect to both trailheads. Thus, there would be no use of the Bonneville Shoreline Trail.	No use
Tanners Flat Campground	Widening Little Cottonwood Canyon Road would require a temporary construction easement of ~0.49 acre from the USDA Forest Service. The land required is located between the campground features and S.R. 210. There would be no impacts to campground features such as campsites, bathroom facilities, volleyball court, and amphitheater. Some vegetation adjacent to S.R. 210 might be removed during construction. All disturbed areas would be revegetated.	No (temporary occupancy) / NA

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Table 26.5-7. Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative

Resource	Description of Use	Section 4(f) Use / Impact
Lisa Falls Trail (USDA Forest Service #1012)	Widening Little Cottonwood Canyon Road would require ~0.16 acre of land transferred to, and a temporary construction easement of ~0.02 acre from, the USDA Forest Service. The total number of parking spots would not be reduced.	Yes / *de minimis* impact
White Pine Trail (USDA Forest Service #1002) Trailhead	Widening Little Cottonwood Canyon Road would require a temporary construction easement of ~0.15 acre from the USDA Forest Service. The land required is located between the parking lot and S.R. 210. There would be no impacts to parking spots, the restroom, or trails.	No (temporary occupancy) / NA

~ = approximately; NA = not applicable

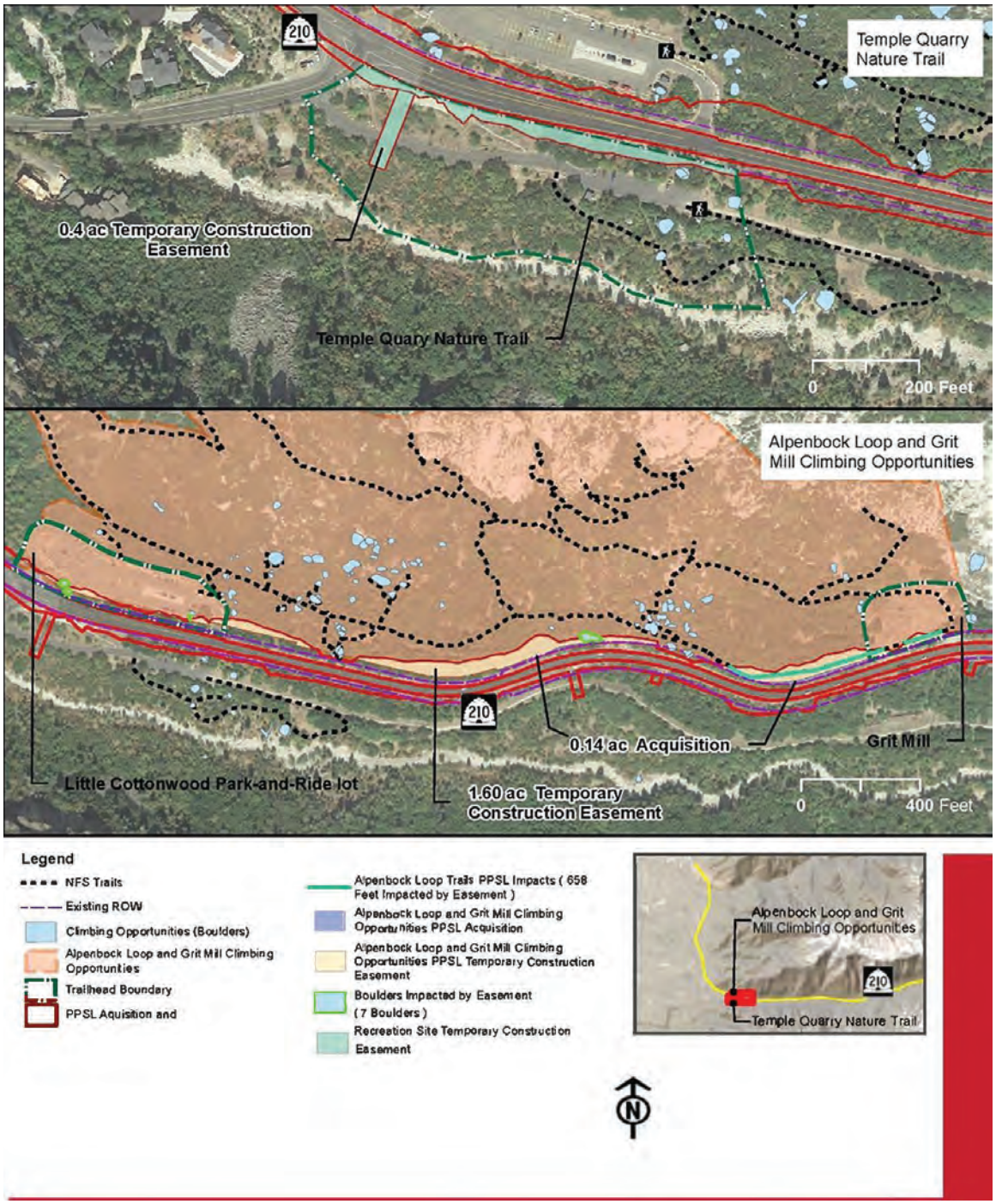
26.5.3.3 Mobility Hubs Alternative

The impacts from the mobility hubs with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be the same as with the Enhanced Bus Service Alternative.

26.5.3.4 Avalanche Mitigation Alternatives

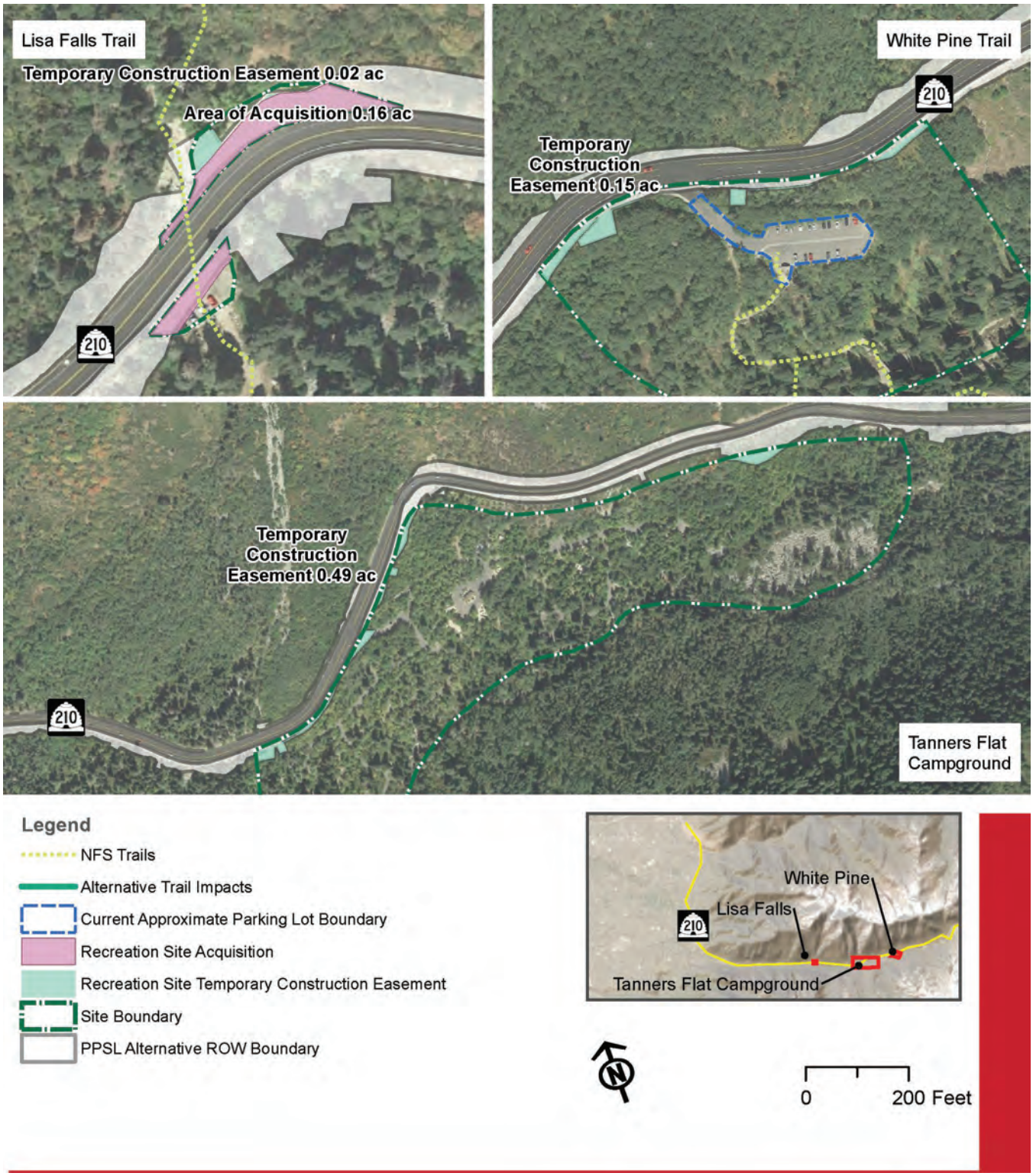
The impacts from the avalanche mitigation alternatives with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be the same as with the Enhanced Bus Service Alternative.

Figure 26.5-3. Use of the Alpenbock Loop and Grit Mill Climbing Opportunities and the Temple Quarry Nature Trail with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative



ROW = right of way; PPSL = peak-period shoulder lane

Figure 26.5-4. Use of Tanners Flat Campground, Lisa Falls Trail, and White Pine Trail with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative



NFS = National Forest System; ROW = right of way; PPSL = peak-period shoulder lane

26.5.3.5 Trailhead Parking Alternatives

The impacts to Section 4(f) resources from the trailhead parking alternatives with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be the same as with the Enhanced Bus Service Alternative. Some of the trailhead parking alternatives would eliminate roadside parking that is used to access Section 4(f) resources. However, roadside parking is not part of a recreation resource or protected under Section 4(f).

26.5.3.6 No Winter Parking Alternative

The impacts to Section 4(f) resources from the No Winter Parking Alternative with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be the same as with the Enhanced Bus Service Alternative.

26.5.4 Gondola Alternative A (Starting at Canyon Entrance)

This section describes the impacts to Section 4(f) resources from Gondola Alternative A, which includes a gondola alignment from the entrance to Little Cottonwood Canyon to the Snowbird and Alta ski resorts, improvements to the Wasatch Boulevard segment of S.R. 210, two mobility hubs, avalanche mitigation alternatives, trailhead parking alternatives, and the No Winter Parking Alternative.

What are gondola base, angle, and terminal stations?

As used in this chapter, the term *terminal station* refers to the first and last stations on a passenger's gondola trip. Passengers board and disembark the gondola cabins at the terminal stations.

The *base station* is the terminal station at the bottom of the canyon, and a *destination station* is a terminal station at the top of the canyon.

The gondola alternatives also include *angle stations*, which are needed to adjust the horizontal direction of the cabin; passengers remain in the cabin as it passes through an angle station.

A *tower* supports the gondola cable.

26.5.4.1 S.R 210 – Wasatch Boulevard

The impacts from the Imbalanced-lane and Five-lane Alternatives with Gondola Alternative A would be the same as with the Enhanced Bus Service Alternative.

