Sunlight Mountain Ski Resort

Master Development Plan

June 2023

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CHAPTER 1. INTRODUCTION

A. WHAT IS A MASTER DEVELOPMENT PLAN?

1. THE PURPOSE OF THIS DOCUMENT

This Master Development Plan (MDP) is intended to be the guiding document for future improvements for Sunlight Mountain Ski Resort (Sunlight). The MDP is a means of communication between the ski area, the public, and the United States Forest Service (Forest Service). Like many other ski areas across the United States, Sunlight is located on public lands and operates under a Special Use Permit (SUP). Specifically, Sunlight is located on lands administered by White River National Forest (WRNF) under a SUP. Forest Service SUPs require the preparation of a MDP that identifies the existing and desired conditions for the ski area and the proposed improvements on the National Forest System (NFS) lands within the permit boundary.

To create this document, Sunlight has engaged in a thorough, structured process of strategic visioning and comprehensive planning as detailed in the following section and in Illustration 1.

First, Sunlight sought to determine the overall ski area vision and guiding goals based on market needs, ski area niche, and long-term outlook. The resulting vision and goal statements form the foundation of this MDP. The questions 'what is important to our guests?' 'What makes our ski area special?' both inform the vision and goal statements, and these statements in turn structure the question 'where should we invest our time, money, and resources?'

Planning + Design Nomenclature

Throughout this document, text highlights (like this one) have been included to explain the various planning and design concepts that are utilized throughout the MDP process. Further descriptions and explanation of these concepts may be found in Appendix A. Design Criteria.

With a vision and goals established, the next step is to inventory existing conditions at the ski area to identify existing strengths, weaknesses, opportunities, and constraints. This is critical information that goes into the ski area planning phase. Details are collected such as the number of lifts and their conditions, the square footage of guest service spaces, and how many parking spaces are available. Physical resources are also inventoried to help identify ideal locations to develop or to avoid due to environmental sensitivity.

The next phase of the MDP process is to analyze existing capacities of various facility components to determine imbalances within the operation. Collectively, this analysis leads to the identification of improvements that would bring existing facilities into better balance, help the ski area to prioritize

projects, and help the ski area to operate more efficiently. Accomplishing these goals will result in a well-balanced ski area. The results of this process are documented in this MDP.

This MDP is divided into four chapters, plus appendices:

Chapter 1—Introduction: provides an overview of the plan, summary of Sunlight's location and market, statement of the plan vision and goals, and a summary of the MDP.

Chapter 2—Existing Conditions: describes existing resort facilities for both winter and summer, and evaluates the current balance of resort operations, facilities, and infrastructure. This includes lifts, terrain, guest services, snowmaking, and parking.

Chapter 3—Previously Approved, Not Yet Implemented Projects: inventories previous Forest Service approval documents and projects.

Chapter 4—Upgrade Plan: describes the proposed upgrades and improvements planned at Sunlight.

Appendices: Supporting Tables includes existing and upgrade condition data tables and important master planning considerations which inform and guide the development of the plan including design criteria, an inventory of physical resources, and Forest Service direction.

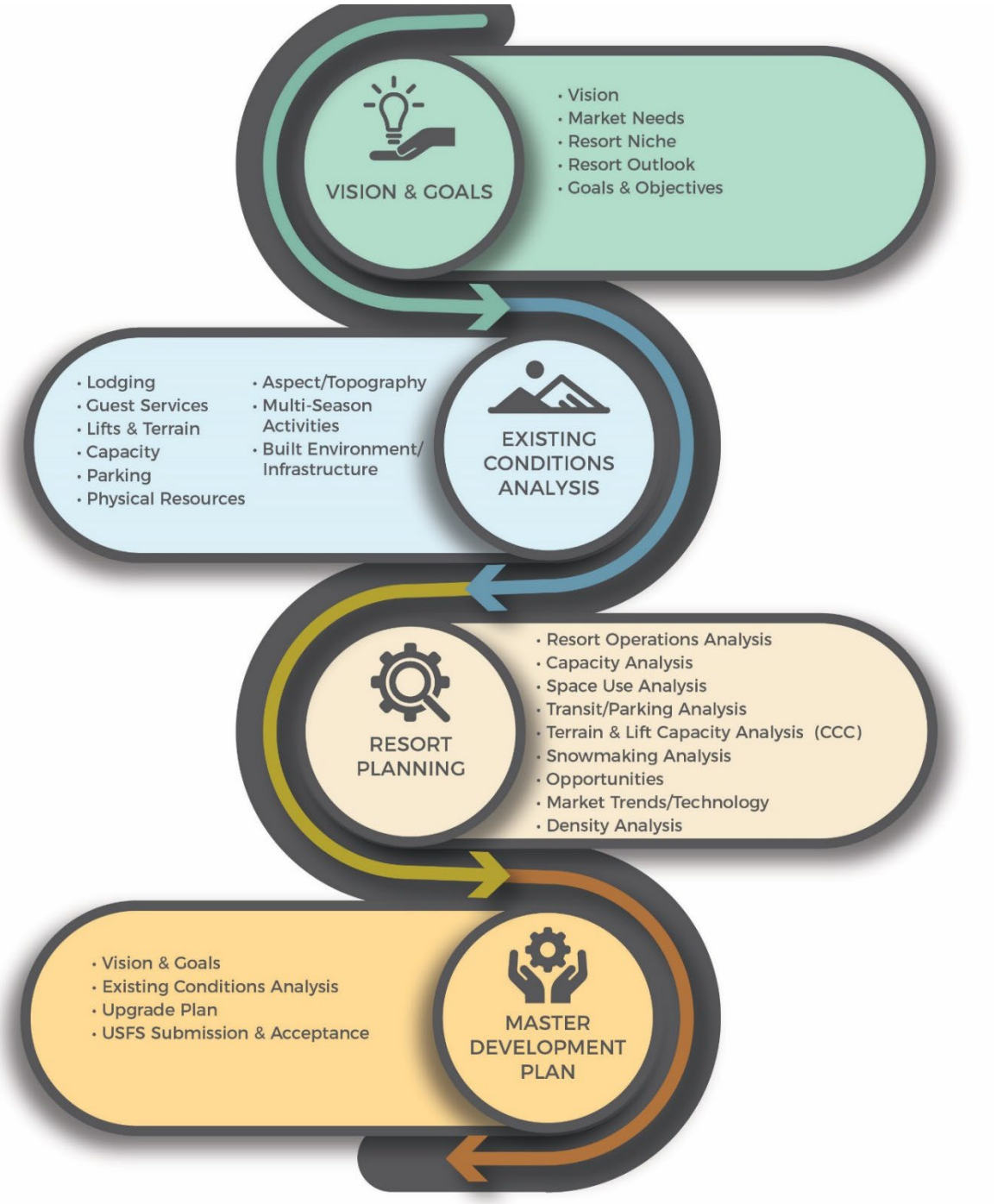
This MDP was created using an iterative and collaborative process among the ski area, Forest Service personnel who administer the SUP, and SE Group planners. While this MDP contains a vision and outlines planned improvements for Sunlight, Forest Service acceptance of this document as a planning tool for Sunlight does not imply authorization to proceed with implementation of any of the projects that are identified herein. All projects identified within this MDP will require site-specific environmental analysis and approval per the National Environmental Policy Act of 1970 (NEPA) before they can be implemented. This MDP is intended to be a dynamic document, which may be amended periodically to reflect innovations in facilities and recreation.

This MDP fulfills the Forest Service requirement that Sunlight have an MDP, but the acceptance of this plan by the FS does not function as authorization to proceed with implementation of any of the projects identified herein. Beyond the Master Planning and NEPA process, additional permitting may be required by county and state bodies. The required permits for project implementation would be determined during the NEPA analysis. Only after the MDP, the NEPA analysis, and the permitting processes are complete may construction begin on a planned project.

To begin this process, Sunlight would send the Forest Service a project proposal letter. The Forest Service is then required by law to analyze and, in most cases, solicit public comment on the potential impacts of the project on public lands. Depending on the scope of the project and the potential impacts, this process can take several years.

Beyond the Master Planning and NEPA process, additional permitting may be required by county and state bodies. The required permits for project implementation would be determined during the NEPA analysis. Only after the Master Plan, the NEPA analysis and the permitting processes are complete may construction begin on a planned project.

Illustration 1. The MDP Process



B. RESORT BACKGROUND

1. LOCATION

Sunlight Mountain Ski Resort is a small ski area located in Garfield County, Colorado on what is traditionally the territory of the Ute Peoples. It is approximately 13 miles south of Glenwood Springs, 200 miles from Denver and Colorado Springs, 100 miles from Grand Junction, and 40 miles from Aspen. It lies within the White River National Forest and is adjacent to Fourmile Creek, a tributary of the Roaring Fork River. Compass Peak is the resort's highest point and offers views of Mount Sopris and the Elk Mountain Range. Sunlight is only accessible by County Road 117, also known as Fourmile Road. In addition to a parking lot at the resort, there is a shuttle service to and from various locations in Glenwood Springs

Sunlight's operational area is approximately 900 acres and mainly lies within the SUP area which comprises approximately 2,390 acres. The remaining 1,490 acres are located across the Babbish Gulch and Williams Peak portions of the SUP area. The exceptions are the base area owned by the resort and portions of Babbish Gulch owned by a private party.

2. HISTORY

The ski area opened in 1966 as Sunlight Ranching Company, named after a nearby coal mining town that shut down at the beginning of the 20th century. Volunteers and part time employees managed operations for three runs and one twin chairlift named Primo. At the time. it was the only lift in the country powered by natural gas.[1] Early owners of the resort had a vision of Sunlight including hotels, restaurants, and amenities, but lack of funding prevented that expansion.

In 1973, the lift now known as Segundo was installed at Sunlight to provide access to expanded terrain. Segundo was originally built at Aspen Mountain and is still functional today. With increasing acreage and visitation, the Forest Service approved the resort's first master plan in 1981 to improve long term planning. The name was changed to Ski Sunlight Inc. Sunlight purchased a third chairlift, Tercero, from Snowmass and improved Primo in 1987.[2] Lift lines became shorter as uphill capacity doubled and access improved even as skier days increased.

The 1990's brought more changes, such as the addition of 12 advanced runs, snowmaking operations, and a name change to Sunlight Mountain Resort to be more inclusive of year-round recreation opportunities. Sunlight intends to continue its reputation as a small, welcoming, and affordable all-season resort.

3. RESORT SUMMARY

Sunlight Mountain Resort describes itself as intimate and unpretentious, advertising no crowds and an affordable experience reminiscent of years past. All-season recreation opportunities cater to families and adventurers alike. In the winter season, three lifts provide access to 72 runs and 730 skiable acres that all lead to one base area. There are 18 miles of cross-country ski and snowshoe trails on the west

[1] Szewczyk, Collin. "A Step Back in Time at Sunlight." *Aspen Daily News*, January 31, 2015.
[2] Ibid

side of the resort in Babbish Gulch. Guests from surrounding towns like Glenwood, Rifle, and Carbondale favor Sunlight over nearby ski resorts based on its affordability and approachability.

There are two lodging options on the grounds, and many visitors stay in nearby Glenwood Springs. Sunlight takes advantage of its proximity to the Roaring Fork Valley's abundant hot springs, partnering with local hotels to offer packages to visit both Sunlight and the surrounding area. In the summer, guests enjoy road and mountain biking as well as disc golf on the slopes.

In 2022, The National Ski Areas Association (NSAA) named Sunlight a finalist for a Golden Eagle Award for Innovation in Sustainability. Highlights of their efforts include installation of six electric vehicle (EV) chargers, solar powered webcams, and an improved irrigation system. Local businesses donated funds and equipment for the EV installation, illustrating the collaborative relationship between the resort and the community.

C. PLAN VISION AND GOALS

Sunlight is a unique destination that provides family-friendly, affordable and accessible skiing largely to the local community. The resort seeks to retain its family-friendly and community-oriented atmosphere as they evolve. This plan envisions improved guest services and upgraded infrastructure without sacrificing the down-to-earth feel that has guests returning for decades. The goals of this plan include:

- Provide an improved lift network and infrastructure and associated terrain improvements
- Provide a dedicated high-quality beginner learning area
- Provide a reliable snow surface for guests during early and late season and times of low snowfall
- Improve guest services facilities in the base area and on-mountain to offer guests a low-key but quality experience
- Expand all-season activity offerings and facilities
- Improve overall resort parking and operations
- Balance thoughtful development with the existing family-oriented atmosphere

D. SUMMARY OF THE UPGRADE PLAN

Table 1. Upgrade Project List

Project	Status	Category
Short-Term		
Primo Replacement		Lifts
Tercero Shortening		Lifts
Segundo Replacement		Lifts
Beginner Area Grading		Terrain
Snowmaking expansion to *Joslin* and *Loop*		Snowmaking
Base Area/Lodge Building Improvements		Guest Services
Tubing/Snowplay in Meadow		Winter Ops
Parking Improvements		Parking
Summer Trail Improvements		Summer Ops
Long-Term		
Guest Services Improvement on Compass Peak		Guest Services
Lodging Improvements		Guest Services
Grizzly Lift Addition		Lifts
East Ridge Lift Addition	Previously Approved	Lifts
Modified East Ridge Lift Addition		Lifts
Backcountry Improvements		Winter Ops
Nordic Trail Cabin		Guest Services
Snowmaking Expansion		Snowmaking
Snowmaking Pond Expansion		Snowmaking
Move Maintenance Facility		Parking/Maintenance

CHAPTER 2.
EXISTING CONDITIONS

This chapter contains discussion and analysis of existing facilities at Sunlight. All existing lifts, trails, and facilities are depicted on Figure 5. Completion of a thorough ski area inventory is the first step in the master planning process. This inventory includes lifts, trails, the snowmaking system, base area structures, guest services, other ski area functions & activities, parking, operations, and mountain roads. The analysis of the inventoried data involves the application of industry to Sunlight's existing conditions. This process allows for the comparison of the ski area's existing facilities to those facilities commonly found at ski areas of similar size and composition.

The overall balance of the existing ski area is evaluated by calculating the capacities of various facility components and then comparing these capacities to the ski area's current Comfortable Carrying Capacity (CCC). This examination of capacities helps to identify strengths, weaknesses, opportunities, and constraints as a ski area. The next step is the identification of improvements that would bring the existing facilities into better equilibrium, which would assist the ski area in meeting expectations of its market. Accomplishing these objectives would result in a well-balanced ski area that provides an array of services and experiences.

Since its inception in 1966, Sunlight has occupied a niche in the market to offer affordable, accessible skiing to the local and regional market. With many nearby larger resorts that provide luxury experience, Sunlight maintains its intimate, friendly atmosphere and affordable prices that have kept guests coming back for decades. It sits slightly off the beaten path compared to many resorts in Colorado. Sunlight's partnerships with local businesses illustrate its symbiotic relationship with the community, adding to the local feel of the resort.

Although it is a small resort with only three lifts and one lodge, there are 730 skiable acres for guests of all abilities to explore. Guests may also enjoy Nordic skiing, snowshoeing, and snowmobile tours. Sunlight has developed its multi-season capabilities over the last few decades, offering mountain biking, disc golf, hiking, and event venues.

A. EXISTING LIFT NETWORK

Sunlight has three fixed-grip chairlifts, two of which are doubles and one is a triple. The age range of these lifts is 57 to 69 years old from the date of manufacture, indicating they are all at the end of their mechanical lifespan. Table 2 provides a summary of the specifications of the existing lift network.

Although detachable lifts have higher speeds, the resort has no plans to convert any of the fixed-grip lifts to detachable lifts. Detachable lifts are only notably more efficient at lengths over a mile long and have half the number of chairs. These lifts cost two to three times as much as fixed-grip lifts and maintenance is about four to five times the annual cost. Since Sunlight is a small ski area, detachable lifts are less of a priority, especially since the lift network efficiently services the area as is. In addition, fixed-grip lifts align with Sunlight's laid-back feel.

1. TERCERO

Tercero, a fixed-grip triple, operates out of the base and ascends roughly halfway up the mountain. Originally manufactured in 1966, it was installed in 1987 after being relocated from Snowmass. It has a capacity of 1,200 people per hour. Because it mainly services beginner to intermediate terrain, it does not run at full capacity to accommodate beginner skiers. There are three advanced trails accessible from this lift. There are currently no carpets, so the ski school uses Tercero for teaching. This is not ideal for new skiers riding a chairlift for the first time, especially because there is no true beginner terrain outside of the ski school corral. Installing carpets would provide a less intimidating experience to beginners learning to ski at Sunlight.

2. SEGUNDO

Segundo, a fixed-grip double, provides access to intermediate, advanced, and expert terrain. It also operates out of the base and ascends to *Segundo Road.* It is a Heron-Riblet hybrid lift manufactured in 1954, installed in 1973, and previously operated at Aspen. At 69 years old, it has surpassed the end of its mechanical lifespan. Segundo has a capacity of 970 people per hour. As the main lift used to access Primo, it experiences long lift lines and crowding, especially during the morning staging period. This is exacerbated by the fact that there are no on-mountain facilities, so guests must return to the base for amenities like food and restrooms before getting back in line for Segundo.

3. PRIMO

A fixed-grip double manufactured and installed in 1966, Primo services Compass Peak and provides access to all terrain on the mountain. Skiers must use either Tercero or Segundo to access this lift. It originally operated out of the base, but was shortened in 1987 to its present location mid-mountain. It has the longest ride time at about 12 minutes and a capacity of 1,200 people per hour. With over 50 years of operation, the lift has reached the end of its useful life. A higher capacity lift would decrease lift lines and enhance mountain circulation.

Table 2. Lift Specifications—Existing Conditions

Lift Name, Lift Type	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Rise (ft.)	Slope Length (ft.)	Avg. Grade (%)	Actual Capacity (pph)	Rope Speed (fpm)	Carrier Spacing (ft.)	Lift Maker/ Year Installed
Primo/C2	9,882	8,416	1,466	5,272	29%	1,200	500	50	Riblet/1966
Segundo/C2	9,302	8,140	1,162	4,567	27%	970	500	62	Heron/Riblet/1973
Tercero/C3	8,656	8,136	520	2,983	18%	1,200	300	45	Riblet/1987

Source: SE Group
Notes:
C2 = fixed-grip double chairlift / *C3* = fixed-grip triple chairlift

B. EXISTING TERRAIN NETWORK

1. TERRAIN VARIETY

Evaluation of the existing terrain network requires equal consideration of many factors, including terrain variety and the distribution of terrain by ability level. Assessment of either of these factors on their own will not provide a complete picture of the current state of terrain at the ski area.

Out of the resort's 730 skiable acres, Sunlight's terrain network includes 387 acres of developed ski terrain. The ski trail network accommodates all skier ability levels from beginner to expert under current conditions. Within the skiable acreage, Sunlight has approximately 343 acres of undeveloped but skiable terrain, including off-piste skiing and tree skiing.

Within Sunlight's 2,390-acre SUP area, 1,490 acres are unmaintained and unpatrolled with the exception of the Nordic trails in Babbish Gulch. In the Babbish Gulch area, there are cross-country skiing and snowshoeing trails that are not included in the analysis of developed alpine terrain acreage that are accessible from the base. Backcountry skiers also frequent Williams Peak, which lies in the western portion of Sunlight's SUP. A section of this area is currently being treated for Aspen tree revegetation.

For details of the existing conditions terrain specifications, refer to Table A-1.

Terrain Typology at Sunlight

1. DEVELOPED ALPINE TERRAIN – The existing developed, or formalized, alpine terrain network at Sunlight consists of the resort's named, defined, lift-serviced, maintained trails used for skiing and riding. It does not include maintained Nordic trails. Despite the importance of undeveloped, alternate-style terrain, formalized runs represent the baseline of the terrain at ski areas, as they are where the majority of guests ski and/or ride. Additionally, developed terrain is usually the only place to ski or ride during the early season, periods of poor or undesirable snow conditions, during avalanche closures, and in certain weather conditions. As such, the developed trail network represents an accurate picture of the acreage utilized by the average skier or rider on a consistent basis, as well as that used by virtually all guests during such conditions. Thus, the full capacity of the resort must be accommodated by the total acreage of the developed terrain network, rather than relying on undeveloped terrain (which is not always available).

2. UNDEVELOPED TERRAIN – Undeveloped terrain consists of unnamed terrain that is routinely skied. The topography within the existing ski area includes steeper terrain and glades intermingled within, and outside of, the developed and maintained terrain network. There are also densely-treed and less accessible gladed areas, consisting primarily of the natural (non-thinned or maintained) forested areas between the defined skiing areas and ski runs, and also accounts for some of the less accessible treed areas at Sunlight.

2. TERRAIN DISTRIBUTION BY ABILITY LEVEL

The terrain distribution analysis considers the 387 acres within the developed terrain network at Sunlight. Note that it does not include the cross-country skiing/snowshoeing trails. As shown in Table 3, the ideal skier ability breakdown is 5% for beginner, 15% for novice, 25% for low intermediate, 35% intermediate, 15% advanced and 5% for expert.

Sunlight is notably a family-oriented ski area; however, it only has 0.2 acres of beginner terrain. This can result in a challenging beginner experience for first-time skiers and children. Tercero, the current lift used by beginners, does not access any beginner terrain beyond the ski school area adjacent to the bottom terminal of Tercero. This is not a space conducive to ski lessons at the resort. The base area is the only portion of the resort that could accommodate an expansion of beginner terrain, which would require the shortening of Tercero to create extra space for carpets. Beginner terrain additions could strengthen Sunlight's place in the market for guests and families who are new to the sport. Slightly more novice and intermediate terrain could also provide more variety for skiers and riders to improve their skill progression. The remainder of the terrain is fairly balanced with no other significant deficiencies. There is a slight surplus of expert terrain, which is a benefit for experienced guests visiting Sunlight.

