

Chapter 4: Community and Property Impacts

4.1 Introduction

This chapter describes the social characteristics of the communities in the community impact analysis area and the effects the project alternatives could have on the social environment and community resources. The social characteristics of the impact analysis area are presented in this chapter by the following topics:

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

Community Impact Analysis Area. The community impact analysis area includes Cottonwood Heights, the town of Alta, and parts of Salt Lake County adjacent to State Route (S.R.) 210 from Fort Union Boulevard to the town of Alta, including the Alta Bypass Road. It also includes the area around the gravel pit adjacent to Wasatch Boulevard north of Fort Union Boulevard and the existing Utah Transit Authority (UTA) park-and-ride lot at 9400 South and Highland Drive (see Figure 4.3-1, Communities in the Community Impact Analysis Area, on page 4-4). The communities in these areas are described as *local* in this chapter and correspond to the area where traffic and other aspects of the project alternatives could affect the social environment and community resources.

The community impact analysis area also includes the populations along the Wasatch Front, in Utah, and from out of state who visit Little Cottonwood Canyon as a recreation destination. These populations are described as *regional* in this chapter.

This chapter also identifies properties that would be directly affected by the project alternatives through right-of-way acquisition and possible business and residential relocations. Such properties are immediately adjacent to S.R. 210.

4.2 Regulatory Setting

The Federal Highway Administration’s guidelines for preparing environmental documents for evaluating community impacts consider several types of impacts, including impacts to community cohesion; changes in travel patterns and accessibility; impacts to school districts, recreation areas, churches, and businesses;

What is the community impact analysis area?

The community impact analysis area includes Cottonwood Heights, the town of Alta, and parts of Salt Lake County adjacent to S.R. 210 from Fort Union Boulevard to the town of Alta, including the Alta Bypass Road. It also includes the area around the gravel pit adjacent to Wasatch Boulevard north of Fort Union Boulevard and the existing UTA park-and-ride lot at 9400 South and Highland Drive.

effects on public facilities and services; benefits or harm to different social groups; and displacements of people, businesses, and farms (FHWA 1987).

Among the types of community impacts analyzed in this Environmental Impact Statement (EIS), one type is subject to specific legal requirements and obligations: the acquisition of property by the Utah Department of Transportation (UDOT). The acquisition of property to improve S.R. 210 would be subject to the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 United States Code [USC] 4601 and subsequent sections); Title VI of the Civil Rights Act of 1964, as amended; and the State of Utah Relocation Program (under the Utah Relocation Assistance Act, Utah Code, Section 57-12). These laws provide for the uniform and equitable treatment of all persons displaced from their homes, businesses, and farms without discrimination on any basis.

The guidelines used by UDOT for carrying out the provisions of these acts are contained in its 2016 *Relocation Assistance Brochure*. Relocation resources are available to all residents (including renters) and businesses whose properties need to be acquired, and the process for acquiring replacement housing and other sites must be fair and open. The 2016 *Relocation Assistance Brochure* (UDOT 2016) can be viewed on UDOT's website (<https://www.udot.utah.gov/main/uconowner.gf?n=200602240821161>).

For National Forest System lands required for the action alternatives, the Federal Highway Administration would appropriate the lands from the U.S. Department of Agriculture (USDA) Forest Service for transfer to UDOT (typically in the form of a highway easement deed) under the authority of 23 USC Section 317, or UDOT would obtain an easement or other special-use authorization from the USDA Forest Service to allow construction and operation of the Selected Alternative.

4.3 Affected Environment

4.3.1 Neighborhood and Community Cohesion

Neighborhood and community cohesion is the patterns of social networking in a defined area and the degree to which residents have a sense of belonging to their neighborhood or community, including commitment to the community or a strong attachment to neighbors, institutions, or particular groups in that area (NCHRP 2001). Specific indicators of community cohesion include interaction among neighbors, use of community facilities and services, participation in local organizations, length of residency and a desire to stay in the community, satisfaction with the community, and the presence of families (FDOT 2003).

What is neighborhood and community cohesion?

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

4.3.1.1 S.R. 210 – Wasatch Boulevard

Wasatch Boulevard from Fort Union Boulevard to North Little Cottonwood Road is within the community of Cottonwood Heights. Cottonwood Heights was part of Salt Lake County, but in 2005 the community became an incorporated city by public vote. The incorporation of Cottonwood Heights shows that the community is cohesive since the residents voted for incorporation to have greater control over their local policies. Cottonwood Heights promotes the sense of community with monthly published newsletters and email

updates to residents. Since incorporation, the City has developed an interconnected trail system and local parks (Cottonwood Heights City, no date). Although Wasatch Boulevard bisects the community from north to south, the residents on the west and east sides of the road use or attend the same local shopping areas, churches, schools, trails, and parks, which creates cohesion among residents in this area.

Residents who have lived in a place for a long period tend to exhibit higher levels of social attachment and integration into neighborhood and community life than is the case among those who have lived there for shorter periods. In Cottonwood Heights, 60% of the residents have lived in their current home for more than 18 years. Another indication of being established in a community is home ownership. About 70% of the homes in Cottonwood Heights are owner-occupied (U.S. Census Bureau 2017).

During the development of the EIS, many residents of Cottonwood Heights who live along or near Wasatch Boulevard requested meetings with UDOT to discuss the project. Concerns included safe access into neighborhoods, safety for pedestrians, vehicle speed on Wasatch Boulevard, and how improvements to S.R. 210 would maintain the existing residential character of the community. The activism and interaction among neighbors shows that they are part of a cohesive community.

In July 2019, Cottonwood Heights City adopted the *Wasatch Boulevard Master Plan* (Cottonwood Heights City 2019), which was developed to establish a long-range vision for the Wasatch Boulevard corridor. The community's involvement in the master planning process exemplifies its character and cohesiveness around improving how people move in and through the Wasatch Boulevard corridor.

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

Little Cottonwood Canyon is used by local residents (of Cottonwood Heights, the Granite Community, the Wasatch Resort, and the town of Alta), residents of the broader Salt Lake Valley, and in-state and out-of-state visitors. This section describes the communities created by these different groups as local (residents who live along S.R. 210) and regional (Salt Lake Valley, in-state, and out-of-state visitors).

What are local and regional communities?

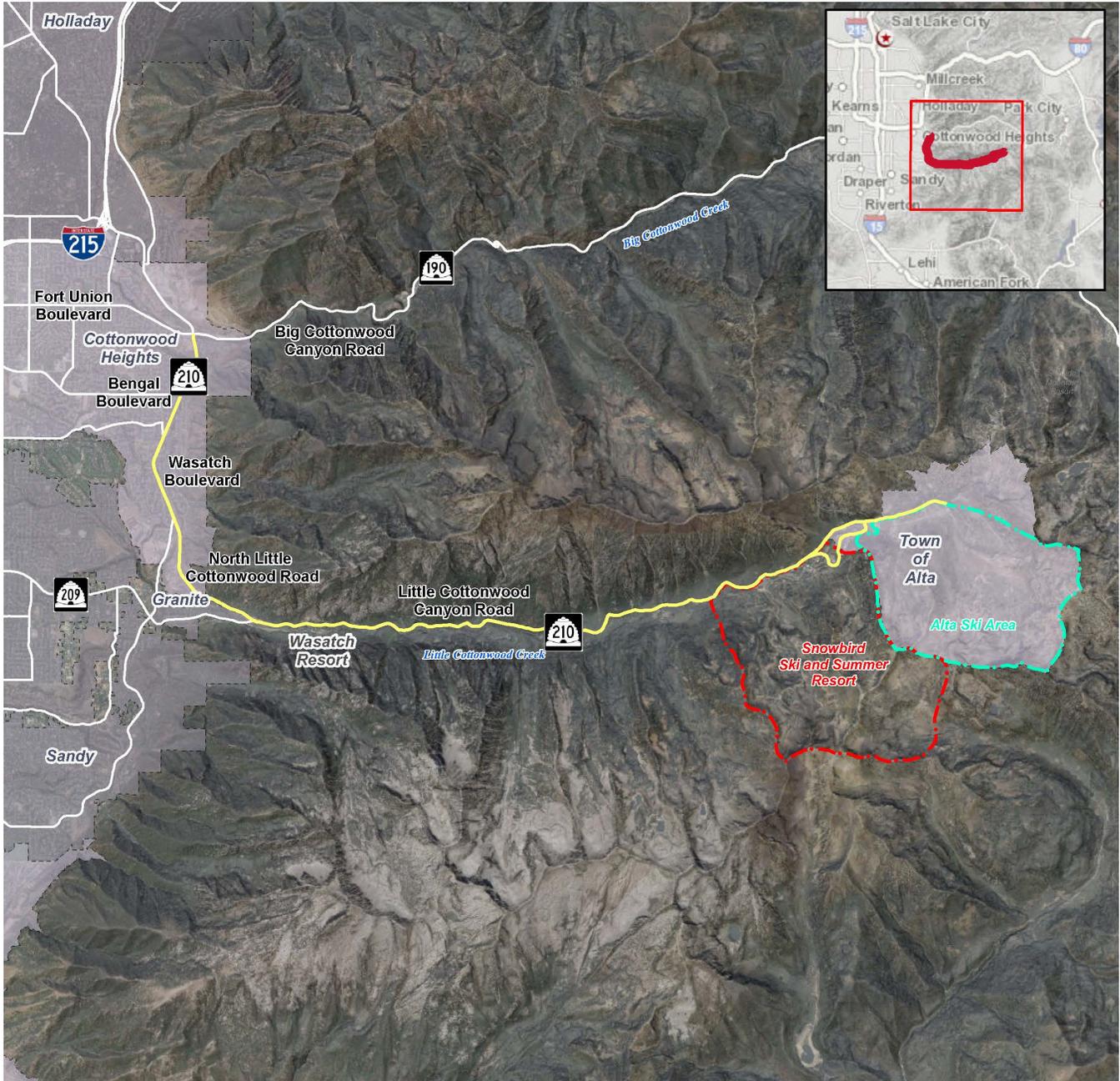
As used in this chapter, the local community consists of residents who live along S.R. 210, and the regional community consists of residents of the Salt Lake Valley as well as in-state and out-of-state visitors.

4.3.1.2.1 Local

There are three main residential areas along S.R. 210 outside Cottonwood Heights: the Granite Community at the entrance to Little Cottonwood Canyon, the Wasatch Resort about ¾ mile up the canyon, and the town of Alta (Figure 4.3-1). Within Cottonwood Heights are small housing developments on the west side of S.R. 210.

Granite Community. The Granite Community is bounded by S.R. 209 on the south and S.R. 210 on the north. It is an unincorporated community represented by the Granite Community Council. The neighborhood has shared values of enjoying the outdoor recreation and scenery at the entrance to Little Cottonwood Canyon. During the EIS process, the neighborhood formed its own group, provided shared comments, and requested UDOT hold meetings with the neighborhood, which shows an interaction among neighbors or a cohesive community. The issues raised by the community include congested streets during busy ski days, a desire for no increase in park-and-ride lots near the community, and emergency vehicle access when streets are blocked by winter recreation traffic. The activism during the EIS process shows that the neighborhood is cohesive in their shared mutual values.

Figure 4.3-1. Communities in the Community Impact Analysis Area



LEGEND

- S.R. 210 Study Limits
- City Boundary

0 Miles 1.5



Wasatch Resort. The Wasatch Resort is a small community about ¾ mile up Little Cottonwood Canyon. It consists of about 30 cabins and homes, many over 50 years old. The Wasatch Resort began as summer homes for residents of the nearby Salt Lake Valley. Although many properties have stayed with the original family since construction, some of the cabins and homes have recently changed ownership. Over 50% are owned by full-time residents. The small community is considered cohesive for the shared value of enjoying the outdoor lifestyle in Little Cottonwood Canyon.

Town of Alta. The town of Alta is a small community located at the terminus of S.R. 210 in Little Cottonwood Canyon. Its residents are highly engaged in community planning, community enrichment through the arts, environmental protection, public safety, and visitor services, as evidenced by the town website (<https://townofalta.com>) and participation in public meetings for the S.R. 210 Project. Residents share the values of enjoying year-round outdoor recreation and maintaining the community's quality of life in the Wasatch Mountains. The town of Alta is considered cohesive.

4.3.1.2.2 *Regional*

Little Cottonwood Canyon is an important regional recreation area and gathering area for residents of northern Utah and for out-of-state tourists. Little Cottonwood Canyon receives about 2.1 million visitors a year, about 60% of which come from within a 25-mile radius. Many people move to the Salt Lake Valley because of its proximity to skiing and outdoor activities, which has become a shared value for many residents.

Many people visit Little Cottonwood Canyon with friends and family, using the park-and-ride lots, trailhead parking lots, and ski resorts as meeting places or starting points for group recreation activities. A University of Utah study found that 88% of people recreating in Big and Little Cottonwood Canyons do so as part of a group (University of Utah 2015b). The Wasatch Mountains including Little Cottonwood Canyon create cohesive communities and shared community values for many of the residents in the surrounding urban areas by creating a place to interact. Out-of-state tourists also use Little Cottonwood Canyon as a place to recreate and interact with family and friends, mostly during winter ski trips.

4.3.1.3 **Mobility Hubs**

4.3.1.3.1 *Gravel Pit*

The gravel pit is located in Cottonwood Heights off Wasatch Boulevard just north of Fort Union Boulevard. The gravel pit is currently used for aggregate mining and the production of asphalt. There is one residential area on the north side of the gravel pit in the city of Holladay. The residents in this area share the values of choosing to live in an area with access to recreation activities and the views of the surrounding mountains and valley. This community is considered cohesive. A new estate development (Tavaci) is under construction east of the gravel pit.

What is a mobility hub?

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

4.3.1.3.2 9400 South and Highland Drive

There is an existing UTA park-and-ride lot at 9400 South and Highland Drive in Sandy. The parking lot is within a commercial area bordered by a Walgreens drug store and the Sandy City Fire Department. The southeast portion the parking lot borders the backyard property line of three homes that are part of a large subdivision. The subdivision shares use of the Alta Canyon Sports Center and Park which includes swimming pools, a fitness center, racquetball courts, tennis courts, and baseball diamonds. This facility provides interaction among community members. The subdivision is considered a cohesive community.

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.

4.3.2 Quality of Life

Quality of life can be characterized as a person's well-being and happiness. The factors that affect quality of life vary by person but often include the general living environment, safety, accessibility to public services and shopping, and recreation opportunities.

What is quality of life?

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

For information about the existing conditions for recreation, community facilities, and community services, see Section 4.3.3, Recreation Resources; Section 4.3.4, Community Facilities; and Section 4.3.5, Public Safety. Other factors, such as air quality and noise, could also contribute to a person's quality of life. For more information about air quality and noise impacts, see Chapter 10, Air Quality, and Chapter 11, Noise.

4.3.2.1 S.R. 210 – Wasatch Boulevard

Cottonwood Heights is a community that highly values its history of a well-maintained residential community. The preservation of quality of life is important to the residents and business owners of Cottonwood Heights. Cottonwood Heights views itself as a city where residents, tourists, businesses, and government come together to create an attractive, safe, and well-maintained community where people are proud to live, learn, work, and recreate. Residents of Cottonwood Heights have chosen to live there because they enjoy the current quality of life, aesthetics, recreation opportunities, mix of land uses, and patterns of development that the city provides.

The primary vision of the *Cottonwood Heights General Plan* is to ensure that these qualities are maintained and preserved. In general, the *General Plan* carries forward the status quo while recommending selected improvements to enhance specific attributes of the city and the services the City provides. Residents place a high value on natural open spaces and the views of the surrounding undeveloped mountains. Protection of streams, natural vegetation, open spaces, and scenic views with ridgeline protection measures is important to the residents. The City is interested in improving the function and appearance of city streets and increasing the variety of transportation options. The ideal is a transportation system that balances safety, service, community character, and convenience (Cottonwood Heights City, no date).

In a 2016 Cottonwood Heights community survey, respondents rated their quality of life at 80 on a scale from 0 to 100, showing an overall high quality of life. In addition, 83% said Cottonwood Heights was a safe place, and 81% said it was a great place to raise a family (Cottonwood Heights City 2016).

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

4.3.2.2.1 Local

The Granite Community between S.R. 210 and S.R. 209 enjoys a high quality of life. Most of the residents have chosen to live there because of the access to recreation activities and the scenic beauty of the area. Residents enjoy easy access to trails at the base of Little Cottonwood Canyon and to amenities of the larger Salt Lake Valley by using Wasatch Boulevard.