26.5.4.2 S.R 210 – North Little Cottonwood Road to Alta

With Gondola Alternative A, there would be no change to the existing S.R. 210 roadway from North Little Cottonwood Road to the town of Alta. The gondola base station would be located at the existing Little Cottonwood Canyon park-and-ride lot at the intersection of S.R. 209 and S.R. 210. The base station and associated parking were designed to avoid, as much as possible, climbing boulders adjacent to the existing park-and-ride lot and to provide adequate trailhead parking. This design included designing the base station area around three boulders (see Figure 2.6-22, in Chapter 2, Alternatives, of the Draft EIS). Right-of-way acquisition, an easement, or a special-use authorization would be required for the base stations, towers, and the gondola alignment where they are located on National Forest System lands. Where the gondola alignment crosses privately owned land, property would be acquired for the towers and stations, and a perpetual easement would be obtained for land under the gondola cables.

UDOT does not currently know what type of right-of-way instrument (appropriation, easement, or special-use permit) would be used where the gondola alignment crosses USDA Forest Service land. Regardless of the

right-of-way instrument used, UDOT has assumed that land needed to construct the gondola towers and stations would be permanently incorporated into a transportation facility. In other words, UDOT has assumed that the gondola towers and stations located on a Section 4(f) property would result in a direct use. UDOT does not currently know whether an easement for the gondola alignment would include property rights for the land beneath the cables or aerial rights only. Therefore, UDOT does not know whether land associated with a Section 4(f) property under the cables would be permanently incorporated into a transportation facility, thereby resulting in a direct use.

This Section 4(f) analysis assumes that the gondola easement would result in a direct use of land under the cables. The easement is an 80-foot-wide area centered on the gondola cables and would encompass the area of gondola cabin overflight and the footprint of the gondola towers. If the right-of-way instrument ultimately used for the gondola system would not result in a direct use of the land under the cables (that is, aerial rights only), a constructive-use evaluation would be appropriate to determine whether proximity impacts from the gondola cabins passing overhead would result in a constructive use of Section 4(f) properties that do not have a direct use for towers or stations, but are entirely spanned by the gondola.

Constructive use occurs when a transportation project does not incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Use with *de minimis* impact occurs when land is permanently incorporated into a transportation facility but the project would not adversely affect the activities, features, or attributes that make these resources eligible for Section 4(f) protection. When a *de minimis* impact finding has been made based on the assumption that the easement beneath the gondola alignment would result in a use, it is a foregone conclusion that there could not be a constructive use with an aerial easement.

26.5.4.2.1 Section 4(f) Historic Properties

Gondola Alternative A would result in five uses with *de minimis* impacts (land acquisition without adversely impacting the historic building) from North Little Cottonwood Road to the town of Alta. Table 26.5-8 describes the uses of each Section 4(f) historic property. Figures showing impacts are available in the DOE/FOE (Appendix 15B, Determinations of Eligibility and Findings of Effect of the Draft EIS).

Table 26.5-8. Use of Section 4(f) Historic Properties from North Little Cottonwood Road to Alta with Gondola Alternative A

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
70	9202 E. Lodge Drive	Seven-story Brutalist-style hotel/condominium (The Inn at Snowbird)	EC	No adverse effect	The alternative would require an easement of ~0.01 acre under the gondola cables. The historic building would not be affected.	Yes / *de minimis* impact
71	9260 E. Lodge Drive	Seven-story Brutalist-style hotel/condominium (The Lodge at Snowbird)	ES	No adverse effect	The alternative would require an easement of ~0.40 acre under the gondola cables. The historic building would not be affected.	Yes / *de minimis* impact
72	9385 S. Snowbird Center Drive	Three-story Brutalist-style commercial and recreation/culture building (Snowbird Center)	ES	No adverse effect	The alternative would require an easement of ~1.31 acre under the gondola cables and acquisition of ~0.15 acre for a gondola tower. The historic building would not be affected.	Yes / *de minimis* impact
82	10230 E. Little Cottonwood Road	Three-story mixed-style (cross-gabled ski chalet and International style) hotel (Alta Lodge)	ES	No adverse effect	The alternative would require an easement of ~0.35 acre under the gondola cables and acquisition of ~0.06 acre for a gondola tower. The historic building would not be affected.	Yes / *de minimis* impact
NV5[b]	6279 E. Little Cottonwood Canyon	Potential historic-age building (Perpetual Storage)	Not eval-uated	No adverse effect	The alternative would require an easement of ~2.01 acres under the gondola cables and acquisition of ~0.15 acre for a gondola tower. The building would not be affected.	Yes / *de minimis* impact

~ = approximately

[a] Utah Division of State History (UDSH) rating for historic structures: EC = eligible/contributing; ES = eligible/significant. For more information, see Chapter 15, Cultural Resources.

[b] Salt Lake County Assessor data indicated this legal parcel as potentially having a historic-age building; however, the resource was not visible enough from the public right of way to evaluate it for Section 4(f) impacts.

26.5.4.2.2 Section 4(f) Recreation Resources

Gondola Alternative A would have six uses with *de minimis* impacts (land acquisition without adversely impacting the features, attributes, or activities) to Section 4(f) recreation resources from North Little Cottonwood Road to the town of Alta as described in Table 26.5-9. Four of the Section 4(f) resources that would be impacted are USDA Forest Service facilities (a campground, climbing opportunities, trails, and trailheads). There would also be uses with *de minimis* impacts to Section 4(f) resources at the Snowbird and Alta resorts. Impacts to Tanners Flat Campground are shown in Figure 26.5-5. Impacts to the Alpenbock Loop and Grit Mill Climbing Opportunities are shown in Figure 26.5-6 and described in more detail in Appendix 26B, *De minimis* Correspondence. Figures showing impacts to other Section 4(f) recreation resources are available in the Section 4(f) *de minimis* correspondence (Appendix 26B, *De Minimis* Correspondence).

Table 26.5-9. Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with Gondola Alternative A

Resource	Description of Use	Section 4(f) Use / Impact
Tanners Flat Campground	No stations or towers would be located in the campground; there would be no physical impacts to the campground or its features. The gondola system would require a ~4.27-acre easement or special-use permit from the USDA Forest Service where the gondola cables pass over the campground for ~2,300 feet. The easement or permit area would be ~82 feet wide. Tanners Flat Campground is open from late May through late September. During the summer, the gondola could operate from about 8 AM to 8 PM (final operating times would be determined once the gondola is in operation). There would be visual impacts as campground users see gondola cabins moving overhead, as well as privacy impacts related to being viewed by passengers in the cabins as they pass by. The visual impacts would vary from one campsite to another; the gondola cabins would be obscured by vegetation in some areas. Gondola cabins would be visible moving through openings in the trees from the amphitheater and volleyball court. The noise levels from the gondola system would be about 50 A-weighted decibels (dBA) (similar to a quiet office environment) or less than noise generated by vehicles on S.R. 210 (50 to 60 dBA) or the nearby Little Cottonwood Creek (see Chapter 11, Noise, for more details). To minimize impacts to campers, the gondola would not operate during the Tanners Flat Campground quiet hours of 10 PM to 7 AM. Different recreational user groups have different thresholds for sensory impacts. The gondola's summer operation could shift campground users toward a user group with a higher tolerance for development. For example, users could shift from tent campers to RV campers. During construction of the gondola system, temporary impacts would occur due to elevated noise levels from construction equipment.	Yes / *de minimis* impact

(*continued on next page*)

Table 26.5-9. Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with Gondola Alternative A

Resource	Description of Use	Section 4(f) Use / Impact
Alpenbock Loop and Grit Mill Climbing Opportunities	Gondola Alternative A would require an easement or special-use authorization from the USDA Forest Service for ~3.17 acres of land (5.5% of the total area) incorporated into the transportation facility for the base station and the one tower that would be located in the area. Most of the land required (~3.02 acres) would be for the base station, of which 1.60 acres are currently used as a park-and-ride lot. An additional ~4.57 acres of easement or special-use permit would be required for the 80-foot-wide easement beneath the gondola cables (7.9% of the total area). The gondola base station would be constructed at the current location of the park-and-ride lot, which serves as the trailhead for the Alpenbock Trail. The total number of parking spaces at the park-and-ride lot would be reduced from about 160 to 95, but continued access for Alpenbock Trail users would be maintained. Some of the parking spaces would be marked for Alpenbock Trail users only, which is not currently the case. The existing restroom at the park-and-ride lot would be removed, but a new one would be provided. There would be no impacts to parking spots, restrooms, or interpretive sign at the Grit Mill Trailhead. About four climbing boulders (2.8% of the total boulders in the area) would be removed. During construction, UDOT will evaluate whether any of these boulders could be relocated within the area. If the boulders could be relocated, it is likely that specific climbing routes, or "problems," would be changed by the relocation; however, there would be opportunities for new problems to be developed. About 31 climbing boulders (21.7% of the climbing boulders in the area) would be located within the 80-foot-wide easement beneath the gondola cables but would not be directly impacted. Access to the boulders would not be restricted beneath the easement, and the boulders could still be used for climbing. None of the vertical routes would be impacted. The gondola system would be visible from some climbing boulders and vertical routes. Climbers could be visible to passengers as gondola cabins pass overhead; however, many of the bouldering areas are shielded by vegetation. Some climbers might feel that the gondola system detracts from their scenic views of the canyon or might feel uncomfortable that they could be viewed by gondola passengers. However, serenity is not an attribute that can be expected because the area is adjacent to the road. These areas would continue to be available for climbing. About 371 feet of the Alpenbock Loop Trail (2.6% of the total length of trails in the area) would be realigned, and connectivity from the reconstructed parking lot to the Alpenbock Loop Trail would be maintained. About 1,113 feet of trail (7.9% of the trails in the area) would be in the 80-foot-wide easement beneath the gondola cables but would not be directly impacted. UDOT expects that the noise levels from the gondola system would be about 50 dBA (similar to a quiet office environment), or less than the noise generated by vehicles on S.R. 210 (50 to 60 dBA).	Yes / *de minimis* impact
Bonneville Shoreline Trail	The planned Bonneville Shoreline Trail includes a connection to the park-and-ride lot (Alpenbock Loop Trailhead). Impacts to the trailhead are discussed above in Section 26.5.3.2.2, Section 4(f) Recreation Resources. The planned Bonneville Shoreline Trail could still connect to the reconstructed Alpenbock Loop Trailhead. Thus, there would be no use of the Bonneville Shoreline Trail.	No use
Little Cottonwood Creek Trail (USDA Forest Service #1001)	The gondola system would require an easement or special-use permit from the USDA Forest Service where the gondola cables pass over ~100 feet of the Little Cottonwood Creek Trail. The location of the crossing would be near the east end of the trail near the Lisa Falls Trailhead. There would be no physical impact to the trail.	Yes / *de minimis* impact

(*continued on next page*)

Table 26.5-9. Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with Gondola Alternative A

Resource	Description of Use	Section 4(f) Use / Impact
White Pine Trail (USDA Forest Service #1002)	No gondola stations or towers would be located within the White Pine Trailhead; there would be no physical impacts to the parking area, restroom, or trails. The gondola system would require a ~0.75-acre easement or special-use permit from the USDA Forest Service where the gondola cables pass over the parking area.	Yes / *de minimis* impact
Section 4(f) resources at Snowbird	The gondola cables would pass over parking and tennis courts within Snowbird's special-use permit area. About eight parking spaces near the Iron Blosam Lodge would be removed to construct a gondola tower. The tennis court would not be impacted.	Yes / *de minimis* impact
Section 4(f) resources at Alta	The gondola system would require an easement or special-use permit from the USDA Forest Service where the gondola cables pass over the transfer tow.	Yes / *de minimis* impact
Alta Town Park	The Alta Town Park is on USDA Forest Service land and is used during the summer. The park is located next to the existing Alta ski resort lifts and facilities. The gondola cables would not be over the park, and the gondola towers would not be within the park boundary. The proximity of the gondola towers and cables would not substantially impair the use of the park as a volleyball court and picnic area.	No use

Source: Calculated from GIS-based inventory
~ = approximately

26.5.4.3 Mobility Hubs Alternative

The impacts from the mobility hubs with Gondola Alternative A would be the same as with the Enhanced Bus Service Alternative.

