

TAOS

MASTER DEVELOPMENT PLAN

April 2010



Prepared By:



SE GROUP

TAOS

Taos Ski Valley
2010 Master Development Plan
Taos, New Mexico
April 2010

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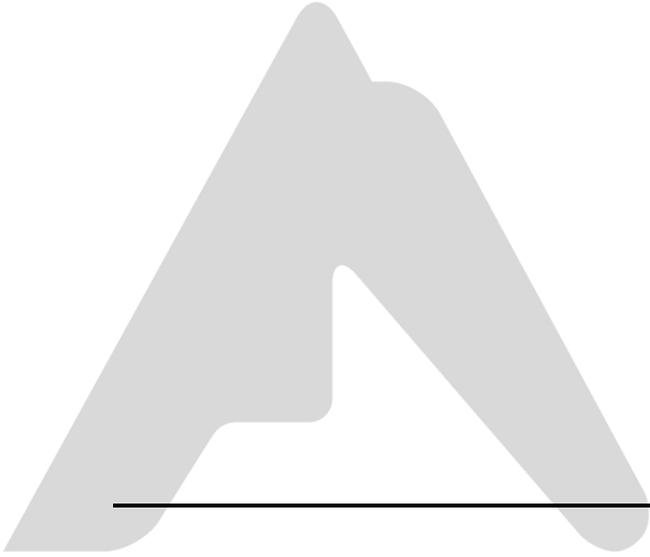
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CHAPTER 1

INTRODUCTION

1. INTRODUCTION

The purpose of this Master Development Plan (MDP) is to provide future direction for the development of Taos Ski Valley (TSV) to ensure a balance of facilities and a variety of amenities to afford an exceptional guest experience. This MDP provides a thorough assessment of existing operations and facilities at TSV and identifies a comprehensive plan for future improvements to the resort.

With the exception of private lands at the base area, the main base area, and a small portion of private land at the base of Chair 4 (i.e., the “backside” base area), the entirety of TSV’s existing lift, trail and infrastructural network is operated on public lands under a special use permit (SUP) from the Carson National Forest (detailed below). This MDP has been prepared in compliance with the terms and conditions of TSV’s Forest Service-issued SUP. This document replaces TSV’s 1980 MDP, which was approved by the Carson National Forest Supervisor in 1981. Upon its approval, TSV began implementing MDP projects. All projects that TSV implemented were consistent with its approved MDP.

It is important to note that Forest Service “acceptance” of this MPD does not convey “approval” of any projects contained herein. Implementation of any projects on National Forest System (NFS) lands within TSV’s SUP area is contingent upon site-specific environmental review and approval via the National Environmental Policy Act (NEPA). TSV and mountain planners strove to make this MDP as detailed as possible; nonetheless it is considered conceptual in nature, and it is therefore not the intent of this document to identify and address each and every planning or resource constraint that may arise. Once a NEPA analysis is commenced on a suite of proposed projects from this MDP, site-specific Project Design Features, Best Management Practices, and mitigation measures will be developed with the intent of avoiding or minimizing resource impacts on a case-by-case basis.

This MDP is a dynamic document, which may be amended periodically to accommodate technological innovations and evolved guest expectations over a five- to seven-year planning horizon.

A. LOCATION

The majority of TSV’s lift and trail network, and all parking lots, are located on NFS lands under the jurisdiction of the Carson National Forest in Taos County, NM. All base area facilities, ski school facilities/terrain, and portions of out-of-base lifts and a handful of trails, are located on private lands owned by Taos Ski Valley, Inc.

The ski area is located approximately 20 miles outside of the Town of Taos (refer to Figure 1-1). The closest commercial airport is the Albuquerque International Sunport, approximately 150 miles away. TSV is accessed via NM-150/Ski Valley Rd, 15 miles from the intersection with US-64.

TSV’s Forest Service-issued Special Use Permit (SUP) includes approximately 1,268 acres of NFS lands. An additional 200 acres of private land encompass the remainder of the resort and related operations. Elevations range from 9,207 feet elevation at the base area to 11,819 feet at the top of the highest Chairlift (Lift 2) to 12,481 feet at the summit of Kachina Peak (refer to figures 1-2 and 2-1). Thus, TSV’s lift-



served vertical drop is 2,612 feet, and its total skiable vertical drop is 3,274 feet, including current hike-to terrain. It is important to note that the Upgrade Plan contained in Chapter 5 does not entail any infrastructure or activities outside of TSV’s existing SUP area.

B. RESORT SUMMARY

TSV currently operates 13 lifts: four quad chairlifts, one triple chairlift, five double chairlifts, and three surface lifts. Developed terrain includes 80 Alpine trails, totaling roughly 346 acres. An additional 257 acres of glades, steeps, and hiking terrain are available, but are not accounted for in TSV’s developed terrain network. The terrain classification breakdown by acreage is roughly: 9.4 percent beginner, 56.8 percent intermediate, and 33.7 percent expert. Skier support facilities include two on-mountain restaurants—the Phoenix and the Whistlestop Café—and associated facilities in the base area, including Tenderfoot Katie’s Café, the Martini Tree Bar, and Rhoda’s Restaurant. Day-skier parking is provided in the base area. Snowmaking covers approximately 250 acres of TSV’s Beginner and Intermediate terrain and helps ensure quality snow

conditions, primarily in early season periods. Summer activities are limited to special events, conferences, and weddings. TSV runs Lift 1 in the summer for sightseeing, but there are no hiking or biking trails that are accessible from the lift; and some guests choose to walk down the maintenance road instead of downloading the lift.

Ski areas in the regional vicinity of TSV include: Red River, Angel Fire, Sipapu, and Sante Fe. TSV's market is primarily composed of day skiers from the Taos area, and regional destination visitors. Lodging options for TSV's destination guests include hotels, condos, and single family homes on private lands at TSV, as well as in nearby Taos. The U.S. Census Bureau reports that in 2000, the Town of Taos had a population of 4,700; Taos County had a population of 31,546.

TSV typically has 300 year-round and seasonal full-time positions, with an additional 200 to 250 seasonal part-time positions. Its annual payroll is roughly \$6 million. Most of its employees live in Taos County.

In terms of the economic input that TSV Inc. represents to the Town and County, the business operation typically draws on the order of \$14 million in gross sales. In general, in resort areas, economic modeling has shown that for every dollar that is directly spent at a ski area, two to three dollars (ancillary expenditures) are spent in the local community on other goods and services such as food and beverage, gas, hotels, and merchandise. Therefore, the \$14 million directly spent at TSV translates into an additional \$28 million to \$42 million spent in the Town and County. Add to this the approximate nine percent Gross Receipts Tax on these expenditures, and a 5 percent lodging tax, and TSV is a substantial economic driver in the Taos community.

As demonstrated in Table 1-1, TSV's annual visitation has fluctuated over the past 11 seasons—from a high of almost 283,000 visits in the 1998/99 season, down to 158,000 in the 2005/06 season. In the eleven-year period between the 1998/99 and 2008/09 seasons, TSV averaged 203,000 annual visits. However, in the ten-year period in the 1990s (1990/91 through 1999/00 seasons) it averaged 296,000 annual visits, equating to a one-third drop in visitation between the two decades. TSV averages 130 operational days per season.

**Table 1-1:
Annual Skier/Rider Visits
1998–2009**

Season	Annual Visitation	Annual Snowfall (inches)
1998/99	282,884	214
1999/00	173,031	164
2000/01	248,852	321
2001/02	201,113	151
2002/03	249,682	252
2003/04	224,565	204
2004/05	237,441	277
2005/06	158,003	152
2006/07	208,187	199
2007/08	219,002	306
2008/09	241,115	167
11-Year Average	203,565	218

C. BACKGROUND AND DEVELOPMENT HISTORY

In 1955, Ernie Blake flew over the Sangre de Cristo Mountains in a Cessna 170 scouting for a ski mountain. That year, he and his wife, Rhoda, founded TSV, a Bavarian-inspired ski resort above New Mexico’s high desert. TSV remains one of the few family owned and operated ski resorts in North America. To this day it is still run by Ernie and Rhoda’s children and grandchildren.

TSV’s first lift was a Bridger-Boseman J-Bar which was installed in the fall of 1956 by Ernie, sixteen men from Taos Pueblo, and a mule named Lightning. In the 1956/57 season a daily lift ticket cost \$3.00, and the only trail on the mountain is known today as *Snakedance*. In fall of 1957 a Poma (platter) lift went up *Al’s Run* and ended where the top of Lift 1 is today. The lift pulled passengers along the ground at twice the speed of a modern lift. TSV records dating back to the 1959/60 season (when daily ticket prices had risen to \$4.00) show that the ski area recorded 4,700 annual skier visits that year.

Prior to production/approval of the 1980 MDP, Lifts 1, 2, 4, 5 and 6 constituted TSV’s on-mountain lift network. Following approval of the MDP in 1981, three of these lifts were replaced: Lift 1 in 1989; Lift 4 in 1991; and Lift 2 in 1995. Finally, in 1984, Lift 7 was installed, followed by Lift 7a in 1992 and Lift 8 in 1994. Therefore, Lift 2—replaced in 1995—is the most recent addition to TSV’s on-mountain lift network.

Today TSV offers 80 developed Alpine trails totaling 346 acres, and abundance of undeveloped terrain, 13 lifts, and snowmaking coverage on all beginner and intermediate terrain.¹

Until 2008, TSV was a skiers-only mountain, and successfully used this policy as a marketing tool. While it did appeal to a certain brand of skier, the resort could not continue to ignore the greater market. (Snowboarding represents 31 percent of skier visits nationwide, according to the National Ski Areas Association.)² Therefore, on March 19, 2008, TSV reversed its long-standing ban on snowboarding, leaving only three resorts out of the nearly 500 operating in the United States closed to snowboarding: Mad River Glen in Vermont, and Deer Valley and Alta in Utah.

Since its inception in the 1950s, Taos Ski Valley has been a preeminent player in a relatively small and unique group of North American resorts that are renowned for abundant quality snow; steep, adventurous terrain; and un-crowded slopes. Many of these resorts have developed their reputations, and built their marketing programs, around being “skiers’ (or snowboarders’) mountains” –places to get away from the crowds and immaculately groomed runs to experience unconventional terrain and true adventure. Relatively recently, the ski industry has experienced a trend toward lift serving Expert, undeveloped terrain. Through a variety of projects, other Rocky Mountain resorts have managed to retain, improve and/or create their reputations within this “adventure” skiing and snowboarding market segment. A short list of some of these resorts includes: Breckenridge (Peak 8), Arapahoe Basin (Montezuma Bowl), Telluride (Gold Hill/Revelation Bowl), Durango Mountain Resort (The Legends), Bridger Bowl (Slushman’s Ravine/Mundy’s Bowl), Deer Valley (Lady Morgan Bowl), Mt. Rose (The Chutes), Heavenly (Mott Canyon), and Big Sky (Lone Peak Tram).

In the midst of this on-going industry trend, while TSV has maintained its reputation for offering unparalleled Expert skiing and riding, it has not responded with new lift installations, which are vitally important to meet customer expectations.

¹ The developed Alpine terrain network at TSV consists of the named, defined, lift-serviced, maintained trails. Undeveloped terrain – what TSV has become famous for – includes approximately 257 acres of steeps, chutes and glades that are intermingled with, and outside of, the developed terrain network.

² National Ski Areas Association – Kottke National End of Season Survey 2008/09.

D. ABSTRACT OF THE MASTER DEVELOPMENT PLAN

Chapter 2 describes the site inventory of the resort, including physical resources, opportunities and limitations, and environmental determinants. Chapter 3 describes the design criteria used for mountain planning purposes specific to TSV. Chapter 4 addresses the existing conditions at TSV and evaluates the balance of resort operations, facilities, and infrastructure including components such as, lifts, guest services, snowmaking, and parking capacities. In that regard, Chapter 4 provides the baseline conditions from which the planning strategies for future upgrades are based. The result of this existing conditions analysis presented in Chapter 4 is a determination that TSV has a significant deficit of uphill lift capacity. The lift network is out of balance with the capacity of the terrain and all the support facilities and infrastructure. Chapter 5 includes the Upgrade Plan, which details planned projects/improvements at the resort – with a focus on upgrading the lift network.

All projects included in the Upgrade Plan are either within TSV’s existing SUP area (i.e., no SUP area expansion is contemplated), or on private lands at the base area. No additional water rights are necessary for implementation of the Upgrade Plan. In summary, planned projects include:

1. Lift Replacements and Additions

- ♦ Remove Lift 5 and replace it with the new Summit Lift, a chairlift that will allow single-lift access from the resort center base area to the summit – adjacent to the top of Lift 2
- ♦ Upgrade Lift 4 with new detachable technology
- ♦ Replace Lift 7 (remains a fixed-grip)
- ♦ Install the Main Street Lift accessing a portion of the SUP area that is currently only available by hiking
- ♦ Install the Ridge Lift accessing existing and new terrain on West Basin Ridge
- ♦ Install a beginner chairlift in conjunction with the Burrow Beginner Area (near the Zipper 3 lift at the base area)
- ♦ Remove Lift 6

2. Terrain

- ♦ Construct approximately 8 acres of additional beginner terrain in the new Burrow Beginner Area terrain (private land). A new beginner chairlift will service this terrain.
- ♦ Construct Phase 2 of the previously-approved, unimplemented *North America Trails* (approximately 10 acres).
- ♦ Lift-serve approximately 63 acres of existing hike-to terrain in the *Main Street* portion of the SUP area. This terrain is within TSV's existing SUP area, and is currently only accessible via hiking.
- ♦ Construct new trail segments, and implement trail widening projects, across the SUP area to improve skier/rider circulation. New trails and widening will total approximately 14.6 acres
- ♦ Implement selective grading projects (totaling approximately 10.8 acres) on existing trails throughout the SUP area to improve skier/rider circulation.
- ♦ Lift-serve approximately 22 acres of terrain that is currently hike-to only with the planned Ridge Lift. In addition, the Wild West Glades are planned to be constructed on the western aspect of West Basin Ridge. These 35 acres of new expert glades will be repeat-ski accessed by riding Chair 8 and the new Ridge Lift.
- ♦ Construct approximately 73 acres of new expert gladed terrain below Lift 7, and between *Lorelei* and *Longhorn*.
- ♦ Install approximately 3,300 linear feet of retaining walls throughout the existing, developed terrain network to increase the width of critical trails.
- ♦ Install approximately 2,300 linear feet of snow fencing to aid in snow retention at critical areas.

3. Snowmaking

- ♦ Install underground snowmaking lines (air and water) in the following trails:
 - *White Feather Gully*
 - *Jess's* to bottom of Chair 2

- *Avy Road* spur extension
- *Moe's* to the lower section of *Bob's*, and ending at the start of *Upper Maxie's*
- *Upper Shalako* (from the top of Chair 4) to the bottom of *Upper Patton*
- *Papa Bear*
- ♦ Install infrastructure necessary to support the existing and planned snowmaking system (e.g., pumps and hydrants). Some pumps and infrastructure will be located at the bottoms of Lift 7 and 8.

4. Alternative Winter Activities

- ♦ Construct the Taos Adventure Center near the base area, offering snowtubing, snowshoeing, and interpretative trails. Dedicated parking and a small guest services yurt are planned in conjunction with the Adventure Center.

5. Mountain Bike Trails

- ♦ Construct interconnected segments of dedicated mountain bike trails throughout the SUP area. The mountain bike trail system will total approximately 14.6 miles.

6. On-Mountain Guest Services

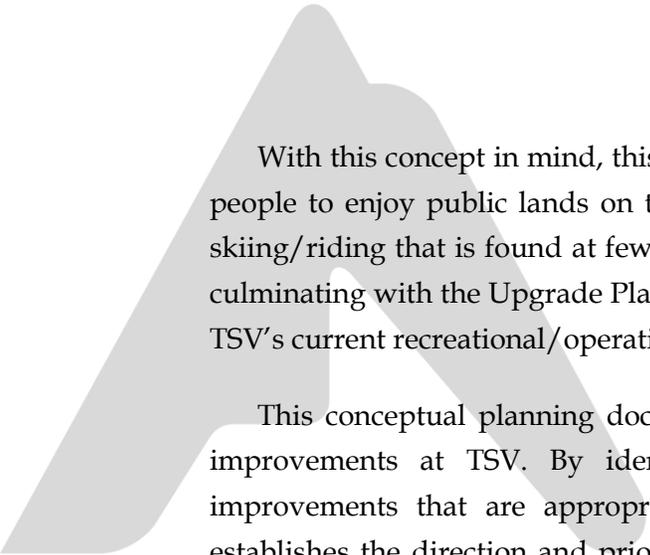
- ♦ Remove the existing ski patrol headquarters/picnic area at the top of Lifts 2 and 6 and construct a new mountain top restaurant.

7. Resort Operations and Infrastructure

- ♦ Include space for a new ski patrol headquarters in the new mountain top restaurant building at the top of Lifts 2 and 6.
- ♦ Construct a new ski patrol/bomb make-up building off of *Bambi*, 250 feet downhill from the top terminals of the new Summit Lift and Lift 7a.
- ♦ Construct a road to accommodate tracked vehicle access from the top of Lift 2, up the ridge to the radio towers.

E. GOALS AND OBJECTIVES OF THIS MDP

As a result of evolving expectations and demands in today's skier/rider market, resorts are increasingly focusing on raising service standards, improving the recreational experience, and addressing shortcomings in their terrain offerings and operations. TSV must strive to improve its offerings in order to remain viable in the competitive destination skier/rider market.



With this concept in mind, this MDP is dedicated to improving the opportunities for people to enjoy public lands on the Carson National Forest through a unique style of skiing/riding that is found at few North American resorts. Starting with Chapter 1 and culminating with the Upgrade Plan in Chapter 5, this MDP identifies, and capitalizes on, TSV's current recreational/operational assets, constraints, and opportunities.

This conceptual planning document essentially serves as a “road map” for future improvements at TSV. By identifying the type, size, capacity, and location of improvements that are appropriate to achieve the goals of the resort, this MDP establishes the direction and priorities for the physical improvement of mountain and base area facilities at TSV over roughly the next decade. Thus, this document provides a comprehensive portrayal of how TSV will function as a cohesive resort across public and private lands. It is expected that additional site-specific design will be warranted and completed at the time of individual project proposal/analysis/implementation on both National Forest System and private lands.

It is important to note that this is intended to be a dynamic document, which may be amended periodically in response to changes in TSV's market, the evolution of the ski/snowboard industry, and technological innovations.

Building off of assets, constraints, and opportunities that have been identified throughout the existing SUP area (defined in Chapters 1 through 4), the goals and objectives of the Upgrade Plan presented in Chapter 5 include five major themes. In order of importance to TSV, these are:

1. Underutilized In-Bounds, Expert-Only Terrain

TSV's unique offering of hike-to, Experts-only terrain within its SUP area is composed of three primary areas: West Basin Ridge, Highline Ridge, and *Main Street* area (see Figure 3). All three areas are accessed from the top of Lift 2. Totalling roughly 257 acres, these hike-to areas represent a tremendous opportunity for TSV to cater to the needs of Expert skiers and riders by providing strategically placed lifts while maintaining the integrity of this terrain for which TSV has become famous.

2. Alternative Winter and Summer Activities

Snowtubing is an extremely popular non-skiing/riding winter activity at resorts across the country. TSV is no exception. Currently, TSV's guests can rent snowtubes on the lower section of Strawberry Hill and then walk up the hill on their own, often waiting long durations for their turn to descend. Because Strawberry Hill is important

teaching terrain, TSV does not create or maintain any tubing lanes, and guests descend more-or-less a wide-open slope in snowtubes. A well designed, dedicated snowtubing facility (with a lift) is an amenity that has an identified demand at TSV, as demonstrated year after year.

Summer activities at TSV are limited to chairlift rides on Lift 1. From the top, guests can either download the chair, or walk back to the base area on the summer maintenance road. However, lift-served mountain biking is an opportunity that TSV could easily and effectively offer to existing and potential summer visitors.

3. Antiquated Lift Network

TSV’s entire lift network is composed of fixed-grip chairlifts, with the exception of three surface conveyors on teaching terrain in the base area. The on-mountain lift network dates back to 1973 (Lift 5) to 1995 (Lift 2). Strategic lift replacements would improve operational efficiencies and utilization of some of TSV’s most popular terrain, namely the Lift 4 and Lift 7 pods.

4. Deficient Out-of-Base Lift Capacity/Dispersal to Backside Terrain

All guests access the mountain via two parallel chairlifts – Lifts 1 and 5 – with Lift 1 being the primary out-of-base lift. This fixed-grip quad chairlift was installed in 1989. Lift 5 is a fixed-grip double chairlift installed in 1973. Because of its redundancy with Lift 1, low hourly capacity and long ride time, it is operated on a limited schedule: Sunday and Monday mornings and on peak days and holidays when extra out-of-base capacity is needed. Lifts 1 and 5 provide mid-mountain access only, and guests must then ride another redundant set of lifts (Lift 2 or 6) to reach the summit for dispersal to the popular Backside terrain. Similar to Lift 5, Lift 6 is operated on a limited schedule only. This scenario, of having four lifts that essentially serve the needs of a single lift, is inefficient from both recreational and operational standpoints.

A direct lift connection between the base area and summit would expedite on-mountain access/dispersal while reducing pressure on Lift 2.

5. Inadequate On-Mountain Guest Service Facilities

On-mountain guest services are provided at the Whistlestop Café near the bottom terminals of Lift 2 and 6, and at the Phoenix Grill, at the bottom terminal of Lift 4. While the Phoenix Grill is optimally located and is in good condition for the use placed upon it,

the Whistlestop Cafe is undersized and under appointed given its role as the only Frontside, on-mountain guest services facility.

F. FOREST SERVICE-ISSUED SPECIAL USE PERMIT

The enabling authorities for the Forest Service are contained in many laws enacted by Congress and in the regulations and administrative directives that implement these laws.³ These authorities allow the Forest Service to provide recreation opportunities to facilitate the use, enjoyment, and appreciation of National Forests.

The Forest Service is authorized to approve certain uses of NFS lands under the terms of Special Use Permits.⁴ Generally, SUPs for recreational developments are issued and administered for uses that serve the public, promote public health and safety, and provide land stewardship. The Forest Service issues SUPs to ski areas under the 1986 Ski Area Permit Act. TSV's 40-year Term SUP was re-issued by the Carson National Forest in October 2004, covering approximately 1,270 acres. It authorizes the following:

"Taos Ski Valley, Inc... of Taos Ski Valley, NM... is hereby authorized to use National Forest System lands, on the Carson National Forest, for the purposes of constructing, operating, and maintaining a winter sports resort including food service, retail sales, and other ancillary facilities, described herein, known as the Taos Ski Valley Area and subject to the provisions of this term permit."

TSV's SUP further states:

"... the holder agrees to prepare and submit changes in the Master Development Plan encompassing the entire winter sports resort presently envisioned for development in connection with the National Forest lands authorized by this permit, and in a form acceptable to the Forest Service. Planning should encompass all the area authorized for use by this permit. The accepted Master Development Plan shall be become a part of this permit."

³ These laws include: the Organic Administrative Act (1897), the Weeks Act (1911), the Multiple-Use Sustained Yield Act (1960), the Forest and Rangeland Renewable Resources Planning Act (1974), the National Forest Management Act (1976), and the National Forest Ski Area Permit Act (1986).

⁴ 16 USC 497

The entire area is operated in accordance with the New Mexico Ski Safety Act and with the safety practices accepted and generally utilized by comparable ski areas in Region 3 of the United States Forest Service.

G. THE CARSON NATIONAL FOREST

The Carson National Forest encompasses approximately 1,491,428 acres of NFS lands in northern New Mexico. It is an administrative unit of the Southwestern Region of the U.S. Department of Agriculture, Forest Service. The Forest is divided into six ranger districts; TSV is administered by the Questa Ranger District.

The Carson National Forest is a popular recreation venue, not only for New Mexicans but for people coming from nearby Texas, Oklahoma, and Kansas that seek climatic relief during the summer months. It is popular during the winter, as well, because of its abundance of recreational opportunities.

1. The 1986 Carson National Forest Plan

Land and Resource Management Plans, or Forest Plans, define the direction for managing each of this country’s National Forests. The 1986 Carson National Forest Plan (1986 Forest Plan) provides for integrated multiple use and sustained yield of goods and services from the Forest in a way that maximizes long-term net public benefits in an environmentally sound manner. Therefore, TSV’s operations that are conducted on NFS lands within its SUP area must be consistent with the management direction provided in the 1986 Forest Plan – both Forest-wide standards and guidelines, as well a Management Area-specific standards and guidelines.

Per the Forest-Wide Recreation Prescription in the 1986 Forest Plan, management highlights include:

- ♦ Provide a balanced level of developed and dispersed recreation experiences.
- ♦ Help the public enjoy their Forest visit and instill an understanding of the resources and uses of their National Forest.
- ♦ Establish a full spectrum of trail opportunities, considering all modes of travel, ranging from opportunities for challenge and adventure to opportunities for people with disabilities and give special emphasis to the protection, development and management of specially designated areas and trails.

Management Areas

The 1986 Forest Plan includes 21 separate Management Areas for different portions of the Forest based on ecological conditions, historic development, and anticipated future conditions. Management Areas 15, 16, 17, 19 and 20 provide much of the guidance for management of the recreation program on the Forest. TSV falls within Management Area 16–Existing Recreational Sites. The Vision for MA 16 is: “All the developments are high quality and well maintained. They fill the needs of users.”⁵

NFS lands within MA 16 are areas of concentrated recreation use. The Forest Plan notes that people have and will continue to be attracted to these areas because, in part, they provide climatic relief and a high degree of scenic quality. In addition to TSV, MA 16 contains two other Alpine ski areas—Red River Ski Area and Sipapu Ski Area. In all of these ski areas, the majority of the lifts and/or the ski trails are on NFS land and under special use permit.

MA 16 Standards and Guidelines specific to ski areas include:⁶

- Administer the existing ski areas in accordance with the direction in the Master Development Plan for each area.
- Plan and monitor watershed treatments and conditions.
- Conduct administrative studies relating to watershed management.

Regarding Visual Quality, MA 16 standards and guidelines include:

“Manage for the visual quality of retention or partial retention adjacent to developed sites. Use a definition of characteristic landscape which includes manmade features. Extend perimeter to five chains around developed recreation sites.”

⁵ USDA Forest Service. 1986. Carson National Forest Plan, Amend 7. October 1990. pg. 16. Recreation Sites-1.

⁶ 1986 Carson National Forest Plan, Section D. – Management Area Prescriptions, 16. Recreation Sites 1 through 4. Additional Forest-wide standards and guidelines apply to management activities and operations at TSV. These will be considered in conjunction with a formal proposal for site-specific review and approval of projects under the National Environmental Policy Act.

Recreation Opportunity Spectrum

The Forest Service typically plans and manages for recreation experiences through the application of the Recreation Opportunity Spectrum (ROS). The ROS is a framework for inventorying, planning, and managing the recreational experience and utilizes seven classifications ranging from “Primitive” to “Urban.”

The TSV SUP area is designated with an ROS setting of “Rural,” and this setting is described in the “1986 ROS Book” 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.”

Under the Rural ROS classification, the 1986 Forest Plan includes the following Forest-wide standards and guidelines for the recreational experience:⁷

Setting: the natural environment may be substantially modified. Timber harvest and other resource practices should enhance the associated recreation uses. Sights and sounds of other users may be readily evident, and human interaction is high. Facilities should be provided for intensified motorized recreational use.

Experience and Activities: Group and individual interaction are emphasized, as are user conveniences, controls, regulations, and law enforcement are obvious. Associated activities are motorized and mechanical in nature. Developed recreation activities predominate.

2. Visual Management and the Built Environment Image Guide

Per the 1986 Forest Plan, the CNF is to manage visual resources on the Forest according to the Visual Quality Objectives listed on the inventory maps. The overall goal is to meet the planned objective; however, this objective may be reduced by one level to

⁷ 1986 Carson National Forest Plan, Section C. – Forest-wide Prescriptions, Recreation-2.

meet other resource goals on a case-by-case basis.⁸ As discussed previously under Management Area 16, standards and guideline for the TSV SUP area include:

“Manage for the visual quality of retention or partial retention adjacent to developed sites. Use a definition of characteristic landscape which includes manmade features. Extend perimeter to five chains around developed recreation sites.”

Built Environment Image Guide

In concept, the Forest Service’s Built Environment Image Guide (BEIG) is designed to ensure thoughtful design and management of the built environment, which includes: administrative and recreation structures, landscape structures, site furnishing, structures on roads and trails, and signs installed or operated by the Forest Service, its cooperators, and its permittees.⁹ It focuses on the image, appearance, and structural character of facilities. Three core contexts are stressed throughout the BEIG: (1) environmental; (2) cultural; and (3) economic.