The residents of the Wasatch Resort enjoy the natural setting and mountain views. Although the community's location is quiet and peaceful, its residents have relatively easy access to Salt Lake City and all the amenities the city has to offer. The residents also have access to numerous hiking and biking trails and Little Cottonwood Creek. Overall, the residents feel that the area provides a high quality of life.

Residents of the town of Alta also enjoy a high quality of life. Residents enjoy the town's spectacular alpine setting of Mount Superior, Devil's Castle, and Sugarloaf Mountain, summer wildflowers, and winter powder snow. The pace of life is relaxed yet exuberant. These elements are called the "Alta Experience," which the town and its residents embrace and preserve (Town of Alta 2016).

4.3.2.2.2 Regional

The Central Wasatch Mountains and canyons (Mill Creek, Big Cottonwood, and Little Cottonwood) are a unique recreation amenity close to a major metropolitan area. The population in the Salt Lake Valley is increasingly urban, and the proximity of mountain and urban environments lets this population access close-to-home open space and connect with the outdoors. It also promotes health and fitness, and fosters community awareness of the environment and its resources, outdoor amenities, and regional heritage. The easy access to a variety of outdoor recreation opportunities, and the quality of these opportunities, support a high quality of life for residents in the region and make the Central Wasatch an internationally recognizable destination for out-of-state visitors. The mountains and canyons continually attract new residents and businesses. They have a high level of use that exceeds other popular recreation destinations including all of Utah's National Parks (Mountain Accord 2014). Little Cottonwood Canyon itself is an internationally recognized ski and climbing area that provides important recreation opportunities and enhances the quality of life for all visitors.

A survey conducted by the University of Utah (2015a) for the Central Wasatch found the following:

- 76% of the respondents said that access to the Wasatch Mountains was important to their lifestyle and quality of life.
- 67% of the respondents said that the recreation was an important reason for living near the Wasatch Mountains.
- 65% of the respondents said that recreating on public land plays a large role in their physical and mental well-being.

Little Cottonwood Creek is a primary water supply for more than 360,000 people in Salt Lake City's water service area as well as almost 100,000 people in Sandy City's water service area. It also is a source of water for the Town of Alta, Snowbird, and Salt Lake County Service Area #3. The water provided by Little

Cottonwood Creek is an important economic and public health benefit to the residents and businesses it serves. This source of drinking water is essential to the region's quality of life and economic prosperity.

4.3.2.3 Mobility Hubs

4.3.2.3.1 Gravel Pit

There is one residential area near the gravel pit: on the north side of the gravel pit in the city of Holladay. The residents in this area enjoy a high quality of life because they enjoy the aesthetics and recreation opportunities that the area has to offer. However, the gravel pit detracts from their quality of life because of its visual impact and the noise and dust generated by the aggregate mine.

4.3.2.3.2 9400 South and Highland Drive

An existing UTA park-and-ride lot is located on the southeast corner of 9400 South and Highland Drive in Sandy. On the far southeast corner of this lot are three homes that are part of a larger subdivision. The subdivision provides convenient access to many recreation opportunities, retail services, and Interstate 15. The subdivision shares use of the Alta Canyon Sports Center and Park, which includes swimming pools, a fitness center, racquetball courts, tennis courts, and baseball diamonds. This shared use of the sports center and park provides interaction among community members.

4.3.3 Recreation Resources

Recreation activities refresh, enliven, and enhance people's quality of life and promote healthier lifestyles. Recreation facilities provide opportunities for social interactions and are often the focus of a neighborhood or community.

Table 4.3-1 lists the designated and nondesignated recreation resources adjacent to S.R. 210 in the community impact analysis area. The recreation areas are shown following the table in Figure 4.3-2 and Figure 4.3-3, excluding the Alta Canyon Sports Center/Alta Canyon Park, which is immediately south of the UTA park-and-ride lot at 9400 South and Highland Drive. In addition, Figure 4.3-4 shows a detailed map of climbing-related recreation resources within 100 feet on other side of the S.R. 210 centerline.

Table 4.3-1. Recreation Resources in the Community Impact Analysis Area

Recreation Resource	Acreage or Miles in Analysis Area	Description	Address
Parks, Campgrounds, and Open Space			
Golden Hills Park	5.5 acres	Operated by Cottonwood Heights Parks and Recreation Service Area. Amenities include a pavilion for 30 people, a tennis court, a playground, a walking path, and restrooms.	8303 Wasatch Boulevard, Cottonwood Heights
Alta Canyon Sports Center/Alta Canyon Park	12 acres	The sports center and park amenities include a fitness center, volleyball courts, tennis courts, racquetball courts, swimming pool, outdoor pavilions, and baseball diamonds.	9565 S. Highland Drive, Sandy
Tanners Flat Campground	35 acres	Located along the southern side of S.R. 210 about halfway up Little Cottonwood Canyon. Includes 31 single and 3 double camp sites, along with 3 group sites (25-person capacity), 1 group site (50-person capacity), an amphitheater that can be rented for 4-hour intervals (70-person capacity), and a volleyball court.	Little Cottonwood Canyon
Trails and Trailheads			
Timberline Trailhead/ Ferguson Canyon Trailhead	0.4 acre	The trailhead is located off Prospector Drive and provides access to the Ferguson Canyon Trail. Because of the popularity of this trail, a second parking area has been developed off Prospector Drive adjacent to Wasatch Boulevard.	7721 Timberline Drive, Cottonwood Heights
Bonneville Shoreline Trail	Not available	As planned, the Bonneville Shoreline Trail will parallel Wasatch Boulevard to the east along the base of the Wasatch Mountains.	Mountain slopes east of Wasatch Boulevard
Alpenbock Loop Trail (U.S. Department of Agriculture [USDA] Forest Service Trail 1020)	0.75 mile	This loop trail is about ¾ mile long. It begins on the north side of S.R. 210 across from the Temple Quarry Trailhead at the Little Cottonwood Canyon park-and-ride lot.	Little Cottonwood Canyon
Temple Quarry Nature Trail (USDA Forest Service Trail 1000)	0.3 mile	The Temple Quarry Trailhead is near the entrance to Little Cottonwood Canyon on the south side of S.R. 210. About 20 paved and marked parking spaces are available in a lot on Temple Quarry Road.	Little Cottonwood Canyon
Little Cottonwood Creek Trail (USDA Forest Service Trail 1001)	3.3 miles	This trail includes two sections. The first section stretches about 0.60 mile from the eastern end of the Temple Quarry Nature Trail to Wasatch Resort Road. The second section extends from the end of South Power Plant Road to its eastern terminus just past the Lisa Falls Trailhead.	Little Cottonwood Canyon
Grit Mill Trailhead	1 acre	This trailhead provides access to lower-canyon climbing resources and a connection to the Alpenbock Loop Trail.	Little Cottonwood Canyon
Lisa Falls Trail (USDA Forest Service Trail 1012)	0.25 mile	This minimally developed trail is less than ¼ mile long and extends north of S.R. 210 from the Lisa Falls Trailhead.	Little Cottonwood Canyon
White Pine Trailhead	5 miles	The White Pine Trailhead is east of the Tanners Flat Campground. Paved parking for about 40 vehicles is available at the trailhead. The White Pine, Red Pine, and Maybird Gulch Trails can be accessed from this trailhead.	Little Cottonwood Canyon

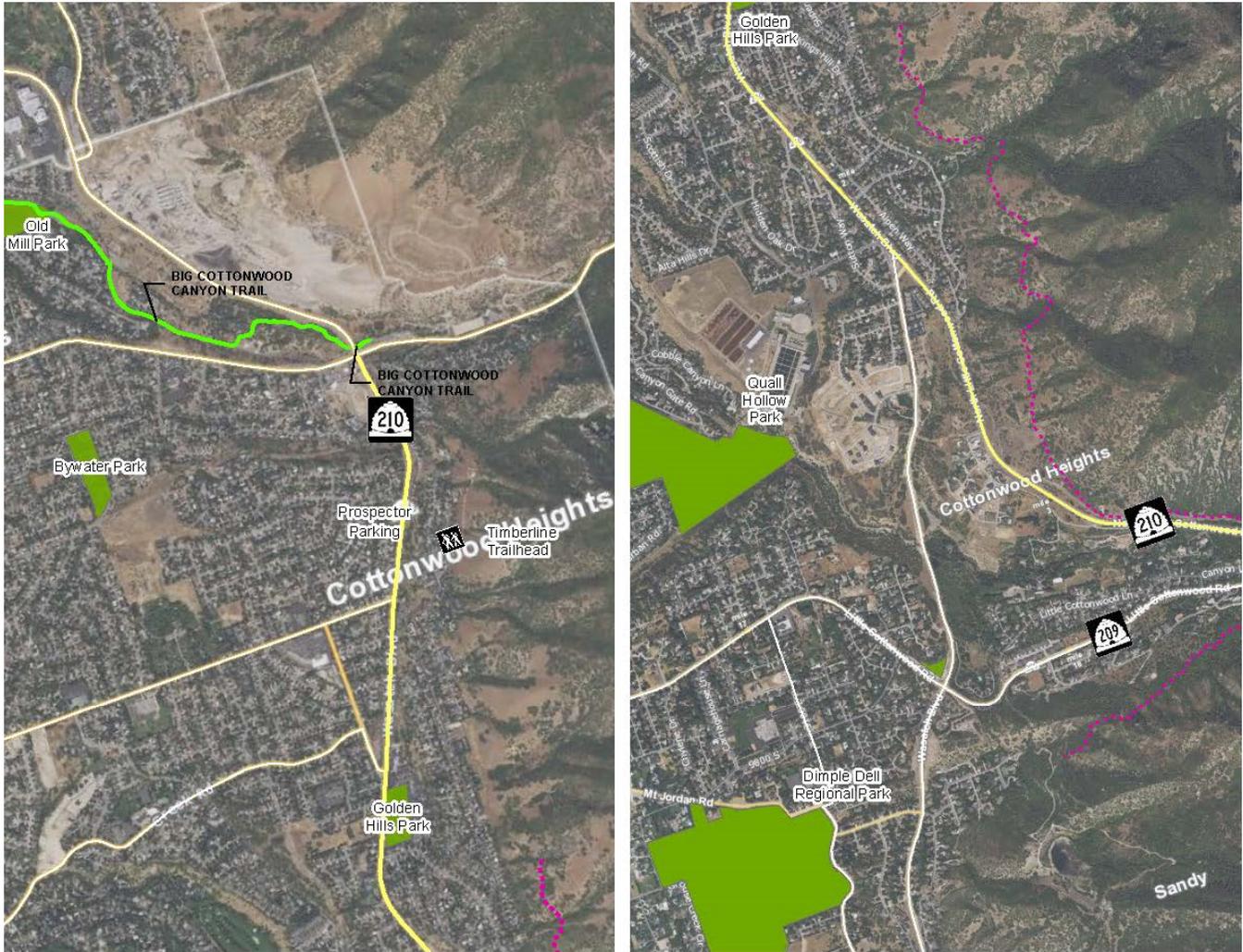
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Table 4.3-1. Recreation Resources in the Community Impact Analysis Area

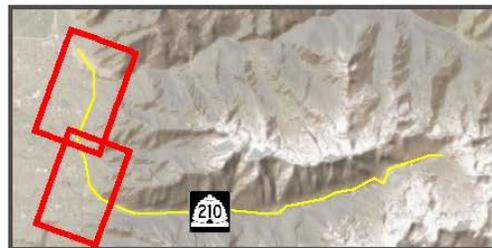
Recreation Resource	Acreage or Miles in Analysis Area	Description	Address
White Pine Snowbird Link Trail (USDA Forest Service Trail 1014)	0.8 mile	This trail extends from the White Pine Trailhead east to the Snowbird ski resort. The trail follows the south side of Little Cottonwood Creek.	Little Cottonwood Canyon
Snowbird Nature Trail (USDA Forest Service Trail 1016)	0.5 mile	This trail is south of Little Cottonwood Creek and the entrance roads into the Snowbird resort. The trail can be accessed from Snowbird.	Little Cottonwood Canyon
Albion Meadows Trail (USDA Forest Service Trail 1006)	2.5 miles	This trail extends due south from S.R. 210 just west of Albion Basin Road. Access is from the paved Albion parking lot at Alta ski resort.	Little Cottonwood Canyon
Alta-Brighton Trail (USDA Forest Service Trail 1007)	1.7 miles	This trail extends north of S.R. 210 across from the Albion Meadows Trailhead.	Little Cottonwood Canyon
Ski Areas			
Alta Ski Area	Not available	Skiable area of 2,614 acres with 116 runs and six chair lifts.	Little Cottonwood Canyon
Snowbird Ski and Summer Resort	Not available	Skiable area of 2,500 acres with 169 runs, one aerial tram, and 10 chair lifts.	Little Cottonwood Canyon
Other Resources			
Little Cottonwood Canyon climbing resources adjacent to S.R. 210	Not available	Climbing resources on private and USDA Forest Service–managed land as identified by the Salt Lake Climbers Alliance. Many trails are not formally designated. Some climbing areas are boulders adjacent to S.R. 210 used for bouldering (see Figure 4.3-4, Climbing Recreation Resources adjacent to S.R. 210).	Little Cottonwood Canyon
Backcountry access	Not available	Access is provided along S.R. 210 in different locations in Little Cottonwood Canyon.	Little Cottonwood Canyon
Little Cottonwood Creek	Not available	Little Cottonwood Creek runs along the bottom of Little Cottonwood Canyon. Access is provided along the Little Cottonwood Creek Trail and other designated and undesignated access points.	Little Cottonwood Canyon
City viewpoint pullout	Not available	Existing informal pullout for photographs of the Salt Lake Valley and of waterfalls across the canyon. Noted in the <i>Cottonwood Canyons Scenic Byways Corridor Management Plan</i> as in need of improvement (Fehr & Peers 2008).	Little Cottonwood Canyon
China Wall pullout	Not available	Existing informal pullout used for taking photographs of Little Cottonwood Canyon. This pullout is located in an avalanche hazard area (no stopping is allowed in winter). Noted in the <i>Cottonwood Canyons Scenic Byways Corridor Management Plan</i> as in need of improvement (Fehr & Peers 2008).	Little Cottonwood Canyon

Source: Calculated from geographic information systems (GIS)-based inventory.

Figure 4.3-2. Recreation Areas in the Community Impact Analysis Area (1 of 2)



- S.R. 210 Study Limits
-  Trailheads
- - - Proposed Bonneville Shoreline Trail
- Trails
- Parks



0 2,500 Feet

Figure 4.3-3. Recreation Areas in the Community Impact Analysis Area (2 of 2)