26.5.4.4 Avalanche Mitigation Alternatives

The impacts from avalanche mitigation alternatives with Gondola Alternative A would be the same as with the Enhanced Bus Service Alternative.

26.5.4.5 Trailhead Parking Alternatives

The impacts from the trailhead parking alternatives with Gondola Alternative A would be the same as with the Enhanced Bus Service Alternative.

26.5.4.6 No Winter Parking Alternative

The impacts from the No Winter Parking Alternative with Gondola Alternative A would be the same as with the Enhanced Bus Service Alternative.

Figure 26.5-5. Use of Tanners Flat Campground with Gondola Alternatives A and B

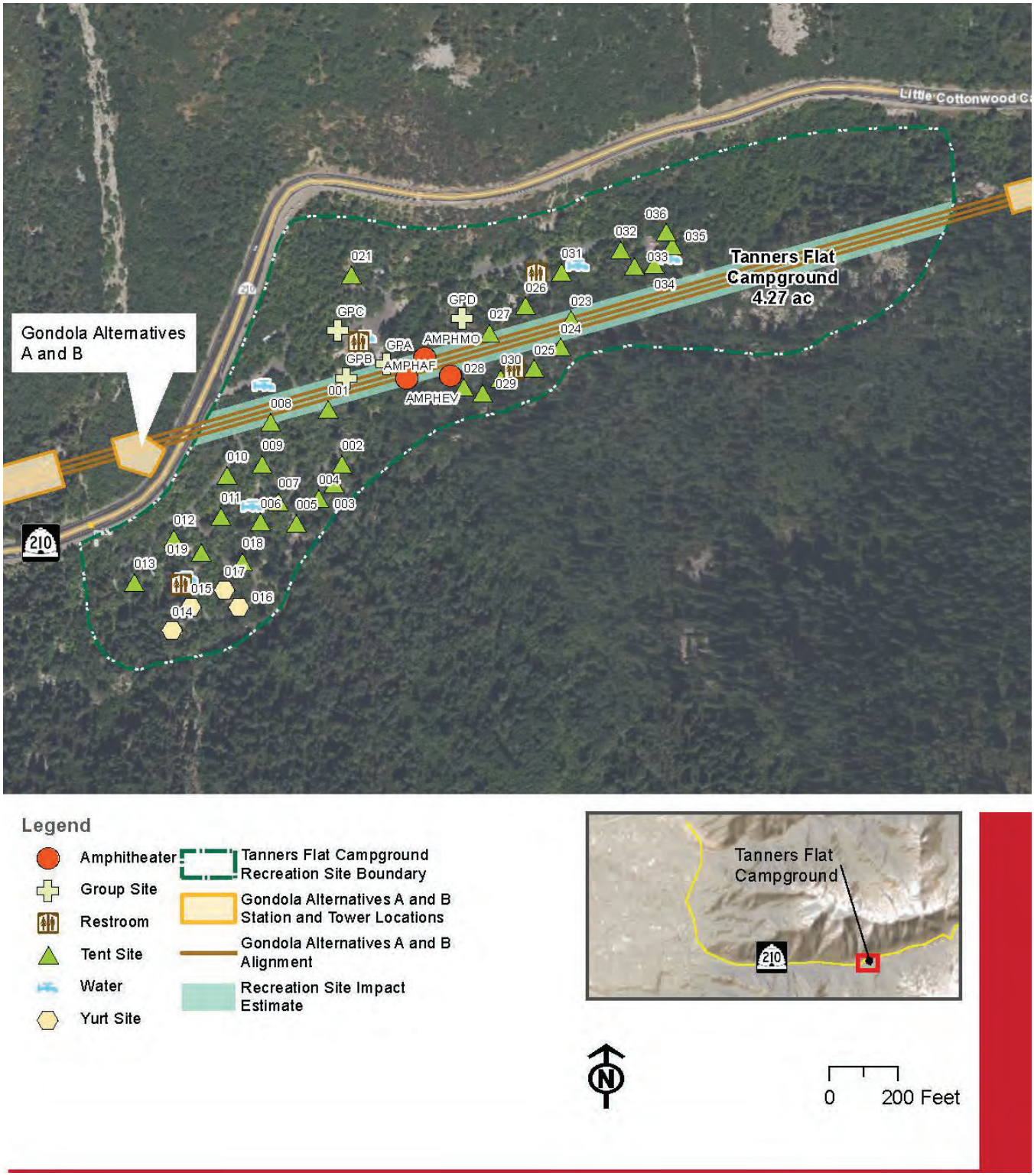
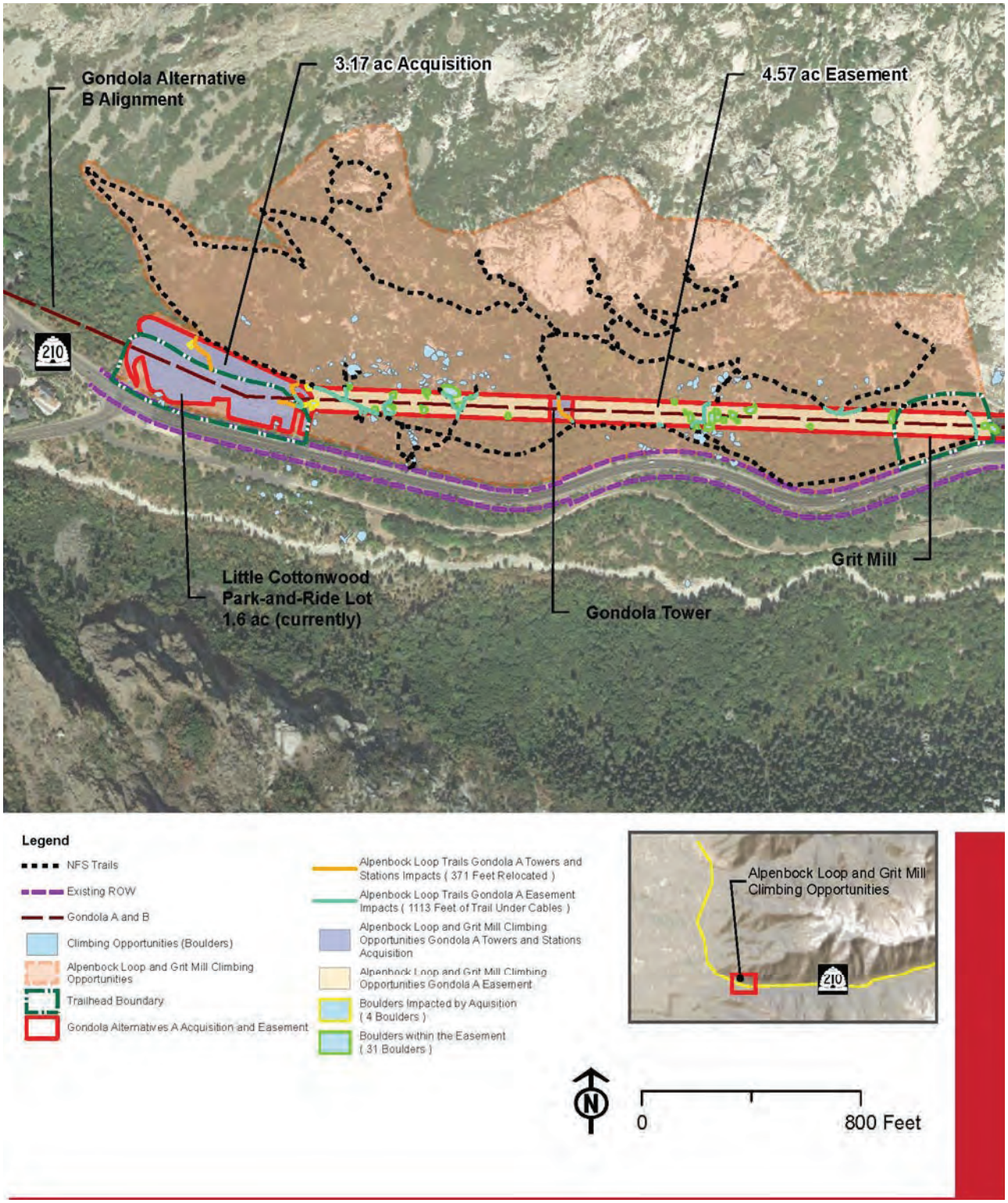


Figure 26.5-6. Use of Alpenbock Loop and Grit Mill Climbing Opportunities with Gondola Alternative A



26.5.5 Gondola Alternative B (Starting at La Caille)

This section describes the impacts to Section 4(f) resources from Gondola Alternative B, which includes a gondola alignment from La Caille to the Snowbird and Alta ski resorts, improvements to the Wasatch Boulevard segment of S.R. 210, two mobility hubs, avalanche mitigation alternatives, trailhead parking alternatives, and the No Winter Parking Alternative.

The use to Section 4(f) resources from Gondola Alternative B would be the same as with Gondola Alternative A except for the additional 0.75 mile of gondola alignment. This section discusses the impacts to Section 4(f) resources from this additional 0.75 mile of alignment.

26.5.5.1.1 Section 4(f) Historic Properties

Gondola Alternative B would result in three additional uses with *de minimis* impacts (land acquisition without adversely impacting the historic building) to Section 4(f) historic properties (compared to Gondola Alternative A) at the base station at La Caille as described in Table 26.5-10. Figures showing impacts are available in the DOE/FOE (Appendix 15B, Determinations of Eligibility and Findings of Effect).

Table 26.5-10. Use of Section 4(f) Historic Properties at the Base Station at La Caille with Gondola Alternative B

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determination	Description of Use	Section 4(f) Use / Impact
61	3742 E. North Little Cottonwood Road	One-and-a-half-story Victorian Eclectic-style single-family dwelling	ES	No adverse effect	Constructing the gondola base station at La Caille would require acquisition of ~0.43 acre. The historic building would not be affected.	Yes / *de minimis* impact
84	9338 S. North Little Cottonwood Road	One-and-a half story side-passage type Victorian Eclectic-style single family dwelling	ES	No adverse effect	Constructing the gondola base station at La Caille would require acquisition of ~0.04 acre. The historic building would not be affected.	Yes / *de minimis* impact
NV3[b]	4261 Little Cottonwood Road	Potential historic-age building	Not eval-uated	No adverse effect	Constructing the gondola base station at La Caille would require an easement of ~0.16 acre under the gondola cables. The building would not be affected.	Yes / *de minimis* impact

~ = approximately

[a] Utah Division of State History (UDSH) rating for historic structures: ES = eligible/significant. For more information, see Chapter 15, Cultural Resources.

[b] Salt Lake County Assessor data indicated this legal parcel as potentially having a historic-age building; however, the resource was not visible enough from the public right of way to evaluate it for Section 4(f) impacts.