Ability Level

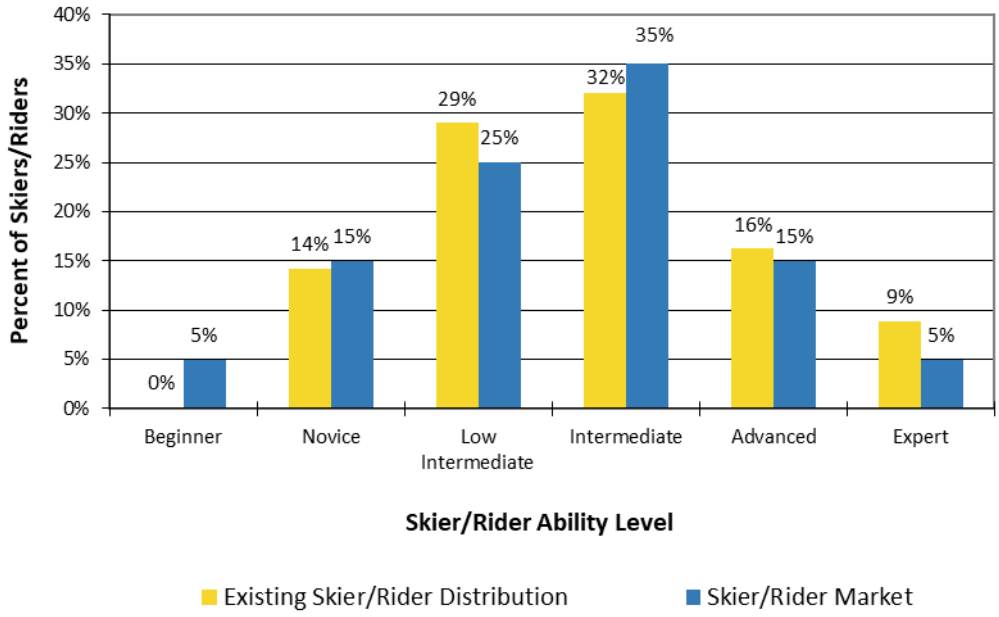
It should be noted there is a substantial difference between the ski run ability level ranking approach used in this document and that used by all U.S ski areas on their trail map and on-mountain trail signs. The established approach used at all resorts in the country is to make the ranking be relative to that resort– i.e., the easiest runs at that resort are signed as green circles and the most difficult are signed as black diamonds, the intermediate runs being blue squares. SE Group uses a different approach in this document (and in all other MDP documents produced by SE Group). This approach is aimed at comparing the terrain available at a given resort to the overall skier market, to determine if there are opportunities to appeal to a broader range of skiers. SE Group also uses six categories of ability level, as opposed to the standard three used by mountain resorts. Using various criteria, including maximum sustained gradient, run width, sightlines, and others, SE Group makes an internal determination of which ability level each run falls into. From that data, calculations are done to determine terrain capacity and ability level distribution by capacity. These calculations are accomplished by multiplying terrain acreage by an assigned density. These numbers are then compared to the skier market, to determine surpluses and deficiencies of terrain by ability level, as compared to the overall skier market.

Table 3. Terrain Distribution by Ability Level—Existing Conditions

Skier/Rider Ability Level	Trail Area (acres)	Skier/Rider Capacity (guests)	Skier/Rider Distribution (%)	Skier/Rider Market (%)
Beginner	0.2	6	0%	5%
Novice	27.2	489	14%	15%
Low Intermediate	69.7	976	29%	25%
Intermediate	109.8	1,098	32%	35%
Advanced	79.5	556	16%	15%
Expert	101.0	303	9%	5%
TOTAL	387.3	3,428	100%	100%

Source: SE Group

Chart 1. Terrain Distribution by Ability Level—Existing Conditions



Importance of Terrain Variety

Terrain variety is considered the key factor in evaluating the quality of the actual skiing and riding guest experience (as opposed to total acreage, vertical, grooming, or any other factor).

Terrain variety is consistently ranked as one of the most important criteria in skiers' choice of a ski destination, typically behind only snow quality, and ahead of such other considerations as lifts, value, accessibility, resort service, and others. This is a relatively recent industry trend, representing an evolution in skier/rider tastes and expectations. The implication of the importance of terrain variety is that a resort must have a diverse, interesting, and well-designed developed trail system, but also must have a wide variety of alternate-style terrain, such as mogul runs, bowls, gladed trees, open parks, in-bounds "backcountry-style" (i.e., hike-to) terrain, and terrain parks and pipes. At resorts across the nation, there is a growing trend favoring these more natural, unstructured types of terrain, since the availability of this style of terrain has become one of the more important factors in terms of a resort's ability to retain guests, both for longer durations of visitation and for repeat business.

To provide the highest quality guest experience, resorts should offer groomed runs of all ability levels and some level of each of the undeveloped terrain types. Undeveloped terrain is primarily used by advanced and expert level skiers/riders during desirable conditions (e.g., periods of fresh snow, spring corn, etc.). Even though some of these types of terrain only provide skiing/riding opportunities when conditions warrant, they represent the most intriguing terrain, and typically are the areas that skiers/riders strive to access.

3. NORDIC AND WILLIAMS PEAK TERRAIN

Sunlight offers a network of groomed beginner, intermediate, and advanced cross-country skiing and snowshoeing trails to the west of the main resort throughout Babbish Gulch. They traverse through private property and Sunlight's SUP area. All trails start at the base of the resort near the stables on the west end of the parking lot, providing access to Compass Peak and a primitive backcountry log cabin in Sunshine Meadow. The trails are free to use and when completed as an out and back, the network accounts for 18 miles (29 kilometers) of trail. Fat tire bikes are permitted to ascend these trails between certain hours with an Uphill Pass but are required to descend using the *Ute* downhill skiing trail.

Williams Peak and Babbish Gulch are within the Sunlight's SUP and provides 1,490 acres of undeveloped terrain for backcountry skiing and Nordic skiing. It is a well-traveled backcountry skiing destination where visitors hike up and ski down. The resort does not maintain any trails or conduct avalanche control in this area, however, there has been some tree clearing to improve terrain and to promote forest regeneration. Visitors do not need to purchase an uphill travel pass to ski this area.

Table 4. Nordic/Snowshoeing Trail Inventory—Existing Conditions

Trail Name	Trail Difficulty	Length (mi.)
Lower Sunshine Trail	Easy	0.3
Sunshine Trail	Easy	0.7
Old Four Mile Road	Easy	0.7
Little Beaver	Advanced	0.6
Lower Babbish	Intermediate	0.7
Glades	Intermediate	0.4
Williams Trail	Intermediate	1.2
Ute Connect	Intermediate	0.3
Doodle	Intermediate	0.3
Dipsey Doodle	Intermediate	0.8
Upper Babbish	Intermediate	0.5
Meadows Connect	Intermediate	0.4
Meadows Loop	Easy	0.4
Babbish Express	Advanced	0.7
Compass Trail	Advanced	1.0
Compass Express	Intermediate	0.2
Total		9.2

C. EXISTING CAPACITY ANALYSIS

1. COMFORTABLE CARRYING CAPACITY ANALYSIS

A detailed calculation of Sunlight's existing Comfortable Carrying Capacity (CCC) was completed for this MDP. This calculation includes stoppages due to misloading or other factors, with Tercero having a higher rate of stoppages because it is a beginner lift. Based on the following criteria for the three lifts at Sunlight, the Comfortable Carrying Capacity was calculated to be 1,750 skiers and riders per day as shown in Table 5.

What is Comfortable Carrying Capacity

In ski area planning, a "comfortable carrying capacity" (CCC) is established, which represents an at-one-time guest population to which all ski resort functions are balanced. The design capacity is a planning parameter that is used to establish the acceptable size of the primary facilities of a ski resort: ski lifts, ski terrain, guest services, restaurant seats, building space, utilities, parking, etc.

Accordingly, the design capacity does not normally indicate a maximum level of visitation or a "cap" on visitation, but rather the number of visitors that can be "comfortably" accommodated on a daily basis. Design capacity is typically equated to a resort's fifth or tenth busiest day, and peak-day visitation at most resorts is at least 10% higher than the design capacity.

The accurate estimation of the CCC of a mountain is a complex issue and is the single-most important planning criterion for the resort. Related skier service facilities, including base lodge seating, mountain restaurant requirements, restrooms, parking, and other guest services are planned around the proper identification of the mountain's true capacity.

CCC is derived from the resort's supply of vertical transport (the vertical feet served combined with the uphill hourly capacities of the lifts) and demand for vertical transport (the aggregate number of runs desired multiplied by the vertical rise associated with those runs). The CCC is calculated by dividing vertical supply (VTF/day) by vertical demand, and factors in the total amount of time spent in the lift waiting line, on the lift itself, and in the descent.

Table 5. Daily Chairlift Capacity—Existing Conditions

Lift Name, Lift Type	Slope Length (ft.)	Vertical Rise (ft.)	Actual Capacity (pph)	Operating Hours (hrs.)	Up-Mountain Access Role (%)	Misloading/ Lift Stoppages (%)	Adjusted Hourly (pph)	VTF/ Day (000)	Vertical Demand (ft./day)	Daily Lift Capacity (guests)
Primo/C2	5,272	1,466	1,200	7.00	0	10	1,080	11,083	16,263	680
Segundo/C2	4,567	1,162	970	7.00	5	10	825	6,706	14,712	460
Tercero/C3	2,983	520	1,200	7.00	5	20	900	3,277	5,362	610
Total	12,823		3,370				2,805	21,066		1,750

Source: SE Group
Notes:
C2 = fixed-grip double chairlift/ *C3* = fixed-grip triple chairlift

Table 6. Density Analysis—Existing Conditions

		Guest Disbursement				Density Analysis				
Lift	CCC	Milling (guests)	In Lines (guests)	On Lift (guests)	On Terrain (guests)	Area (acres)	Density (guests/acre)	Trl. Density (guests/acre)	Diff. (+/-)	Index (%)
Primo/C2	680	170	36	190	284	257.3	1	8	-7	13%
Segundo/C2	460	115	27	126	192	110.2	2	10	-8	20%
Tercero/C3	610	153	45	149	263	19.8	13	18	-5	72%
Total	1,750	438	108	465	739	387.3	5	12	-7	45%

Source: SE Group
Notes:
C2 = fixed-grip double chairlift/ *C3* = fixed-grip triple chairlift

2. DENSITY ANALYSIS

The density analysis in this section compares the uphill and downhill capacities at Sunlight. At any one time, skiers and riders are dispersed throughout the ski area, using guest facilities and milling areas, waiting in lift mazes, riding lifts, or descending on ski terrain. For the trail density analysis, 25% of each lift's CCC is presumed to be "inactive" (i.e., using guest service facilities or milling areas and otherwise not actively skiing or riding lifts).

Balancing Uphill and Downhill Capacities

An important aspect of resort design is the balancing of uphill lift capacity with downhill trail capacity. Trail densities are derived by comparing the uphill, at-one-time capacity of each individual lift pod (CCC) with the trail acreage associated with that lift pod. The trail density analysis considers only the acreage associated with the developed trail network. A high trail density can restrict skiing space, degrade snow conditions, and detract from the recreational experience. A low trail density can indicate under-utilization of the existing terrain and inefficient operations.

Trail density is calculated for each lift pod by dividing the number of guests on the trails by the amount of trail area that is available within each lift pod. The trail density analysis compares the calculated trail density for each lift pod to the desired trail density for that pod (i.e., the product of the ideal trail density for each ability level and the lift's trail distribution by ability level).

Table 6 displays the density analysis of all three lifts. Primo has the lowest skier density at 1 skier per acre, which is unsurprising considering Primo serves almost twice the terrain than the other two lifts combined. With only 19 acres, Tercero has the highest density at 13 skiers per acre which is more typical of a beginner-to-novice lift. The average skier density for the resort is 5 skiers per acre, less than half of the target density of 12 skiers per acre. This provides a favorable experience for beginners and experts alike and is in keeping with the resort's mission to provide skiing without the crowds. It also indicates that there is enough terrain to comfortably accommodate more skiers/riders if the resort's limiting factors are remedied. This could include lack of parking space, bottlenecks in the base area, or inefficient lifts.

a) Lift Network Efficiency

Within the context of ski area design, the term "Lift Network Efficiency" refers to the amount of effort and cost required to operate and maintain the lift network, as compared to the number of guests served by the lift network. The energy and costs related to the lifts include power use, operational labor, maintenance costs and labor, indirect administrative costs, and various direct and indirect costs associated with higher staff levels to perform these tasks. From this standpoint, the most efficient scenario is to have the fewest number of lifts possible that can comfortably and effectively serve the capacity and circulation requirements of the ski area.

One way to analyze Lift Network Efficiency is to calculate the average CCC per lift at a given ski area. While this calculation does not relate to the overall capacity of the ski area, it can indicate if (1) the ski area is not getting maximum utilization out of its lifts, or (2) if there are more lifts than necessary for the

capacity levels of the ski area. When calculating this average, conveyors used for teaching, as well as lifts that are used for access only, are not included. Optimally, and in general, the average CCC per lift would likely be close to 1,000 guests. Industry-wide, the average CCC per lift is approximately 650. The average CCC per lift at Sunlight is 583, which reflects below-average lift network efficiency. This lower average CCC is typical of a smaller, community-oriented resort. Nevertheless, Sunlight would be able to serve its guests more efficiently with a higher average capacity lift network.

b) Terrain Network Efficiency

A parallel of the terrain density analysis is an analysis that provides an indication of the efficiency of the terrain network as compared to the lift network serving it. In this usage, the term "Terrain Network Efficiency" refers to the amount of effort required to properly maintain the terrain (e.g., costs related to snowmaking, grooming, energy, ski patrol, summer trail maintenance, administration, etc.).

From this standpoint, the most efficient scenario is to have a quantity of terrain that closely meets the target density requirements. A terrain density index of 100% would imply that the ski area had exactly the right amount of terrain to match target densities. Sunlight has an index of 45%, meaning that densities are 55% that of target densities. In other words, Sunlight has a shortage of lift capacity relative to its terrain network. It is important to note that only the developed terrain network is used in these calculations, because it is largely the developed terrain that incurs core operational and maintenance costs. At Sunlight, a lower density is not much of an issue because there are fewer resources going into terrain maintenance at a smaller resort.

D. EXISTING GUEST SERVICES FACILITIES, FOOD SERVICE SEATING & SPACE USE ANALYSIS

1. GUEST SERVICES

Guest service facilities constitute an essential component of the recreation experience at ski areas. These areas provide visitors with shelter, bathrooms, food and beverages; the capacity of these facilities is important in understanding whether the needs of visitors are being met.

All of Sunlight's guest services reside in the base area. Since it is close to parking and all trails return to the base, congestion can occur during high demand periods. Upon arrival, guests must walk up a steep set of stairs, causing further crowding at the top. The main lodge building is about 50 years old with aging utilities and some temporary modular structures that are nearing the end of their functional life. The building is also used in the summer for weddings and other events.

Grizz Grill is the resort's primary food and beverage service with a pickup window. Its kitchen is small for the level of service it provides which can cause long wait times on busy days. In addition, it is located in an unideal area of the building, causing issues for resort operations such as trash pickup and deliveries. Since there is a deficit of cold storage, the restaurant cannot order a lot of food at once and runs out of menu items often. The food storage is located down the stairs. Most of the seating is indoors with a few picnic tables outdoors. A small bar area is partitioned off from the main seating area.

The base area also contains a rental service on the first floor that provides skiing, snowboarding, snowshoeing, and Nordic equipment. On busy days, the rental area will have long lines that extend along the breeze way. The resort also runs Sunlight Ski and Bike Shop in Glenwood Springs to reduce pressure on the rental shop at the base area. A yurt was recently constructed for additional rental space, increasing efficiency of on-mountain rental operations and reduced lines.

The Children's Center is located below the rental shop on the first floor which leads out to the snow front, and the Ski School is located on the breezeway level. Since there is limited beginner terrain, learning space is tight. New skiers use Tercero and a corralled learning area at the base adjacent to Tercero. Although Tercero is used by beginners, its terrain is on the steeper side for children learning how to ski for the first time.

At the top of the mountain on Compass Peak, there is a structure that is partially half to ski patrol and half dedicated to seating and two vault toilets. This alleviates some congestion at the base because intermediate to advanced skiers riding Primo won't have to return to the base for restrooms. There are not currently food and beverage services on Compass Peak, but guests who bring their own food may use the area at lunch time. The windows provide scenic views of the surrounding mountain ranges. In Babbish Gulch, there is a primitive cabin only accessible by its backcountry and Nordic trails.

Space Use Planning

To provide a balanced resort experience, sufficient guest service space should be provided to accommodate the existing resort CCC. The distribution of the CCC is used to determine guest service capacities and space requirements at base area and on-mountain facilities. The CCC should be distributed between each guest service facility location according to the number of guests that would be utilizing the lifts and terrain associated with each facility.

In addition to distributing the CCC between the base area and on-mountain facilities, guest service capacity needs and the resulting spatial recommendations are determined through a process of reviewing and analyzing the current operations to determine specific guest service requirements that are unique to the resort.

Service functions include:

Restaurant Seating: All areas designated for food service seating, including: restaurants, cafeterias, and brown bag areas. Major circulation aisles through seating areas are designated as circulation/waste, not seating space.

Kitchen/Scramble: Includes all food preparation, food service, and food storage.

Bar/Lounge: All serving and seating areas designated as restricted use for the serving and consumption of alcoholic beverages. If used for food service, seats are included in seat counts.

Restrooms: All space associated with restroom facilities (separate women, men, and employees).

Guest Services: Services including resort information desks, kiosks, and lost and found.

Adult Ski School: Includes ski school booking area and any indoor staging areas. Storage directly associated with ski school is included in this total.

Kid's Ski School: Includes all daycare/nursery facilities, including booking areas and lunch rooms associated with ski school functions. Storage and employee lockers directly associated with ski school are included.

Rentals/Repair: All rental shop, repair services, and associated storage areas.

Retail Sales: All retail shops and associated storage areas.

Ticket Sales: All ticketing and season pass sales areas and associated office space.

Public Lockers: All public locker rooms. Any public lockers located along the walls of circulation space are included, as well as the 2 feet directly in front of the locker doors.

Ski Patrol/First Aid: All first aid facilities, including clinic space. Storage and employee lockers directly associated with ski patrol are included in this total.

Administration/Employee Lockers & Lounge/Storage: All administration/ employee/storage space not included in any of the above functions.

2. SPACE USE ANALYSIS

Table 7 compares the current space use allocation of the guest service functions at Sunlight to industry norms for a ski area of a similar market orientation and regional context. The recommended ranges are determined based on Sunlight calculated CCC of 1,750 plus an additional 5% for non-skiing or riding guests. As shown in the following table, the square footage of Sunlight's average existing guest service space is undersized compared to the industry's recommended range. The public locker space is lacking as well as employee locker space. As previously mentioned, there is a deficit of space for both the kitchen and restaurant seating, which is problematic at peak times when long waits prevent quick seat turnover. There is only about half of the recommended restroom space, an issue compounded by most of the restrooms being located at the base. While the space use analysis for rentals and repair seems very low, it is offset by the resort's rental shop in Glenwood Springs that is not reflected in these calculations. During the ski season, approximately 40% of rental transactions occur in Glenwood Springs rather than at the resort.

The kitchen and scramble area at the base area restaurant is nearly half of the recommended size. In addition, it lacks necessary food storage space. The restaurant's lack of space for storage and preparation contributes to food shortages that impede the guest experience. The food pickup area can experience heavy crowding, forcing the kitchen to use food runners on its busiest days.

There is one on-mountain hut at the top of Compass Peak that is partially brown-bag lunch seating (no food and beverage services) and partially a ski patrol hub, with some restrooms. Since the only food and beverage facilities are at the base, it would be beneficial to expand food and beverage operations to the top of Compass Peak to alleviate lunchtime crowding and wait times at the base. Additional restrooms would also improve the guest experience.

Table 7. Space Use Recommendations—Total Resort—Existing Conditions

Service Function	Existing	Recommended Range	
		Low	High
Ticket Sales/Guest Services	399	630	770
Public Lockers	320	1,900	2,320
Rentals/Repair	1,900	4,500	5,060
Retail Sales	683	1,330	1,620
Bar/lounge	816	1,990	2,430
Adult Ski School	--	1,010	1,240
Kid's Ski School	1,281	2,020	2,470
Restaurant Seating	3,796	9,290	11,360
Kitchen/Scramble	1,380	3,990	4,870
Rest rooms	641	1,990	2,430
Ski Patrol	1,650	1,070	1,300
Administration	640	1,330	1,620
Employee Lockers/Lounge	198	530	650

Storage	974	1,420	2,100
Circulation/Waste	1,728	4,270	6,300
TOTAL SQUARE FEET	16,406	37,270	46,540

Source: SE Group

3. FOOD SERVICE SEATING

Turnover Rates

A key factor in evaluating restaurant capacity is the turnover rate of the seats. That is, the number of times a seat will be utilized in a day. Several factors influence the turnover rate including the ski resorts' climate, market orientation, and the type of food service provided. For example, colder weather results in guests spending longer periods of time in the lodge, resulting in lower turnover rates. Also, cafeteria-style dining will have a faster turnover rate than fine dining. At Sunlight a seat turnover rate of 4 has been assumed.

The majority of food service seating is concentrated at the base area where food and beverage operations are located. In total, the Sunlight base lodge has approximately 382 indoor seats available for guests. An additional 20 seats are available on the top of Compass Peak. Therefore, Sunlight has a total of 405 seats available for guests. With a turnover rate of 4, this leaves Sunlight short about 22% of its required seats short of being able to comfortably seat all guests when at its CCC. This imbalance can be problematic considering the only food and beverage facilities are located at the base. Combined with long lines for food, rentals, or restrooms, the lack of seating contributes to bottlenecks in the base area that prevent guests from having a seamless lunchtime experience. However, shortages of restaurant seating are less problematic at Sunlight than at a more remote resort. Glenwood Springs and Carbondale are each only 30 minutes away, so guests may choose to eat when they return to town where there are more options. Further details of the seating are provided in Table 8.

Table 8. Restaurant Seats—Existing Conditions

	Base Area	On-Mountain	Total
Lunchtime Capacity (CCC)	1,736	102	1,838
Average Seat Turnover	3.5	4	
Existing Seats	385	20	405
Required Seats	496	26	521
Difference	-111	-6	-116
Existing seating capacity	1,348	80	1,428

E. EXISTING PARKING CAPACITY AND RESORT ACCESS

Nearly all guests at Sunlight access the ski area by personal vehicle. All parking at Sunlight is currently free and located at the base. There is also a shuttle that brings guests to and from the resort from Glenwood Springs that runs once a day on weekdays and twice a day on weekends. Additional public transit could help alleviate parking shortages, especially on peak days. Guests may purchase a round-trip ticket or a season pass. On days that the ski area approaches or exceeds capacity, the parking lot may fill up mid-morning, forcing guests to park on the road and walk to the resort. Between three parking lots, there are 650 parking spaces, which is nearly enough parking to support Sunlight at its current CCC. It is estimated that sometimes 20 to30 of these spaces are taken by backcountry users on the weekends. However, due to the resort's proximity to towns like Glenwood Springs and Carbondale, guests may only come to the resort for a partial day. Spaces may free up in the afternoon after morning skiers leave the resort. A parking turnover rate of 1.25 was used for this analysis.

Table 9. Recommended Parking—Existing Conditions

	Total
CCC + other guests	1,838
% parking at portal	100%
# parking at portal	1,838
Parking Space Turnovers	1.25
Required car parking spaces	588
Required employee car parking spaces	74
Total required spaces	662
Existing parking spaces	650
Surplus/deficit	-12
Existing parking capacity (guests)	1,441

F. EXISTING RESORT OPERATIONS

1. SNOWMAKING AND GROOMING

Sunlight's snowmaking operations cover approximately 26 acres from the mid-mountain area to the top of Tercero on lower *Joslin*, *Midway*, *Dotsero*, and *Ute* trails. Currently, it is used to aid in early season coverage on lower terrain. The remainder of trails are typically skiable by mid-December. They have conditional water rights to a 52 acre-feet reservoir with 18 acre-feet guaranteed. Three ponds in Babbish Gulch are used to store 18 acre-feet of water: Lake Lorentson (4.6 acre-feet), Cabin Pond (6.2 acre-feet), and Upper Pond (8.3 acre-feet). The resort normally uses all available stored water and would require a larger reservoir to utilize all of their water rights. There is one pumphouse at the base on the west end of the parking lot at the Stables and a compressor house at the bottom of Segundo.