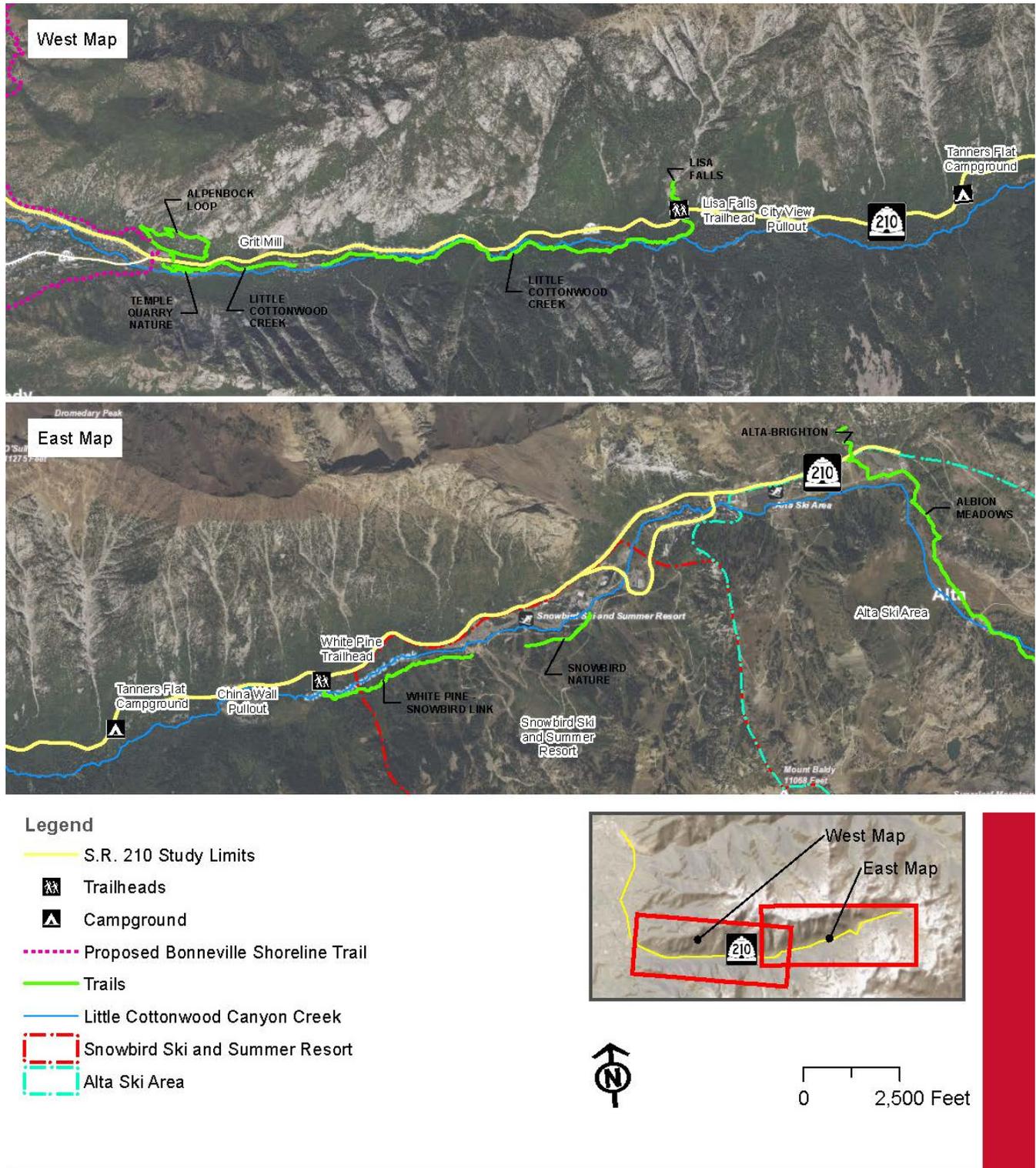
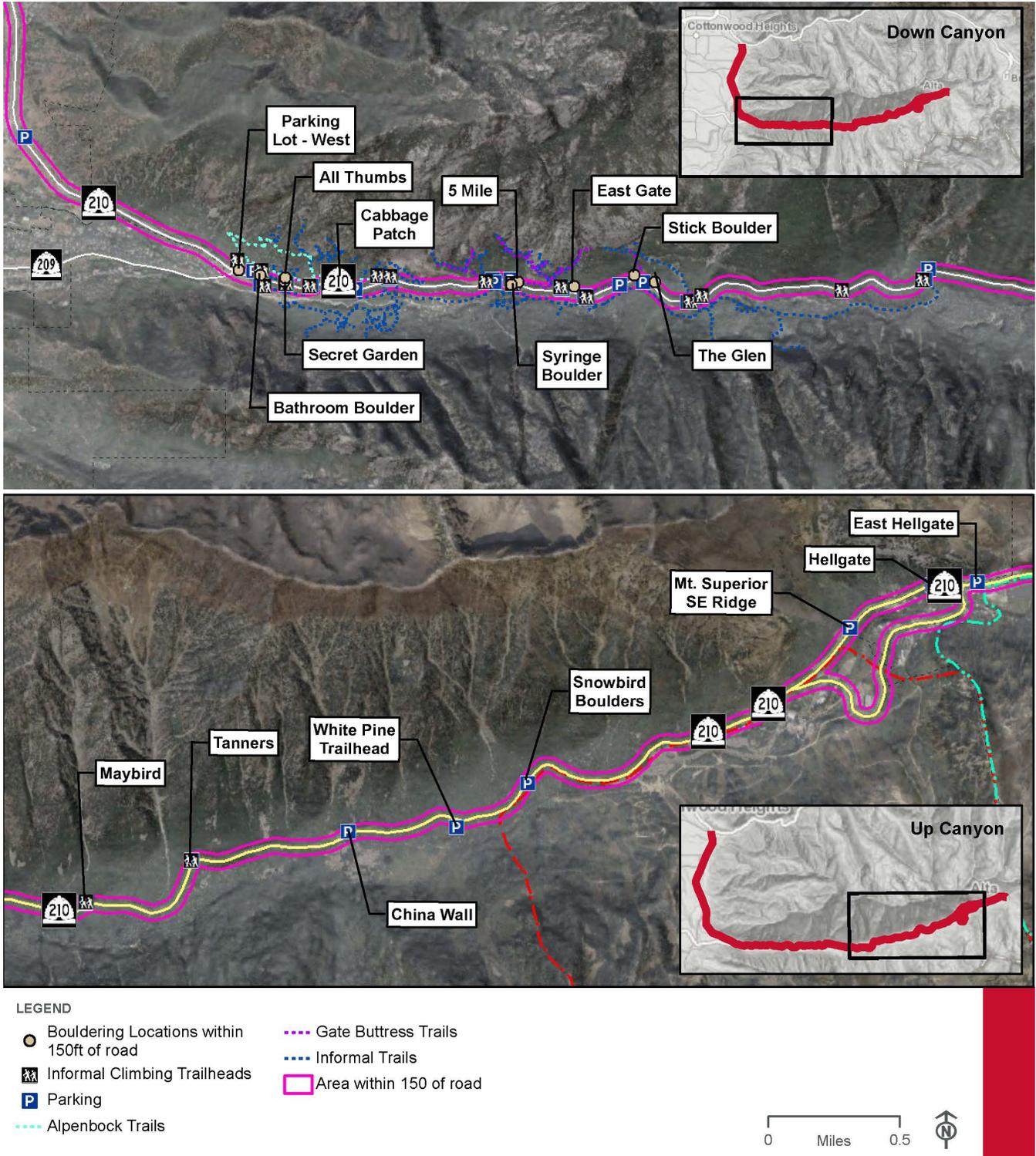


Figure 4.3-4. Climbing Recreation Resources adjacent to S.R. 210



As stated in Section 4.3.2.1, S.R. 210 – Wasatch Boulevard, proximity to recreation opportunities is an important contribution to the quality of life for the community along Wasatch Boulevard. In the *Wasatch Boulevard Master Plan* (Cottonwood Heights City 2019), improvements to trails and pathway connections through the Wasatch Boulevard corridor are key elements of the plan’s recommendations. Currently, there are no pedestrian facilities along 95% of the Wasatch Boulevard portion of S.R. 210. Golden Hills Park, located in the center of the corridor, has no walkable access from the residential area south of the park. The *Master Plan’s* preferred scenario recommends a shared-use path along Wasatch Boulevard to enhance opportunities for recreation along this segment.

According to the *Revised Forest Plan: Wasatch-Cache National Forest* (USDA Forest Service 2003), in Little Cottonwood Canyon the Forest Service’s desired future condition is that the parking capacities of canyon parking lots (ski areas, summer-use homes, and developed and dispersed recreation sites) do not exceed the number of parking spaces in 2000 unless modification is needed for watershed protection or to facilitate mass transit. Between roadside parking (about 429 spaces) and formal parking areas (about 99 spaces), there are about 528 recreational parking spaces in Little Cottonwood Canyon from the intersection of S.R. 209/S.R. 210 to Snowbird Entry 1 that are used for recreation access outside the ski resorts. Winter parking in the canyon is mostly in ski area lots and on the roadside near the ski areas. Ski area visitors and backcountry skiers make use of both forms of parking.

4.3.4 Community Facilities

Community facilities provide opportunities for the public to interact; help to define a city, community, or neighborhood; and contribute to community cohesion and quality of life. Community facilities generally include (but are not limited to) schools, parks, trails, churches, law-enforcement facilities, fire stations, libraries, and government offices. These facilities provide opportunities for residents to gather and interact as well as provide a basis for community education, networking, and communication.

All community facilities in the community impact analysis area are listed in Table 4.3-2 and shown in Figure 4.3-5 and Figure 4.3-6.

Table 4.3-2. Community Facilities in the Community Impact Analysis Area

Map Label ^a	Name	Address
Schools		
A	Canyon View Elementary	3050 Bengal Boulevard, Cottonwood Heights
B	Granite Elementary	9760 South 3100 East, Sandy
C	Goldminer's Daughter	10160 E. Little Cottonwood Road, Alta
Churches		
D	Church of Jesus Christ of Latter-day Saints	2925 Bengal Boulevard, Cottonwood Heights
E	Church of Jesus Christ of Latter-day Saints	3455 Bengal Boulevard, Cottonwood Heights
F	Church of Jesus Christ of Latter-day Saints	3625 Doverhill Drive, Salt Lake City
G	St. Thomas More Catholic Church	3015 Creek Road, Cottonwood Heights
H	Church of Jesus Christ of Latter-day Saints	7035 Nutree Drive, Cottonwood Heights
I	Church of Jesus Christ of Latter-day Saints	8169 Top of the World Drive, Cottonwood Heights
J	Church of Jesus Christ of Latter-day Saints	8170 Short Hills Drive, Cottonwood Heights
K	Church of Jesus Christ of Latter-day Saints	9575 South 3100 East, Sandy
L	Church of Jesus Christ of Latter-day Saints	9880 South 3100 East, Sandy
Emergency Services		
M	Police	7480 South 2700 East, Cottonwood Heights
N	Fire	8303 S. Wasatch Boulevard, Cottonwood Heights
O	Fire	9475 South 2000 East, Sandy
P	Police	10201 E. Little Cottonwood Road, Alta
Q	Fire	9523 E. Bypass Road, Snowbird
R	Medical (Snowbird Clinic)	9385 Snowbird Center, Snowbird
Libraries		
S	Salt Lake County Library System, Whitmore Branch	2197 E. Fort Union Boulevard, Cottonwood Heights
T	Alta Reading Room	10351 E. Little Cottonwood Road, Alta

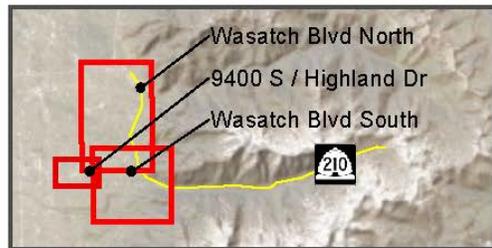
^a Community facilities are shown in Figure 4.3-5 and Figure 4.3-6 below, Community Facilities in the Community Impact Analysis Area.

Figure 4.3-5. Community Facilities in the Community Impact Analysis Area (1 of 2)



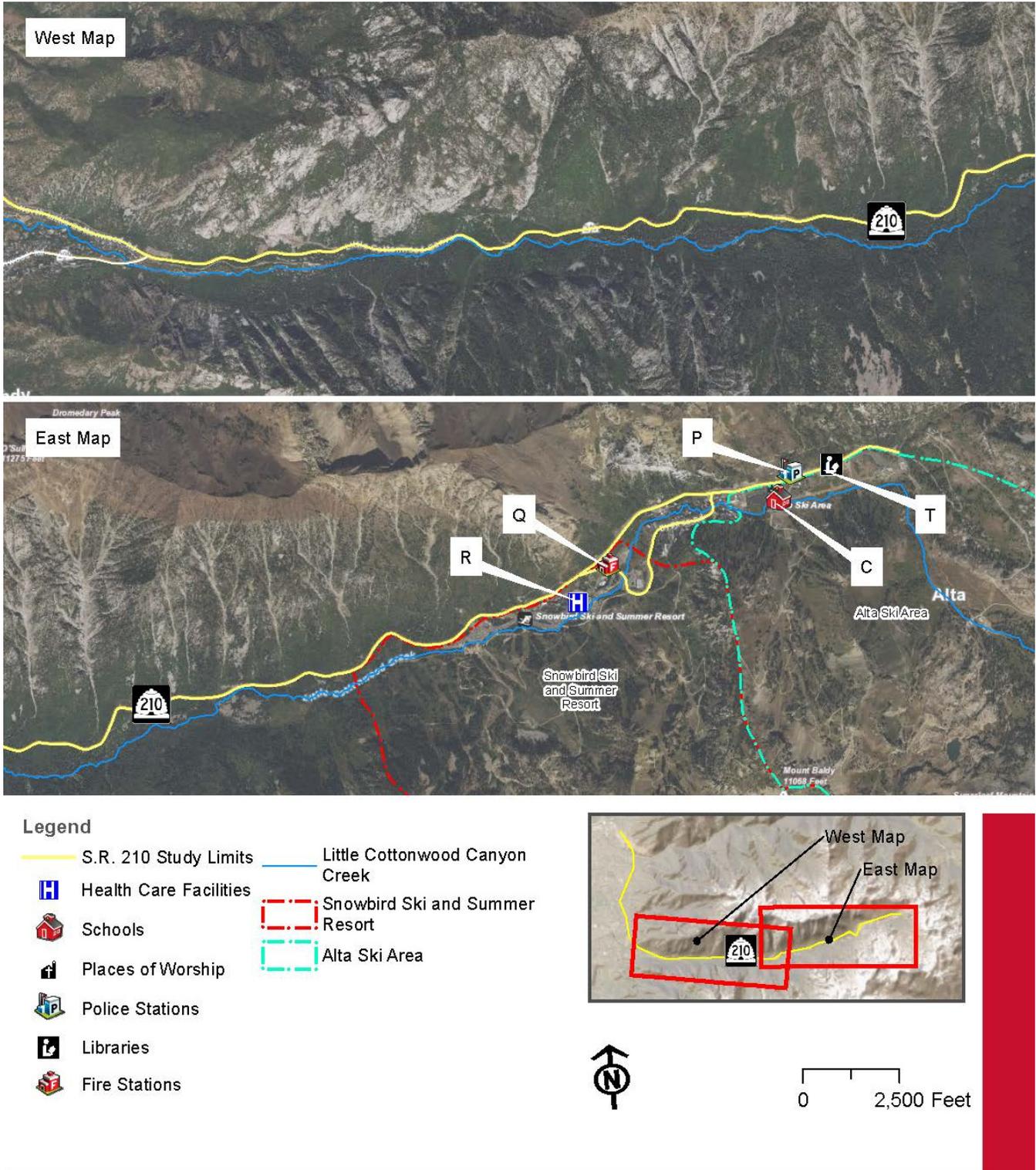
S.R. 210 Study Limits

-  Schools
-  Places of Worship
-  Police Stations
-  Libraries
-  Fire Stations



0 2,500 Feet

Figure 4.3-6. Community Facilities in the Community Impact Analysis Area (2 of 2)



4.3.5 Public Safety

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

As shown in Figure 4.3-5 above, there are two fire stations, one police/sheriff station, and no hospitals in the community impact analysis area.

4.3.5.1 S.R. 210 – Wasatch Boulevard

Public safety in Cottonwood Heights is provided by the Cottonwood Heights Police Department. The Unified Fire Authority provides fire protection, emergency medical services, and other emergency services. One fire station is located on the east side of Wasatch Boulevard immediately south of Golden Hills Park.

Safe access and congestion are concerns for residents of the neighborhoods along Wasatch Boulevard when driving to and from their homes. Vehicles turning into and out of the neighborhoods from and to Wasatch Boulevard have limited lane space to decelerate or accelerate comfortably with the traffic moving on Wasatch Boulevard.

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

4.3.5.2.1 *Emergency Response Providers*

Within Little Cottonwood Canyon, the Unified Police Department Canyon Patrol and the Utah Highway Patrol provide public safety response. The Unified Fire Authority provides fire protection (Station 13), emergency medical services, and other emergency services. Within the town of Alta, the Alta Marshal's Office is the law-enforcement agency. The USDA Forest Service also provides safety and law enforcement on the land that it administers. In addition, a Snowbird medical clinic is located at the Snowbird Center.

4.3.5.2.2 *Avalanche Mitigation*

UDOT contributes to safety on S.R. 210 in Little Cottonwood Canyon by providing snow plowing and avalanche control during the winter. UDOT's avalanche forecasters work closely with the snow safety departments at the ski areas to make highway-related avalanche decisions. Over the past 50 years, an average of 33 avalanches have hit S.R. 210 annually. The intent of UDOT's avalanche-control work focuses on initiating small and medium avalanches under controlled conditions rather than allowing large and destructive avalanches (Fehr & Peers 2008).

Starting in 2007, UDOT has been working toward reducing the avalanche-control program's reliance on artillery to control avalanches. Currently, about one-third of the explosive detonations used to control avalanches outside wilderness areas use remote avalanche-control (RAC) systems instead of artillery. The two type of RAC systems used by UDOT are gas that exerts a blast force on the avalanche start zone and a stationary tower that drops explosive charges by remote activation. Of the total avalanche-control work, each winter about 650 artillery rounds (weighing around 5 pounds each) and about 300 RAC explosions (consisting of 30,000 cubic liters of oxygen gas, 1,200 cubic liters of hydrogen gas, and 4,000 cubic liters of liquid propane) are used (UDOT 2019).