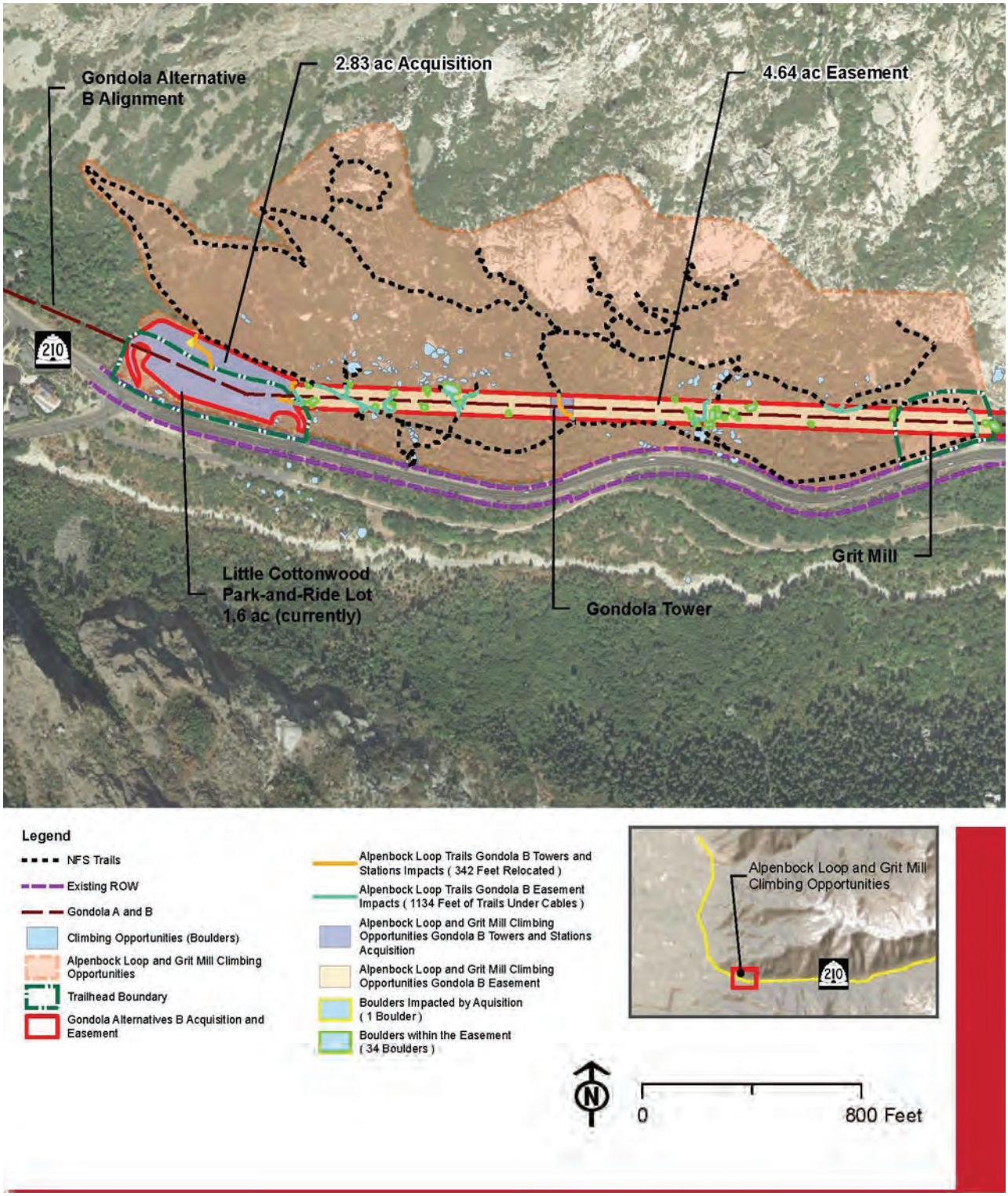
26.5.5.1.2 Section 4(f) Recreation Resources

The use of Section 4(f) resources and type of use (*de minimis*) for Gondola Alternative B would be the same as for Gondola Alternative A. However, Gondola Alternative B would have the following differences in impacts to the Alpenbock Loop and Grit Mill Climbing Opportunities (Figure 26.5-7):

- Gondola Alternative B would require an easement or special-use permit authorization from the USDA Forest Service for 2.83 acres of land versus 3.17 acres of land for Gondola Alternative A.
- For Gondola Alternative B, an additional 4.64 acres of easement or special-use permit would be required for the 80-foot-wide easement beneath the gondola cables versus 4.57 acres for Gondola Alternative A.
- Gondola Alternative B would require the removal of one climbing boulder versus 4 climbing boulders for Gondola Alternative A.
- Gondola Alternative B would result in 34 climbing boulders being within the 80-foot-wide easement beneath the gondola cables versus 31 climbing boulders for Gondola Alternative A.
- Gondola Alternative B would remove 342 feet of the Alpenbock Loop Trail versus 371 feet with Gondola Alternative A.
- Gondola Alternative B would have about 1,134 feet of the Alpenbock Loop Trail under the 80-foot-wide easement versus 1,113 feet for Gondola Alternative A.

Gondola Alternative B would have no additional impacts to Section 4(f) recreation properties at the base station at La Caille.

Figure 26.5-7. Use of Alpenbock Loop and Grit Mill Climbing Opportunities with Gondola Alternative B



26.5.6 Cog Rail Alternative (Starting at La Caille)

This section describes the impacts to Section 4(f) resources from the Cog Rail Alternative, which includes a cog rail alignment from La Caille to the Snowbird and Alta ski resorts, improvements to the Wasatch Boulevard segment of S.R. 210, improvements to the segment of S.R. 210 on North Little Cottonwood Road, two mobility hubs, avalanche mitigation alternatives, trailhead parking alternatives, and the No Winter Parking Alternative.

What are cog rail base and terminal stations?

As used in this chapter, the term *terminal station* refers to the first and last stations on a passenger's cog rail trip. Passengers board and disembark the cog rail vehicles at the terminal stations.

The *base station* is the terminal station at the bottom of the canyon, and a *destination station* is a terminal station at the top of the canyon.

26.5.6.1 S.R. 210 – Wasatch Boulevard

The Section 4(f) impacts from the Imbalanced-lane and Five-lane Alternatives with the Cog Rail Alternative would be the same as with the Enhanced Bus Service Alternative.

26.5.6.2 S.R. 210 – North Little Cottonwood Road to Alta

The proposed cog rail system would include a base station at La Caille and an operations and maintenance facility at the existing Little Cottonwood Canyon park-and-ride lot (at the intersection of S.R. 209 and S.R. 210). The operations and maintenance facility would provide cog rail service, fueling, and administrative offices. The cog rail would operate on the north side of S.R. 210 in Little Cottonwood Canyon.

26.5.6.2.1 Section 4(f) Historic Properties

The Cog Rail Alternative would have seven uses with *de minimis* impacts (land acquisition without adversely impacting the historic building) and one temporary occupancy with no use (temporary construction easement with minimal impact and without land acquisition) from North Little Cottonwood Road to the town of Alta. Table 26.5-11 describes the uses of each Section 4(f) historic property. Figures showing impacts are available in the DOE/FOE (Appendix 15B, Determinations of Eligibility and Findings of Effect).

26.5.6.2.2 Section 4(f) Recreation Resources

The Cog Rail Alternative would have one use with greater–than–*de minimis* impact, two uses with *de minimis* impacts (land acquisition without impacting the features, attributes, or activities of the property), and four temporary occupancies with no use (temporary construction easement with minimal impact and without land acquisition) to Section 4(f) recreation resources from North Little Cottonwood Road to the town of Alta as described in Table 26.5-12. Impacts to the Alpenbock Loop and Grit Mill Climbing Opportunities are shown in Figure 26.5-8 and described in more detail in Appendix 26B, *De minimis* Correspondence. Impacts to other Section 4(f) resources are shown in the Section 4(f) *de minimis* correspondence (Appendix 26B, *De Minimis* Correspondence). The cog rail tracks would be constructed during the summer over a 2-to-3-year construction period. During construction, trailheads could be temporarily closed, which would limit access to the trail.

Table 26.5-11. Use of Section 4(f) Historic Properties from North Little Cottonwood Road to Alta with the Cog Rail Alternative

ID	Address	Property Description	UDSH Rating[a]	Section 106 Effect Determin-ation	Description of Use	Section 4(f) Use / Impact
61	3742 E. North Little Cottonwood Road	One-and-a-half-story Victorian Eclectic-style single-family dwelling	ES	No adverse effect	Constructing the cog rail base station would require acquisition of ~0.43 acre. The historic building would not be affected.	Yes / *de minimis* impact
63	4700 E. Little Cottonwood Road	Temple Granite Quarry Historical Marker	EC	No adverse effect	Constructing the cog rail tracks would require a temporary construction easement of ~0.14 acre. The historical marker would not be affected.	No (temporary occupancy) / NA
67	9111 E. Little Cottonwood Canyon	Two-story Organic-style single dwelling	ES	No adverse effect	Constructing the cog rail tracks would require acquisition of ~0.08 acre. The historic building would not be affected.	Yes / *de minimis* impact
68	9121 E. Snowbird Center Drive	Eleven-story Brutalist-style timeshare/ condominium (Iron Blosam Lodge)	ES	No adverse effect	Constructing the cog rail tracks would require acquisition of ~0.36 acre from the property. The historic building would not be affected.	Yes / *de minimis* impact
72	9385 S. Snowbird Center Drive	Three-story Brutalist-style commercial and recreation/culture building (Snowbird Center)	ES	No adverse effect	Constructing the cog rail tracks would require acquisition of ~1.61 acres and a temporary construction easement of ~0.02 acre. The historic building would not be affected.	Yes / *de minimis* impact
84	9338 S. North Little Cottonwood Road	One-and-a half story side-passage-type Victorian Eclectic-style single family dwelling	ES	No adverse effect	Constructing the cog rail base station would require acquisition of ~0.04 acre. The historic building would not be affected.	Yes / *de minimis* impact
NV3[b]	4261 Little Cottonwood Road	Potential historic-age building	Not eval-uated	No adverse effect	Constructing the cog rail tracks would require acquisition of ~0.03 acre. The building would not be affected.	Yes / *de minimis* impact
NV5[b]	6279 E. Little Cottonwood Canyon	Potential historic-age building (Perpetual Storage)	Not eval-uated	No adverse effect	Constructing the cog rail tracks would require acquisition of ~2.22 acres and a temporary construction easement of ~1.23 acres. The building would not be affected.	Yes / *de minimis* impact

~ = approximately; NA = not applicable

[a] Utah Division of State History (UDSH) rating for historic structures: EC = eligible/contributing; ES = eligible/significant. For more information, see Chapter 15, Cultural Resources.

[b] Salt Lake County Assessor data indicated these legal parcels as potentially having historic-age buildings; however, the resources were not visible enough from the public right of way to evaluate them for Section 4(f) impacts.