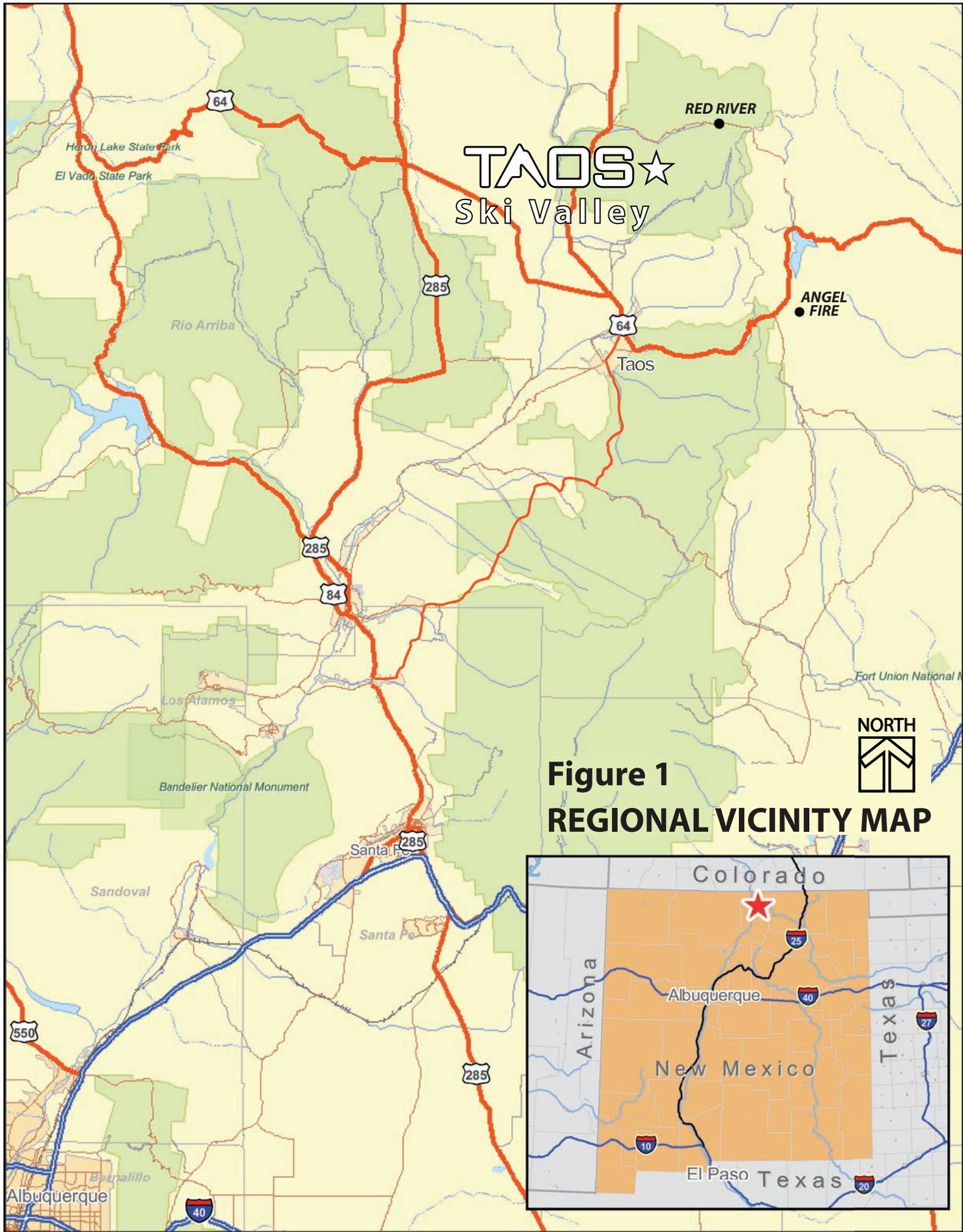
The BEIG provides general guidance regarding the image, aesthetics, and overall quality of recreational and administrative structures on NFS lands, but it does not contain enforceable “standards” pertaining to aesthetic quality as would be found in a typical Forest Plan. As indicated on pages 250–252 of the BEIG, specific direction for the design of administrative and recreational facilities is found in the Forest Service Manual (FSM) and Forest Service Handbooks (FSH).

The environmental, cultural, and economic contexts with which the BEIG is based are important considerations in development of structural facilities (not including lift terminals) within the TSV SUP area. Furthermore, there are some elements of the BEIG within the “Rocky Mountain Province” section (pages 159–178) that will be taken into account when designing and constructing facilities on NFS lands.

⁸ 1986 Carson National Forest Plan, Section C – Forest-Wide Prescriptions, Visual Quality.

⁹ USDA Forest Service, FS-710, December 2001.





TAOS★ Ski Valley

Figure 1
REGIONAL VICINITY MAP





CHAPTER 2

DESIGN CRITERIA FOR RESORT PLANNING

2. DESIGN CRITERIA FOR RESORT PLANNING

Design criteria is an important concept in resort master planning. Chapter 2 provides an overview of the basic design criteria for which Chapter 4 (Existing Ski Area Facilities) and Chapter 5 (Proposed Upgrade Plan) are based. By design, information presented in Chapter 2 is general in nature, and related to the concept of resort master planning, rather than to TSV specifically. Chapters 3, 4 and 5 present information that is specific to TSV.

A. 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 destination resorts, lodging typically is a component, but due to the average length of stay, and perhaps guests’ vacation budgets, lodging and related services and amenities are usually less extensive than what might be expected at a larger destination resort that attracts national and international visitors. Where the regional destination resort has evolved from within, or adjacent to, an existing community, services are often supplied by proprietors in the existing community. Such is the case at TSV and its relationship to the nearby Town of Taos. Even though a portion of the services offered at TSV cater directly to guests of the resort or summer vacationers to the area, proprietors within the Town of Taos also supply services to “locals,” which helps maintain the balanced lifestyle that permanent residents and second home owners tend to enjoy.

B. BASE AREA DESIGN

The relationship between planning at a resort’s base area developments (typically private land) and on-mountain lift and terrain network (typically NFS land) is critically important. This relationship affects the overall function and perception of a resort.

Design of the base lands for 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. However, fundamental objectives of

base area planning are to integrate the mountain with the base area for the creation of an 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
- ♦ Providing the necessary guest services (e.g., tickets and rentals)

TSV will continue to consider the future development of private, base area development outside of, and in conjunction with, this MDP.

C. MOUNTAIN DESIGN

1. Trail Design

Slope Gradients and Terrain Breakdown

Terrain ability level designations are based on slope gradients and terrain features associated with the varying terrain unique to each mountain. In essence, ability level designations are based on the maximum sustained gradient calculated for each trail. While short sections of a trail can be more or less steep without affecting the overall run designation, a sustained steeper pitch may cause the trail to be classified with a higher difficulty rating.

The following general gradients are used to classify the skier difficulty level of the mountain terrain.

**Table 2-1:
Terrain Gradients**

	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%

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 Rocky Mountain skier market is shown in Table 2-2.

**Table 2-2:
Rocky Mountain Skier Ability Breakdown**

	Skier Ability	Percent of Skier Market
●	Beginner	5%
●	Novice	15%
■	Low Intermediate	25%
■	Intermediate	35%
◆	Advanced	15%
◆	Expert	5%

Trail Density

The calculation of capacity for a ski area is based in part on the target number of skiers and riders that can be accommodated, on average, on a typical acre of terrain at any one given time. The criteria for the range of trail densities for North American ski areas are listed below in Table 2-3.

**Table 2-3:
Skier Density per Acre**

	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 skier/acre

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, using the milling areas or other support facilities. Empirical observations and calculations indicate that, on an average day, approximately 40 percent 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.

Trail System

A resort’s trail system should be designed to provide a wide variety of terrain to meet the needs of the entire spectrum of ability levels as well as the resort’s particular market. Each trail should provide an interesting and challenging experience within the ability level for which the trail is designed. Optimum trail widths vary depending upon topographic conditions and the caliber of the skier/rider being served. The trail network should provide the full range of ability levels consistent with each level’s respective market demand.

In terms of a resort’s ability to retain guests, 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 providing developed runs for all ability levels: some groomed on a regular basis and some not—bowl, trees, and terrain parks and pipes. This concept is explored in greater detail in Chapter 4, Section C.

In summary, a broad range of terrain satisfies skiers/riders from Beginner through Expert ability levels within the natural topographic characteristics of the ski area.

Terrain Parks

Terrain parks have become a vital part of most mountain resorts' operations, and are now considered an essential mountain amenity. The presence of terrain parks at mountain resorts has changed various operational and design elements. The demand for grooming can increase, as terrain parks often require specialized or dedicated operators, grooming machines, and equipment (such as half-pipe cutting tools). Terrain parks typically require significant quantities of snow, either natural or man-made, often increasing snowmaking demand. Terrain parks can affect circulation on the mountain, as the parks are often points of destination.

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 terrain pod, access needs, interconnectability between other terrain pods, the need for circulation space at the lower and upper terminal sites, and adverse effects to resources (e.g., visual impacts, wetlands, and riparian areas).¹⁰ 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.

4. Capacity Analysis and Design

Comfortable Carrying Capacity (CCC) is defined as a level of utilization for a given resort that provides a pleasant recreational experience, without overburdening the resort infrastructure. CCC does not indicate a maximum level of visitation, but rather the number of visitors that can be "comfortably" accommodated on a daily basis. The accurate estimation of the CCC of a mountain is a complex issue and is the single most

¹⁰ A pod is defined as the terrain that is associated with a particular lift.

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 CCC.

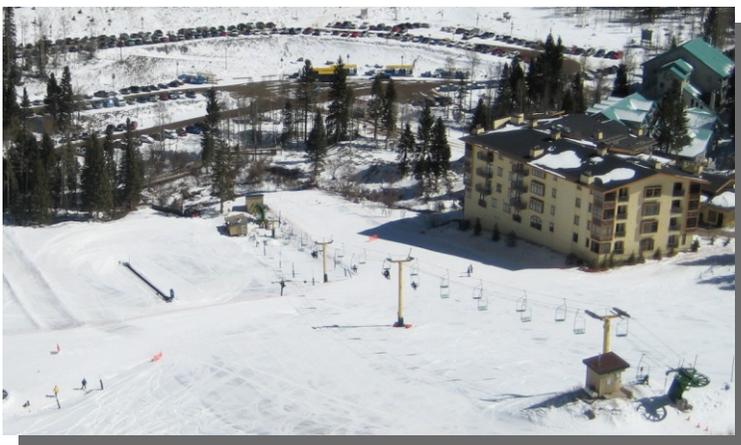
CCC is derived from the resort’s supply of vertical transport (the vertical feet served combined with the uphill hourly capacities of the lifts) and demand for vertical transport (vertical demand equals the aggregate number of runs demanded multiplied by the vertical rise associated with those runs). 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 downhill descent.

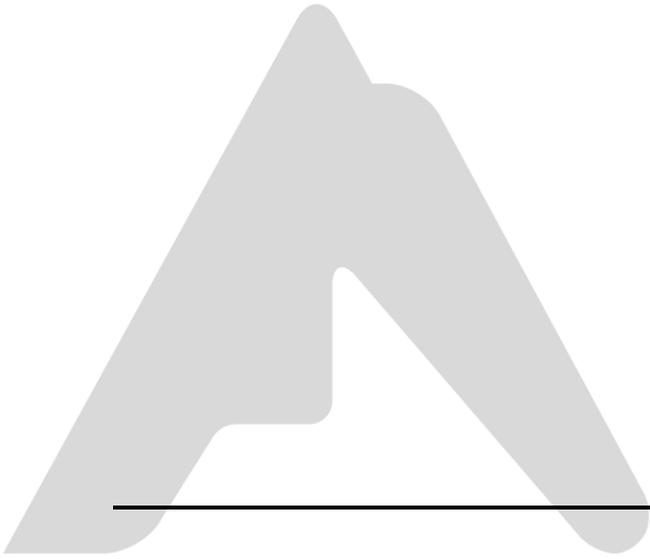
Note: It is not uncommon for resorts to experience peak days during which visitation exceeds the CCC by as much as 25 percent. However, from a planning perspective, it is not recommended to consistently exceed the CCC due to the resulting decrease in the quality of the recreational experience, and thus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

D. 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 to match 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.





CHAPTER 3

SITE INVENTORY

3. SITE INVENTORY

Chapter 3 provides a brief overview of the some of the unique characteristics of the SUP area that were taken into consideration when assembling this MDP.

A. TOPOGRAPHY AT TSV

TSV's terrain is located on north-east through north-west facing slopes, topping out at 12,481 feet above sea level (amsl) at the summit of Kachina Peak. The base area sits in a valley at an elevation of approximately 9,200 feet amsl. However, the highest lift-served terrain (from the top of Lift 2) is at 11,819 feet amsl. TSV averages 305 inches of snowfall each season, with 300+ days of sunshine each year.

TSV has been divided into distinct areas represented by bowls, ridges, and faces. Because of the main aspects of these slopes, varied terrain features, and the roughly 3,000 feet total vertical relief, a wind or storm from any direction can result in an avalanche hazard. Many of the slopes at TSV have been classified as "low intermittent hazard" (indicates occasional exposure to avalanches or dangerous size) because of the protective measures that are routinely applied. TSV easily qualifies as a Class A Site: High Avalanche Hazard (the site has at least one high intermittent avalanche slide path of ten or more low intermittent avalanche areas). TSV's Avalanche control operations are detailed in Chapter 4.

With the exception of West Basin Ridge, Highline Ridge and Kachina Peak, all terrain within the SUP area is lift-served, with a distinct "Frontside" and "Backside," the latter of which is served by three chairlifts – Lifts 4, 7 and 7a. The entire range of ability levels – minus first-time beginners – can be accommodated on all of TSV's lifts, with the exception of Lifts 2 and 6 (which are redundant). Teaching terrain for the Beginner and Novice guest is limited and is only found in the base area, which is relatively flat. As an aside, it is worth noting that it is possible to ski/ride directly to the base area (i.e., without riding multiple lifts) from any point on the mountain.

B. SOLAR ASPECT AT TSV

TSV is ideally located with predominantly northern, eastern, and western exposures. It essentially has no south-facing slopes (portions of *Walkyries Bowl* is an exception), which is a desirable situation.

Slope aspect plays an important role in snow quality and retention. The variety of exposures present opportunities to provide a range of slope aspects that can respond to the 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:** fair for snow retention, high wind scour, late morning and afternoon sun exposure
- ♦ **Northwest-facing:** good for snow retention, moderate wind scour, some afternoon sun

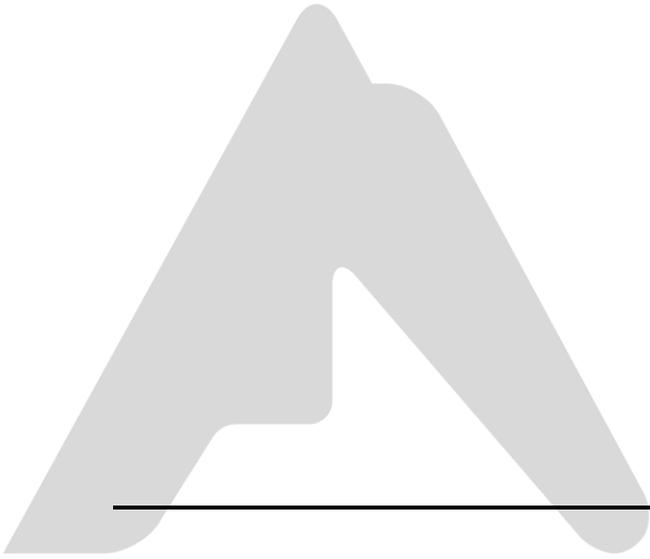
C. SLOPE GRADIENTS AT TSV

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 (*Japanese Flag*, for example). 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 (*Rubezahl Return Trail*, for example).

Slope gradients at TSV are depicted on Figure 2.

- **0 to 8 percent (0 to 5 degrees):** too flat for skiing and riding, but ideal for base area accommodations, and other support facility development.
- **8 to 25 percent (5 to 15 degrees):** ideal for Beginners and Novices, and typically can support some types of development.
- **25 to 45 percent (15 to 25 degrees):** ideal for Intermediates, and typically are too steep for development.
- **45 to 70 percent (25 to 35 degrees):** ideal for Advanced and Expert skiers/riders, and pose intermittent avalanche hazards.
- **>70 percent (>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.





CHAPTER 4

EXISTING FACILITIES

4. EXISTING FACILITIES

The following section contains an examination and analysis of existing facilities at TSV. Completion of a thorough resort inventory is the first step in the master planning process and involves the collection of data pertaining to the resort's existing facilities. This inventory includes lifts, trails, the snowmaking system, base area structures, guest services, other resort functions/activities, day-use parking, operations, and utilities/infrastructure. The analysis of the inventoried data involves the application of industry standards to TSV's existing conditions. This process allows for the comparison of the resort's existing facilities to those facilities commonly found at resorts of similar size and composition.

The overall balance of the existing resort is evaluated by calculating the capacities of various facility components and then comparing these capacities to the resort's current CCC. This examination of capacities helps to identify TSV's strengths, weaknesses, opportunities, and constraints as a resort. The next step is the identification of improvements which would bring the existing facilities into better equilibrium, and will assist the resort in meeting the ever-changing expectations of their marketplace. Accomplishing these objectives will result in a well-balanced resort which provides an adequate array of services and experiences to satisfy guest expectations for a quality recreational experience.

The examination of existing facilities presented in this chapter correlates with Figure 3.

A. SUMMARY OF THE EXISTING GUEST EXPERIENCE

Determining the resort CCC is an important first step in evaluating the overall guest experience because it enables planners to understand the overall balance of the recreational facility. Empirical observations and a close examination of TSV's principal components reveal some key surpluses and deficiencies.

A resort's CCC is computed by analyzing the resort's supply of, and demand for, vertical lift transport. TSV's CCC was determined to be approximately 3,520 guests. From a terrain standpoint, the resort's trail network has sufficient capacity for an average skier-per-acre trail density of six—a density that is on the low side of industry averages. This is a desirable situation that ensures an uncrowded experience, even on

peak days. This analysis also indicates an imbalance, that there is not enough lift capacity to balance with the developed terrain capacity.

Generally speaking, the current guest experience at TSV is good; TSV has been consistently rated as one of the top ten best values in the nation by Ski Magazine. There is a friendly atmosphere, the facilities are well maintained and spacious for the number

of guests, and the skiing/riding is excellent. On most weekdays and non-peak weekends, actual daily visitation levels at the resort are below the calculated CCC, meaning that long lift lines are uncommon, and most guest service facilities are not over-burdened. TSV typically receives abundant snowfall, and when snowfall is below average, a snowmaking system is in place to provide adequate snow coverage to critical terrain.



Despite its attributes, several aspects of the facilities at TSV are in need of upgrading. The lift network in particular detracts from the guest experience due to its age. The lifts are all older style fixed-grips, several of which have overly long ride times, with others requiring multiple lift rides to access a destination. Many of these lifts operate at hourly capacities that are below their original design capacities. Several of the lifts were built in the 1970s and so are reaching the average 35-year life span for fixed-grip chairlifts.

This Chapter presents a detailed analysis of TSV’s current strengths and deficiencies, followed by Chapter 5, which includes the Upgrade Plan that will help to improve the overall recreational experience and enhance the resort’s image in the regional market.

B. EXISTING LIFT NETWORK

TSV currently operates 13 lifts: 4 quad chairlifts, 1 triple chairlift, 5 double chairlifts, and 3 surface lifts. TSV’s lifts are discussed below, and are separated according to their location on the Frontside and Backside. The existing lift network is depicted on Figure 3.

The resort’s total uphill design lift capacity has been calculated at just under 17,000 people-per-hour (pph). Table 1 in Appendix A summarizes the technical specifications for the existing lifts. A brief discussion of each lift at TSV is discussed individually in the following text.

In general, the age and low capacity of the resort's lift network is such that it should be improved and expanded in order to better and more efficiently serve existing terrain throughout the SUP area. There are two components to this situation: 1) recreational, and 2) operational.

The primary factor to consider from a recreational perspective is lift speed and hourly capacity; TSV's existing network of slow, low capacity lifts restricts the number of runs that skiers and riders are able to make throughout the day. Further, access to the summit is necessary to get to the Backside, which requires riding two lifts in series. This situation makes circulation difficult and contributes to crowding and congestion at key locations during holidays and periods of high visitation. For example, it currently takes, on average, around 25 minutes to get to the summit from the base area, a trip that could be reduced to less than 10 minutes were a single, high-speed lift installed from the base to the summit. Another example is the popular Kachina Lift (Lift 4). The existing lift has a 10-minute ride time, whereas a high-speed lift would get skiers and riders the top in under 4 minutes. To put it in perspective, if a skier or rider were to take ten runs in the Lift 4 pod in a day, a high-speed lift would equate to over an hour less time spent riding on the lift.

1. Frontside Lifts

TSV's Frontside lifts—1, 2, 5, 6 and 8, as well as the teaching lifts—serve approximately 200 acres of developed terrain, and access the entire spectrum of ability levels—from Beginners through Experts.

Lift 1 (Al's)

In order to gain access to the summit, one must ride either Lift 1 or 5 and then Lift 2 or 6, in series. All four of these lifts are fixed-grip lifts, resulting in at least 20 minutes elapsed time to reach the summit from the base. Furthermore, as discussed below, Lifts 5 and 6 are aging and have low hourly capacities.

Lift 1 is the primary out-of-base lift at TSV. This fixed-grip quad chairlift was installed in 1989 and is used by all skiers and riders for accessing the mountain (except for when Lift 5 is in operation; see below). While some guests round-trip ski/ride the Expert terrain served by Lift 1, it is primarily used for access to the upper portions of the mountain. Of people who do repeat-ski/ride Lift 1, about two-thirds use the Intermediate route of *Porcupine* to *White Feather*, while the remainder are on the Expert routes of *Al's Run*, *Inferno*, *Showdown*, and others.

With a capacity of 2,100 people-per-hour (pph) Lift 1 is the highest capacity lift at TSV. However, it does not provide the out-of-base capacity necessary during busy periods at the resort, and is therefore augmented periodically by Lift 5. Lift 1 is capable of handling the out-of-base access demands of daily visitation levels of up to approximately 3,000 guests. When both Lifts 1 and 5 are operating, the two lifts in conjunction can transport 4,950 guests within the 1.5 hour access time period, accommodating peak day crowds.

Lift 2 (Reforma)

Lift 2 was installed in 1995, and serves a critical role in transporting skiers and riders to the mountain summit, as Lift 1 and Lift 5 stop at mid-mountain. Therefore, in order to reach the top of the mountain, and access “Backside” terrain served by Lifts 4 and 7, skiers and riders generally take *Whitefeather* from the top of Lift 1 and then ride Lift 2 to the summit. While Lift 6 parallels the Lift 2 alignment; similar to Lift 5, it is only operated when additional lift capacity is needed on busy weekends and holiday periods. When both Lifts 2 and 6 are operating, the two lifts in conjunction can transport 4,800 skiers within the 1.5 hour access time period, a capacity that is well-balanced with the access capacity of Lifts 1 and 5.

For round-trip skiing and riding, Lift 2 services primarily Expert terrain (roughly 1,050 vertical feet), including portions of West Basin accessible off the *High Traverse*. The top terminal of Lift 2 serves as the starting point for skiers and riders accessing Experts-only hike-to terrain off of Highline Ridge, West Basin Ridge and the *Main Street* area. This is the steep and challenging terrain for which TSV has become renowned.

Lift 3 and the Rueggli Lift

Installed in 1970, Lift 3 (a fixed-grip double chairlift) caters to Beginner and Novice skiers/riders on Strawberry Hill, providing Ski School with a nice progression for first time and beginner skiers/riders who graduate from the adjacent Zipper conveyors. Likewise, the Rueggli chairlift (also a fixed-grip double) provides the same function. Lift 3 and the Rueggli chairlift service 123 vertical feet, and 75 vertical feet, of teaching terrain, respectively.

Lift 5 (High Five)

Lift 5 (a fixed-grip double chairlift) was installed in 1973. Due to its redundancy with Lift 1, but more importantly because of its age, low hourly capacity and long ride time, it is operated on a limited schedule. This includes peak days and holidays when extra out-

of-base capacity is needed to supplement the out-of-base role of Lift 1 and on Sundays/Mondays for ski school.

Lift 6 (Winston)

Lift 6 (a fixed-grip double) was installed in 1976 and has a capacity of 1,400 pph; this lift parallels Lift 2. The top terminals are at the same elevation, while the bottom terminal of Lift 6 is slightly higher than Lift 2. Because of its redundancy with Lift 2, as well as its age, low hourly capacity and long ride time, Lift 6 is only operated on a limited basis—during holidays and peak weekends—to provide additional uphill capacity to the summit and take some of the pressure off of Lift 2.

It should be noted that the location of the bottom terminal of Lift 6, in conjunction with the Whistlestop Café, creates a constricted area for skiers and riders coming from the summit and heading down onto *Powderhorn* and *White Feather*.

Lift 8 (West Basin)

Lift 8 is a relatively new (installed in 1994) fixed-grip quad that efficiently services approximately 1,200 vertical feet of primarily green and blue terrain on the western side of TSV's Frontside. It is also used extensively in conjunction with Lift 2 by skiers/riders repeat-skiing the Expert terrain off West Basin Ridge.

Zipper 1, 2 & 3

The Zipper 1, 2 and 3 conveyor lifts are used by Ski School for instructing children and first-time beginners to ski and snowboard. These lifts provide the critical foundation for first timers to progress onto teaching terrain serviced by Lift 3 and the Rueggli lift.

2. Backside Lifts

Lift 4 (Kachina)

Lift 4 services approximately 1,200 vertical feet of green, blue and black terrain. Lift 4 is the longest lift at TSV and has a ride time of just over 10 minutes, which is considered longer than desirable by modern lift design standards and guest expectations. Lift 4 is almost 20 years old (installed in 1991). Nonetheless, it is a critical and very popular lift that serves a large portion of TSV's Backside terrain. Given its length, importance in serving backside terrain, age, and relatively low capacity (1,800 pph) this lift should be replaced with a faster, higher capacity lift.

Lift 7 (Maxi's)

Lift 7 (a fixed-grip triple) accommodates repeat use of green, blue, and black terrain on TSV’s Backside, as well as the Out-To-Launch terrain park. In addition, many of TSV’s glades are accessed from this lift (in conjunction with Lift 7a) including, but not limited to: *Walkyries*, *Walkyries Chute*, and *Sir Arnold Lund*. It serves approximately 900 vertical feet of terrain, and also serves an important transportation function, when



combined with Lift 7a, for skiers and riders wishing to return to the summit (and the base area) from the Backside terrain. The only other option for returning to the summit from the Lift 7 pod is to descend the *Rubezahl* traverse, which leads back to the main base area and Lift 1.

As with Lift 4, given its importance in terms of repeat skiing and riding on Backside terrain and age (installed in 1984), this lift should be replaced with a newer, more efficient lift.

Lift 7a (Seventh Heaven)

Lift 7a is a short (840 feet) fixed-grip double chairlift that services a nominal amount (295 vertical feet) of terrain. While it does see some repeat ski and ride use, its primary purpose is to function in conjunction with Lift 7 to provide access back to the summit and base area for skiers and riders using TSV’s Backside terrain. As such, the existing lift has sufficient capacity and provides an adequate experience for this role.

C. EXISTING TERRAIN NETWORK

1. Terrain Variety

Terrain variety is the key factor in evaluating the quality of the actual guest experience (as opposed to lift quality, restaurant quality, or any other factor). In *Ski Magazine’s* Reader Resort Ratings, “terrain variety” is ranked as the second most important criterion in readers’ choice of a ski destination, 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 have a wide variety of alternate style terrain, such as mogul runs, bowls, 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, “semi-backcountry” 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 all the undeveloped terrain types to the extent practical. 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. This is particularly true at TSV, which is well known for its quantity and quality of alternate/undeveloped terrain. As a result of this deserved reputation, TSV attracts skiers from around the country who search out this style of terrain.

In summary, to provide the highest quality guest experience, resorts should offer some level of all these terrain types, to the extent practical. Even though some of these terrain types only provide opportunities when conditions warrant, variety is increasingly becoming a crucial factor in guests’ decisions for where to visit.

2. Developed Alpine Trails

The developed, or formalized, terrain network at TSV consists of the named, defined, lift-serviced, maintained trails at the resort. Despite the importance of undeveloped, alternate-style terrain, formalized runs represent the baseline of the terrain at any resort, as they are where the majority of guests ski and ride, and they are usually the only place to ski/ride during the early season, periods of poor or undesirable snow conditions, avalanche closures, and certain weather conditions. As such, the developed trail network represents a true reflection of acreage used by the average skier/ride on a consistent basis, as well as that used by virtually all guests during the aforementioned conditions. Therefore, the total acreage of the terrain and the ability level breakdown must be sufficient to accommodate the full capacity of the resort.

Based on the rationale presented in the preceding paragraph, and for the purposes of this analysis, only the developed trail network is applied to the trail acreage calculations, skier/rider classification breakdown, trail capacity, and density formulas. Were this analysis to account for terrain outside of the developed trail network, it would have a misleading effect on those calculations. However, terrain outside of the developed network is crucial to terrain variety and the overall quality of the guest experience, and as such is addressed later in this section.

The topography of the SUP area is complex—slope gradients change dramatically along with elevation. The entire range of terrain can be found throughout the SUP area—in higher and lower elevations, on the Frontside and Backside. While the existing trail network is well planned and skiers/riders circulate well throughout the SUP area, TSV has identified several segments of critical trails that could be improved through widening and/or grading. This would improve skier/rider circulation; eliminate steep, abrupt pitches; improve access to trails; and aid in early season snowmaking operations.



For example, *Baby Bear* and *Papa Bear* could benefit from reshaping and finish grading so they can be opened with less snow. *Baby Bear* has a large double fall line area sloping towards the stream and *Papa Bear* is rough with rocks and stumps. In addition, some trails could benefit from snow retention fences and retaining walls, thus widening the skiable surface.

The developed trail network accommodates Beginner- through Expert-level guests on 80 lift-served, named trails spanning approximately 346 acres. Most “Green” and “Blue” runs are groomed on a regular basis, totaling approximately 160 acres. However, as discussed throughout this document, TSV is known for its extensive and unique array of Expert terrain—most of which is not included in the developed Alpine trail network. Approximately 257 acres of glades, steeps, and chutes are available in addition to the formalized trail network, as discussed below. As an aside, it is worth noting that it is possible to ski/ride directly to

the base area (i.e., without having to ride multiple lifts) from any point on the mountain. The existing developed Alpine terrain network is depicted on Figure 3.

Permit area boundaries are marked by ropes and/or signs unless demarked by other obvious man made or natural features. No recreational (unsupervised) sledding, tobogganing, snowshoeing, uphill “skinning,” or snowmobiling by the public is permitted on TSV’s trails. Foot travel on trails is discouraged. Dogs are not permitted on any trails, with the exception of the avalanche rescue dogs. Night time hiking, unauthorized sledding, skiing or snowboarding is prohibited.

Table 2 in Appendix A lists the specifications for all the developed terrain at TSV.