Sunlight's snowmaking infrastructure is generally older, with tower guns and a pumphouse with a capacity for 500 gallons per minute.

The grooming fleet contains two vehicles that groom 120 acres of terrain daily.

2. MAINTENANCE FACILITIES

All ski area maintenance facilities reside in the backside of the parking lot. There is a 6,000 gallon above-ground concrete fuel tank where grooming vehicles may refuel. The space is currently sufficient for operations. Moving the maintenance facilities out of the parking lot could alleviate the parking space deficit by up to 80 to 100 spaces, with the added benefit of maintenance facilities being closer to the snowfront and removed from the guest arrival space in the base area.

3. INFRASTRUCTURE AND UTILITIES

The resort has a sufficient level of power from the base to the top of Compass Peak supplied by Holy Cross Electric out of Glenwood Springs. Electric lines were run to the peak after power outages presented an issue.

4. CULINARY WATER AND WASTEWATER TREATMENT

Sunlight's water sanitation plant sits in the lower parking lot. While it is owned by Sunlight, it is operated by Environmental Process Control. The old facility had a capacity of 30,000 gallons and the new facility as a capacity of 50,000 gallons. This is well above the actual usage of the facility, which peaks at about 12,000 – 14,000 gallons on the busiest days. The domestic water facility generally functions well but requires improvements to the system due to age. The facility is owned by Sunlight but operated by Environmental Property Control (EPC). Sunlight has rights to 12 local wells and currently uses two as domestic water sources.

5. MOUNTAIN ROADS

Sunlight maintains on-mountain roads to perform maintenance and operations. These roads also connect at several points to existing, Forest Service maintained roads. Together, these roads provide access for required maintenance of Sunlight's infrastructure. Sunlight maintains approximately 8.2 miles of mountain roads within its permit area, all of which are in the main resort area and not Babbish Gulch or Williams Peak.

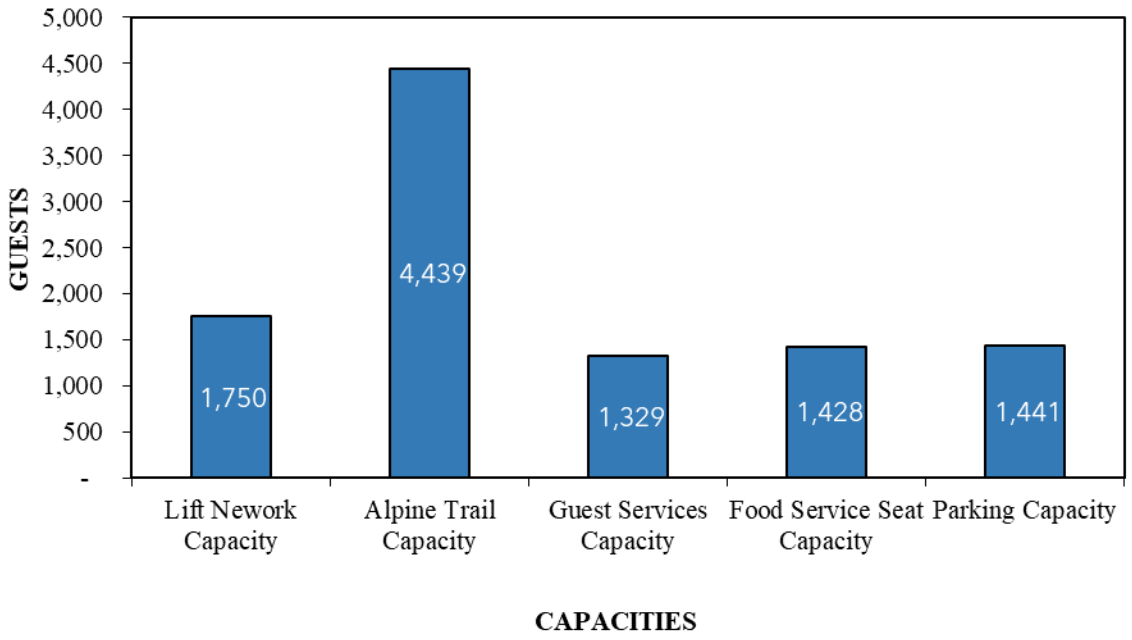
G. RESORT CAPACITY BALANCE AND LIMITING FACTORS

Sunlight's visitation pattern is common for a regional ski area. The majority of Sunlight's visits occur on weekends and holidays, and the ski area exceeds its CCC (1,750) on peak days. The lift network and other capacities are well below the alpine trail capacity, so high trail densities are generally not an issue even on busy days. It is typical for Western U.S. resorts to have an alpine trail capacity that exceeds other capacities and indicates that the CCC can be easily accommodated by the trail network.

The ski area's capacities are graphically depicted in Chart 2. This chart illustrates that Sunlight is nearly balanced. The most limiting factors are the lack of guest services space, food service seat capacity and parking. Most overcrowding occurs in the base lodge due to restaurant wait times, inefficient space

use, and lack of seating. Overflow parking occurs along the road. Alleviating these deficiencies would improve the guest experience during peak times.

Chart 2. Resort Capacity—Existing Conditions



H. SUMMER AND MULTI-SEASON OPERATIONS

1. SUMMARY OF THE EXISTING MULTI-SEASON ACTIVITIES AND THE GUEST EXPERIENCE

Sunlight Mountain Resort switches to summer offerings after the winter season ends. During the summer months, Sunlight currently has several events throughout the season, as well as trails for hiking and mountain biking. Mountain bikes are used on 16 miles of trails: throughout Babbish Gulch and on the Ute Service Road, Sunlight Service Road, and Grizzly Service Road. The resort also installed an 18-hole disc golf course that is free to use.

Weddings are held in the base lodge, the surrounding outdoor space, or in the meadow. In recent seasons, the resort is booked for events every weekend through October. While most are weddings, others include races, triathlons, corporate retreats, or archery competitions. At this time, all guests stay in the limited lodging at Sunlight or in Carbondale or Glenwood Springs.

CHAPTER 3. PREVIOUSLY-APPROVED PROJECTS, NOT YET IMPLEMENTED

The projects detailed in this section have been previously-approved, but have not yet been implemented. It is anticipated that the majority of these projects will ultimately be implemented as capital for on-mountain improvements becomes available. Prior to project implementation, the Forest Service will review project consistency with 2002 Forest Plan standards and guidelines and determine if additional analysis is warranted due to changed environmental and social conditions, and/or new planning and regulatory guidance. Previously-approved, not yet implemented projects are also discussed in Chapter 4 and incorporated into the planning. Applicable approvals are contained in the following documents:

2020 SUNLIGHT MOUNTAIN EAST RIDGE CHAIRLIFT INSTALLATION DECISION MEMO

In 2020, Sunlight was approved to install a quad chairlift, vault-style toilet, and two graded ski trails in the East Ridge area of the resort in order to enhance skier circulation and improve the guest experience. It would primarily provide access to intermediate and advanced terrain. This project will occur on NFS lands within the Sunlight SUP boundary and on adjacent private lands.

The chairlift will ascend approximately 2,000 feet from private land at the base to the top terminal. It will require tree cutting along the centerline and clearing and grading of trees for the top terminal and catwalks providing access to Rebel and Grizzly trails. Less than 5 acres would be disturbed by activities needed to complete the project.

2020 ASPEN-SOPRIS RANGER DISTRICT COUNTY LINE PROJECT ENVIRONMENTAL ASSESSMENT AND DECISION NOTICE

The Aspen-Sopris Ranger District of the White River National Forest plans to implement a variety of forest health projects near Glenwood Springs on approximately 17,400 acres of land. Activities approved include logging, prescribed fire treatments, fuel reduction treatments, and glading. Of these projects, approximately 47 acres of glading was approved within the Sunlight SUP area. Doing so will enhance the existing winter recreation experience and foster resilience within the forest.

CHAPTER 4. UPGRADE PLAN

A. SUMMARY OF THE UPGRADE PLAN

This MDP has been prepared in compliance with the terms and conditions of the Forest Service-issued 40-year term SUP for Sunlight. As stated previously, Forest Service acceptance of this MDP does not convey approval of any projects contained herein. Implementation of any projects on NFS lands within the Sunlight SUP area is contingent upon site-specific environmental review and approval via NEPA. Planned projects contained in this Master Plan are conceptual in nature and may be refined in the future, as long as the original intent of a planned project is maintained.

The Upgrade Plan is depicted on Figures 8-11.

B. UPGRADED LIFT NETWORK

Sunlight's upgraded lift network includes two replacement lifts, two new lifts, one altered lift, and two new carpets. With the implementation of the Upgrade Plan, the three existing lifts are planned to be altered or replaced. These improvements to the lift network will upgrade aging infrastructure, provide better circulation and skier distribution, and make better use of the available terrain within Sunlight's SUP. The addition of two carpets will provide a true learning and beginner area, something that is currently lacking at Sunlight. Project details are described below. Refer to Table 10 for a complete list of Sunlight's lift network upgrades.

1. TERCERO REPLACEMENT/SHORTENED

There is not currently a formal beginner area at Sunlight, nor are there expansive opportunities to create additional beginner terrain due to the existing natural topography. Tercero is planned to be shortened to accommodate the planned learning area near the base. The top terminal will remain in place, with the bottom terminal shifting uphill, making space for the planned carpets and beginner area. The shortened lift may either include a replacement chairlift or utilizing the existing chairlift. In either scenario, the hourly capacity of the lift will remain the same.

2. SEGUNDO REPLACEMENT

Segundo is the main lift that skiers use to access Primo, the lift that accesses the peak. Due to its age, Sunlight plans to replace Segundo with a fixed-grip triple chairlift in a similar alignment. the out-of-base capacity will increase from 460 people per hour to 650 people per hour, reducing lift lines and crowding in the base area, especially during the morning staging period. Skiers will be able to access Primo more efficiently, and therefore the rest of the resort's terrain.

3. PRIMO REPLACEMENT

Primo is a critical lift at Sunlight because skiers can access all of the resort's terrain from the chairlift. Due to its age, Primo is planned to be replaced with a fixed-grip quad chairlift in a similar alignment. Doing so will decrease the amount of maintenance needed, increase the on-mountain capacity, and

shorten the current 12-minute lift ride. In addition, the comfortable carrying capacity of the lift will increase from 680 to 840 people per hour. The bottom terminal is in a high-traffic area on a heavily-travelled run, so reducing lift lines and crowding will aid in circulation and efficiency.

4. EAST RIDGE LIFT ADDITION

Sunlight plans to enhance skier circulation on the eastern side of the SUP by installing the previously-approved East Ridge lift to the east of Tercero. It is intended to be a fixed-grip quad chairlift that ascends to the *Rebel* and *Grizzly* trails. The lift will provide better access to the east side of the mountain, which contains most of the advanced and expert terrain at Sunlight. With the implementation of the upgrade plan, experienced skiers will no longer have to ride two chairlifts to access this terrain. As it exists, the lower East Ridge trails require a hike back to the base area. This lift is planned for easier repeat skiing of the East Ridge trails. Its separate location from Tercero, Segundo, and the planned beginner area will reduce high densities at the central base area, especially during the morning staging period. Its construction will use existing mountain roads and require cutting trees in the proposed lift alignment along the centerline and the top terminal area.

5. MODIFIED EAST RIDGE LIFT ADDITION

The modified East Ridge Lift alignment is an option that is shorter and more feasible to install compared to the previously approved East Ridge Lift alignment. It is designed as a transfer lift to remove the existing hike back to the base area lifts from the tree skiing on the eastern edge of the resort, as well as the lower parking lots. Due to its role in transporting guests, it does not increase the CCC of the resort. The bottom terminal is located at a similar location as the previously approved lift and ascend west to lower *Beaujolais*. Two novice trails are planned in tandem with this lift to provide an easier route back to the lift. This allows guests parking in the lower lots to ride this chair to access the base lodge.

6. GRIZZLY LIFT ADDITION

Sunlight plans to install a new fixed-grip quad chairlift on the eastern side of the resort, providing access to approximately 11 acres of planned trails on the east side of the ridge. The top terminal of the lift will be located near the top terminal of the planned East Ridge lift, and the bottom terminal will be located approximately 2,800 feet down the northeast slope. Guests will be able to access the lift by descending from the top of Primo or the previously-approved East Ridge lift. This pod will provide more novice, low intermediate and intermediate terrain.

7. BEGINNER CARPETS

In tandem with the planned alteration of Tercero to create more space for a beginner area, Sunlight plans to install two beginner carpets. One will be approximately 90 feet long and the other will be approximately 130 feet long. Tercero is currently the shortest and slowest chairlift at Sunlight, but it only services novice and intermediate terrain outside the ski school corral. The carpets will provide a gentler introduction to lift-served skiing than Tercero currently provides, an important factor at a local, family-oriented ski resort where many children may be learning to ski.

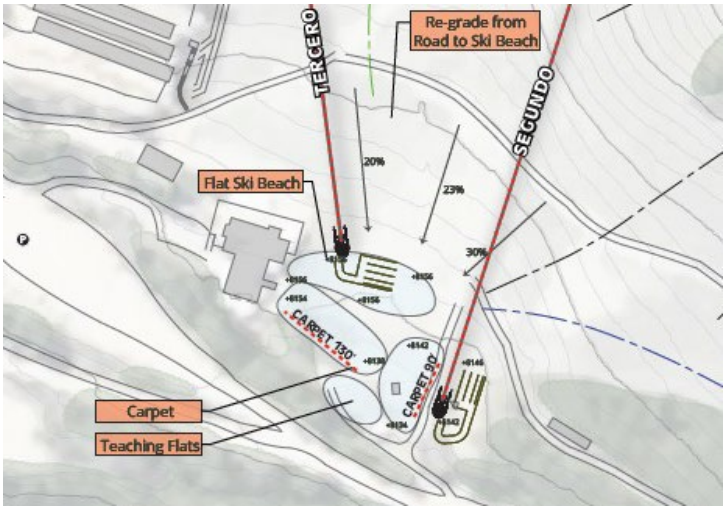


Table 10. Lift Specifications—Upgrade Plan

Lift Name, Lift Type	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Rise (ft.)	Slope Length (ft.)	Avg. Grade (%)	Actual Capacity (pph)	Rope Speed (fpm)	Carrier Spacing (ft.)	Lift Maker/ Year Installed
Primo/C4	9,882	8,416	1,462	5,272	29%	1,500	450	72	Replacement
Segundo/C3	9,302	8,142	1,160	4,529	27%	1,400	500	64	Replacement
Tercero/C3	8,656	8,156	500	2,703	19%	1,200	300	45	Riblet/1987
East Ridge/C4	9,475	7,905	1,570	4,724	35%	1,500	450	72	New
Grizzly/C4	9,475	8,930	545	2,838	20%	1,200	450	90	New
Carpet 1/C	8,154	8,138	16	131	12%	600	160	16	New
Carpet 2/C	8,142	8,134	8	90	9%	600	160	16	New
Modified East Ridge/C4	8,570	7,938	632	1,820	37%	1,500	450	72	New

Source: SE Group
Notes:
C3 = fixed-grip double chairlift / *C4* = fixed-grip triple chairlift / *C* = Carpet

C. UPGRADED TERRAIN NETWORK

Several changes are planned to the developed terrain network at Sunlight. Table A-2 shows the terrain specifications of Sunlight under the upgrade plan.

After the shortening of Tercero, the resort intends to regrade the base area to create an expanded beginner area with two planned carpets. This will address the shortage of beginner terrain at the resort and create a better learning experience for new skiers. In addition, it will reduce high densities seen in the beginner area.

Approximately 15 acres of newly-constructed trails are planned surrounding the alignment of the Grizzly Lift, adding additional intermediate-to-advanced terrain. Tree-clearing and some glading would be required.

As discussed in Chapter 3, 47 acres of glading are previously approved within the Sunlight SUP area on tree islands by *Joslin*, *Beaujolais*, *Cassanova Glades*, and *Charlie's Glades*. These projects are intended to improve the existing guest experience as well as promote health of the surrounding ecosystem.

On Williams Peak and in Babbish Gulch, Sunlight plans to more formally utilize Williams Peak as a backcountry area, as well as the surrounding area in west Babbish Gulch outside of the Nordic trails. This may include backcountry tours, cat skiing, or other winter activities. In addition, some additional thinning of trees is planned to improve skiable terrain, with the exception of an existing wetland area. Some thinning has already occurred on 90 acres on the north side of Williams Peak, south of Four Mile Road. This operation removed aspen trees larger than 4 inches in diameter to help promote regeneration of the forest. These improvements will provide accessible backcountry skiing to guests who are experienced but new to touring, as well as guests who currently enjoy touring in the area. This light development will also include a backcountry hut. This area would likely remain unpatrolled and may require a waiver.

1. TERRAIN DISTRIBUTION BY ABILITY LEVEL

With implemented projects from the upgrade plan, Sunlight will add approximately 28 acres of developed terrain to its terrain network, including the beginner area, new trails off of the Grizzly lift, and new trails off of the alternative East Ridge Lift alignment. Beginner terrain increases from 0.2 acres to 0.4 acres with a true, conveyor-served beginner area. This will vastly improve the beginner experience at Sunlight, reducing high densities and crowds seen at the current learning area. Slight increases are seen in novice and low intermediate terrain and slight decreases are seen in intermediate to expert terrain, but the terrain remains mostly balanced to the skier market. Terrain projects in this upgrade plan enhance the variety in Sunlight's skiable area. The Williams Peak area is not included in this analysis because it is not considered developed terrain, but it will provide additional advanced to expert terrain.

Table 11. Terrain Distribution by Ability Level—Upgrade Plan

Skier/Rider Ability Level	Trail Area (acres)	Skier/Rider Capacity (guests)	Skier/Rider Distribution (%)	Skier/Rider Market (%)
Beginner	0.4	13	0%	5%
Novice	35.6	641	17%	15%
Low Intermediate	80.1	1,122	30%	25%
Intermediate	112.3	1,123	30%	35%
Advanced	80.0	560	15%	15%
Expert	106.7	320	8%	5%
TOTAL	415.1	3,778	100%	100%

Source: SE Group

Chart 3. Terrain Distribution by Ability Level—Upgrade Plan

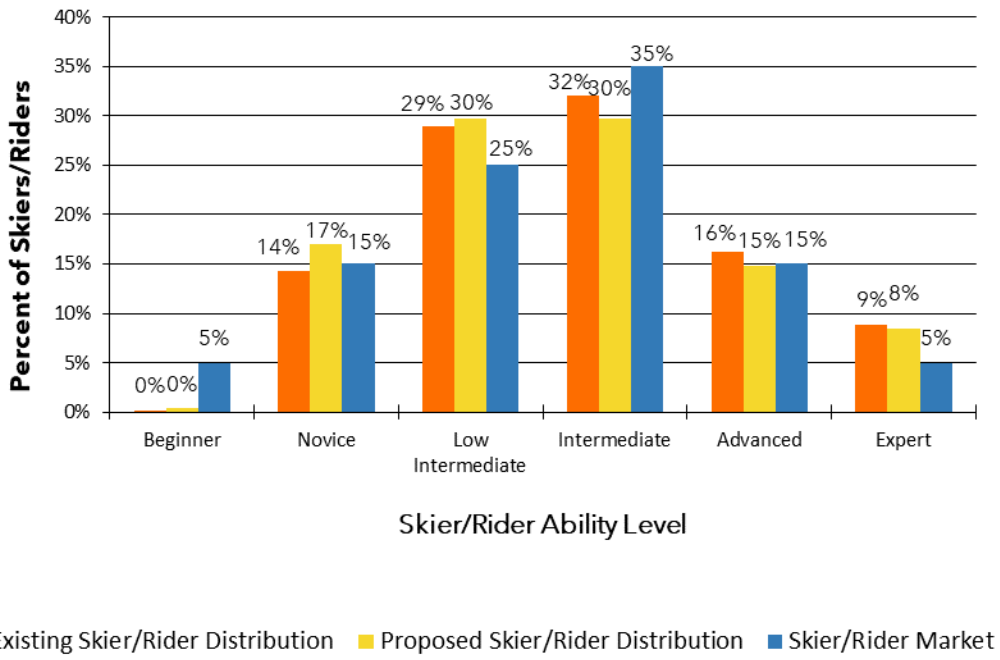


Table 12. Comfortable Carrying Capacity—Upgrade Plan

Lift Name, Lift Type	Slope Length (ft.)	Vertical Rise (ft.)	Actual Capacity (pph)	Operating Hours (hrs.)	Up-Mountain Access Role (%)	Misloading/ Lift Stoppages (%)	Adjusted Hourly (pph)	VTF/ Day (000)	Vertical Demand (ft./day)	CCC (guests)
Primo/C4	5,272	1,462	1,500	7.00	0	15	1,275	13,048	15,545	840
Segundo/C3	4,529	1,160	1,400	7.00	5	10	1,190	9,663	14,800	650
Tercero/C3	2,703	500	1,200	7.00	5	20	900	3,150	5,371	590
East Ridge/C4	4,724	1,570	1,500	7.00	50	10	600	6,594	22,632	290
Grizzly/C4	2,838	545	1,200	7.00	0	10	1,080	4,120	11,238	370
Carpet 1/C	131	16	600	7.00	0	5	570	64	1,603	40
Carpet 2/C	90	8	600	7.00	0	5	570	32	978	30
Modified East Ridge/C4	1,820	632	1,500	7.00	90	10	-	0	20,753	-
Total	22,108		9,500				6,185	36,671		2,810

Source: SE Group
Notes: *C3* = fixed-grip double chairlift/ *C4* = fixed-grip triple chairlift / *C* = Carpet

Table 13. Density Analysis—Upgrade Plan

Lift		Guest Disbursement				Density Analysis				
	CCC	Milling (guests)	In Lines (guests)	On Lift (guests)	On Terrain (guests)	Area (acres)	Density (guests/acre)	Trl. Density (guests/acre)	Diff. (+/-)	Index (%)
Primo/C4	840	210	43	249	338	178.8	2	9	-7	22%
Segundo/C3	650	163	40	180	267	110.2	2	10	-8	20%
Tercero/C3	590	148	45	135	262	19.7	13	18	-5	72%
East Ridge/C4	290	73	20	105	92	60.9	2	18	-16	11%
Grizzly/C4	370	93	36	114	127	45.2	3	18	-15	17%
Total	2,740	687	184	783	1,086	414.8	5	13	-9	34%

D. UPGRADED CAPACITY ANALYSES

1. COMFORTABLE CARRYING CAPACITY

The calculation of Sunlight's CCC under the Upgrade Plan is an important measure by which the resort's guest service facilities can be evaluated and planned. As a result of the lift and terrain network upgrades, Sunlight's CCC increases from 1,750 guests to 2,810 guests. The proposed CCC represents a 61% percent increase in the number of guests that can be comfortably accommodated at Sunlight. The CCC as a result of the upgrade plan is more in line with Sunlight's current visitation levels, demonstrating that these improvements will provide a higher quality guest experience.

For detailed calculations of the Upgrade Plan daily lift capacity, refer to Table 12.