Table 26.5-12. Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with the Cog Rail Alternative

Resource	Description of Use	Section 4(f) Use / Impact
Tanners Flat Campground	Constructing the cog rail tracks would require a temporary construction easement of ~0.03 acre from the USDA Forest Service. The land required is located between the campground features and S.R. 210. There would be no impacts to campground features such as campsites, bathroom facilities, volleyball court, and amphitheater.	No (temporary occupancy) / NA
Alpenbock Loop and Grit Mill Climbing Opportunities	Constructing the cog rail system, including the operations and maintenance facility, would require an easement or special-use authorization for ~12.91 acres of USDA Forest Service land (22.3% of the total area). The land required is located along the north side of S.R. 210. The operations and maintenance facility would be constructed on land where the park-and-ride lot, which serves as the trailhead for the Alpenbock Trail, is currently located. The park-and-ride lot and Grit Mill Trailhead would both be reconstructed. After reconstruction, both trailheads would include restroom facilities and designated parking areas, thereby providing the same benefits as under the current conditions. About 51% of the total climbing boulders (73 of 143) in the area would be removed. During construction, UDOT will evaluate whether any of these boulders could be relocated within the area. If boulders could be relocated, it is likely that specific climbing routes, or "problems," would be changed by the relocation; however, there would be opportunities for new problems to be developed. None of the vertical routes would be impacted. About 4,454 feet of trail (31.7% of the total length of trails in the area) would be realigned. Connectivity from the reconstructed park-and-ride lot and Grit Mill Trailhead to the existing trail system would be maintained. According to Federal Transit Administration methodologies, noise impacts are expected to occur when there are noise-sensitive receivers within 105 feet of the cog rail tracks and within 332 feet of the operations and maintenance facility. Most climbing opportunities identified in the USDA Forest Service decision document would be located more than 105 feet from the cog rail tracks, or more than 332 feet from the operations and maintenance facility. However, there could be noise impacts to one bouldering area near the proposed maintenance facility.	Yes / Greater–than–*de minimis* impact
Temple Quarry Nature Trail (USDA Forest Service #1000)	Constructing the cog rail tracks would require a temporary construction easement of ~0.12 acre from the USDA Forest Service. The easement would span the access road to the trailhead. There would be no impacts to the trail or trailhead features such as parking or restroom facilities.	No (temporary occupancy) / NA
Bonneville Shoreline Trail	The planned Bonneville Shoreline Trail includes connections to the park-and-ride lot (Alpenbock Loop Trailhead) and Temple Quarry Nature Trailhead. Impacts to these trailheads are discussed above in the table. UDOT would work with the USDA Forest Service to ensure that ~550 feet of trail could be realigned to provide continuity on the northeast side of S.R. 210 across the road from the cog rail base station at La Caille.	Yes / *de minimis* impact
Little Cottonwood Creek Trail (USDA Forest Service #1001)	The Little Cottonwood Creek Trail begins at the Temple Quarry Nature Trail Trailhead. Impacts would be the same as described for the Temple Quarry Nature Trail above.	No (temporary occupancy) / NA

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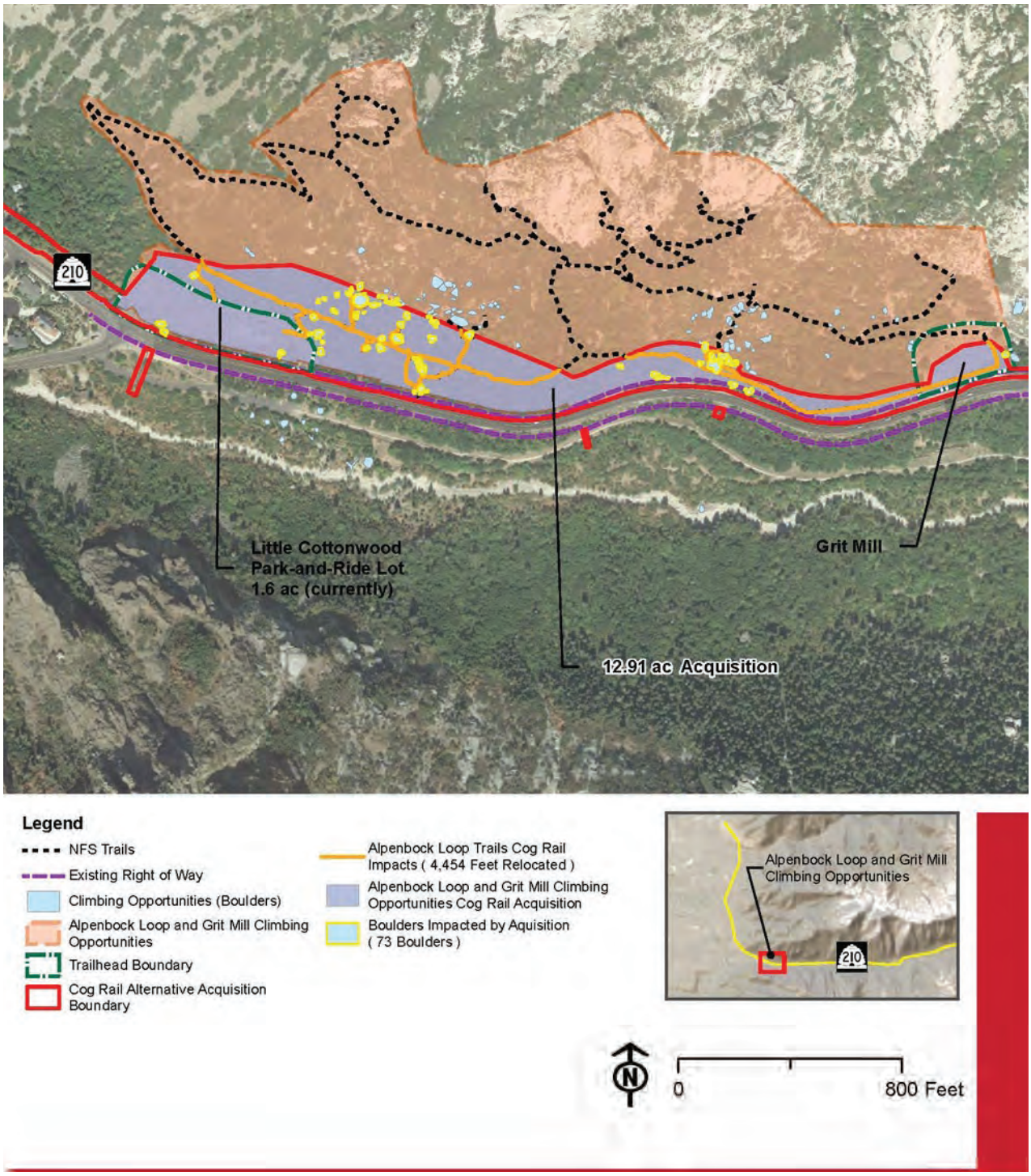
Table 26.5-12. Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with the Cog Rail Alternative

Resource	Description of Use	Section 4(f) Use / Impact
Lisa Falls Trail (USDA Forest Service #1012)	As part of the cog rail design, the dirt pullout that serves as the Lisa Falls Trailhead would be reconstructed to include restroom facilities and designated parking areas. About 150 feet of trail would be impacted, and ~0.15 acre of the existing trailhead parking area would be acquired for trailhead improvements. The overall access to Lisa Falls Trail would be improved compared to existing conditions.	Yes / *de minimis* impact
White Pine Trail (USDA Forest Service #1002)	Constructing the cog rail tracks would require a temporary construction easement of ~0.03 acre from the USDA Forest Service. The easement would be located adjacent to S.R. 210 west of the access road. It would not affect the trail, access to the trailhead, or trailhead features such as parking or restroom facilities.	No (temporary occupancy) / NA

Source: Calculated from GIS-based inventory
~ = approximately; NA = not applicable

Figure 26.5-8. Use of Alpenbock Loop and Grit Mill Climbing Opportunities with the Cog Rail Alternative



26.5.6.3 Mobility Hubs Alternative

The impacts from the mobility hubs with the Cog Rail Alternative would be the same as with the Enhanced Bus Service Alternative.

26.5.6.4 Avalanche Mitigation Alternatives

The Section 4(f) impacts from the avalanche mitigation alternatives with the Cog Rail Alternative would be the same as with the Enhanced Bus Service Alternative for the mid-canyon snow sheds. However, with the Cog Rail Alternative, an additional snow shed would be constructed in the upper canyon between the west-end and east-end connections of the Alta Bypass Road to S.R. 210 to minimize avalanche risk to the cog rail system. Constructing this snow shed would require right-of-way acquisition and a temporary construction easement from one historic property (ID# 72, The Snowbird Center). The upper-canyon snow shed is integral to the Cog Rail Alternative; the alternative would not be constructed without it. For this reason, impacts from the snow shed were not calculated separately. Impacts related to this snow shed are included with the cog rail impacts described in Table 26.5-11 above, Use of Section 4(f) Historic Properties from North Little Cottonwood Road to Alta with the Cog Rail Alternative.

26.5.6.5 Trailhead Parking Alternatives

The Cog Rail Alternative would have a use with *de minimis* impact to the Lisa Falls Trailhead and temporary occupancy of the White Pine Trailhead. The Lisa Falls Trailhead would be reconstructed as part of the cog rail design. Impacts to the Lisa Falls Trailhead are described in Table 26.5-12 above, Use of Section 4(f) Recreation Resources from North Little Cottonwood Road to Alta with the Cog Rail Alternative. The impacts from the Cog Rail Alternative to the White Pine Trailhead would be the same as with the Enhanced Bus Service Alternative.

26.5.6.6 No Winter Parking Alternative

The impacts from the No Winter Parking Alternative with the Cog Rail Alternative would be the same as with the Enhanced Bus Service Alternative.

26.6 Avoidance Alternatives

Unless the use of land from a Section 4(f) property is determined to be a use with a *de minimis* impact, UDOT must determine that no feasible and prudent avoidance alternative exists before approving the use of such land (23 CFR Section 774.3). Two Section 4(f) properties would have uses with greater–than–*de minimis* impacts: Site 42SL419 with the avalanche mitigation sub-alternatives and the Alpenbock Loop and Grit Mill Climbing Opportunities with the Cog Rail Alternative. This section evaluates whether a feasible and prudent avoidance alternative exists for either of these two properties.

According to 23 CFR Section 774.17, the definition of a "feasible and prudent avoidance alternative" is one that avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. An alternative is not feasible if it cannot be built as a matter of sound engineering judgment. Multiple factors listed in 23 CFR Section 774.17 that must be considered in determining whether an avoidance alternative is not prudent. An alternative is not prudent if:

1. It compromises the project to a degree that is unreasonable to proceed with the project in light of its stated purpose and need;
2. It results in unacceptable safety or operational problems;
3. After reasonable mitigation, it still causes:
    a. Severe social, economic, or environmental impacts;
    b. Severe disruption to established communities;
    c. Severe disproportionate impacts to minority or low income populations; or
    d. Severe impacts to environmental resources protected under other federal statutes;
4. It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
5. It causes other unique problems or unusual factors; or
6. It involves multiple factors in paragraphs 1 through 5 of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

Also, the *Section 4(f) Policy Paper* states that "a project alternative that avoids one Section 4(f) property by using another Section 4(f) property is not an avoidance alternative" (FHWA 2012).

26.6.1 Site 42SL419 – Avalanche Mitigation Alternatives

Site 42SL419 is an archaeological site (a historic railroad with intact retaining wall segments known colloquially as the "China Wall") as described in Table 26.4-1. Site 42SL419 would have a use with greater–than–*de minimis* impact with either of the avalanche mitigation sub-alternatives, as described in Table 26.5-4. Avalanche mitigation is required with all the primary action alternatives. Therefore, site 42SL419 would have a use with greater–than–*de minimis* impact with both enhanced bus service alternatives, both gondola alternatives, and the Cog Rail Alternative.

26.6.1.1 No Avalanche Mitigation

Per FHWA guidance, evaluation of avoidance alternatives should include a no-action alternative. For this analysis, the no-action alternative would not include any avalanche mitigation measures. It would not result in use of site 42LS419. However, it would not meet the purpose of and need for the project. Avalanche mitigation is required for all of the primary action alternatives to improve reliability related to road closures and to improve safety associated with avalanche hazards. Because it would not meet the purpose of and need for the project, it is not a prudent alternative.

26.6.1.2 Active Avalanche Mitigation

When evaluating avalanche mitigation alternatives, UDOT first considered passive and active avalanche-control measures. Active measures include blasting using artillery or explosives to create a controlled avalanche release, during which time the road is closed. UDOT currently uses active measures to control avalanches, which requires closing S.R. 210 during avalanche-control processes. Passive measures include placing snow sheds over the road, building walls to stop avalanches from impacting the road, or realigning the road outside the avalanche path. Passive measures normally do not require closing the road.