Avalanches in Little Cottonwood Canyon present a hazard to the traveling public. Avalanche risk is measured using an avalanche hazard index (AHI), which is a numeric expression of the potential threat of an avalanche. A number of factors are combined to determine the AHI of a road, factors including snowfall abundance, terrain steepness, and traffic volume. As shown in Table 1.4-5, Hazard Category as Defined by the Avalanche Hazard Index, in Chapter 1, Purpose and Need, the AHI rating system characterizes risk in a range from very low (numerical value < 1) to very high (numerical value > 150).

What is an avalanche hazard index?

Avalanche risk is measured using an avalanche hazard index, which is a numeric expression of the potential threat of an avalanche.

S.R. 210 has one of the highest avalanche risks in North America based on AHI calculations without any control program (UDOT 2006). With no avalanche control and using actual traffic volumes for 2018, the AHI for Little Cottonwood Canyon is about 7,300. With UDOT's active avalanche-control program (artillery and RAC systems) in the canyon and the use of the Alta Bypass Road to avoid the Superior and Hellgate avalanche paths along S.R. 210, the AHI was reduced to about 90 in 2018. The AHI with active control is still categorized as High; however, the avalanche risk is about 1% of the risk without the active control program.

The most critical avalanche paths with respect to uncontrolled, observed road events and residual avalanche risk are the Tanners, White Pine Chutes, White Pine, and Little Pine avalanche paths. UDOT's active avalanche-control program in these paths consists of using artillery to cause a controlled avalanche release. Artillery is used in these avalanche paths because they are in a wilderness area and structures associated with RAC systems are currently prohibited. From November 1 to May 1, parking in Little Cottonwood Canyon below avalanche paths is prohibited because of the safety risk. The USDA Forest Service has issued a special-use permit to UDOT to mitigate the potential for avalanches on National Forest System lands affecting S.R. 210 by using various methods of controlling avalanches by delivering explosives to the snowpack.

4.3.5.3 Mobility Hubs

4.3.5.3.1 Gravel Pit

The gravel pit is located in Cottonwood Heights off Wasatch Boulevard just north of Fort Union Boulevard. Public safety in Cottonwood Heights is provided by the Cottonwood Heights Police Department. The Unified Fire Authority provides fire protection, emergency medical services, and other emergency services. One fire station is located on the east side of Wasatch Boulevard immediately south of Golden Hills Park.

4.3.5.3.2 9400 South and Highland Drive

An existing UTA park-and-ride lot is located on the southeast corner of 9400 South and Highland Drive in Sandy. Public safety in Sandy is provided by the Sandy City Police Department and Fire Department. A fire station is located on the southwest corner of the UTA park-and-ride lot.

4.3.6 Utilities

UDOT contacted local municipalities and public and private utility providers that operate utility infrastructure in and adjacent to S.R. 210 from Interstate 215 through the town of Alta. Table 4.3-3 lists the utilities in or adjacent to S.R. 210. There are no major utilities within the UTA park-and-ride lot at 9400 South and Highland Drive.

Table 4.3-3. Utilities in or adjacent to S.R. 210 from Fort Union Boulevard through the Town of Alta

Utility Provider	Utility Type	Utility Location
Comcast Cable	Communication	Cable lines along S.R. 210 from Fort Union Boulevard to S.R. 209.
Cottonwood Heights City	Stormwater	Storm drainage along S.R. 210 within city limits.
Cottonwood Improvement District	Sewer	Wastewater trunk line along S.R. 210 from Fort Union Boulevard to the town of Alta.
Crown Castle	Communication	Fiber optic line along S.R. 210 from Fort Union Boulevard to the town of Alta.
Dominion Energy	Gas	Gas distribution line along S.R. 210 from Fort Union Boulevard to the town of Alta.
Murray City	Electric	Electrical transmission line on S.R. 210 from Danish Road to 3500 East.
Rocky Mountain Power	Electric	Electrical transmission line on S.R. 210 from Fort Union Boulevard to the town of Alta.
Salt Lake County – Canyon Water	Water	Water line along S.R. 210 from S.R. 209 through the town of Alta. In some places, the water line crosses under S.R. 210 from Snowbird Entry 1 through the town of Alta.

4.4 Environmental Consequences and Mitigation Measures

This section discusses the direct effects of the project alternatives on the social environment in the community impact analysis area.

During the scoping period, commenters stated that all of the action alternatives could increase the number of recreation visitors in Little Cottonwood Canyon during the winter and that the gondola alternatives and Cog Rail Alternative could increase the number of recreation visitors during the summer. For a detailed discussion of how the action alternatives could induce recreational use in the canyon and the potential impacts from this use, see Chapter 20, Indirect Effects.

4.4.1 No-Action Alternative

This section describes the impacts to the social environment from the No-Action Alternative in the Wasatch Boulevard segment of S.R. 210, in the segment of S.R. 210 from North Little Cottonwood Road to the town of Alta, at the gravel pit, and at the park-and-ride lot at 9400 South and Highland Drive.

4.4.1.1 S.R. 210 – Wasatch Boulevard

With the No-Action Alternative, the social environment would continue to be affected by the ongoing changes in development patterns and growth in the region. The community impact analysis area would remain cohesive without the proposed improvements to Wasatch Boulevard because of the strong attachments within Cottonwood Heights. The availability of recreation resources, community facilities, public safety resources, and utilities would not change, although the demand for these resources would increase with regional growth.

The No-Action Alternative would not require acquisition of right of way, so no residential properties would be subject to acquisition or strip takes. However, existing traffic, safety, congestion, and associated roadway accessibility and mobility problems would continue to be a concern for residents in the community impact analysis area. As traffic and congestion increase, the rural character of the two-lane Wasatch Boulevard would change, and access from adjacent residential neighborhoods would become more difficult with the increase in congestion. The pedestrian facilities along Wasatch Boulevard would remain limited in extent, providing safe access for a very small segment of the roadway.

These above issues could have a negative impact on how residents feel about their safety and quality of life. Some residents want to maintain a rural feel to their community and might feel that the No-Action Alternative maintains that quality of life.

What is a strip take?

A strip take is a land-only impact that occurs when a portion of a property is located within the proposed right of way but the right of way is more than 15 feet from an existing structure. This type of impact is referred to as a strip take because only a strip of land on the edge of the parcel would need to be acquired.

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

With the No-Action Alternative, the local communities (Granite Community, Wasatch Resort, and the town of Alta) would remain cohesive without the proposed improvements to S.R. 210 because of the strong attachments within their communities. The availability of recreation resources, community facilities, public safety resources, and utilities would not change. At a regional level, the community cohesiveness created by people gathering in Little Cottonwood Canyon and the quality of life benefits from recreation opportunities would not change. Recreation resources in Little Cottonwood Canyon would continue to be challenged with increasing roadside parking, which causes concentrated human use without adequate resource protection (USDA Forest Service 2003).

Traffic congestion in the residential areas near Little Cottonwood Canyon, access to recreation in the winter, and safety issues created by vehicles parking on the roadway shoulder and conflicting with cyclists and pedestrians would not improve with the No-Action Alternative. These continued conditions would reduce the quality of life for some residents and recreational users (for more information, see Chapter 9, Considerations Related to Pedestrians and Bicyclists).

With the No-Action Alternative, UDOT would continue to improve its active avalanche-control program. However, because the amount of traffic is a factor in determining the AHI, the expected increase in traffic volumes in Little Cottonwood Canyon would increase the AHI from 90 in 2018 to 96 in 2050 (Dynamic Avalanche Consulting 2018). Road closures for avalanche control reduce the quality of life for residents in the town of Alta and tourists using accommodations at or near the ski resorts because their access into and out of the canyon is delayed during avalanche mitigation operations.

4.4.1.3 Mobility Hubs

4.4.1.3.1 Gravel Pit

With the No-Action Alternative, Cottonwood Heights City plans to allow development of the gravel pit. The City's current plans include a mix of commercial and residential uses. This development would improve the quality of life for the residential area north of the gravel pit by removing the current visual, noise, and air pollution caused by the aggregate mine. It would also improve the quality of life for adjacent residents as well as residents within the surrounding area by providing access to restaurants and other amenities developed at the site.

4.4.1.3.2 9400 South and Highland Drive

With the No-Action Alternative, the UTA park-and-ride lot would continue as a bus mobility hub. There would be no change to the surrounding community.

4.4.2 Enhanced Bus Service Alternative

This section describes the impacts to the social environment 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.

4.4.2.1 S.R. 210 – Wasatch Boulevard

This section describes the impacts to the social environment from the Imbalanced-lane Alternative and the Five-lane Alternative, which would both widen the Wasatch Boulevard segment of S.R. 210.

4.4.2.1.1 *Imbalanced-lane Alternative*

Neighborhood and Community Cohesion

Overall, the Imbalanced-lane Alternative would have no substantial direct or indirect effects on neighborhood and community cohesion. Although Wasatch Boulevard would be widened from two to three travel lanes, the improvements would not change community interactions and attendance at local shopping areas, schools, parks, and churches, or the overall cohesiveness of Cottonwood Heights. It is unlikely that the proposed roadway improvements would affect other aspects of neighborhood and community cohesion such as the length of residency, the presence of families, or community leadership and activism. As part of the Imbalanced-lane Alternative, a trail is proposed on the east side of Wasatch Boulevard, and the improved pedestrian access with the trail should reduce perceived effects on cohesion that residents might associate with an expanded roadway. The trail improvements could lead to increased neighborhood and community interaction and, therefore, improved cohesiveness.

With the Imbalanced-lane Alternative, one residence along Wasatch Boulevard might need to be acquired (see the section titled Property Impacts on page 4-25). This acquisition would not affect local or neighborhood cohesion by altering formal relationships, such as neighborhood associations, or informal relationships, such as friendships.

Quality of Life

Residents along Wasatch Boulevard and in greater Cottonwood Heights feel that they have a high quality of life because of the surrounding aesthetics, recreation opportunities, mix of land uses, well-maintained and safe community, and patterns of rural development that the city provides. The Imbalanced-lane Alternative would change the overall feel of Wasatch Boulevard from a rural two-lane road to a more urban road. To some residents, this would change the rural aesthetic they enjoy in Cottonwood Heights to a more urban setting, thus reducing the aesthetic quality of the area along Wasatch Boulevard. The widening of Wasatch Boulevard with the Imbalanced-lane Alternative would not change the quality of life elements citizens enjoy with regard to their ability to recreate, visit neighbors, or experience a well-maintained and safe community.

Cottonwood Heights residents have concerns about roadway safety and how traffic and congestion affect their ability to move around and through the community. With the roadway improvements, access into and out of neighborhoods would be improved over the no-action conditions with appropriate turn lanes. This would address many of the safety concerns raised by residents. Many residents stated that the lack of sidewalks along Wasatch Boulevard does not allow a connected community where residents can walk to

Golden Hills Park or other areas in the city. The addition of a trail on the east side of Wasatch Boulevard with the Imbalanced-lane Alternative would allow better connections to parks and other trails in the community, thereby improving the quality of life for some residents by providing a safe pedestrian connection.

In summary, the Imbalanced-lane Alternative would benefit many of the quality of life elements (safe access, pedestrian amenities, and a well-maintained community) that residents have stated as being important reasons for living in Cottonwood Heights but would diminish the rural aesthetic that some residents consider important to their quality of life.

Recreation Resources

The Imbalanced-lane Alternative would affect two recreation facilities along Wasatch Boulevard: Golden Hills Park and a parking area for the Timberline Trailhead off Prospector Drive.

The Imbalanced-lane Alternative would require a strip take of about 0.63 acre of Golden Hills Park immediately adjacent to Wasatch Boulevard. None of the parking area, trails, or other amenities of the park would be affected. The proposed trail on the east side of Wasatch Boulevard with the Imbalanced-lane Alternative would connect to the trails in Golden Hills Park, providing a benefit to residents who walk to this park.

With the Imbalanced-lane Alternative, about 0.02 acre of the 0.14-acre parking area for the Timberline Trailhead off Prospector Drive would be converted to a trail. As part of the Imbalanced-lane Alternative, UDOT would reconstruct the dirt parking area so that there would be no net loss of parking spaces. In addition, with the Imbalanced-lane Alternative, the proposed trail on the east side of Wasatch Boulevard would provide walkable access to the trailhead for residents who live south of the trailhead, thereby improving safe access to the trailhead for pedestrians.

Community Facilities

The Imbalanced-lane Alternative would require a strip take of about 0.05 acre of the 1.0-acre lot associated with the Salt Lake County fire station at 8303 Wasatch Boulevard. The temporary impact would be to the driveway area, which would be restored after construction to provide access to Wasatch Boulevard. Access into and out of the fire station would not change.

Public Safety

The Imbalanced-lane Alternative would reduce congestion and improve safety by bringing Wasatch Boulevard up to current safety design standards and improving overall mobility, which would benefit response times for fire protection, ambulance services, and law enforcement. The addition of through-traffic lanes and dedicated turn lanes would benefit these services' overall access to emergencies. Increased shoulder widths could also accommodate emergency response vehicles.

The Imbalanced-lane Alternative would address many of the current problems associated with safe neighborhood access and traffic congestion. Having three through-traffic lanes on Wasatch Boulevard from Bengal Boulevard to North Little Cottonwood Road would ease congestion and improve overall mobility on Wasatch Boulevard. Improving the substandard sight distances at Kings Hill Drive to meet current safety standards and providing dedicated left- and right-turn lanes at intersections would improve safety.

Utilities

Impacts to utilities would be temporary and would occur during construction. The construction contractor would contact local businesses and residences if any loss of service is required during construction.

In general, utilities were considered to be affected by an alternative if the utility would need to be relocated (that is, lowered farther into the ground or moved to the edge of the new roadway). The Imbalanced-lane Alternative would cross some facilities (including communication, gas, water, sewer, electrical, and storm drainage) perpendicularly, and the effects on these utilities would be determined by UDOT by working with local jurisdictions and utility providers during the final design of the Selected Alternative. Impacts to these utilities can often be avoided during final design. UDOT would continue to communicate with local jurisdictions and utility providers throughout the development of the Selected Alternative to minimize service disruptions.

Property Impacts

Definitions. The relocations, potential relocations, and strip takes identified as property impacts in this section are based on preliminary engineering. The actual property impacts could change and would be determined during the final design phase of the project and during the property-acquisition process for the Selected Alternative. The following definitions are used to describe impacts to properties from the project alternatives:

- **Direct Impacts (Relocations).** For this analysis, a direct property impact occurs when an existing structure (residence or business) is within the proposed right of way of an alternative. This type of impact is referred to as a relocation because the entire property would need to be acquired and the affected residents or businesses would need to relocate.
- **Proximity Impacts (Potential Relocations).** For this analysis, a proximity impact occurs when an existing residence or business structure (excluding porches and garages) is within 15 feet of the proposed right of way. This type of impact is referred to as a potential relocation because it is not clear whether the entire property would need to be acquired. UDOT would make a final determination about the property during the right-of-way acquisition phase of the project, which would occur shortly before construction.
- **Land-only Impacts (Strip Takes).** For this analysis, a land-only impact occurs when a portion of the property is located within the proposed right of way but the right of way is more than 15 feet from an existing structure. This type of impact is referred to as a strip take because only a strip of land on the edge of the parcel would need to be acquired. Strip takes on National Forest System lands would be made under the authority of 23 USC Section 317, or UDOT would obtain an easement or other special-use authorization from the USDA Forest Service. See Chapter 3, Land Use, for the acreages of National Forest System lands required for each action alternative.

Relocations, Potential Relocations, and Strip Takes. For this analysis, the numbers of relocations, potential relocations, and strip takes were calculated from Salt Lake County records of property data as of July 2019. With the Imbalanced-lane Alternative, there would be one residential direct impact (relocation):

- **8376 Dynasty Way (Relocation).** UDOT owns this property and is managing it as a rental unit. The property was purchased with corridor preservation funds as part of a hardship acquisition process.

As shown in Table 4A.1-1, Property Impacts from Wasatch Boulevard – Imbalanced-lane Alternative (Four Lanes), in Appendix 4A, Property Impacts, all other property impacts with the Imbalanced-lane Alternative would be potential acquisitions and strip takes.

Construction Easements. Some properties outside the right of way might be affected during roadway construction. UDOT would temporarily acquire these properties with construction easements. These properties might be affected but are not considered relocations or strip takes because the property would not be permanently used. UDOT would compensate the property owners for the temporary use of their property, and the restored property would be returned to the owner when the use of the property is no longer needed by UDOT. These properties are not included in this analysis or discussed in this EIS.

Relocation Assistance for Displaced Residents. UDOT will acquire the necessary right of way consistent with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, Title VI of the Civil Rights Act, and the Utah Relocation Assistance Act. The guidelines used by UDOT for carrying out the provisions of this act are contained in its *2016 Relocation Assistance Brochure* (UDOT 2016).