2. DENSITY ANALYSIS

As discussed in Chapter 2, an important aspect of resort design is the balancing of uphill lift capacity with downhill trail capacity. Trail densities are derived by contrasting the uphill, at-one-time capacity of each lift system (CCC) with the trail acreage associated with each lift pod. The trail density analysis considers only the acreage associated with the developed trail network. The density analysis for the Upgrade Plan is illustrated in Table 13. Under the upgrade plan, terrain density remains the same at about 5 guests per acre. The carpets and modified East Ridge lift were not included in the analysis due to the limited terrain they service or do not have CCC associated to the lift.

a) Lift Network Efficiency

As discussed in Chapter 2, this document analyzes Lift Network Efficiency by calculating the average CCC per lift. Optimally, and in general, the average CCC per lift is closer to 1,000. Industry-wide, the average CCC per lift is approximately 650. With improvements from the upgrade plan, the average CCC per lift at Sunlight decreases slightly to 548 guests upon full buildout of the upgrade plan. As previously mentioned, a lower-than-average CCC per lift is common at smaller resorts and does not present an issue.

E. UPGRADED GUEST SERVICES FACILITIES, FOOD SERVICE SEATING & SPACE USE ANALYSIS

1. GUEST SERVICES

Projects in the upgrade plan are intended to address lack of guest service space and restaurant seats to improve the guest experience. Sunlight plans to reconfigure the existing lodge at the base area that is currently undersized and poorly arranged. This may include constructing a secondary building that eventually connects with the original lodge, renovating the current lodge, constructing an entirely new lodge, or a combination of these options. An example of lodge improvements is illustrated below. Ideally, a new version of the lodge is planned to enhance guest circulation around the base area, add additional restaurant seating, and expand kitchen space to reduce bottlenecks around lunchtime. To further improve circulation, Sunlight also plans to build a sloping pedestrian entrance that extends to the snow front where there is currently a steep set of stairs.

In addition, Sunlight plans to improve the structure at the top terminal of Primo to address the need for on-mountain guest service facilities. On-mountain, there are currently limited restrooms and seating with no food and beverage operations. Guests may be forced to return to the base for either food or restrooms, causing large crowds and long wait times, especially at lunch time. The majority of services will remain at the base area, but the new facility will relieve pressure at peak times and improve the guest experience because skiers can remain on-mountain. In addition, the location has sweeping views of Mount Sopris and the surrounding mountain range. Sunlight could harness this opportunity to create an on-mountain dining experience with windows or a deck for guests to enjoy the view. The facility could also be the setting for events. With the addition of East Ridge and Grizzly lifts, a similar

facility providing light food & beverage services is planned near the top terminals. The new facility would relieve further pressure on the base area, allowing skiers to repeat ski Grizzly and East Ridge lifts without descending to the base for restrooms or food and beverage services. Specific details of improvements to on-mountain facilities will be revealed in the NEPA process.

A hut is planned within the Nordic trail network and a yurt is planned in the Williams Peak backcountry area to provide basic restrooms and grab-and-go food items. Nordic skiing and backcountry skiing do not necessarily originate out of the central base area, so these facilities will provide Nordic and backcountry skiers with amenities that would otherwise be unavailable to them.

In the meadow area near the base, Sunlight plans to construct a tubing hill that will attract non-skiers and offer additional family-friendly activities. It will have approximately 650 to 700 feet of length and 55 to 60 feet of vertical drop served by a surface lift. Grooming and/or snowmaking may be required for upkeep.

2. SPACE USE ANALYSIS

As mentioned in Chapter 2, guest services facilities at Sunlight are currently undersized to adequately support several service functions of the resort, including locker space, rentals, food and beverage space, and restrooms. With improvements from the Upgrade Plan, the resort's CCC increases which places additional pressure on guest service facilities. The Upgrade Plan also includes several projects to improve base area circulation, enhance restaurant seating, and add on-mountain facilities.

Guest service space use recommendations by function based upon a design capacity of 2,810 skiers can be found in Table 14. A range of approximately 37,000 to 46,000 square feet is recommended to accommodate the increase in CCC.

Table 14. Space Use Recommendations—Upgrade Plan

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	630	770
Public Lockers	1,900	2,320
Rentals/Repair	4,500	5,060
Retail Sales	1,330	1,620
Bar/lounge	1,990	2,430
Adult Ski School	1,010	1,240
Kid's Ski School	2,020	2,470
Restaurant Seating	9,290	11,360
Kitchen/Scramble	3,990	4,870
Rest rooms	1,990	2,430
Ski Patrol	1,070	1,300
Administration	1,330	1,620
Employee Lockers/Lounge	530	650
Storage	1,420	2,100
Circulation/Mechanical/Walls	4,270	6,300
TOTAL SQUARE FEET	37,270	46,540

3. FOOD SERVICE SEATING

Seating and restaurant space recommendations are directly related to the lunchtime capacity. The lunchtime capacity is determined by the distribution of each lift pod's CCC. It is assumed that guests prefer to dine at the facility closest to the area where they are skiing. To allow for this convenience, it is important to provide restaurant seating to accommodate the lunchtime capacity requirement of the area. Restaurant seating should be supplied per the recommendations in the table below. An increased CCC would require additional seats.

As indicated in Table 15, Sunlight continues to have a deficit in restaurant seating even with improvements from the upgrade plan. However, this analysis does not include outdoor seating that is available when weather allows. On inclement weather days when the outdoor seating is less utilized, the base area has a shortage of seats and the improved on-mountain facility has a slight shortage. While there is still a shortage of seats under the upgrade plan, the planned development addresses an urgent need for on-mountain amenities and plays an important role in dispersing guests during the lunchtime period. It should be noted that expanded seating as a result of base lodge improvements are not included because the specifics of the plan are not known. With a reconfigured lodge layout, this shortage should decrease.

Table 15. Restaurant Seats—Upgrade Plan

	Base Area	On-Mountain	Total
Lunchtime Capacity (CCC)	2,585	336	2,921
Average Seat Turnover	3.5	4	
Existing Seats	385	20	405
Required Seats	738	84	822
Difference	-353	-64	-417

F. UPGRADED PARKING CAPACITY AND RESORT ACCESS

Like many ski resorts in the western United States, parking is a finite resource at Sunlight, forcing visitors to park on the highway once the lots are full. To address the existing shortage, several proposals have been considered to expand parking. Sunlight plans to alleviate this issue with parking expansions, reconfigurations, and continuing to allow highway parking. As previously mentioned, the resort plans to move the maintenance building in the existing parking lot, which could add up to 80 spaces. Sunlight may also expand the eastern end of two of its parking lots which could add 220 spaces. Even with the additional parking, there is a deficit of parking space and a need for increased parking and access to the resort. Other ways for Sunlight to get guests to the resort could be to expand shuttle service from Glenwood and Carbondale or incentivize the number of guests per vehicle. This will further reduce traffic and parking issues at Sunlight.

Table 16. Recommended Parking—Upgrade Plan

	Total
CCC + other guests	2,951
# parking at portal	2,951
Parking space turnovers	1.25
Required car parking spaces	944
Required employee car parking spaces	118
Total required spaces	1,062
Existing parking spaces	650
Surplus/deficit	-412
Planned parking spaces	300

G. UPGRADED RESORT OPERATIONS

1. SNOWMAKING

Approximately 38cres of snowmaking coverage is planned to create routes down from Primo and Segundo lifts during times of low snow. is planned. Off of Primo, snowmaking coverage is planned on upper *Primo*, *Grizzly*, *Blue Catwalk*, and *Rebel*. Off of Segundo, *Peacepipe* and *Cornice* are planned. Off of Tercero. *Loop* is planned to have additional coverage. With this additional coverage, Sunlight will be able to open more lifts, which increases on-mountain capacity, decreases trail density, and preserves season length. A snowmaking reservoir with up to 50 acre-feet of storage is planned near the top of the previously-approved East Ridge lift to accommodate the expansion of snowmaking. The new snowmaking line associated with the reservoir will ascend up *Grizzly* to the top of Primo or down *Rebel* to tie into the existing *Loop* snowmaking line. An additional snowmaking line is also planned from the pumphouse adjacent to the stables on the west end of the parking lot to the Meadow for tubing operations.

2. TUBING AND SNOWPLAY AREA

In the Meadow area in the west end of the parking lot, a snowplay and tubing area is planned. This project will expand winter recreation opportunities to non-skiers, attracting a market that would otherwise not visit the resort in the winter season. The area will provide approximately 650 to 700 feet of carpet-served tubing with a vertical drop of about 60 feet. The development of this site could include an access road, parking, a yurt or facility, and restrooms. The Meadow is on private land and projects in this area would not be subject to NEPA analysis.

3. MAINTENANCE FACILITIES

The maintenance facility in the parking lot at Sunlight is planned to be moved to lower Babbish Gulch to create extra parking within the base area. In addition to parking improvements, moving the facility

will make for more efficient operations due to closer proximity to the mountain. The new facility will be located entirely on private land.

4. INFRASTRUCTURE AND UTILITIES

New utility corridors for water, sewer, and electricity are planned to be installed to service the on-mountain facility at the top of Primo and the new facility at the top of East Ridge and Grizzly lifts. New sewer improvements would likely be an engineered septic system or compost system.

5. CULINARY WATER AND WASTEWATER TREATMENT

While the wastewater plant is sufficient, it is an aging system and requires improvements to domestic water. A new water tank is planned on private land in the tree island between *Dotsero* and *Midway*. The tank would be metal or concrete with approximately 60,000 gallons of storage with a line running to the base lodge.

6. MOUNTAIN ROADS

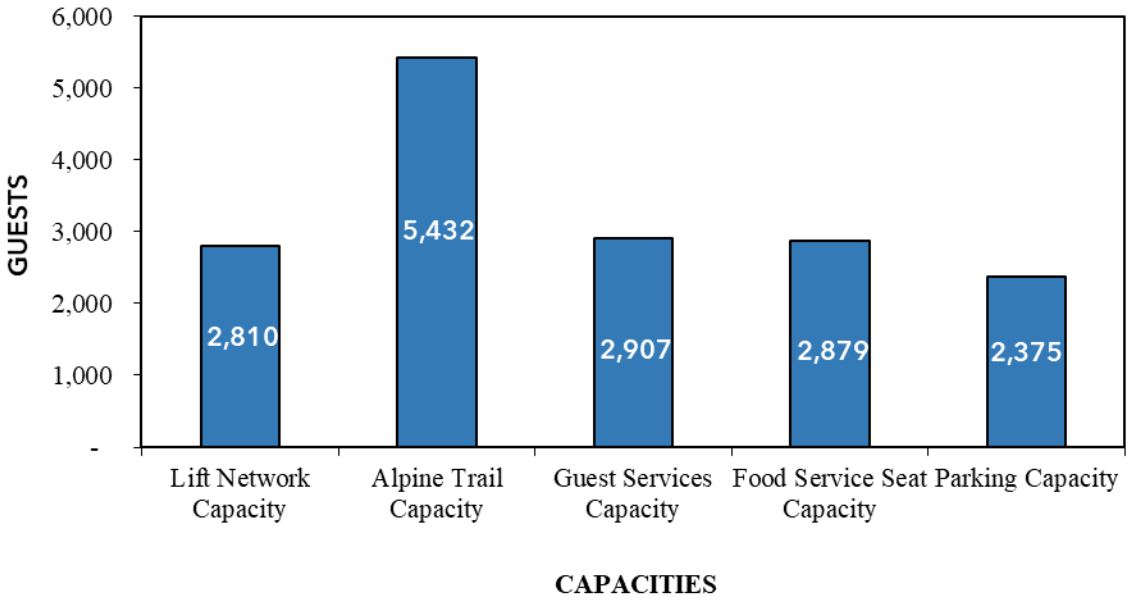
A new snowcat trail is planned from the *Ute* trail to the new maintenance facility location in Babbish Gulch for improved access.

H. RESORT CAPACITY BALANCE AND LIMITING FACTORS

Under the upgrade plan, resort capacities will be fairly balanced. The lift network capacity will increase which in turn requires other capacity to increase. Alpine trail capacity remains much higher than the CCC, indicating that densities will remain low. This is a desirable situation for the resort, as one of the goals of the MDP is to retain the local, family-oriented feel that avoids the high guest densities seen at more developed resorts. With base lodge reconfigurations, guest services capacity is more balanced to the CCC, resolving issues of congestion and long wait times currently seen at the base area.

As previously mentioned, there is a need for more food service seating and parking, which will be addressed through base lodge improvements, on-mountain outlets and additional parking. Additional seating from the reconfiguration of the lodge and the on-mountain facility will alleviate the shortage at Sunlight. Similarly, parking remains to be a limiting factor at Sunlight, but parking expansions and reconfigurations will reduce the need for parking. Incentivizing increased AVO or expanding shuttle ridership are other methods to do so. Chart 4 illustrates resort capacity balance under the Upgrade Plan at Sunlight.

Chart 4. Resort Capacity—Upgrade Plan



I. UPGRADED SUMMER AND MULTI-SEASON OPERATIONS

1. SUMMER AND MULTI-SEASON ACTIVITIES AND FACILITIES

Summer activities at ski resorts have only become more popular over time, especially as more people become interested in all forms of outdoor recreation. The typical summer guest is different from the winter guest. Summer activities at ski resorts are generally catered towards all ages and all abilities, and may not require additional equipment. Improvements to Sunlight's summer operations are intended to enhance the guest experience and build upon existing facilities.

Sunlight plans to continue holding events at the base lodge, but may consider expanding them to the on-mountain facility at the top of Primo, taking advantage of scenic views of Mount Sopris. The disc golf course will remain in place. In Babbish Gulch, Sunlight intends to improve signage for better wayfinding and grade trails to improve the experience for hikers and mountain bikers.

2. ZONES CONCEPT

As discussed in Appendix B, there are four characteristics (access, remoteness, naturalness, and infrastructure) to define the summer and multi-season setting and guest experience within different landscapes across the SUP area. The first step in the zone designation process was a careful consideration of the setting and the proximity to infrastructure supporting snow sports. Features such as watersheds, topography, vegetation structure, level of existing disturbance, and existing infrastructure were considered in establishing zone boundaries across the entire SUP area.

The exercise resulted in the creation of four areas unique in their location and/or features. The second step of the zone designation process was applying a score for each characteristic on a scale of 1 to 4, with 1 being the most disturbed and 4 being the least disturbed. Refer to Figure 9 for summer zones at Sunlight.

Because summer and multi-season uses are continually being developed and activities that do not currently exist may be popular within the next several years, a list of compatible activities is provided for each zone. The intent of the list of compatible activities is to allow for a certain amount of flexibility, since it is impossible to foresee exactly what new activities will be developed over this time. Sunlight will continue to work with the Forest Service to ensure that proposed summer and multi-season activities are suitable for the setting and desired experience within each zone.

a) Zone 1

Setting

The existing setting of Zone 1 is highly developed and disturbed. Within Zone 1, the built environment dominates the landscape. Within the context of Sunlight's overall SUP area, the following summarizes the setting in Zone 1:

- Road access and roads are prevalent;
- Considerable human activity (people recreating and/or resort operations) occurs within and proximate to this setting – there is little to no feeling of remoteness;

- Terrain modifications (ground disturbance and vegetation removal) dominate the area; and
- Infrastructure, including lifts and buildings, are present.

One area at Sunlight is designated as Zone 1 (A1). It is near the base area, which is mostly private land and therefore does not require summer zoning. A portion of the disc golf course is situated in Zone 1.

Desired Experiences

Within Zone 1, guests are expected to encounter a high concentration of other guests. The level of development will reflect the current setting and function of these areas as hubs of activity and portals to other activities across the ski area. Guests will encounter a higher degree of maintenance and operations facilities and activities within Zone 1. Within Zone 1, the concepts in the Built Environment Image Guide (BEIG) will be followed to ensure appropriate design guidelines for both landscape architecture and built architecture are followed. Zone 1 is typically surrounded primarily by Zone 2 but occasionally will directly abut Zone 3. This allows guests to experience a gradual transition between the built environment (Zone 1) and more-natural areas that still contain activities and facilities blending with the area's natural setting (Zone 2). Activities in Zone 1 offer opportunities in a developed setting, with goals of enhancing guests' understanding of the natural environment as they prepare to venture into less-developed areas.

Compatible Activities and Facilities

Services and activities within Zone 1 may include food and beverage operations, lodges, special event venues, shelter and emergency services, restroom facilities, landscaped areas, and other activities and events. Zone 1 often serves as the mountain's gateway, from which guests access surrounding activities and refuel between activities. A wide range of guest services facilities and recreational, interpretive, and educational offerings are appropriate for Zone 1.

b) Zone 2

Setting

The setting of Zone 2 is less disturbed when compared with Zone 1 and provides more naturalness due to less disturbance from the surrounding ski area. Within the context of Sunlight's overall SUP area, the following summarizes the setting in Zone 2:

- Road access and roads are present;
- Human activity (people recreating) occurs within and proximate to this setting – there is little feeling of remoteness;
- Terrain modifications (ground disturbance and vegetation removal) are evident in the area, but past disturbance blends with the landscape; and
- Infrastructure, including lifts and buildings, are present.

Two areas at Sunlight are designated as Zone 2 (A2 and A5). Much of the disc golf course and the area at the top of Primo is situated in Zone 2. Summer guests would access this area from Zone 1 or adjacent private land. Guests accessing the area at the top of Primo would access the area by riding a chairlift from Zone 1.

Desired Experiences

Most summer guests entering Zone 2 areas at a resort will do so from a Zone 1 area. In moving between these zones, guests transition from the built environment to a setting characterized by both developed and passive activities proximate to existing infrastructure and facilities, but still offering a more-natural feel. For many guests at a resort, this may be their first real experience in the mountains, and providing a comfortable environment for exploration is critical to the success of Zone 2 and the overall summer experience at a resort. Zone 2 provides the initial opportunity for guests to learn about and engage in their natural surroundings through hands-on recreational, interpretive, and educational offerings. In addition to hosting these types of activities, Zone 2 should serve as a buffer between higher levels of development within Zone 1 and the more natural settings of Zones 3 and 4.

Compatible Activities and Facilities

Passive activities within Zone 2 include educational/interpretive opportunities, sightseeing and light hiking. Zone 2 will provide enhanced sightseeing opportunities when compared to Zone 1 as these areas are typically elevated and further within the mountain landscape. Activity offerings could include access to zip lines and canopy tours, via ferrata, mountain coasters, guided hikes and interpretative opportunities, extended hiking trails, mountain biking trails, challenge/aerial adventure courses, glamping, trail or other events, and other natural resource and gravity-based activities.

As mentioned above, Zone 2 serves two primary purposes—to provide activities in a natural setting in proximity to existing infrastructure and services, and to provide a buffer between Zones 3 and 4 and more developed areas within Zone 1. Thus, areas within Zone 2 serve as transitional zones, encouraging guest exploration into more natural portions of the resort in a setting that still feels comfortable for less-experienced outdoor recreationists. The setting of Zone 2 and the activities that occur within will offer sufficient challenge for first-time guests and will prepare others to venture into the less developed areas of Zones 3 and 4.

c) Zone 3

Setting

The setting of Zone 3 contains areas of disturbance from ski trail and lift development, but guests can still find a greater degree of remoteness and naturalness depending on their location within the zone. In general, Zone 3 includes areas where existing lifts are present; however, this was not the determining factor for the designation. Within the context of Sunlight's overall SUP area, the following summarizes the setting in Zone 3:

- Road access and roads are present, but limited to certain areas;
- Human activity (people recreating) can be seen at a distance or is out of sight from within this setting—a stronger feeling of remoteness is present;
- The area is moderately disturbed by ski area activity, including vegetation removal from ski trail development and some ground disturbance; and
- Lift and Utility infrastructure are present, but there are few buildings within the zone.

There are two areas at Sunlight designated as Zone 3 (A3 and A6). This constitutes the majority of the main side of the resort and the parking area at the bottom of Williams Peak. Guests would access this zone through riding Primo and descending down the mountain or on foot from Zone 2.

Desired Experiences

Most guests access Zone 3 from a resort's existing trails network. Once in Zone 3, guests will have a variety of opportunities to engage in their surroundings in a more natural and remote environment.

The desired experience in Zone 3 is to offer a diverse set of experiences for guests, which will promote the WRNF as recreationally, biologically, and geographically diverse landscapes. Guests may enjoy interpretive signage that will provide education on their biological, cultural, and historical surroundings. Enhanced opportunities to experience some of the best views in the Rocky Mountains should be provided. Trail activities—including both hiking, running, and mountain biking—and other recreational activities should be provided in forested settings. This will provide opportunities to learn about the importance of forest health and stewardship.

Compatible Activities and Facilities

Activities compatible with Zone 3 usage include cross-country and downhill flow mountain biking trails, scenic lift rides, hiking trails, multiple-use trails, canopy tours, challenge/aerial adventure course, via ferrata, trail or other events, and other similar natural resource-based activities. Select activities such as interpretive tours and canopy tours may occur on a year-round basis. Activities within Zone 3 will not require substantial modifications to natural topography to facilitate construction. Existing ski area development (ski trails and lifts) exist to varying degrees within Zone 3, and potential seasonal and year-round facilities and activities will be consistent with the level of existing development for the ski area operation.

d) Zone 4

Setting

The setting of Zone 4 is more remote and provides a great degree of naturalness. Ski area development is limited and, where ski trails are present, larger tree islands and natural terrain prevail. Within the context of Sunlight's SUP area, the following summarizes the setting in Zone 4:

- Little to no road access occurs;
- Human activity (people recreating and/or resort operations) is distant or out of sight;
- The area is completely natural or has limited disturbance; and
- Infrastructure, including a lift and small buildings, are present.

One area at Sunlight is designated as Zone 4 (A4). This zone encompasses the Babbish Gulch area and Williams Peak area that are used for hiking or mountain biking in the summer. The only facility in this area is the primitive cabin in Babbish Gulch. Summer Guests can access from the parking area at Williams Peak or walking from the base area.

Desired Experiences

In Zone 4, guests will connect with the more natural setting in a relatively undisturbed environment. Dispersed hiking and biking opportunities will allow guests to experience and interpret areas of WRNF

where natural processes are more evident, allowing for educational opportunities that are not available in more developed zones. The setting in Zone 4 will directly affect the guest experience, and maintain a more remote setting with opportunities for Sunlight will meet the guests' expectations.

Compatible Activities and Facilities

Activities will promote the surroundings and inform guests of similar environments throughout the WRNF. Activities include slower-moving actions to match the setting and character, which provide even greater opportunities for environmental education and exposure to unique environments. These activities include hiking trails with signage and interpretation and mountain biking trails.

Activities within Zone 4 will require minimal site modification to maintain the current level of naturalness. In this zone, the low density of guests is expected to maintain the feeling of remoteness.

e) Zone 5

Setting

The setting in Zone 5 is undisturbed by ski area activities. Zone 5 includes high alpine environments and large, intact vegetation habitats. Very few people recreate in these areas of the SUP boundary. No ski area roads or infrastructure are present in Zone 5. Within the context of the overall SUP area, the following summarizes the setting in Zone 5:

- No ski area roads are present;
- Human activity (people recreating and/or resort operations) is predominately out of sight, so guests and recreators feel completely remote;
- Area is undisturbed by ski area activity; and
- Ski area infrastructure is only visible at a distance.