Active avalanche mitigation would not result in use of site 42LS419. However, it would not meet the purpose of and need for the project. The project purpose requires that avalanche mitigation improve S.R. 210's reliability by substantially reducing the number of days and hours when the road is closed for avalanche control and incidents. Because active measures would still require road closure during the avalanche-mitigation process (as with the existing conditions) and would not reduce the number of days or hours of closure, they were eliminated from detailed consideration. Because the active avalanche mitigation would not meet the purpose of and need for the project, it is not a prudent alternative.

26.6.1.3 Passive Avalanche Mitigation (Other than Snow Sheds)

Multiple passive avalanche mitigation alternatives were considered including snow-supporting structures, roadway realignment, and deflection and stopping walls. Table 26.6-1 lists the preliminary passive avalanche mitigation alternatives that could avoid the use of site 42SL419.

UDOT conducted a preliminary review of each passive avalanche mitigation alternative to determine whether the avalanche mitigation could substantially reduce the hours and days of closure caused by the type of avalanche that typically occurs in Little Cottonwood Canyon. In Little Cottonwood Canyon, the nature of the terrain (typically gullied and/or with smooth ground cover) and often dry snow characteristics result in very fast-moving, turbulent, mixed-flow avalanches, which have a basal dense flow component and a turbulent powder component. Wet flows are also common in the spring. This analysis is based on a review of the avalanche mitigation alternatives conducted by Dynamic Avalanche Consulting (2018a, 2018b).

Little Cottonwood Canyon is in the Uinta-Wasatch-Cache National Forest. The canyon is home to two National Wilderness Areas: Twin Peaks Wilderness to the north of S.R. 210 and Lone Peak Wilderness to the south. The Wilderness Act does not allow permanent structures within a wilderness. Therefore, as part of the preliminary review of passive avalanche mitigation alternatives, UDOT determined that any alternative that would conflict with the Wilderness Act by requiring construction of a significant structure or fence in a wilderness area is not prudent.

Table 26.6-1. Passive Avalanche Mitigation Avoidance Alternatives

Avalanche Mitigation Alternative	Description	
Snow-supporting Structures Alternative	Snow-supporting structures are placed in the avalanche starting zone to hold the snow in place and prevent avalanches. Modern snow-supporting structures are now typically constructed using anchored wire nets either with one single anchor point or with supporting posts.	
Road Realignment and Bridges Alternative	S.R. 210 would be realigned to facilitate structures that would be built so that the avalanche flows could pass under the roadway to eliminate risk, or S.R. 210 would be realigned to move the road outside the avalanche path.	
Earth Berms Alternative (Stopping Dams and Diversion Berms)	Earth berms are large, earth-fill structures that are constructed in the runout zone to divert or stop avalanche flows. Berms that stop avalanches are called stopping dams, and berms that divert flow are called diversion berms. Berms are typically constructed of compacted earth, but other materials such as geotextiles and facing units (for example, gabions, concrete blocks, or stacked rock) can be used to create a steep upslope face and reduce the amount of fill needed. The “China Wall” at the base of the White Pine path is an example of an earth-fill berm with stone facing.	
Stopping Walls Alternative	Stopping walls are constructed to stop avalanche dense flows in the runout zone typically adjacent to a highway or structure that is to be protected. Stopping walls can be reinforced concrete, concrete blocks, snow fence/catcher, and/or driven piles with cross members. Stopping walls are typically constructed where there are space restrictions; otherwise, earth-fill diversions or stopping dams tend to be more economical and can be constructed much higher.	

26.6.1.3.1 Snow-supporting Structures Alternative

With this alternative, snow-supporting structures could be applied in many of the avalanche starting zone areas above Little Cottonwood Canyon. However, this option would require the structure to be placed in a designated Wilderness Area, which conflicts with the Wilderness Act. Because snow-supporting structures would need to be placed in a Wilderness Area, they were considered not prudent.

26.6.1.3.2 Road Realignment and Bridges Alternative

With this alternative, S.R. 210 would be realigned and bridges would be built so that avalanches would not impact the roadway. This configuration can be achieved by rerouting the roadway (away from the avalanche paths) or, in the right circumstances, spanning the avalanche paths with bridges. Although road realignment and bridges would prevent most avalanches from impacting the road, there would still be powder avalanche risk that would require UDOT to perform active avalanche control, and this risk would require road closure (Dynamic Avalanche Consulting 2018b). The road realignment would also require an increase in the S.R. 210 road grade from 8% to about 9.5%, which would increase the risk for slide offs and incidents in icy conditions with the steeper grade. Based on the need to have an active avalanche program to reduce the risk of powder avalanches and the increase in road grade, UDOT determined that the Road Realignment and Bridges Alternative not feasible. Figure 26.6-1 shows the potential road realignment with bridges.

The Road Realignment and Bridges Alternative was determined not feasible, but the road realignment would also need to be realigned into the Tanners Flat Campground, which is also a Section 4(f) property. With the realignment, most of the camp sites would be eliminated, resulting in a Section 4(f) use with greater–than–*de minimis* impact. Therefore, this alternative would not be considered an avoidance alternative.

A second alignment was also suggested that would cross Little Cottonwood Creek south of the Tanners Flat Campground, run on the south side of the canyon, and cross the creek to reconnect with S.R. 210 west of Snowbird Entry 1. This alternative was determined not prudent since it would cross into the Lone Peak Wilderness.

Figure 26.6-1. Road Realignment and Bridges Alternative

LEGEND

- Mileposts
- Road Realignment
- Tanners Flat Campground
- Avalanche Paths
- Snowbird Ski and Summer Resort

26.6.1.3.3 Earth Berms Alternative

Berms need to be constructed tall enough to either stop an avalanche flow or divert it. The height is determined by the sum of the height of snow on the ground, the height of previous deposits, the avalanche flow height, and, most importantly, the speed of the avalanche, which determines the run-up height of the avalanche flow on the berm. Avalanche flows would run up higher on a stopping dam where the dam is oriented perpendicular to the flow compared to a diversion berm, where the berm is oriented obliquely to the flow direction.

In Little Cottonwood Canyon, the nature of the terrain (typically gullied and/or with smooth ground cover) and often dry snow characteristics result in very fast-moving, turbulent, mixed-flow avalanches, which have a basal dense flow component and a turbulent powder component. Wet flows are also common in the spring. Because of the fast-moving avalanches, diversion and stopping berms need to be very high to be effective for the dense flow and would typically be ineffective for stopping or diverting the powder component. Berm walls were determined not to be feasible because they would not be effective for very fast-moving avalanches and would be overtopped by powder avalanche flows, which could become airborne below the berm. Diversion berms were not considered feasible because the berm would divert avalanche flows to adjacent areas, which could reduce the hazard in one path and increase the risk in others, thereby not changing the overall risk (Dynamic Avalanche Consulting 2018a).

26.6.1.3.4 Stopping Walls Alternative

The Little Cottonwood Canyon corridor was reviewed to determine areas where stopping walls would be feasible. The avalanche paths produce fast-moving, turbulent avalanches that would simply overtop these structures, and active avalanche control would still be needed to reduce risk to acceptable levels. Therefore, stopping walls were determined not to be feasible (Dynamic Avalanche Consulting 2018b).

26.6.1.4 Design Changes

Design changes were evaluated to determine whether the locations or sizes of the snow sheds proposed with the avalanche mitigation sub-alternatives could be modified in a manner that would avoid a greater–than–*de minimis* impact to site 42SL419.

26.6.1.4.1 Snow Shed Location

Site 42SL419 is within the White Pine avalanche chute, which is considered a high-risk avalanche path with respect to S.R. 210 (Dynamic Avalanche Consulting 2018a). To meet the screening criteria for avalanche mitigation of improving S.R. 210's reliability by substantially reducing the number of days and hours when the road is closed for avalanche mitigation, the White Pine avalanche chute must have passive mitigation. Moving the snow shed outside the White Pine avalanche chute is not feasible.

Snow sheds are designed to allow avalanche flows to pass over the top of the shed rather than hitting the side of the shed. This requires fill to be placed behind the snow shed, and the fill would bury site 42SL419. Realigning the road to the south (farther away from site 42SL419) would still result in the site being buried to maintain the hill slope over the snow shed. Therefore, realigning the road to the south is not an avoidance alternative.

26.6.1.4.2 Snow Shed Size

Using field-based avalanche path mapping combined with desk-based avalanche modelling, a review of historical records and photographs, and discussions with UDOT avalanche forecasters, the minimum estimated length of snow shed that covers the White Pine avalanche chute would need to be 640 feet if the snow shed included guiding berms. A 640-foot-long snow shed would impact site 42SL419. A shorter snow shed that would avoid site 42SL419 would result in the avalanche still impacting S.R. 210 and causing the avalanche to overtop the snow shed entrances; therefore, a shorter-length snow shed that would avoid site 42SL419 would not be feasible.

26.6.2 Alpenbock Loop and Grit Mill Climbing Opportunities – Cog Rail Alternative

The Alpenbock Loop and Grit Mill Climbing Opportunities Section 4(f) recreation resource would have a use with greater–than–*de minimis* impact with the Cog Rail Alternative, as described in Table 26.5-12.

26.6.2.1 No-Action Alternative

Per FHWA guidance, evaluation of avoidance alternatives should include a no-action alternative. For this analysis, the no-action alternative would not include any improvements. It would not result in use of the Alpenbock Loop and Grit Mill Climbing Opportunities. However, it would not meet the purpose of and need for the project. Because it would not meet the purpose of and need for the project, it is not a prudent alternative.

26.6.2.2 Alternative Operations and Maintenance Facility Location

The Cog Rail Alternative would require an operations and maintenance facility. The facility would include administrative and operations offices, equipment storage, an enclosed vehicle maintenance facility, a fueling station, restrooms, and parking for employees. The operations and maintenance facility would likely be two stories to accommodate servicing cog rail vehicles. The operations and maintenance facility would need to be located along or near the rail alignment. A remote facility would result in additional impacts to connect to the rail alignment without providing mobility benefits.

There is very little land available in the area that would be appropriate for and large enough for an operations and maintenance facility. UDOT evaluated several undeveloped areas near the mouth of the canyon. It is not feasible to construct the operations and maintenance facility at the cog rail base station at La Caille because there is not enough available land; the area is large enough only for the station and parking. One area on Wasatch Boulevard, referred to colloquially as the Christmas Tree Farm, would be large enough, but the property sits on top of the Wasatch Fault. It would not be prudent to construct a major infrastructure facility directly on a major fault.

26.6.2.3 South-side Alignment

UDOT considered a cog rail alignment on the south side of S.R. 210 (the Cog Rail Alternative is on the north side) from the cog rail base station at La Caille to Snowbird Entry 3. This alignment would result in greater–than–*de minimis* impacts to two Section 4(f) properties (the historic property at 5002 E. Little Cottonwood

Road and the Temple Quarry Nature Trail). An alternative that avoids one Section 4(f) property by using another Section 4(f) property is not an avoidance alternative.

26.6.2.4 Alignment Shift to the South

UDOT considered shifting the operations and maintenance facility to the south to avoid the Alpenbock Loop and Grit Mill Climbing Opportunities. This would require shifting S.R. 210 to the south, which would result in a greater–than–*de minimis* impact to the Temple Quarry Nature Trail, which is also a Section 4(f) property. An alternative that avoids one Section 4(f) property by using another Section 4(f) property is not an avoidance alternative.