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

4.4.2.1.2 *Five-lane Alternative*

The Five-lane Alternative would add one additional northbound travel lane, which would require about 12 feet more pavement than the Imbalanced-lane Alternative. Overall, the impacts from the Five-lane Alternative to neighborhood and community cohesion, community facilities, public safety, and utilities would be the same as from the Imbalanced-lane Alternative. However, some residents might feel that the Five-lane Alternative would further reduce the rural character of the community impact analysis area compared to the Imbalanced-lane Alternative.

With the Five-lane Alternative, about 0.65 acre of Golden Hills Park would be affected versus 0.63 acre with the Imbalanced-lane Alternative, but the overall impact to features and amenities of the park would be the same. The Five-lane Alternative would have the same relocation at 8376 Dynasty Way as the Imbalanced-lane Alternative. In addition, the Five-lane Alternative would have one potential residential relocation at 3454 Kings Hill Drive. During the final design process for the Selected Alternative, UDOT would work with the owner of 3454 Kings Hill Drive to determine the final disposition of the property. Table 4A.1-2, Property Impacts from Wasatch Boulevard – Five-lane Alternative (Five Lanes), in Appendix 4A, Property Impacts, shows the number of potential relocations and strip takes.

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

4.4.2.2.1 Local Impacts

With the Enhanced Bus Service Alternative, there would be no change to the existing roadway. During the winter, there would be a reduction in vehicle traffic during peak periods of about 365 personal vehicles per hour and about a 30% reduction in personal vehicles during the entire day. The reduction in personal vehicle use would reduce vehicle backups in residential communities and improve the quality of life of residents who live near the entrance to Little Cottonwood Canyon. Since there would be no improvements to S.R. 210 from North Little Cottonwood Road to Alta, there would be no overall improvement to cyclist or pedestrian safety, and emergency vehicle access would be similar to current operations.

With the Enhanced Bus Service Alternative, there would be no residential or business relocations along S.R. 210 from North Little Cottonwood Road to the town of Alta and no changes to community cohesion, recreation resources, or utilities compared to current conditions. For the potential impact to increased skier use induced by the Enhanced Bus Service Alternative, see Chapter 20, Indirect Effects.

4.4.2.2.2 Regional Impacts

The ability for recreational access and for family and friends to gather and recreate in Little Cottonwood Canyon would not substantially change. During the winter, ski resort users would have similar access as today by taking the enhanced bus service instead of using their personal vehicles, which some might see as a benefit while others might see as a negative impact.

Overall, the Enhanced Bus Service Alternative would have similar recreation access as existing conditions and would not result in a substantial change to the shared community values for recreation in Little Cottonwood Canyon.

The enhanced bus service would result in increased winter use of the recreational facilities at the Snowbird and Alta ski resorts. The improved access to the ski resorts would generally improve the skier experience in getting to the resorts. For the potential impact to increased skier use induced by the Enhanced Bus Service Alternative, see Chapter 20, Indirect Effects.

The Enhanced Bus Service Alternative would not affect Little Cottonwood Creek as a primary drinking water source and therefore would not change the quality-of-life aspect that the water provides to users.

4.4.2.2.3 Tolling

With tolling, the ability for recreation access and for family and friends to gather and recreate in Little Cottonwood Canyon would not substantially change. During the winter, many users who do not wish to pay a toll would take the enhanced bus service instead of using their personal vehicles, which some might see as a benefit while others might see as a negative impact. Tolling would be limited to the upper part of Little Cottonwood Canyon serviced by the enhanced bus service, so recreation areas below Snowbird Entry 1 would have the same winter access as existing conditions. Backcountry skiers might feel that the toll would negatively impact morning (7 AM to 10 AM) access to the upper part of Little Cottonwood Canyon since the bus service would service the resorts only, causing backcountry skiers who use the bus to walk greater distances to access trails. Tolling might be in effect only during peak periods (7 AM to 10 AM), so backcountry skiers who are skiing during off-peak times could park near trails if parking is available. This EIS does not consider summer tolling.

4.4.2.3 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.

4.4.2.3.1 Gravel Pit

With the Enhanced Bus Service Alternative, the mobility hub at the gravel pit would likely become part of a larger master plan development consisting of commercial and residential development (Cottonwood Heights City and WFRC 2016). The proposed commercial development would happen with or without the Enhanced Bus Service Alternative. Therefore, the mobility hub would not change the commercial nature of the development and would not likely cause a negative impact to the quality of life for residents in the residential development to the north or in the Wasatch Boulevard corridor to the south. For some residents, the mobility hub might be perceived as a benefit for those who ski in Little Cottonwood Canyon since it would provide convenient access to the ski resorts.

No residential relocations would be required for the mobility hub at the gravel pit. If the mobility hub were constructed before the aggregate mine ceases operation, it could impact some of the operation of the mine and could be considered a business relocation.

In summary, the mobility hub at the gravel pit would require no residential relocations and would not change community cohesion, recreation resources, public safety, or utilities compared to current conditions.

4.4.2.3.2 9400 South and Highland Drive

As a mobility hub, the existing park-and-ride lot at 9400 South and Highland Drive would be transformed from the existing lot with 275 surface parking spaces to a multilevel parking structure with about 1,000 parking spaces. The additional traffic coming to the parking structure from Highland Drive or 9400 South on busy ski days could reduce the quality of life for residents of the subdivision on the southeast corner of the lot; however, traffic through the subdivision would not increase (for more information, see Chapter 7, Traffic and Transportation). The parking structure would be compatible with the existing commercial buildings across 9400 South and Highland Drive and would not be out of character for the area.

In summary, the mobility hub would be within the existing park-and-ride lot, and therefore there would be no property impacts and no changes to community cohesion, recreation resources, public safety, or utilities compared to current conditions.

4.4.2.4 Avalanche Mitigation Alternatives

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

4.4.2.4.1 Snow Sheds with Berms Alternative

The snow sheds with berms would be placed mid-canyon and would not change local or regional community cohesion. The recreation access and the ability for family and friends to gather and recreate in Little Cottonwood Canyon would not change during the summer. In addition, there would be no change to the shared community values for recreation in Little Cottonwood Canyon. The proposed snow sheds would not

impact access to existing formalized USDA Forest Service trailheads in Little Cottonwood Canyon. Since there is no parking during the winter months because of the avalanche risk in the locations of the snow sheds, the sheds would not change winter backcountry skiing use in this area. However, the Snow Shed with Berms Alternative would eliminate the China Wall roadside pullout, which is used in the summer to access the informal White Pine bouldering area (not a designated USDA Forest Service recreation area).

The visual impact of the snow sheds could reduce the quality of life for some users of Little Cottonwood Canyon because of the visible encroachment of another constructed element in the natural landscape outside the developed areas at the top of the canyon (the ski resorts and the town of Alta). Little Cottonwood Canyon is a scenic byway, and many visitors access to the canyon for sightseeing. The introduction of another constructed element could reduce the quality of life for some people sightseeing or recreating in the canyon.

The snow sheds include a multi-use path, providing continued access for cyclists along S.R. 210 during the summer.

With the snow sheds, the main beneficial impact to the quality of life of people recreating in the canyon in winter would be fewer canyon closures caused by avalanche-control work and the resulting reduction in congestion on S.R. 210. Without the snow sheds, in 2050 with the No-Action Alternative, Little Cottonwood Canyon is expected to be closed on average 10.5 to 21 days and 56 to 108 hours per winter season for avalanche-control work. With the snow sheds, the number of days of closure would be reduced to about 4 to 6, and the hours of closure would be reduced to 2 to 11, which would improve wintertime access for skiers and would improve their quality of life. The snow sheds would also reduce vehicle congestion into the neighborhoods at the entrance to Little Cottonwood Canyon caused by road closure for avalanche-control work, and this reduction in congestion would improve the quality of life for canyon residents in terms of accessing their homes.

Traffic noise could increase in a snow shed because the noise would bounce off the walls and ceiling. This could increase noise levels at Tanners Flat Campground and the Lisa Falls and White Pine Trailheads. To model the noise levels from the snow sheds, UDOT assumed a 3.5-times increase in traffic levels to account for noise reflections off the two walls, reflection off the ceiling, and another 50% reflection off the downhill supports. Using this methodology, noise levels would increase by about 5 A-weighted decibels (dBA) from existing conditions (from about 51 dBA to 56 dBA). During the summer, campground users would perceive the increase in noise levels. A 3-dBA increase in noise levels is not readily perceived by people, whereas at 5 dBA people would notice the change in noise. Existing monitored noise levels at the entrance to Tanners Flat Campground are 59 dBA.

The snow sheds would be constructed during the summer. During construction, S.R. 210 in Little Cottonwood Canyon might have temporary traffic delays, which would cause some delays for canyon visitors. Any closures during the 1-to-2-year construction period would be temporary.

The snow sheds would improve public safety by reducing the risk of avalanches covering the road. In 2050 with the No-Action Alternative, the AHI in Little Cottonwood Canyon, with the current type of active avalanche mitigation program, would be 96, or high risk. With the introduction of the snow sheds, the AHI would be reduced to 43 in 2050. Although an AHI of 43 is still considered a high risk, it is a risk reduction of 55% to the traveling public, thereby providing a beneficial impact to the safety risk of S.R. 210 during the winter.

4.4.2.4.2 *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, except that by realigning S.R. 210 this alternative would remove curves in the snow sheds and thus improve vehicle safety.

4.4.2.5 **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

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

This alternative would reduce the number of currently available trailhead parking spaces in Little Cottonwood Canyon from 528 to 511 (Table 4.4-1). The proposed trailhead improvements would not change local or regional community cohesion. The recreation access and the ability for family and friends to gather and recreate in Little Cottonwood Canyon would not change. In addition, there would be no change to the shared community values for recreation in Little Cottonwood Canyon.

The improved trailhead parking would benefit the quality of life for most people using the trailheads. The expanded formalized parking and the elimination of roadside parking would reduce safety conflicts with people walking from their vehicles parked on the road to the trailhead, creating a safer experience. Cyclists who use the canyon would see the elimination of roadside parking around the trailheads as an improvement to the quality of their cycling experience because they would not need to move around vehicles parked on the roadside and ride in the travel lane near moving vehicles. However, some people recreating in the canyon could see expanded parking areas in the natural environment as a reduction in the natural quality of the setting and their enjoyment of the natural surroundings.

Table 4.4-1. Total Parking Spaces from S.R. 209/S.R. 210 to Snowbird Entry 1 by Trailhead Alternative

Parking Area	Number of Parking Spaces ^a			
	Existing Parking/ No-Action Alternative	Trailhead Improvement Alternatives		No Trailhead Improvement Alternative
		No Roadside Parking ¼ Mile from Trailhead	No Roadside Parking to Snowbird Entry 1	No Roadside Parking to Snowbird Entry 1
Roadside parking	429	290	0	0
Gate Buttress Trailhead	30 (in formal dirt lot)	21	21	30 (in formal dirt lot)
Bridge Trailhead	Not applicable (roadside parking only)	15	15	0
Lisa Falls Trailhead	17 (north and south dirt pullouts)	41	41	17 (north and south dirt pullouts)
White Pine Trailhead	52	144	144	52
Total parking spaces^a	528	511	221	99

^a The total number of parking spaces did not capture all of the smaller available pullouts along S.R. 210, so the total number of existing parking would be higher.

The proposed trailhead improvements at the Gate Buttress, Bridge, Lisa Falls, and White Pine Trailheads would improve access to the trails and the overall recreation experience by reducing conflicts between vehicles, pedestrians, and cyclists on S.R. 210. The formalized parking at the trailheads would replace the number of parking spaces eliminated on the road. Pedestrians would no longer walk along or across S.R. 210 from parked cars, thereby eliminating the conflicting with vehicles on the road. In addition, toilets would be added (at the Gate Buttress, Bridge, and Lisa Falls Trailheads) or expanded (at the White Pine Trailhead) to match the number of parking spaces per USDA Forest Service requirements. Overall, the improvements to the trailhead parking and elimination of roadside parking would be a benefit to recreational users by providing appropriate restroom facilities, designated parking areas, and safe parking and trail access. The trailhead improvements, including the addition of restrooms and the elimination of some roadside parking, would concentrate human use in areas with adequate resource protection, thus minimizing some environmental impacts. For indirect impacts from recreation, see Chapter 20, Indirect Effects.

Eliminating parking within ¼ mile from the Bridge, Lisa Falls, and White Pine Trailheads would not impact popular roadside parking areas to access dispersed recreation. However, eliminating parking within ¼ mile of the Gate Buttress Trailhead would eliminate popular climber pullout areas Syringe/5 Mile, Pipe Bridge, and The Hill as well as access to Little Cottonwood Creek. Access to the climbing resources and Little Cottonwood Creek from the eliminated pullouts would be provided by the parking at the Gate Buttress Trailhead. This would cause some climbers to hike an additional ¼ mile to reach certain climbing boulders, which could discourage some users.

Construction of the improved trailheads would be during the summer and is anticipated to occur during one summer season. During construction, the Gate Buttress, Bridge, Lisa Falls, and White Pine Trailheads could be closed or only limited portions open. The closures would be temporary at each specific trailhead for one summer season.

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

This alternative would reduce the number of currently available parking spaces from 528 to 221 (see Table 4.4-1 above). The overall impacts from trailhead improvements with no roadside parking from this alternative would be similar to those from the Trailhead Improvements and No S.R. 210 Roadside Parking within ¼ Mile of Trailheads Alternative except for the greater reduction in parking in Little Cottonwood Canyon.

The reduction in unauthorized roadside and pullout parking to access recreation in Little Cottonwood Canyon could have a negative impact to the quality of life for people who use these roadside areas to access their favorite location. Some recreationists might see this as a benefit because it would likely reduce the number of people recreating in the forest and increase the experience of solitude for hikers and other visitors.

Eliminating roadside and pullout parking could have a negative impact to recreationists who rely on unauthorized access points for their experience in the canyon including visiting Little Cottonwood Creek. The largest impact could be to climbers who use the roadside parking and pullouts in the lower portion of Little Cottonwood Canyon to access climbing areas. As shown in Table 4.3-2 below, about 15 roadside pullouts used by recreationists would be eliminated. Improved trailheads parking at the Grit Mill, Gate Buttress, Bridge, Lisa Falls, and White Pine Trailheads could be used to gain access to some areas but would require walking along S.R. 210, which would introduce safety conflicts with vehicles traveling on the road. With the trailhead improvements, including the addition of restrooms and the elimination of roadside parking, human use would be focused in areas with adequate resource protection, reducing potential environmental impacts.

Of the roadside parking impacts, the changes to the Tanners backcountry skiing area would be of concern for backcountry skiers because the changes would require skiers to walk 1 mile along S.R. 210 from the White Pine Trailhead with their ski equipment. Therefore, UDOT would mitigate this impact by providing six winter parking spaces at the entrance to the Tanners Flat Campground area (see Section 4.4.7.1, Recreation).

Construction of the improved trailheads would occur during the summer and is anticipated to last for one summer season. During construction, the Gate Buttress, Bridge, Lisa Falls, and White Pine Trailheads could be closed or only limited portions open. The closures would be temporary at each specific trailhead for one summer season.