Teaching Terrain

Due to the rugged nature of the SUP area and topographic constraints, the amount of teaching terrain for first-time skiers and riders at TSV is sub-optimal. All of TSV’s teaching terrain is located at the base area. Children start out of the Children’s Ski School on Beginner terrain served by the Zipper 1 conveyor and the Rueggli double chairlift. Adults generally are taught on terrain served by the Zipper 2 and 3 conveyors, as well as on Strawberry Hill, served by Lift 3. True Beginner terrain totals approximately 1.8 acres. An additional 1.5 acres of Novice terrain is available in conjunction with the Zipper 3 lift.



Note: the maximum grade of TSV’s teaching terrain (when skied/ridden straight down the lift lines) on the Zipper 1 carpet and the Rueggli lift are slightly higher than desirable—14 percent and 16 percent—respectively. It is quite possible to take a longer route away from the lift line that is at or below the optimal 12 percent.

Frontside Terrain

Lift 1 Pod

Beyond teaching terrain in the base area, all other terrain—Novice through Expert—is accessed by riding Lift 1. From there, skiers and riders disperse across the Frontside and Backside of the mountain.

From the top of Lift 1, guests have three options: 1) descend to the base area on what is primarily Expert-level terrain and round-trip ski/ride through the Lift 1 pod; 2) descend *White Feather*—a Novice level trail—to the base of Lift 8; or 3) descend *White Feather* to the base of Lift 2 and ride it to the summit.

Lift 2 Pod

For those who choose to ride Lift 2 to the summit, they can either: 1) hike to Expert terrain on West Basin Ridge/Highline Ridge; 2) round-trip ski/ride the Lift 2 terrain pod, which is almost entirely Expert; or 3) descend Novice or Advanced terrain to either the Lift 4 or Lift 7 terrain pods on the Backside.

Lift 8 Pod

The Lift 8 terrain pod is a popular area for Novice and Intermediate-level skiers and riders, with plenty of options to keep them entertained. TSV Ski and Ride School is active in this pod, along with local racing teams and special racing events. The Lift 8 pod is a popular alternative to the Lift 7 pod, which offers similar opportunities for Novice and Intermediate skiers and riders.

White Feather extends from the base of the Lift 8 pod back to the base area, and is the only option for Novice and Intermediate skiers and riders to return to the base area. However, they can reach the on-mountain Whistlestop Café for food service and restrooms instead of descending to the base area for these amenities.

Backside Terrain

Lift 4 Pod

Skiers and riders who choose to repeat-ski the Lift 4 terrain pod will find some Expert-level terrain, but it is primarily Novice and Intermediate. The Phoenix Grill is conveniently located at the bottom of Lift 4, providing food service and restrooms, eliminating the need to return to the base area for these amenities. From the Lift 4 terrain pod, Expert and Intermediate skiers/riders may ride Lifts 7 and 7a to the summit, and then pick their route back to the base area.

Lift 7 Pod

The Lift 7 terrain pod contains something for everyone—from steep chutes and glades, to mellow “cruisers” and Novice terrain. The Out-To-Launch terrain park is

located within this terrain pod—on *Maxie's*—as is TSV's race course (on *Lone Star*).¹¹ Therefore, the Lift 7 terrain pod is important to the recreational experience afforded at TSV and is well used.

Note: In order to take full advantage of the Lift 7 terrain pod, guests must ride both Lift 7 and Lift 7a for return to the summit.

Terrain Distribution by Ability Level

The terrain distribution through the full range of skill levels is close to the ideal breakdown for the regional destination skier/rider market. The terrain classification breakdown of the existing resort is set forth in the following table and chart. The last column in this table represents what can be considered the ideal skill level distribution in the relevant skier/rider market and provides a comparison with the existing breakdown at TSV.

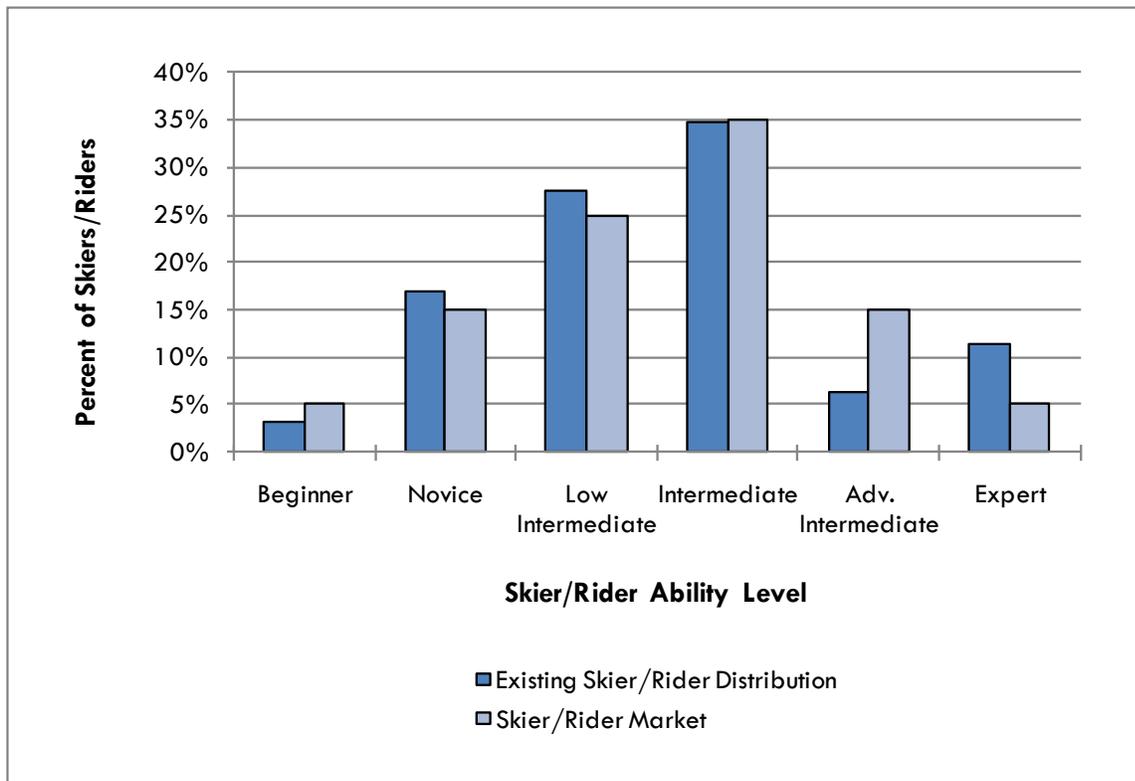
**Table 4-1:
Terrain Distribution by Ability Level – Existing Conditions**

Skier/Rider Ability Level	Trail Area (acres)	Skier/Rider Capacity (guests)	Skier/Rider Distribution (%)	Skier/Rider Market (%)
Beginner	3.3	100.4	3	5
Novice	29.3	527.0	17	15
Low Intermediate	61.0	854.4	28	25
Intermediate	109.6	1096.2	35	35
Adv. Intermediate	26.6	186.2	6	15
Expert	116.1	348.2	11	5
TOTAL	345.9	3,112	100	100

Source: SE Group

¹¹ Per a 2009 Decision Memo signed by the Carson National Forest Supervisor, *Lone Star* was approved to be widened and graded; with buried snowmaking lines, power, and communication lines. This enabled TSV to relocate the racecourse from *Totemoff* to *Lone Star*.

**Chart 4-1:
Terrain Distribution by Ability Level – Existing Conditions**



Source: SE Group

Table 4-1 illustrates a relatively close match between TSV’s existing terrain distribution and the market demand for all ability levels. The deficiency of true Beginner terrain reflects the small amount of terrain dedicated to each of the carpets and the Ruggli lift. While the total acreage of terrain is less than optimal, the three carpets and the lift create a sufficient capacity of first-time beginner terrain. The surplus of Novice terrain is a result of the numerous skiways and other Novice-rated circulation routes around the resort. The quantity of true repeatable Novice terrain is actually below the target market demand. The distribution of Intermediate terrain—both Low Intermediate and Intermediate—is very close to the market demand. There is a noteworthy deficiency of Advanced Intermediate terrain, and a surplus of Expert level terrain. While both of these ability levels are rated “Black” on the trail maps, when taken together, they balance out to a close match to the market. However, the deficiency of Advanced Intermediate level terrain indicates that it would be difficult for an Intermediate level skier or rider to progress to the Expert level at TSV, since there is a deficiency of terrain in this important step.

3. Undeveloped and Gladed Expert Terrain

Undeveloped, steep terrain is what TSV has become synonymous with. It is in an enviable and unique position in the ski industry, in which the natural topography within the SUP area lends to an abundance of steeps, chutes and glades intermingled with, and outside of, the developed and maintained terrain network that was previously discussed.¹²

As discussed previously under “Terrain Variety,” for the purposes of this analysis, only the developed trail network is applied to the trail acreage calculations, skier/rider classification breakdown, trail capacity, and density formulas. Were this analysis to account for terrain outside of the developed trail network, it would have a misleading effect on all of those calculations. However, terrain outside of the developed network is very important to terrain variety and the overall quality of the guest experience, as evidenced in this section.

This MDP puts TSV’s undeveloped and gladed Expert terrain into two categories: lift-served and hike-to. Both are discussed below.

Lift-Served Undeveloped and Gladed Expert Terrain

There are numerous examples of undeveloped Expert terrain—including glades, chutes and steeps—that is readily accessible from TSV’s lift network and developed, maintained trails. In total, these areas combine for approximately 74 acres.

Examples of glades within TSV’s developed terrain network include: *Sir Arnold Lund*, *North American*, *Edelweiss Glade*, and *Jean’s Glade*. These glades are within the Lift 7 and Lift 1 pods. Depending on snow conditions, these notoriously steep glades are heavily used by Expert skiers and riders. TSV has identified additional opportunities to selectively thin and manage specific areas within its existing SUP area that could help address the demand for these types of opportunities. Areas with potential for glading are discussed more in depth in Chapter 5.

In addition to glades (e.g., *Sir Arnold Lund*), Lift 2 provides easy access to roughly 1,050 vertical feet of Expert chutes and steeps off of the *High Traverse*, to the west.

¹² Glades are forested areas throughout a ski area—either natural or purposefully thinned—that, depending on the tree density and slope angle, provide varying levels excitement and challenge (i.e., TSV’s glades are typically steep and tight—making them suitable for experts only; however, some resorts offer glades that are on mellower pitches with well-spaced trees that are suitable for lower level skiers and riders).

Hike-To Expert Terrain

TSV's unique offering of hike-to, in-bounds, Experts-only terrain represents a large part of its reputation for steeps and chutes. This terrain is accessed by hiking from the top of Lift 2, and is composed of three primary areas: hiking to the south leads to terrain along (1) Highline Ridge and (2) the *Main Street* area; while hiking north accesses terrain along (3) West Basin Ridge (see Figure 3 for hike-to terrain). These three areas, totaling roughly 257 acres, represent some of the best in-bounds, Expert-only terrain available at any ski area in the country.

West Basin Ridge

West Basin Ridge is home to some of TSV's steepest chutes and biggest rock bands. A short hike from the top of Lift 2 offers access to a multitude of different runs to the north—from local's favorites *Stauffenberg* and *Zdarsky*, to *Wonder Bowl* at the furthest reaches of the Ridge.

Highline Ridge

Highline Ridge has something to offer every type of advanced skier or rider, from the steep bumps of *Juarez*, long chutes of *Twin Trees*, to tree skiing on *Trescow*.

Main Street Area

At 12,481 feet, this is considered the crown jewel of TSV. To reach terrain in the *Main Street* area, an approximate 60-minute hike is required along Highline Ridge from Lift 2, depending on weather conditions and hiking speed.

The *Main Street* area offers spectacular views and some of the biggest and best terrain that TSV has to offer. Descending *Main Street* to the Lift 4 terrain pod is common. Expert skiers and riders looking to push themselves can descend *Dahl-Bredines*¹, a rocky face littered with billy-goat lines and big drops.

4. Terrain Parks

TSV's "Out-to-Launch" terrain park located on *Maxie's* (under Lift 7) offers two big airs, a hip, a quarter pipe, boxes and rails. Individual park features are constructed entirely out of snow (enabled by snowmaking), and are constantly maintained throughout the season. The park is groomed nightly.

D. EXISTING CAPACITY ANALYSIS

1. Comfortable Carrying Capacity

As discussed previously in Chapter 2, the accurate calculation of a resort's Comfortable Carrying Capacity (CCC) is the single most important planning criterion for a resort. All other related guest service facilities can be evaluated and planned based on the proper identification of the mountain's CCC, which is derived from the resort's supply of vertical transport (the combined uphill hourly capacities of the lifts) and demand for vertical transport (the aggregate number of runs demanded multiplied by the vertical rise associated with those runs).

A detailed calculation of TSV's current CCC was completed for this MDP, as shown in Table 4-2. As indicated, TSV's CCC was calculated at 3,520 guests per day.



**Table 4-2:
Comfortable Carrying Capacity – Existing Conditions**

Map Ref.	Lift Name, Lift Type	Slope Length (ft)	Vertical Rise (ft)	Actual Design Capacity (guests/hr)	Oper. Hours (hrs)	Up-Mtn. Access Role (%)	Misloading/Lift Stoppages (%)	Adjusted Hourly Cap. (guests/hr)	VTF/Day (000)	Vertical Demand (ft/day)	Daily Lift Capacity (guests)
1	Lift 1: Al's Run C-4	3,708	1,627	2,100	7.00	50	10	840	9,564	21,744	440
2	Lift 2: Reforma C-4	3,216	1,056	1,800	7.00	25	10	1,170	8,651	21,488	400
3	Lift 3: Strawberry Hill C-2	577	123	1,000	7.00	5	15	800	689	4,362	160
4	Lift 4: Kachina Lift C-4	4,542	1,204	1,800	6.75	-	10	1,620	13,167	17,132	770
5	Lift 5: High Five C-2	4,175	1,674	1,200	7.00	100	-	-	-	18,479	-
6	Lift 6: Winston C-2	2,779	943	1,400	7.00	100	-	-	-	19,088	-
7	Lift 7: Maxi's C-3	3,079	901	1,800	6.75	5	10	1,530	9,307	17,431	530
7a	Lift 7a: Seventh Heaven C-2	919	295	1,044	7.00	30	10	626	1,294	17,431	70
8	Lift 8: West Basin C-4	4,417	1,205	1,800	7.00	-	10	1,620	13,668	17,587	780
R	Rueggli C-2	592	75	1,000	7.00	-	15	850	446	2,860	160
Z-1	Zipper 1 C	97	12	650	7.00	-	5	618	53	837	60
Z-2	Zipper 2 C	46	5	650	7.00	-	5	618	20	406	50
Z-3	Zipper 3 C	228	23	650	7.00	-	5	618	97	975	100
TOTAL		28,375		16,894				10,909	56,956		3,520

Source: SE Group

2. Density Analysis

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 individual lift pod (CCC) with the trail acreage associated with that lift pod. At any one time, skiers and riders are dispersed throughout the resort, while using guest facilities and milling areas, waiting in lift mazes, riding lifts, or descending. For the trail density analysis, 25 percent of each lift's capacity is presumed to be inactive—using guest service facilities or milling areas.

The active skier/rider population can be found in lift lines, on lifts, or on trails. The number of people waiting in line at each lift is a function of the uphill hourly capacity of the lift and the assumed length of wait time at each lift. The number of people on each lift is the product of the number and capacity of uphill carriers. The remainder of the skier/rider population (the CCC minus the number of guests using guest facilities, milling in areas near the resort portals, waiting in lift mazes, and actually riding lifts) is assumed to be descending.

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).

The trail density analysis considers only the acreage associated with the developed trail network, as described above (see Figure 3). The density analysis for the existing conditions at TSV is illustrated in the following table (Table 4-3). This table shows that the average trail density at TSV is six skiers-per-acre, a density that is on the low end of the industry standard range and about one half of the target for typical resorts.¹³ This situation is certainly desirable from the perspective of the recreational experience, as low skier/rider densities are a defining factor in the quality of the recreational experience. However, this also indicates an imbalance, as it shows that there is not enough lift capacity to efficiently serve the available terrain.

¹³ Specific trails, particularly the egress trails towards the end of the day, can consistently have high densities.

**Table 4-3:
Density Analysis – Existing Conditions**

Map Ref.	Daily Lift Capacity	Guest Dispersal				Density Analysis			
		Support Fac./Milling (guests)	Lift Lines (guests)	On Lift (guests)	On Terrain (guests)	Terrain Area (acres)	Terrain Density (guests/ac.)	Target Trail Density (guests/ac.)	Diff. (+/-)
1	440	110	28	115	187	80.6	2	9	-7
2	400	100	39	139	122	71.1	2	6	-4
3	160	40	40	22	58	4.7	12	18	-6
4	770	193	54	272	251	76.3	3	9	-6
7	530	133	51	167	179	53.4	3	12	-9
7a	70	18	21	22	9	7.2	1	6	-5
8	780	195	54	265	266	49.2	5	10	-5
R	160	64	28	24	44	1.4	32	30	2
Z-1	60	24	21	11	4	0.1	28	30	-2
Z-2	50	20	21	5	4	0.3	13	30	-17
Z-3	100	25	21	26	28	1.5	18	30	-12
TOTAL	3,520	922	378	1,068	1,152	345.9	6	12	-6

Source: SE Group

The density figures included in the table above show that, for almost all of the individual lift/trail systems at TSV, the actual trail densities are lower than the target design criteria, meaning that trails are generally less crowded than most resorts.

The one exception to this is the Rueggli teaching area, where the actual density of 32 skiers/riders per acre is slightly higher than the target density of 30 skiers/riders per acre. The implication of this is a slight over-utilization of the teaching terrain off that lift. However, the range of acceptable densities for beginner teaching terrain is 25 to 35 skiers/riders per acre (see Chapter 2); therefore the 32 skiers/riders per acre of the Rueggli lift falls into the high end of that range. While this situation is above *optimal*, it does not represent a problem, per se. However, it certainly indicates that additional opportunities should be sought for terrain suitable for skiers and riders who have progressed past the Zipper 1, 2 and 3 carpets, but are not yet ready for more advanced terrain in their learning progression.

However, the low density numbers also indicate under-utilization of the existing terrain, meaning that there could comfortably be more skiers/riders on the terrain at any one time than there are at current visitation levels. This situation indicates two factors: 1) the amount of effort required to properly maintain the quantity of terrain is disproportionately high when compared to the number of skiers/riders on the mountain; and 2) there may be more skiers/riders than necessary riding on slow lifts. In terms of the guest dispersal percentages shown in the table above, a disproportionately high percent of the skiers/riders at any given time are riding on the lifts. Ideally, there should be a roughly equal number of skiers on the terrain as there are either riding the lifts or in lift lines. At TSV, it has been calculated that 33 percent are on the terrain, while 41 percent are on the lifts or in lift lines. This is often the case at resorts with a high number of long fixed-grip lifts, as there are more chairs per lift than detachable lifts (at the same hourly capacity). These factors indicate an opportunity to upgrade existing lifts and/or install new lifts within the existing boundaries of the resort, without creating undesirably high skier/rider densities.

3. Lift and Terrain Network Efficiency

Overall resort efficiency is becoming an increasingly important factor in the industry. This relates not only to energy efficiency and operational efficiency, but also to efficiency of the design and layout of the resort. The idea behind ski area design efficiency is to have a well balanced lift and trail network (i.e., the uphill lift capacity balances with the downhill trail capacity that it serves) that is efficiently served its lifts,

while maintaining desired CCC rates, circulation routes, and service to the full spectrum of skier ability levels and types.



Within the context of ski area design, the term “Lift and Terrain Network Efficiency” refers to the amount of effort and cost required to operate and maintain the lift and developed terrain network, as compared to the number of guests served (i.e., the daily capacity or CCC). The energy and costs related to the ski area efficiency include, but are not limited to: power use, operational labor, maintenance costs and labor, increased 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 resort, while creating a balance of capacity with the available terrain.

One way to analyze Lift and Terrain Network Efficiency is to calculate the average CCC per lift at a given resort. While this calculation does not relate to the overall capacity of the resort, it can indicate if: 1) the resort is not getting maximum utilization out of its lifts, or 2) there are more lifts than necessary for the capacity levels of the resort. 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. Industry-wide, the average CCC per lift is approximately 650. The average CCC per lift at TSV is 350, or almost half of the average. This indicates that, at TSV, there is likely a higher lift cost, in terms of both energy use and financial/operational cost, per skier/rider than the target. Contributing factors to this include Lifts 5 and 6, which are redundant to Lifts 1 and 2; Lift 7a which is used primarily for circulation; and the low hourly capacities of several of the lifts, which results in lower CCC rates.

In the case of TSV, this analysis of lift efficiency clearly indicates that the CCC of each lift, or lift pod, should be higher. If the above capacity analysis (sub-sections 1 and 2 above) showed that there was a good balance between the uphill and downhill capacities at TSV, then a low CCC per lift would indicate that there are too many lifts, but this is not the case at TSV. The low CCC per lift, coupled with the imbalance of a higher terrain capacity than lift capacity, shows that there is an appropriate (or even low) number of lifts for the terrain, but that the average CCC for the lift pods should be higher. Since CCC is derived from a comparison of vertical supply to vertical demand, the most effective way to increase the CCC for a lift pod is to increase the hourly capacity and vertical supply (VTFH) of the lift. This analysis therefore indicates that TSV does not have enough lift capacity for its currently available terrain and infrastructure capacity. A combination of removing redundant, low capacity lifts, increasing the uphill capacity of the lift pods, and adding lifts to better utilize the available terrain would address this issue.

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

1. Guest Services

At TSV, guest services are provided in the base area at TSV-owned establishments as well as privately owned facilities. There are two on-mountain guest service facilities run by TSV. Existing guest service facilities are identified on Figure 3.

Base Area Guest Services

Only TSV-owned and operated facilities are discussed in detail. In addition, there are numerous non-TSV owned facilities at the base area. These facilities are important to the overall guest/recreational experience at TSV, but are not included in the detailed discussion of base area guest services or space use.

Resort Center

This facility, built in 1989, is around 35,000 square feet in total and houses many of the skier service function of the resort, including: three restaurants (Tenderfoot Katie's Cafeteria, Rhoda's, and the Martini Tree), lockers, and much of TSV's administration and employee space.

Old Resort Center

This facility was originally built in 1964 and has been updated over the years. It is currently considered to be in good condition. It is around 17,000 square feet in size and is primarily used for ticket sales, rentals and repair, adult ski school, and retail space.

The Pit House

This building was built in 2003 and includes a 1,500-square foot warming hut and snowmaking facilities.

Children's Center

The Children's Center, built in 1994, houses 24,000 square feet of space dedicated to ticket sales, rental, food service for the children's programs, and ski school space, plus storage.

Medical Tract

This is a full-service medical facility, built in 1989, and is located in the base area near Strawberry Hill. The facility is open seven days a week during the ski season, and is staffed by an emergency physician.

Non-TSV-Owned and Operated Guest Service Facilities

- ♦ The St. Bernard
- ♦ The Edelweiss
- ♦ The Stray Dog
- ♦ The Bavarian Lodge
- ♦ The Snake Dance

On-Mountain Guest Services

On-mountain guest services are provided at the Whistlestop Café near the bottom terminals of Lift 2 and 6, and at the Phoenix Grill, at the bottom terminal of Lift 4.

The Whistlestop Cafe

Located at the base of Lift 6 and close to Lift 2, the Whistlestop Cafe is a common on-mountain location to meet friends, purchase a snack, use a restroom, or relax. This facility was constructed in 1986 and is still in relatively good condition. Despite its role

as the only Frontside on-mountain guest services facility, the Whistlestop Café is underutilized due to its location and size. Water is supplied by a well.¹⁴

As noted in Section B above, the location of the Whistlestop Café, in conjunction with the bottom terminal of Lift 6, creates a bottleneck or choke point for skiers/riders descending from the summit as well as those on *Powderhorn* and *White Feather*. Removal or relocation of the Whistlestop Cafe, in conjunction with the removal of Lift 6, would improve skier/rider circulation in this well used portion of the Frontside.

There is clearly demand for a Frontside on-mountain facility that is properly sized and located.

The Phoenix Grill

Located at the base of Lift 4, the Phoenix Grill is ideally situated for skiers and riders on TSV's Backside to rest, enjoy lunch, or use a restroom without the need for descending to the base area. Constructed in 1982 and remodeled numerous times since, this 11,500-square foot facility is in very good condition, is properly located, and is well used by TSV's guests.

2. Space Use Analysis

Sufficient guest service space should be provided to accommodate the existing resort CCC of 3,520 guests per day. The distribution of the CCC is utilized 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 amongst the base area and on-mountain facilities, guest service capacity needs and the resulting spatial recommendations are



¹⁴ State of New Mexico, State Engineer Office file #RG44134.

determined through a process of reviewing and analyzing the current operations to determine specific guest service requirements that are unique to the resort.

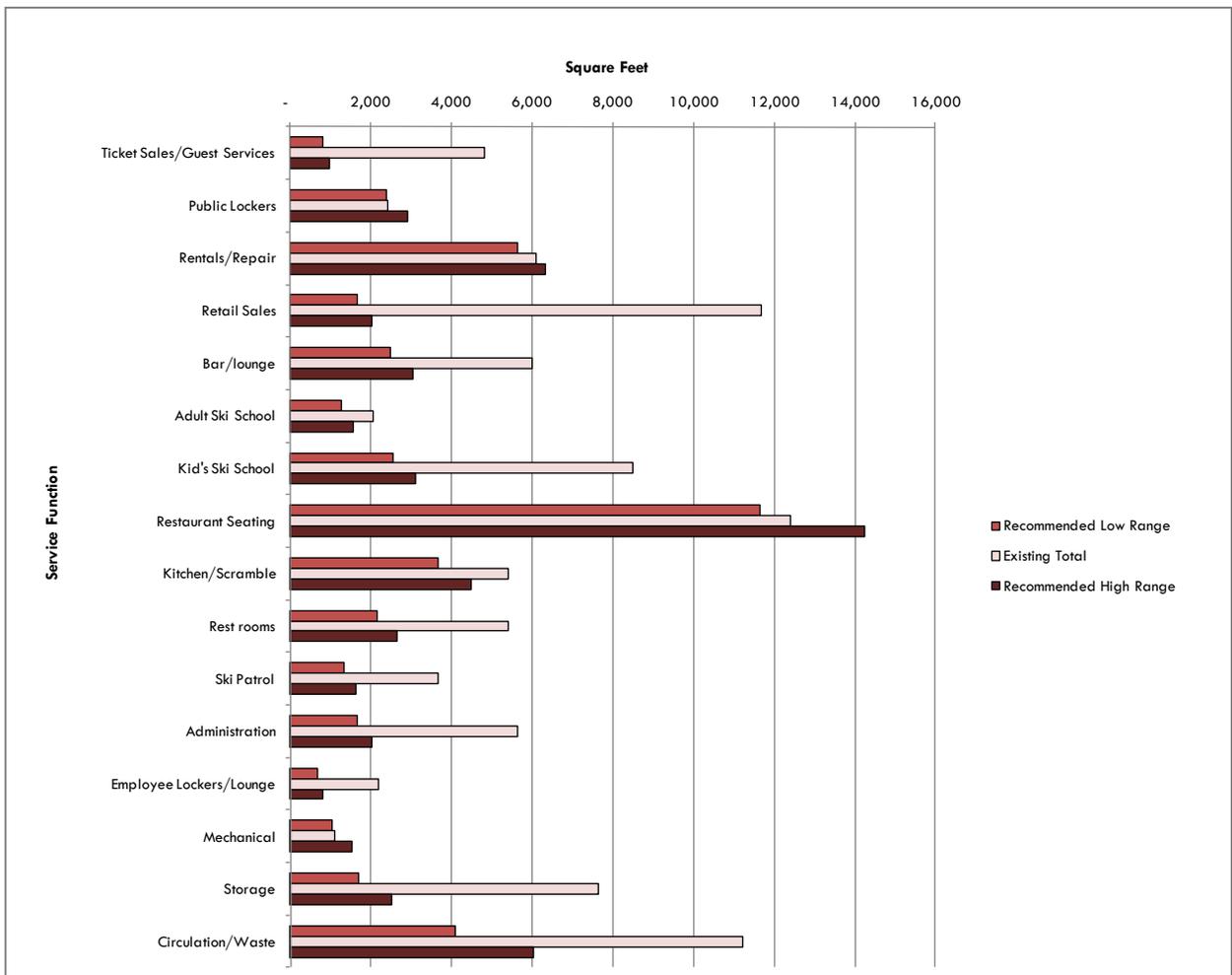
Based upon a CCC of 3,520 skiers, Chart 4-2 compares the current space use allocations of the guest service functions to industry norms for a resort of similar market orientation and regional context as TSV. Square footage contained in this chart is calculated to illustrate how TSV compares to industry averages, and should not be considered absolute requirements.

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.

**Chart 4-2:
Total Space Use and Recommendations – Existing Conditions**



Source: SE Group

As shown in the Chart 4-2, TSV is not at all deficient in guest service space. Overall, the resort has just over twice the minimum recommended amount of space when all guest service functions are accounted for. Significantly, there are no categories that show a deficiency of space. The reason for this surplus is largely due to two buildings: the Old Resort Center and the Children's Center. Without these buildings, the guest space would be very close to industry averages. TSV chooses to keep the old Resort Center open and use it for high profit margin uses like retail sales and ski/snowboard rental. The Children's Center is a very functional building and creates a single location for all needs related to the children's programs. This creates an excellent guest experience for families.

It should be noted that, while most categories are well above the industry average numbers, there are three categories that are within the recommended range: lockers, rentals/repair, and restaurant seating. The reason that these three categories are worth noting is that since the other categories are all well above the recommended range, the fact that these three fall within the range indicates that they are relatively low as compared to the other categories. Locker space is not necessarily in as high demand at destination resorts (like TSV) as it is in day-use resorts, so there likely is not a need for additional locker space. The rental and repair space is also not a concern, as additional space could likely be reallocated from other categories (such as retail) if needed. The restaurant seating is noteworthy; however, since restaurant seating is typically in very high demand at destination resorts, as well as restaurants being an important profit center. So, while the other categories of space use could handle increased visitation rates, restaurant seating is currently at recommended levels, indicating that increased visitation would require additional restaurant seating.