No areas at Sunlight fall into Zone 5.

Desired Experiences

Zone 5 represents the most remote sectors within the SUP and is only accessible by dispersed hiking. The desired experience is remote and more natural. Guests within this zone would not expect to encounter many other guests.

Compatible Activities and Facilities

The areas with the Zone 5 designation would be left as-is with no developed seasonal or year-round activities or facilities. Dispersed hiking by the public occurs and will continue to occur within these areas.

Table 17. Summer Zones—Upgrade Plan

Area Boundaries	Score	Appropriate Zone
Area A1		
Access	1	Zone 1
Remoteness	1	
Naturalness	1	
Infrastructure	1	
Total Score	4	
Area A2		
Access	2	Zone 2
Remoteness	1	
Naturalness	1	
Infrastructure	1	
Total Score	5	
Area A3		
Access	2	Zone 3
Remoteness	2	
Naturalness	2	
Infrastructure	2	
Total Score	8	
Area A4		
Access	2	Zone 4
Remoteness	2	
Naturalness	3	
Infrastructure	3	
Total Score	10	
Area A5		
Access	2	Zone 2
Remoteness	1	
Naturalness	1	
Infrastructure	1	
Total Score	5	

Area Boundaries	Score	Appropriate Zone
Area A6		
Access	2	Zone 3
Remoteness	2	
Naturalness	2	
Infrastructure	1	
Total Score	7	

APPENDIX A.
ADDITIONAL TABLES

Table A-1. Terrain Specifications—Existing Conditions

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
1-00 Grizzly Track Upper	9,871	9,679	193	2,496	13	0.8	8%	16%	Low Intermediate
1-01 Grizzly	9,870	9,191	679	4,660	114	12.2	15%	33%	Low Intermediate
1-02 The Parks	9,646	9,413	233	1,838	125	5.3	13%	20%	Low Intermediate
1-03 Grizzly Road Upper	9,359	9,024	335	3,225	38	2.8	10%	19%	Low Intermediate
1-03b Grizzly Road Lower	9,004	8,786	218	1,406	65	2.1	16%	27%	Low Intermediate
1-04 Little Max	9,792	9,530	262	836	115	2.2	33%	43%	Intermediate
1-05 Tom Js Glades	9,693	9,447	246	743	397	6.8	35%	52%	Advanced
1-06 Zephyr Glades	9,662	9,005	657	1,693	556	21.6	42%	58%	Expert
1-07 Zephyr	9,555	8,903	652	1,903	103	4.5	37%	52%	Advanced
1-08 Rebel	9,500	8,831	668	2,364	114	6.2	30%	46%	Advanced
1-09 Beaujolais	9,469	8,473	996	4,286	68	6.7	24%	45%	Intermediate
1-10 Upper Defiance	9,414	9,127	287	1,098	70	1.8	27%	41%	Intermediate
1-11 Mid Defiance	9,132	8,391	741	1,920	116	5.1	43%	58%	Expert
1-13 Gibson Glades	9,470	9,166	304	1,798	255	10.5	17%	37%	Intermediate
1-14 The Alamo	9,010	8,376	634	1,466	84	2.8	48%	68%	Expert
1-15 Inspiration	9,100	8,369	731	1,844	93	4.0	44%	62%	Expert

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
1-16 Deception	9,177	8,447	730	1,960	372	16.7	41%	76%	Expert
1-17 Midland Traverse	8,437	8,228	209	3,111	23	1.7	7%	18%	Expert
1-18 Sundown	8,528	8,271	257	1,088	109	2.7	25%	38%	Intermediate
1-19 Sundown Glades	8,563	8,320	243	685	480	7.6	38%	51%	Advanced
1-20 Sun King	9,688	8,616	1,072	3,660	295	24.8	31%	49%	Intermediate
1-21 Blue Catwalk	9,766	9,299	467	2,418	85	4.7	20%	35%	Low Intermediate
1-22 Sundance	9,773	9,496	278	1,428	60	2.0	20%	34%	Low Intermediate
1-23 Ute	9,788	8,164	1,624	10,728	142	34.9	15%	34%	Low Intermediate
1-24 Finger	9,575	9,424	151	376	56	0.5	44%	48%	Advanced
1-25 Joslin	9,522	8,509	1,013	3,282	177	13.4	33%	44%	Intermediate
1-26 Joslin Glades	9,470	9,094	376	1,090	418	10.5	37%	44%	Advanced
1-27 Ferret's Hollow	9,553	9,194	358	1,651	103	3.9	22%	32%	Intermediate
1-28 Blue Tango	9,079	8,728	351	881	403	8.2	44%	52%	Advanced
1-29 Perry's Plunge	9,198	8,429	769	2,162	213	10.5	39%	66%	Expert
1-30 Cedar Glades	8,433	7,925	508	1,721	47	1.9	31%	45%	Expert
1-31 Alligator Alleys A1	8,957	8,454	503	1,083	80	2.0	53%	70%	Expert
1-32 Alligator Alleys A2	8,897	8,447	450	987	113	2.6	51%	67%	Expert
1-33 Alligator Alleys A3	8,834	8,419	415	976	144	3.2	47%	59%	Expert
1-34 Lower Deception	8,385	7,930	455	1,261	68	2.0	39%	59%	Expert
1-36 Lower Defiance	8,375	7,923	453	1,643	95	3.6	29%	49%	Advanced
1-37 Vortex	8,339	8,107	232	910	37	0.8	27%	46%	Advanced
1-38 Gnarly Knob	9,075	8,587	488	1,458	38	1.3	36%	49%	Advanced
1-39 Que Pasa	8,838	8,403	435	930	68	1.5	53%	60%	Expert

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
1-40 Rapid Transit	8,923	8,690	233	397	235	2.1	73%	83%	Expert
1-41 The Heathen	8,836	8,576	260	501	189	2.2	61%	79%	Expert
1-42 Teeds Run	8,750	8,488	262	526	141	1.7	59%	82%	Expert
1-43 Banzai	8,689	8,432	257	514	123	1.5	59%	79%	Expert
1-44 Tod's Ride	8,641	8,412	229	520	161	1.9	51%	76%	Expert
1-45 Devil's Dare	8,597	8,349	249	566	201	2.6	50%	69%	Expert
2-01 Peace Pipe	9,299	8,756	542	1,607	103	3.8	36%	50%	Advanced
2-02 Cassanova Glades	9,130	8,590	540	1,537	257	9.1	38%	54%	Advanced
2-03 Cornice	9,293	8,576	717	4,029	85	7.9	18%	35%	Intermediate
2-04 Columbine	9,239	8,479	760	4,479	78	8.1	17%	42%	Intermediate
2-05 Segundo Road	9,299	9,171	128	1,333	30	0.9	10%	19%	Novice
2-06 Dawson	9,036	8,549	487	1,450	108	3.6	36%	49%	Advanced
2-07 Crystal	8,992	8,447	544	1,762	116	4.7	33%	50%	Advanced
2-08 Charlie's Glades	8,967	8,600	366	1,632	303	11.4	23%	36%	Intermediate
2-09 White River	8,945	8,344	601	2,384	108	5.9	26%	44%	Intermediate
2-10 Upper Sunburst	9,093	8,834	259	1,582	57	2.1	17%	27%	Intermediate
2-11 Lower Sunburst	8,707	8,422	286	876	101	2.0	35%	45%	Intermediate
2-12 Ute Cutoff	9,146	8,993	153	630	79	1.1	25%	30%	Intermediate
2-13 Showdown	8,708	8,218	489	1,255	168	4.8	43%	56%	Expert
2-14 Holiday Hill	8,599	8,169	429	1,089	139	3.5	43%	58%	Expert
2-15 Frying Pan Alley	8,650	8,234	417	1,068	65	1.6	43%	62%	Expert
2-16 E. Wishbone Alley	8,634	8,252	382	1,054	32	0.8	39%	56%	Expert
2-17 Sherman Forest	8,546	8,269	278	666	140	2.1	47%	69%	Expert

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
2-18 W. Wishbone Alley	8,576	8,299	277	689	45	0.7	45%	69%	Expert
2-19 Buckmaster	8,547	8,472	75	489	44	0.5	16%	23%	Intermediate
2-20 Ivy's Run	8,847	8,606	241	1,060	87	2.1	23%	28%	Low Intermediate
2-21 Fliprock	8,937	8,661	276	1,206	76	2.1	24%	31%	Low Intermediate
3-01 Loop	8,652	8,365	287	1,795	219	9.0	16%	23%	Novice
3-02 Enchanted Forest	8,544	8,461	83	828	17	0.3	10%	13%	Novice
3-03 Midway	8,616	8,140	476	2,774	265	16.9	17%	22%	Novice
3-04 Dotsero	8,422	8,259	163	942	91	2.0	18%	35%	Intermediate
3-05 Ski School Corral	8,170	8,168	2	33	133	0.1	6%	6%	Beginner
3-05 Ski School Corral	8,145	8,139	6	73	60	0.1	8%	8%	Beginner
LL Lower Primo	9,568	8,989	579	1,596	120	4.4	39%	55%	Advanced
LL Lower Segundo	8,686	8,254	432	1,880	57	2.4	24%	43%	Intermediate
LL Middle Segundo	8,805	8,705	100	318	59	0.4	33%	43%	Intermediate
LL Tercero	8,571	8,442	130	644	57	0.8	21%	26%	Low Intermediate
LL Upper Primo	9,879	9,612	267	975	115	2.6	29%	48%	Advanced
LL Upper Segundo	9,300	8,849	451	1,364	51	1.6	35%	47%	Advanced
Total				**127,185**		**387.3**			

Table A-2. Space Use Recommendations—Base Area—Existing Conditions

Service Function	Existing	Recommended Range	
		Low	High
Ticket Sales/Guest Services	399	390	480
Public Lockers	320	1,180	1,440
Rentals/Repair	1,900	2,800	3,150
Retail Sales	683	830	1,010
Bar/lounge	816	1,240	1,520
Adult Ski School	--	630	770
Kid's Ski School	1,281	1,260	1,540
Restaurant Seating	3,400	5,470	6,680
Kitchen/Scramble	1,380	2,340	2,860
Rest rooms	641	1,170	1,430
Ski Patrol	550	620	760
Administration	640	830	1,010
Employee Lockers/Lounge	548	330	400
Storage	974	860	1,270
Circulation/Waste	1,728	2,580	3,800
TOTAL SQUARE FEET	15,260	22,530	28,120

Source: SE Group

Table A-3. Space Use Recommendations—On-Mountain—Existing Conditions

Service Function	Existing	Recommended Range	
		Low	High
Ticket Sales/Guest Services	-	-	-
Public Lockers	-	-	-
Rentals/Repair	-	-	-
Retail Sales	-	-	-
Bar/lounge	-	-	-
Adult Ski School	-	-	-
Kid's Ski School	-	-	-
Restaurant Seating	396	320	390
Kitchen/Scramble	-	140	170
Rest rooms	-	70	80
Ski Patrol	750	40	40
Administration	-	-	-
Employee Lockers/Lounge	-	-	-
Storage	-	30	40
Circulation/Waste	-	80	110
TOTAL SQUARE FEET	1,146	680	830

Source: SE Group

Table A-4. Terrain Specifications—Upgrade Plan

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
1-00 Grizzly Track Upper	9,871	9,679	193	2,496	13	0.8	8%	16%	Low Intermediate
1-01 Grizzly	9,870	9,191	679	4,660	114	12.2	15%	33%	Low Intermediate
1-02 The Parks	9,646	9,413	233	1,838	125	5.3	13%	20%	Low Intermediate
1-03 Grizzly Road Upper	9,359	9,024	335	3,225	38	2.8	10%	19%	Low Intermediate
1-03b Grizzly Road Lower	9,004	8,786	218	1,406	65	2.1	16%	27%	Low Intermediate
1-04 Little Max	9,792	9,530	262	836	115	2.2	33%	43%	Intermediate
1-05 Tom Js Glades	9,693	9,447	246	743	397	6.8	35%	52%	Advanced
1-06 Zephyr Glades	9,662	9,005	657	1,693	556	21.6	42%	58%	Expert
1-07 Zephyr	9,555	8,903	652	1,903	103	4.5	37%	52%	Advanced
1-08 Rebel	9,500	8,831	668	2,364	114	6.2	30%	46%	Advanced
1-09 Beaujolais	9,469	8,473	996	4,286	68	6.7	24%	45%	Intermediate
1-10 Upper Defiance	9,414	9,127	287	1,098	70	1.8	27%	41%	Intermediate
1-11 Mid Defiance	9,132	8,391	741	1,920	116	5.1	43%	58%	Expert
1-13 Gibson Glades	9,470	9,166	304	1,798	255	10.5	17%	37%	Intermediate
1-14 The Alamo	9,010	8,376	634	1,466	84	2.8	48%	68%	Expert
1-15 Inspiration	9,100	8,369	731	1,844	93	4.0	44%	62%	Expert
1-16 Deception	9,177	8,447	730	1,960	372	16.7	41%	76%	Expert
1-17 Midland Traverse	8,437	8,228	209	3,111	23	1.7	7%	18%	Expert
1-18 Sundown	8,528	8,271	257	1,088	109	2.7	25%	38%	Intermediate
1-19 Sundown Glades	8,563	8,320	243	685	480	7.6	38%	51%	Advanced
1-20 Sun King	9,688	8,616	1,072	3,660	295	24.8	31%	49%	Intermediate
1-21 Blue Catwalk	9,766	9,299	467	2,418	85	4.7	20%	35%	Low Intermediate

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
1-22 Sundance	9,773	9,496	278	1,428	60	2.0	20%	34%	Low Intermediate
1-23 Ute	9,788	8,164	1,624	10,728	142	34.9	15%	34%	Low Intermediate
1-24 Finger	9,575	9,424	151	376	56	0.5	44%	48%	Advanced
1-25 Joslin	9,522	8,509	1,013	3,282	177	13.4	33%	44%	Intermediate
1-26 Joslin Glades	9,470	9,094	376	1,090	418	10.5	37%	44%	Advanced
1-27 Ferret's Hollow	9,553	9,194	358	1,651	103	3.9	22%	32%	Intermediate
1-28 Blue Tango	9,079	8,728	351	881	403	8.2	44%	52%	Advanced
1-29 Perry's Plunge	9,198	8,429	769	2,162	213	10.5	39%	66%	Expert
1-30 Cedar Glades	8,433	7,925	508	1,721	47	1.9	31%	45%	Expert
1-31 Alligator Alleys A1	8,957	8,454	503	1,083	80	2.0	53%	70%	Expert
1-32 Alligator Alleys A2	8,897	8,447	450	987	113	2.6	51%	67%	Expert
1-33 Alligator Alleys A3	8,834	8,419	415	976	144	3.2	47%	59%	Expert
1-34 Lower Deception	8,385	7,930	455	1,261	68	2.0	39%	59%	Expert
1-36 Lower Defiance	8,375	7,923	453	1,643	95	3.6	29%	49%	Advanced
1-37 Vortex	8,339	8,107	232	910	37	0.8	27%	46%	Advanced
1-38 Gnaryly Knob	9,075	8,587	488	1,458	38	1.3	36%	49%	Advanced
1-39 Que Pasa	8,838	8,403	435	930	68	1.5	53%	60%	Expert
1-40 Rapid Transit	8,923	8,690	233	397	235	2.1	73%	83%	Expert
1-41 The Heathen	8,836	8,576	260	501	189	2.2	61%	79%	Expert
1-42 Teeds Run	8,750	8,488	262	526	141	1.7	59%	82%	Expert
1-43 Banzai	8,689	8,432	257	514	123	1.5	59%	79%	Expert
1-44 Tod's Ride	8,641	8,412	229	520	161	1.9	51%	76%	Expert
1-45 Devil's Dare	8,597	8,349	249	566	201	2.6	50%	69%	Expert

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
2-01 Peace Pipe	9,299	8,756	542	1,607	103	3.8	36%	50%	Advanced
2-02 Cassanova Glades	9,130	8,590	540	1,537	257	9.1	38%	54%	Advanced
2-03 Cornice	9,293	8,576	717	4,029	85	7.9	18%	35%	Intermediate
2-04 Columbine	9,239	8,479	760	4,479	78	8.1	17%	42%	Intermediate
2-05 Segundo Road	9,299	9,171	128	1,333	30	0.9	10%	19%	Novice
2-06 Dawson	9,036	8,549	487	1,450	108	3.6	36%	49%	Advanced
2-07 Crystal	8,992	8,447	544	1,762	116	4.7	33%	50%	Advanced
2-08 Charlie's Glades	8,967	8,600	366	1,632	303	11.4	23%	36%	Intermediate
2-09 White River	8,945	8,344	601	2,384	108	5.9	26%	44%	Intermediate
2-10 Upper Sunburst	9,093	8,834	259	1,582	57	2.1	17%	27%	Intermediate
2-11 Lower Sunburst	8,707	8,422	286	876	101	2.0	35%	45%	Intermediate
2-12 Ute Cutoff	9,146	8,993	153	630	79	1.1	25%	30%	Intermediate
2-13 Showdown	8,708	8,218	489	1,255	168	4.8	43%	56%	Expert
2-14 Holiday Hill	8,599	8,169	429	1,089	139	3.5	43%	58%	Expert
2-15 Frying Pan Alley	8,650	8,234	417	1,068	65	1.6	43%	62%	Expert
2-16 E. Wishbone Alley	8,634	8,252	382	1,054	32	0.8	39%	56%	Expert
2-17 Sherman Forest	8,546	8,269	278	666	140	2.1	47%	69%	Expert
2-18 W. Wishbone Alley	8,576	8,299	277	689	45	0.7	45%	69%	Expert
2-19 Buckmaster	8,547	8,472	75	489	44	0.5	16%	23%	Intermediate
2-20 Ivy's Run	8,847	8,606	241	1,060	87	2.1	23%	28%	Low Intermediate
2-21 Fliprock	8,937	8,661	276	1,206	76	2.1	24%	31%	Low Intermediate
3-01 Loop	8,652	8,365	287	1,795	219	9.0	16%	23%	Novice
3-02 Enchanted Forest	8,544	8,461	83	828	17	0.3	10%	13%	Novice

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
3-03 Midway	8,616	8,140	476	2,774	265	16.9	17%	22%	Novice
3-04 Dotsero	8,422	8,259	163	942	91	2.0	18%	35%	Intermediate
3-05 Ski School Corral	8,154	8,138	16	131	50	0.2	6%	6%	Beginner
3-05 Ski School Corral	8,142	8,134	8	90	65	0.1	8%	8%	Beginner
LL Lower Primo	9,568	8,989	579	1,596	120	4.4	39%	55%	Advanced
LL Lower Segundo	8,686	8,254	432	1,880	57	2.4	24%	43%	Intermediate
LL Middle Segundo	8,805	8,705	100	318	59	0.4	33%	43%	Intermediate
LL Tercero	8,571	8,442	130	644	57	0.8	21%	26%	Low Intermediate
LL Upper Primo	9,879	9,612	267	975	115	2.6	29%	48%	Advanced
LL Upper Segundo	9,300	8,849	451	1,364	51	1.6	35%	47%	Advanced
ER_01 Lower	8,134	7,939	195	893	3	0.1	22%	29%	Low Intermediate
ER_01 Middle	8,341	8,153	188	479	48	0.5	43%	53%	Advanced
ER_01 Upper	8,561	8,356	205	462	156	1.6	50%	67%	Expert
ER_02 Lower	8,260	8,156	104	1,020	142	3.3	10%	13%	Low Intermediate
ER_02 Upper	8,281	8,265	15	150	796	2.7	10%	13%	Low Intermediate
ER_T Lower	7,968	7,939	29	280	496	3.2	11%	12%	Expert
ER_T Upper	7,994	7,971	23	228	177	0.9	10%	11%	Expert
P_01	9,475	9,447	27	238	174	1.0	12%	12%	Novice
P_02	9,473	9,391	83	458	505	5.3	18%	22%	Novice
P_02L	9,345	9,313	32	200	134	0.6	16%	17%	Novice
P_03	9,277	8,933	344	2,076	38	1.8	17%	28%	Low Intermediate
P_04	9,327	9,268	59	445	71	0.7	14%	20%	Novice
P_04L	9,256	8,978	278	1,325	37	1.1	22%	30%	Low Intermediate

Trail/Area Name	Top Elevation (ft.)	Bottom Elevation (ft.)	Vertical Drop (ft.)	Slope Length (ft.)	Avg. Width (ft.)	Slope Area (acres)	Avg. Grade (%)	Max. Grade (%)	Skier/Rider Ability Level
P_05	9,225	8,956	269	1,322	13	0.4	21%	34%	Low Intermediate
P_06	9,103	8,942	160	642	28	0.4	26%	35%	Intermediate
P_07 Lower	9,237	8,930	307	1,638	55	2.1	19%	35%	Intermediate
P_07 Mid	9,311	9,251	60	343	113	0.9	18%	26%	Low Intermediate
P_07 Upper	9,428	9,338	90	438	87	0.9	21%	23%	Novice
Teaching Flats	8,138	8,134	4	84	44	0.1	5%	7%	Beginner
Total				140,020		415.1			

Table A-5. Space Use Recommendations—Base Area—Upgrade Plan

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	630	770
Public Lockers	1,900	2,320
Rentals/Repair	4,500	5,060
Retail Sales	1,330	1,620
Bar/lounge	1,990	2,430
Adult Ski School	1,010	1,240
Kid's Ski School	2,020	2,470
Restaurant Seating	6,870	8,400
Kitchen/Scramble	2,950	3,600
Rest rooms	1,470	1,800
Ski Patrol	790	960
Administration	1,330	1,620
Employee Lockers/Lounge	530	650
Storage	1,230	1,810
Circulation/Waste	3,690	5,440
TOTAL SQUARE FEET	32,240	40,190

Source: SE Group

Table A-6. Space Use Recommendations—On-Mountain—Upgrade Plan

Service Function	Recommended Range	
	Low	High
Ticket Sales/Guest Services	-	-
Public Lockers	-	-
Rentals/Repair	-	-
Retail Sales	-	-
Bar/lounge	-	-
Adult Ski School	-	-
Kid's Ski School	-	-
Restaurant Seating	2,420	2,960
Kitchen/Scramble	1,040	1,270
Rest rooms	520	630
Ski Patrol	280	340
Administration	-	-
Employee Lockers/Lounge	-	-
Storage	190	290
Circulation/Waste	580	860
TOTAL SQUARE FEET	5,030	6,350

Source: SE Group

APPENDIX B. DESIGN CRITERIA AND FOREST SERVICE DIRECTION

Establishing design criteria is an important concept in resort master planning. This chapter provides an overview of the basic design criteria upon which Chapter 2 (Existing Ski Area Facilities) and Chapter 4 (Upgrade Plan) are based. With the exception of Forest Service Policy and Direction, information presented in Appendix B is general in nature and related to the concept of resort master planning, rather than to Sunlight specifically.