Table 4.4-2. Elimination of Roadside and Pullout Parking with the Trailhead Parking and No Roadside Parking Alternatives and the Enhanced Bus Service in Peak-period Shoulder Lane Alternative

Roadside or Pullout Parking ^a	Description
Secret Garden pullout	Roadside parking eliminated. Access provided by Little Cottonwood Canyon park-and-ride lot on existing trail at a distance of about 0.06 mile.
Old Crescent Crack pullout	Roadside parking eliminated. Access provided by Little Cottonwood Canyon park-and-ride lot on existing trail at a distance of about 0.17 mile.
Cabbage Patch pullout	Roadside parking eliminated. Access provided by Grit Mill Trailhead on existing trail at a distance of about 0.17 mile.
The Ridges pullout	Roadside parking eliminated. Access provided by Grit Mill Trailhead on existing trail at a distance of about 0.13 mile.
Grit Mill parking area	No impact to parking.
Fin/Altered States pullout	Roadside parking eliminated. Access provided by Gate Buttress parking area on existing trail at a distance of about 0.28 mile. North-side and south-side pullouts. The pullout on the south side of S.R. 210 requires unsafe crossing of S.R. 210.
Syringe/5 Mile pullout	Roadside parking eliminated. Access provided by Gate Buttress parking area on existing trail at a distance of about 0.17 mile. North-side and south-side pullouts. The pullout on the south side of S.R. 210 requires unsafe crossing of S.R. 210.
Gate Buttress Trailhead	No impact to parking.
Pipe Bridge pullout	Roadside parking eliminated. Access provided by Gate Buttress parking area by crossing and walking along S.R. 210 for about 0.07 mile.
The Hill pullout	Roadside parking eliminated. Access provided by Gate Buttress parking area on existing trail at a distance of about 0.22 mile. Use of this south-side pullout requires unsafe crossing of S.R. 210.
The Glen pullout	Roadside parking eliminated. Access provided by Gate Buttress parking area on existing trail at a distance of about 0.31 mile. Use of this south-side pullout requires unsafe crossing of S.R. 210.
Great White Icicle pullout	Roadside parking eliminated. Access provided by Lisa Falls Trailhead by the Little Cottonwood Creek Trail at a distance of about 1 mile.
Lisa Falls Trailhead	No impact to parking.
Maybird pullout	Roadside parking eliminated. Access provided by City View Pullout on S.R. 210 at a distance of about 0.5 mile.
Tanners pullout	Roadside parking eliminated (primarily a winter access point for backcountry skiers). Access provided by White Pine Trailhead on S.R. 210 at a distance of about 1 mile.
China Wall pullout	Roadside parking eliminated. Access provided by White Pine Trailhead on S.R. 210 at a distance of about 0.37 mile.
White Pine Trailhead	No impact to parking.
Snowbird Boulders pullout	Roadside parking eliminated. Access provided by White Pine Trailhead or Snowbird resort parking areas on S.R. 210 at a distance of about 0.38 mile.

^a Pullouts and roadside parking areas in this table are not at formalized trailhead access points and generally consist of five parking spaces or fewer.

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

This alternative would reduce the number of currently available parking spaces from 528 to 99 (see Table 4.4-1, Total Parking Spaces from S.R. 209/S.R. 210 to Snowbird Entry 1 by Trailhead Alternative, above). Although the alternative would improve the quality of life for cyclists and pedestrians along the roadway, the reduction in recreation parking could be considered a negative impact to the quality of life of many people who recreate in Little Cottonwood Canyon by making access to trails and natural areas more difficult. In addition, without expanding the trailhead parking and with the elimination of roadside parking in this area, the opportunities for recreation access would be reduced, which could be perceived as a negative impact to the quality of life for local and regional visitors.

The access to trails that are not designated by the USDA Forest Service from roadside parking and pullouts would be similar to that listed in Table 4.4-2 above; however, with no improvement to the authorized trailheads, there would be fewer areas for these recreationists to park, and the safety conflicts of pedestrian with vehicles in the S.R. 210 travel lanes would persist. Similar to the No-Action Alternative, without any trailhead improvements at the Gate Buttress, Lisa Falls, and White Pine Trailheads, recreation resources in Little Cottonwood Canyon will continue to be challenged without adequate resource protection.

However, some recreationists might see the reduction in parking as a benefit if they can find available parking because it would effectively reduce the number of people recreating in the forest and increase the experience of solitude for hikers and other visitors.

4.4.2.6 No Winter Parking Alternative

With the No Winter Parking Alternative, about 230 roadside parking spots near the ski resorts would be eliminated during winter (see Figure 2.6-16, No Winter Parking Alternative – Eliminated Parking Areas, in Chapter 2, Alternatives). Roadside parking is used by backcountry skiers and ski resort visitors during winter peak days when the main ski area parking lots are at capacity. The removal of the roadside parking could reduce the quality of life for some skiers since they would need to rely on spaces in the parking lots or use the proposed enhanced bus service instead of their personal vehicles to access the ski resorts. With the Enhanced Bus Service Alternative, there would be sufficient valley parking to accommodate users. For backcountry skiers who rely on these parking spots, the removal of this parking spots would have a negative effect on their access to trails outside the ski resorts. Backcountry skiers could use the enhanced bus service to get to the ski resorts and then walk to the trails from the bus stop at Snowbird or Alta.

Removing roadside parking could improve safety by eliminating vehicles parking adjacent to and in some cases partially in the travel lanes, obstructing traffic. In addition, eliminating roadside parking would prevent skiers from exiting their vehicles along the road, which would reduce vehicle and pedestrian conflicts.

In addition, removing roadside parking would allow improved winter operations such as snow removal. With the current roadside parking, the ability for snow plows to operate is reduced in certain areas adjacent to the ski resorts where the road is narrow and roadside parked vehicles make it difficult for plow operators to maneuver. Roadside parked vehicles during large snow events also limit the areas where snow can be pushed off the travel lanes. These improvements would be a benefit to the safety of travel for Alta residents and would improve the safety for visitors who choose to drive rather than take the bus.

4.4.3 Enhanced Bus Service in Peak-period Shoulder Lane Alternative

This section describes the impacts to the social environment 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.

4.4.3.1 S.R. 210 – Wasatch Boulevard

The community impacts from the Imbalanced-lane Alternative and Five-lane Alternative with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be the same as with the Enhanced Bus Service Alternative. Quality of life for residents along Wasatch Boulevard would improve during peak traffic periods in winter because vehicle backups onto Wasatch Boulevard would be reduced.

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

4.4.3.2.1 *Neighborhood and Community Cohesion*

Local Impacts

For residents along S.R. 210, the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would not change the S.R. 210 road alignment or the number of travel lanes for personal vehicles. The addition of peak-period shoulder lanes for the enhanced bus service would not further divide the community. Homes along North Little Cottonwood Road and S.R. 210 in Little Cottonwood Canyon are on the south side of S.R. 210, so the additional widening for the peak-period shoulder lanes would not further divide neighborhoods. Therefore, there would be no change to neighborhood or community cohesion from the Enhanced Bus Service in Peak-period Shoulder Lane Alternative.

Regional Impacts

The regional impacts from the Enhanced Bus Service in Peak-period Shoulder Lane Alternative from North Little Cottonwood Road to the town of Alta would be the same as from the Enhanced Bus Service Alternative.

4.4.3.2.2 *Quality of Life*

For residents along S.R. 210, the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would not change the S.R. 210 road alignment or the number of travel lanes for personal vehicles. In winter, there would be a reduction in vehicle traffic during peak periods of about 365 personal vehicles per hour and about a 30% reduction in personal vehicles during the entire day. The reduction in personal vehicle use and improved mobility with buses traveling in a peak-period shoulder lane would reduce vehicle backups in residential communities at the entrance to Little Cottonwood Canyon, which would benefit residents' overall quality of life by improving access to and from their homes during busy ski days.

During the winter, many canyon users who do not wish to pay a toll would take the enhanced bus service instead of using their personal vehicles, which some might see as a benefit while others might see as a negative impact. An additional benefit of using enhanced bus service with the peak-period shoulder lanes is

that bus travel times would be faster than travel times with personal vehicles. Overall, there would be little change to the quality of life for those who recreate in Little Cottonwood Canyon.

When the peak-period shoulder lanes are not in use during the summer and portions of the winter, they would be available to pedestrians and cyclists. Personal vehicles would not be allowed to park in the peak-period shoulder lanes. Cyclists who use the canyon would see the use of the peak-period shoulder lanes as an improvement to the quality and safety of their riding experience because they would have a dedicated travel lane for cycling outside the vehicle travel lanes.

The Enhanced Bus Service in Peak-period Shoulder Lane Alternative would have *de minimis* impacts to Little Cottonwood Creek as a primary drinking water source, so this alternative would not change the quality-of-life aspect that the water provides to users. See Chapter 12, Water Resources, for more information regarding the expected impacts to the Little Cottonwood Canyon watershed including Little Cottonwood Creek as a drinking water source.

4.4.3.2.3 Recreation Resources

Peak-period Shoulder Lanes

Adding peak-period shoulder lanes on S.R. 210 from North Little Cottonwood Road to the Alta Bypass Road would eliminate the 429 roadside parking spots (no parking would be allowed in the peak-period shoulder lanes) and existing pullouts along S.R. 210. Eliminating roadside parking with the peak-period shoulder lanes could be perceived as a reduction in access for recreationists who use many of the access points in the canyon that are not designated by the USDA Forest Service. The greatest potential impact could be to climbers who use the pullouts or park along the road on the lower portion of Little Cottonwood Canyon to access climbing areas and other areas such as Little Cottonwood Creek.

As shown above in Table 4.3-2, Elimination of Roadside and Pullout Parking with the Trailhead Parking and No Roadside Parking Alternatives and the Enhanced Bus Service in Peak-period Shoulder Lane Alternative, about 15 roadside parking areas and pullouts used by recreationists would be eliminated with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative. Some nearby access would be provided by the improved trailheads at the Grit Mill, Gate Buttress, Bridge, Lisa Falls, and White Pine parking areas by connecting trails or by using the peak-period shoulder lanes. When the peak-period shoulder lanes are not in use (during the summer and portions of the winter), people could park at the improved trailheads and walk in the peak-period shoulder lane, which would be free of vehicles. The additional parking at the trailheads would make up for some of the lost roadside parking spaces, which would minimize access impacts.

With the trailhead improvements, including the addition of restrooms and the elimination of roadside parking, human use would be focused in areas with adequate resource protection, reducing potential environmental impacts. Of the roadside parking impacts, the changes to the Tanners backcountry skiing area would be of concern for backcountry skiers because the changes would force skiers to walk 1 mile along S.R. 210 with ski equipment. Therefore, UDOT would mitigate the impact by providing six winter parking spaces at the entrance to the Tanners Flat Campground area (see Section 4.4.7.1, Recreation). The peak-period shoulder lanes would impact about 0.63 acre of a hill area next to the Tanners Flat Campground area. None of the campground amenities or features would be impacted. The peak-period shoulder lanes would not be in use during the summer, so they would not increase noise levels at any summer recreation areas. During the winter, the peak-period shoulder lanes would be used by only buses during peak morning and evening

periods. Noise modeling (see Chapter 11, Noise) showed no increase in noise levels from the peak-period shoulder lanes.

As a result of adding the peak-period shoulder lanes, some boulders used by climbers adjacent to S.R. 210 would be removed, or the peak-period shoulder lanes would be adjacent to the shoulders (within 15 feet or less). The boulders are:

- Secret Garden – within 15 feet
- Cabbage Patch – within 15 feet
- 5 Mile – within 15 feet
- Syringe – within 15 feet
- Parking lot west – removed
- Stick – removed
- The Glen – within 15 feet

As a result of adding the peak-period shoulder lanes, portions of some existing and planned climbing trails would be affected. Except for the Alpenbock Loop Trail, these trails are not formal USDA Forest Service trails but trails built by the Salt Lake City Climbers Alliance that are both on private and public lands. The following lengths of named existing and planned trail would be removed:

- Alpenbock Loop – 60 feet
- 5 Mile Boulder – 475 feet
- The Fin – 40 feet
- The Hill and Gate Buttress Connector (planned trail) – 850 feet
- Black Peeler (planned trail) – 90 feet

In addition to the existing named trails, about 1,100 feet of informal trails as identified by the Salt Lake City Climbers Alliance would be removed as a result of constructing the peak-period shoulder lanes. To minimize the impacts to the trails, UDOT would realign any existing named trails at the time of construction to maintain trail connectivity.

The visual impacts of additional roadway cuts and fills with the peak-period shoulder lanes would detract from recreationists' views of the scenic Little Cottonwood Canyon. The negative impact to the viewshed could be considered by some recreationists as a negative outdoor recreation experience.

What is a viewshed?

A viewshed is all of the views that can be seen from a given location.

Construction of the peak-period shoulder lanes would occur during the summer. Construction on S.R. 210 in Little Cottonwood Canyon could result in traffic delays during the summer construction seasons, which could delay those who want to recreate in the canyon. There would also be increased noise levels from the construction equipment. The traffic delays and increased construction noise would be temporary during the 2-to-3-year construction period.

The enhanced bus service would result in increased winter use of the recreation facilities at the Snowbird and Alta ski resorts. The improved access to the ski resorts would generally improve the skier experience in getting to the resorts. For the potential impacts to induced skier use caused by the Enhanced Bus Service in Peak-period Shoulder Lane Alternative, see Chapter 20, Indirect Effects.

Tolling

With tolling, the ability for recreation access and for family and friends to gather and recreate in Little Cottonwood Canyon would not substantially change. During the winter, many users who do not wish to pay a toll would take the enhanced bus service instead of using their personal vehicles, which some might see as a benefit while others might see as a negative impact. Tolling would be limited to the upper part of Little Cottonwood Canyon serviced by the enhanced bus service, so people who engage in recreation below Snowbird Entry 1 would not be charged a toll. Backcountry skiers might feel that the toll would negatively impact access to the upper part of Little Cottonwood Canyon since the bus service would service the resorts only, causing backcountry skiers who use the bus to walk greater distances to access trails. This EIS does not consider summer tolling.

4.4.3.2.4 Community Facilities

There would be no impacts to community facilities from the Enhanced Bus Service in Peak-period Shoulder Lane Alternative.

4.4.3.2.5 Public Safety

With the Enhanced Bus Service in Peak-period Shoulder Lane Alternative, emergency response times and safety management performed by Unified Police Department Canyon Patrol, the Utah Highway Patrol, the Unified Fire Authority, the Alta Marshal's Office, or the USDA Forest Service would be improved by the additional travel lane. The addition of a peak-period shoulder lane would allow quicker emergency response compared to existing conditions by allowing emergency vehicles to move around slower-moving vehicles in the canyon. The peak-period shoulder lanes would also provide room for vehicles to pull out of the travel lane for emergency vehicles. In addition, if there were an accident, there would be room for vehicles to maneuver around the incident, which would reduce backups that currently occur with incidents.

During the summer, the peak-period shoulder lane would be closed to vehicle traffic and would become a bicycle/pedestrian lane. Use of the peak-period shoulder lane in summer as a bicycle/pedestrian lane would be a safety benefit compared to existing conditions in which cyclists and pedestrians must share the vehicle travel lane in certain parts of the canyon that have no or minimal shoulders or to maneuver around roadside park vehicles.

The elimination of roadside parking adjacent to the Granite Mountain Records Facility and Perpetual Storage could improve safety and unauthorized access for people who could have parked on S.R. 210 with the No-Action Alternative.

4.4.3.2.6 Utilities

Impacts to utilities would be temporary and would occur during construction. The construction contractor would contact local businesses and residences if any temporary loss of service is required during construction.

In general, utilities were considered to be affected if the utility would need to be relocated (that is, lowered farther into the ground or moved to the edge of the new roadway). S.R. 210 from North Little Cottonwood Road to the town of Alta contains numerous utilities in or adjacent to the roadway. The utilities would be replaced in the same general location as the existing utilities to minimize impacts to the adjacent land. The

impact to these utilities (including communication, gas, water, sewer, electrical, and storm drainage) would be determined by UDOT by working with local jurisdictions and utility providers during the final design of the Selected Alternative. Impacts to these utilities can often be avoided during final design. UDOT would continue to communicate with local jurisdictions and utility providers throughout the project to minimize service disruptions.

4.4.3.2.7 Property Impacts

With the Enhanced Bus Service in Peak-period Shoulder Lane Alternative, there would be no residential or business relocations on S.R. 210 from North Little Cottonwood Road to the town of Alta. Table 4A.2-1, Property Impacts from Enhanced Bus Service in Peak-period Shoulder Lane Alternative, in Appendix 4A, Property Impacts, provides a summary of strip takes by property.

4.4.3.3 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.

4.4.3.4 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.

4.4.3.5 Trailhead Parking Alternatives

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

With Enhanced Bus Service in Peak-period Shoulder Lane Alternative, no parking would be allowed in the peak-period shoulder lanes. All roadside parking from the S.R. 209/S.R. 210 intersection to the Alta Bypass Road would be eliminated. Thus this trailhead parking alternative could not be implemented with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative.

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

The impacts from this trailhead parking alternative with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be similar to those from the Enhanced Bus Service Alternative except when the peak-period shoulder lanes are not in use by buses during the summer and portions of the winter. When the peak-period shoulder lanes are not in use, walking access between the existing or improved trailheads and the eliminated pullout access points would be in the peak-period shoulder lane, which would provide a safe walking space outside the vehicle travel lane. For more information, see Section 4.4.3.2.3, Recreation Resources.

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

The impacts from this trailhead parking alternative with the Enhanced Bus Service in Peak-period Shoulder Lane Alternative would be the same as with the Enhanced Bus Service Alternative.

4.4.3.6 **No Winter Parking Alternative**

The impacts 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.

4.4.4 **Gondola Alternative A (Starting at Canyon Entrance)**

This section describes the impacts to the social environment 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.