26.7 Least Overall Harm Analysis

As described in Section 26.6, there are no feasible and prudent avoidance alternatives to using two Section 4(f) properties: site 42SL419 with the avalanche mitigation sub-alternatives and the Alpenbock Loop and Grit Mill Climbing Opportunities with the Cog Rail Alternative. When there is no feasible and prudent avoidance alternative to using a Section 4(f) property, in accordance with 23 CFR Section 774.3(c), UDOT may approve from the remaining alternatives that would use the property only the alternative that:

1. Causes the least overall harm in light of the statute's preservation purpose. The least overall harm is determined by balancing the following factors:
    a. The ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property);
    b. The relative severity of the remaining harm, after mitigation to the protected activities, attributes, or features that qualify each Section 4(f) property for protection;
    c. The relative significance of each Section 4(f) property;
    d. The views of the official(s) with jurisdiction over each Section 4(f) property;
    e. The degree to which each alternative meets the purpose of and need for the project;
    f. After reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and
    g. Substantial differences in costs among alternatives.
2. The alternative selected must include all possible planning, as defined in 23 CFR Section 774.17, to minimize harm to Section 4(f) property.

UDOT did not identify the Cog Rail Alternative as one of the two preferred alternatives in the Draft EIS, and that determination has not changed in connection with this revised chapter. Therefore, UDOT did not conduct a least-overall-harm analysis for the Cog Rail Alternative for this revised chapter. The analysis presented here is focused on the avalanche mitigation sub-alternatives. Each of the avalanche mitigation sub-alternatives is analyzed below in terms of the factors above to determine which would cause the least overall harm.

26.7.1 Ability to Mitigate Adverse Impacts

The first factor is the ability to mitigate adverse impacts to each Section 4(f) property (including any measures that result in benefits to the property). Both avalanche mitigation sub-alternatives would result in the same impacts to one Section 4(f) property, site 42SL419. The eastern segment of this site consisting of an intact retaining wall (known colloquially as the "China Wall") would be removed. Mitigation for both avalanche mitigation sub-alternatives would be the same—archaeological data recovery conducted in consultation with the USDA Forest Service and the Utah SHPO. Both avalanche mitigation sub-alternatives perform equally with respect to this factor.

26.7.2 Relative Severity of the Remaining Harm to Each Section 4(f) Property

The second factor is the relative severity of the remaining harm, after mitigation, to the protected activities, attributes, or features that qualify each Section 4(f) property for protection. Because the impacts and mitigation would be the same for both avalanche mitigation sub-alternatives, they perform equally with respect to this factor.

26.7.3 Relative Significance of Each Section 4(f) Property

The third factor is the relative significance of each Section 4(f) property. Both avalanche mitigation sub-alternatives would impact the same Section 4(f) property, site 42SL419. Therefore, both avalanche mitigation sub-alternatives perform equally with respect to this factor.

26.7.4 Views of the Officials with Jurisdiction over Each Section 4(f) Property

The fourth factor is the views of the officials with jurisdiction over each Section 4(f) property. The Utah SHPO is the official with jurisdiction over historic Section 4(f) properties including site 42SL419. Because there is only one Section 4(f) property used by both avalanche mitigation sub-alternatives, and the impacts and mitigation are the same, the views of the officials with jurisdiction would also be the same for both alternatives. Therefore, both avalanche mitigation sub-alternatives perform equally with respect to this factor.

26.7.5 Degree to Which Each Alternative Meets the Purpose and Need

The fifth factor is the degree to which each alternative meets the purpose of and need for the project. UDOT analyzed the transportation performance of each avalanche mitigation sub-alternative to determine how well the alternative would meet the purpose of and need for the project. The evaluation included the degree to which each alternative would meet the following objectives:

- Substantially reduce the number of hours and/or days during which avalanches delay users.
- Substantially reduce the avalanche hazard for roadway users.

As shown in Table 26.7-1, the two avalanche mitigation sub-alternatives would equally meet UDOT's objectives. Therefore, both avalanche mitigation sub-alternatives perform equally with respect to this factor. However, the Snow Sheds with Realigned Road Alternative would straighten the S.R. 210 roadway in the immediate area of the snow sheds (the Snow Sheds with Berms Alternative would leave the road in its current configuration), thereby improving vehicle safety by providing better driver sight distance in the sheds.

Table 26.7-1. S.R. 210 – Average Days and Hours of Road Closures with the No-Action Alternative and Avalanche Mitigation Sub-alternatives (2050)

Alternative	Average Days of Closures	Average Hours of Closures	Avalanche Hazard Index[a]
No-Action	10.5 to 21	56 to 108+	96
Snow Sheds with Berms	4 to 6	2 to 11	59
Snow Sheds with Realigned Road	4 to 6	2 to 11	59

[a] Avalanche hazard index. <1 = very low; 1 to 10 = low; 10 to 40 = moderate; 40 to 150 = high; >150 = very high.

26.7.6 After Reasonable Mitigation, Magnitude of any Adverse Impacts to Resources Not Protected by Section 4(f)

The sixth factor is the magnitude of any adverse impacts (after reasonable mitigation) to resources not protected by Section 4(f). Table 26.7-2 compares the no-action and avalanche mitigation sub-alternatives for the resources evaluated in the Draft EIS.

As shown in the table, the environmental impacts of the two avalanche mitigation sub-alternatives would be similar, with the main difference being that the Snow Sheds with Berms Alternative would have a greater visual impact because the berms would extend 300 feet up the mountainside at a height of up to 20 feet. Visual impacts are an important consideration. Concerns regarding visual impacts were a major component of scoping, and S.R. 210 is a state scenic byway.

In addition, the impacts to Riparian Habitat Conservation Areas would be 0.14 acre with the Snow Sheds with Realigned Road Alternative compared to 0.23 acre with the Snow Sheds with Berms Alternative. The USDA Forest Service has defined Riparian Habitat Conservation Areas as important areas to conserve to help protect the overall health of the watershed and ecosystems.

The Snow Sheds with Realigned Road Alternative would result in greater impacts to wildlife habitat and floodplains compared to the Snow Sheds with Berms Alternative. However, the wildlife habitat impacted would be adjacent to the road and low quality. The floodplains impacted would also be adjacent to the road. Impacts to Riparian Habitat Conservation Areas are considered to be of greater consequence than impacts to floodplains.

Because of the greater visual impacts and impacts to Riparian Habitat Conservation Areas, UDOT determined that the Snow Sheds with Realigned Road Alternative performs better than the Snow Sheds with Berms Alternative with respect to this factor.

Table 26.7-2. Environmental Impacts of the No-Action Alternative and Avalanche Mitigation Sub-alternatives

Impact Category	Unit	No-Action Alternative	Snow Sheds with Berms	Snow Sheds with Realigned Road
Land converted to transportation use	Acres	0	15	19
Residential relocations	Number	0	0	0
Business relocations	Number	0	0	0
Recreation areas affected	Number	0	0	0
Community facilities affected	Number	0	0	0
Environmental justice impacts	Yes/No	No	No	No
Economic impacts	Yes/No	Yes	No	No
Existing trails affected	Number	0	0	0
Climber boulders and trails affected	Number	0	0	0
Air quality impacts above regulations	Yes/No	No	No	No
Receptors with modeled noise levels above criteria	Number	0	0	0
Wildlife habitat impacted	Acres	0	6	10
Threatened and endangered species	Yes/No	No	No	No
Increase in impervious surface	Number	0	0	0
Water quality standards exceeded	Yes/No	No	No	No
Impacts to waters of the United States	Acres	0	0	0
Impacts to intermittent, perennial, and ephemeral streams	Acres	0	0.01	0.01
Impact to Riparian Habitat Conservation Areas	Acres	0	0.23	0.14
Adverse impacts to cultural resources	Number	0	1	1
Hazardous waste sites affected	Number	0	0	0
Floodplain impacts	Acres	0	0.01	0.14
Visual change	Category	None	High	High

26.7.7 Substantial Differences in Costs among the Alternatives

The seventh and last factor is substantial differences in costs among alternatives. Table 26.7-3 shows the estimated construction costs of the avalanche mitigation sub-alternatives. As shown in the table, the Snow Sheds with Berms Alternative would cost less than the Snow Sheds with Realigned Road Alternative. A 19% cost difference is notable but is not considered enough under the circumstances to be a substantial difference in cost—in other words, the costs are essentially similar.

Table 26.7-3. Preliminary Construction Cost Estimates for the Avalanche Mitigation Sub-alternatives

In millions of 2020 dollars

Alternative	Construction Cost Estimate
Snow Sheds with Berms	72
Snow Sheds with Realigned Road	86

26.7.8 Preliminary Conclusions for the Least Overall Harm and Section 4(f) Evaluation

By balancing these seven factors, UDOT has made the preliminary determination that the Snow Sheds with Realigned Road Alternative would cause the least overall harm in light of the preservation purpose of 49 United States Code (USC) Section 303. Balancing these factors allows UDOT to make project decisions in the best overall public interest.

- Both avalanche mitigation sub-alternatives perform equally with respect to the first four factors concerning the degree of harm to Section 4(f) properties.
- Both avalanche mitigation sub-alternatives meet the project purpose and need equally. However, the Snow Sheds with Realigned Road Alternative would provide better driver sight distance in the sheds, thereby providing a safer alternative compared to the Snow Sheds with Berms Alternative.
- The Snow Sheds with Realigned Road Alternative would result in fewer impacts to resources not protected by Section 4(f) including visual resources and Riparian Habitat Conservation Areas.
- The Snow Sheds with Realigned Road Alternative would cost more than the Snow Sheds with Berms Alternative. However, UDOT does not believe that the additional cost outweighs the other factors listed above.

Overall, UDOT has made the preliminary determinations that there is no feasible and prudent avoidance alternative to the use of site 42SL419, that the project has included all possible planning to minimize harm to Section 4(f) properties, and that the Snow Sheds with Realigned Road Alternative is the alternative with the least overall harm. Accordingly, UDOT has also identified the Snow Sheds with Realigned Road Alternative as the preferred alternative for NEPA purposes.

26.8 Measures to Minimize Harm

Avoidance, minimization, and mitigation measures for Section 4(f) properties have been considered during the development of the action alternatives and were incorporated into all of the action alternatives, including those determined to have uses with only *de minimis* impacts. *De minimis* impact determinations are based on the degree of impact after the inclusion of any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) to address the Section 4(f) use (that is, the net impact). After considering measures to minimize harm, UDOT has determined that the S.R. 210 Project would not result in constructive use of Section 4(f) resources.

26.8.1 Section 4(f) Historic Properties

Table 26.8-1 describes the proposed measures to minimize harm to Section 4(f) historic properties.

Table 26.8-1. Measures to Minimize Harm to Section 4(f) Historic Properties

Section 4(f) Historic Property	Alternatives with Effect	Avoidance, Minimization, and Mitigation
Historic properties on Wasatch Boulevard	• Imbalanced-lane Alternative • Five-lane Alternative	• Widening mainly to the east side of Wasatch Boulevard • Retaining walls in select locations
Historic properties at La Caille base station (ID# 61, 84)	• Gondola Alternative B • Cog Rail Alternative	• Access road aligned to minimize impacts to historic parcel
Historic properties along S.R. 210 in lower canyon (ID# 63, 64, 66)	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative • Cog Rail Alternative	• Widening mainly to the north side of S.R. 210 • Retaining walls in select locations
9111 E. Little Cottonwood Canyon Road (ID# 67)	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative • Cog Rail Alternative	• Shift in roadway alignment • Retaining wall • During final design, UDOT would work with property owner to reconstruct parking area
Historic Snowbird Lodges: Iron Blosam, The Inn at Snowbird, The Lodge at Snowbird (ID# 68, 69, 70, 71)	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative • Cog Rail Alternative	• Retaining wall
Historic Snowbird Lodges: Iron Blosam, The Inn at Snowbird, The Lodge at Snowbird (ID# 68, 69, 70, 71)	• Gondola alternatives	• Gondola tower would be located to reduce visual impacts from the historic lodges toward the mountain • Single-pole gondola tower would be used in place of lattice tower to reduce visual impacts
Snowbird Center (ID# 72)	• Gondola alternatives	• Gondola tower would be located to avoid impacts to Snowbird Center • Single-pole gondola tower would be used in place of lattice tower to reduce visual impacts
Alta Lodge (ID# 82)	• Gondola alternatives	• Gondola tower would be located to reduce visual impacts from the historic lodge toward the mountain • Single-pole gondola tower would be used in place of lattice tower to reduce visual impacts

26.8.2 Section 4(f) Recreation Resources

Table 26.8-2 describes the proposed measures to minimize harm to Section 4(f) recreation properties. During the final design of the Selected Alternative(s), UDOT will work with USDA Forest Service to evaluate interpretive opportunities to mitigate impacts to Section 4(f) recreation resources on NFS land. Interpretive opportunities could include information about the history of recreation in Little Cottonwood Canyon or recreation opportunities presented on a kiosk or delivered on transit systems.