A. DESTINATION RESORTS

1. DAY SKI/REGIONAL DESTINATION RESORTS

Regional destination resorts largely cater to a "drive" market. While day-use guests play a large role, the regional destination resort also appeals to vacationers. At regional destinations resorts, lodging typically is a component of operations, but due to the average length of stay and guests' vacation budgets, lodging and related services and amenities are usually less extensive than what might be expected at a larger national and/or international destination resort. As most regional destination resorts have evolved within or adjacent to an existing local community, resort services are often supplied by proprietors within that local community. Such is the case at Sunlight and its relationship to the nearby towns of Glenwood Springs, Carbondale, and Rifle. The services offered at Sunlight cater directly to guests of the resort, while proprietors within these nearby towns supply services to vacationers, as well as permanent residents and second home owners.

B. BASE AREA DESIGN

The relationship between planning at a resort's base area and its on-mountain lift and terrain network is critical. This relationship affects the overall function and perception of a resort.

Design of the base lands at a mountain resort involves establishing appropriate sizes and locations for the various elements that make up the development program. The complexion and interrelationship of these elements varies considerably depending on the type of resort and its intended character. In every case, however, fundamental objectives of base area planning remain the same. A resort should seek to integrate the mountain with the base area (or base areas) to establish attractive, cohesive, and functional recreational and social experience. This is essential to creating the feeling of a mountain community and can only be achieved by addressing base area components such as (but not limited to): guest service locations, skier/rider circulation, pedestrians, parking/access requirements, and mass-transit drop-offs.

Planners rely on resort layout as one tool to establish resort character. The manner in which resort elements are inter-organized, both inside the resort core and within the landscape setting, along with architectural style, help to create the desired character.

Skier service facilities are located at base area and on-mountain buildings. Base area staging locations, or portals, are "gateway" facilities that have three main functions:

- Receiving arriving guests (from a parked car, a bus, or from adjacent accommodations);
- Distributing the skiers onto the mountain's lift and trail systems; and
- Providing the necessary guest services (e.g., tickets and rentals).

C. MOUNTAIN DESIGN

1. TRAIL DESIGN

a) Slope Gradients and Terrain Breakdown

Terrain ability level designations are based on slope gradients and terrain features associated with the varying ability terrain unique to each mountain. Ability level designations for this analysis are based on the maximum sustained gradient calculated for each trail. Short sections of a trail can be more or less steep without affecting the overall run designation. For example, novice skiers are typically not intimidated by short, steeper pitches of slope, but a sustained steeper pitch may cause the trail to be classified with a higher difficulty rating. The following general gradients are used by SE Group to classify the skier difficulty level of the mountain terrain.

Table B-1. Terrain Gradient by Ability Level

Skier Ability	Slope Gradient
Beginner	8 to 12%
Novice	to 25%
Low Intermediate	to 35%
Intermediate	to 45%
Advanced Intermediate	to 55%
Expert	over 55%

Source: SE Group Mountain Planning Guidelines

The distribution of terrain by skier ability level and slope gradient is compared with the market demand for each ability level. It is desirable for the available ski terrain to be capable of accommodating the full range of ability levels reasonably consistent with market demand. The market breakdown for the Central Rocky Mountain skier market is shown in Table B-2, illustrating that intermediate skiers comprise the bulk of market demand.

Table B-2 Ability Level by Market Share

Skier Ability	Market Share
Beginner	5%
Novice	15%

Low Intermediate	25%
Intermediate	35%
Advanced Intermediate	15%
Expert	5%

Source: SE Group Mountain Planning Guidelines

b) Trail Density

The calculation of capacity for a ski area is based in part on the target number of skiers that can be accommodated, on average, on a theoretical acre of ski terrain at any one given time. The criteria for the range of trail densities for North American ski areas that SE Group utilizes are listed below in Table B-3.

Table B-3. Trail Density by Skier Ability Level

Skier Ability	Trail Density
Beginner	25–40 skiers/acre
Novice	12–30 skiers/acre
Low Intermediate	8–25 skiers/acre
Intermediate	6–20 skiers/acre
Advanced Intermediate	4–15 skiers/acre
Expert	2–10 skiers/acre
Alpine Bowls	0.5 skiers/acre

Source: SE Group Mountain Planning Guidelines

These density figures account for the skiers that are actually populating the trails and do not account for other guests who are either waiting in lift lines, riding the lifts, or using the milling areas or other support facilities. Empirical observations and calculations indicate that, on an average day, approximately 40% of the total number of skiers/riders at a typical resort is on the trails at any given time. Additionally, areas on the mountain, such as merge zones, convergence areas, lift milling areas, major circulation routes, and egress routes, experience higher densities periodically during the day.

SE Group has seen a recent trend in trail density design criteria that provides for less crowded skiing experiences. As witnessed at many Colorado resorts, there is a segment of the market that has a preference for more natural, unstructured, semi-backcountry types of terrain. Open bowls, glades, and other similar types of terrain are increasing in demand. Skier density per acre numbers are not necessarily applicable to these types of terrain, particularly as there often is not a defined edge to these areas like on a traditional ski run. However, skiers are attracted to these areas for the un-crowded feel, and the experience and challenge that it affords. These areas should be provided if possible. Examples of this can be in the form of glading between existing runs, lift serving terrain that has a remote and distant feel, opening additional hike-to/hike-back terrain, and even providing guided out-of-bounds tours.

c) Trail System

A primary goal for Sunlight's trail system design is to offer a wide variety of ski terrain. Each trail should provide an interesting and challenging experience for skiers within the ability level for which the trail is designed. Optimum trail widths vary depending upon topographic conditions and the caliber of the skier being served. The trail network should provide the full range of ability levels consistent with their market demand.

In terms of a resort's ability to retain guests at that resort, both for longer durations of visitation and for repeat business, one of the more important factors has proven to be variation in terrain. This means having developed runs of all ability levels—some groomed on a regular basis and some not, bowl skiing, tree skiing, and backcountry style skiing.

In summary, a broad range of skiing terrain satisfies skiers from beginner through expert ability levels within the natural topographic characteristics of the ski area.

2. LIFT DESIGN

The goal for lift design is to serve the available terrain in an efficient manner, i.e., having the minimum number of lifts possible while fully accessing the terrain and providing sufficient uphill capacity to balance with the available downhill terrain capacity. In addition, the lift design has to take into consideration such factors as: wind, round-trip utilization of a the terrain pod, access needs, inter-connectability between other lift pods, the need for circulation space at the lower and upper terminal sites, and the presence of natural resources (e.g., visual impacts, wetlands, and riparian areas). The vertical rise, length and ride time of lifts across a mountain are important measures of overall attractiveness and marketability of any resort.

3. ON-MOUNTAIN GUEST SERVICES

On-mountain guest service facilities are generally used to provide food service (cafeteria-style or table service), restrooms, and limited retail, as well as ski patrol and first aid services, in closer proximity to upper-mountain terrain. This eliminates the need for skiers and riders to descend to the base area for similar amenities. It has also become common for resorts to offer ski/board demo locations on-mountain, so skiers and riders can conveniently test different equipment throughout the day.

D. CAPACITY ANALYSIS AND DESIGN

In ski area planning, a "design capacity" is established, which represents a daily, at-one-time guest population to which all ski resort functions are balanced. The design capacity is a planning parameter that is used to establish the acceptable size of the primary facilities of a ski resort: ski lifts, ski terrain, guest services, restaurant seats, building space, utilities, parking, etc.

Design capacity is commonly expressed as "Comfortable Carrying Capacity (CCC)," "Skier Carrying Capacity," "Skiers at One Time (SAOT)," and other ski industry specific terms. These terms refer to a level of utilization that provides a pleasant recreational experience, without overburdening the resort infrastructure. Accordingly, the design capacity does not normally indicate a maximum level of visitation, but rather the number of visitors that can be "comfortably" accommodated on a daily basis. Design capacity is typically equated to a resort's fifth or tenth busiest day, and peak-day visitation can be as much as 25 to 30% higher than the design capacity.

The accurate estimation of the CCC of a mountain is a complex issue and is the single most important planning criterion for the resort. Related skier service facilities, including base lodge seating, mountain restaurant requirements, restrooms, parking, and other guest services are planned around the proper identification of the mountain's true capacity.

CCC is derived from the resort's supply of vertical transport (the vertical feet served combined with the uphill hourly capacities of the lifts) and demand for vertical transport (the aggregate number of runs desired multiplied by the vertical rise associated with those runs). The CCC is calculated by dividing vertical supply (VTF/day) by vertical demand, and factors in the total amount of time spent in the lift waiting line, on the lift itself, and in the descent.

Note: It is not uncommon for resorts to experience peak days during which visitation exceeds the CCC by as much as 25% to 30%. However, from a planning perspective, it is not recommended to consistently exceed the CCC due to the resulting decrease in the quality of the recreational experience, and thus the resort's market appeal.

E. BALANCE OF FACILITIES

The mountain master planning process emphasizes the importance of balancing recreational facility development. The sizes of the various guest service functions are designed around the CCC of the mountain. The future development of a resort should be designed and coordinated to maintain a balance between accommodating guest needs, resort capacity (lifts, trails, and other amenities such as tubing), and the supporting equipment and facilities (e.g., grooming machines, day lodge services and facilities, utility infrastructure, access, and parking). Note that it is also important to ensure that the resort's CCC balances with these other components, facilities, and services at the resort. Since CCC is primarily derived from the resort's lift network, it is possible to have a CCC that is effectively lower than the other components.

F. MULTI-SEASON RECREATION ACTIVITIES

In light of the increasing challenges of operating a sustainable ski resort in the face of climate change given the seasonal nature of the typical six-month operating season, there has recently been a great deal of interest within the industry in developing multi-season recreation facilities and activities for guests. Summer recreational activities tend to attract a more diverse range of new guests than does skiing. This comprehensive resort planning process assesses the best approach and program for adding multi-season activities and facilities in order to have the greatest potential for success given the unique characteristics that define Sunlight and its markets, and then will create a "road map" for their implementation.

A strategic approach must be taken to identify reasonable and realistic opportunities for multi-season recreational activities. This approach involves a case-by-case examination of several important criteria to determine the multi-season recreation elements that have the greatest potential for success. Criteria such as suitability of available land for recreation facilities and/or activities, operational compatibility with existing or proposed facilities, initial fiscal considerations, and visitation potential are all explored within this MDP. Undertaking such a comprehensive exercise leads to a multi-season recreation program comprised of recreation facilities and/or activities that are suitable for implementation and will align with operational goals and performance expectations.

Providing diverse opportunities to a spectrum of visitors is key to Sunlight' summer activity goals. Non-skiing and multi-season activities are, and will continue to be, important guest offerings at Sunlight because summer recreational activities tend to attract a more diverse range of new guests than do skiing and snowboarding (e.g., more balanced gender demographics, older median age, and more families), which is essential to the continued success of the resort.

As a four-season recreation destination, Sunlight has the opportunity to both provide and promote interactive, educational, natural resource-based recreation activities for all ages and demographics. Increasingly, there is potential to reach a wide range of ages and demographics, including those not currently being reached, through multi-season recreation activities. Activities such as mountain biking and hiking can appeal to the more fit and skilled user, while activities such as canopy tours and zip lines can appeal to less adventurous guests and persons with disabilities. Sunlight desires to facilitate exciting, challenging and appropriate use of NFS lands, and in the process, to introduce new user groups to the range of recreational opportunities that exist within their National Forests.

At a site-specific level, this MDP takes the existing setting, combined with the anticipated use of the area, to establish finer-grain prescriptions. The summer activity zones identified in this MDP are based on the existing setting and level of development.

Through the planning process, five distinct zones have been identified within the Sunlight SUP area. These zones consider several characteristics similar to the Recreation Opportunity Spectrum (ROS) setting, including:

- *Access* – the number and function of roads within the area
- *Remoteness* – how far removed an individual feels from human activity
- *Naturalness* – the extent and intensity of development and disturbance within the area
- *Infrastructure* – the amount of and proximity to the built environment

Each of these characteristics is to be considered within the context of Sunlight as a developed ski area. Existing summer recreation and maintenance occurs throughout developed portions of the ski area; therefore, no area within the developed ski area is off limits to administrative access and maintenance.

The Sunlight SUP area is characterized by diverse settings, from developed and modified areas to remote and more primitive areas. The settings that exist within the SUP mirror what a guest could see and experience in different locations across the WRNF, ranging from high alpine environments, to riparian and wetland ecosystems, to forested settings in remote locations.

To harmonize with the five distinct zones and their characteristics, planned activities within this MDP have been designed to correspond with the characteristics of the Scenery Management System (SMS) Scenic Integrity Objective (SIO) and the ROS setting of the SUP area, which is discussed in the following section. Throughout implementation of the projects discussed in this MDP, Sunlight will work with the Forest Service to meet or exceed this direction as practicable.

G. INVENTORY OF PHYSICAL RESOURCES

1. TOPOGRAPHY

Sunlight's developed terrain is concentrated to one main summit, Compass Peak with an elevation of 9,895 feet. Its base sits at 7,885 feet. Two ridges descend northwest and northeast from the peak, forming a bowl where the majority of Sunlight's runs travel. Guests enjoy views of Mt. Sopris and the Elk Mountains from the top. Babbish Gulch, where most Nordic skiing or snowshoeing occurs, lies directly to the west of Compass Peak down a gentler slope. Williams Peak to the west of Babbish Gulch has a summit of 10,019 feet and is mostly used by backcountry skiers. The topography is favorable at Sunlight because the developed terrain is concentrated on the north side of Compass Peak, aiding in circulation, and the varied slope gradients provide terrain for all skier ability levels.

2. SLOPE GRADIENTS

As discussed in Chapter 2, terrain ability level designations are based on slope gradients and terrain features associated with the varying terrain unique to each mountain. Regardless of the slope gradient for a particular trail, if it feeds into a trail that is rated higher in difficulty, its ability level must be rated accordingly. Conversely, if a trail is fed only by trails of a higher ability level than the maximum slope of the trail would dictate, it also must be rated accordingly.

Slope gradients at Sunlight are depicted in Figure 3

- 0 to 8% (0 to 5 degrees): too flat for skiing and riding, but ideal for base area accommodations and other support facility development
- 8 to 25% (5 to 15 degrees): ideal for Beginners and Novices, and typically can support some types of development
- 25 to 45% (15 to 25 degrees): ideal for Intermediates, and typically too steep for development
- 45 to 70% (25 to 35 degrees): ideal for Advanced and Expert skiers/riders, and pose intermittent avalanche hazards
- >70% (>35 degrees): too steep for all but the highest level of skiing/riding. These areas are typically allocated as Expert-only and are closely managed by the resort operator for avalanche control

As displayed in Figure 3, slope gradients covering all ability levels are present, but the majority of the terrain is characterized by novice- to intermediate-level terrain. The bowl on the north side of Compass Peak contains some steeper terrain towards the summit, then intermediate gradients that converge with gentler novice terrain at the bottom of the bowl. Most of the advanced and expert terrain is found in Alligator Alley to the east of the ridge and immediately west of Segundo near the base. These conditions are favorable for intermediate skiers because they will have the most terrain to choose from, but less favorable for advanced skiers whose preferred terrain is mostly concentrated to one portion of the mountain.

3. ASPECT

Slope aspect plays an important role in snow quality and retention. The variety of exposures at Sunlight presents opportunities to provide a range of slope aspects that allow guests to respond to changes in

sun angle, temperature, wind direction, and shadows. Typical constraints in relation to the various angles of exposure are discussed below:

- *North-facing:* ideal for snow retention, minimal wind scour, minimal sun exposure
- *Northeast-facing:* ideal for snow retention, minimal wind scour, minimal sun exposure
- *East-facing:* good for snow retention, some wind scour, morning sun exposure
- *Southeast-facing:* fair for snow retention, moderate wind scour, morning and early afternoon sun exposure
- *South-facing:* at lower elevations, poor for snow retention, moderate wind scour, full sun exposure
- *Southwest-facing:* poor for snow retention, high wind scour, full sun exposure
- *West-facing:* good for snow retention, high wind scour, late morning and afternoon sun exposure
- *Northwest-facing:* good for snow retention, moderate wind scour, some afternoon sun

Most of the terrain at Sunlight faces north and northeast, with some west and east facing aspects, which provide favorable conditions for snow retention and maintaining snow conditions. East-facing terrain, such as runs served by Segundo, will have sun exposure in the mornings while west-facing terrain off the eastern ridge will have good sun exposure in the afternoons. See Figure 4 for a detailed inventory of solar aspect at Sunlight.

4. SOILS AND GEOLOGY

Soils and geology within and around a ski area are important factors to take into consideration because they influence the erosion potential of the area, the drainage capabilities, the vegetation that grows in the area, and other factors that inform ski area management.

Sunlight is located in the Cattle Creek Geologic Quadrangle in central western Colorado. It is at the central west portion of the 70-mile long Grand Hogback monocline that marks the border between the southern Rocky Mountains and the Colorado Plateau to the west. The surrounding Elk Mountains are composed of Paleozoic sedimentary rocks with some exposed Tertiary intrusives. The mountainous regions of the White River National Forest are characterized by soils that may be susceptible to erosion, especially when they have dry or sandy textures or lack ground cover. Ski area development is known to deteriorate soil quality. It has a similar effect to timber harvesting, except removed trees cannot be replanted to make way for ski runs. Slope grading and construction activities may cause soil displacement or compaction.[3]

[3] USDA – Forest Service, White River National Forest Land and Resource Management Plan Final Environmental Impact Statement, 2002. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5286449.pdf

5. HYDROLOGY

Hydrology influences the availability of water in the ski area as well as the movement of snowmelt and groundwater. This can influence a ski area's ability to make snow as well as how snowmelt travels through and impacts the ski area. Within higher elevation zones, headwater wetland complexes, and streams can create unique challenges to development.

Fourmile Creek goes through the base of Sunlight's SUP area. Fourmile Creek is a perennial stream that flows into the Roaring Fork River that joins with the Colorado River in Glenwood Springs. Fourmile Creek is not a main water source for nearby municipalities, but the Colorado River Watershed as a whole provides water to the arid Southwest. In 2006, the Roaring Fork Conservancy listed Fourmile as an Impacted Stream due to high concentrations of chemicals, lack of macroinvertebrates, and degraded habitat. Ski areas may influence water quality by diverting water for snowmaking, causing soil disturbances, and reducing habitat in riparian areas.[4] The Roaring Fork Valley draws visitors to enjoy fishing, geothermal hot springs, and whitewater rafting.

6. FISH AND WILDLIFE

Fish and wildlife, being federally monitored (in the case of the Endangered Species Act), as well as generally being in the public eye, are important considerations for ski area development. A site-specific NEPA analysis of all Forest Service Sensitive, management indicator, and federally listed, threatened, and endangered species will be conducted prior to implementation of any MDP projects proposed by Sunlight in the future. That analysis will be based on the latest information provided by the Forest Service, U.S. Fish and Wildlife Service, and the State of Colorado.

A diversity of wildlife habitat occurs throughout the Sunlight SUP AREA. Vegetative conditions and topography are variable; however, weather conditions tend to be consistent and predictable. Long winters with an abundance of precipitation, in the form of snowfall, are the key factors that make this area seasonal habitat for many wildlife features. Within the region, several endangered, threatened proposed, and sensitive species are known. Endangered species include the gray wolf, listed endangered in much of the United States. Threatened species include the Canada lynx, the yellow-billed cuckoo, and the Mexican spotted owl. Candidate species include the monarch butterfly. There are no critical habitats within Sunlight's SUP area.

For the greater WNRF, the Forest Service designated Management Indicator Species (MIS), a list of local species that are likely to be affected by forest management decisions. In 2006, the MIS were revised to include American elk, cave bats, American Pipit, Brewer's sparrow, Virginia's warbler, aquatic macroinvertebrates, and all trout.[5]

7. VEGETATION

The vegetative composition of a ski area, beyond influencing the wildlife discussed above, also influences the erosion potential of the land and its ability to retain water. Further, maintaining the integrity of over- and understory vegetation is key to long-term viability of a ski area; vegetation management for developed and undeveloped portions of ski areas can influence snow retention,

[4] Northwest Colorado Council of Governments, Roaring Fork Watershed Management Plan, 2012. https://www.nwccog.org/wp-content/uploads/2015/04/Roaring-Fork-Watershed-2012-208-Plan.pdf
[5] USDA – Forest Service Forest Plan Amendment Management Indicator Species (MIS) DN/FONSI, 2006

wildlife habitat and movement, soils detachment, water quality and visual quality. It is therefore important to analyze and understand the existing vegetation within a ski area boundary.

The WRNF determined that Sunlight resides in the Grand Hogback ecological zone, characterized by pinon-pine juniper forests, sage, Gambel oak and other arid vegetation. However, its vegetation is more characteristic of the adjacent Flat Tops subsection with aspen, fir, and spruce prevalent in the SUP area.[6] Like other ski areas, vegetation removal can have an impact on soil detachment, runoff, and habitat. Development above treeline or along avalanche paths has a gentler influence.

H. APPLICABLE FOREST SERVICE POLICY DIRECTION

1. 2002 REVISED WHITE RIVER NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN

Sunlight operations that are conducted on NFS lands within the SUP area must comply with the management directions provided in the 2002 Forest Plan. The 2002 Forest Plan includes 33 separate Management Areas for different portions of the Forest based on ecological conditions, historic development, and anticipated future conditions. Sunlight falls within the 8.25 Management Area, which directs:

> *"Facilities may be intensively used throughout the year to satisfy a variety of seasonal recreational demands. Base areas that serve as entrance portals are designed as gateways to public lands. Forested areas are managed as sustainable cover with a variety of species and age classes in patterns typical of the natural landscape character of the area. Protection of scenic values is emphasized through application of basic landscape aesthetics and design principles, integrated with forest management and development objectives."*[7]

The theme of Management Area 8.25 is:

> *"Ski areas are developed and operated by the private sector to provide opportunities for intensively managed outdoor recreation activities during all seasons of the year. This management area also includes areas with potential for future development."*[8]

Beyond the 2002 Forest Plan, the Final EIS that was prepared for it has an entire chapter devoted to analysis of ski areas that are permitted on the Forest. Regarding the role of ski area master development plans, the 2002 *Forest Plan Final EIS* states:

> *"New technology and changing skier preferences with regard to terrain and on mountain services motivate ski areas to adapt and change in order to remain competitive. Because of this, master development plans are dynamic. The Forest Service participates with ski areas in planning changes to meet public needs. Prior to approval for implementation, the master development plan and its component parts are subject to*

[6] USDA – Forest Service, White River National Forest Land and Resource Management Plan Final Environmental Impact Statement, 2002. https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5286449.pdf
[7] USDA Forest Service. 2002. White River National Forest Land and Resource Management Plan 2002 revision. White River National Forest, Glenwood Springs, CO.
[8] USDA Forest Service. 2002. White River National Forest Land and Resource Management Plan 2002 revision. White River National Forest, Glenwood Springs. CO. p. 3-80

environmental analysis in accordance with the National Environmental Policy Act and other relevant laws and regulations."[9]

The Forest Service is authorized to approve certain uses of NFS lands under the terms of SUPs.[10] Generally, SUPs for recreational developments are issued and administered for uses that serve the public, promote public health and safety, and provide land stewardship. In accomplishing these objectives, the SUP held by Sunlight authorizes the following:

"Ski lifts and tows, ski trails, day lodge, restaurants, maintenance and snowmaking facilities, roads, utilities, parking, signs, radio base facilities, explosive cache, and other facilities and improvements needed in the operation and maintenance of a four-season resort."