The following tables and text address the existing space use at TSV's base area and on-mountain facilities. The space recommendations are directly related to the distribution of the resort's capacity to the various guest service facilities located in the base area and on-mountain.

Base Area

As discussed above, the TSV main base area facilities provide guest services in a series of buildings: the Resort Center, the Old Resort Center, the Post Office, the Pit House, the Children's Center, and the Medical Tract building. Table 4-4 presents the combined total space of these buildings.

**Table 4-4:
Industry Average Space Use
Base Area – Existing Conditions**

Service Function	Existing Total	Recommended Range	
		Low	High
Ticket Sales/Guest Services	4,800	790	970
Public Lockers	2,400	2,380	2,900
Rentals/Repair	6,100	5,630	6,340
Retail Sales	11,675	1,660	2,030
Bar/lounge	6,000	2,490	3,050
Adult Ski School	2,067	1,270	1,550
Kid's Ski School	8,500	2,530	3,100
Restaurant Seating	5,200	6,060	7,410
Kitchen/Scramble	3,000	1,910	2,330
Restrooms	3,896	1,130	1,380
Ski Patrol	2,070	690	850
Administration	5,400	1,660	2,030
Employee Lockers/Lounge	2,200	670	810
Mechanical	900	780	1,150
Storage	6,500	1,300	1,910
Circulation/Waste	10,467	3,120	4,590
TOTAL SQUARE FEET	81,175	34,070	42,400

Notes:

Public lockers in RC includes 600sf season pass lockers and 1,800sf public lockers

RC retail = Chocolate Extreme and Cold Smoke 1000sf, Mesa Edge 800sf, Teen Center 600sf, and Times Square 500sf

Bat Cave storage 2,500sf

Source: SE Group

As shown in the Table 4-4, almost all the TSV base area facilities fall well above the recommended range in the total square footage. As discussed above, the square footages for both public lockers and rentals/repair fall within the recommended range. The only category in which the square footage falls below the recommended range is restaurant seating. This situation is mitigated by the presence, as noted, of non-TSV owned and operated restaurants in the base area (e.g., The St. Bernard, The Edelweiss, The Stray Dog, and The Bavarian Lodge). However, this situation does indicate that it would be logical to reallocate some existing space from a category that has a surplus of space to be used for additional seating space. This situation also indicates that any future increases in resort capacity will likely require additional restaurant seating.

On-Mountain Facilities

As discussed above, the Whistlestop Café and Phoenix Grill are TSV’s on-mountain guest service facilities.

**Table 4-5:
Industry Average Space Use
On-Mountain – Existing Conditions**

Service Function	Existing Total	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	7,200	5,580	6,820
Kitchen/Scramble	2,400	1,750	2,140
Restrooms	1,500	1,030	1,260
Ski Patrol	1,600	640	780
Administration	250	-	-
Employee Lockers/Lounge	-	-	-
Mechanical	200	240	370
Storage	1,150	400	610
Circulation/Waste	750	970	1,450
TOTAL SQUARE FEET	13,450	10,610	13,430

Source: SE Group

This analysis of space use suggests that space available on-mountain is in-line with demand. While this is true of the current usage patterns for the on-mountain facilities, any increase in on-mountain demand would cause a shortage of space, as the existing space is right at the upper end of the recommended range. This analysis addresses only *the total amount* of space available, as opposed to *the functionality or utilization* of any specific facility. As previously noted, the Whistlestop Café is currently underutilized due to its location. It also should be noted that, while the total amount of restaurant space is adequate, the actual number of restaurant seats (as discussed below) is deficient. However, since there is adequate space, this issue is easily addressed.

3. Food Service Seating

Food service seating at TSV is provided at the following locations:

- ♦ Base Area: Tenderfoot Katie’s, Rhoda’s, and the Martini Tree
- ♦ On-Mountain: The Whistlestop Café and the Phoenix Grill

A key factor in evaluating restaurant capacity is the turnover rate of the seats. A turnover rate of 2 to 5 times is the standard range utilized in determining restaurant capacity. Sit-down dining at resorts typically results in a lower turnover rate, while “fast food” cafeteria style dining is characterized by a higher turnover rate. Furthermore, weather has an influence on turnover rates at resorts, as on snowy days guests will spend more time indoors than on sunny days. As a result of input from TSV management, different turnover rates (ranging from 2 to 3.5) were used for the various facilities, as shown in the table below, in this MDP.

The following table summarizes the seating requirements at TSV, based on a logical distribution of the CCC to each service building/location.

**Table 4-6:
Recommended Restaurant Seating**

	Tenderfoot Katie's	Rhoda's	Martini Tree	Phoenix Grill	Whistlestop	Total Resort
Lunchtime Capacity (CCC)	1,251	192	481	1,490	282	3,696
Average Indoor Seat Turnover	3.5	2	3	3.5	3.5	-
Existing Indoor Seats	300	80	130	300	75	885
Required Seats	357	96	160	426	81	1,120
Difference	-57	-16	-30	-126	-6	-235
Existing Indoor Seating Capacity	1,050	160	390	1,050	263	2,913
Existing Outdoor Seats	125	-	-	100	25	250
Average Outdoor Seat Turnover	2.5	-	-	2.5	2.5	-
Total Seating Capacity - Including Outdoor Seats	1,363	160	390	1,300	325	3,538

Source: SE Group

As shown in the table above, there is a slight deficiency of seats at all locations. However, since there is adequate space (although no surplus, as discussed above), it would seem logical that additional seats could be placed in the existing spaces. Take, for example, the situation at the Phoenix Grill. The analysis shows 300 seats in 6,500 square feet of space, representing almost 22 square feet of space per seat. Industry averages are

typically around 15 square feet per seat. At this rate, 430 seats could be accommodated in the existing space. This increase of 130 seats would address the 126 seat deficiency that is shown in the above analysis.

The deficiency of on-mountain seating is particularly noteworthy, as on-mountain restaurant seating is always in high demand for lunchtime use. While this holds true throughout the industry, it is particularly true at resorts where circulation to the base area is difficult and lengthy, as at TSV. Skiers and riders who spend their whole day on the Backside do not want to have to return to the base for lunch because there are not enough seats available in the on-mountain facilities.

F. EXISTING PARKING AND RESORT ACCESS

1. Parking

Parking for TSV day skiers is available across multiple lots located in the base area; all of these day skier parking lots are on NFS lands within TSV’s SUP area. Total day skier parking is roughly 15 acres. The locations of existing parking areas are identified on Figures 3 and 5. As illustrated in Table 4-7, below, TSV has approximately 1,740 parking spaces available for day skiers and riders, and a current surplus of roughly 502 parking spaces on an average (or “comfortable”) day.¹⁵ Note that the information in Table 4-7 is based on a “comfortable” day in which TSV’s CCC of 3,520 is not surpassed; other non-skiing/riding guests (5 percent of CCC) are accounted for as well.

Actual vehicle occupancy counts confirm that “average vehicle occupancy” (AVO) at TSV is 2.57 people per car, a ratio that is within the national industry average of 2.3 to 2.7 people per car. TSV staff has also recently documented that the AVO at TSV increases on days with skier visits higher than the comfortable day.¹⁶

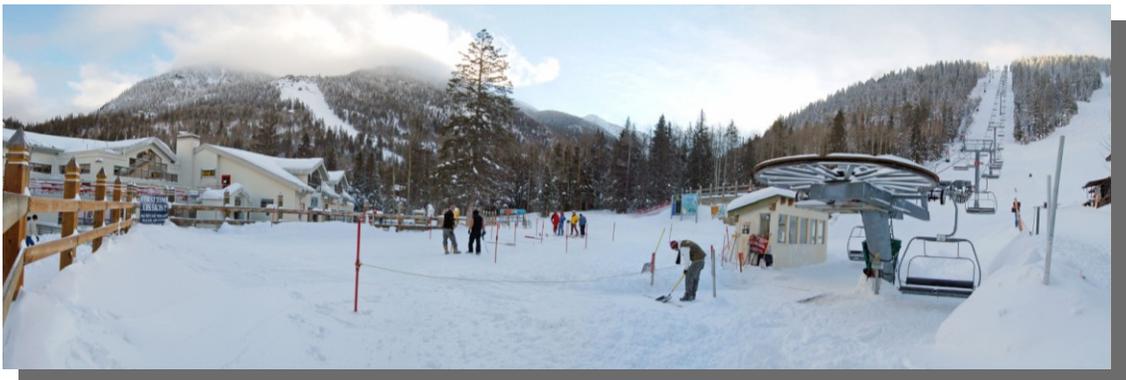
¹⁵ TSV staff counted guest vehicles on a recent “peak day” (March 16, 2010) when 1,700 vehicles were parked at TSV’s day skier parking lots and 40 spaces were still available. Table 4-7 summarizes the results of a detailed planning analysis conducted for this MDP that accounts for all aspects of TSV’s current parking/access configuration, including: CCC (i.e., day skiers); guests parking at off-site accommodations; guest (46 cars) staying at Snakedance, St. Bernard, Snow Bear, and Kandahar; guests arriving by shuttle; employee parking requirements; and average vehicle occupancies.

¹⁶ An AVO of 2.87 people per car was recorded on a recent “peak day.” March 16, 2010. This is attributable to an influx of “destination visitors” on peak days which tend to travel in larger group size and therefore generate higher vehicle occupancy.

TSV typically parks approximately 105 to 115 cars per acre, which is lower than an industry average of 120 cars per acre. This inefficiency can be attributed to many factors, including (but not limited to): parking lot configuration, parking strategy during days with lower skier visits versus the strategy on “peak days,” snow removal and storage, and parking attendants’ ability to direct guests while they are parking.¹⁷

It is acknowledged that guest parking and parking area capacities are very dynamic situations which is dependent on many factors. This analysis addresses the physical capacities of the parking areas and applies anticipated vehicle occupancies to arrive at an understanding of what the parking infrastructure should be capable of accommodating. Being dependant on so many factors, it is expected that there will naturally be days on which the parking situation varies widely. As an example, on days with new snowfall there will inevitably be a decrease in available parking spaces which may require one or more additional days of snow management until all parking spaces are recovered and are available for guests. These conditions occasionally have the effect of creating deficit parking even on days with moderate visitation.

In addition to TSV-operated day lots, there are designated parking spaces at accommodations within walking distance of the base area (e.g., Edelweiss, Sierra del Sol, and Twining Condos). At any given time throughout the ski season, it can be assumed that 1,100 of TSV’s guests are staying at hotels, condos, and single family homes in the Valley. It is estimated that 200 guests come from off-site shuttle services, and up to five charter buses are parked in TSV lots.



¹⁷ Management of snow storage is an operational issue, and as such will be addressed within TSV’s annual Winter Operating Plan.

**Table 4-7:
Parking – Existing Conditions**

	Assumptions	Totals
CCC + other guests (+5%)		3,696
Guests parking off-site		725
Guests arriving by shuttle		200
# parking at portal		2,771
# of guests arriving by car	92%	2,549
# of guests arriving by charter bus	8%	222
Required car parking spaces (based on AVO)	2.57	992
Required charter bus parking spaces (40 guests per bus)	40.00	6
Equivalent car spaces (1 bus=4.5 car)	4.5	25
Cars parking in TSV lots from Overnight Accommodations		46
Required employee car parking spaces		175
Total required spaces		1,238
Existing parking spaces		1,740
Surplus		502

Source: TSV, SE Group

Based on the above information and Table 4-7, TSV has a calculated surplus of approximately 502 parking spaces.

TSV is responsible for the direction, supervision, and control of parking lots on NFS lands and of pedestrian traffic and all access to permitted facilities. TSV works with all private businesses in the Village of Taos Ski Valley (VTSV) area to ensure that employee use of the parking lot is minimized. Parking permits are required for all VTSV area employees. A special drop-off zone is provided for the local shuttle service from the Town of Taos, including a waiting shelter for passengers, placed on skids near the guard shack.

2. Guest Drop-Off Areas

The majority of TSV day skiers and riders ride shuttles to the base area from parking lots; the vehicle drop-off area/turnaround is located at the Pagoda Sutton Place Road (see Figure 3). A small percentage of guests either walk to the base area after parking their cars, or are dropped off near the guard house. From that point, all guests are directed through the Village to access ticketing/guest services and Lift 1. The existing

drop-off area does not provide any sense of arrival for guests accessing the mountain, which is something that ski area managers would like to address.

Regardless of whether they are dropped off by shuttle/car, or walk from the parking lots, all guests must ascend a 30+ foot grade change between the bridge at the Pagoda and Lift 1. Because this is an inconvenience that affects the recreational experience from the initial point of entry to the resort, TSV considers this a high-priority planning issue.

G. EXISTING ALTERNATE AND NON-WINTER ACTIVITIES

Besides skiing and riding, for which TSV is well known, there are other winter and summer opportunities at the Village of Taos and nearby that keep guests occupied when they are not skiing and riding. Some of these include:

1. Winter

Snowtubing

Every Wednesday through Saturday evening between 5:00 and 7:00 pm, TSV guests can rent tubes for snowtubing on the lower section of Strawberry Hill. The run starts on the slope south of the snowmaking pumphouse and runs to the north across the stream and onto NFS land. Even though TSV does not operate a lift to transport snowtubers, demand for this amenity is extremely high, and guests walk up the hill on their own and then wait their turn to descend. Because Strawberry Hill is important teaching terrain, TSV does not create or maintain any permanent tubing lanes, and it is more-or-less a wide-open slope that guests descend on tubes. A well designed, dedicated snowtubing facility is an amenity that TSV wishes to offer its guests in the future, and the demand for this type of facility is demonstrated year after year.

Snowshoeing and Cross Country Skiing

There are no formal trails within, or immediately adjacent to, the SUP area for snowshoeing or cross country skiing in the winter. TSV recognizes that there is demand for both of these activities.

2. Summer

Scenic Chairlift Rides

TSV operates Lift 1 for scenic chairlift rides Thursday through Monday from later June through early September, and weekends only after that through the end of September. From the top of Lift 1, guests can either download back to the base area, or walk back down on the TSV maintenance road.

Mountain Biking and Hiking

There are no formal mountain biking or hiking trails within the SUP area. However, TSV recognizes that there is demand for lift-served mountain biking, with abundant opportunities within the SUP area.

Special Events and Programs

Special events, such as foot races and other competitions, are held on NFS and private lands periodically throughout the summer season, contingent upon necessary approvals. In addition, TSV is able to host on-mountain weddings, corporate picnics, business retreats, conferences and educational camps periodically throughout the summer season.

H. EXISTING RESORT OPERATIONS

1. Ski Patrol/First Aid

TSV's Ski Patrol headquarters (PHQ) is located on-mountain at the top of Lifts 2 and 6. This stand-alone facility is approximately 1,600 square feet in size and is open to the public as needed. However, it offers no restrooms or guest services/amenities other than picnic tables. There is also a roughly 1,400-square foot ski patrol clinic (the Mogul Medical Clinic) at the base area in the Medical Tract building. This is used to treat on-mountain medical emergencies.

Other than these two facilities, properly equipped rescue toboggans are stored throughout the resort, in accordance with the New Mexico Ski Safety Act. A.L.S equipment is stored at the top of Lift 4, and all first aid gear and rigid avalanche probe poles are stored at the top of Lifts 4 and 6, which provide the best access to any in-bounds emergency needs. A resuscitation pack and physician's equipment are stored at top of Lift 6 and in the Mogul Medical clinic.

In bounds search and rescue is the responsibility of TSV. Out-of-bounds (i.e., outside the SUP area) search and rescue may be conducted by TSV staff in coordination with state police search and rescue or other appropriate agencies.

TSV's Avalanche Rescue Plan is modeled after the three-stage plan outlined and detailed in the Forest Service's Snow Safety Guide #1.

2. **Avalanche Control**

Snow, weather and avalanche observations are the responsibility of TSV ski patrol. Because of the severe weather encountered at high altitude recreation areas such as TSV, some degree of hazard will always be present. In addition to severe weather, numerous avalanche paths of medium size or larger exist within the TSV SUP area that require constant monitoring and control work throughout the season. Therefore, TSV has prepared an Avalanche Control Safety Plan (reviewed and approved the by CNF) that provides for safety, control and rescue measures within the SUP area.

TSV has been divided into distinct areas represented by bowls, ridges or faces. Because of the main aspects of these slopes, varied terrain features, and the roughly 3,000 feet total vertical relief, a wind or storm from any direction can result in an avalanche hazard buildup. Slope hazard at TSV is classified according to the Forest Service Handbook No. 194, Snow Avalanches. Four degrees of hazard are recognized.

- ♦ Minimum Hazard: Indicates practical absence of hazard.
- ♦ Low Intermittent Hazard: Indicates occasional exposure to avalanches of dangerous size.
- ♦ High Intermittent Hazard: Indicates areas frequently subject to avalanches of dangerous size.
- ♦ High Intermittent Hazard, Not Controlled: Indicates highly hazardous areas which are not feasible to control.

Many of the slopes at TSV have been classified as low intermittent hazard because of the protective measures that are routinely applied. TSV easily qualifies as a Class A Site: High Avalanche Hazard, meaning that the site has at least one high intermittent avalanche slide path or ten or more low intermittent avalanche areas.

The CNF provides a qualified Snow Ranger who is responsible for monitoring the compliance with and effectiveness of the TSV Avalanche Control Safety Plan. TSV provides a trained avalanche technician acceptable to the Forest Service who carries out avalanche control measures in consultation with the Snow Ranger and patrol leader.

TSV uses multiple methods of conducting avalanche control work. A single 105 mm Howitzer provides extremely effective avalanche control for certain weather and terrain conditions. In addition, Avalauncher guns control inaccessible areas and expedite

control work done on skis. Third, hand blasting may be used in conjunction with the Howitzer and Avalauncher to control avalanche paths. Finally, test/protective skiing of terrain is conducted by ski patrol staff.¹⁸

Emphasis is given to opening the lower front side trails first, then the upper front side, and, finally, the *Honeysuckle* area and the Lift 4 area. Control work is planned to open the entire mountain as close to the normal opening time as possible.

Any employee who conducts avalanche control operations must have general training in use, storage and transportation of explosives, as well as special training in avalanche blasting techniques. Field caches for explosives and detonators consist of substantial locked boxes that are plainly marked and are in isolated locations.

TSV enacts a closure of terrain if extremely hazardous avalanche conditions exist, consisting of highly visible signs with specific references to “closed” or “avalanche danger.”

3. Snowmaking Coverage

Analysis conducted for this MDP indicates that TSV’s snowmaking system is capable of providing coverage on approximately 193 acres of the developed terrain across the SUP area. Snow is made on the majority of Beginner through Intermediate level trails.

The typical 11-week snowmaking season usually starts in late October and is finished by mid-January. An average depth of 18 to 24 inches of snow is required to open critical terrain in the teaching area, as well as *Powderhorn* (Intermediate) and upper and lower *Whitefeather* (Novice). The snowmaking system draws water from the Rio Hondo, and has a total capacity of 2,000 gallons-per-minute. TSV holds a diversionary right of 200 acre feet (AF), 65.2 million gallons, from the Rio Hondo annually.¹⁹ Water meters are located at each of the three stations where TSV diverts water from the Rio Hondo. The amount of water that is diverted is reported to the State of New Mexico on a quarterly basis. TSV’s snowmaking system is an air/water system, and as of 2009, consists of 30 air/water guns, 2 fan guns, and 30 tower guns. These guns are run off 350 manual hydrants.

¹⁸ “Test skiing” is a method of artificially releasing avalanches on selected small slopes by skiing; it serves as a field test of snow stability to check the conclusions. “Protective skiing” is the deliberate, day-to-day disturbance of snow on avalanche slopes in order to encourage stabilization.

¹⁹ State of New Mexico, State Engineer Office file # 01701A.

The snowmaking system has a major positive effect on TSV's operations, assuring that adequate snow coverage is present throughout the resort, especially during the early part of the season. While providing for early season skiing, snowmaking also extends the spring season by creating a good base for subsequent snow to build upon. In summary, snowmaking has allowed the resort to be open more days, and ensures snow quality throughout the resort, thereby achieving greater continuity of operation and a resultant increase in resort utilization.

4. Grooming Operations

TSV presently runs four to five grooming vehicles nightly to groom up to 160 acres of terrain. This acreage includes all Beginner through Intermediate terrain, as well as some upper level trails, including winching.

5. Maintenance Facilities

TSV's maintenance operations are housed in four separate buildings. The buildings are sized adequately to meet the current needs of the resort. The following table details the various buildings and their uses.

**Table 4-8:
Existing Maintenance Facilities**

Building/ Location	Year Built	Total Square Footage	Number of Bays	Attributes	General Condition
Vehicle Maintenance Shop	1987	14,000	8	Administration Employee Lockers Restrooms Mechanical Storage Welding Shop Lift Operations	Very Good
Little Maintenance Facility (LMF)	2006	3,000	3	Employee Lockers Restrooms Storage Carpentry Shop Electrical Shop	Very Good
Snowmaking Pit House	2001 /02	3,000	-	Mechanical	Very Good
KMF Backside Snowmaking	1990	2,000	1	Mechanical	Fair

I. EXISTING UTILITIES AND INFRASTRUCTURE

Utilities and infrastructure are discussed individually in this section. At the conclusion, Table 4-10 consolidates and summarizes all utilities and infrastructure across the resort.

1. Water

The Village of Taos Ski Valley's water supply at the Phoenix Spring provides excellent water quality, in excess of 1 million gallons per day. All TSV facilities, with the exception of the Whistlestop Café, use VTSV water and sewer. Chlorination is currently applied at the storage tank.

Water rights owned by the Village of Taos Ski Valley allow for the diversion of up to 418 AF/year.²⁰ The Village of Taos Ski Valley has one above-ground storage tank – with a 250,000 gallon capacity – located just off Kachina Road.

In the future, the water distribution system will require updating to ensure system reliability and adequate fire protection flows.

2. Sewer

The Village of Taos Ski Valley's community water treatment plant has the ability to process roughly 180,000 gallons-per-day (gpd). Current discharge during average usage is around 75,000 gpd, and between 100,000 and 110,000 gpd during peak usage. The existing treatment plant is considered adequate and will accommodate the needs of the ski area for roughly the next five years. The Village of Taos Ski Valley is committed to upgrading and improving the treatment plant as needed to meet the needs of the community.

3. Power

All electricity at TSV is supplied by Kit Carson Electrical Co-op to approximately 25 transformers at 20 locations across private lands and the SUP area, using a mix of primary and secondary metering, and single and three phase power.

The main service is primary metered including most of the on-mountain lifts, the Resort Center, and snowmaking. Peak demand is about 2,300 KW. Lift 4 and the Phoenix Grill are also primary metered. Peak demand is about 800 KW. The remaining accounts are secondary metered, with peak demand less than 300 KW.

²⁰ State of New Mexico, State Engineer Office file #0444A.

Power supply is adequate but will improve with a switch to higher primary voltage planned in the near future.

4. Fuel Storage

TSV has six above-ground fuel storage tanks located across the resort. Currently, a partial fuel tanker load can be accommodated. A larger pad and more fuel storage is an identified need in the future; however, individual fuel storage tanks are adequate for current needs. Table 4-9 identifies locations and extent of fuel storage across TSV.

**Table 4-9:
Existing Fuel Storage**

Building/Location	Storage Capacity	Type of Fuel Stored
VMF	6,000	Diesel/off road
VMF	2,000	Gas
VMF	2,000	Diesel/on road
Bottom Chair 2	3,000	Diesel/off road
Bottom Chair 7A	3,000	Diesel/off road
On mountain	3,000	Gas

5. Road Network

Approximately 12 acres of mountain access roads exist between the private, base area lands and the SUP area.

6. Summary of Existing Resort Infrastructure and Utilities

For the reader's benefit, Table 4-10 presents a summary of infrastructure and utilities across TSV.

**Table 4-10:
Summary of Existing Resort Infrastructure & Utilities**

MAINTENANCE FACILITIES				
	Year Built	Square Footage	Number of Bays	
Vehicle Maintenance Shop	1986	14,000	8	
Little Maintenance Facility	2006	3,000	3	
Snowmaking Pit House	2003	3,000	-	
Kachina Maintenance Facility (Backside Snowmaking)	1990	2,000	1	
SNOWMAKING				
Coverage	System	Water Source	Diversions Right	System Capacity
~250 acres	<ul style="list-style-type: none"> ◆ Air/water ◆ 30 air/water guns ◆ 2 fan guns ◆ 30 tower guns ◆ 350 hydrants 	Rio Hondo River	200 AF	2,000 gpm
DOMESTIC WATER				
Source	Capacity	Diversions Right	Storage/Capacity	
Phoenix Spring	200–1,200 gpm	Owned by Village of TSV, 418 AF/year	Above-ground tank/ 250,000 gallons	
SEWER				
Treatment Type	System Capacity		Adequacy	
Full/tertiary	180,000 gpd		Adequate	
POWER				
Source	Metering	Type	Type of lines	
Kit Carson Electric Co-Op	Primary & Secondary	Single & 3-Phase	Underground	
FUEL STORAGE				
Building/ Location	Capacity	Tank	Type of Fuel Stored	
VMF	6,000	Above-ground	Diesel/off road	
VMF	2,000	Above-ground	Gasoline	
VMF	2,000	Above-ground	Diesel/on road	
Bottom Chair 2	3,000	Above-ground	Diesel/off road	
Bottom Chair 7A	3,000	Above-ground	Diesel/off road	
On-mountain	3,000	Above-ground	Gasoline	

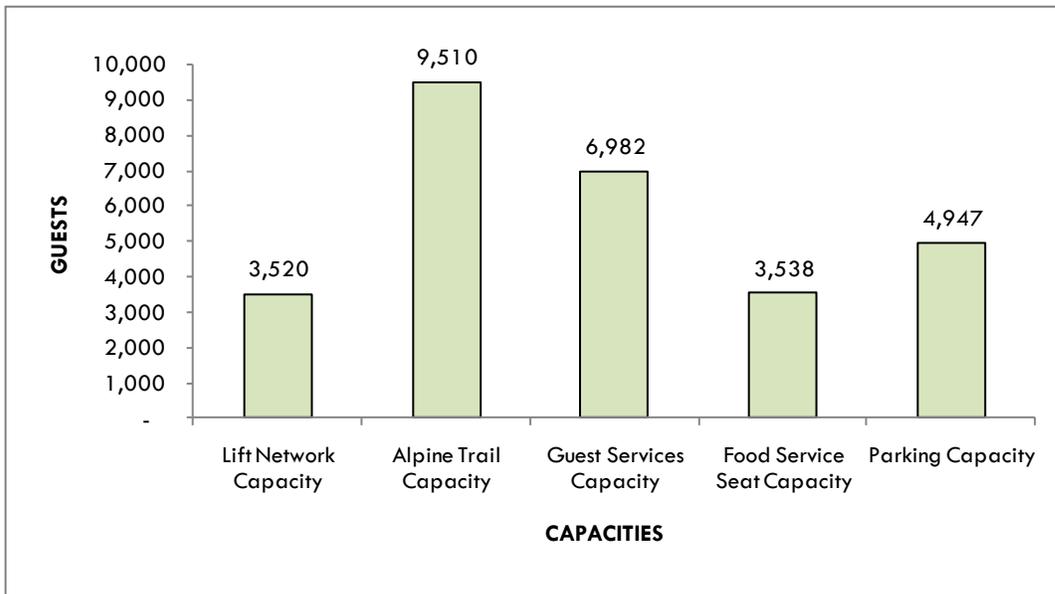
**Table 4-10:
Summary of Existing Resort Infrastructure & Utilities**

MOUNTAIN ACCESS ROADS						
Miles/Surface						
~12/Native						
PARKING						
Location	Surface Area	Vehicles/acre	Average Vehicle Occupancy	Total Parking Spaces		
SUP area	~15 acres	~120	~2.5 people/vehicle	~1,600		
LIFTS						
Name/Type	Top	Bottom	Length	Hourly Capacity	Year Installed	
Lift 1: Al's Run (fixed 4)	11,066'	9,439'	3,708'	2,100	1989	
Lift 2: Reforma (fixed 4)	11,816'	10,760'	3,216'	1,800	1995	
Lift 3: Strawberry Hill (fixed 2)	9,503'	9,380'	577'	1,000	1970	
Lift 4: Kachina Lift (fixed 4)	11,409'	10,204'	4,542'	1,800	1991	
Lift 5: High Five (fixed 2)	11,120'	9,446'	4,175'	1,200	1973	
Lift 6: Winston (fixed 2)	11,803'	10,861'	2,779'	1,400	1976	
Lift 7: Maxi's (fixed 3)	11,519'	10,618'	3,079'	1,800	1984	
Lift 7a: Seventh Heaven (fixed 2)	11,797'	11,502'	919'	1,044	1992	
Lift 8: West Basin (fixed 4)	11,260'	10,054'	4,417'	1,800	1994	
Rueggli (fixed 2)	9,417'	9,341'	592'	1,000	1992	
Zipper 1 Carpet	9,387'	9,374'	97'	650	2008	
Zipper 2 Carpet	9,361'	9,356'	46'	650	1998	
Zipper 3 Carpet	9,450'	9,473'	228'	650	2008	
TSV OWNED/OPERATED GUEST SERVICE FACILITIES						
Name/Location	Year Built	Square Footage	ADA Accessible	General Condition		
Pit House/Base area	2003	3,000	Yes	Very Good		
Resort Center/Base area	1989	35,000	Yes	Very Good		
Old Resort Center/Base area	1964 (remodeled)	17,000	Yes	Good		
Children's Center/Base area	1994	24,000	Yes	Very Good		
Whistlestop Café/On-mountain	1986	2,200	No	Good		
Phoenix Grill/On-mountain	1982 (remodeled)	15,000	Yes	Very Good		

J. RESORT CAPACITY BALANCE AND LIMITING FACTORS

The overall balance of the existing resort is evaluated by calculating the capacities of the resort’s various facilities and comparing those facilities to the resort’s CCC. The above discussed capacities are shown in Chart 4-3.