4.4.4.1 **S.R. 210 – Wasatch Boulevard**

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

4.4.4.2 **S.R. 210 – North Little Cottonwood Road to Alta**

4.4.4.2.1 *Neighborhood and Community Cohesion and Quality of Life*

Local

With Gondola Alternative A, there would be no change to the existing S.R. 210 roadway. With Gondola Alternative A, vehicle traffic during peak periods would be reduced by about 365 personal vehicles per hour, and there would be about a 30% reduction in personal vehicles during the entire day. The reduction in personal vehicle use would reduce vehicle backups in residential communities when the road is not closed for avalanche mitigation and would provide a beneficial impact to the quality of life for residents who live near S.R. 210 near the entrance to Little Cottonwood Canyon.

The proposed 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 lighting at the facility, the noise, and the visual impact would be seen as a reduction to the quality of life for residents of the Granite Community. The gondola base station would be about 250 feet from the nearest residential property.

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.

The gondola would operate near residences at the Wasatch Resort at the entrance to Little Cottonwood Canyon and in the town of Alta. The natural views that residents have would be disrupted by the gondola infrastructure. With the gondola passing near their houses, residents would feel an intrusion and loss of privacy from gondola riders looking down on their yards and homes. This would be a negative impact to their quality of life. For many residents, the impact would be in direct conflict with their reason for living in the canyon. However, some residents might feel that the gondola is a benefit providing convenient access to the ski resorts for those who do not want to use their personal vehicles.

Gondola Alternative A would require no residential or business relocations along S.R. 210 from North Little Cottonwood Road to the town of Alta and no changes to neighborhood or community cohesion, community facilities, or utilities compared to the current conditions.

Regional

Recreation access and the ability for family and friends to gather and recreate in Little Cottonwood Canyon would not substantially change. During the winter, many users who do not wish to pay a toll would take the gondola service instead of using their personal vehicles, which some might see as a benefit while others might see as a negative impact.

Some gondola users might enjoy the scenic ride. However, some recreation users might see the gondola as a negative visual impact, reducing the quality of their recreation experience.

See Section 4.4.4.4, *Avalanche Mitigation Alternatives*, for information about how Gondola Alternative A would improve safety related to avalanche risk. Since there would be no improvements to S.R. 210 in Little Cottonwood Canyon, there would be no overall improvement to cyclist or pedestrian safety, and emergency vehicle access would be similar to current operations.

Gondola Alternative A would have *de minimis* impacts to Little Cottonwood Creek as a primary drinking water source, so this alternative would not change the quality-of-life aspect that the water provides to users. See Chapter 12, *Water Resources*, for information about the expected impacts to the Little Cottonwood Canyon watershed including Little Cottonwood Creek as a drinking water source.

4.4.4.2.2 *Recreation Resources*

Gondola

The gondola service would result in increased use of the recreation facilities at the Snowbird and Alta ski resorts, but this is not expected to result in physical deterioration of these ski facilities or other recreation facilities in Little Cottonwood Canyon. The improved access to the ski resorts would generally improve the skier experience in getting to the resorts but could have a negative impact for dispersed recreation occurring beyond the ski areas because of long-term changes to the viewshed.

The gondola base station would be in the existing 160-parking-space Little Cottonwood Canyon park-and-ride lot, which also provides parking access to the Alpenbock Loop Trail. During the winter, the park-and-ride lot is used by skiers and resort employees who want to carpool to the resorts and by climbers accessing trails in the lower canyon. During the summer, the lot is used by people wanting to carpool to recreation locations in the canyon, climbers, and users of the Alpenbock Loop Trail. About 500 feet of the Alpenbock

Loop Trail would be removed to construct the gondola base station but would be realigned as part of the construction.

The base station would be designed to include about 95 parking spaces to provide continued access for these users including users of the Alpenbock Loop Trail. Some of the parking spaces would be marked for Alpenbock Loop Trailhead users only. Because trail access would be maintained, there would be no negative impact to access. However, some people who are using the Alpenbock Loop Trail, using other trails, climbing in the lower canyon, or otherwise recreating in Little Cottonwood Canyon might feel that the gondola system (towers and cabins) detracts from their views of the scenic Little Cottonwood Canyon. The negative impact to the viewshed might be considered by some recreationists as a reduced outdoor recreation experience.

The gondola system would not require any recreation areas to be closed; it would not be constructed on any trailheads or otherwise limit recreation access. The area immediately around each tower base would be fenced to preclude unauthorized access, but the fence would not restrict use around the towers. The first tower at the bottom of Little Cottonwood Canyon would be placed on a trail developed by the USDA Forest Service and the Salt Lake City Climbers Alliance (Alpenbock Loop Trail, West Leg). To maintain the function of the trail, it would be relocated around the tower. The gondola would operate through popular climbing areas in the lower canyon. Although no specific climbing areas or boulders would be directly impacted, the visual intrusion and potential startle effect of a gondola cabin to climbers might reduce their climbing experience.

The gondola would operate all year. Gondola cabins would pass over the Tanners Flat Campground, and there would be cables over the campground. Campground users might feel that these elements reduce the quality of the natural environment they would expect in a camping experience and might have privacy concerns about gondola cabins passing overhead.

To better estimate gondola noise levels, UDOT conducted noise monitoring at the Snowbird Tram tower 1. The monitoring showed that the average noise level below the tower was about 50 dBA (HDR 2020). Therefore, UDOT expects that the noise levels from the gondola would be about 50 dBA (similar to a quiet office environment), or less than the noise generated by vehicles on S.R. 210 (average of 52 dBA and a measured noise level of 59 dBA at the entrance of Tanners Flat Campground; for more information, see Chapter 11, Noise) or the nearby Little Cottonwood Creek.

With Gondola Alternative A, an angle station would be located about 1,000 feet from the Tanners Flat Campground. The noise level at a 225-foot distance from the gondola base station during operation is predicted to be 57 dBA (USDA Forest Service and Placer County 2015). For every doubling of distance, the sound level decreases by 6 decibels (dB). Therefore, UDOT expects the angle station noise level to be less than 50 dBA at Tanners Flat Campground, which is below the noise levels of the existing S.R. 210 or Little Cottonwood Creek. If gondola noise is combined with roadway noise, the noise level could increase by 1 to 2 dBA, which is not detectable to human hearing. To minimize impacts to campers, the gondola would not operate during the Tanners Flat Campground quiet hours of 10 PM to 7 AM.

During construction of the gondola system, there would be temporary traffic delays during the summer construction seasons for those wanting to recreate in Little Cottonwood Canyon. In addition, there would be elevated noise levels from construction equipment. Although the travel delays and noise impacts from construction would be temporary, the impacts could reduce recreationists' outdoor experience in Little Cottonwood Canyon.

Tolling

With Gondola Alternative A, tolling would be limited to the upper part of Little Cottonwood Canyon serviced by the gondola, so recreation areas below Snowbird Entry 1 would have the same winter access as existing conditions. Backcountry skiers might feel that the toll would negatively impact access to the upper part of Little Cottonwood Canyon since the gondola service would service the resorts only, causing backcountry skiers who use the gondola to walk greater distances to access trails.

4.4.4.2.3 Community Facilities

Gondola Alternative A would not impact any community facilities.

4.4.4.2.4 Public Safety

Gondola Alternative A would not impact any emergency service providers or change emergency service response times. The gondola system would follow all safety requirements regarding public safety.

The gondola cabins would operate near the Granite Mountain Records Facility and Perpetual Storage. These are secured facilities, and overflight by the gondola cabins would make them more visible to the public. Potential mitigation to minimize impacts includes lowering tower height below the entrance.

4.4.4.2.5 Utilities

The impacts to utilities from Gondola Alternative A would be temporary and would occur during construction. The construction contractor would contact local businesses and residences if any temporary loss of service is required during construction.

4.4.4.2.6 Property Impacts

With Gondola Alternative A, there would be no residential or business relocations along S.R. 210 from North Little Cottonwood Road to the town of Alta. Section 4A.3, Gondola Alternatives, in Appendix 4A, Property Impacts, provides a summary of strip takes by property.

4.4.4.3 Mobility Hubs Alternative

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

4.4.4.4 Avalanche Mitigation Alternatives

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

4.4.4.5 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.

4.4.4.6 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.

4.4.5 Gondola Alternative B (Starting at La Caille)

This section describes the impacts to the social environment 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.

4.4.5.1 S.R. 210 – Wasatch Boulevard

The impacts from the Wasatch Boulevard alternatives with Gondola Alternative B would be the same as with the Enhanced Bus Service Alternative.

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

The community and property impacts from Gondola Alternative B from North Little Cottonwood Road to the town of Alta would be the same as from Gondola Alternative A except for the additional 0.75 mile from the Little Cottonwood Canyon park-and-ride lot to the gondola base station at La Caille.

The Gondola Alternative B base station and alignment would be adjacent to several residential developments. The natural views that residents have would be disrupted by the gondola infrastructure. With the gondola passing near their houses, residents would feel an intrusion and loss of privacy from gondola riders looking down onto their yards and homes. For many residents, the impact would be in direct conflict with their reason for living near the entrance to Little Cottonwood Canyon.

The Gondola Alternative B base station would be adjacent to existing residential developments. The increased traffic to the base station as well the operation (noise and view) of the gondola system could reduce the quality of life of some residents since it would disrupt the natural setting of the area and its rural nature. However, some residents who recreate in Little Cottonwood Canyon might see the location as a benefit because they would live within walking distance of the station.

Gondola Alternative B would require no residential or business relocations along S.R. 210 from North Little Cottonwood Road to the town of Alta and would not affect community facilities or utilities compared to current conditions.

4.4.5.3 Mobility Hubs Alternative

With Gondola Alternative B, the mobility hubs at the gravel pit and 9400 South and Highland Drive would require about 600 and 400 parking spaces, respectively. This is less than the number proposed with the enhanced bus service alternatives and Gondola Alternative A of 1,500 parking spaces at the gravel pit and 1,000 parking spaces at 9400 South and Highland Drive. The fewer number of parking spaces at these two locations would not reduce the construction footprint of the parking structures but would reduce the height from three to four stories to two to three stories at the gravel pit and from three to four stories to two stories at 9400 South and Highland Drive. Because the construction footprint would be the same, the community and property impacts from the mobility hubs with Gondola Alternative B would be the same as with the Enhanced Bus Service Alternative.

The analysis of the 1,500-space parking structure at the Gondola Alternative B base station is included in Section 4.4.5.2, S.R. 210 – North Little Cottonwood Road to Alta.

4.4.5.4 Avalanche Mitigation Alternatives

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

4.4.5.5 Trailhead Parking Alternatives

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

4.4.5.6 No Winter Parking Alternative

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

4.4.6 Cog Rail Alternative (Starting at La Caille)

This section describes the community and property impacts of 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.

4.4.6.1 S.R. 210 – Wasatch Boulevard

The community and property impacts from the Imbalanced-lane Alternative and the Five-lane Alternative with the Cog Rail Alternative would be the same as with the Enhanced Bus Service 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.

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

4.4.6.2.1 *Neighborhood and Community Cohesion*

Local Impacts

For residents along S.R. 210, the Cog Rail Alternative would not change the S.R. 210 road alignment or the number of travel lanes for personal vehicles. The addition of a cog rail alignment on the north side of S.R. 210 would not further divide the community. Homes along North Little Cottonwood Road and S.R. 210 in Little Cottonwood Canyon are mainly on the south side of S.R. 210, so the additional widening for the cog rail alignment would not further divide neighborhoods. Therefore, there would be no change to neighborhood or community cohesion with the Cog Rail Alternative.

Regional Impacts

The regional impacts from the Cog Rail Alternative from North Little Cottonwood Road to the town of Alta would be the same as from the Enhanced Bus Service Alternative.

4.4.6.2.2 *Quality of Life*

The cog rail base station at La Caille would be adjacent to existing residential developments. The increased traffic to the base station as well as the operation of the base station (noise and view) could reduce the quality of life for some residents since the base station would disrupt the natural setting of the area and its rural nature. However, some residents who recreate in Little Cottonwood Canyon might see the base station's location as a benefit because they would live within walking distance of the station.

The proposed cog rail system would include 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 facility would allow cog rail service, fueling, and administrative offices. The lighting at the facility, the noise, and the visual impact would be seen as a reduction to the quality of life for residents of the Granite Community. The facility would be about 250 feet from the nearest residential property.

The cog rail would operate on the north side of S.R. 210 in Little Cottonwood Canyon. For residents of Little Cottonwood Canyon, the cog rail system could be seen as a reduction in their quality of life because of the increase in noise levels from operations and the additional visual impact of the slope cuts and retaining walls required to construct the cog rail system.

For residents along S.R. 210, the Cog Rail Alternative would not change the S.R. 210 road alignment or the number of travel lanes for personal vehicles. During the winter, there would be a reduction in vehicle traffic of about 365 personal vehicles per hour during peak periods and a reduction in personal vehicles of about 30% during the entire day. The reduction in personal vehicle use and improved mobility would reduce vehicle backups in residential communities at the entrance to Little Cottonwood Canyon, which would benefit residents' overall quality of life by improving access to and from their homes during busy ski days.

During the winter, many canyon users who do not want to pay a toll would take the cog rail instead of using their personal vehicles, which some might see as a benefit while others might see as a negative impact. Overall, there would be little change to the quality of life for those who recreate in Little Cottonwood Canyon.

The Cog Rail Alternative would have *de minimis* impacts to Little Cottonwood Creek as a primary drinking water source, so this alternative would not change the quality-of-life aspect that the water provides to users. See Chapter 12, Water Resources, for more information about the expected impacts to the Little Cottonwood Canyon watershed including Little Cottonwood Creek as a drinking water source.

4.4.6.2.3 Recreation Resources

Cog Rail Alignment

The cog rail alignment on the north side of S.R. 210 would be seen as a barrier to those who want to access National Forest System lands on the north side of the road. Crossing the rail alignment would be allowed only at specific recreation areas such as the Alpenbock (Little Cottonwood Canyon park-and-ride lot), Gate Buttress, Grit Mill, and Lisa Falls Trailheads. As part of the cog rail design, these trailheads and parking areas would be reconstructed to include restroom facilities and designated parking areas. The overall access to the Gate Buttress and Lisa Falls Trailheads would be improved compared to existing conditions, and the Grit Mill and Alpenbock Trailheads would provide the same benefits as under the current conditions. During the final design process and in coordination with the USDA Forest Service, UDOT might identify other locations where pedestrians would be allowed to cross the cog rail alignment, such as to access the Tanners backcountry ski and climbing area and the Maybird Slide climbing area. Without access across the cog rail alignment, these areas would no longer be available for recreation use.

The cog rail operations and maintenance facility would be in the existing 160-parking-space Little Cottonwood Canyon park-and-ride lot, which also provides parking access to the Alpenbock Loop Trail. The park-and-ride lot would be reconstructed with about the same number of parking spaces as current conditions, so the current use of this parking area and trail access would not change.

Climbers who use the lower part of Little Cottonwood Canyon to recreate would have less access to climbing areas. Currently, climbers use many of the pullouts along S.R. 210 to access trails or climbing boulders. With the Cog Rail Alternative, any parking access on the north side of S.R. 210 would be limited to the Little Cottonwood Canyon park-and-ride, the Gate Buttress and Grit Mill Trailheads, and trails that connect these trailheads to the climbing resources. Because trail access would be maintained at the main trailheads, access would not be reduced. However, some people who are using the trails or otherwise recreating in Little Cottonwood Canyon might feel that the operations and maintenance facility and cog rail alignment detract from their views of scenic Little Cottonwood Canyon.

As a result of adding the cog rail alignment, some boulders used by climbers adjacent to S.R. 210 would be removed, or the rail alignment would be adjacent to the boulders (within 15 feet or less). These boulders are:

- Parking Lot West – removed
- Bathroom Boulder – removed
- Off-width Boulder – removed
- Beer Can Cave – removed
- Goldy – removed
- Two unnamed boulders near canyon entrance – removed
- Secret Garden – removed
- All Thumbs – removed
- Cabbage Patch – removed
- 5 Mile – removed
- Syringe – within 15 feet
- Stick – removed
- The Glen – removed
- Snowbird Boulders – no access

As a result of adding the cog rail alignment, segments of some existing and planned climbing trails would be affected. Except for the Alpenbock Loop Trail, these trails are not formal USDA Forest Service trails but rather trails built by the Salt Lake City Climbers Alliance that are on both private and public land. The following segments of named existing and planned trails would be removed:

- Alpenbock Loop – 1,744 feet
- 5 Mile Boulder – 200 feet
- Gate Buttress – 112 feet
- The Fin – 116 feet
- 5 Mile Boulder to The Fin Connector (planned trail) – 757 feet
- The Hill and Gate Buttress Connector (planned trail) – 1,081 feet
- Black Peeler (planned trail) – 146 feet
- Bonneville Shoreline Trail (planned trail) – 395 feet

In addition to the existing named trails, about 5,625 feet of informal trails as identified by the Salt Lake City Climbers Alliance would be removed as a result of constructing the cog rail alignment. To reduce impacts to the trails, UDOT would realign any existing named trails at the time of construction to maintain trail connectivity.