Table 26.8-2. Measures to Minimize Harm to Section 4(f) Recreation Properties

Resource	Alternatives with Effect	Avoidance, Minimization, and Mitigation
Site 42SL419	• Snow Sheds with Berms Alternative • Snow Sheds with Realigned Road Alternative	• See Section 26.6, Avoidance Alternatives. • Archaeological data recovery for site 42SL419 will be conducted in consultation with the USDA Forest Service and the Utah SHPO.
Ferguson Trailhead off Prospector Drive	• Imbalanced-lane Alternative • Five-lane Alternative	• UDOT will coordinate with Cottonwood Heights City during the Ferguson Trailhead design process to ensure that the location of the multi-use trail is considered during development of the park plan. • If planned trailhead improvements are not constructed prior to widening Wasatch Boulevard, UDOT would regrade the existing parking lot to maintain the number of parking spaces.
Golden Hills Park	• Imbalanced-lane Alternative • Five-lane Alternative	• Impacts to park features (parking, playground, walking path, restrooms) would be avoided. • All disturbed areas would be revegetated.
Tanners Flat Campground	• Gondola alternatives	• No towers or stations would be located in campground (gondola cabins would pass overhead). • The gondola would not operate during campground summer quiet hours of 10 PM to 7 AM. • During final design, a landscape architect would evaluate impacts at each site. Potential mitigation could include the following: ○ Reconfiguring sites to visually shield tables and fire pits from the gondola cabins overhead ○ Relocating the group area to a location with less visual impact ○ Redesigning sites to accommodate different user groups ○ Adding shade structures or pavilions to screen sites from visual impacts ○ Planting trees to create a visual screen over time
Tanners Flat Campground	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative • Cog Rail Alternative	• No impacts to campground features (for example, campsites, bathroom facilities, volleyball court or amphitheater). • Enhanced bus service would not operate in the summer when the campground is open. • The cog rail would not operate during campground summer quiet hours of 10 PM to 7 AM.

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Table 26.8-2. Measures to Minimize Harm to Section 4(f) Recreation Properties

Resource	Alternatives with Effect	Avoidance, Minimization, and Mitigation
Alpenbock Loop and Grit Mill Climbing Opportunities	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative	• Impacts to USDA Forest Service trails would be mitigated through trail realignment so that connectivity would be maintained. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction. • UDOT would construct retaining walls where possible to protect bouldering areas adjacent to S.R. 210. • During construction, UDOT in working with the USDA Forest Service will evaluate whether any of the impacted boulders could be relocated in the area and, if feasible, will relocate them.
Alpenbock Loop and Grit Mill Climbing Opportunities	• Gondola alternatives	• The park-and-ride lot would be reconstructed to accommodate 95 parking spaces. Some parking spaces would be marked for Alpenbock Trail users only, which is not currently the case. • The restroom facility at the park-and-ride lot would be reconstructed if the restroom cannot be avoided during the final design process. • Impacts to USDA Forest Service trails would be mitigated through trail realignment so that connectivity would be maintained. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction. • During construction, UDOT in working with the USDA Forest Service will evaluate whether any of the impacted boulders could be relocated in the area and, if feasible, will relocate them.
Alpenbock Loop and Grit Mill Climbing Opportunities	• Cog Rail Alternative	• The park-and-ride lot would be reconstructed to accommodate 160 spaces. • The Grit Mill Trailhead would be reconstructed to include a restroom facility and about the same number of parking spaces as the currently planned trailhead. • Impacts to USDA Forest Service trails would be mitigated through trail realignment so that connectivity would be maintained. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction. • During construction, UDOT in working with the USDA Forest Service will evaluate whether any of the impacted boulders could be relocated within the area. • During construction, UDOT in working with the USDA Forest Service will evaluate whether any of the impacted boulders could be relocated in the area and, if feasible, will relocate them. However, given the high number of boulders being removed, UDOT expects that relocating many boulders would not be feasible.

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Table 26.8-2. Measures to Minimize Harm to Section 4(f) Recreation Properties

Resource	Alternatives with Effect	Avoidance, Minimization, and Mitigation
Temple Quarry Nature Trail (USDA Forest Service #1000) Little Cottonwood Creek Trail (USDA Forest Service #1001) Bonneville Shoreline Trail	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative • Cog Rail Alternative	• No impacts to trailhead parking spots, restroom, or trails. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction.
Little Cottonwood Creek Trail (USDA Forest Service #1001)	• Gondola alternatives	• No towers or stations located on trail (gondola cabins would pass overhead).
Lisa Falls Trail (USDA Forest Service #1012)	• Trailhead parking alternatives	• Informal parking would be consolidated into a larger formal lot with additional parking spaces. • Restrooms would be added. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction.
Lisa Falls Trail (USDA Forest Service #1012)	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative	• Widening S.R. 210 would have minor impacts, but the total number of parking spots would not be reduced. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction.
Lisa Falls Trail (USDA Forest Service #1012)	• Cog Rail Alternative	• Informal parking would be reconstructed to include restroom facilities and designated parking areas. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction.

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Table 26.8-2. Measures to Minimize Harm to Section 4(f) Recreation Properties

Resource	Alternatives with Effect	Avoidance, Minimization, and Mitigation
White Pine Trail (USDA Forest Service #1002)	• Trailhead parking alternatives	• Parking lot would be expanded to provide additional parking spaces. • The single entrance would be replaced with a one-way-entrance and a one-way exit. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction.
	• Enhanced Bus Service in Peak-period Shoulder Lane Alternative • Cog Rail Alternative	• No impacts to parking spaces, restroom, or trail. • UDOT would work with the USDA Forest Service and the contractor to provide trail access during construction as much as possible. • In coordination with the USDA Forest Service, UDOT would implement a public involvement program to inform potential recreation users of potential temporary trailhead closures during construction.
	• Gondola alternatives	• No towers or stations located in trailhead (gondola cabins would pass overhead).
Parking within the special-use permit area at Snowbird	• Gondola alternatives	• During the final design of the Selected Alternative(s), UDOT would work to minimize the loss of parking for tower construction near the Iron Blosam Lodge.
Transfer tow at Alta	• Gondola alternatives	• During the final design of the Selected Alternative(s), UDOT would work to minimize impacts to infrastructure at Alta such as the transfer tow to ensure that the gondola system does not interfere with the infrastructure's operation.

26.9 Coordination

Chapter 27, Public and Agency Consultation and Coordination, summarizes the meetings held with the public and agencies, including Cottonwood Heights City, the USDA Forest Service, and the Town of Alta, during the development of the action alternatives and the preparation of the Draft EIS. In addition, after the Draft EIS UDOT coordinated with the above agencies about their comments to the Draft EIS regarding 4(f) properties and revised this chapter based on those comments. Chapter 15, Cultural Resources, includes summaries of coordination efforts specific to historic resources and the National Historic Preservation Act.

26.9.1 Section 4(f) Historic Properties

UDOT coordinated with the Utah SHPO, the official with jurisdiction over Section 4(f) historic properties, regarding UDOT's Determinations of Eligibility and Findings of Effect (DOE/FOE). Under a 2007 programmatic agreement between the Advisory Council on Historic Protection, FHWA, the Utah SHPO, and UDOT regarding Section 4(f) *de minimis* impact determinations, the SHPO is notified of UDOT's intent to make a Section 4(f) *de minimis* impact determination when there is a Section 106 finding of no adverse effect. Because of this agreement, *de minimis* impact determinations became effective when the SHPO concurred with the DOE/FOE on May 14, 2021, available in Appendix 15B, Determinations of Eligibility and Findings of Effect.

26.9.2 Section 4(f) Recreation Resources

UDOT coordinated with Cottonwood Heights City, Salt Lake County, and the USDA Forest Service and consulted with the Town of Alta, the agencies with jurisdiction over Section 4(f) recreation resources in the study area. Coordination occurred through discussions at meetings and email correspondence. UDOT anticipates further consultation and coordination with the officials with jurisdiction over the Section 4(f) properties regarding UDOT's intent to make a *de minimis* impact determination.

Before making a *de minimis* impact determination for a Section 4(f) recreation resource, UDOT must inform the official with jurisdiction over that resource of its intent to make a *de minimis* impact determination. UDOT must provide public notice and an opportunity for public review and comment concerning the effects on the protected activities, features, or attributes of the property. UDOT gave the public an opportunity to review and comment on this project, including its impacts to Section 4(f) properties and UDOT's proposed *de minimis* impact determinations, during the public comment period for this Draft EIS, which was from June 25 through September 3, 2021. UDOT is providing another opportunity to review and comment on this Revised Section 4(f) and Section 6(f) Evaluation in the form of a public comment period for this revised Section 4(f) and Section 6(f) evaluation chapter.

Following an opportunity for public review and comment, the official with jurisdiction over the Section 4(f) resource must concur in writing that the use will not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. UDOT can then finalize any *de minimis* impact findings concurred with by the official with jurisdiction and approve the use of the Section 4(f) property. *De minimis* impact concurrence letters, which will be updated following review of and comments on this revised chapter, are available in Appendix 26B, *De Minimis* Correspondence.

26.10 References

Cottonwood Heights City

No date Bicycle and Trails Master Plan.

Dynamic Avalanche Consulting

2018a Snow Avalanche Hazard Baseline Conditions Report. July 3.

2018b Snow Avalanche Hazard Improvement Options Report. October 4.

[FHWA] Federal Highway Administration

2012 Section 4(f) Policy Paper. https://www.environment.fhwa.dot.gov/legislation/section4f/4fpolicy.aspx. July 20.

2017 Memorandum of Understanding between the Federal Highway Administration and the Utah Department of Transportation Regarding the State of Utah's Participation in the Surface Transportation Project Delivery Program Pursuant to 23 USC 317. January 17.

[USDA Forest Service] United States Department of Agriculture Forest Service

2014 Decision Notice and FONSI [Finding of No Significant Impact] for the Grit Mill and Climbing Master Plan Project, Salt Lake Ranger District, Uinta-Wasatch-Cache National Forest, Salt Lake County, Utah. September.

2017 Tri-Canyon Trails [map]. Prepared by the Salt Lake City Ranger District, Uinta-Wasatch-Cache National Forest, Intermountain Region. May.

2019 Email from Nate Lewis, USDA Forest Service Intermountain Region, to Andrea Clayton of HDR regarding Section 6(f) parcels. August 27.

2020 Letter from David Whittekiend, Uinta-Wasatch-Cache National Forest, to Josh Van Jura of UDOT regarding Section 4(f) applicability for climbing boulders. September 15.