**Chart 4-3:
Resort Balance – Existing Conditions**



As Chart 4-3 indicates, the capacities of all of TSV’s various facilities exceed the resort’s lift-based CCC. The implication of this is clear: that the lift network is limiting the resort’s overall capacity. The lift network is not capable of serving the same number of guests as is the rest of the resort. Note that while the food service seating capacity is very close to the CCC, as discussed above, additional seats could be added to the existing seating areas to raise that number. All other components of the resort can easily handle higher visitation levels without feeling crowded or overburdened. With the higher trail capacity, the terrain will always retain the low-density feel that it now has. The message throughout this analysis consistently shows that the terrain network is well balanced with good distribution and variety, that the guest services and facilities are sufficient and provide a good experience, but that the lift network is inadequate and outdated.

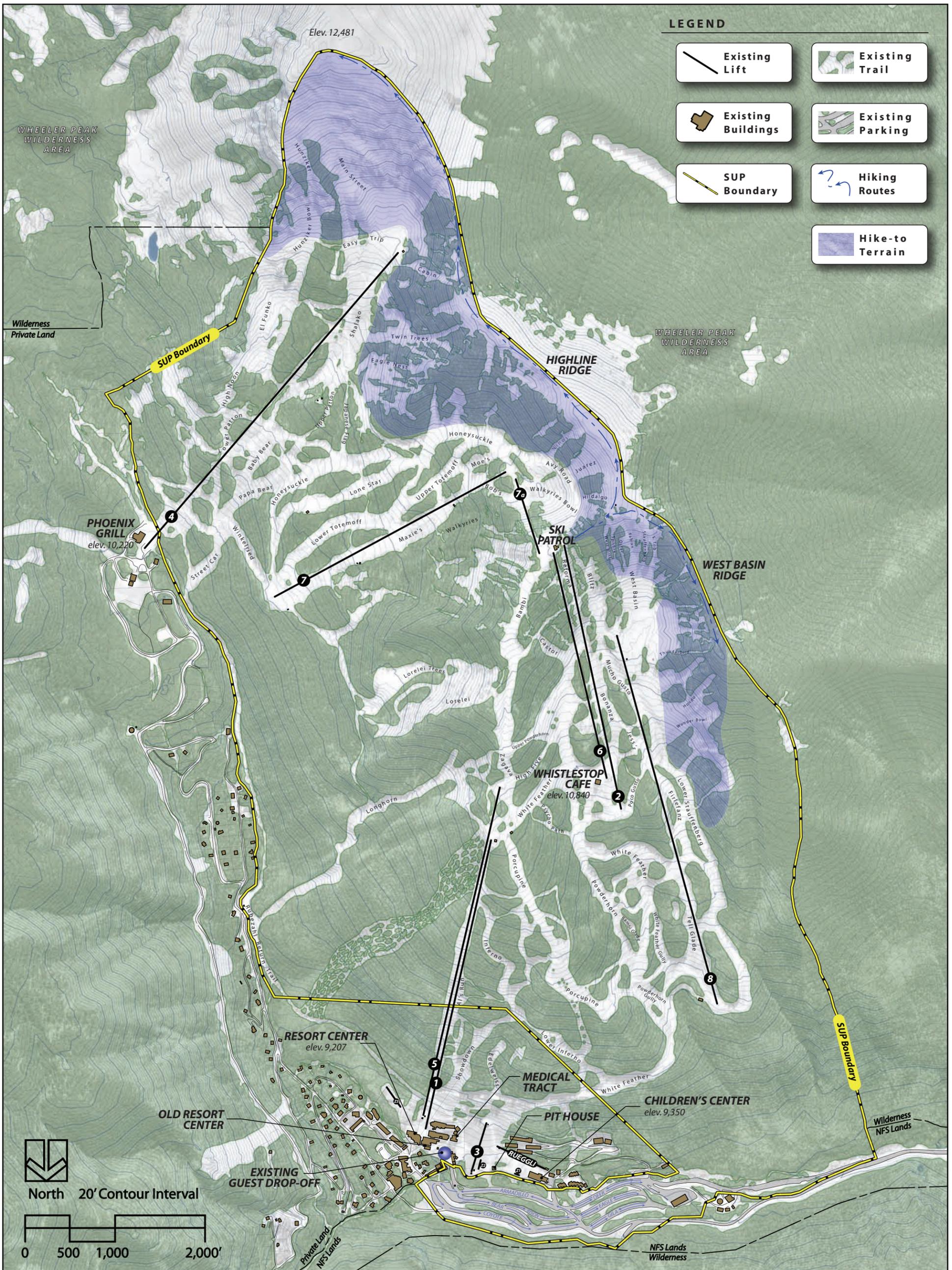
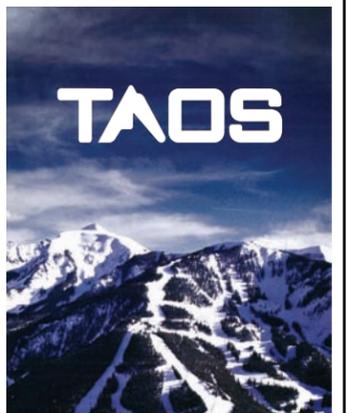


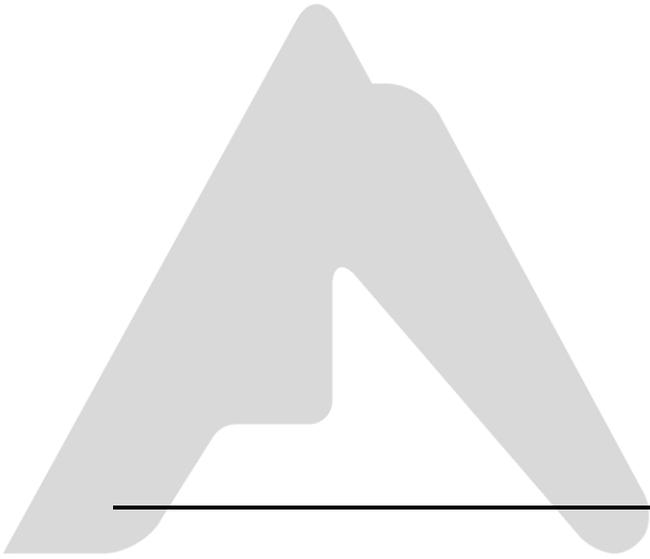
Figure 3

Prepared By:



EXISTING CONDITIONS
MASTER DEVELOPMENT PLAN





CHAPTER 5

UPGRADE PLAN

5. UPGRADE PLAN

The purpose of this Upgrade Plan is to provide direction for the future development of TSV which ensures a balance of facilities and a variety of amenities and opportunities—all leading to an improved recreational experience. It is designed to improve the recreational experience as well as operational efficiencies. This plan will allow TSV to remain competitive in the regional destination skier market, help retain existing guests, and attract new visitors. The Upgrade Plan is depicted on Figure 4.

A. SUMMARY OF THE UPGRADE PLAN

The Upgrade Plan has been specifically assembled to improve the quality of the recreational experience, and increase recreational opportunities, at TSV. It is important to note that, with the exception of planned projects on private, base area lands (e.g., the Burrow Beginner Area), all planned improvements in this Upgrade Plan are within TSV's existing SUP area. No expansion of the Permit Area is requested.

Along with providing lift access to underutilized in-bounds expert terrain, addressing deficiencies in TSV's antiquated lift network is an important component in this Upgrade Plan. The Upgrade Plan addresses the lift network in two ways: increased out-of-base lift capacity; and strategic lift replacements and installations. By addressing both of these areas, access to, and circulation throughout, the resort will be improved.

Out-of-base lift capacity and dispersal across the mountain will be improved with removal of Lifts 5 and 6 and the installation of the Summit lift, which will provide direct access to the Summit from the base area. Lift 4 will be replaced with a high-speed detachable lift; Lift 7 will be updated with a new fixed-grip quad; and two new chairlifts will be installed to provide expedited access to areas that are currently only accessible via hiking. A new beginner chairlift is planned on private lands in the base area.

In particular, new lift installations to areas that are currently only accessible by hiking will increase the extent of the developed, lift-served trail network within TSV's existing SUP area. Two new gladed areas are planned—one accessed from the summit or Lift 7, the other accessed from West Basin Ridge (via a new lift installation). Aside from these areas, relatively little new trail development is planned, other than a previously-approved trail in the northeast corner of the SUP area and miscellaneous trail

widening/connections in the Lift 4 pod. Under the Upgrade Plan, lift-served terrain will increase from roughly 346 acres to roughly 452 acres.

A restaurant planned for the summit of the mountain will dramatically improve TSV's ability to cater to its guests' needs without requiring them to descend to the base area.

With implementation of the Upgrade Plan, TSV's CCC will increase from 3,520 to 4,780 guests per day.

Alternative recreational opportunities are also included in the Upgrade Plan. The planned Taos Adventure Center on the western edge of the base area will offer snowtubing and snowshoeing to supplement existing and planned on-mountain opportunities. A network of dedicated mountain bike trails within the SUP area is also planned which will broaden TSV's summer recreational offerings.

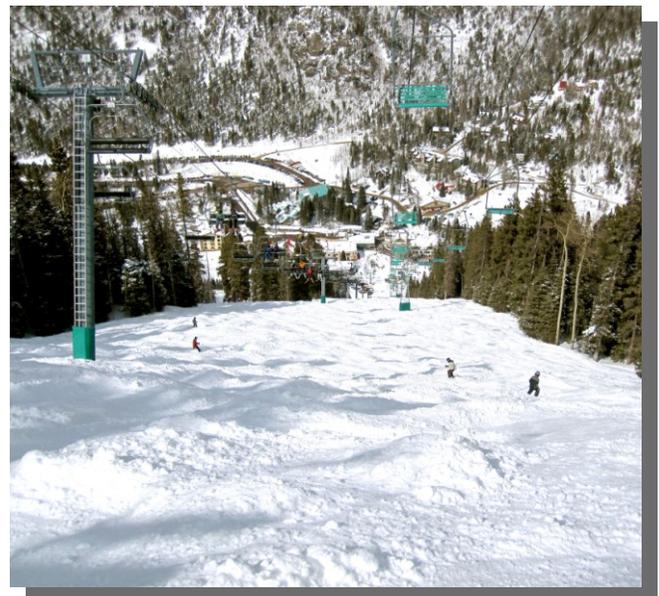
B. LIFT NETWORK

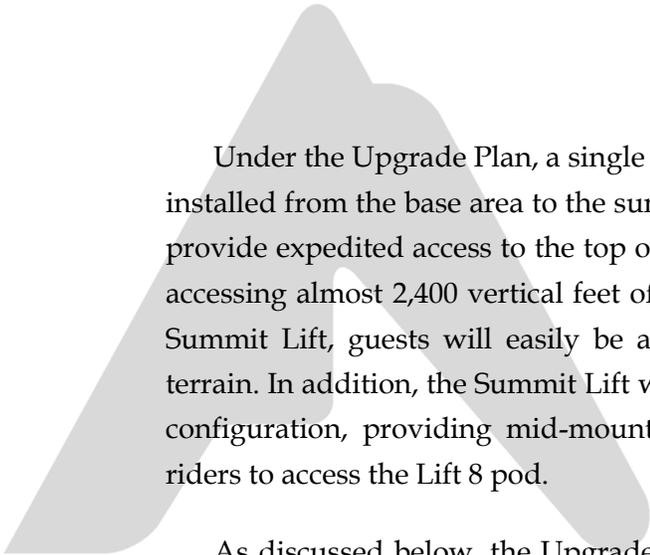
As discussed above, the cornerstone of the Upgrade Plan is a substantial upgrade to the lift network. Overall, four lifts are planned to be built in new alignments, two existing lifts are planned to be upgraded in the same alignment, and two existing lifts are planned to be removed. Table 6 in Appendix A includes detailed information on the lift specifications in the Upgrade Plan. Additionally, each lift is discussed separately below.

1. New Lift Installations

Summit Lift

As discussed in Chapter 4, in order to gain access to the summit, one must ride either Lift 1 or 5 and then Lift 2 or 6, in series. All four of these lifts are fixed-grip lifts, resulting in at least 20 minutes elapsed time to reach the summit from the base. Furthermore, Lifts 5 and 6 are aging lifts with low hour capacities.





Under the Upgrade Plan, a single high-speed detachable lift (the Summit Lift) will be installed from the base area to the summit. The roughly 7,000-foot long Summit Lift will provide expedited access to the top of the mountain, with a ride time of only 7 minutes, accessing almost 2,400 vertical feet of round-trip skiing and riding. From the top of the Summit Lift, guests will easily be able to disperse to Frontside, Backside, or hike-to terrain. In addition, the Summit Lift will compliment Lift 1, which will stay in its current configuration, providing mid-mountain access and enabling Intermediate skiers and riders to access the Lift 8 pod.

As discussed below, the Upgrade Plan calls for removal of Lifts 5 and 6. Lift 2 will stay in place, to provide repeat-skiing/riding, as well as redundant access to the summit. The Summit Lift will be operated in the summer, as well as the winter. Special signage will advise hikers of the closure of Taos Pueblo land that is 2.25 miles south of the SUP area.

Main Street Lift

The new Main Street Lift will provide lift-served access to popular Expert terrain within TSV's SUP area that currently receives moderate use by skiers and riders willing to hike to the *Main Street* area. Once skiers and riders access the fixed-grip Main Street Lift from the top of Chair 4, the roughly 2,250-foot long lift will provide direct, round-trip access to approximately 1,100 vertical feet of Expert terrain. This lift installation will eliminate an approximate 45- to 60-minute hike that is currently required along Highline Ridge to reach the *Main Street* area terrain from the top of Lift 2. The Main Street Lift will not be operated in the summer, but will be available for special access to the peak for search and rescue, as well as ranger patrol access.

Ridge Lift

The planned Ridge Lift will provide access to new and existing terrain off of West Basin Ridge. This planned fixed-grip lift is relatively short—roughly 800 feet long and 500 vertical feet. It will provide direct, round-trip access to existing terrain on the northern portions of West Basin Ridge (e.g., *Hondo* and *Wonder Bowl*). In addition, this lift will provide access to the planned “Wild West Glades”—see terrain discussion, below—on the eastern side of West Basin Ridge. Once skiers and riders descend through the Wild West Glades, they will need to ride Lift 8 to return to the bottom terminal of the Ridge Lift. This lift will be operated in the winter only.

Beginner Chairlift

A beginner chairlift is planned in conjunction with the Burrow Beginner Area on private lands in the base area. This roughly 1,300-foot long fixed-grip lift will support new teaching terrain, which TSV is lacking.

2. Lift Replacements/Removals

Upgraded Lift 4

Lift 4 (a fixed-grip quad) serves some of TSV’s most popular terrain (Green, Blue and Black). Because of the range of terrain it serves, it is a critical component of the recreational experience at TSV. It is also the longest lift at TSV, with a ride time of over

ten minutes; optimally, mountain planners understand that lift ride times should not exceed ten minutes. Given this lift’s importance, relatively low hourly capacity (1,800 pph), and most importantly, length, it is planned to be replaced with a high-speed, detachable quad to more efficiently serve the terrain with this pod. A detachable lift installed in the Lift 4 alignment will cut the ride time by more than half, to 4.5 minutes.



Upgraded Lift 7

Lift 7 is an important lift given its round-trip skiing component—accommodating round-trip skiing/riding on Green, Blue and Black terrain, the Out-To-Launch Terrain Park, and Expert glades and chutes. It also serves an important transportation function, when combined with Lift 7a, for skiers and riders wishing to return to the summit from the Backside terrain. The Lift 7 (a fixed-grip triple) is aging and in need of replacement; it is planned to be replaced with new fixed-grip technology in its current alignment, which will be more reliable and is intended to increase utilization of this terrain. Under the Upgrade Plan, Lift 7 will become a quad chair.

Removal of Lifts 5 and 6

As discussed, Lifts 5 and 6 are redundant with Lifts 1 and 2. In order to install the planned Summit Lift, Lift 5 will need to be removed, as the existing and planned lifts are in the same alignment. In addition, the Upgrade Plan calls for the removal of Lift 6.

Once Lift 5 is replaced, the Ski School functions that it serves will be moved to a different location on the mountain that will be determined at that time.

C. TERRAIN NETWORK

1. Terrain Variety

As discussed in the previous chapter, terrain variety is the key factor in evaluating the quality of the actual skiing and riding guest experience (as opposed to lift quality, restaurant quality, or any other factor). 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 have a wide variety of alternate style terrain, such as mogul runs, bowls, trees, open parks, in-bounds “backcountry style” (i.e., hike-to) terrain, and terrain parks and pipes.

To provide the highest quality guest experience, resorts should offer groomed runs of all ability levels and some level of all the undeveloped terrain types to the extent practical. 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 are only usable when conditions warrant, they represent the most intriguing terrain, and typically are the areas that skiers/riders strive to access. This is particularly true at TSV, which is well known for its quantity and quality of alternate/undeveloped terrain. As a result of this deserved reputation, TSV attracts skiers and riders from around the country who seek this style of terrain. This concept is addressed later in the Upgrade Plan.

Despite the importance of undeveloped, alternate style terrain, formalized runs represent the baseline of the terrain at any resort, as they are where the majority of guests still ski and ride, and they are usually the only place to go during the early season, periods of poor or undesirable snow conditions, avalanche closures, and certain weather conditions. As such, the developed trail network represents a true reflection of acreage used by the average skier/rider on a consistent basis, as well as that used by virtually all guests during the aforementioned conditions. Therefore, the total acreage of the developed terrain network, and its distribution by ability levels, must be sufficient to

accommodate the full capacity of the resort. As such, the two terrain types are discussed separately below.

2. Developed Alpine Trails

Overall, 112 acres are planned to be added to TSV’s lift-served terrain network, although only roughly 24 acres constitute newly constructed runs. The remainder is terrain that is composed of that which is skied/ridden currently by hiking, but will become lift-served. All of these 112 acres are within TSV’s existing SUP area. The trail configuration under the Upgrade Plan is depicted in Figure 4. The reader is encouraged to compare the extent of hike-to terrain identified in Figures 3 and 4 to understand the difference between the existing conditions and the Upgrade Plan.

Planned Teaching Terrain

The Upgrade Plan includes creating approximately 7.8 acres of additional Novice level terrain in the new Burrow Beginner Area (private land). A new beginner chairlift will service this terrain. This will bring the total acreage of Novice terrain at TSV to approximately 9.3 acres.

The Burrow Beginner Area is identified on Figure 4.

Planned Frontside Terrain

West Basin Ridge Terrain

Installing the Ridge Lift will create repeat skiing/riding opportunities on approximately 22 acres of terrain on the eastern face of West Basin Ridge that is currently hike-to accessible only. Some clearing and thinning will be required for the installation of the lift and to facilitate access to the terrain; however, most of this terrain will be used in its current configuration. Since this acreage will become directly lift-accessible, and easy to access, it will be integrated into the developed terrain network. New glades are proposed for the western face of West Basin Ridge, and are discussed under “Undeveloped and Gladed Expert Terrain,” below.

Lift-served terrain planned for West Basin Ridge is identified on Figure 4.

Planned Trail 8-09

Planned Trail 8-09 (located between *Jess’s* and *Firlefan*) will be roughly 960 feet long and will require approximately 3.2 acres of clearing. This will add terrain that is similar to *Firlefan*, which is very popular when the Lift 8 pod opens each season.

Planned Minnesota Catwalk

The planned Trail 7-10 (*Minnesota Catwalk*) will be roughly 3,180 feet long, requiring approximately 4.8 acres of clearing. It will connect the bottom to Chair 7 to the *North America* trails. This will create improved access to the base area from the Backside and will serve as an alternate to the *Rubezahl Return Trail* that has issues with flat sections.

Previously-Approved North America Trails

In May 2008, A Decision Notice authorized TSV to construct two trail projects within the SUP area – collectively referred to as the “North America Trails.”

The project area for these trails is on the northeast corner of the SUP area, between *Al’s Run* and *Longhorn*, and is bounded at the lower end by *Rubezahl*. TSV constructed the first trail project (a gladed trail) in 2008 – named *North American*. The remaining second project, a “traditional” trail, approved to the southeast of *North American* is yet to be constructed, and is identified in this Upgrade Plan. This Expert trail will be approximately 9.7 acres in area.

The previously-approved, unimplemented *North America* trail is identified on Figure 4.

Backside Terrain

Main Street Area

With installation of the Main Street Lift, approximately 63 acres of new lift-served terrain will be incorporated into TSV’s lift network. While the analysis of the planned Main Street terrain classifies it as Expert, there are Advanced Intermediate slopes present, making it suitable for a range of ability levels. This terrain is within TSV’s existing SUP area, and is currently only accessible via hiking.

In addition, new connector trails – trails 4-18 and 4-19 – and selective trail widening projects (totaling approximately 4 acres), are planned in conjunction with the upgrade of Chair 4 and installation of the new Main Street Lift.

The planned lift-served *Main Street* terrain and associated connector trails/widening projects are depicted on Figure 4.

Planned Trail Improvement Projects on Existing Frontside and Backside Terrain

Widening and Grading

As this Upgrade Plan is implemented, TSV plans to undertake strategic grading and trail widening projects on select trails on Frontside and Backside terrain. These projects are designed to, among other things, improve skier/rider circulation; eliminate steep, abrupt pitches; improve access to trails; and aid in early season snowmaking operations. Grading and trail widening projects are depicted on Figure 4.

Planned widening projects in the Upgrade Plan total approximately 3 acres, including the following trails:²¹

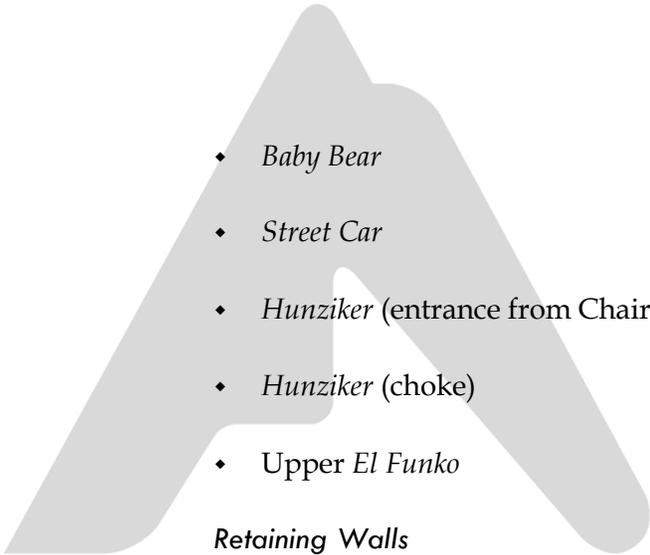
- ♦ *Upper Powderhorn*
- ♦ *Lower Powderhorn*
- ♦ *Bambi*
- ♦ *Bambi Glade*
- ♦ *Upper Totemoff*
- ♦ *Lower Totemoff*
- ♦ *Ruby Gully (entrance)*



Planned grading projects in the Upgrade Plan total approximately 12.5 acres, including the following trails:

- ♦ *Lower Inferno*
- ♦ *Lower Powderhorn*
- ♦ *Bambi*
- ♦ *Upper Totemoff*
- ♦ *Lower Totemoff*
- ♦ *Papa Bear*

²¹ Over time, this list may evolve, and trails identified as warranting widening and/or grading may be added or deleted.

- 
- ♦ *Baby Bear*
 - ♦ *Street Car*
 - ♦ *Hunziker* (entrance from Chair 4)
 - ♦ *Hunziker* (choke)
 - ♦ *Upper El Funko*

Retaining Walls

In addition to planned widening and grading projects, approximately 3,300 linear feet of retaining walls are proposed along identified narrow segments of existing trails. This will enable these trails segments to be widened. Trail segments planned to have retaining walls installed include:

- ♦ Extend *Golden Gate* wall to *Gold Mine* corner (roughly 440 linear feet)
- ♦ Skier's right edge of *Gold Mine* corner (roughly 350 linear feet)
- ♦ Skier left edge of *Porcupine Catwalk* (roughly 410 linear feet)
- ♦ Skiers left edge of *Bambi Catwalk* (roughly 620 linear feet)
- ♦ Skiers left edge of *5-2 Catwalk* (upper portion of *White Feather*, roughly 510 linear feet)
- ♦ Skiers right edge of *Avy Road* (roughly 960 linear feet)

Snow Retaining Fences

Approximately 2,300 linear feet of snow retaining fences are proposed in strategic trail segments to allow the seasonal creation of wider skiing/riding surfaces. These trail segments include:

- ♦ Skiers left edge of *Bambi* (roughly 915 linear feet)
- ♦ *Lorelei* (exit, roughly 540 linear feet)
- ♦ *Winke II* (lower catwalk portion of *Honeysuckle*, roughly 830 linear feet)

Terrain Distribution by Ability Level

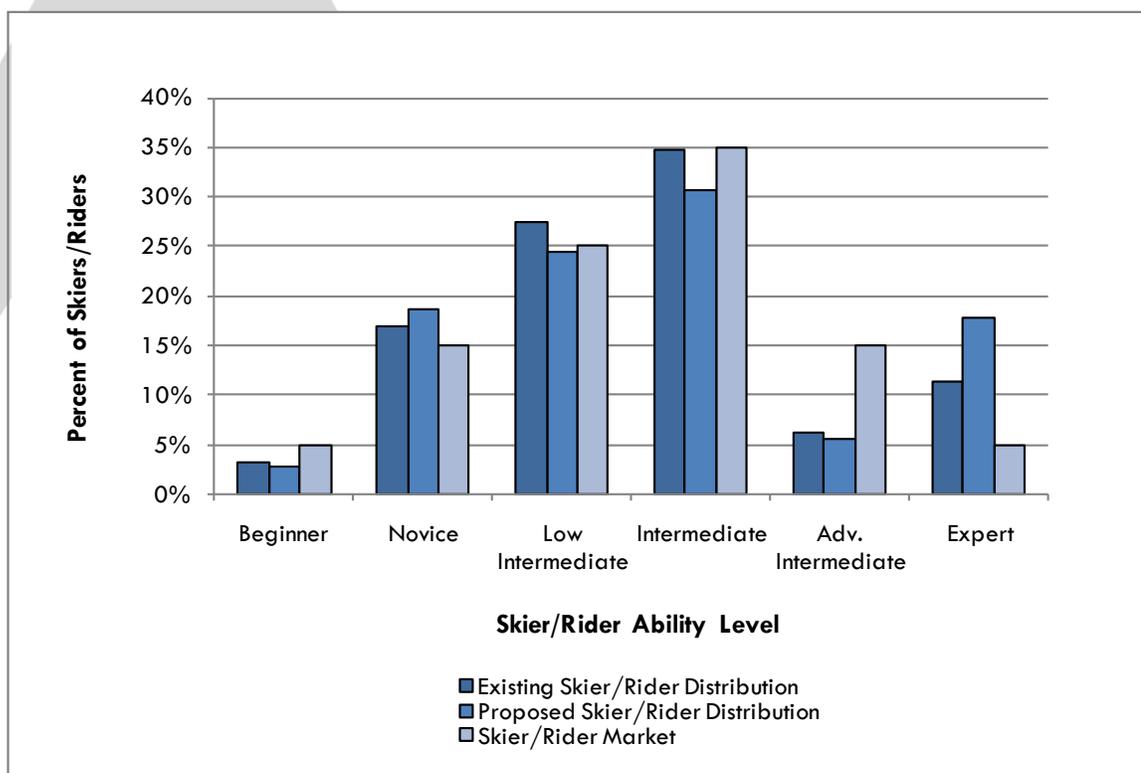
The potential demand for terrain through the full range of skill levels is in-line with the ideal breakdown for the regional destination skier market. The terrain classification breakdown of the Upgrade Plan is set forth in the following table and chart. The last column in this table represents what can be considered the ideal skill level distribution in the relevant market and provides a comparison with the Upgrade Plan.

**Table 5-1:
Terrain Distribution by Ability Level – Upgrade Plan**

Skier/Rider Ability Level	Trail Area	Skier/Rider Capacity	TSV Skier/Rider Distribution	Skier/Rider Market
	(acres)	(guests)	(%)	(%)
Beginner	3.3	100.4	3%	5%
Novice	37.0	666.8	18%	15%
Low Intermediate	62.8	879.7	24%	25%
Intermediate	118.5	1,185.0	32%	35%
Adv. Intermediate	28.2	197.4	5%	15%
Expert	213.4	640.3	17%	5%
TOTAL	451.9	3,577	100%	100%



**Chart 5-1:
Terrain Distribution by Ability Level – Upgrade Plan**



Source: SE Group

As the above table and chart illustrate, the planned changes do not appear to dramatically affect the overall terrain distribution at TSV. The exception is the increase in Expert level terrain, which is a result of adding the Main Street terrain and portions of West Basin Ridge terrain to the developed terrain network. While this terrain is already well used, making it directly lift-accessible will substantially increase its usage. Since the acreage for these areas is relatively high, it skews the other percentages.

The establishment of terrain ability classifications is based on the maximum slope gradient of the trail. Frequently, other factors such as trail width, snow conditions and other unique characteristics can affect the trail ability classifications at a resort. Note: TSV management feels that, despite its isolated steep pitches, a large portion of *Main Street* is composed of skiable fall-lines that classify as Advanced Intermediate; numerous varied slopes available off of *Main Street* allow this terrain to be accessible and enjoyed by Advanced Intermediate skiers and riders at TSV. Were the majority of *Main Street* to be classified as Advanced Intermediate terrain, rather than Expert terrain, the upgraded terrain distribution would create a nearly perfect match with the skier/ rider market.

3. Undeveloped and Gladed Expert Terrain

Lift-Served Undeveloped and Gladed Expert Terrain

The Upgrade Plan includes additional Expert glades to be incorporated within TSV's lift-served trail network.²² Under the Upgrade Plan, these areas will increase from roughly 74 acres under the existing conditions to approximately 182 acres, due to the creation of two new gladed areas – The Minnesota Glades and the Wild West Glades. Once a formal proposal is submitted to the Carson National Forest to begin site-specific analysis of individual projects, TSV will work with its Forest Service counterparts to assemble a glading plan that is both responsive to both the resort's operational/recreational needs as well as the CNF's forest health objectives. The glading plan will address elements such as, but not limited to: species and size selection, tree mortality (i.e., targeting dead/dying trees), percent removal, and habitat characteristics.