The visual impacts of additional slope cuts and retaining walls with the cog rail alignment would detract from recreationists' views of the scenic Little Cottonwood Canyon. The negative impact to the viewshed could be considered by some recreationists as a negative impact to their outdoor recreation experience.

Construction of the cog rail system would occur mostly during the summer. Construction of the cog rail tracks along S.R. 210 in Little Cottonwood Canyon could result in traffic delays, which could delay those who want to recreate in the canyon. There would also be increased noise levels from the construction equipment. The road closures and increased construction noise would be temporary during the 2-to-3-year construction period.

The cog rail system would result in increased winter use of the recreation facilities at the Snowbird and Alta ski resorts. The improved access to the ski resorts would generally improve the skier experience in getting to the resorts. For the potential induced impacts to skier use caused by the Cog Rail Alternative, see Chapter 20, Indirect Effects.

Tolling

The impacts of tolling to recreation with the Cog Rail Alternative would be the same as with the Enhanced Bus Service Alternative.

4.4.6.2.4 Community Facilities

There would be no impacts to community facilities from the Cog Rail Alternative.

4.4.6.2.5 Public Safety

With the Cog Rail Alternative, a consistent 8-foot-wide roadway shoulder would be constructed on the north side of S.R. 210 between the roadway travel lane and the cog rail alignment. The 8-foot-wide shoulder would provide room for snow storage in the winter but could also be used by vehicles to pull off the road

during an emergency. Any parking restrictions would be consistent with the trailhead parking alternatives (see Section 4.4.2.5, Trailhead Parking Alternatives). The extra roadway width could also be used by emergency vehicles to move around vehicles that are stopped. In addition, if accident occurs, vehicles would have room to maneuver around the incident, which would reduce backups that currently occur with incidents on S.R. 210 in Little Cottonwood Canyon.

During the summer, the wider shoulder could be used by cyclists, which would be a safety benefit compared to existing conditions in which cyclists and pedestrians must share the vehicle travel lane in certain parts of the canyon that have no or minimal shoulders.

4.4.6.2.6 Utilities

With the Cog Rail Alternative, impacts to utilities would be temporary and would occur during construction. The construction contractor would contact local businesses and residences if any temporary loss of service is required during construction.

In general, utilities were considered to be affected if the utility would need to be relocated (that is, lowered farther into the ground or moved to the edge of the new roadway). S.R. 210 from North Little Cottonwood Road to the town of Alta has numerous utilities in or adjacent to the roadway. The utilities would be replaced in the same general location as the existing utilities to reduce impacts to the adjacent land. The impact to these utilities (including communication, gas, water, sewer, electrical, and storm drainage) would be determined by UDOT by working with local jurisdictions and utility providers during the final design of the Selected Alternative. Impacts to these utilities can often be avoided during final design. UDOT would continue to communicate with local jurisdictions and utility providers throughout the project to minimize service disruptions.

4.4.6.2.7 Property Impacts

For this analysis, the numbers of relocations, potential relocations, and strip takes were calculated from Salt Lake County records of property data as of July 2019. With the Cog Rail Alternative, there would be no residential or business relocations on S.R. 210 from North Little Cottonwood Road to the town of Alta. Section 4A.4, Cog Rail Alternative, in Appendix 4A, Property Impacts, provides a summary of strip takes by property.

4.4.6.3 Mobility Hubs Alternative

The community and property impacts from the mobility hubs with the Cog Rail Alternative would be the same as with Gondola Alternative B. The analysis of the 1,500-space parking structure at the cog rail base station at La Caille is included in Section 4.4.6.2, S.R. 210 – North Little Cottonwood Road to Alta.

4.4.6.4 Avalanche Mitigation Alternatives

The community and property impacts from the avalanche mitigation alternatives with the Cog Rail Alternative would be the same as with the Enhanced Bus Service Alternative with the exception of the impacts from the two additional snow sheds. These snow sheds would be constructed in the upper canyon between the west- and east-end connections of the Alta Bypass Road to S.R. 210 to minimize avalanche risk to the cog rail system.

The snow sheds for the cog rail alignment in the upper canyon would not change local or regional community cohesion. Family and friends would still be able to gather and recreate in Little Cottonwood Canyon during the summer. In addition, the shared community values for recreation in Little Cottonwood Canyon would not change. The proposed snow sheds would not affect access to the existing formal USDA Forest Service trailheads in Little Cottonwood Canyon, but they would limit access to the Main Hellgate, Towers, and East Hellgate climbing areas. Since parking is currently not allowed during the winter in the locations of the snow sheds because of the avalanche risk, the snow sheds would not change winter backcountry use.

The visual impact of the snow sheds could reduce the quality of life for some users of Little Cottonwood Canyon and residents because of the visible encroachment of another constructed element in the natural landscape outside the developed areas at the top of the canyon (the ski resorts and the town of Alta). Little Cottonwood Canyon is a scenic byway, and many visitors access the canyon for sightseeing. Introducing another constructed element could reduce the quality of life for some people sightseeing or recreating in the canyon. The upper-canyon snow shed would be more visible to residents in Little Cottonwood Canyon, and the additional constructed element in their view might reduce their quality of life.

The two additional snow sheds would cover the cog rail alignment only, not the road, and therefore would not change pedestrian and cyclist access along S.R. 210. Construction of the snow sheds would occur during the summer. Construction adjacent to S.R. 210 in Little Cottonwood Canyon could result in traffic delays, which would cause some delays to canyon users. The traffic delays would be temporary during the 1-to-2-year construction period.

4.4.6.5 Trailhead Parking Alternatives

With the Cog Rail Alternative, the Gate Buttriss, Grit Mill, and Lisa Falls Trailheads would be reconstructed as part of the cog rail design. Only the White Pine and Bridge Trailheads would be reconstructed as part of the Trailhead Improvements and No S.R. 210 Roadside Parking within ¼ Mile of Trailheads Alternative and the Trailhead Improvements and No Roadside Parking from S.R. 209/S.R. 210 Intersection to Snowbird Entry 1 Alternative.

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

This alternative, including the trailheads improved as part of the cog rail design, would reduce the number of currently available trailhead parking spaces in Little Cottonwood Canyon from 528 to 511 (see Table 4.4-1 above, Total Parking Spaces from S.R. 209/S.R. 210 to Snowbird Entry 1 by Trailhead Alternative). The overall impacts to community values and recreation would be the same as with the Enhanced Bus Service Alternative.

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

This alternative, including the trailheads improved as part of the cog rail design, would reduce the number of currently available parking spaces from 528 to 221 (see Table 4.4-1 above, Total Parking Spaces from S.R. 209/S.R. 210 to Snowbird Entry 1 by Trailhead Alternative). The overall impacts to community values and recreation would be the same as with the Enhanced Bus Service Alternative.

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

This alternative, including the trailheads improved as part of the cog rail design, would reduce the number of currently available parking spaces from 528 to 114 (see Table 4.4-1 above, Total Parking Spaces from S.R. 209/S.R. 210 to Snowbird Entry 1 by Trailhead Alternative). The overall impacts to community values and recreation would be similar to those with the Enhanced Bus Service Alternative except that there would be 15 additional parking spaces with the Cog Rail Alternative. The 15 additional parking spaces would be a slight improvement for those who want to recreate in Little Cottonwood Canyon.

4.4.6.6 **No Winter Parking Alternative**

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

4.4.7 **Mitigation Measures**

4.4.7.1 **Recreation**

4.4.7.1.1 *S.R. 210 – North Little Cottonwood Road to Alta*

Enhanced Bus Service Alternative

No mitigation measures are proposed.

Enhanced Bus Service in Peak-period Shoulder Lane Alternative

During construction of the peak-period shoulder lanes, access to recreation in Little Cottonwood Canyon would be restricted in specific locations. UDOT will implement a public involvement program to inform recreational users of potential road and recreation site closures.

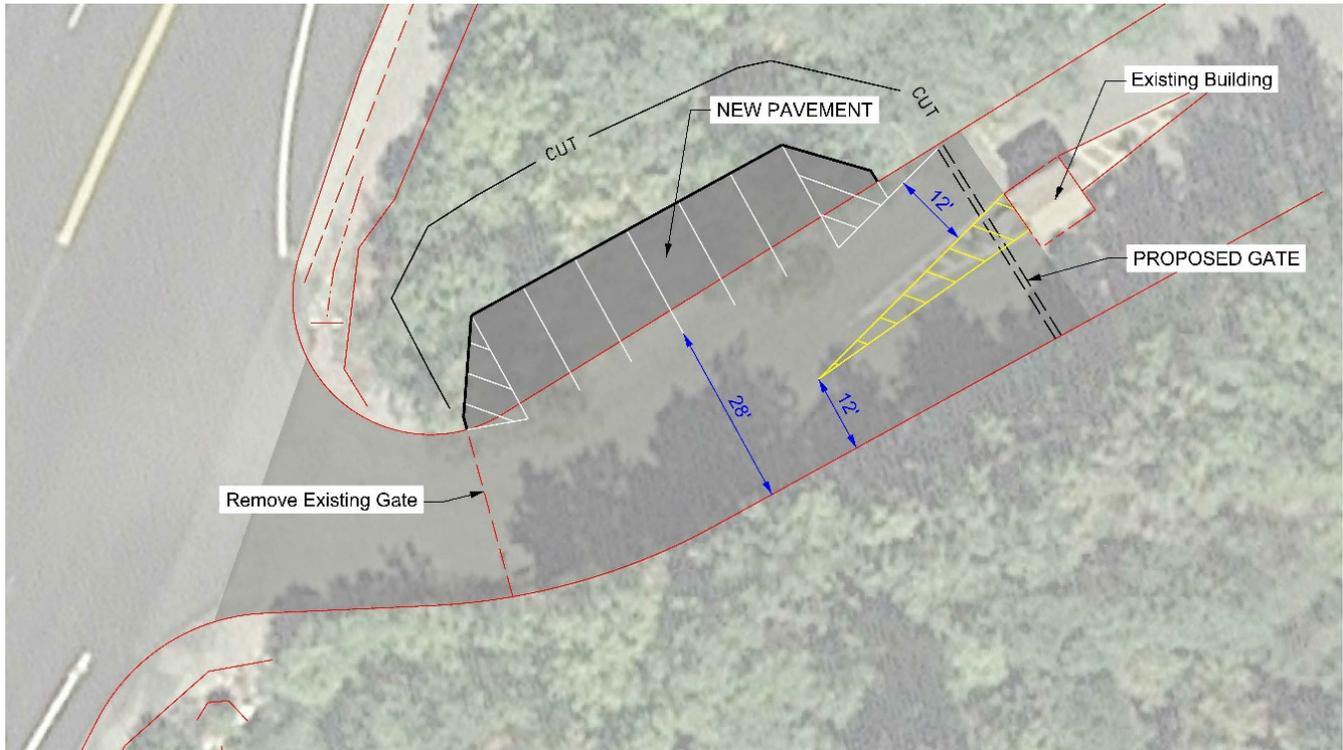
Given the proximity of climbing boulders to S.R. 210, their use as a climbing resource could be diminished or eliminated. During the final design process for the Selected Alternative, UDOT will look at ways to minimize or avoid impacts to the climbing resources. If a climbing boulder needs to be removed for roadway or rail construction, UDOT will work with the construction contractor to determine whether the boulder can be moved to another location. If moving the boulder is possible, UDOT will coordinate with the USDA Forest Service to find a suitable location in Little Cottonwood Canyon.

As a result of adding the peak-period shoulder lanes, some existing and planned trails used by climbers and hikers would be impacted by removing portions of the trail. To mitigate the impacts to the trails, UDOT will realign any existing named trails at the time of construction to maintain trail connectivity. If this alternative is selected, UDOT will work with the USDA Forest Service and other stakeholders in the design of the trails. Prior to construction, appropriate surveys for cultural resources and sensitive biological resources including wetlands will be conducted so that they can be avoided during trail construction. Once the trail designs are completed, additional environmental documentation might be required before construction.

Access to the Tanners backcountry skiing area would be eliminated with no roadside parking, and the next available parking is at White Pine Trailhead about a mile away. UDOT would mitigate this impact by providing six winter parking spaces at the entrance to the Tanners Flat Campground area, as shown in

Figure 4.4-1. There are no cultural resources or important biological resources in the area of the proposed improvements.

Figure 4.4-1. Mitigation for Elimination of Tanners Roadside Parking



Avalanche Mitigation Alternatives

During construction of the snow sheds, access to recreation in Little Cottonwood Canyon would be restricted in the area of snow shed construction. UDOT will implement a public involvement program to inform recreational users of potential road and recreation site closures. UDOT will also look at maintaining access to the White Pine North boulder area on the north side of S.R. 210 as part of the mid-canyon snow sheds and the Main Hellgate, Towers, and East Hellgate climbing areas as part of the upper-canyon snow sheds required for the Cog Rail Alternative.

Trailhead Parking Alternatives

During construction of the trailheads at Gate Buttriss, Bridge, Lisa Falls, and White Pine, access to the trailheads could be restricted during construction. In coordination with the USDA Forest Service, UDOT will implement a public involvement program to inform recreational users of potential trailhead closures. For the trailhead parking alternatives that eliminate parking at the Tanners backcountry skiing area, UDOT will add parking at the entrance to the Tanners Flat Campground as shown in Figure 4.4-1 above. There are no cultural resources or important biological resources in the area of the proposed improvements

Gondola Alternatives

The first tower at the bottom of Little Cottonwood Canyon (after the Little Cottonwood Canyon park-and-ride lot) and portions of the base station design would be placed on trails developed by the USDA Forest Service and the Salt Lake City Climbers Alliance (Alpenbock Trail, West Leg). To minimize impacts to the trails, the trails will be relocated around the tower, or if possible the tower location will be shifted to avoid the trail during the final design process. If a gondola alternative is selected, UDOT will work with the USDA Forest Service and other stakeholders to design the trails. Prior to construction, appropriate surveys for cultural resources and sensitive biological resources including wetlands will be conducted so that these resources can be avoided during trail construction.

Cog Rail Alternative

During construction of the cog rail system, access to recreation in Little Cottonwood Canyon would be restricted in specific locations. UDOT will implement a public involvement program to inform recreational users of potential road and recreation site closures.

During the final design process and in coordination with the USDA Forest Service, UDOT might identify where pedestrians would be allowed to cross the cog rail alignment to access the Tanners backcountry skiing and climbing area, the Maybird Slide climbing area, and other locations as necessary.

Given the proximity of climbing boulders to S.R. 210, their use as a climbing resource could be diminished or eliminated. During the final design process for the Selected Alternative, UDOT will look at ways to minimize or avoid impacts to the climbing resources. If a climbing boulder needs to be removed for construction, UDOT will work with the construction contractor to determine whether the boulder can be moved to another location. If moving the boulder is possible, UDOT will coordinate with the USDA Forest Service to find a suitable location in Little Cottonwood Canyon.

As a result of the Cog Rail Alternative, some existing and planned trails used by climbers and hikers would be impacted by removing portions of the trail. To mitigate the impacts to the trails, UDOT will realign any existing named trails at the time of construction to maintain trail connectivity. If this alternative is selected, UDOT will work with the USDA Forest Service and other stakeholders to design the trails. Prior to construction, appropriate surveys for cultural resources and sensitive biological resources including wetlands will be conducted so that these resources can be avoided during trail construction.

4.4.7.2 Property Impacts

Property acquisitions will be completed according to the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended; the Utah Relocation Assistance Act, Utah Code, Section 57-12; and UDOT's relocation guidelines (UDOT 2016).

4.4.7.3 Other Potential Mitigation Measures

4.4.7.3.1 Gondola Alternatives

Representatives with the Granite Mountain Records Facility were concerned that gondola users might be able to look into their secure facility. UDOT evaluated options to mitigate this concern including adding a gondola tower between towers 2 and 3. This additional tower would lower the view from the gondola cabins such that users could not see into the facility. The tower height of gondola tower 2 (Gondola Alternatives A and B) would be reduced from about 50 meters (164 feet) to 40 meters (131 feet). The new tower, which would be located just east of the entrance road to the facility, would be about 33 meters (108 feet) high. No sensitive biological resources, cultural resources, or recreation features are in the area of the proposed new tower. UDOT will further investigate this mitigation during final design if a gondola alternative is selected.

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