2. 2011 SKI AREA RECREATIONAL OPPORTUNITY ENHANCEMENT ACT

Enacted in November 2011, the Ski Area Recreational Opportunity Enhancement Act specifically provides the Forest Service with authority to review and consider recreational activities and associated facilities in addition to skiing and snow-sports.[11] Activities and facilities that may, in appropriate circumstances, be authorized in the Act include, but are not limited to, both zip lines and ropes courses.[12]

3. RECREATION OPPORTUNITY SPECTRUM

At a macro level, the Sunlight SUP area is designated within the 2002 WRNF Forest Plan to have a Recreation Opportunity Spectrum (ROS) setting of "Rural" during the winter and summer. The Rural ROS setting is described as:

"Predominantly a culturally modified setting where the natural environment has been substantially modified, i.e., structures are readily apparent, pastoral or agricultural or intensively managed, wildland landscapes predominate as viewed from visually sensitive roads and trails. Access is primarily via conventional motorized use on roads. Contact frequency with other users may be moderate to high in developed sites and moderate away from developed sites."

As stated in the 2002 Forest Plan Final Environmental Impact Statement:

"Recreational benefits from ski areas include managed, convenient access to National Forest System lands for visitors participating in such activities as hiking, mountain biking, viewing scenery, skiing, and snowboarding. Ski areas provide year-round natural resource-based recreation. The number of recreation opportunities enhanced by lift served access generally is proportional to the number of acres allocated to the 8.25 management area."

The assigned desired ROS condition class is the maximum level of use, impact, development, and management that an area should experience over the life of the Forest Plan. The ROS is not

[9] USDA Forest Service. 2002. Final environmental impact statement, Volume 1, for the White River National Forest land and resource management plan 2002 revision. White River National Forest, Glenwood Springs. CO. p. 3-437
[10] 16 USC 497. 1999. 64 FR 8681-8690. National Forest Ski Area Permit Act of 1986 – as adopted in 1999. February 22.
[11] Public Law 112-46-Nov. 7, 2011, 125 Stat. 539.
[12] Ibid. Section 3.

prescriptive; it serves as a tool for land managers to identify and mitigate change. Recreational carrying capacity is a consequence of adopting specific ROS classes for which a landscape will be managed.

4. SCENERY RESOURCES

a) Scenery Management System

Human activities can cause changes to scenic resources that can be objectively measured. By assessing the existing scenic character of an area in terms of pattern elements (form, line, color and texture) and pattern character (dominance, scale diversity and continuity), it is possible to identify the extent to which the scenic character would exhibit scenic contrast with the surrounding landscape, or conversely—scenic compatibility.

The Forest Service adopted the Scenery Management System (SMS) in 1995 as the Agency's primary scenery management tool. In brief, the SMS is a systematic approach for assessing scenic resources in a project area to help make management decisions.

The acceptable limits of change for a particular area (e.g., Management Area, as defined in the 2002 Forest Plan) are the documented "Scenic Integrity Objectives" (SIO, as defined in the SMS), which serve as management goals for scenic resources. SIOs provide a measure of visible disruption of landscape character, ranging from Very High to Unacceptably Low. In order of least-to-most altered, SIOs are:

- Very High (unaltered)
- High (appears unaltered)
- Moderate (slightly altered)
- Low (moderately altered)
- Very Low (heavily altered)
- Unacceptably Low (extremely altered)

For reference, Very High SIOs are typically found in designated wilderness areas and special interest areas. While there is no standard for SIOs in relation to ski area SUP areas on NFS lands, in most cases, they fall somewhere between Very Low and Moderate. This is in recognition of the developed nature of ski areas, which tend to operate in highly scenic environments (i.e., assigning an artificially high SIO at a developed ski area would be unachievable, just as assigning an artificially low SIO would not incentivize the ski area to strive to minimize visual impacts).

As indicated in the 2002 Forest Plan, the SIO for the Sunlight SUP area is "Very Low." This SIO befittingly refers to landscapes where the valued landscape character "appears heavily altered." The frame of reference for measuring achievement of SIOs is the valued attributes of the "existing" landscape character "being viewed." The "Very Low" SIO is defined as:[13]

[13] USDA Forest Service. 2002. White River National Forest Land and Resource Management Plan 2002 revision. White River National Forest, Glenwood Springs. CO.

Deviations may strongly dominate the valued landscape character. They may borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, changes in vegetation types, or architectural styles outside the landscape being viewed. However, deviations must be shaped by and blend with the natural terrain so that elements such as unnatural edges, roads, landings and structures do not dominate the composition.

However, the Forest Plan states that all National Forest System lands shall be managed to attain the highest possible visual quality commensurate with other appropriate public uses, costs, and benefits.[14]

The Built Environment Image Guide (BEIG) was prepared by the Forest Service for the "thoughtful design and management" of the built environment contained within the National Forests.[15] The Forest Service defines the built environment as "the administrative and recreation buildings, landscape structures, site furnishings, structures on roads and trails, and signs installed or operated by the Forest Service, its cooperators, and permittees.[16]

The BEIG divides the United States into eight provinces which combine common elements from the ecological and cultural contexts over large geographical areas; Sunlight's SUP area and adjacent NFS lands are within the Rocky Mountain Province. Site development, sustainability, and architectural character should conform to BEIG guidelines described for this Province.

5. ACCESSIBILITY TO PUBLIC LANDS

In June 2005 the Forest Service released the Accessibility Guidebook for Ski Areas Operating on Public Lands, 2005 Update. This guidebook provides information for ski areas authorized under a SUP to work with the Forest Service in providing equal opportunities for all people, including those with disabilities. Sunlight will maintain consistency with this guidebook for future development projects occurring on public lands.

Ski areas operating under special-use authorization from the Forest Service are required to comply with both the Americans with Disabilities Act of 1990 (ADA) and Section 504 of the Rehabilitation Act of 1973 (Section 504). The ADA applies because Sunlight operates as a "public accommodation;" moreover, Sunlight is a business open to the public. Section 504 applies because Sunlight operates under a SUP authorized by the Forest Service. Through the SUP, the ski area agrees to abide by these and all other laws, regulations, and policies of the federal, state, and local governments with legal jurisdictions on the ski area.

Significant legislation that preceded the ADA includes the Architectural Barriers Act (ABA) of 1968 and the Rehabilitation Act of 1973, as amended. ABA was the first measure passed by Congress to ensure access to facilities. The ABA requires that all facilities built, bought, or leased by or for a federal agency be accessible. Section 504 of the Rehabilitation Act states: "No otherwise qualified individual with a disability in the United States shall, solely by reason of his disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance or under any program or activity conducted by any Executive Agency."

[14] USDA Forest Service. 2002. Final environmental impact statement, Volume 1, for the White River National Forest land and resource management plan 2002 revision. White River National Forest, Glenwood Springs. CO. p.AA-17
[15] USDA Forest Service, 2001. The Built Environment Image Guide for the National Forests and Grasslands. FS-710.
[16] Ibid.

Through future site-specific NEPA and design development reviews, Sunlight will work closely with the Forest Service to ensure accessibility measures are taken to provide equal opportunity to all users of public lands.

6. WINTER SPORTS GUIDEBOOK

In 1992 the Forest Service published the Winter Sports Guidebook to establish master planning guidelines for ski resort on Forest Service lands operating under a SUP.[17] The Winter Sports Guidebook outlined details to include in the master planning process to inform the Forest Service and the public of potential changes that may result from development of public and private lands.

[17] USDA Forest Service. 1992. Winter Sports Guidebook.

Sunlight Mountain Resort
Master Development Plan

Figure 1. Vicinity Map

UTAH

COLORADO

Legend

- Major Road
- State Line
- Ski Area
- Airport

IDAHO
WYOMING
NEBRASKA
UTAH
COLORADO
KANSAS
ARIZONA
NEW MEXICO
OK
TEXAS

sunlight
Mountain Resort
est. 1966

Sunlight Mountain Resort
Master Development Plan

Figure 2. Property Boundaries Plan

Legend

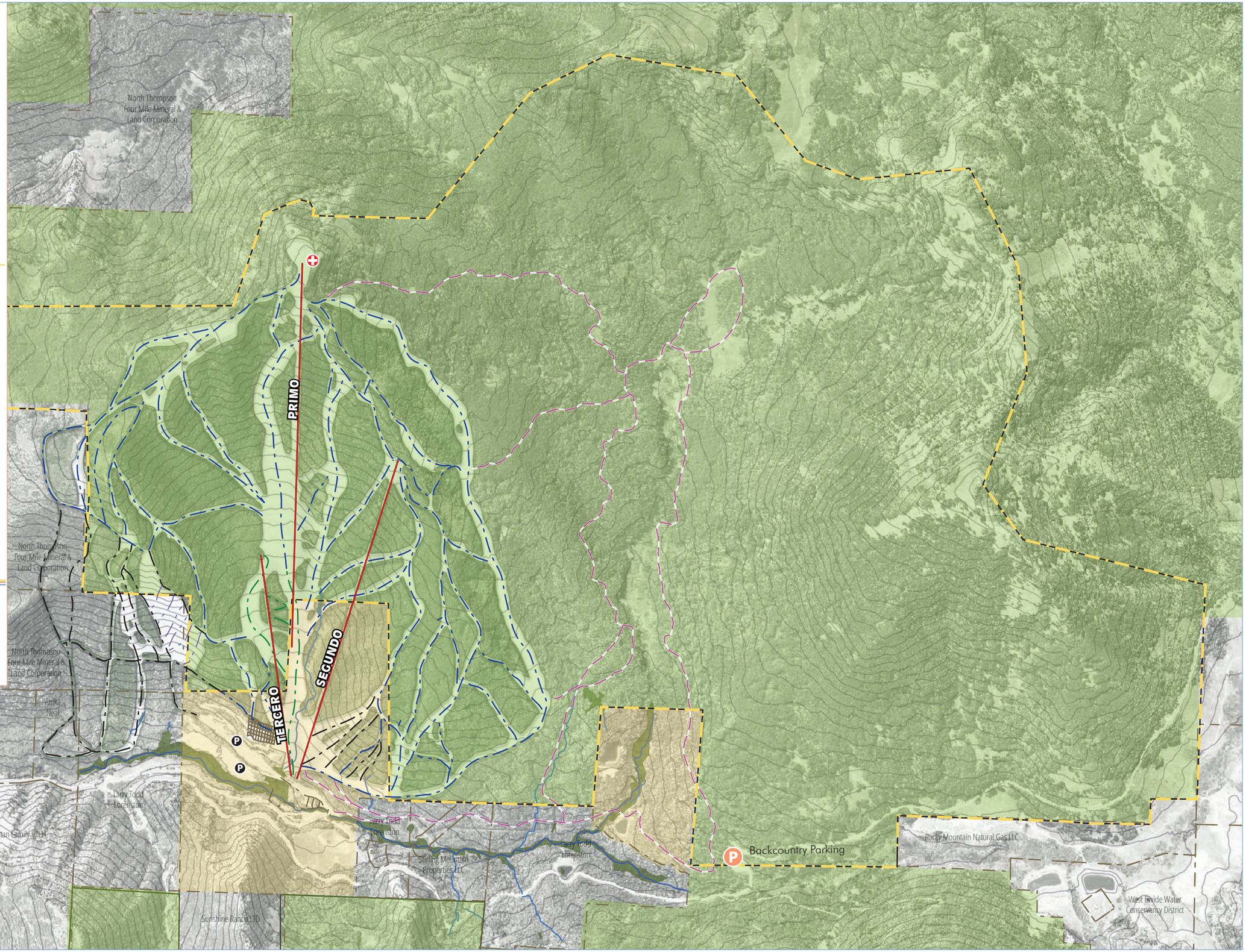
- Lift
- Ski Run by Ability Level
- Private Property Boundary
- SUP Boundary
- USFS Boundary
- Property Boundaries
- Ski Patrol
- Building
- Road
- Wetland
- Water Body
- Parking
- Nordic Ski Trail

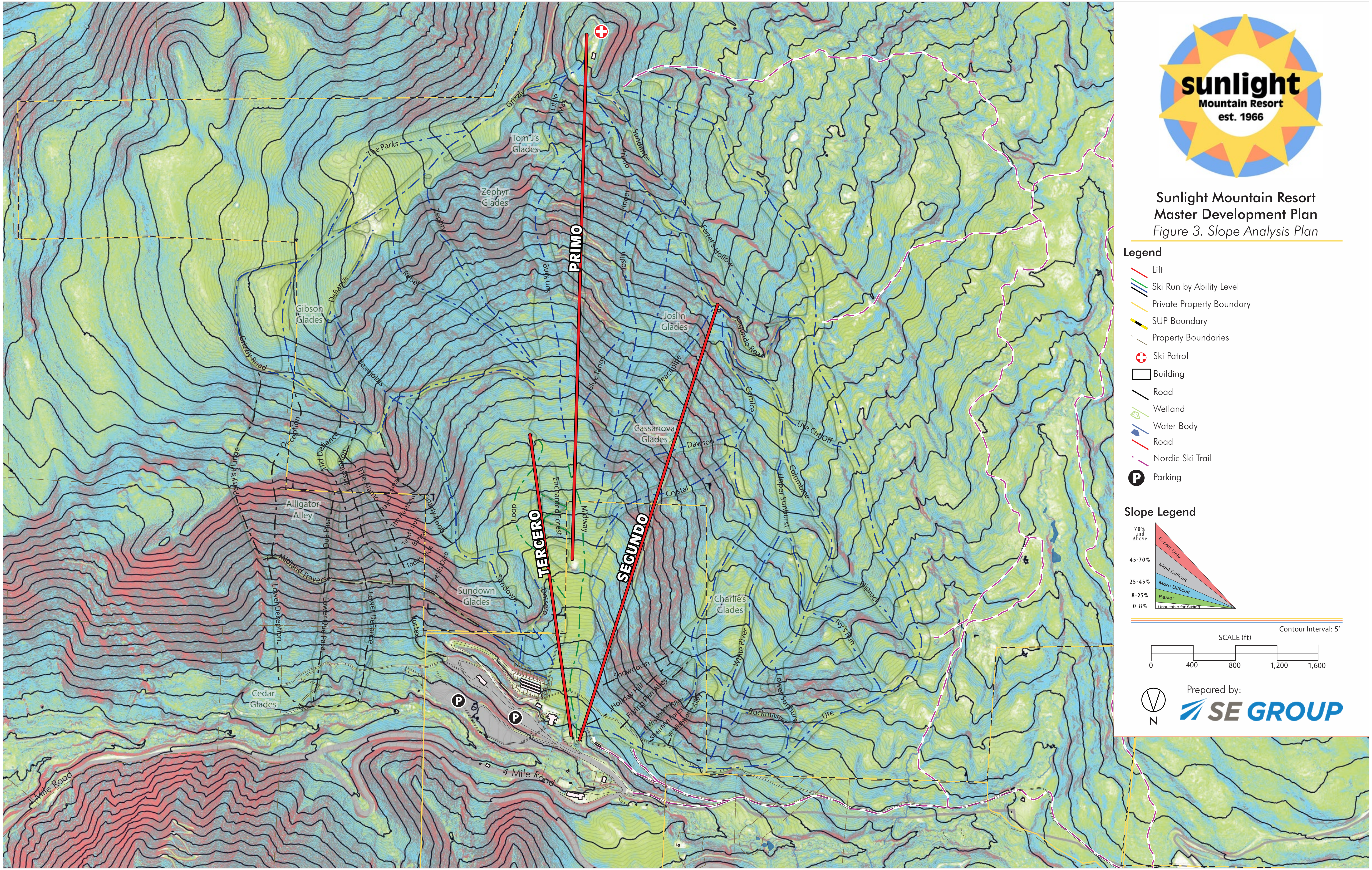
SCALE (ft)

0 600 1,200 1,800 2,400

N

Prepared by:
SE GROUP




sunlight
Mountain Resort
est. 1966
Sunlight Mountain Resort
Master Development Plan
Figure 3. Slope Analysis Plan
Legend
Lift
Ski Run by Ability Level
Private Property Boundary
SUP Boundary
Property Boundaries
Ski Patrol
Building
Road
Wetland
Water Body
Road
Nordic Ski Trail
Parking
Slope Legend
70% and Above
45-70%
25-45%
8-25%
0-8%
Expert Only
Most Difficult
More Difficult
Easier
Unsuitable for Sliding
Contour Interval: 5'
SCALE (ft)
0
400
800
1,200
1,600
N
Prepared by:
SE GROUP
PRIMO
SEGUNDO
TERCERO
Tom J's Glades
Zephyr Glades
Gibson Glades
Joslin Glades
Cassanova Glades
Alligator Alley
Sundown Glades
Charlie's Glades
Cedar Glades
4 Mile Road
Grizzly Road
The Parks
Defiance
Deception
Dawson
Crystal
Midway
Enchanted Forest
Loop
Sundown
Showdown
White River
Ute Cut Off
Columbine
Upper Sunburst
Lower Sunburst
Buckmaster
Ute
Ivy's Run
Ferret Hollow
Sundance
Midland Traverse
Lower Deception
Lower Defiance
Holiday Hill

sunlight
Mountain Resort
est. 1966

Sunlight Mountain Resort
Master Development Plan
Figure 4. Aspect Analysis Plan

Legend

- Lift
- Ski Run by Ability Level
- Private Property Boundary
- SUP Boundary
- Property Boundaries
- Ski Patrol
- Building
- Road
- Wetland
- Water Body
- Road
- Nordic Ski Trail
- Parking

Aspect Legend

S, SE, SW, E, W, NE, NW, N

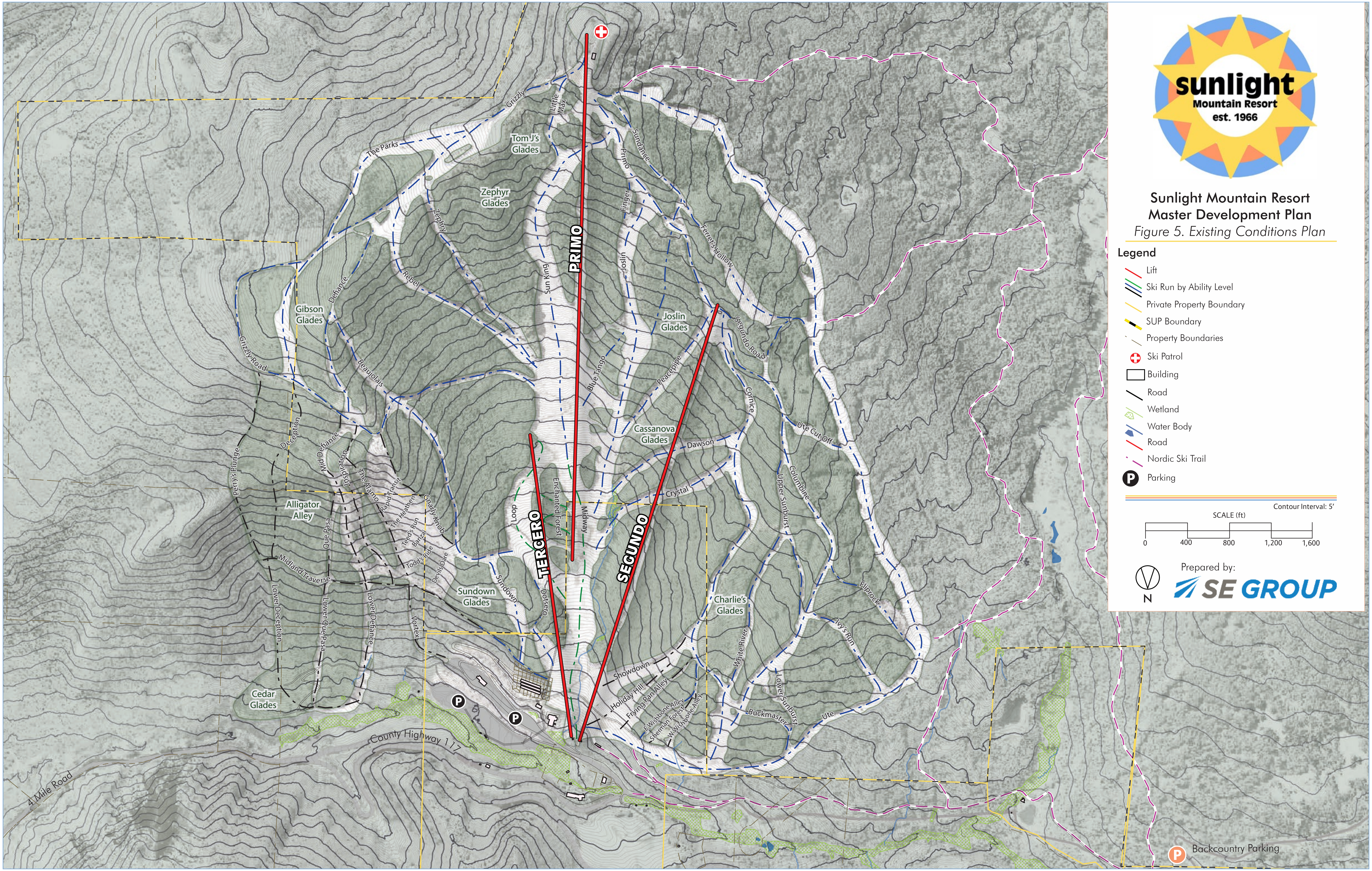
Contour Interval: 5'

SCALE (ft)