Minnesota Glades

The Minnesota Glades will be constructed with varying degrees (i.e., percentages) of tree removal across a roughly 70-acre area to support Expert skiing and riding. The percent of tree removal throughout the Minnesota Glades will be dependent on the density of vegetation in relation to the recreational experience that TSV is striving for, but will likely range from 10 to 25 percent. This area will be accessible from the summit or from the Lift 7/7a trail pod.

Wild West Glades

The Wild West Glades will contribute just over 35 acres of Expert terrain, accessible from the planned Ridge Lift. Special treatment in the form of additional tree removal, signage, and possible rope closures along the lower extent of the glading will be incorporated to ensure that the skiers/riders connect to *Lower Stauffenberg* instead of skiing below Lift 8.

In terms of terrain classification, the Wild West Glades will be similar to Main Street terrain in the respect that, due to the presence of a short, steep, pitch this area would technically classify as Expert. In addition, the very nature of gladed terrain (i.e., the presence of trees in the fall line) necessitates that skiers and riders have a relatively high ability level. However, TSV is confident that there are adequate Advanced Intermediate

²² Glades are forested areas throughout a ski area – either natural or purposefully thinned – that, depending on the tree density and slope angle, provide varying levels of excitement and challenge (i.e., TSV's glades are typically steep and tight – making them suitable for experts only; however, some resorts offer glades that are on mellower pitches with well-spaced trees that are suitable for lower level skiers and riders).

slopes present in this area and, combined with a tree clearing prescription that is intended to create large, navigable openings, the Wild West Glades will be enjoyable for a range of ability levels – including Advanced Intermediate and Expert.

Hike-To Expert Terrain

The planned Main Street and Ridge Lifts will decrease the amount of hike-to, in-bounds, Expert terrain available within the SUP area. However, this existing terrain will become available to a larger portion of TSV’s guests. While hiking to access the *Main Street* terrain will no longer be necessary under the Upgrade Plan—due to the Main Street Lift installation—hike-to terrain off of Highline Ridge will not change. Guests may still choose to hike north on West Basin Ridge; however, due to the Ridge Lift installation, it will not be necessary to hike to the northern boundary of this ridge.

With installation of the Main Street and Ridge Lifts under the Upgrade Plan, hike-to Expert terrain will decrease from roughly 257 acres under existing conditions to approximately 170 acres. Once again, the reader is encouraged to compare the extent of hike-to terrain identified in Figures 3 and 4 to understand the difference between the existing conditions and Upgrade Plan.

4. Terrain Parks

The “Out-to-Launch” terrain park located on *Maxie's* under Lift 7 will continue to meet the needs of TSV’s skiers and riders. While this terrain park is not planned to be expanded under this Upgrade Plan, it is reasonable to assume that it will continue to evolve along with technology and customer preferences.



D. CAPACITY ANALYSIS

1. Comfortable Carrying Capacity

As discussed previously in Chapter 2, the accurate calculation of a resort’s Comfortable Carrying Capacity (CCC) is the single most important planning criterion for a resort. All other related guest service facilities can be evaluated and planned based on the proper identification of the mountain’s CCC, which is derived from the resort’s supply of vertical transport (the combined uphill hourly capacities of the lifts) and demand for vertical transport (the aggregate number of runs demanded multiplied by the vertical rise associated with those runs).

TSV’s existing CCC has been calculated at 3,520. Under the Upgrade Plan, TSV’s planned CCC will increase, as detailed in the following table, and is calculated at 4,780 guests per day.



**Table 5-2:
Comfortable Carrying Capacity – Upgrading Plan**

Map Ref.	Lift Name, Lift Type	Slope Length	Vertical Rise	Actual Design Capacity	Oper. Hours	Up-Mtn. Access Role	Misloading/Lift Stoppages	Adjusted Hourly Cap.	VTF/Day	Vertical Demand	Daily Lift Capacity
		(ft)	(ft)	(guests/hr)	(hrs)	(%)	(%)	(guests/hr)	(000)	(ft/day)	(guests)
1	Lift 1: Al's Run C-4	3,708	1,627	2,100	7.00	75	10	315	3,586	23,721	150
2	Lift 2: Reforma C-4	3,216	1,056	1,800	7.00	25	10	1,170	8,651	23,441	370
3	Lift 3: Strawberry Hill C-2	577	123	1,000	7.00	5	15	800	689	4,362	160
4	Lift 4: Kachina Lift DC-4	4,542	1,204	2,400	6.75	0	5	2,280	18,532	22,522	820
7	Lift 7: Maxi's C-4	3,079	901	1,800	6.75	5	10	1,530	9,307	17,138	540
7a	Lift 7a: Seventh Heaven C-2	919	295	1,044	7.00	30	10	626	1,294	17,138	80
8	Lift 8: West Basin C-4	4,417	1,205	1,800	7.00	0	10	1,620	13,668	17,587	780
R	Rueggli C-2	592	75	1,000	7.00	0	15	850	446	2,860	160
Z-1	Zipper 1 C	97	12	650	7.00	0	5	618	53	837	60
Z-2	Zipper 2 C	46	5	650	7.00	0	5	618	20	406	50
Z-3	Zipper 3 C	228	23	650	7.00	0	5	618	97	975	100
-	Main Street Lift C-3	2,557	1,116	1,200	6.50	0	10	1,080	7,837	24,559	320
-	Summit Lift DC-4	7,045	2,363	2,000	7.00	40	5	1,100	18,194	28,596	640
-	Ridge C-3	991	545	1,200	6.75	0	10	1,080	3,972	26,486	150
-	Burrow Lift C-3	1,319	135	1,600	7.00	0	15	1,360	1,289	3,206	400
TOTAL		33,334		20,894				15,664	87,635		4,780

Text in white identifies upgraded and proposed lifts.

Source: SE Group

2. Density Analysis

As discussed in Chapter 4, 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 the following table.



**Table 5-3:
Density Analysis – Upgrading Plan**

Map Ref.	Daily Lift Capacity	Guest Dispersal				Density Analysis			
		Support Fac./Milling (guests)	Lift Lines (guests)	On Lift (guests)	On Terrain (guests)	Terrain Area (acres)	Terrain Density (guests/ac.)	Target Trail Density (guests/ac.)	Diff. (+/-)
1	150	38	11	43	58	38.6	2	8	-6
2	370	93	39	139	99	44.2	2	7	-5
3	160	40	40	22	58	4.7	12	18	-6
4	820	205	76	173	366	82.6	4	9	.5
7	540	135	51	174	180	56.4	3	12	-9
7a	80	20	21	22	17	7.3	2	6	-4
8	780	195	54	265	266	48.4	5	10	-5
R	160	64	28	24	44	1.4	32	30	2
Z-1	60	24	21	11	4	0.1	28	30	-2
Z-2	50	20	21	5	4	0.3	13	30	-17
Z-3	100	25	21	26	28	1.5	18	30	-12
Main Street Lift C-3	320	80	90	92	58	62.7	1	3	-2
Summit Lift DC-4	640	160	55	129	296	85.4	3	7	-4
Ridge C-3	150	38	54	36	22	22.0	1	3	-2
Beginner Lift C-3	400	160	45	75	120	7.8	15	18	-3
TOTAL	4,780	1,297	627	1,549	1,307	463.4	6	11	-5

Source: SE Group

Table 5-3 shows that with the upgrades to the lift system, a closer balance will be achieved between uphill and downhill capacities. The overall density analysis shows that there will still be desirable low skier/rider densities on the terrain (well below target densities), but that the developed terrain network will be better utilized.

3. Lift and Terrain Network Efficiency Analysis

As discussed in Chapter 4, overall resort efficiency is becoming an increasingly important factor in the industry, relating not only to energy/operational efficiency, but also to efficiency of the design and layout of the resort. The idea behind resort design efficiency is to have a well balanced lift and trail network (i.e., the uphill lift capacity balances with the downhill trail capacity that it serves) that is efficiently served by the its lifts, while maintaining desired CCC rates, circulation routes, and service to the full spectrum of ability levels and types.

As discussed in Chapter 4 (Section D), this MDP analyzes Lift and Terrain Network Efficiency by calculating the average CCC per lift. Optimally, and in general, the average CCC per lift will likely be close to 1,000. Industry-wide, the average CCC per lift is approximately 650. The existing average CCC per lift at TSV is 350. With the planned addition of four lifts and removal of two lifts, TSV is planning a net increase of two lifts, with corresponding increases to CCC. As a result, the average CCC per lift in the Upgrade Plan will be 398, or a 14 percent increase. While this does not bring the average up to industry averages, it certainly represents an improvement.

E. SKIER SERVICES FACILITIES AND FOOD SERVICE SEATING

1. Skier Services Locations

TSV will continue to function with a single base area staging portal under the Upgrade Plan. On-mountain guest services will continue to be offered at the Phoenix Grill and the Whistlestop Café, and a new on-mountain guest services/ski patrol headquarters facility will be constructed at the summit of the mountain—at the top of the Summit Lift and Lift 2.

Base Area Guest Services

This Upgrade Plan does not include any additions to the guest service facilities in the base area. As discussed in Chapter 4, there is an existing surplus of guest service space in the base area, this surplus is sufficient to accommodate higher anticipated demand.

On-Mountain Guest Services

The Planned Mountain Top Restaurant and Ski Patrol Headquarters

On-mountain guest services will be greatly improved with the removal of the existing ski patrol headquarters facility and construction of a new facility that will accommodate guest services as well as a new ski patrol headquarters. The new facility will be constructed in the same location, with a 4,500 to 5,500 square foot building envelope, as the existing facility (see Figure 4) as it allows for the best skier/rider circulation at the summit area. This location is ideally located for a restaurant, as it provides excellent views as well as being convenient to guests using the Frontside as well as those in the Lift 7 and 7a pod. The Mountain Top restaurant will have two floors and will be between 6,700 and 8,500 square feet in size. Approximately 0.33 acre of ground disturbance will be needed for construction, along with 0.08 acre of tree removal. Water supply and sewer system planning and design work has not been initiated at this time.

The Mountain Top restaurant will need to be designed and constructed in compliance with the Americans with Disabilities Act (ADA) for accessibility, as well as with the Forest Service's Built Environment Image Guide (BEIG) for aesthetics.²³

The Whistlestop Cafe

Based on the discussion in Chapter 4, TSV is considering moving/removing the Whistlestop Cafe and, in conjunction with the removal of Lift 6, regrading the area to improve circulation. However, this decision has not yet been made and the Whistlestop Café may stay in its current location indefinitely.

The Phoenix Grill

No additions are planned for the Phoenix Grill as part of this Upgrade Plan. The addition of the Mountain Top restaurant is anticipated to change usage patterns on the mountain, so the existing Phoenix Grill facility should be sufficient; however, as discussed in Chapter 4, some additional seating should be installed in the existing building.

²³ Reference "Visual Management and the Built Environment Image Guide" in Chapter 1 for more information on the BEIG.

2. Space Use Analysis

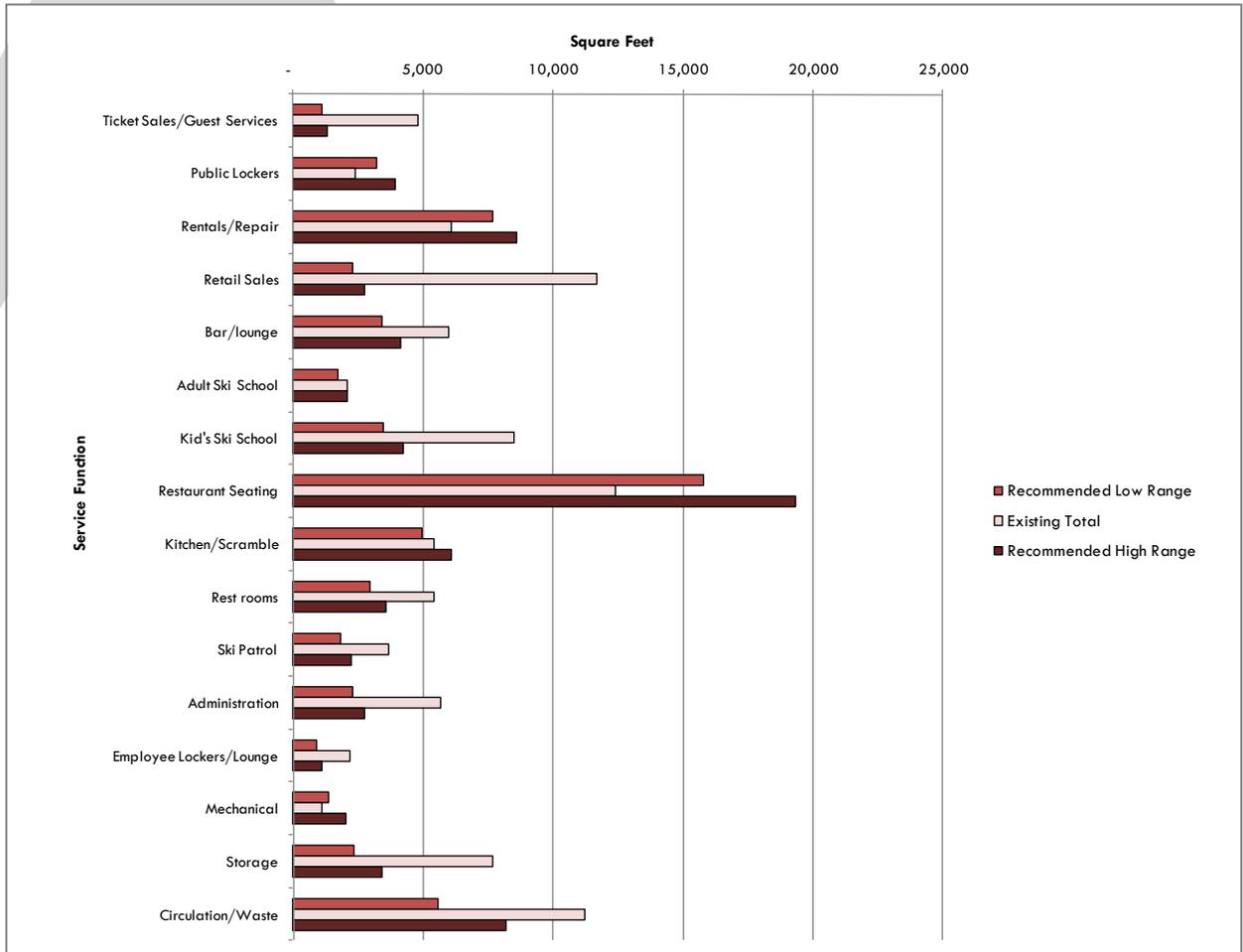
As discussed, the distribution of CCC is utilized to determine guest service capacities and space requirements for guest services at base area portals and on-mountain facilities. The CCC should be distributed between each guest service facility location according to the number of guests that will be utilizing the lifts and terrain associated with each facility. Sufficient guest service space should be provided to accommodate TSV’s planned CCC of 4,780 guests per day.

In addition to distributing the CCC amongst 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.

Based upon a CCC of 4,780 skiers, the following Chart 5-2 compares the current space use allocations of the guest service functions to recommended ranges. Square footage contained in this chart is calculated to illustrate how TSV compares to industry averages, and should not be considered absolute requirements.



**Chart 5-2:
Total Space Use and Recommendations – Upgrade Plan**



Source: SE Group

As shown in the Chart 5-2, the existing space at TSV is sufficient in many cases for the recommended space with the planned increase in daily capacity. The overall amount of existing space, 94,625 square feet, is still higher than the high end of the recommended range, at 75,770 square feet. However, it is much closer to being in line with the recommended space than under existing conditions, with several categories now falling within the recommended range.

Three categories of space were noted in Chapter 4 as being relatively low, when compared to the other categories: public lockers, rentals/repair, and restaurant seating space. As predicted, these three categories indicate a deficiency in the upgrade scenario. The deficiency of public lockers and rentals/repair space can be addressed through repurposing of space that currently shows a large surplus, such as retail or storage. The

deficiency of restaurant seating is addressed through the construction of the Mountain Top Restaurant.

The following tables and text address the Upgrade Plan space use at TSV’s base area and on-mountain facilities. The space recommendations are directly related to the distribution of the resort’s capacity to the various guest service facilities located in the base area and on-mountain.

Base Area

Base area facilities provide guest services in a series of buildings: the Resort Center, the Old Resort Center, the Post Office, the Pit House, the Children’s Center, and the Medical Tract building. Table 5-4 shows the combined total space of these buildings.

**Table 5-4:
Industry Average Space Use
Base Area – Upgrade Plan**

Service Function	Existing Total	Recommended Range	
		Low	High
Ticket Sales/Guest Services	4,800	1,080	1,310
Public Lockers	2,400	3,230	3,940
Rentals/Repair	6,100	7,650	8,600
Retail Sales	11,675	2,260	2,760
Bar/lounge	6,000	3,390	4,140
Adult Ski School	2,067	1,720	2,100
Kid’s Ski School	8,500	3,440	4,210
Restaurant Seating	5,200	6,640	8,110
Kitchen/Scramble	3,000	2,090	2,550
Restrooms	3,896	1,230	1,510
Ski Patrol	2,070	760	930
Administration	5,400	2,260	2,760
Employee Lockers/Lounge	2,200	900	1,100
Mechanical	900	990	1,450
Storage	6,500	1,650	2,420
Circulation/Waste	10,467	3,960	5,810
TOTAL SQUARE FEET	81,175	43,250	53,700

Notes:

Public lockers in RC includes 600sf season pass lockers and 1,800sf public lockers
 RC retail = Chocolate Extreme and Cold Smoke 1000sf, Mesa Edge 800sf, Teen Center 600sf, and Times Square 500sf; Bat Cave storage 2,500sf

Source: SE Group

As shown in Table 5-4, almost all the TSV base area facilities fall well above the recommended range in the total square footage. As discussed above, the square footages for both public lockers and rentals/repair fall are below the recommended range. Restaurant seating falls well below the recommended range. This situation is mitigated by the presence, as noted, of non-TSV owned and operated restaurants in the base area (e.g., The St. Bernard, The Edelweiss, The Stray Dog, The Snake Dance and The Bavarian Lodge). Also, as discussed above, the deficiency in restaurant seating space is planned to be addressed in the Mountain Top Restaurant. However, this situation does indicate that it would be logical to reallocate some existing space from a category that has a surplus of space to be used for additional seating.

On-Mountain Facilities

As discussed above, the Whistlestop Café, Phoenix Grill, and Mountain Top restaurant will constitute TSV’s on-mountain guest service facilities under build-out.

**Table 5-5:
Industry Average Space Use
On-Mountain – Upgrade Plan**

Service Function	Existing Total	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	7,200	9,170	11,210
Kitchen/Scramble	2,400	2,880	3,520
Restrooms	1,500	1,700	2,080
Ski Patrol	1,600	1,040	1,280
Administration	250	-	-
Employee Lockers/Lounge	-	-	-
Mechanical	200	390	600
Storage	1,150	670	990
Circulation/Waste	750	1,600	2,390
TOTAL SQUARE FEET	15,050	17,450	22,070

Source: SE Group

The above table shows a clear deficiency of on-mountain guest service space under the Upgrade Plan, when compared to anticipated demand. This need will be addressed with the construction of the Mountain Top restaurant. This facility should be sized at between approximately 6,700 and 8,500 square feet, of which 3,500 to 4,300 would be restaurant seating. The remaining 3,000 to 4,200 square feet would be comprised of kitchen/scramble, restrooms, ski patrol, mechanical, etc.

3. Food Service Seating

Food service seating will continue to be provided at all existing restaurants, in addition to the Mountain Top Restaurant.

The following table summarizes the seating requirements at TSV, based on a logical distribution of the CCC to each service building/location.

**Table 5-6:
Recommended Restaurant Seating**

	Tenderfoot Katie's	Rhoda's	Martini Tree	Phoenix Grill	Whistlestop	Mountain Top Restaurant	Total Resort
Lunchtime Capacity (CCC)	1,370	211	527	1,559	234	1,119	5,019
Average Indoor Seat Turnover	3.5	2	3	3.5	3.5	3.5	
Existing Indoor Seats	300	80	130	300	75		885
Required Seats	391	105	176	445	67	320	1,504
Difference	-91	-25	-46	-145	8	320	20
Existing seating capacity	1,370	211	527	1,559	234	1,119	5,019
Existing Outdoor Seats	125			100	25		250
Average Outdoor Seat Turnover	2.5			2.5	2.5	2.5	
TSV Seating Capacity – Including Outdoor Seats	1,682	211	527	1,809	297	1,119	5,644

Notes:

Tenderfoot Katie's has 300 Seats in the Resort Center

Martini Tree has 130 seats in the Resort Center (used for bar service and cafeteria overflow)

Rhoda's has 80 seats in Resort Center

Non-TSV: St. Bernard has 50 indoor and 100 outdoor seats (indoor seats for St. Bernard guests only)

Non-TSV: The Edelweiss has 80 seats and The Stray Dog seating for approx. 100

Seating Capacity including Non-TSV Seats = 6,124

Source: SE Group

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 will prefer to dine at the facility closest to the area they

are using. To allow for this convenience, it is important to provide restaurant seating to accommodate the lunchtime capacity requirement of the area. Additional seating should be supplied per the recommendations in the above table.

F. PARKING AND RESORT ACCESS

1. Parking

The existing day parking lots at TSV will continue to provide parking under the Upgrade Plan; no significant additional parking capacity is contemplated by TSV. Through the course of routine maintenance in the parking areas, TSV anticipates that minor modifications in multiple locations may be implemented to improve shuttle circulation and parked vehicle configuration thereby allowing the current parking areas to become more efficient realizing a potential gain of approximately 30-50 parking spaces. Because these gains would be realized in multiple locations over numerous seasons, this parking analysis is not reliant upon the benefit that these additional spaces will provide over time.

In addition to TSV-operated day lots, there will continue to be designated parking spaces at accommodations within walking distance of the base area (e.g., Edelweiss, Sierra del Sol, and Twining Condos). Presently, 200 units are approved to be built in the Village, with one parking space per unit and an assumed average of 2 guests per unit skiing and riding at TSV (for a total of 400 guests). Under the Upgrade Plan, at any given time throughout the season, it can be assumed that 1,500 of TSV's guests will be staying at existing and future hotels, condos, and single family homes in the Valley.

It is estimated that on a comfortable day, under the Upgrade Plan, 200 guests will come from off-site shuttle services and seven charter buses are parked in TSV.

Finally, TSV will potentially reserve 30 to 50 parking spaces for the Adventure Center Tubing Facility. The exact number of spaces to be reserved will depend on demand and the users of the Adventure Center. Many of the users may already be parked elsewhere at TSV and would rely on the shuttle service to access the Adventure Center. For the purpose of this analysis, a worst case scenario of 50 reserved spaces has been accounted for.

The locations of parking areas under the Upgrade Plan are identified on Figure 5. As illustrated in Table 5-7, below, TSV will continue to have approximately 1,740 parking

spaces available to day skiers and riders under the Upgrade Plan.²⁴ Note that the parking surplus of roughly 502 spaces identified for the existing conditions (Chapter 4) decreases to 113 under the Upgrade Plan. Information in Table 5-7 is based on a “comfortable” day in which TSV’s upgraded CCC of 4,780 is not surpassed; other non-skiing/riding guests (5 percent of CCC) are accounted for as well.

**Table 5-7:
Parking - Upgrade Plan**

	Assumptions	Totals
CCC + other guests (+5%)		5,019
Guests parking off-site		1,125
Guests arriving by shuttle		200
# parking at portal		3,694
# of guests arriving by car	92%	3,398
# of guests arriving by charter bus	8%	296
Required car parking spaces (based on AVO)	2.57	1,322
Required charter bus parking spaces (40 guests per bus)	40.00	7
Equivalent car spaces (1 bus=4.5 car)	4.5	33
Cars parking in TSV lots from Overnight Accommodations		46
Spaces Reserved for Tubing Guests		50
Required employee car parking spaces		175
Total required spaces		1,627
Existing parking spaces		1,740
Surplus		113

Source: TSV, SE Group

TSV understands that on days in which the CCC is exceeded, the parking situation will be constrained. In preparation for these days, TSV plans to work with local transit services to add routes and shuttles, while at the same time providing incentives to increase AVO, and will require employees to car pool and ride shuttles from down valley. Also, as mentioned in Chapter 4, TSV staff has indicated that their AVO increases

²⁴ Table 5-7 summarizes the results of a detailed planning analysis conducted for this MDP that accounts for all aspects of TSV’s parking/access configuration under the Upgrade Plan, including: CCC (i.e., day skiers); guests parking at off-site accommodations; guest (46 cars) staying at Snakedance, St. Bernard, Snow Bear, and Kandahar; guests arriving by shuttle; employee parking requirements; and average vehicle occupancies.

on days with skier visits higher than their comfortable day.²⁵ All of these components will help TSV to manage their parking at a comfortable level.

2. Guest Drop-Off Areas

The Upgrade Plan includes two projects that will modify the access between the day parking lots and the base area. By creating two distinct drop-off areas – referred to as the “eastern” and “western” drop-offs – both vehicular (shuttles and personal vehicles) and pedestrian circulation will be improved. In concept, both drop-off areas will be designed in cooperation with a potential Base Village Redevelopment that will contribute to an improved “sense of arrival” at TSV, which is currently lacking. The Upgrade Plan will also better accommodate guests who are dropped off in personal vehicles, by allowing them to get closer to, and at elevation with, Chair 1. This will eliminate the need for guests to ascend the grade change (with their gear) between the drop-off and Chair 1.

The development of the eastern and western drop-off areas will not displace existing parking as these drop-offs are being constructed in areas adjacent to existing parking lot circulation and in areas that are not currently developed. Both drop-offs are identified on Figure 5.

Western Drop-Off

TSV plans to eliminate the existing drop off area at the Pagoda and construct a new one to the North side of the Rio Hondo River, off of Sutton Place Road. The planned western drop-off is located on NFS lands within TSV’s SUP area. In conjunction with future redevelopment of the base village, removing the drop-off from the resort core and constructing one to the north side of the River will create a pedestrian-oriented, river walk entrance to the base plaza. This is a large factor in creating the sense of arrival that TSV lacks. Once guests cross a pedestrian bridge over the Rio Hondo River, they will find that most of the steps and stairways that are currently necessary to access Lift 1 have been eliminated.

Eastern Drop-Off

In addition, the Upgrade Plan includes a new drop-off area on the eastern end of the parking area, just before the entrance to Thunderbird Road. Ideally, the eastern drop-off area would be roughly 180 feet in diameter. Sizing the drop-off according to these dimensions would accommodate up to three shuttles dropping guests off

²⁵ An AVO of 2.87 people per car was recorded on a recent “peak day.” March 16, 2010. This is attributable to an influx of “destination visitors” on peak days which tend to travel in larger group size and therefore generate higher vehicle occupancy.

simultaneously. The Upgrade Plan does not include any changes to the short term parking area.

The eastern drop-off is planned to be on grade with Lift 1 and necessitates very little ground disturbance. Locating a drop-off in this location, along with the potential development of improved pedestrian circulation and a small bridge over the river, these improvements will overcome the large grade difference between the existing drop off area and the base of lift 1.

G. ALTERNATE AND NON-WINTER ACTIVITIES

1. Winter

Taos Adventure Center

The planned Taos Adventure Center will offer a snowtubing facility and snowshoeing on interpretative trails (1.5 to 2 miles in length) on the northwestern



portion of TSV’s SUP area. Two small yurts are planned to house guest services to support activities and opportunities at the Taos Adventure Center. Pre-packaged food and beverages are planned to be served at the yurts. Therefore, the buildings will not have running water. Self composting toilet facilities will be installed adjacent to the yurts.

Parking will be reserved (30 to 50 spaces, depending on demand) in the existing parking lot directly across from the Adventure Center for tubing and snowshoeing guests. Additionally, TSV will operate a shuttle between the base area and the Adventure Center. A pedestrian bridge, approximately 8’ wide x 110’ long, will provide access from the shuttle drop-off to a flat area in front of the guest service yurts.

The tubing facility will have four lanes, varying from 650 to 800 feet long, that will be served by a 660 foot long carpet conveyor lift (*this lift is not part of the developed ski area lift network capacity and analysis*). A small building will be constructed at the bottom of the tubing lift for tube storage. Approximately 3.7 acres of ground disturbance and tree clearing will be needed to construct the tubing hill.

TSV's snowmaking and power infrastructure will be extended and routed through the Little Maintenance Facility site to the tubing hill. Approximately 2.6 acres of snowmaking coverage will be required for tubing operations. Construction access will also follow the snowmaking and power corridor.

The snowhoe/hiking trails will meander through the forest to the west of, and just above, the tubing hill. No tree removal will be needed for the trails.

Figures 5 and 6 include a detailed site plans for the Taos Adventure Center.

2. Summer

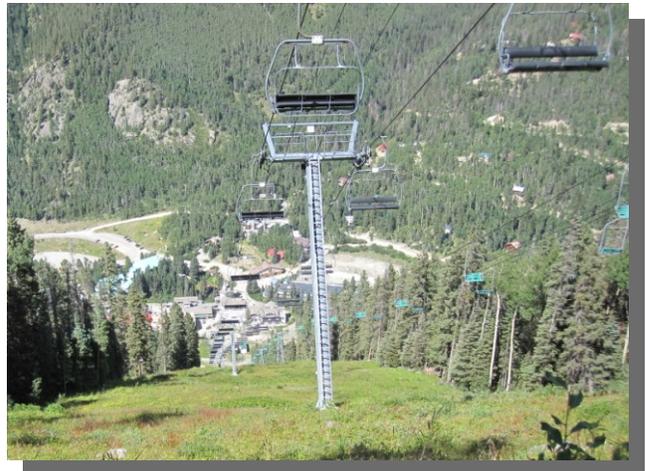
Mountain Biking

Interconnected mountain bike trails are planned on the Frontside and Backside of the mountain. These trails combine for a total of approximately 14.6 miles.