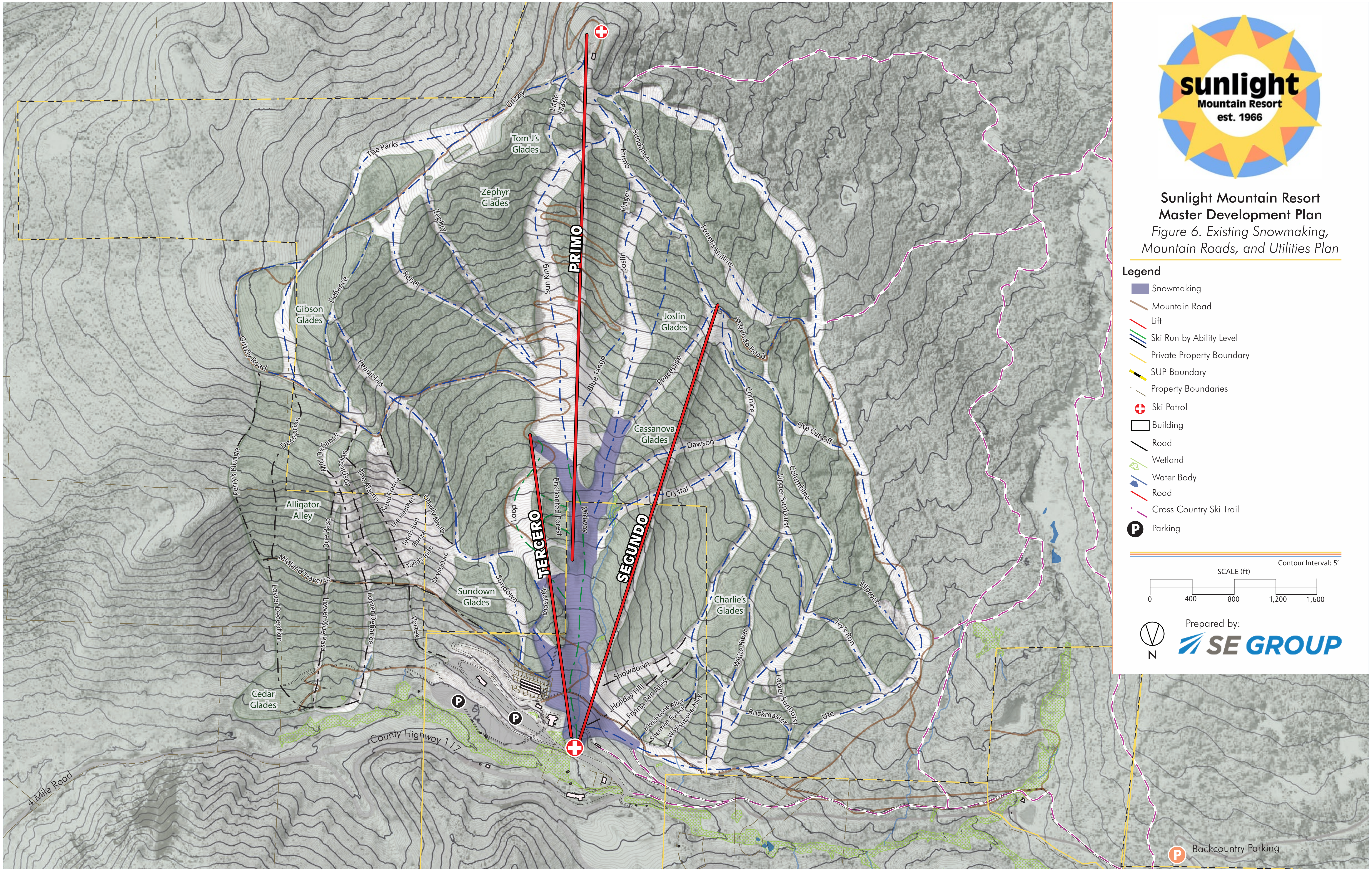
0 400 800 1,200 1,600

N

Prepared by:
SE GROUP



Sunlight Mountain Resort
Master Development Plan
Figure 5. Existing Conditions Plan



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Mountain Resort
est. 1966
Sunlight Mountain Resort
Master Development Plan
Figure 6. Existing Snowmaking, Mountain Roads, and Utilities Plan
Legend
Snowmaking
Mountain Road
Lift
Ski Run by Ability Level
Private Property Boundary
SUP Boundary
Property Boundaries
Ski Patrol
Building
Road
Wetland
Water Body
Road
Cross Country Ski Trail
Parking
Contour Interval: 5'
SCALE (ft)
0
400
800
1,200
1,600
N
Prepared by:
SE GROUP
PRIMO
SEGUNDO
TERCERO
Tom J's Glades
Zephyr Glades
Gibson Glades
Joslin Glades
Cassanova Glades
Alligator Alley
Sundown Glades
Charlie's Glades
Cedar Glades
The Parks
Grizzly
Little Way
Sundance
Primo
Zephyr
Rebel
Finger
Joslin
Ferret's Hollow
Sun King
Defiance
Beaujolais
Blue Tango
Peacepipe
Segundo Road
Cornice
Dawson
Crystal
Ute Cut Off
Columbine
Upper Sunburst
Grizzly Road
Deception
Mid Defiance
Perry's Plunge
The Heathen
Grizzly Knob
Loop
Enchanted Forest
Midway
Midland Traverse
Lower Deception
Lower Que Pasa
Lower Defiance
Vortex
Sundown
Showdown
Holiday Hill
Flying Pan Alley
Buckmaster
White River
Lower Sunburst
Ute
Ivy's Run
Flintrock
County Highway 117
4 Mile Road
Backcountry Parking

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Master Development Plan

Figure 7. Existing Summer Conditions Plan

Legend

- Winter Use Lift
- Private Property Boundary
- SUP Boundary
- Property Boundaries
- Ski Patrol
- Building
- Road
- Wetland
- Water Body
- Road
- Multi Use Trail
- Mountain Bike Trail
- Disc Golf
- Parking

Contour Interval: 5'

SCALE (ft)

0 400 800 1,200 1,600

N

Prepared by:

SE GROUP

PRIMO

SEGUNDO

TERCERO

Grizzly Sevice Road

Sunlight Service Road

Ute Service Road

Babish Express

Upper Babish Loop

Upper Dipsy Doodle

Babish Gulch

Williams Trail

Dipsy Doodle Extension

Lower Dipsy Doodle

Willie's Peak Trail East

Williams Trail Conector

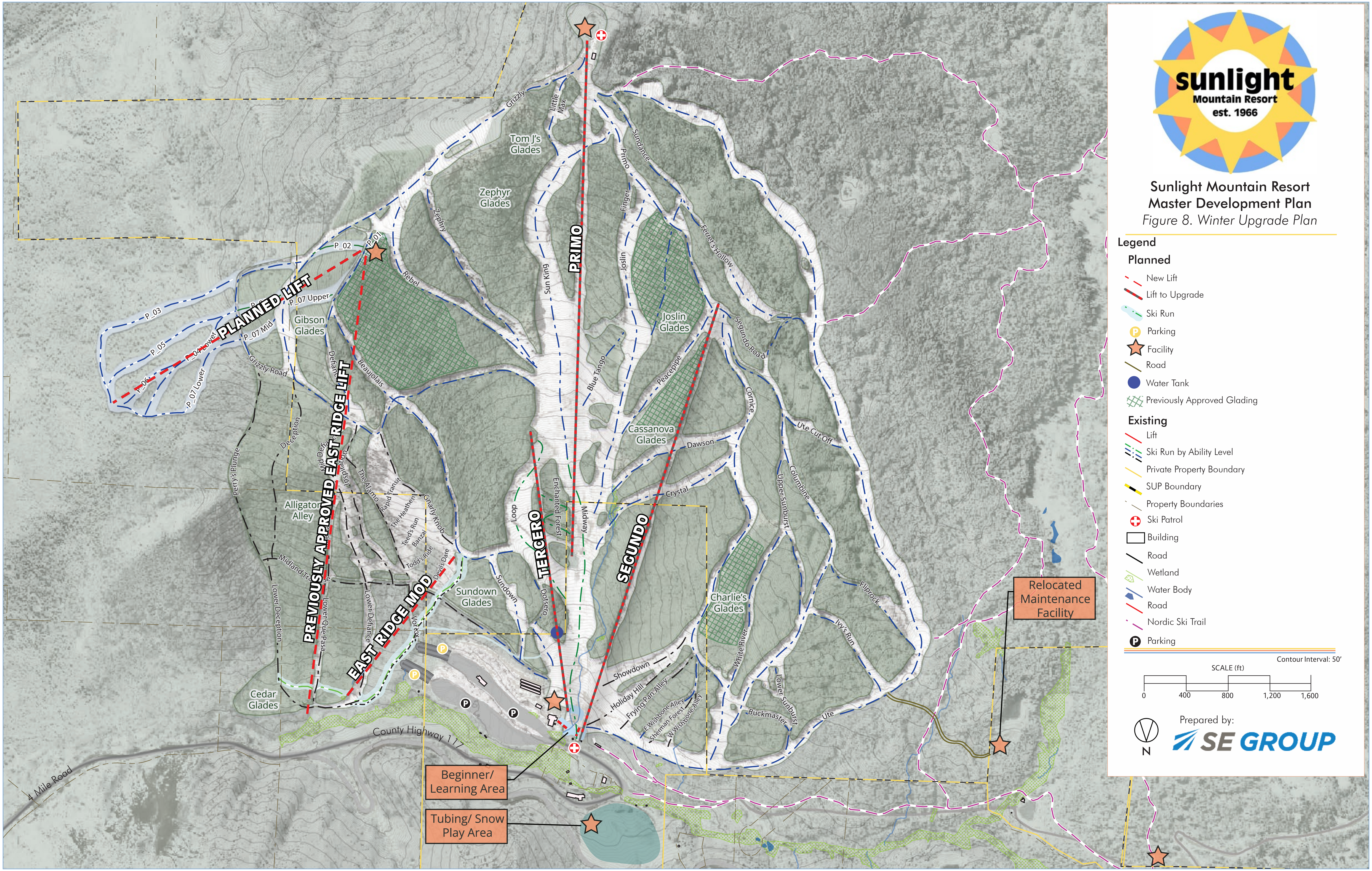
Trailhead Parking

County Highway 117

4 Mile Road

Four Mile Road

Old Four Mile Road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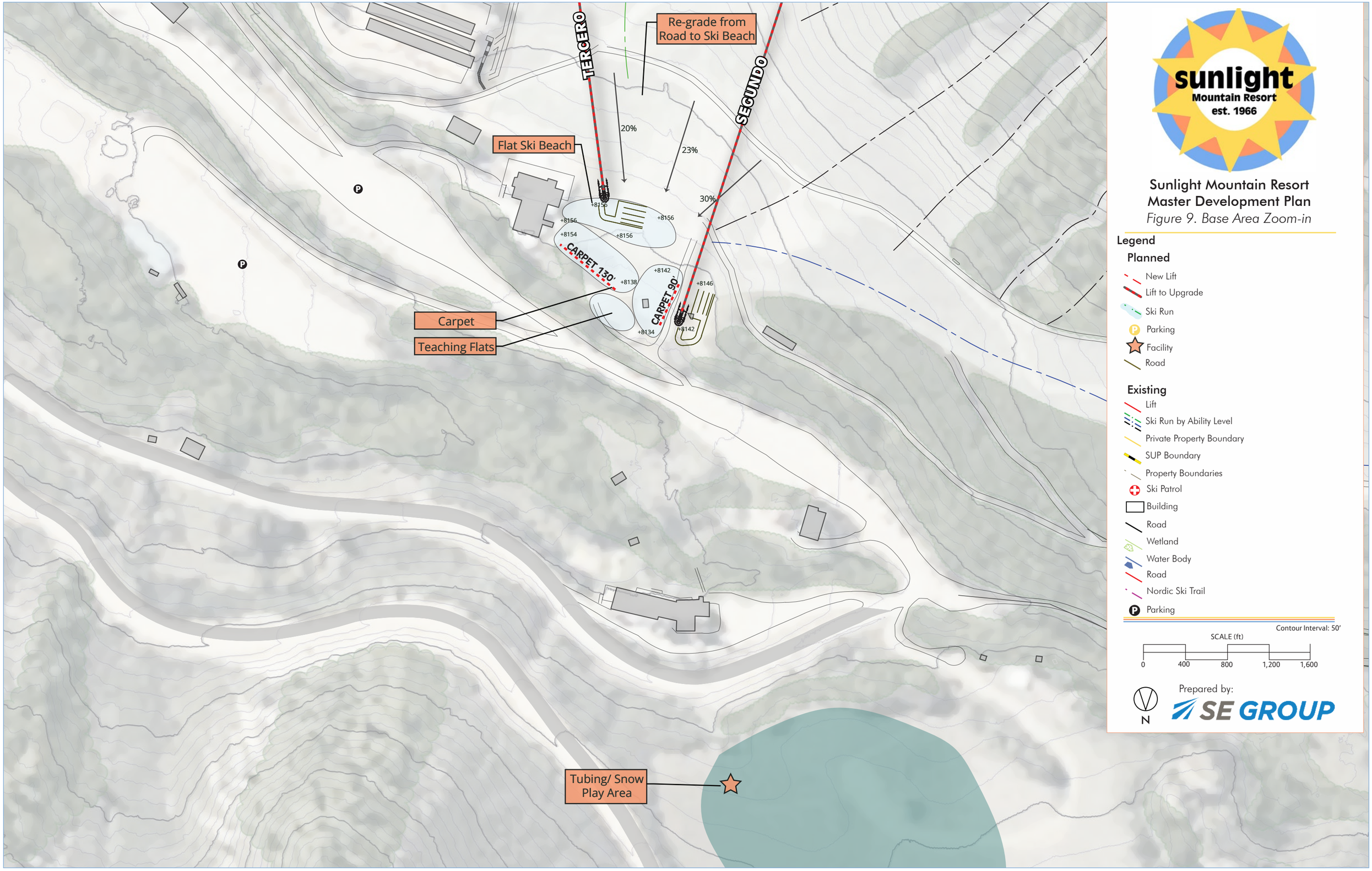
est. 1966
Sunlight Mountain Resort
Master Development Plan
Figure 8. Winter Upgrade Plan
Legend
Planned
New Lift
Lift to Upgrade
Ski Run
Parking
Facility
Road
Water Tank
Previously Approved Glading
Existing
Lift
Ski Run by Ability Level
Private Property Boundary
SUP Boundary
Property Boundaries
Ski Patrol
Building
Road
Wetland
Water Body
Road
Nordic Ski Trail
Parking
Contour Interval: 50'
SCALE (ft)
0
400
800
1,200
1,600
N
Prepared by:
SE GROUP
PRIMO
SEGUNDO
TERCERO
PLANNED LIFT
PREVIOUSLY APPROVED EAST RIDGE LIFT
EAST RIDGE MOD
Relocated Maintenance Facility
Beginner/ Learning Area
Tubing/ Snow Play Area
Tom J's Glades
Zephyr Glades
Joslin Glades
Cassanova Glades
Charlie's Glades
Gibson Glades
Alligator Alley
Sundown Glades
Cedar Glades
County Highway 117
4 Mile Road
Grizzly
Little Max
Zephyr
Rebel
Sun King
Primo
Sundance
Finger
Joslin
Ferret's Hollow
Segundo Road
Blue Tango
Peacepipe
Cornice
Ute Cut Off
Dawson
Crystal
Upper Sunburst
Columbine
Midway
Enchanted Forest
Loop
Dotsero
Sundown
Beaujolais
Grizzly Road
Deception
Perry's Plunge
Midland Trail
Lower Deception
Lower Que Pasa
Lower Defiance
The Alamo
Rapid Transit
The Heathen
Grizzly Knob
Reed's Run
Banzai
Todd's Ride
Devil's Dare
Flip rock
Ivy's Run
White River
Lower Sunburst
Buckmaster
Ute
Showdown
Holiday Hill
Frying Pan Alley
E Wishbone Alley
Sherman Forest
W Wishbone Alley
P_01
P_02
P_03
P_04 Lower
P_05
P_06
P_07 Upper
P_07 Mid
P_07 Lower



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Sunlight Mountain Resort Master Development Plan

Figure 9. Base Area Zoom-in

Legend

Planned

- New Lift
- Lift to Upgrade
- Ski Run
- Parking
- Facility
- Road

Existing

- Lift
- Ski Run by Ability Level
- Private Property Boundary
- SUP Boundary
- Property Boundaries
- Ski Patrol
- Building
- Road
- Wetland
- Water Body
- Road
- Nordic Ski Trail
- Parking

Contour Interval: 50'

SCALE (ft)

0 400 800 1,200 1,600

N

Prepared by: SE GROUP

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Sunlight Mountain Resort Master Development Plan

Figure 10. Large Scale Winter Upgrade Plan

Prepared by:

SE GROUP

Planned Snowmaking Reservoir

Improved Nordic Hut

PLANNED LIFT

PREVIOUSLY APPROVED EAST RIDGE LIFT

EAST RIDGE MOD

PRIMO

SEGUNDO

TERCERO

Relocated Maintenance Facility

Backcountry Ski Area

Beginner/ Learning Area

Tubing/ Snow Play Area

Legend

Planned
- New Lift
- Lift to Upgrade
- Ski Run
- Parking
- Planned Facility
- Previously Approved Glading

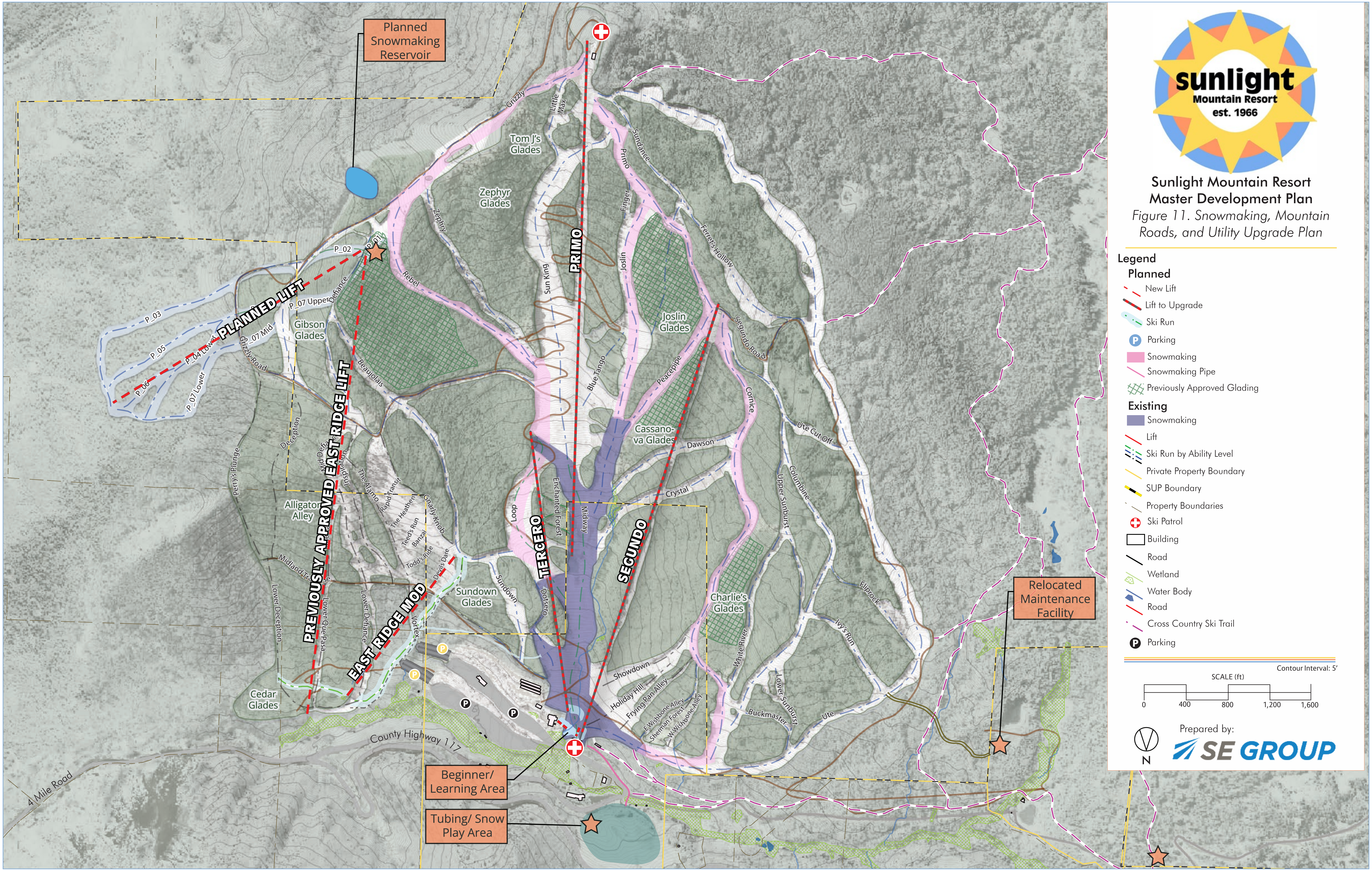
Existing
- Lift
- Ski Run by Ability Level
- Private Property Boundary
- SUP Boundary
- Property Boundaries
- Ski Patrol
- Building
- Road
- Wetland
- Water Body
- Road
- Nordic Ski Trail
- Parking

Contour Interval: 50'

SCALE (ft)

0 600 1,200 1,800 2,400

N



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Sunlight Mountain Resort
Master Development Plan
Figure 11. Snowmaking, Mountain Roads, and Utility Upgrade Plan
Legend
Planned
New Lift
Lift to Upgrade
Ski Run
Parking
Snowmaking
Snowmaking Pipe
Previously Approved Glading
Existing
Snowmaking
Lift
Ski Run by Ability Level
Private Property Boundary
SUP Boundary
Property Boundaries
Ski Patrol
Building
Road
Wetland
Water Body
Road
Cross Country Ski Trail
Parking
Contour Interval: 5'
SCALE (ft)
0
400
800
1,200
1,600
N
Prepared by:
SE GROUP
Planned Snowmaking Reservoir
Relocated Maintenance Facility
Beginner/ Learning Area
Tubing/ Snow Play Area
PLANNED LIFT
PREVIOUSLY APPROVED EAST RIDGE LIFT
EAST RIDGE MOD
PRIMO
TERCERO
SECUNDO
Tom J's Glades
Zephyr Glades
Joslin Glades
Gibson Glades
Alligator Alley
Cassanova Glades
Sundown Glades
Charlie's Glades
Cedar Glades
Grizzly
Little Max
Zephyr
Rebel
Sun King
Joslin
Finger
Primo
Sundance
Ferret's Hollow
Segundo Road
Peacepipe
Blue Tango
Cornice
Dawson
Crystal
Ute Cut Off
Columbine
Upper Sunburst
Midway
Enchanted Forest
Loop
Sundown
Dotsero
Showdown
Holiday Hill
Frying Pan Alley
E Wishbone Alley
W Wishbone Alley
Sherman Forest
White River
Lower Sunburst
Buckmaster
Ute
Ivy's Run
Flip Rock
Beaujolais
Defiance
Deception
Perry's Plunge
Midland Trail
Lower Deception
Lower Defiance
Vortex
Devil's Dare
The Alamo
Rapid Transit
The Heathen
Teed's Run
Banzai
Todd's Ride
Gnarly Knob
Grizzly Road
P_02
P_03
P_05
P_06
P_07 Upper
P_07 Mid
P_04 Lower
P_07 Lower
County Highway 117
4 Mile Road

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Mountain Resort
est. 1966

Sunlight Mountain Resort Master Development Plan Figure 12. Summer Zones and Upgrade Plan

Improved Nordic Hut

Relocated Maintenance Facility

PLANNED LIFT

PREVIOUSLY APPROVED EAST RIDGE LIFT

EAST RIDGE MOD

PRIMO

SEGUNDO

TERCERO

A1

A2

A3

A4

Grizzly Sevice Road

Sunlight Service Road

Ute Service Road

Babbish Express

Upper Babish Loop

Babbish Gulch

Williams Trail

Lower Dippy Doodle

Doodle Extension

Upper Dippy Doodle

Willie's Peak Trail East

Four Mile Road

Old Four Mile Road

Williams Trail Conector

Legend

Planned

- New Lift
- Lift to Upgrade
- Ski Run
- Parking
- Planned Facility

Existing

- Winter Use Lift
- Private Property Boundary
- SUP Boundary
- Property Boundaries
- Building
- Road
- Wetland
- Water Body
- Road
- Multi Use Trail
- Mountain Bike Trail
- Disc Golf
- Parking
- Nordic Ski Trail

Zones

- Zone 1
- Zone 2
- Zone 3
- Zone 4

Contour Interval: 50'

SCALE (ft)

0 600 1,200 1,800 2,400

N

Prepared by:

SE GROUP