TSV will likely phase implementation of these trails. Phase 1 will likely consist of an approximate 3.6-mile trail between the top of Lift 1 and the base area. Cyclists will be able to ride Lift 1 and descend this trail during TSV's summer operational period. Contingent upon the success of the Phase 1 trail, and construction of the Summit Lift, additional trails will be implemented across the Frontside and Backside terrain. At no time will riding be permitted outside of the SUP area and into the Wheeler Peak Wilderness Area.

Mountain bike trails will be planned in such a way to minimize the need for tree removal, limit ground disturbance by strategically locating switchbacks on naturally occurring benches, and placing trail segments in areas currently cleared for ski trails. Conflicts with mountain operations vehicles will be minimized by locating trails away from the existing service roads.

The reader is encouraged to reference Figure 4 for the location of mountain bike trails included in the Upgrade Plan.



Scenic Chairlift Rides

TSV will continue to operate Lift 1 for scenic chairlift rides between June and September until the Summit Lift goes on-line. Once the Summit Lift is installed, it will provide direct base-to-summit conveyance. It is anticipated that the Mountain Top Restaurant will remain open for the summer season to provide food/guest services to guests taking scenic lift rides on the Summit Lift.

Special Events and Programs

The Upgrade Plan contains no provisions for special events and programs. As is done currently, special events will continue to be held on NFS and private lands periodically throughout the summer season, contingent upon necessary approvals. In addition, on-mountain weddings, corporate picnics, business retreats, conferences and educational camps will likely continue to be hosted periodically throughout the summer season.

H. SKI AREA OPERATIONS

1. Ski Patrol/First Aid

Under the Upgrade Plan, the 1,600-square foot PHQ facility located at the summit of the mountain (top terminal of Lifts 2 and 6) will be removed and a new PHQ will be integrated into the Mountain Top Restaurant. The new facility will be considerably larger and will have ample room for not only a new PHQ, but additional guest services. This will greatly expand TSV’s ski patrol capabilities and allow better service to the public.

The roughly 1,400-square foot ski patrol clinic (the Mogul Medical Clinic) at the base area will continue to treat on-mountain medical emergencies. It will not change under the Upgrade Plan.

Finally the Upgrade Plan includes construction of a new ski patrol/bomb make-up building off of *Bambi*, near the top terminals of the new Summit Lift and Lift 7a.

2. Snowmaking Coverage

In addition to on-going maintenance, the Upgrade Plan includes snowmaking line installations to provide more coverage as well as to increase efficiencies. While some of these new lines will enable TSV to provide snowmaking coverage on trails that currently rely only on natural snow, the majority of these new lines will improve snowmaking efficiencies on trails that already have snowmaking coverage—e.g., creating loops and

connecting spurs in the existing lines. The Upgrade Plan also includes installing infrastructure necessary to support the existing and planned snowmaking system (e.g., pumps, valves and hydrants). Some infrastructure will be housed in new buildings to be located at the bottoms of Lift 7 and Lift 8.

The Upgrade Plan includes installing snowmaking lines on the following trails. Trails proposed for new coverage are identified as such, increasing resort-wide snowmaking coverage by 9 acres – from approximately 193 acres to 202 acres.

- ♦ *White Feather Gully*
- ♦ *Jess's* to the bottom of Chair 2
- ♦ *Avy Road* spur extension
- ♦ *Moe's* to the lower section of *Bob's*, ending at the start of *Upper Maxie's* (new coverage)
- ♦ *Upper Shalako* (from the top of Chair 4) to the bottom of *Upper Patton* (new coverage)
- ♦ *Papa Bear*

Finally, the snowtubing area at the planned Taos Adventure Center will require snowmaking infrastructure to be extended to the tubing facility. An additional 2.6 acres of coverage will be needed to operate the tubing facility.

All existing and planned snowmaking coverage can be accomplished within TSV's existing diversionary right.

3. Grooming Operations

Based on the limited additions to traditional terrain included in the Upgrade Plan, the existing grooming fleet will be sufficient to accommodate trail maintenance. Vehicles from the existing grooming fleet may be replaced as necessary according to age and hours of operation.

4. Maintenance Facilities

The current maintenance facilities meet TSV's requirements and no upgrades or improvements are included in this Upgrade Plan.

I. UTILITIES & INFRASTRUCTURE

No specific independent utility or infrastructure projects are included in the Upgrade Plan. Upgrades and improvements to existing infrastructure such as power, water, and sewer (e.g., Mountain Top Restaurant) will take place commensurate to the individual project. Any upgrades will be compliant with codes and requirements.

1. Water

Future construction plans include adding additional storage tanks on private lands in the base area and looping the water lines to increase reliability. At this time, it is believed that the current Phoenix springs will be adequate for build-out at TSV. Total system storage for the Village of Taos Ski Valley in the range of five million to seven million gallons can be justified.

TSV has a restriction on construction in the core area based on water flow availability. While there is adequate supply for the anticipated development, water to meet firefighting requirements will need to be considered.

2. Sewer

The existing treatment plant will accommodate the needs of the ski area for roughly the next ten years without needing to be expanded.

3. Power

As discussed in Chapter 4, power supply is adequate but will improve with a switch to higher primary voltage planned in the near future.

4. Fuel Storage

As discussed in Chapter 4, TSV can accommodate a partial fuel tanker load at the Vehicle Maintenance Facility (VMF) fuel storage. All three of the tanks at the VMF are planned to be upgraded during Summer 2010. The tanks will be brought up to current regulations as set by the State of New Mexico. The existing tanks will be replaced with a 10,000 gallon tank for Off-Road Diesel and two tanks ranging from 3,000 to 5,000 for Highway Diesel and Unleaded Gasoline.

In addition to upgrading the fuel storage at the VMF, TSV plans on improving the storage covers and containment pads at the fuel storage site on *Jess's Trail* and the site in the vicinity of the bottom of Lift 4.

5. Road Network

Vehicular access (tracked vehicles in the winter and ATVs in the summer) is planned to be constructed from the top of Lift 2, to access the repeater and radio antennas on Highline Ridge.²⁶ This is an important electronics site for the entire vicinity. TSV holds the permit for the infrastructure at the site. Quest, Taos County, Village of Taos Ski Valley, and the Forest Service lease their use of the site from TSV. Currently, and in the foreseeable future, TSV does not have a need to upgrade its' infrastructure at the site, but Qwest has expressed concerns that they need to upgrade their electronics in the near future.

The access is planned to be approximately 850 feet long and wide enough for a tracked vehicle. Approximately 0.4 acre of tree clearing will be necessary for construction of this road.

6. Summary of Existing Resort Infrastructure and Utilities

For the reader's benefit, Table 5-8 presents a summary of infrastructure and utilities across TSV with the Upgrade Plan. Note that *italicized text* indicates changes from existing conditions.

**Table 5-8:
Summary of Existing & Proposed Resort Infrastructure & Utilities**

MAINTENANCE FACILITIES				
	Year Built	Square Footage	Number of Bays	
Vehicle Maintenance Shop	1986	14,000	8	
Lumber Maintenance Facility	2006	3,000	3	
Snowmaking Pit House	2003	3,000	-	
Kachina Maintenance Facility (Backside Snowmaking)	1990	2,000	1	
SNOWMAKING				
Coverage	System	Water Source	Diversionary Right	System Capacity
~193 acres (add 11.6 acres)	<ul style="list-style-type: none"> ♦ Air/water ♦ 30 air/water guns ♦ 2 fan guns ♦ 30 tower guns ♦ 350 hydrants 	Rio Hondo River	200 AF (65.2 million gallons)	2,000 gpm

²⁶ Vehicular access to the repeater and radio antennas on Highline Ridge would follow a similar path as the existing hike from the top of Lift 2.

**Table 5-8:
Summary of Existing & Proposed Resort Infrastructure & Utilities**

DOMESTIC WATER						
Source	Capacity	Water Rights			Storage/Capacity	
Phoenix Spring	200–1,200 gpm	Owned by Village of Taos Ski Valley, 418 AF/year			Above-ground tank/ 250,000 gallons	
SEWER						
Treatment Type		System Capacity			Adequacy	
Full/tertiary		180,000 gpd			Adequate	
POWER						
Source	Metering	Type		Type of lines		
Kit Carson Electric Co-Op	Primary & Secondary	Single & 3-Phase		Underground		
MOUNTAIN ACCESS ROADS						
Miles/Surface						
~12.4/Native						
PARKING						
Location	Surface Area	Vehicles/acre	Average Vehicle Occupancy		Total Parking Spaces	
SUP area	~15 acres	~107	~2.95 people/vehicle		~1,600	
FUEL STORAGE						
Building/ Location		Capacity	Tank	Type Of Fuel Stored		
VMF		6,000 <i>(upgrade to 10,000)</i>	Above-ground	Diesel/off road		
VMF		2,000 <i>(upgrade to 3,000-5,000)</i>	Above-ground	Gasoline		
VMF		2,000 <i>(upgrade to 3,000-5,000)</i>	Above-ground	Diesel/on road		
Bottom Chair 2		3,000	Above-ground	Diesel/on road		
Bottom Chair 7A		3,000	Above-ground	Diesel/on road		
On-mountain		3,000	Above-ground	Gasoline		
LIFTS						
Name/Type		Top	Bottom	Length	Hourly Capacity	Year Installed
Lift 1: Al's Run (fixed 4)		11,066'	9,439'	3,708'	2,100	1989
Lift 2: Reforma (fixed 4)		11,816'	10,760'	3,216'	1,800	1995
Summit Lift (detachable 4)		11,804'	9,441'	7,045'	2,000	planned

**Table 5-8:
Summary of Existing & Proposed Resort Infrastructure & Utilities**

Lift 3: Strawberry Hill (fixed 2)	9,503'	9,380'	577'	1,000	1970
Lift 4: Kachina Lift (detachable 4)	11,409'	10,204'	4,542'	2,400	planned
Lift 7: Maxi's (fixed 4)	11,519'	10,618'	3,079'	1,800	planned
Lift 7a: Seventh Heaven (fixed 2)	11,797'	11,502'	919'	1,044	1992
Lift 8: West Basin (fixed 4)	11,260'	10,054'	4,417'	1,800	1994
Main Street Lift (fixed 3)	12,466'	11,350'	2,557'	1,200	planned
Ridge Lift (fixed 3)	11,706'	11,161'	991'	1,200	planned
Rueggli (fixed 2)	9,417'	9,341'	592'	1,000	1992
Zipper 1 Carpet	9,387'	9,374'	97'	650	2008
Zipper 2 Carpet	9,361'	9,356'	46'	650	1998
Zipper 3 Carpet	9,450'	9,473'	228'	650	2008
Burrow Beginner Chairlift	9,582	9,446	1,319	1,600	planned
TSV OWNED/OPERATED GUEST SERVICE FACILITIES					
Name/Location	Year Built	Square Footage	ADA Accessible	General Condition	
Pit House/Base area	2003	3,000	Yes	Very Good	
Resort Center/Base area	1989	35,000	Yes	Very Good	
Old Resort Center/Base area	1964 (remodeled)	17,000	Yes	Good	
Children's Center/Base area	1994	24,000	Yes	Very Good	
Whistlestop Café/On-mountain	1986	2,200	No	Good	
Phoenix Grill/On-mountain	1982 (remodeled)	15,000	Yes	Very Good	
Mountain Top Restaurant	On-Mountain	Planned	6,500–8,500	Planned	

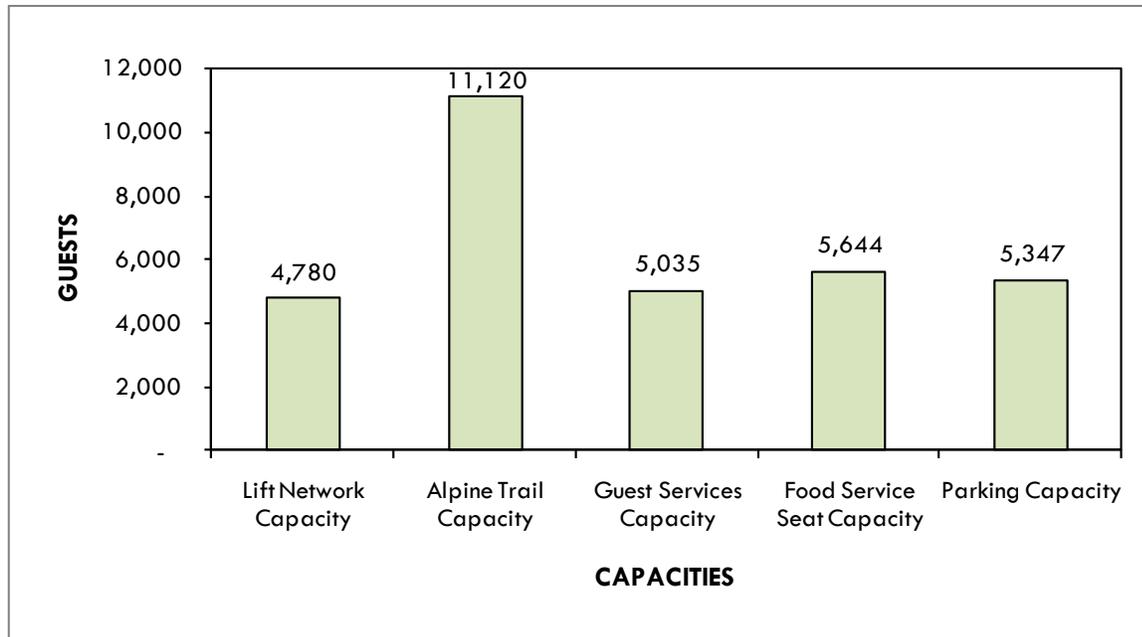
J. VEGETATION MANAGEMENT

The health of forested areas is of obvious and critical importance to TSV and the Carson National Forest. Therefore, TSV will work with its counterparts at the CNF to prepare a Vegetation Management Plan (VMP). The VMP will address on-going and future forest health issues within the SUP area. The VMP will include a full assessment of forest stands throughout the SUP area in addition to outlining vegetation management projects that will be of long-term benefit to forest health. As wildland-urban interfaces (WUI) are of growing concern to mountain communities in reference to wildfires, a VMP will likely address this issue, as well.

K. RESORT CAPACITY BALANCE AND LIMITING FACTORS

The overall balance of the existing ski area is evaluated by calculating the capacities of the resort’s various facilities and comparing those facilities to the resort’s CCC. The above discussed capacities are shown in Chart 5-3.

**Chart 5-3:
Resort Balance – Upgrade Plan**



Source: SE Group

The mountain master planning process emphasizes the importance of balancing recreational facility development. The sizes of the various skier service functions are designed to match the CCC of the mountain. Proposals described in this Upgrade Plan for improvements to TSV have been configured to match the capacities of key resort operations, including lifts, terrain, guest services, food service seating, and parking with the resort CCC of 4,780 skiers.

As Chart 5-3 indicates, the lift network capacity (CCC) will be brought closer in line with the Alpine trail capacity, as well as that of the other facilities. Food service capacity will be increased with the new facility and brought in line with CCC. Guest services capacity is currently sufficient to meet the needs of the increased resort capacity, with the exception of the afore-mentioned food service. Parking capacity will continue to not be a limiting factor, as new developments will provide parking and lodging, and the slight surplus of parking space will be adequate to accommodate the remainder of the increased demand. Trail capacity will remain high, leaving skier densities low and

maintaining the high quality ski experience, especially on the newly lift-served, alternative terrain.



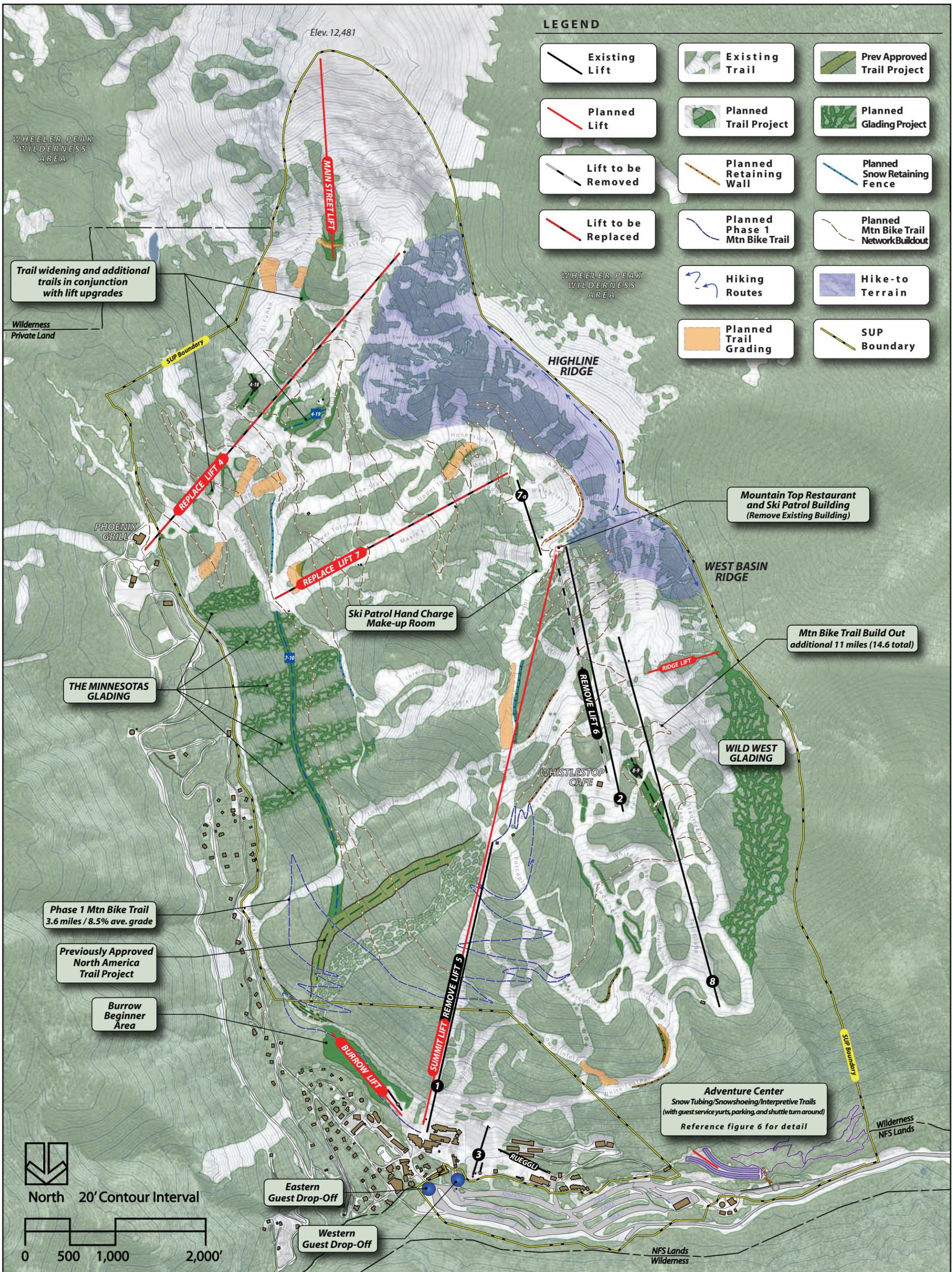
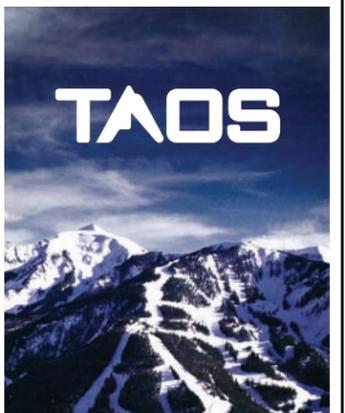


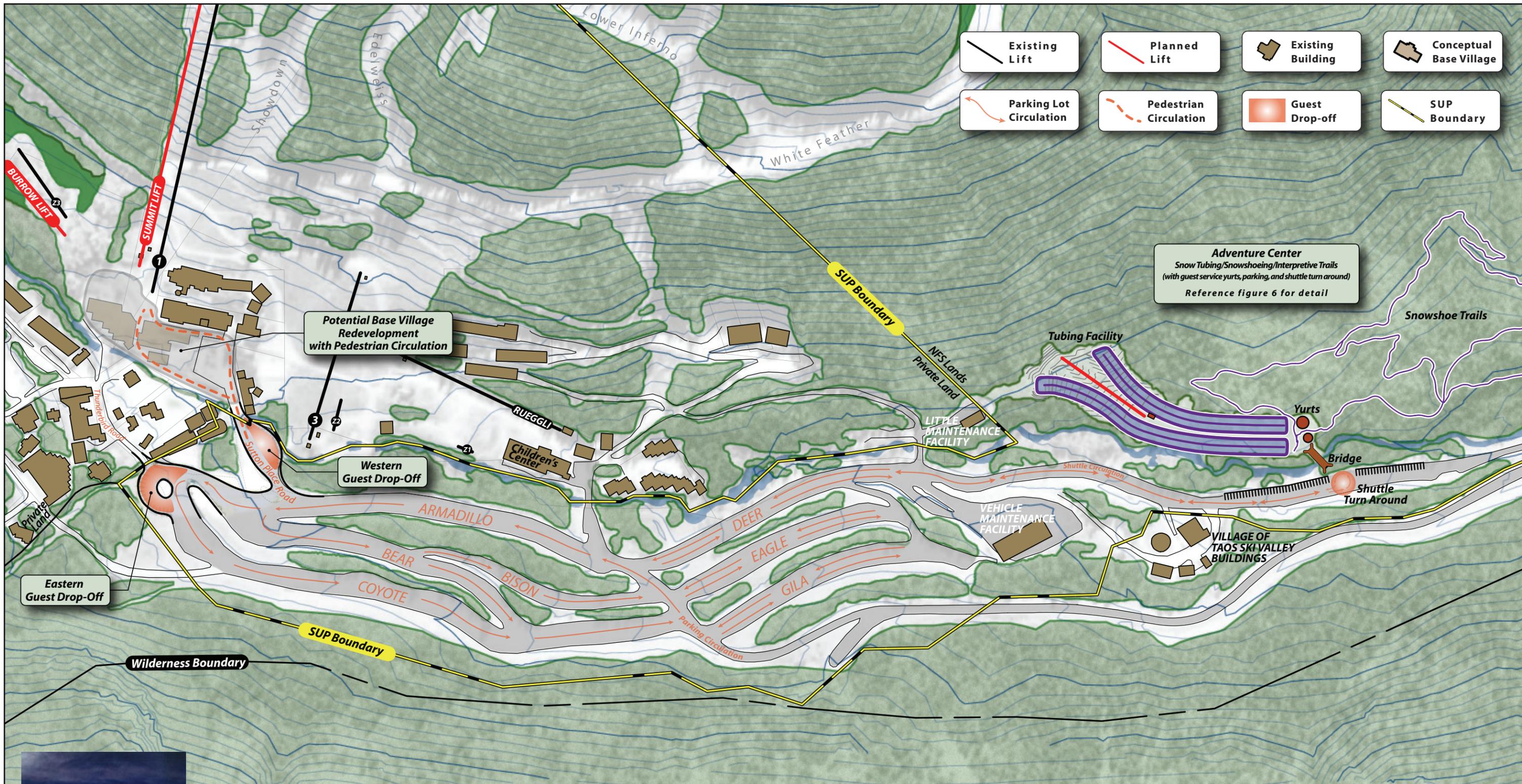
Figure 4

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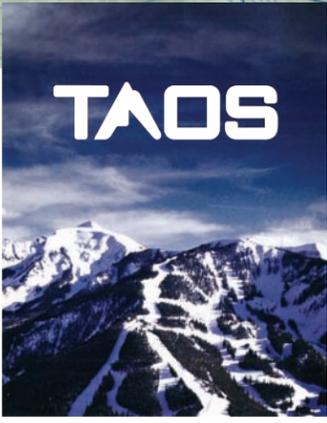
UPGRADE PLAN
MASTER DEVELOPMENT PLAN





- Existing Lift
- Planned Lift
- Existing Building
- Conceptual Base Village
- Parking Lot Circulation
- Pedestrian Circulation
- Guest Drop-off
- SUP Boundary

Adventure Center
 Snow Tubing/Snowshoeing/Interpretive Trails
 (with guest service yurts, parking, and shuttle turn around)
 Reference figure 6 for detail



BASE VILLAGE, PARKING, AND ADVENTURE CENTER
 MASTER DEVELOPMENT PLAN

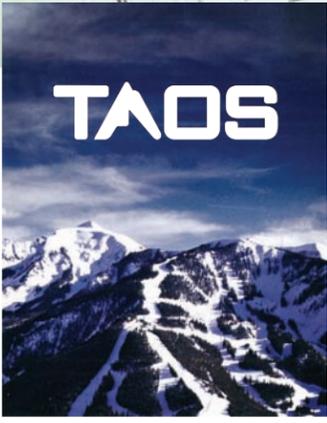
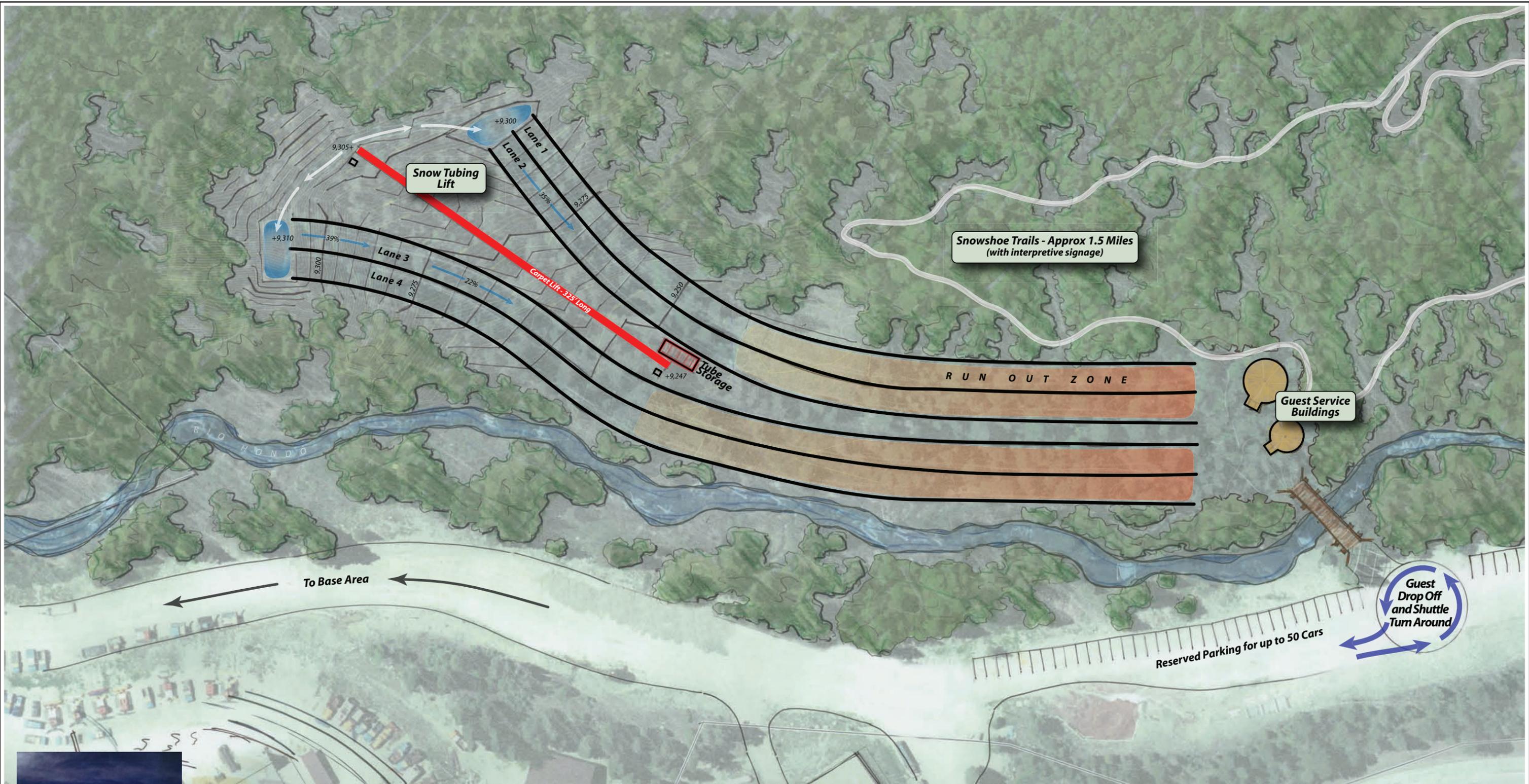
Figure 5

North

0 150 300 600'

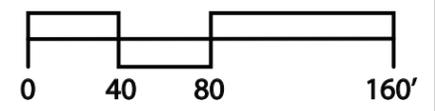
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SE GROUP



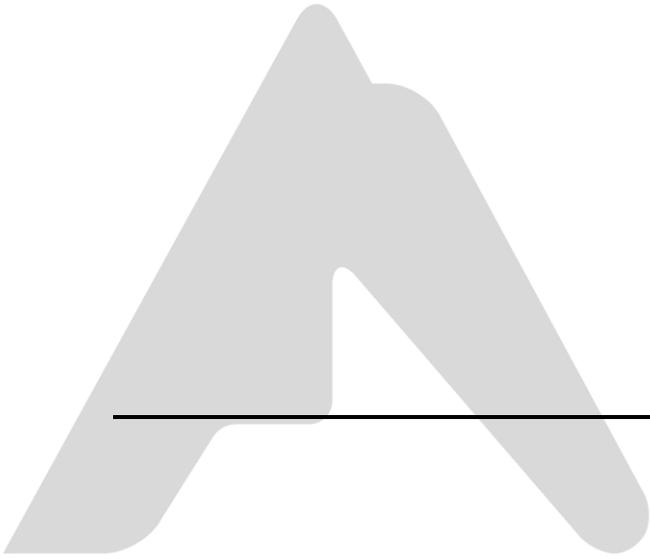
ADVENTURE CENTER SITE PLAN
 MASTER DEVELOPMENT PLAN

Figure 6



Prepared By:





APPENDIX A

**Table 1:
Lift Specifications - Existing Conditions**

Map Ref.	Lift Name, Lift Type	Top Elev. (ft)	Bottom Elev. (ft)	Vertical Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Grade (%)	Actual Design Capacity (pers/hr)	Rope Speed (fpm)	Carrier Spacing (ft)	Lift Maker/ Year Installed
1	Lift 1: Al's Run C-4	11,066	9,439	1,627	3,294	3,708	49	2,100	450	51	Poma/1989
2	Lift 2: Reforma C-4	11,816	10,760	1,056	2,982	3,216	35	1,800	450	60	Poma/1995
3	Lift 3: Strawberry Hill C-2	9,503	9,380	123	559	577	22	1,000	350	42	Stadel/1970
4	Lift 4: Kachina Lift C-4	11,409	10,204	1,204	4,316	4,542	28	1,800	450	60	Poma/1991
5	Lift 5: High Five C-2	11,120	9,446	1,674	3,741	4,175	45	1,200	495	50	Stadel/1973
6	Lift 6: Winston C-2	11,803	10,861	943	2,561	2,779	37	1,400	450	39	Stadel/1976
7	Lift 7: Maxi's C-3	11,519	10,618	901	2,898	3,079	31	1,800	470	47	Stadel/1984
7a	Lift 7a: Seventh Heaven C-2	11,797	11,502	295	840	919	35	1,044	440	51	Stadel/1992
8	Lift 8: West Basin C-4	11,260	10,054	1,205	4,213	4,417	29	1,800	450	60	Poma 1994
R	Rueggli C-2	9,417	9,341	75	586	592	13	1,000	350	42	Stadel/1992
Z-1	Zipper 1 C	9,387	9,374	12	96	97	13	650	90	8	Sun Kid/2008
Z-2	Zipper 2 C	9,361	9,356	5	45	46	10	650	90	8	Sun Kid/1998
Z-3	Zipper 3 C	9,450	9,473	23	225	228	10	650	90	8	Sun Kid/2008

Source: SE Group

**Table 2:
Terrain Specifications – Existing Conditions**

Trail Ref.	Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
1-01	White Feather	11,073	9,440	1,633	11,441	11,656	85	22.8	14	24	Novice
1-02	Psycho Path	10,981	10,720	261	591	654	80	1.2	44	55	Expert
1-03	Powderhorn Bowl	10,913	10,725	188	605	642	149	2.2	31	52	Adv. Intermediate
1-04u	Powderhorn Upper	10,868	10,737	132	451	470	145	1.6	29	33	Low Intermediate
1-04l	Powderhorn Lower	10,615	10,230	385	1,278	1,339	135	4.2	30	41	Intermediate
1-05	Al's Run	11,065	9,553	1,512	2,900	3,299	132	10.0	52	76	Expert
1-06	Inferno	10,744	10,163	581	1,467	1,594	103	3.8	40	56	Expert
1-07	Spencer's	10,843	10,285	558	1,130	1,263	105	3.0	49	56	Expert
1-08	Porcupine	11,055	10,247	808	2,842	2,974	166	11.4	28	43	Intermediate
1-09	Wayne Abbey	10,090	9,790	300	540	622	75	1.1	56	71	Expert
1-10	Snakedance	10,163	10,008	156	418	457	94	1.0	37	53	Expert
1-11	Showdown	10,008	9,582	426	733	852	163	3.2	58	70	Expert
1-12	Maidenform	9,570	9,503	66	181	193	287	1.3	37	38	Intermediate
1-13	Edelweiss	10,164	9,653	510	950	1,086	118	2.9	54	69	Expert
1-14	Lower Inferno	10,206	9,783	423	1,129	1,233	131	3.7	37	62	Expert
1-15	Raspberry (Pitch 1)	9,639	9,601	38	46	60	136	0.2	82	82	Expert
1-16	Raspberry (Pitch 2)	9,605	9,550	55	79	96	165	0.4	70	70	Expert
1-17	Raspberry (Pitch 3)	9,526	9,492	34	80	87	122	0.2	42	42	Intermediate
1-18	Raspberry Hill Traverse	9,607	9,486	121	747	767	26	0.4	16	24	Intermediate
1-19	Raspberry Hill	9,677	9,495	182	323	372	288	2.5	56	64	Expert
1-20	White Feather (Middle Pitch)	10,548	10,391	157	438	467	348	3.7	36	42	Intermediate
1-22	Bambi Glade	10,372	10,282	90	354	370	61	0.5	26	33	Intermediate
1-23	White Feather Gully	10,336	10,119	217	638	676	119	1.8	34	42	Intermediate
1-24	Powderhorn Gully	10,161	9,983	178	559	590	115	3.3	32	42	Intermediate

**Table 2:
Terrain Specifications – Existing Conditions**

Trail Ref.	Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
2-01	Top of Lifts 2 and 6	11,815	11,796	19	235	241	58	0.3	8	9	Intermediate
2-02	Bambi	11,800	11,294	506	2,320	2,396	136	7.5	22	34	Intermediate
2-03	Castor	11,542	11,123	419	805	922	152	3.2	52	76	Expert
2-04	Pollux	11,536	11,201	335	497	603	96	1.3	67	77	Expert
2-05	Winston	11,503	11,211	291	462	549	86	1.1	63	73	Expert
2-06	Reforma	11,811	11,214	597	1,130	1,290	110	3.3	53	74	Expert
2-07	Blitz	11,830	11,248	581	1,125	1,280	144	4.2	52	75	Expert
2-08	West Basin	11,407	11,223	184	707	741	379	6.4	26	50	Adv. Intermediate
2-09	Longhorn	11,294	9,766	1,528	3,585	3,957	120	10.9	43	81	Expert
2-10	Zagava	11,294	11,132	162	311	352	154	1.2	52	58	Expert
2-11	Upper Powderhorn	11,291	11,033	258	1,383	1,430	89	2.9	19	40	Intermediate
2-12	Lorelei	11,471	10,804	667	1,603	1,767	171	6.9	42	74	Expert
2-13	Lorelei Trees	11,545	10,795	750	1,862	2,038	256	12.0	40	66	Expert
2-14	Lorelei Egress	10,841	10,626	215	1,337	1,372	61	1.9	16	29	Expert
3-01	Strawberry Hill	9,506	9,380	126	653	669	305	4.7	19	25	Novice
4-01	Easy Trip	11,406	11,033	373	3,439	3,489	36	2.8	11	26	Low Intermediate
4-02	Shalako (Upper)	11,390	11,058	332	1,226	1,276	337	9.9	27	44	Intermediate
4-03	Shalako (Lower)	11,052	10,819	233	1,257	1,287	162	4.8	19	33	Low Intermediate
4-04	Topa Papa	10,970	10,950	20	357	365	34	0.3	5	11	Intermediate
4-05	Upper Patton	11,011	10,862	149	861	878	70	1.4	17	24	Low Intermediate
4-06	Japanese flag	11,026	10,919	106	877	886	38	0.8	12	18	Low Intermediate
4-07	Lower Patton	10,917	10,231	686	4,379	4,476	81	8.3	16	35	Low Intermediate
4-08	Ruby Gully	10,645	10,431	214	574	620	156	2.2	37	53	Adv. Intermediate
4-09	Baby Bear	10,804	10,426	378	1,136	1,200	284	7.8	33	41	Intermediate
4-10	Papa Bear	10,862	10,580	282	821	875	195	3.9	34	51	Adv. Intermediate

**Table 2:
Terrain Specifications – Existing Conditions**

Trail Ref.	Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
4-11	Winkelreid	10,619	10,204	415	2,146	2,213	119	6.0	19	30	Low Intermediate
4-12	Rubezahl	10,260	9,463	797	7,732	7,845	41	7.3	10	25	Low Intermediate
4-13	Street Car	10,419	10,222	198	680	711	163	2.7	29	39	Intermediate
4-14	Hunziker Bowl	11,342	10,868	473	1,408	1,517	388	13.5	34	64	Expert
4-15	Hunziker Egress	10,868	10,836	32	342	345	53	0.4	9	18	Expert
4-16	High Noon	10,965	10,755	210	705	744	302	5.2	30	49	Expert
4-17	El Funko	10,789	10,300	489	1,526	1,642	200	7.5	32	79	Expert
5-01	High Five	11,120	10,908	211	1,341	1,373	97	3.1	16	30	Low Intermediate
5-02	High Five Pitch	11,120	11,023	96	412	424	189	1.8	23	25	Novice
6-01	Lift 6 Liftline	11,793	11,502	291	548	623	67	1.0	53	68	Expert
7-01	Avy Road	11,800	11,477	322	1,802	1,860	58	2.5	18	30	Low Intermediate
7-02	Walkyries Bowl	11,707	11,502	205	612	670	415	6.4	33	69	Expert
7-03	Honeysuckle	11,504	10,618	886	4,147	4,279	142	13.9	21	35	Low Intermediate
7-04	Lone Star	11,143	10,680	463	1,739	1,814	157	6.5	27	43	Intermediate
7-05	Lower Totemoff	11,163	10,620	544	2,340	2,415	154	8.5	23	35	Low Intermediate
7-06	Upper Totemoff	11,384	11,101	283	1,078	1,121	137	3.5	26	39	Intermediate
7-07	Maxie's	11,175	10,616	558	2,423	2,501	213	12.2	23	43	Intermediate
7-08	Moe's	11,453	11,289	163	412	447	130	1.3	40	51	Adv. Intermediate
7-09	Bob's	11,505	11,173	332	874	947	141	3.1	38	59	Expert
8-01	Bonanza	11,261	10,859	402	1,859	1,926	128	5.7	22	38	Intermediate
8-02	Mucho Gusto	11,240	10,892	349	1,403	1,454	146	4.9	25	49	Adv. Intermediate
8-03	Lower Stauffenberg	11,261	10,052	1,209	4,866	5,049	145	16.8	25	46	Intermediate
8-04	Jess's (Lower)	10,987	10,884	104	520	533	76	0.9	20	25	Intermediate
8-05	Poco Gusto	10,882	10,761	122	624	642	84	1.2	19	39	Intermediate
8-06	Firlefan	10,892	10,475	417	1,554	1,621	111	4.1	27	40	Intermediate

**Table 2:
Terrain Specifications – Existing Conditions**

Trail Ref.	Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
8-07	Tell Glade	10,511	10,092	419	1,287	1,359	181	5.6	33	47	Adv. Intermediate
8-08	Jess's (Upper)	11,090	11,055	35	216	221	61	0.3	16	22	Intermediate
R-01	Rueggli	9,413	9,341	72	597	605	98	1.4	12	16	Novice
Z-01	Zipper 1	9,363	9,352	11	79	80	77	0.1	14	14	Novice
Z-02	Zipper 2	9,386	9,373	13	107	108	127	0.3	12	12	Beginner
Z-03	Zipper 3	9450	9473	23	225	229	290	1.5	9	10	Beginner
TOTAL						114,098		345.9			

Source: SE Group

**Table 3:
Industry Average Space Use – Existing Conditions: Resort Total**

Service Function	Base Area	On-Mountain	Existing Total	Recommended Range		Difference from Recommended	
				Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	4,800	-	4,800	790	970	4,010	3,830
Public Lockers	2,400	-	2,400	2,380	2,900	20	(500)
Rentals/Repair	6,100	-	6,100	5,630	6,340	470	(240)
Retail Sales	11,675	-	11,675	1,660	2,030	10,015	9,645
Bar/lounge	6,000	-	6,000	2,490	3,050	3,510	2,950
Adult Ski School	2,067	-	2,067	1,270	1,550	797	517
Kid's Ski School	8,500	-	8,500	2,530	3,100	5,970	5,400
Restaurant Seating	5,200	7,200	12,400	11,640	14,230	760	(1,830)
Kitchen/Scramble	3,000	2,400	5,400	3,660	4,470	1,740	930
Rest rooms	3,896	1,500	5,396	2,160	2,640	3,236	2,756
Ski Patrol	2,070	1,600	3,670	1,330	1,630	2,340	2,040
Administration	5,400	250	5,650	1,660	2,030	3,990	3,620
Employee Lockers/Lounge	2,200	-	2,200	670	810	1,530	1,390
Mechanical	900	200	1,100	1,020	1,520	80	(420)
Storage	6,500	1,150	7,650	1,700	2,520	5,950	5,130
Circulation/Waste	10,467	750	11,217	4,090	6,040	7,127	5,177
TOTAL SQUARE FEET	81,175	13,450	94,625	44,680	55,830	51,545	40,395

Source: SE Group

**Table 4:
Industry Average Space Use – Existing Conditions: Base Area Total**

Service Function	Resort Center	Old Resort Center	Post Office	Pit House	Children's Center	Medical Tract	Existing Total	Recommended Range		Difference from Recommended	
								Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	600	1,200	-	-	3,000	-	4,800	790	970	4,010	3,830
Public Lockers	2,400	-	-	-	-	-	2,400	2,380	2,900	20	(500)
Rentals/Repair	-	4,100	-	-	2,000	-	6,100	5,630	6,340	470	(240)
Retail Sales	2,900	7,000	1,775	-	-	-	11,675	1,660	2,030	10,015	9,645
Bar/lounge	4,500	-	-	1,500	-	-	6,000	2,490	3,050	3,510	2,950
Adult Ski School	667	1,400	-	-	-	-	2,067	1,270	1,550	797	517
Kid's Ski School	-	-	-	-	8,500	-	8,500	2,530	3,100	5,970	5,400
Restaurant Seating	5,200	-	-	-	-	-	5,200	6,060	7,410	(860)	(2,210)
Kitchen/Scramble	1,500	-	-	-	1,500	-	3,000	1,910	2,330	1,090	670
Rest rooms	2,146	-	-	-	1,750	-	3,896	1,130	1,380	2,766	2,516
Ski Patrol	670	-	-	-	-	1,400	2,070	690	850	1,380	1,220
Administration	4,500	-	-	-	-	900	5,400	1,660	2,030	3,740	3,370
Employee Lockers/Lounge	2,200	-	-	-	-	-	2,200	670	810	1,530	1,390
Mechanical	500	400	-	-	-	-	900	780	1,150	120	(250)
Storage	2,500	1,000	-	-	3,000	-	6,500	1,300	1,910	5,200	4,590
Circulation/Waste	4,717	1,500	-	-	4,250	-	10,467	3,120	4,590	7,347	5,877
TOTAL SQUARE FEET	35,000	16,600	1,775	1,500	24,000	2,300	81,175	34,070	42,400	47,105	38,775

Source: SE Group

**Table 5:
Industry Average Space Use – Existing Conditions: On-Mountain Total**

Service Function	Phoenix Grill	Whistle Stop	Existing Total	Recommended Range		Difference from Recommended	
				Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	-	-	-	-	-	-	-
Public Lockers	-	-	-	-	-	-	-
Rentals/Repair	-	-	-	-	-	-	-
Retail Sales	-	-	-	-	-	-	-
Bar/lounge	-	-	-	-	-	-	-
Adult Ski School	-	-	-	-	-	-	-
Kid's Ski School	-	-	-	-	-	-	-
Restaurant Seating	6,500	700	7,200	5,580	6,820	1,620	380
Kitchen/Scramble	2,100	300	2,400	1,750	2,140	650	260
Rest rooms	1,150	350	1,500	1,030	1,260	470	240
Ski Patrol	-	-	1,600 (PHQ)	640	3,980	960	820
Administration	150	100	250	-	-	250	250
Employee Lockers/Lounge	-	-	-	-	-	-	-
Mechanical	150	50	200	240	370	(40)	(170)
Storage	1,000	150	1,150	400	610	750	540
Circulation/Waste	500	250	750	970	1,450	(220)	(700)
TOTAL SQUARE FEET	11,550	1,900	15,050	10,610	13,430	2,840	20

Source: SE Group

**Table 6:
Lift Specifications – Upgrading Plan**

Map Ref.	Lift Name, Lift Type	Top Elev. (ft)	Bottom Elev. (ft)	Vertical Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Grade (%)	Actual Design Capacity (pers/hr)	Rope Speed (fpm)	Carrier Spacing (ft)	Lift Maker/ Year Installed
1	Lift 1: Al's Run C-4	11,066	9,439	1,627	3,294	3,708	49%	2,100	450	51	Poma/1989
2	Lift 2: Reforma C-4	11,816	10,760	1,056	2,982	3,216	35%	1,800	450	60	Poma/1995
3	Lift 3: Strawberry Hill C-2	9,503	9,380	123	559	577	22%	1,000	350	42	Steadeli/1970
4	Lift 4: Kachina Lift DC-4	11,409	10,204	1,204	4,316	4,542	28%	2,400	1,000	100	Upgraded Lift
7	Lift 7: Maxi's C-4	11,519	10,618	901	2,898	3,079	31%	1,800	450	60	Upgraded Lift
7a	Lift 7a: Seventh Heaven C-2	11,797	11,502	295	840	919	35%	1,044	440	51	Steadeli/1992
8	Lift 8: West Basin C-4	11,260	10,054	1,205	4,213	4,417	29%	1,800	450	60	Poma 1994
R	Rueggli C-2	9,417	9,341	75	586	592	13%	1,000	350	42	Steadeli/1992
Z-1	Zipper 1 C	9,387	9,374	12	96	97	13%	650	90	8	Sun Kid/2008
Z-2	Zipper 2 C	9,361	9,356	5	45	46	10%	650	90	8	Sun Kid/1998
Z-3	Zipper 3 C	9,450	9,473	23	225	228	10%	650	90	8	Sun Kid/2008
	Main Street Lift C-3	12,466	11,350	1,116	2,258	2,557	49%	1,200	500	75	Proposed Lift
	Summit Lift DC-4	11,804	9,441	2,363	6,489	7,045	36%	2,000	1,000	120	Proposed Lift
	Ridge C-3	11,706	11,161	545	807	991	68%	1,200	500	75	Proposed Lift
	Beginner Lift C-3	9,582	9,446	135	1,310	1,319	10%	1,600	400	45	Proposed Lift

White text indicates upgraded or proposed lifts.

Source: SE Group

**Table 7:
Terrain Specifications – Upgrading Plan**

Trail Ref.	Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
1-01	White Feather	11,073	9,440	1,633	11,441	11,656	85	22.8	14%	24%	Novice
1-02	Psycho Path	10,981	10,720	261	591	654	80	1.2	44%	55%	Expert
1-03	Powderhorn Bowl	10,913	10,725	188	605	642	149	2.2	31%	52%	Adv. Intermediate
1-04u	Powderhorn Upper	10,868	10,737	132	451	470	145	1.9	29%	33%	Low Intermediate
1-04l	Powderhorn Lower	10,615	10,230	385	1,278	1,339	135	5.6	30%	41%	Intermediate
1-05	Al's Run	11,065	9,553	1,512	2,900	3,299	132	10.0	52%	76%	Expert
1-06	Inferno	10,744	10,163	581	1,467	1,594	103	3.8	40%	56%	Expert
1-07	Spencer's	10,843	10,285	558	1,130	1,263	105	3.0	49%	56%	Expert
1-08	Porcupine	11,055	10,292	763	2,434	2,559	193	11.4	31%	43%	Intermediate
1-09	Wayne Abbey	10,090	9,790	300	540	622	75	1.1	56%	71%	Expert
1-10	Snakedance	10,163	10,008	156	418	457	94	1.0	37%	53%	Expert
1-11	Showdown	10,008	9,582	426	733	852	163	3.2	58%	70%	Expert
1-12	Maidenform	9,570	9,503	66	181	193	287	1.3	37%	38%	Intermediate
1-13	Edelweiss	10,164	9,653	510	950	1,086	118	2.9	54%	69%	Expert
1-14	Lower Inferno	10,206	9,783	423	1,129	1,233	131	3.7	37%	62%	Expert
1-15	Raspberry (Pitch 1)	9,639	9,601	38	46	60	136	0.2	82%	82%	Expert
1-16	Raspberry (Pitch 2)	9,605	9,550	55	79	96	165	0.4	70%	70%	Expert
1-17	Raspberry (Pitch 3)	9,526	9,492	34	80	87	122	0.2	42%	42%	Intermediate
1-18	Raspberry Hill Traverse	9,607	9,486	121	747	767	26	0.4	16%	24%	Intermediate
1-19	Raspberry Hill	9,677	9,495	182	323	372	288	2.5	56%	64%	Expert
1-20	White Feather (Middle Pitch)	10,548	10,391	157	438	467	348	3.7	36%	42%	Intermediate
1-22	Bambi Glade	10,372	10,282	90	354	370	61	0.9	26%	33%	Intermediate
1-23	White Feather Gully	10,336	10,119	217	638	676	119	1.8	34%	42%	Intermediate
1-24	Powderhorn Gully	10,161	9,983	178	559	590	115	3.3	32%	42%	Intermediate

**Table 7:
Terrain Specifications – Upgrading Plan**

Trail Ref.	Trail Area/Name	Top Elev.	Bot. Elev.	Vert. Rise	Plan Length	Slope Length	Avg. Width	Slope Area	Avg. Grade	Max Grade	Ability Level
		(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(acres)	(%)	(%)	
2-01	Top of Lifts 2 and 6	11,815	11,796	19	235	241	58	0.3	8%	9%	Intermediate
2-02	Bambi	11,800	11,294	506	2,320	2,396	136	8.0	22%	34%	Intermediate
2-03	Castor	11,542	11,123	419	805	922	152	3.2	52%	76%	Expert
2-04	Pollux	11,536	11,201	335	497	603	96	1.3	67%	77%	Expert
2-05	Winston	11,503	11,211	291	462	549	86	1.1	63%	73%	Expert
2-06	Reforma	11,811	11,214	597	1,130	1,290	110	3.3	53%	74%	Expert
2-07	Blitz	11,830	11,248	581	1,125	1,280	144	4.2	52%	75%	Expert
2-08	West Basin	11,407	11,223	184	707	741	379	6.4	26%	50%	Adv. Intermediate
2-09	Longhorn	11,294	9,766	1,528	3,585	3,957	120	10.9	43%	81%	Expert
2-10	Zagava	11,294	11,132	162	311	352	154	1.2	52%	58%	Expert
2-11	Upper Powderhorn	11,291	11,033	258	1,383	1,430	89	2.9	19%	40%	Intermediate
2-12	Lorelei	11,471	10,804	667	1,603	1,767	171	6.9	42%	74%	Expert
2-13	Lorelei Trees	11,545	10,795	750	1,862	2,038	256	12.0	40%	66%	Expert
2-14	Lorelei Egress	10,841	10,626	215	1,337	1,372	61	1.9	16%	29%	Expert
3-01	Strawberry Hill	9,506	9,380	126	653	669	305	4.7	19%	25%	Novice
4-01	Easy Trip	11,406	11,033	373	3,439	3,489	36	2.8	11%	26%	Low Intermediate
4-02	Shalako (Upper)	11,390	11,058	332	1,226	1,276	337	9.9	27%	44%	Intermediate
4-03	Shalako (Lower)	11,052	10,819	233	1,257	1,287	177	5.2	19%	33%	Low Intermediate
4-04	Top Pap	10,970	10,950	20	357	365	34	0.3	5%	11%	Intermediate
4-05	Upper Patton	11,011	10,862	149	861	878	102	2.1	17%	24%	Low Intermediate
4-06	Japanese flag	11,026	10,919	106	877	886	38	0.8	12%	18%	Low Intermediate
4-07	Lower Patton	10,917	10,231	686	4,379	4,476	81	8.3	16%	35%	Low Intermediate
4-08	Ruby Gully	10,645	10,431	214	574	620	171	2.6	37%	53%	Adv. Intermediate
4-09	Baby Bear	10,804	10,426	378	1,136	1,200	291	8.0	33%	41%	Intermediate
4-10	Papa Bear	10,862	10,580	282	821	875	195	3.9	34%	51%	Adv. Intermediate

**Table 7:
Terrain Specifications – Upgrading Plan**

Trail Ref.	Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
4-11	Winkelreid	10,619	10,204	415	2,146	2,213	124	6.3	19%	30%	Low Intermediate
4-12	Rubezahl	10,260	9,463	797	7,732	7,845	41	7.3	10%	25%	Low Intermediate
4-13	Street Car	10,419	10,222	198	680	711	163	2.7	29%	39%	Intermediate
4-14	Hunziker Bowl	11,342	10,868	473	1,408	1,517	395	13.8	34%	64%	Expert
4-15	Hunziker Egress	10,868	10,836	32	342	345	70	0.6	9%	18%	Expert
4-16	High Noon	10,965	10,755	210	705	744	302	5.2	30%	49%	Expert
4-17	El Funko	10,789	10,300	489	1,526	1,642	200	7.5	32%	79%	Expert
4-18	Proposed High Noon II	10,925	10,862	63	292	300	56	0.4	21%	26%	Expert
4-19	Proposed Trail Adjacent to Upper Patton	10,956	10,820	137	584	606	91	1.3	23%	37%	Intermediate
5-01	High Five	11,120	10,908	211	1,341	1,373	97	3.1	16%	30%	Low Intermediate
5-02	High Five Pitch	11,120	11,023	96	412	424	189	1.8	23%	25%	Novice
6-01	Lift 6 Liffline	11,793	11,502	291	548	623	67	1.0	53%	68%	Expert
7-01	Avy Road	11,800	11,477	322	1,802	1,860	58	2.5	18%	30%	Low Intermediate
7-02	Walkyries Bowl	11,707	11,502	205	612	670	415	6.4	33%	69%	Expert
7-03	Honeysuckle	11,504	10,618	886	4,147	4,279	142	13.9	21%	35%	Low Intermediate
7-04	Lone Star	11,143	10,680	463	1,739	1,814	157	6.5	27%	43%	Intermediate
7-05	Lower Totemoff	11,163	10,620	544	2,340	2,415	154	8.7	23%	35%	Low Intermediate
7-06	Upper Totemoff	11,384	11,101	283	1,078	1,121	137	3.7	26%	39%	Intermediate
7-07	Maxie's	11,175	10,616	558	2,423	2,501	213	12.2	23%	43%	Intermediate
7-08	Moe's	11,453	11,289	163	412	447	130	1.3	40%	51%	Adv. Intermediate
7-09	Bob's	11,505	11,173	332	874	947	141	3.1	38%	59%	Expert
7-10	Proposed Minnesotas Catwalk	10,604	10,026	578	3,613	3,694	58	4.9	16%	44%	Intermediate
8-01	Bonanza	11,261	10,859	402	1,859	1,926	128	5.7	22%	38%	Intermediate

**Table 7:
Terrain Specifications – Upgrading Plan**

Trail Ref.	Trail Area/Name	Top Elev. (ft)	Bot. Elev. (ft)	Vert. Rise (ft)	Plan Length (ft)	Slope Length (ft)	Avg. Width (ft)	Slope Area (acres)	Avg. Grade (%)	Max Grade (%)	Ability Level
8-02	Mucho Gusto	11,240	10,892	349	1,403	1,454	146	4.9	25%	49%	Adv. Intermediate
8-03	Lower Stauffenberg	11,261	10,052	1,209	4,866	5,049	145	16.8	25%	46%	Intermediate
8-04	Jess's (Lower)	10,987	10,884	104	520	533	76	0.9	20%	25%	Intermediate
8-05	Poco Gusto	10,882	10,761	122	624	642	84	1.2	19%	39%	Intermediate
8-06	Firlefanzen	10,892	10,475	417	1,554	1,621	111	4.1	27%	40%	Intermediate
8-07	Tell Glade	10,511	10,092	419	1,287	1,359	181	5.6	33%	47%	Adv. Intermediate
8-08	Jess's (Upper)	11,090	11,055	35	216	221	61	0.3	16%	22%	Intermediate
8-09	(in-fill trail – proposed)	10,903	10,627	277	963	1,027	143	3.4	29%	63%	Expert
R-01	Rueggli	9,413	9,341	72	597	605	98	1.4	12%	16%	Beginner
Z-01	Zipper 1	9,363	9,352	11	79	80	77	0.1	14%	14%	Beginner
Z-02	Zipper 2	9,386	9,373	13	107	108	127	0.3	12%	12%	Beginner
Z-03	Zipper 3	9450	9473	23	225	229	290	1.5	9%	10%	Beginner
	Approved North Amer. Trail	10,864	9,759	1,105	2,282	2,555	166	9.7	48%	69%	Expert
	New Beginner Terrain	9,579	9,445	134	1,304	1,314	257	7.8	10%	22%	Novice
	Main Street Terrain	12,466	11,350	1,116	2,484	2,813	971	62.7	36%	84%	Expert
	Wild West Repeat Terrain	11,706	11,161	545	888	1,090	878	22.0	67%	96%	Expert
TOTAL						127,497		463.4			

White text indicates upgraded or proposed terrain.
Source: SE Group

**Table 8:
Industry Average Space Use – Upgrading Plan: Resort Total**

Service Function	Base Area	On-Mountain	Existing Total	Recommended Range		Difference from Recommended	
				Recommended Low Range	Recommended High Range	Low	High
Ticket Sales/Guest Services	4,800	-	4,800	1,080	1,310	3,720	3,490
Public Lockers	2,400	-	2,400	3,230	3,940	(830)	(1,540)
Rentals/Repair	6,100	-	6,100	7,650	8,600	(1,550)	(2,500)
Retail Sales	11,675	-	11,675	2,260	2,760	9,415	8,915
Bar/lounge	6,000	-	6,000	3,390	4,140	2,610	1,860
Adult Ski School	2,067	-	2,067	1,720	2,100	347	(33)
Kid's Ski School	8,500	-	8,500	3,440	4,210	5,060	4,290
Restaurant Seating	5,200	7,200	12,400	15,810	19,320	(3,410)	(6,920)
Kitchen/Scramble	3,000	2,400	5,400	4,970	6,070	430	(670)
Rest rooms	3,896	1,500	5,396	2,930	3,590	2,466	1,806
Ski Patrol	2,070	1,600	3,670	1,800	2,210	1,870	1,460
Administration	5,400	250	5,650	2,260	2,760	3,390	2,890
Employee Lockers/Lounge	2,200	-	2,200	900	1,100	1,300	1,100
Mechanical	900	200	1,100	1,380	2,050	(280)	(950)
Storage	6,500	1,150	7,650	2,320	3,410	5,330	4,240
Circulation/Waste	10,467	750	11,217	5,560	8,200	5,657	3,017
TOTAL SQUARE FEET	81,175	15,050	96,225	60,700	75,770	35,525	20,455

Source: SE Group